Zeppelin's Real Estate Tech

4Q 2016: A Real Estate Newsletter by Zeppelin Real Estate Analysis Limited

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We began summer with Brexit and ended it with the Olympics which appeared to have run by and large smoothly though not perfectly e.g. pool water turning green. Many lamented that the Olympics had long ago lost its ancient meaning while becoming very expensive and commercial, even corruptible at times. Still, weighing the pros and the cons, your humble author think it is not a bad thing that people, even if some are adversaries to one another, gather and compete in sports, and not in wars. Now onto the next show before Christmas, the US presidential election which may, to some, be like choosing between a rock and a hard place.

In this issue:

- **USA: overall GDP per capita growth > overall average home price growth**
- **Hong Kong and USA real estate: having both may reduce risks in the long run**
- **To Canadians: QE and low mortgage rates are culprits too**
- **Trade down when the market is up and trade up when it is down**

"Without borrowing an investment is dull but too much borrowing can make it null."

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 the **South China Morning Post, China Daily**, **Hong Kong Economic Journal**, **21st Century Business Herald**, **Apple Daily**, **Sing Tao**, **Quamnet Magazine**, **The Standard**, **MITCRE Alumni Newsletter**, **Surveying Newsletter**, **Reidin.com, Centanet.com, Netvigator.com, Hongkong.com, E-finet.com, Red-dots.com, PacificProperties.net**, **Soufun.com** and **House18.com**. We had also been quoted in the **Asian Wall Street Journal** and interviewed by **USA Today**, **i-Money**, **Ming Pao, Radio Hong Kong**, **Cable TV (Money Café), DBC Radio,** and **Commercial Radio**. We also publish monthly articles and analyses in the months in between. This newsletter is now into its **21st year** and **81st** 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 focuses on China / Hong Kong 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 Partners Limited**, we offer services related to real estate asset management [analysis, investment strategy, and portfolio allocation], project management [architectural design, cost control, and contract administration], and facility management [facility utility assessment, facility strategy, and building maintenance]. We are based in Hong Kong with associated operations in Mainland China and we also have access to regional and global professional networks.

Who? Me?

Stephen Chung
Managing Director, Zeppelin Real Estate Analysis Limited
Creator and Writer, Real Estate Tech Quarterly Newsletter
Real Estate Website Developer, www.Real-Estate-Tech.com

Stephen is an independent real estate analyst – number cruncher and chartered surveyor and has been involved in real estate development, investment, and management in Hong Kong / China / Asia and North America.

Stephen provides relevant real estate market insights and macro-micro assessments to real estate developers, investors, owners, financiers, funds, and civic organizations, and possesses many years of experience in building economics, project management, facility strategy, marketing, and research.

Stephen is also a regular real estate writer - columnist and his articles have been published in both English and Chinese media including the following:

- China Daily
- Hong Kong Economic Journal
- South China Morning Post
- Apple Daily
- Quamnet Magazine
- Real estate and finance websites such as Soufun.com, Finet.com etc
- Journals of professional institutes such as the Hong Kong Institute of Surveyors

Stephen is an honorary adjunct professor of the University of Hong Kong and has been invited to speak to audiences from:

- Universities: such as the University of Hong Kong, City University of Hong Kong, York University
- Professional Institutes: such as the Hong Kong Institute of Surveyors, Canadian Institute of Quantity Surveyors, Royal Institute of Chartered Surveyors
- Business Associations: such as the Rotary Clubs

Stephen has written 4 real estate books in Chinese to date as follows:

Online book = Easy Real Estate Lectures
Hard copy = Real Estate Investment Know-How above 101
Hard copy = The Real Estate Market Turning Point
E-Report = USA Residential Real Estate Analysis

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Our services can be obtained and delivered via a) tailor-made professional consultation; b) online report purchases; c) emailed discussions and advice; and / or d) phone discussions.

