

Zeppelin's Real Estate Tech

3Q 2022: A Real Estate Newsletter by Zeppelin Partners Limited

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Ukraine x Russia>200 days, inflation, higher rates, and the passing away of an iconic Queen.

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"Perfection has no meaning in an infinity".

We also like to hear from readers wishing to share their real estate experience with us.

This quarterly (generally published in spring, summer, fall, and winter) newsletter is circulated freely via email to readers likely comprising real estate developers, investors, fund managers, financiers, owners, users, top executives, senior managers, prominent academics and related professionals. Our content 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 [25th](#) year and [104th](#) 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 has been visited by tens of thousands from all over the world.

Zeppelin Partners Limited is involved in real estate development, investment, and management and offers 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, property management strategy, and building maintenance]. We are based in Hong Kong with access to regional and global professional networks.

Stephen Chung, who created and writes this newsletter, is now Honorary Advisor to Zeppelin Partners Limited. He will continue to write this newsletter.

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Who? Me?

Stephen Chung

Honorary Advisor, Zeppelin Partners Limited
Founder 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, Sing Tao 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 Institution 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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Using market price volatilities to gauge investment risks

Real Estate Tech, 3Q 2022

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Investors in general focus on the return i.e. how much profit they could make from the investment. At the same time, investors in general also tend to spend less attention to risk i.e. how much they could lose. And not all consider investment return and risk on comparable footings.

One way to grasp a rough idea of investment risk is to look at the price and income volatilities of various investment choices. Here we use a simple example: there are two hypothetical real estate markets and both start with a market price of \$100 in Year 1 and end with a market price of \$305 in Year 6. However, the in-between years are vastly different; Market A increases 25% each year while Market B goes up and down.

Intuitively and as a rough guide, Market A is better suitable to investors looking for steady return while smart speculators might want Market B. There is no hard and fast and absolute answer, and much depends on the acumen and character of the investors to withstand market fluctuations, and thus the risk levels. This said, a conservative investor may serve himself better by going for Market A than Market B, given the latter's higher market price volatility (herein using a simple measure by dividing the standard deviation SD of the price streams by the average AV of the price streams).

| Year | 1 | 2 | 3 | 4 | 5 | 6 | SD/AV |
|----------|--------|--------|--------|--------|--------|--------|--------|
| Market A | \$ 100 | \$ 125 | \$ 156 | \$ 195 | \$ 244 | \$ 305 | 41.04% |
| Market B | \$ 100 | \$ 145 | \$ 50 | \$ 126 | \$ 400 | \$ 305 | 71.93% |

In general, investors are also bolder when the investment amount is small and / or the investment sum required occupies only an insignificant percentage of their total investment and wealth. For instance, people gladly part with their \$10 betting on public lotteries fully knowing they are, 99.999% of the times, kissing the \$10 goodbye.

Your humble author would also suggest considering the following: try to seek investments which (at least) may profit you \$2 to every \$1 you may lose, i.e. a ratio of 2 to 1, assuming the \$2 profit and the \$1 loss have the same probability of occurrence. But then, this is just a suggestion.

