

**Abstract**

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**Why the Housing Prices of International Cities Suddenly Drop Together? An Intervention Test on Foreign Buyers' Impacts**

In the past decade, housing prices in many international cities had increased together. IMF contends that it is a phenomenon of global housing price synchronization, and is hypothesised that it is “the motives of global and institutional investors searching for yield in a low-interest-rate environment” Different cities have exploited different measures to tackle the unaffordable housing price. For example, Governments of Canada and Hong Kong have substantially increased stamp duty for foreign buyers, The government of New Zealand has revised and enacted regulations banning foreign buyers from purchasing houses in the secondary market. This paper studies the impact of the ban on the house prices of the Auckland Region, in comparison with other regions.

Keywords: Synchronised Housing Price Change, Foreign Buyers, Global Cities

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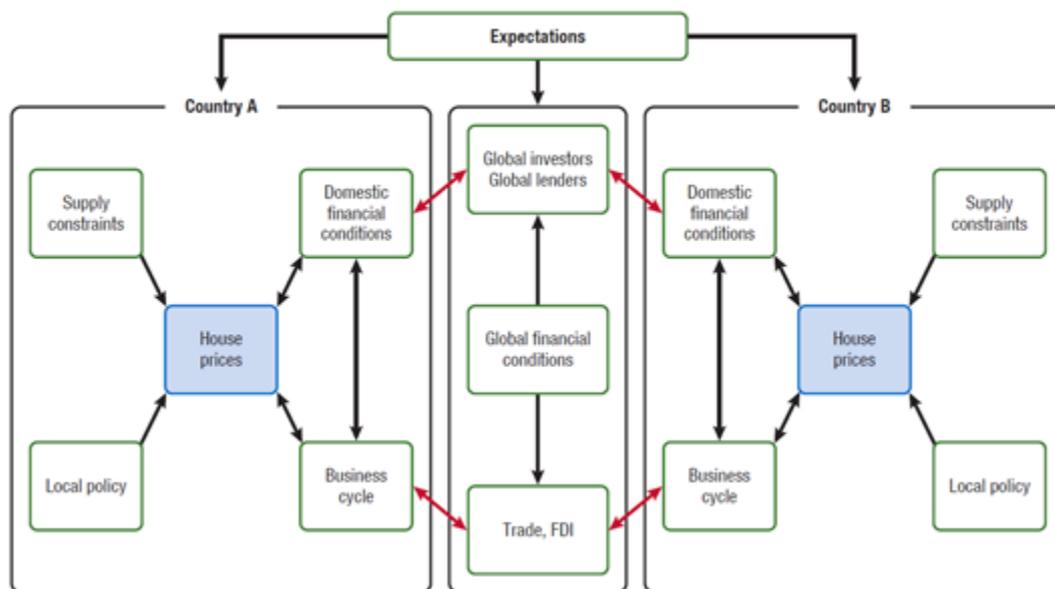
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## Introduction

In the past, most of the housing price studies focused on local issues, such as housing supply and demand for accommodation. However, in recent years, more and more studies found that housing prices in major cities, particularly the Global Cities<sup>1</sup>, are strongly synchronized, which implies that the determinants of housing price must include non-local issues. That's why more and more scholars agreed that unaffordable housing price problems in big cities cannot be solved by building more housing units.

There have been many attempts to figure out whether it is caused by foreign investments. For example, IMF (2018) suggested that “the motives of global and institutional investors searching for yield in a low-interest-rate environment have emerged as a potential explanation for the brisk and synchronized increases in house prices.” It put forward a theoretical framework for the global housing price synchronization, based on international trade and capital flows, as well as the simultaneous investment decisions of global investors and lenders, as shown in the middle column of Figure 1.

