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Canada's Housing Bubble

An Accident Waiting to Happen

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Canada's Housing Bubble: An Accident Waiting to Happen

Introduction

Canadians are becoming increasingly concerned that, like our neighbours to the south, there may be a housing bubble in Canada.

While the prospect of a bubble has been downplayed by the Bank of Canada, a number of economists have warned that Canada's housing market is overvalued[1], which is bankers' conservative way of suggesting a housing bubble may be afoot.

The CIBC warns a housing correction is in the cards, which is a milder alternative to a full-blown bubble bursting — though there are signs of trouble on the horizon.[2]

For instance, the OECD finds Canada has the highest consumer debt to financial asset ratio among 10 OECD countries, including the U.S.[3] The Canadian Association of Accredited Mortgage Professionals estimate about 375,000 mortgage holders in Canada are already challenged by their current payments and may not be able to handle higher rates.[4]

And, behind the scenes, Canada's banks are clearly concerned: This spring they asked the federal government to legislate both higher "money down" requirements and shorter amortization periods for new mortgages. The Harper government has not completely heeded the banks' calls although it has made some changes.[5]

Given the central role housing affordability played in the U.S. financial crisis that sparked a global economic meltdown, it's important to assess what factors might be playing into a housing bubble in Canada and the depth of the risk.

This report attempts to assess the risk inherent in today's housing market by comparing Canada with the U.S. on several key scores. It begins by describing the factors that feed into housing bubbles, drawing on the history of Canadian housing bubbles to put things in context. It looks at the rising price of housing in Canada, especially post-2000. Then it creates three historic scenarios to test the size of the bubble and locate where it is occurring.

What goes into a housing bubble?

Housing bubbles have occurred in Canada but they don't happen every day, and they don't happen automatically.

A housing bubble emerges when housing prices increase more rapidly than inflation, household incomes, and economic growth. Several factors tend to contribute to the growth of a housing bubble: low mortgage rates, access to easy credit, net immigration and the stock of available housing. And, as witnessed in the U.S., wild card factors such as sub-prime mortgage schemes in loosely regulated financial markets can cause major damage to economies.

Factors such as low mortgage rates and access to easy credit help draw buyers into a market they might otherwise not be able to compete in. Canadians haven't seen mortgage rates this low in more than 50 years; the Bank of Canada overnight rate has never been lower. While housing may be "affordable" based on record low rates, the affordability situation in Canada could change rapidly if mortgage rates return even part way to their historic norms.

However, low interest rates are only part of the picture. The number of new houses added, the changes in population, as well as income and inflation increases over time may also help to explain higher house prices.

This study examines the Canadian housing market over the past 30 years and finds the market is more unstable than it has been in over a generation. Between 1980 and 2000, housing prices were relatively stable in Canada's large urban centers, despite isolated bubbles in cities such as Toronto and Vancouver. But since the early-2000s, the housing market has been on a steady climb and, in some cases, it exploded, within the blink of an eye, especially when compared to historical norms.

The rising cost of housing is one of several red flags on the Canadian landscape. Household incomes also play a role in creating housing bubbles. If everyone's income is rising in step, house prices can rise without jeopardizing affordability. But if earnings of those at the top of the income spectrum rise much faster than everyone else's, as they have done in the past decade, it can lead to an overvaluation of house prices, where a small number of buyers drive the bidding on the best housing and trigger a price escalation in neighbouring markets. This price contagion results in a situation where the majority of consumers are bidding more on houses than they can really afford, in hopes of living in the neighbourhood they choose and/or investing in financial assets for future economic security.

Housing bubbles: A Canadian rarity

Generally speaking, the bursting of housing bubbles is rare in Canada. There have been only three Canadian housing bubble bursts in only two cities — Vancouver and Toronto — since 1980.

Vancouver's first housing bubble burst in 1981, the second declined gradually in 1994. Toronto had one housing bubble, which burst in 1989. Otherwise, inflation-adjusted housing prices in all major Canadian cities remained remarkably stable from 1980 until 2001. Since then, housing prices have been steadily rising to relatively new and possibly troublesome heights. Take a look at Figure 1. It plots average residential real estate prices since 1980. Few indicators rise so starkly and so steadily as the national average of housing prices in Canada post-2000.