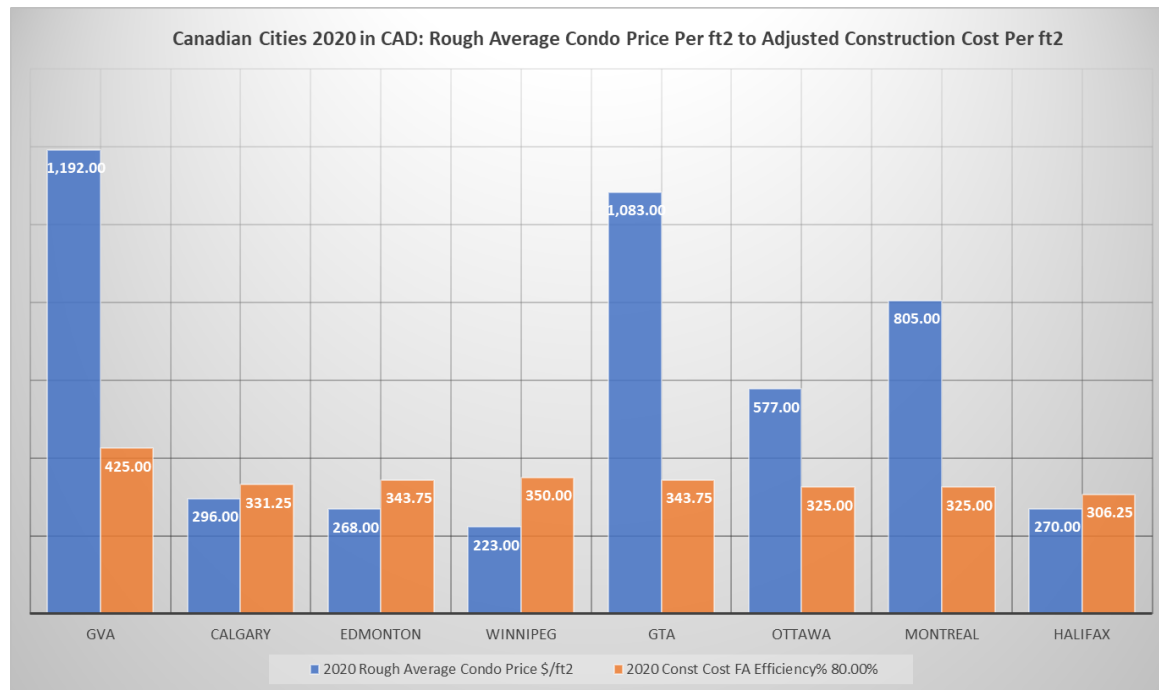
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Condo price per ft2 to construction cost per ft2 vary from city to city

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Below replacement costs, eh?

Sometimes, not always, when the market price per ft2 is low enough that it is below the replacement cost, this might signal a good investment opportunity. Replacement cost means the total cost to develop and build the same / similar quality, age, and condition of property.

Here we have selected several Canadian cities and their rough average condo market price per ft2 and rough (adjusted) average construction cost per ft2 in 2020 for illustration. Land costs and soft costs are excluded for simplicity. Data sources include published online reports from the Altus and a Century 21st websites. Refer to the above chart. Stating the obvious, while cities such as GVA and GTA have prices > construction costs, Calgary, Edmonton, Winnipeg, and Halifax exhibited the opposite in 2020. Here is the table on their price to cost ratios:

| Cities / Markets: Year 2020 | GVA | Calgary | Edmonton | Winnipeg | GTA | Ottawa | Montreal | Halifax |
|----------------------------------|----------|---------|----------|----------|----------|--------|----------|---------|
| Rough Average Condo Price \$/ft2 | 1,192.00 | 296.00 | 268.00 | 223.00 | 1,083.00 | 577.00 | 805.00 | 270.00 |
| Construction Costs CAD\$ Per ft2 | 340.00 | 265.00 | 275.00 | 280.00 | 275.00 | 260.00 | 260.00 | 245.00 |
| FA Efficiency% | 80.00% | 80.00% | 80.00% | 80.00% | 80.00% | 80.00% | 80.00% | 80.00% |
| Price to Adjusted Const Cost | 2.80 | 0.89 | 0.78 | 0.64 | 3.15 | 1.78 | 2.48 | 0.88 |

A few technical notes: 1) The construction cost data assumes typical site conditions, building frames, and qualities of materials and excludes cost items such as interior furnishings, special equipment, and soft costs such as development taxes and consultant fees; 2) Construction costs per ft2 are "adjusted" because condo for sale floor areas generally include only those areas unique to the specific condo units (i.e. on a net basis) and don't normally include their share of the floor spaces of the common areas, while construction costs include both specific and common floor areas in a condo building (i.e. gross basis). 3) This net to gross floor area ratio (or floor area efficiency ratio as some may call it) varies from condo building to condo building but here for simplicity, we assume it is 80% across the board.