USA: overall GDP per capita growth > overall average home price growth

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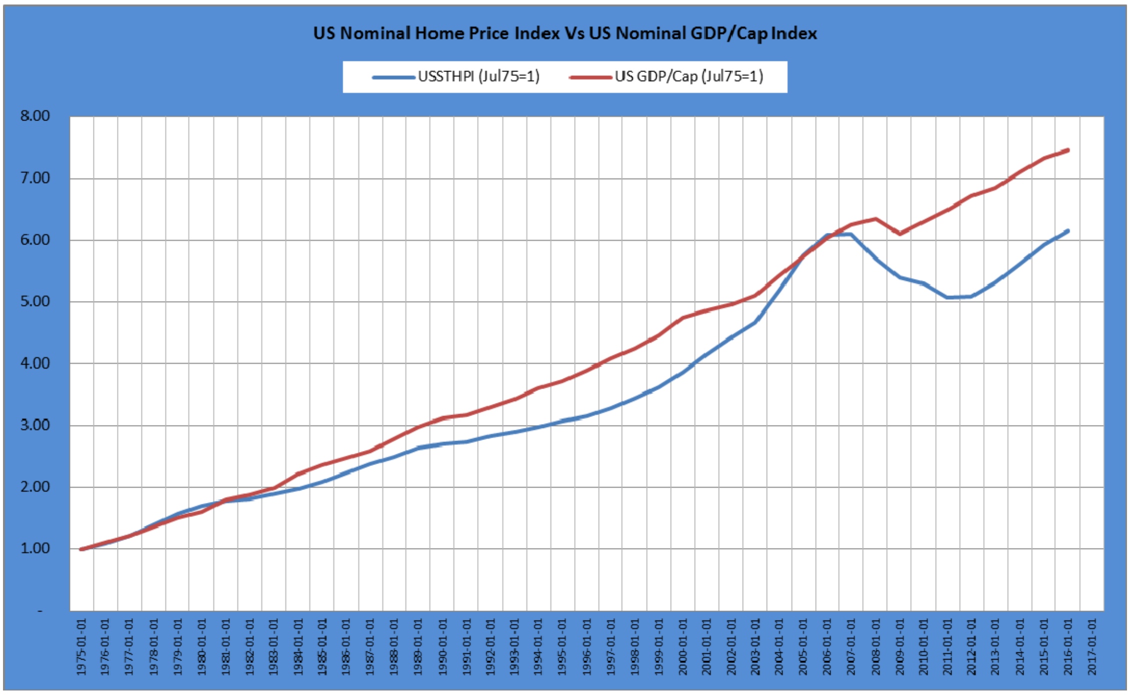
4 bedrooms 2.50 baths 2600 ft2, and new! All for just US$250,000 (Courtesy of www.zillow.com)

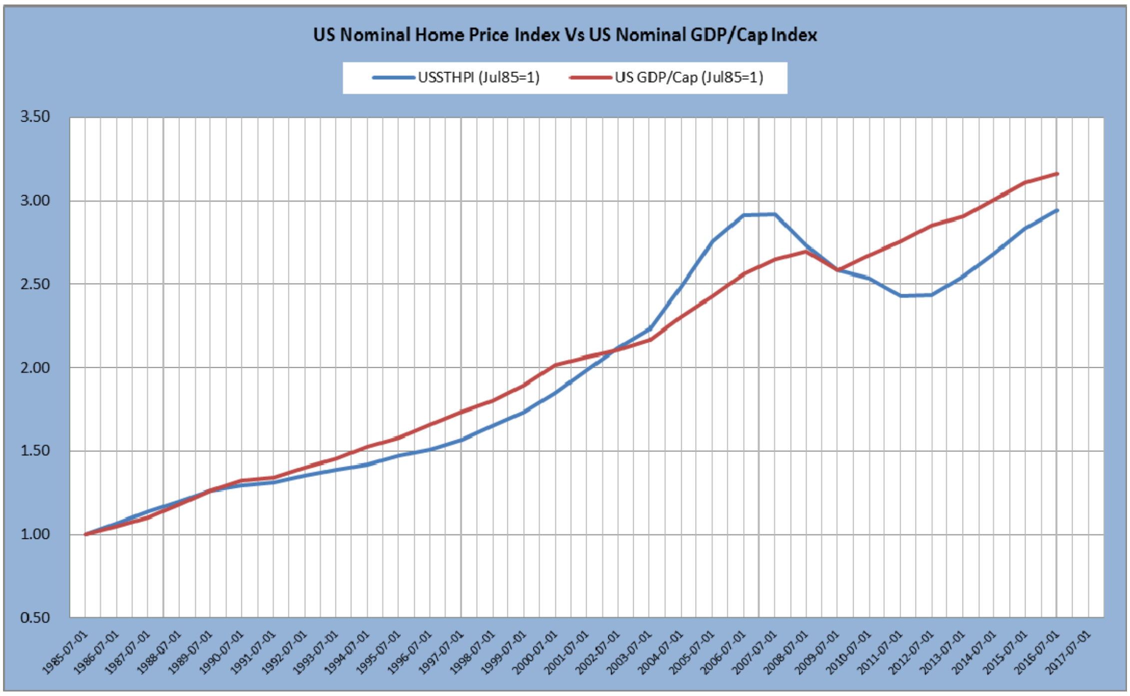
One way to gauge if a residential market is overall within a reasonable – in the broadest sense of the word - price range is to track its price trend against an income factor trend. The latter can be represented by household income or as in this case GDP per capita. If the home price trend is within (including below, on par, and slightly higher than) the income trend, then perhaps the market in terms of price is not risky, relatively speaking.