**Figure 3.4. Global Financial Conditions, Portfolio Channels, and Expectations Contribute to House Price Synchronization, as Do Supply Constraints and Local Policy**



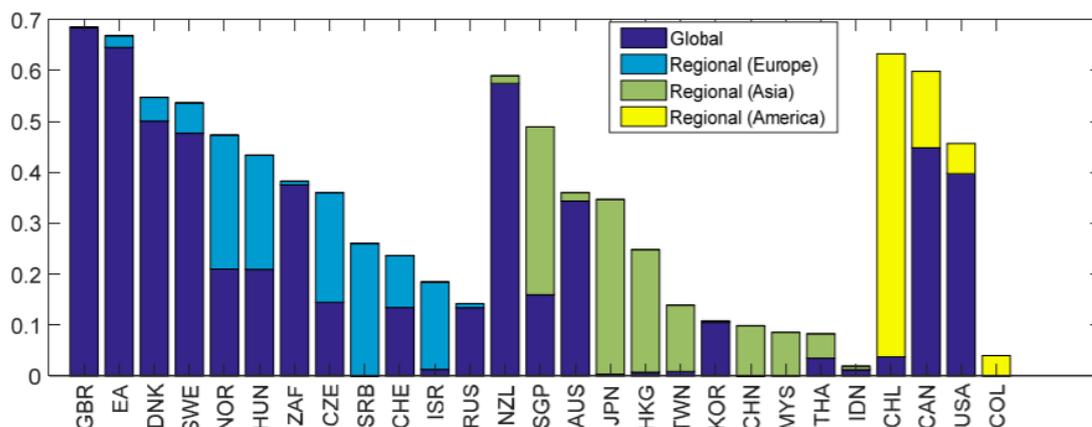
Source: IMF staff.  
Note: FDI = foreign direct investment.

Figure 1 Theoretical Framework for Global Housing Price Synchronization. Source: IMF (2018)

Katagiri (2018) of IMF further confirmed that “the global factor has significant effects on the house prices only in large and international cities.” Figure 2 shows that the housing prices in the UK (GBR), New Zealand (NZL), Australia (AUS), Canada (CAN), and the US (USA), etc were strongly affected by the global effect (the dark blue bars). The corresponding global cities in each of these countries, including London, Auckland, Melbourne, Vancouver, New York, have been reported to have substantial housing price increases in the past decade.

<sup>1</sup> Global Cities are defined under A.T. Kearney’s Global Cities Index

**Figure 5. Synchronization of House Prices by Country (2002: Q1-)**



Source: See Appendix

Note: The figure illustrates the  $synch_t$  defined in the equation (3) for each country by region. In the figure, the contribution of the global factor is shown as the dark blue bar while the contribution of the regional factor is shown as the light blue bar (Europe), the green bar (Asia), and the yellow bar (North and South America).

Figure 2 Empirical evidence of synchronization of global and regional housing prices Source: Katagiri (2018)

Then, since 2018 the housing prices in many of these global cities have started to level off or even fall. For example, the Housing Price Indices of London, Melbourne and Vancouver have recorded negative growths since 2018M3, 2018Q1 and 2019M1, respectively. They do not only go up together, but they also go down together.

However, so far all the relevant studies are based on testing the association between capital flows and housing prices, which on one hand do not have an uniform agreement on the impacts (for details, see the Literature Review), on the other hand their correlation does not imply causation. It is hard to tell whether it is the capital flow affects the housing price or vice versa.

That is why the Intervention Approach of Randomized Control Experiment is nowadays more popular, especially in medical science. Instead of relying on passive observations, intervention approach adopts an active role to impose a change on the subject explanatory variable, keeping other things being equal, to observe the responses of the hypothesized dependent variable. Since it is an intentional intervention, the time sequences of the cause and effect can help confirm the causation direction.

The difficulties in carrying out interventional randomized control experiments in Economics are understandable, that is one of the reasons for the 2019 Nobel Prize in Economics. However, in terms of the capital flow effects on housing prices, the new regulations in banning foreign buyers from purchasing existing housing in New Zealand since Oct 2018 can be considered an intervention on direct capital inflows into the housing markets of New Zealand. Even though it cannot be a randomized experiment, if the housing prices in Auckland (the biggest global city of New Zealand) drop after the ban, in relative to other cities of New Zealand (control), then it can be a good confirmation of the banning effect. The differentiation in the price changes between Auckland and other cities before and after the ban is an important control experiment, as foreign investors normally are interested in buying houses in large cities only, due to a more internationalized real estate markets and with a better rental return.