The graph shows two clear plateaus — one for the early 1980s, with house prices at approximately $75,000 and a second starting in 1989, with average prices at $150,000. It also shows steadily rising prices in the 2000s.

However, looking at broad averages can be deceiving. Although Figure 1 displays a quite orderly graph line, it has managed to conceal the three major price bubbles in Toronto and Vancouver. It has also completely masked rapid, oil-fuelled housing booms in Calgary and Edmonton.

Since it is usually one or two key markets, often Toronto or Vancouver, that drive national and regional house price averages, this report drills down on housing trends in the six biggest markets in Canada: Vancouver[6], Edmonton, Cal-

FIGURE 1 **Canadian Residential Real Estate Prices**

SOURCE CREA

gary, Toronto[7], Ottawa and Montreal. Together they represent approximately 40% of all real estate sales in Canada.[8]

The graph below shows the average inflation-adjusted housing prices in these cities between 1980 and 2010, reflecting a more volatile market and registering a brief blip as recession hit Canada in 2008 as well as the market's quick recovery. Canada's housing market has shown remarkable resilience through the worldwide economic downturn, quickly regaining ground in 2009–10 with possible price bubbles in several Canadian hot zones.

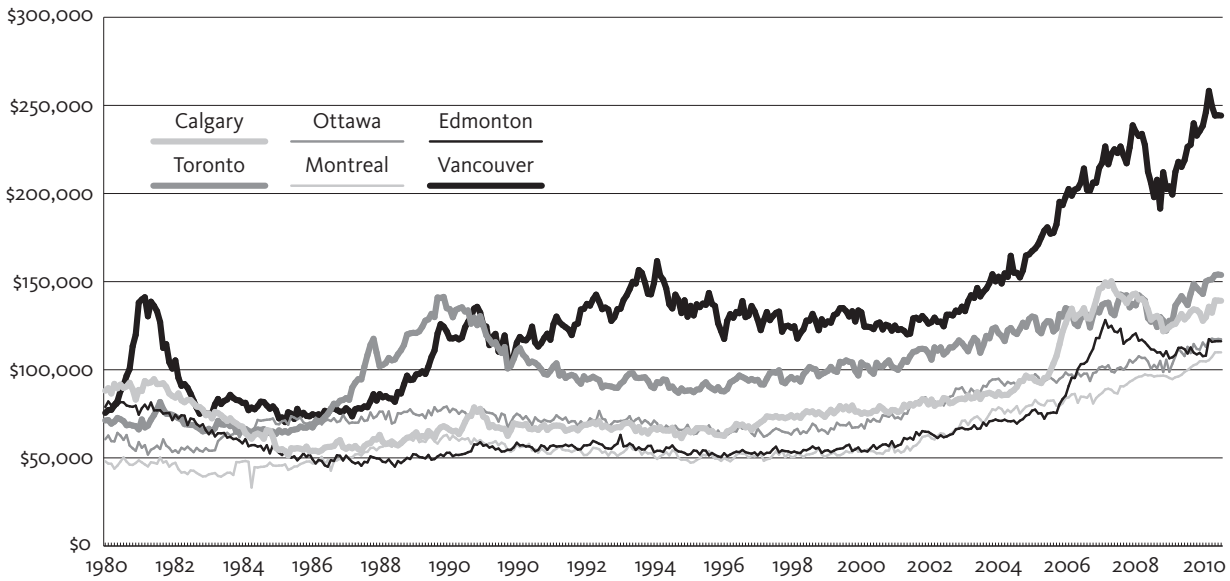
Between 1980 and 2000, the historical price range for housing in Canada stood pretty steady between $50,000 and $80,000 in inflation-adjusted 1980 dollars. But within a brief five-year period, 2001–06, all major housing markets in Canada shot to well above the $80,000 average price point that had been the norm for 20 years. And just four years later, in 2010, the average price of housing in Canada's cheapest markets topped $100,000 — twice as much as the housing market floor historically.