Here we have tracked the US average home price (in blue) to the US average GDP per capita (in red) and within different periods: a) from 1975 to mid 2016; b) from 1985 to mid 2016; c) from 1995 to mid 2016; and d) from 2005 to mid 2016. The home price data comes from the Federal Reserve Economic Data (FRED) website while the GDP per capita has been abstracted from www.multpl.com. The starting year is used as the base year of 1.00.

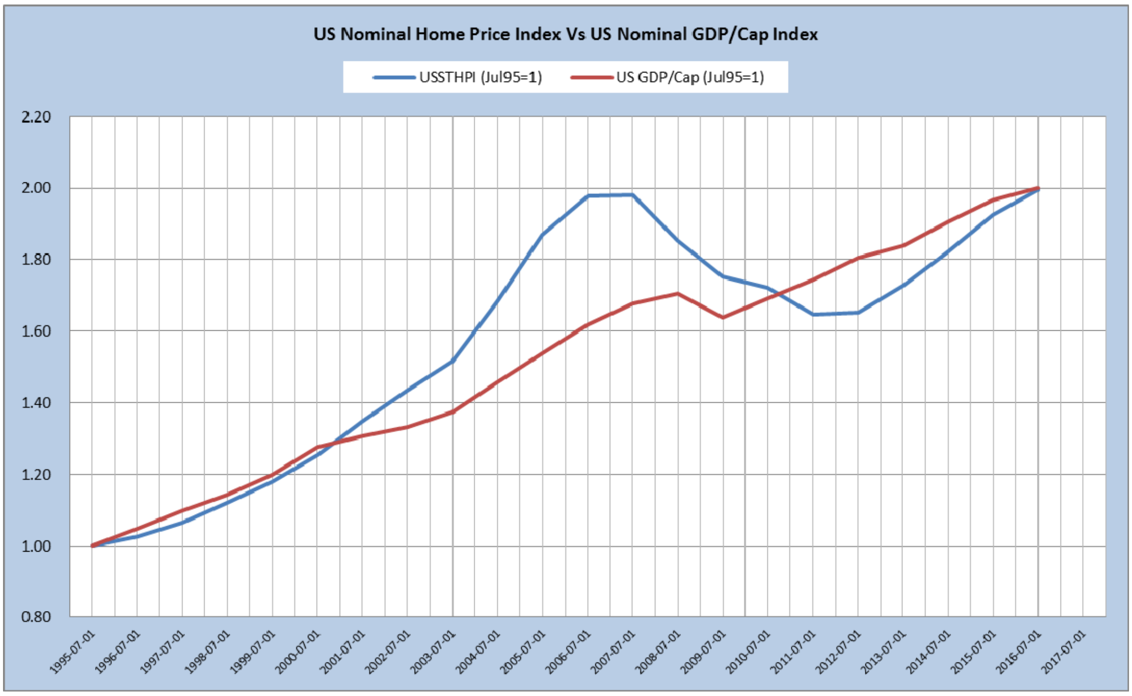
Here are the 4 charts:



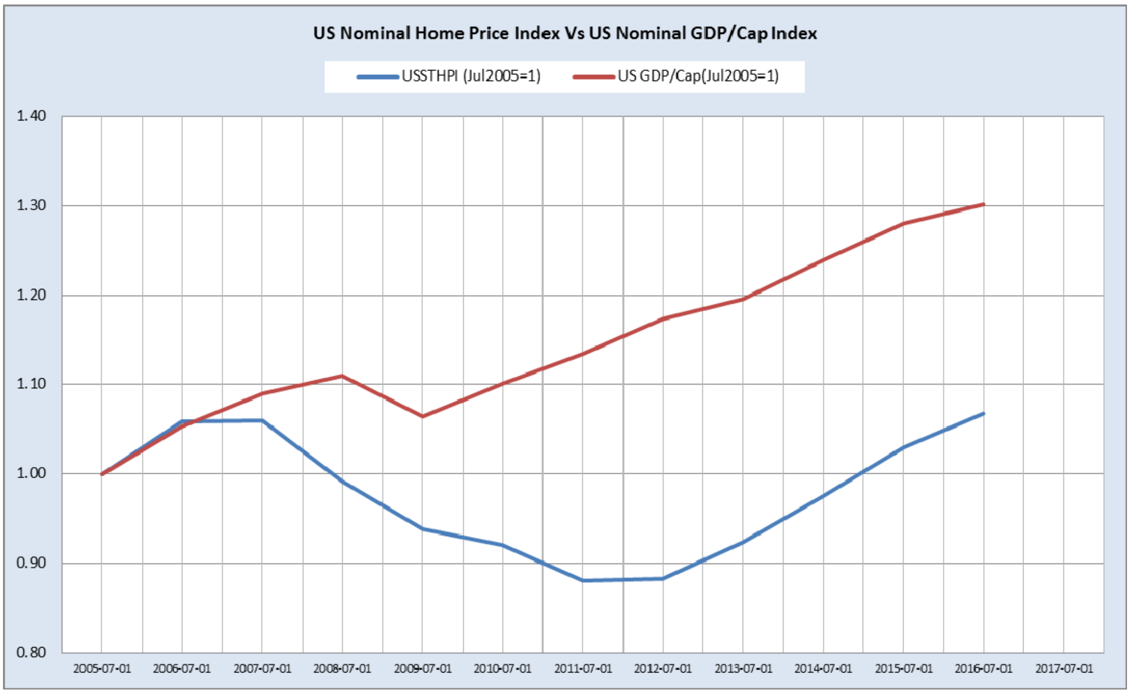
1975 to mid 2016



1985 to mid 2016



1995 to mid 2016



2005 to mid 2016

Observations: in all four scenarios, the current home price index is below or on par to that of the GDP per capita index though to different degrees. As such, whether from a very long time (from 1975) perspective or a not so long (from 2005) angle, the overall home price in the US is currently within reasonable range, albeit having surpassed the income factor during the last residential market boom which ended badly.

However, two points need to be mentioned:

1) Income distribution = while the average income factor trend is ahead of the home price trend for most of the time, its distribution is also of importance. With the US gini-coefficient – which measures income distribution - reportedly on the increase in the past decades, that is, income is being concentrated in proportionately smaller number of households, it could mean proportionately fewer households can afford to own a home as time passes.

2) Can't buy all US homes = the 'average' US real estate market does not exist in reality and is just a summation of the many markets in the US. That is to say, one cannot really buy a US-average home, though buying a home in a market (metropolitan, city, or town) which resembles or is close to the US average is possible. In short, the implication is whether one can capture this income trend > home price trend depends on where in the US one will invest. Many markets fit more or less into this US-average, however, there are also markets which do not. Of the latter, some markets might have the income trending even higher than the home price, meaning affordability could be easier and market risk being lower. But others may just be the opposite i.e. the home price trend being way ahead of the income trend.

Hence, while the US residential real estate market as a whole does not appear to harbor a lot of (price) risk, individually some markets – metros, cities, towns, even counties - could be. Which ones, if any? That's a topic for another day.

Disclosure: your humble author has invested in US real estate.