## Literature Review

There have been many studies confirming the impacts of capital flows on housing prices. Tillmann (2013) found by a VAR analysis on 5 emerging Asian economies that capital inflows significantly result in higher house prices. Chow and Xie (2016) found a positive association between the lagged short term fluctuations in capital inflows and the growth rates of house prices in Singapore. Cheung et al. (2017) also found a positive effect of official capital flows on housing price in Hong Kong. Yiu and Sahminan (2017) found, by analysing individual economy, that capital inflows have a positive effect on the residential house prices of Indonesia, Malaysia, the Philippines and Singapore, but not all the ASEAN-5 economies.

However, there are also some studies that refuted the hypothesis. For example, Kim and Yang (2009) found by VAR analysis that capital inflow shocks have little effect on land price increase. Sa and Wieladek (2011) also subcategorized capital inflows shocks and found that only capital inflows shocks driven by an increase in foreign savings have a positive and persistent effect on housing prices. Favilukis et al. (2012) found by a panel analysis of international data that capital flows have no explanatory power on housing price changes.

The diverse or even contradictory results above reflect the problem in selecting proxies in empirical tests. Since capital flow includes inflow and outflow, and most of them are not directly for housing investments. There are many different ways to measure capital flows. In fact, different scholars employed different proxies to measure capital flows in their studies, making their results not comparable. For example, Richter and Werner (2016) suggested using Current Account Balance. Chow and Xie (2016) took Foreign Direct Investments as the proxy, but Cheung et al. (2017) contended that official measures of capital flows (they took currency-base as the metric) are inaccurate, and they found that illicit capital flows imposed an effect on the stock markets. Illicit capital flow is measured by the World Bank Residual based on Balance of Payments data. Favilukis et al. (2012) measured capital inflows to the US by the foreigners purchases and sales of financial securities reported by the US Treasury International Capital, but for the international study, they exploited the current account deficit per GDP ratio as the metric. Yiu and Sahminan (2017) considered, among others, the BIS cross border flow data as the capital flows.

According to Richter and Werner (2016), international capital flows can affect local housing markets via four channels, viz i) the transaction channel, ii) the direct credit channel, iii) an indirect credit channel with regard to cross-border transactions of securitised housing loans and iv) the interest rate channel. They should be tested separately and with the corresponding appropriate proxies. In other words, the previous literatures tried to study the effects of the four channels in one single proxy, by means of different metrics. The results so far cannot provide conclusive evidence on the hypothesis.

For example, if the hypothesis is on the transaction channel, then a direct intervention approach is to stop the foreign purchases of housing to test whether the housing price would then fall. It is difficult to find such an intervention until 2018, as most cities would only impose taxes on foreign buyers rather than banning their purchases. For example, the governments of Vancouver and Hong Kong have only introduced extra stamp duties for foreign buyers, and tightened the loan-to-value ratio in mortgages for foreign buyers, without banning foreign buyers.

New Zealand government has enacted a law banning foreign buyers from buying existing housing with effect from Oct 2018. It can be regarded as an intervention on the transaction channel of capital inflows. Although there is a similar tightening of the restriction of foreign buyers in Australia, but since the housing prices in Australia have fallen well before the tightening due to a change of the mortgage policy, the New Zealand's ban is an important test on the hypothesis.

## Results

New Zealand bans most non-citizen foreigners (except Australians and Singaporeans) from buying existing housing in New Zealand since October of 2018. It has an immediate and substantial effect on reducing the number of housing transactions in the whole country as shown in Figure 4.



Figure 4 Home transfers to people without NZ citizenship / resident visa, percent of total, Auckland and NZ excluding Auckland, Apr 2017 – Mar 2019 (Hargreaves, 2019)

However, even though the number of transactions has dropped substantially, the national housing price index of New Zealand has been increasing, as shown in Figure 5. The latest yoy growth in 2019Q2 is about 1.2%.

$$DLOG(NZ\_HPI,0,4)$$



Annual Growth Rate of the Housing Price Index of New Zealand. Source: RBNZ

But the regional housing price indices would differentiate the differences in spatial housing price change. For example, Figure 6 compares the house price indices of the Auckland Region (REG2) from the Northland Region (REG1). It is clear that the house price index of the Auckland Region climbed up much faster than its neighbour before the end of

2018, but then it immediately fell when the ban is effective, but the Hawkes Bay and the Wellington Regions' house prices are still increasing after the ban.