When you factor in median incomes, the same historic range appears for housing prices. Housing prices for 20 years, prior to 2000, stayed in a narrow range of between 3 and 4 times provincial annual median income.[10] Today, however, housing prices adjusted for income are out of their historical range, costing 4.7 to 11.3 times Canadians' annual income.[11]

As well as inflation and income, a variety of other factors affect housing prices in a more short-term fashion. Economic growth (GDP) is connected to incomes and so may be partially represented in the income-adjusted housing prices. Unemployment may be a better indicator of potential home buyers' economic reality. It is more volatile than GDP and, many times, GDP recovers while unemployment remains stubbornly high.

Mortgage interest rates also have a significant bearing on house purchases: higher rates may push some buyers out of the market if mortgage carrying costs become too heavy a burden. Down payment requirements and the cost of mortgage insurance may act as upfront impedi-

FIGURE 2 **Average Residential Housing Prices Adjusted for Inflation (1980$)**[9]



SOURCE CREA, GMREB MLS Barometer, StatsCan, Author's Calculations

ments, although these remained fairly constant until Canada ushered in more lenient mortgages culminating in the zero-down, 40-year mortgages by late 2006, up from 5%-down, 25-year mortgages. As well, the growth of population and average housing stock plays a critical role. Appendix A looks at the Toronto and Vancouver housing bubbles in great detail, taking these factors into consideration.

How Canada Compares with the U.S.

The recent U.S. housing crash provides a stark example of what can go wrong when housing prices are outside of their historic norms.

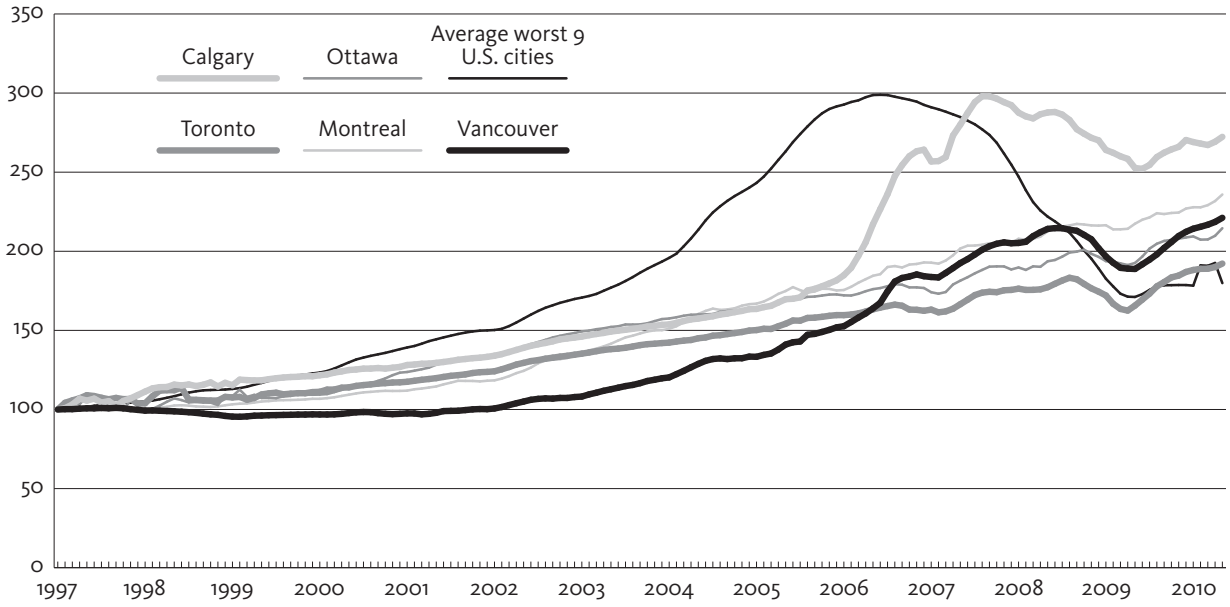
This report uses the Case-Shiller home price index to track housing markets in nine of the worst-hit U.S. cities: Miami, Los Angeles, San Diego, Washington DC, Las Vegas, Phoenix, Tampa, New York, and San Francisco. A comparable methodology is adopted in the Canada Teranet housing price index, making direct Canada-US comparisons possible. This allows us to compare the average percentage change in single family home sales in key U.S. and Canadian cities between 1997 and 2007, when the subprime mortgage scandal brought the American economy to its knees.