Hong Kong and USA real estate: having both may reduce risks in the long run

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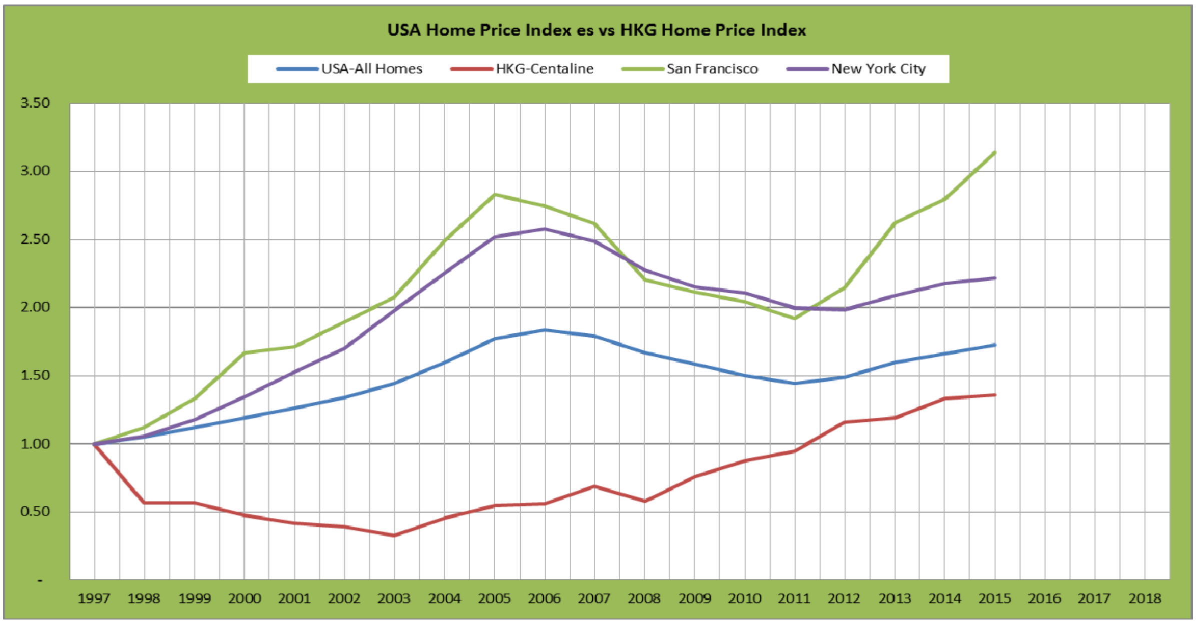
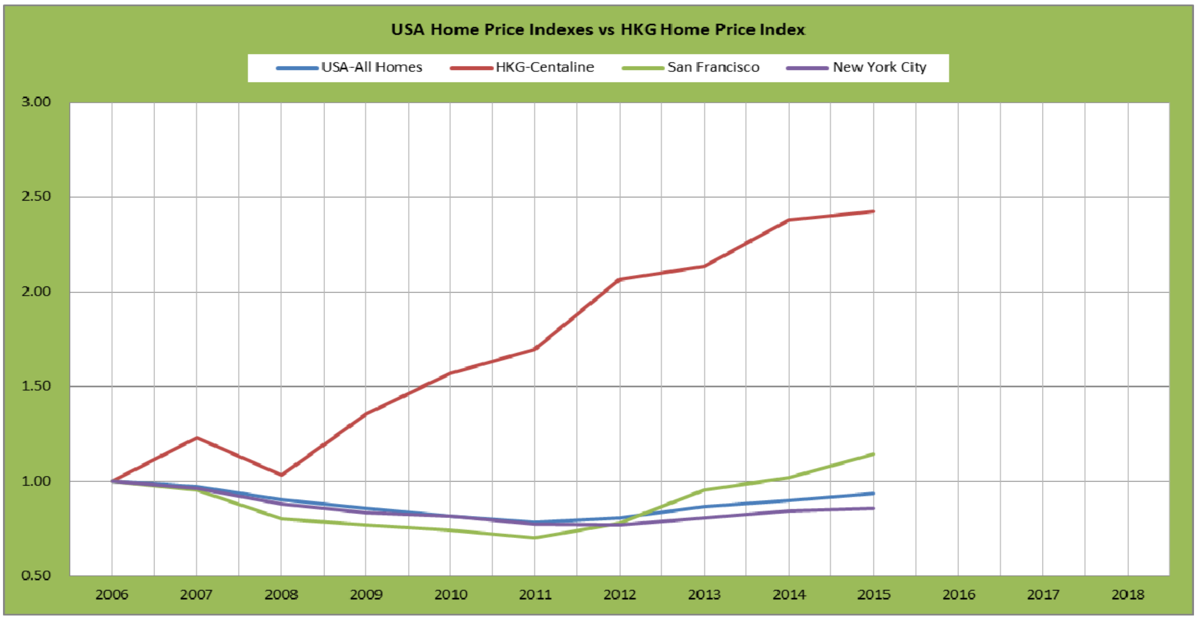
Same blue skies and oceans? (Public domain photos)

The following content forms part of a talk on US residential real estate delivered to the readership of the Hong Kong Economic Journal, a prominent financial daily in Hong Kong. Your humble author offered 3 technical reasons for investing in the US:

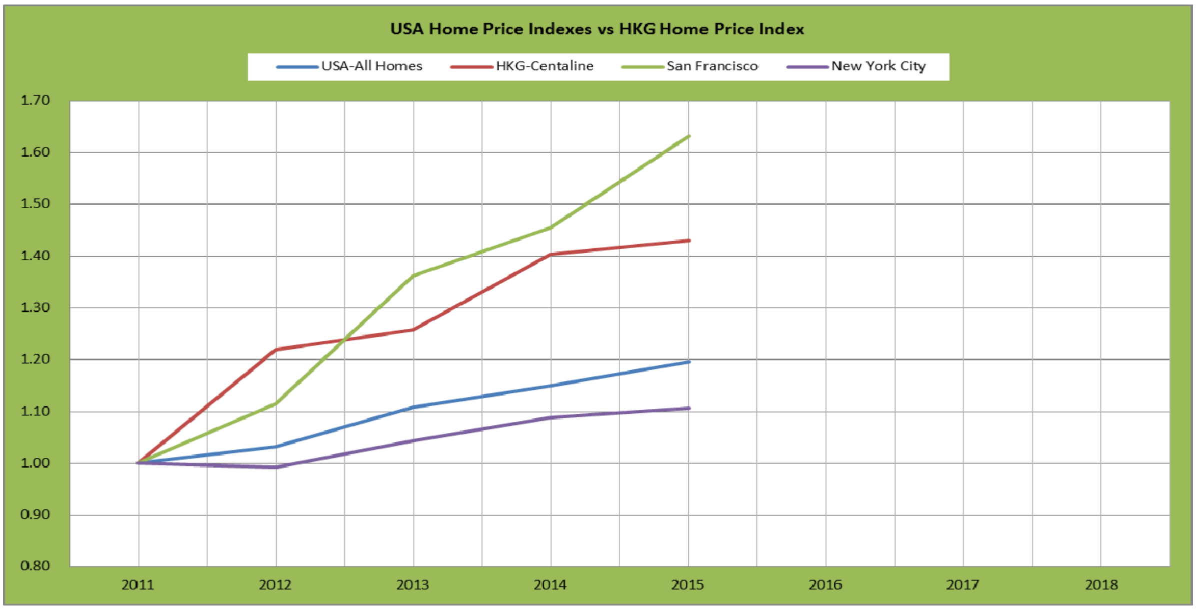
A) Sometimes the US market does better than Hong Kong = and vice versa. It depends on the timing i.e. points of market entry and exit. For instance, if one had bought a Hong Kong home in 1997, then someone else who bought in the US would have won the investment game and pocketed more. On the other hand, if one had entered the US market in 2006, then someone who bought Hong Kong in the same year would do much better. In recent years, both markets have been trending up and it depends on which US city one has invested. For example, San Francisco is > Hong Kong which in turn is > New York City. See the 3 charts below showing the home price index performances of Hong Kong, the US, New York City, and San Francisco in 3 different time periods (Hong Kong data from www.centanet.com and US from www.zillow.com):



1997 to 2015



2006-2015



2011-2015

B) Generally there are insignificant or no market price correlations between Hong Kong and the US market(s) = at least in the longer run. To reduce the market (price) risk in an investment portfolio, one way is to include assets which do not show any significant correlations in market price trends or movements. And correlations range from -1 to +1. A -1 reading means the price trends of two assets behave in exactly the opposite direction e.g. X goes up 30% while Y goes down 30%. A +1 means exactly the same price performances e.g. both X and Y go up 30%. Insignificant correlations are those values which are near or close to zero (0). They show no obvious relationship in (price) movements over time.

Here is a table listing the correlations between Hong Kong and the US markets:

Correlations between:		R	Remarks
HKG-Centaline	USA-All Homes	0.22	1997-2015
		(0.30)	2006-2015
		0.94	2011-2015
	San Francisco	0.34	1997-2015
		0.38	2006-2015
		0.93	2011-2015
	New York City	0.15	1997-2015
		(0.59)	2006-2015
		0.87	2011-2015
	USA-All Homes	(0.08)	1997-2011
	San Francisco	(0.22)	1997-2011
	New York City	(0.05)	1997-2011

Whether it is from 1997 to 2015 (19 years; both start and end years inclusive) or from 2006 to 2015 (10 years; both start and end years inclusive), and regardless of being compared with the overall US market, New York City, or San Francisco, Hong Kong home prices do not show significant correlations with them in the longer run (except for New York City in the 2006 to 2015 period with a significant but negative correlation of 0.59). Thus, assuming such characteristics to continue in future, one can expect, given a sufficiently long investment horizon, having both Hong Kong and US real estate will help reduce the overall portfolio risk.

That said, one must also note that in the last five years or so, the correlations between Hong Kong and the US markets have gone significant, actually quite. Your humble author has not researched into the whys but has a suspect: QE (quantitative easing) and the resultant low x 3 financing (mortgage) rates. As a side note, QE appears to have made assets which in the past did not correlate that much to become correlated, thus making the lives of (some) wealth consultants, fund managers, investors, and so on harder in terms of portfolio risk reduction. Also, up to 2011 when QE as a policy became bigger, deeper, more global, and permanent-like, the correlations were still by and large insignificant.

Hence, and intuitively, your humble author thinks when the QE saga ends or loses its luster, the correlations between Hong Kong and US residential real estate would revert back to their former values i.e. rather insignificant.

C) Market price volatilities can be lower in the US markets = generally, and in the longer runs, the US markets exhibit lower price volatilities (fluctuations) than Hong Kong. See the table below:

Volatility (SD/AV)	HKG-Centaline	USA-All Homes	San Francisco	New York City
1997-2015	**43.82%**	17.30%	27.94%	25.40%
2006-2015	**31.79%**	8.05%	16.51%	8.80%
2011-2015	13.66%	7.39%	**19.48%**	4.88%

Volatilities are presented as percentages % in this instance and the higher the percentages, the larger the price fluctuations which in turn are seen as being riskier. As one can see, except for San Francisco in the past 5 years, Hong Kong trumps (hmm…) the US markets in all time slots. And usually is ahead by miles! For example, from 1997 to 2015, Hong Kong's price volatility is 44% (rounded) while the US overall is only 17% (rounded). Even San Francisco is lower at 28% followed by New York City at 25%.