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City of Toronto residential real estate: charts and tables

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(Courtesy of www.publicdomainpictures.net)

We have collected data from the website of the Toronto Regional Real Estate Board (<https://trreb.ca/>) focusing on the **City of Toronto's** residential real estate market (largely the secondary market). These data start from April 2017 and end in August 2022. Rough charts and tables were compiled and some of these are listed below:

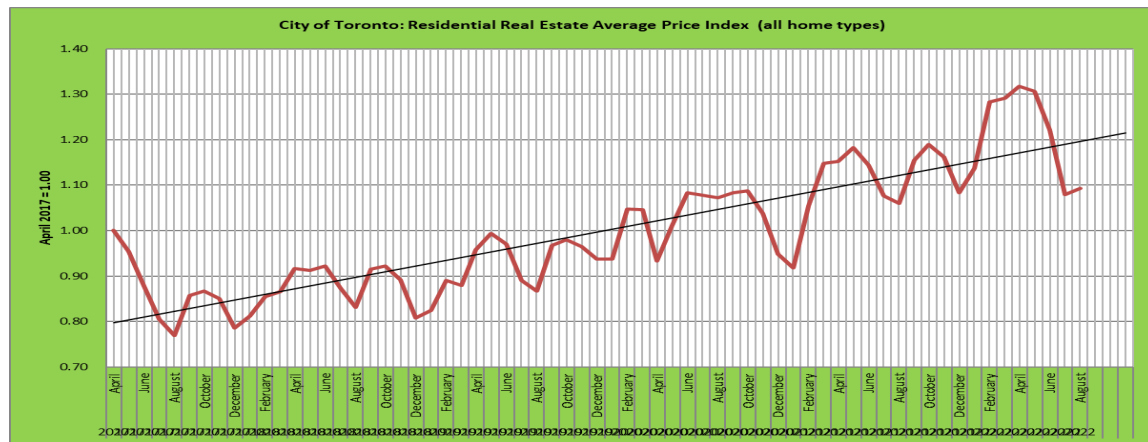
1) From April 2017 (the last price peak) to August 2022 price changes in percentages, major home types

| City of Toronto: | Apr17 to Aug22 |
|------------------|----------------|
| All Home Types | 9.33% |
| Detached | 4.42% |
| Semi-detached | 2.12% |
| Townhouse | 21.21% |
| Apartment | 27.44% |

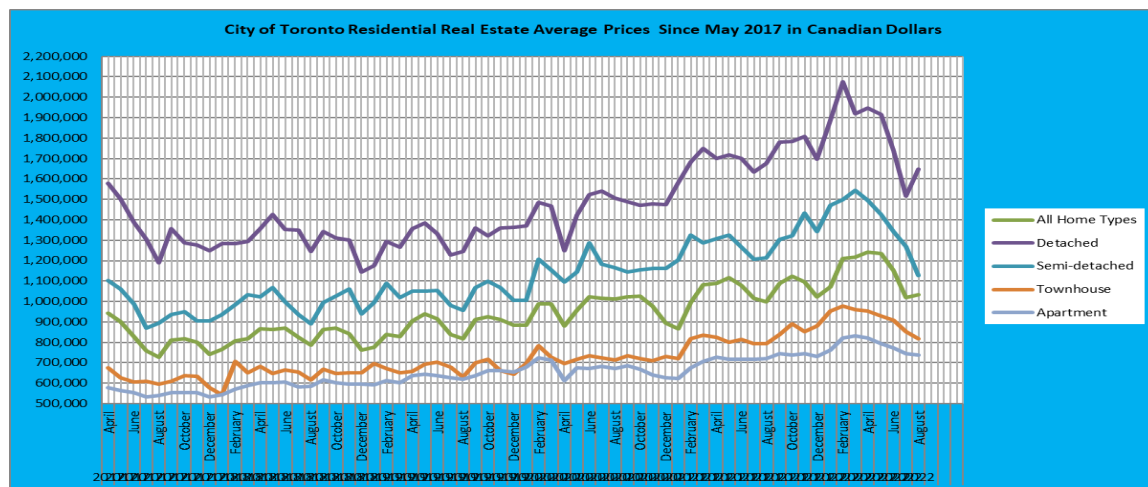
2) July 2022 versus August 2022 average and median home prices, major home types