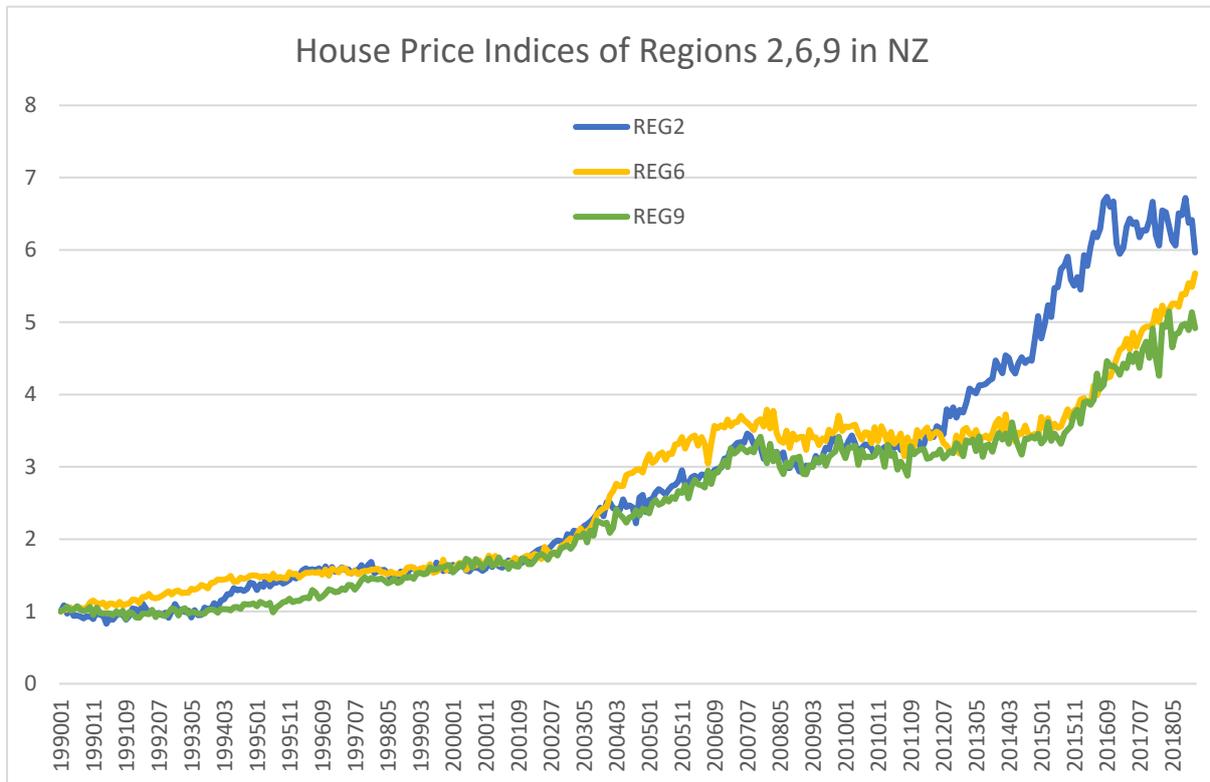


Figure 6 House Price Indices of the Auckland Region (REG2), Hawkes Bay Region (REG6) and the Wellington Region (REG9). Source: constructed by the author by means of a hedonic pricing model on the transaction data of houses in the Regions from 1990 to 2018.

Before the ban, all the three Regions' House Price Indices were increasing, but only the Auckland Region's House Price Index fell after the ban. For example, in the Hawkes Bay Region (REG6) and the Wellington Region (REG9), the yoy changes from Oct to Dec 2018 were 8.53% and 12.20%, 4.60% and 10.73%, and 9.20% and 9.98% respectively. However, the corresponding yoy changes in the Auckland Region were -0.59%, -3.80% and -3.82% respectively, as shown in Figure 7.