In short, investors who wish to reduce such volatilities in price movement inherent in their Hong Kong residential properties might want to add some US counterpart properties to the portfolio. And this holds even if the correlations between them are significant. Moreover, some US markets offer better net (before tax) rental yields than Hong Kong does.

To Canadians: QE and low mortgage rates are culprits too

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Toronto residential prices are still going strong, eh? (Courtesy of your humble author)

Looking at the August issue of Market Watch published by the Toronto Real Estate Board, and on a year to year basis, detached houses across the Greater Toronto Area (GTA) i.e. including both 416 and 905 area coded neighborhoods have gone up close to 22% (rounded) in prices on average, while townhouses and condos also shot up around 18% and 10% respectively. Your humble author has heard that Vancouver is even crazier rising more than 30% in a year. No wonder they slapped a hefty transaction tax.

Many analyses and commentaries in recent years would cite increased demand, whether from local or overseas, slow supply, rising population, population migration movements, preferences for certain cities and style of living, restrictive land planning and land use such as greenbelts, and the like to account for the hefty and upward price marches seen.

Not that the above are invalid, and in many instances they are part of the upward price drivers. However, your humble author tends to think there are two culprits who are just as responsible if not more (yours truly thinks they count more): QE (quantitative easing) and the (resultant) low mortgage rates. You can treat them as being the two sides of a coin. Also, not that no one had mentioned them, just that it seems their contribution in the matter (toward the upward price trends and the rather heated market conditions now observed) has not been acknowledged enough.

Your humble author is no fan of all such QE that is being adopted and going on in the world. QE has not really solved the last economic problem and is building up a much bigger one now for bursting later. It leads to money being mispriced (undervalued) and assets being overpriced (overvalued). It punishes the savers – bank deposits offering zilch interest – some places even charge you for depositing money with them – and rewards the spenders and investors (speculators included), regardless of consumption rationale or investment quality. Retirees are forced to invest more and assume higher risks.

Overall, the increased debt does not appear to have done the Main Street economy much good and at some point will be a burden on future generations. Any (present or future) debt restructuring, writing off, or even forgiving i.e. haircut just means the burden and pain have been shifted from one group to the other(s), the total pain is still largely intact. Such shifts might even spill into non-financial-economic spheres.

Some phenomena which are / seem to be effects of QE:

a) The historically low financing rates = leading many to borrow big and to the tilt. While some might pull it off, many will not. Invest because of the prospects (in the broadest sense of the word), not because of easy finance and repayment. The latter might subsequently prove to be sugar coated poison. Borrow less when the market is ‘hot’, even when rates are low. Rather borrow more when the market is down, even when rates are not so low, assuming one could afford to do so. You won’t procure the highest IRR and NPV by so doing, but you won’t be drowned either when the crisis comes. A good thing is that Canada taxes do not offer homeowners much tax relief for mortgage interest payments, thus there is no significant incentive for Canadian households to carry mortgages for too long or too much.

b) Cash loaded overseas buyers = if you trace back the path far enough, you might realize a significant chunk of the cash is also a result of (overseas) QE too. To recap, the US started to QE after the last financial crisis and many others e.g. the EU, Japan, China, and practically every developed economy followed. Just like playing show hand. Perhaps some do not want their currencies appreciating in value relative to the others. Do note also not all foreign buyers are cash loaded. Just a small percentage of them are though they enable sensational media.

c) Property hoarding = low financing rates help to make property hoarding and leaving empty less difficult. Imagine if mortgage rates become 10% or more, one would see more housing units being put up for rent, or for sale for that matter.

d) Markets worldwide becoming significantly correlated = your humble author has run some correlations between the residential prices of Hong Kong and those of a few cities, namely Vancouver (VAN), Toronto (TOR), New York City (NYC), and London (LND in the UK) in various time periods. Data comes collectively from www.centanet.com, TREB, CREA, and various city government and related statistical websites. Comparisons are made between ‘counterpart’ homes in the cities listed and admittedly the selection of counterparts might bear a bit of subjectivity. Here are the results (1 or near 1 means the two markets in question behave exactly the same in price performance while 0 or near 0implies the two markets do not bear much resemblance in price performance):

Correlations R	HKG vs TOR	HKG vs VAN	HKG vs LND	HKG vs NYC
1994-2015	0.79	0.71	0.72	0.64
1994-2010	0.19	0.35	0.05	0.03
2011-2015	0.95	0.65	0.91	0.80

From 1994 to 2015, Hong Kong prices exhibit some correlations with all the four cities, However, when the period is shortened to start from1994 and to end in 2010, the correlations are insignificant, and in the cases of NYC and LND, highly insignificant. The correlations go way back up again to being very significant when only the recent 5 years are included.