There are clear differences between Canada and the U.S. when it comes to the housing market. For one, a much higher proportion of Canadian mortgages are insured by the government through CMHC, leaving the big Canadian banks and investors better protected in the event of foreclosures.

Bankruptcy laws are more punitive in Canada and lending criteria is not as lenient. Depending on the U.S. state, lenders do not have recourse to a mortgage borrower's other assets in the case of default. Although, a defaulting borrower would have his or her credit rating seriously affected, the bank could not gain possession of other assets such as savings. In Canada, the banks do have recourse to a borrower's savings and other assets in the case of foreclosure, making strategic defaults here much less likely.

As well, mortgages are not awarded in Canada without employment and income checks.

FIGURE 3 **Canadian and U.S. Housing Markets**



SOURCE Teranet, Case-Shiller Housing Index[12]

At the height of the U.S. boom, borrowers were often receiving loans with no verification of income or employment.

Yet some Canadian cities, especially Calgary, have reached the same housing highs as the worst-hit U.S. cities.

The worst nine bubble cities in the U.S. saw a maximum price increase of 199% between January 1987 and June 2006. In a little under 10 years, housing prices in those cities had nearly tripled. In Canada, Calgary experienced similar growth, with housing prices soaring by 198% between 1997 and 2007.

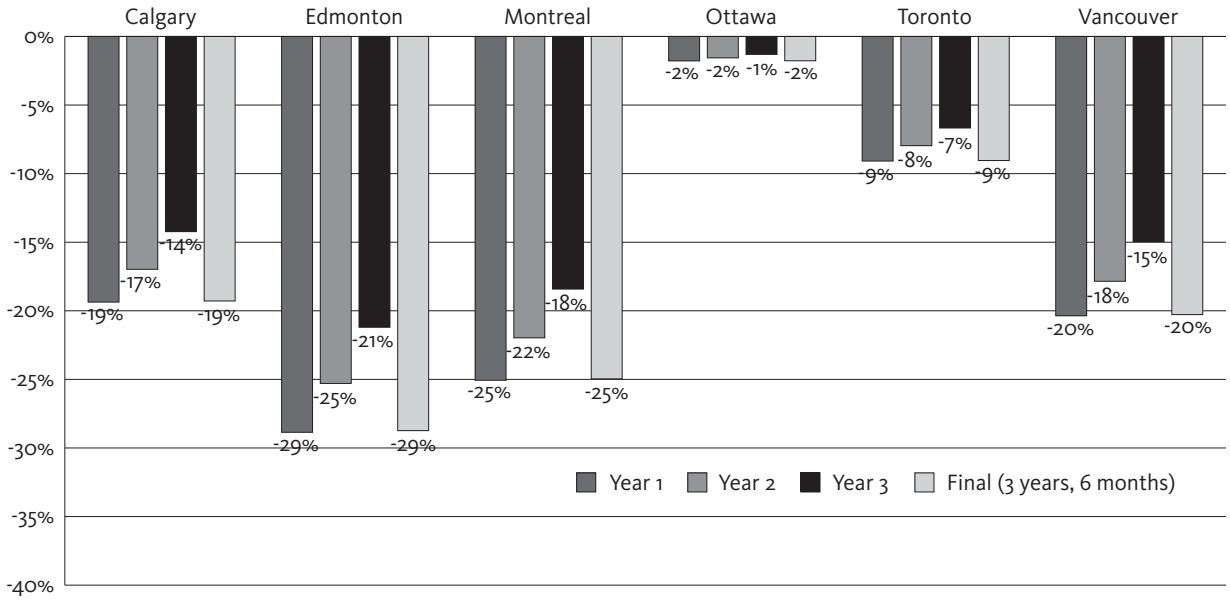
While the worst of the U.S. bubble crisis may seem far fetched, several Canadian cities have either hit similar highs or are on an unremitting upward path. If several factors aligned against housing prices in Canada, a similar crisis could potentially occur.