| Metro Region | Sub-district | | Jul-22 Average C\$ | Aug-22 Average C\$ | Difference C\$ Jul-Aug22 | Percentage +or- (Aug-Jul)/Jul 2022 | Jul-22 Median C\$ | Aug-22 Median C\$ | Difference C\$ Jul-Aug22 | Percentage +or- (Aug-Jul)/Jul 2022 |
|---------------|----------------|-------|-----------------------|-----------------------|-----------------------------|--|----------------------|----------------------|-----------------------------|--|
| Metro Toronto | All Home Types | | 1,019,100 | 1,031,979 | 12,879 | 1.26% | 850,000 | 820,000 | -30,000 | -3.53% |
| | Detached | | 1,515,763 | 1,648,298 | 132,535 | 8.74% | 1,280,000 | 1,265,000 | -15,000 | -1.17% |
| | Semi-detached | | 1,268,630 | 1,127,429 | -141,201 | -11.13% | 1,130,000 | 1,002,222 | -127,778 | -11.31% |
| | Townhouse | Condo | 853,065 | 818,935 | -34,130 | -4.00% | 817,000 | 765,000 | -52,000 | -6.36% |
| | Apartment | Condo | 744,092 | 736,940 | -7,152 | -0.96% | 677,000 | 661,000 | -16,000 | -2.36% |
| Metro West | All Home Types | | 985,947 | 960,677 | -25,270 | -2.56% | 880,000 | 842,500 | -37,500 | -4.26% |
| | Detached | | 1,388,676 | 1,364,437 | -24,239 | -1.75% | 1,210,000 | 1,195,000 | -15,000 | -1.24% |
| | Semi-detached | | 1,099,562 | 1,010,853 | -88,709 | -8.07% | 1,052,500 | 935,500 | -117,000 | -11.12% |
| | Townhouse | Condo | 790,167 | 757,995 | -32,172 | -4.07% | 810,000 | 701,000 | -109,000 | -13.46% |
| | Apartment | Condo | 664,903 | 652,574 | -12,329 | -1.85% | 617,500 | 617,500 | 0 | 0.00% |
| Metro Central | All Home Types | | 1,039,067 | 1,100,857 | 61,790 | 5.95% | 805,000 | 770,000 | -35,000 | -4.35% |
| | Detached | | 2,108,989 | 2,609,829 | 500,840 | 23.75% | 1,790,000 | 2,078,000 | 288,000 | 16.09% |
| | Semi-detached | | 1,505,280 | 1,363,340 | -141,940 | -9.43% | 1,255,500 | 1,152,500 | -103,000 | -8.20% |
| | Townhouse | Condo | 986,670 | 954,458 | -32,212 | -3.26% | 890,000 | 885,000 | -5,000 | -0.56% |
| | Apartment | Condo | 794,087 | 782,940 | -11,147 | -1.40% | 720,000 | 700,000 | -20,000 | -2.78% |
| Metro East | All Home Types | | 1,014,201 | 956,004 | -58,197 | -5.74% | 950,000 | 940,000 | -10,000 | -1.05% |
| | Detached | | 1,266,794 | 1,187,602 | -79,192 | -6.25% | 1,135,000 | 1,100,000 | -35,000 | -3.08% |
| | Semi-detached | | 1,189,610 | 1,058,886 | -130,724 | -10.99% | 1,120,800 | 1,002,222 | -118,578 | -10.58% |
| | Townhouse | Condo | 783,994 | 706,328 | -77,666 | -9.91% | 751,000 | 722,500 | -28,500 | -3.79% |
| | Apartment | Condo | 615,764 | 595,367 | -20,397 | -3.31% | 572,500 | 562,000 | -10,500 | -1.83% |

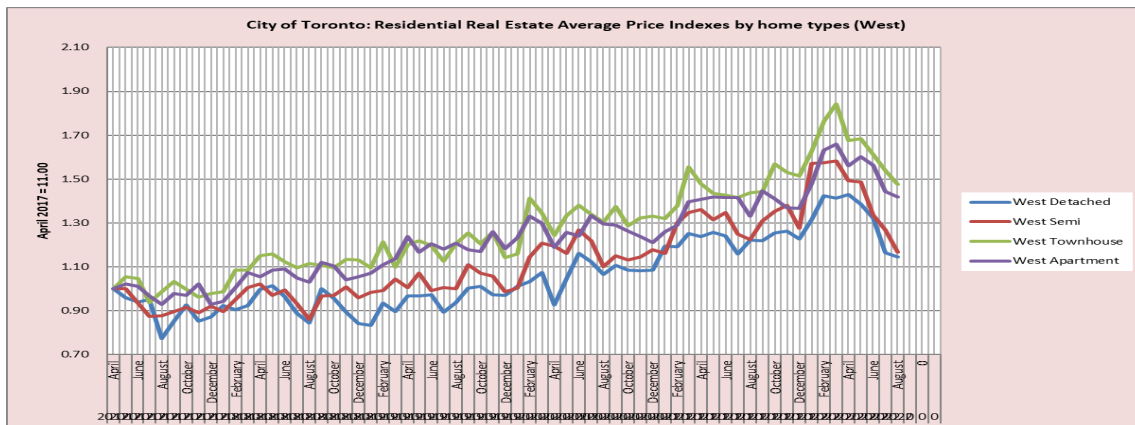
3) From April 2017 to August 2022 home price trend