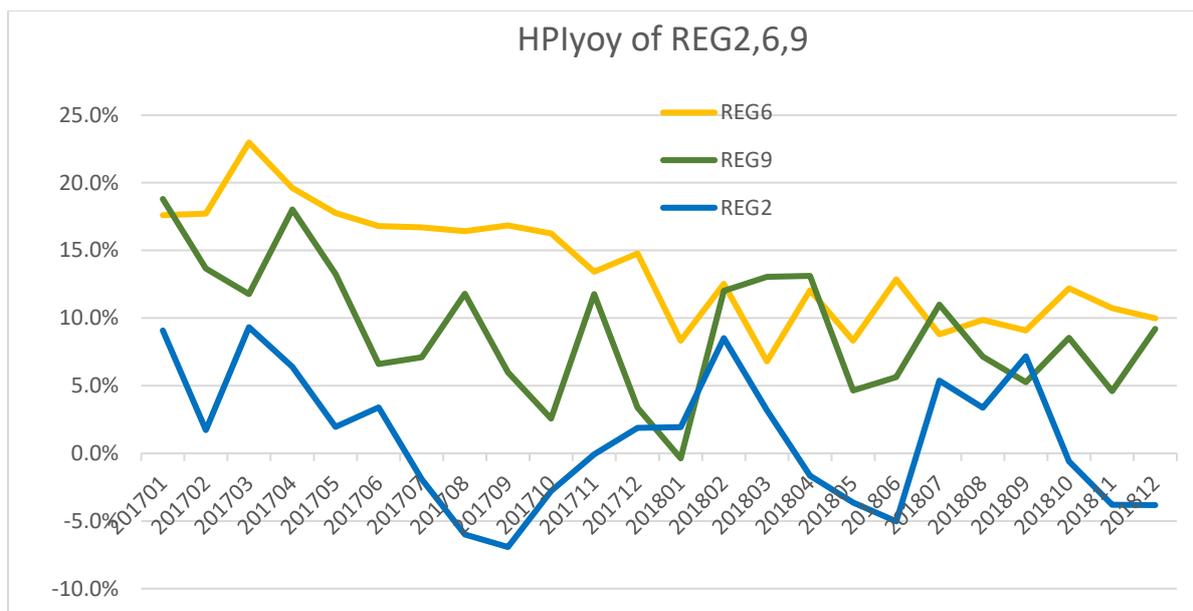


Figure 7 Year-on-Year Changes of the House Price Indices of the Auckland Region (REG2), Hawkes Bay Region (REG6) and the Wellington Region (REG9). Source: constructed by the author by means of a hedonic pricing model on the transaction data of houses in the Regions

Yet, the magnitudes of the fall are relatively minor, of just about -4%, and Figure 7 also indicates that the Auckland Region’s HPIyoy has been fluctuating between positive and negative zones before the ban. It is probably because when the bill was discussed and debated, the market sentiment was affected.

Furthermore, it is noted that during this period, the currency of NZD versus USD was weakening from about 0.69 to 0.62. It reinforces the confirmation that the housing price drop is not due to currency strength. Similarly, during this period, the interest rate in New Zealand has been reducing from about 1.75% to 1%. It further reinforces the confirmation that the housing price drop is not due to an increase in interest rate.

### Conclusions

A global synchronization of housing price changes implies that there must be some global forces driving the changes of housing prices in major global cities. It has long been suspected that it is the global capital flows. However, empirical studies on the association between capital inflows and housing price changes cannot obtain conclusive evidence. It may be due to, among others, the selection of proxies for capital inflows. As there are 4 channels that capital inflows can influence housing prices, they should be studied separately and with the corresponding appropriate proxy. For example, if the hypothesis is the transaction channel, i.e. the direct foreign purchases of housing that drives the price up, then the intervention control experiment is to stop foreigners from buying houses in the country. Since foreign investors prefer buying houses in globalized cities for better rental return, if the hypothesis is correct, then it should be able to observe that housing price drops immediately after the ban in the global cities only. With the New Zealand’s ban on foreign buyers from purchasing existing houses in New Zealand with effect from Oct 2018, the hypothesis can be tested by the intervention control experiment. The results show that the banning effect applies at the Auckland Region only, other control regions’ housing prices are found to be increasing immediately after the ban. The study confirms the channel 1 hypothesis that stopping foreign purchases of houses in a global city can make house price fall. It would have far reaching

implications and applications, not only in future studies of channel 2,3,4 effects, but it also advise parliamentarians and government officials the effects of their decisions on housing affordability.

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