Interpretation: the home prices of the four cities used to be not too correlated with that of Hong Kong until the last 5 years, and the correlations become so high that when the full period of 1994 to 2015 correlations are done, they become correlated too. Your humble author had not researched into what caused the high correlations in the last 5 years but he has a suspect: QE, low rates inclusive. Or elaborating a bit more, that is when QE started to become a permanent-like policy with broader, deeper, and longer application on a more global scale.

Now what is the importance of increased correlations among markets? They make risk diversification and reduction more difficult i.e. wealth consultants, money managers, fund operators, investors, and the like would have a harder time seeking to control portfolio risks.

But what if I as the reader do not invest globally? What has that got to do with my home in Canada / Vancouver / Toronto? This shows QE affects you too, if my suspicion is correct. And the more your market and thus the value of your home has benefitted from QE, the higher your market and thus the price of your home will be affected by QE when it terminates or starts to fall in luster.

Issue of bubbles

There have been sayings that the Canadian real estate markets are being stretched out and are bubbles ready to be pricked…perhaps. But your humble author doesn't think they are the biggest bubbles on Earth. Global competition for this title is tough! ☺ A simple analysis yours truly had done in the last quarterly newsletter (3Q 2016) suggested Vancouver BC and Toronto ON are a concern, with Vancouver > Toronto in this regard (but Toronto bursting will have a bigger impact on Canada than Vancouver will). Nonetheless, given Canada can devalue the Loonies if and when this is weighed and desired, nominal prices might not drop as much as some think when the correction comes, someday.

Also, and many Canadians might not realize this: Canadian property prices are comparatively inexpensive still from a global perspective, especially for the urban, social, and environmental qualities which it offers. This is not saying Vancouver or Toronto prices would match those in New York City, London, or Hong Kong one day. But the difference say between Toronto and Hong Kong shouldn't be that big. Roughly, 1 typical Hong Kong condo home can now buy around 4 to 5 counterpart homes in Toronto.

The last time similar ratios were observed was in 1997 when the Hong Kong market was hot and Toronto being still down though on the verge to recovery. Today both markets are hot and still Hong Kong is 4 to 5 x Toronto.

Which is crazier?

Disclosure: the author has invested in Canadian real estate

Trade down when the market is up and trade up when the market is down

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Move from left to right or right to left? (From public domain and your humble author's)

It has occurred to your humble author that many homeowners tend to trade up to a bigger and more expensive home when the market is up (hot). Non-financial reasons aside, this doesn't make sense financially. Explanation coming up but first, a few definitions:

Trade up here means selling your current home and buying into a more expensive (not always necessarily bigger though this is common) home. Trade down means just the opposite i.e. moving from a $$$home to a $home. Market up refers to a vibrant and hot real estate market where prices are also treading upwards. Market down means just the reverse i.e. fewer sales, lower prices etc. Rough mathematical scenarios (transaction costs, fees, and taxes etc are ignored for simplicity):

A) Trade up when market is up = ☹ = e.g. from a $600K home to a $900K home, and assuming the $600K home has no mortgage and thus you can pocket it all, you still need to come up with an extra of $300K [$900K - $600K], be this your own money or via a mortgage.

b) Trade up when the market is down = ☺ = say the market price falls by 50% across the board, your $600K home is now only $300K (and you might feel miserable) but at the same time, that $900K home is now only $450K. Instead of having to dish out an extra of $300K, you now only need to come up with an extra of $150K [$450K - $300K]. Naturally the overall economy might be bad too but if your income is not affected as much, it makes better sense for you to trade up during a down market than in an up one.

c) Trade down when the market is up = ☺ = Many elderly households (empty nesters, retirees etc) have a need or an incentive to trade down, in part to realize the capital gain being accumulated in their homes. Say trading down from a $1M home to a $500K home (quite likely a townhouse or condo) in a hot market, you net $500K [$1M - $500K] to add to your investment portfolio.

d) Trade down when the market is down = ☹ = Say the overall market price goes down by 50%, then the used-to-be $1M home is now just $500K and the targeted new home is only $250K. But you will net much less i.e. instead of $500K, you net only $250K to add to your investment portfolio.

Summing up, B > A and C > D. And B and C are smarter moves.

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