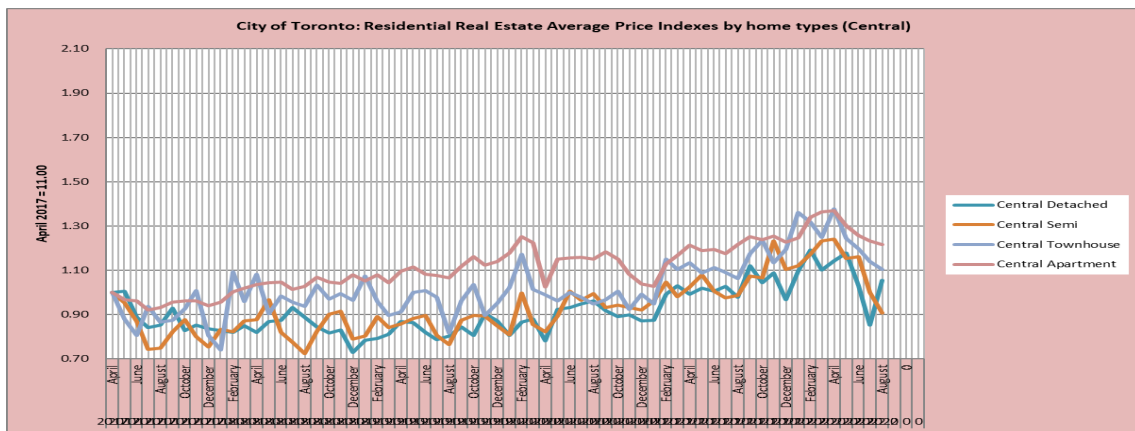
4) From April 2017 to August 2022 average prices of major home types



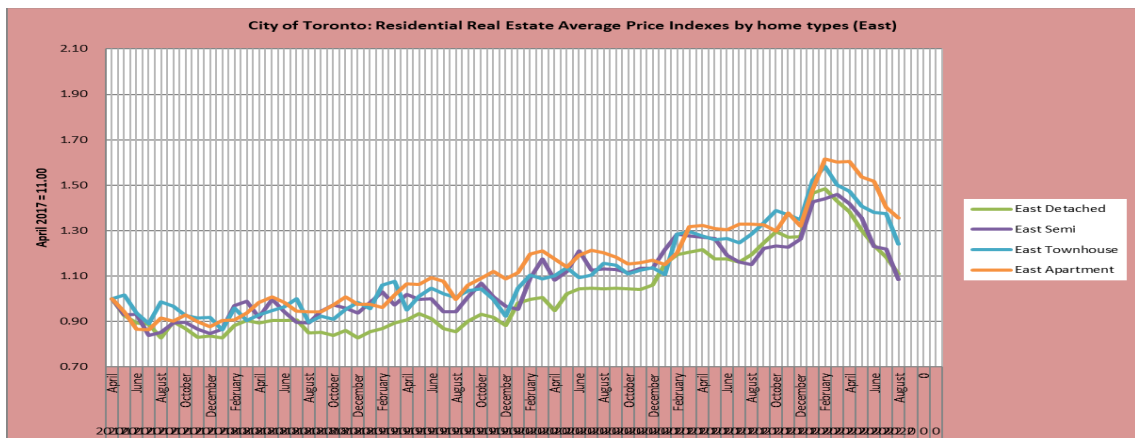
5) From April 2017 to August 2022 average price trends, major home types, West Toronto



6) From April 2017 to August 2022 average price trends, major home types, Central Toronto



7) From April 2017 to August 2022 average price trends, major home types, East Toronto



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