To understand the depth of the risk, this report takes the two most recent Canadian housing bubbles and the worst-hit U.S. housing bubble cities, mapping them onto the present dynamics for the six major Canadian cities: Vancouver, Alberta, Edmonton, Toronto, Ottawa and Montreal.

In previous Canadian housing bubbles, the speculation was isolated to one or two markets — Toronto or Vancouver. Even when mortgage rates spiked to over 14% in 1990, the effect was dramatic in Toronto, whose 1989 bubble was still deflating, but had little effect in cities that were not outside of their historic housing price norms. It seems that if house prices remain within a stable historic range, they are somewhat protected from mortgage rate spikes.

Today, all major cities in Canada are experiencing housing price increases that are beyond their historic $50K–$80K range. They are all over $100,000 in inflation-adjusted dollars. Canada is experiencing, for the first time in the last 30 years, a synchronized housing bubble across the six largest residential real estate markets in Canada.

FIGURE 4 **Price Drops from an Orderly Deflation (Scenario 1)**



Will the bubble burst?

What are the odds of the bubble bursting, flaming out fast or slow, versus a slow price moderation — or market correction?

This report simulates three possible scenarios: (1) The possibility of a market correction through housing price deflation, similar to Vancouver's experience in 1994; (2) The possibility of a deeper and longer housing crash, similar to Toronto's experience in 1989; (3) The possibility of a rapid and steep decline, similar to the worst-hit U.S. cities in 2008.

For more details on the methodology see Appendix B.

Scenario 1: Market correction through price deflation

Vancouver's 1994 market correction came in the form of an orderly price moderation — a much preferred experience to a full-blown market crash.

Scenario 1 replicates the 1994 Vancouver market correction and maps it onto the six Canadian cities examined in this study. Scenario 1 increases the 2001 (1998 for Toronto) prices for each city by 86% to establish a new stable price and then decreases the current price to the new stable price.

It stretches out the decline over three and a half years with most of the decline coming in a particularly bad first year. Prices whipsaw back after the first year's decline. The next two years see prices improve slightly, followed by a final drop that makes the first year's drop more permanent. While prices do decline from peak to trough, homeowners who held their property from the start year of 2001 (1998 for Toronto) through the end in 2013 nonetheless would eventually see an 86% increase in property values.[13]

Under this more moderate scenario, Edmonton — which experienced the largest relative price increase from its previous stable price in 2001 — would also see the biggest decline. Average house prices in Edmonton would drop by 29%, from $330,000 to $235,000, over the three-and-a-half-year period.

Vancouver started from a much higher starting point but, nonetheless, has seen a significant boost in prices since 2001. Vancouver homeowners would experience a 20% drop in the average residential property value, declining from $658,000 to $524,000.

Calgary and Montreal had different starting prices in 2001 but have since experienced similar housing price increases. Calgary would see an almost 20% decline in prices from $403,000 today to $325,000 in three-and-a-half years' time. Montreal for its part would see a somewhat larger decline of 25% with prices falling from $307,000 to $231,000.

Ottawa's increase since 2001 was relatively minor. Consequently, housing price declines in that city would be minor too, with only a 2% drop. Ottawa would see prices decline from $322,000 to $317,000.

Toronto is often cited as one of today's worst examples of a housing bubble city in Canada.[14] However, average prices in Toronto are currently second only to Vancouver. The increase in Toronto housing prices since their last stable value in 1998 has been moderate compared to other Canadian cities. The potential decline under this scenario would be relatively small compared to other cities, with average prices declining by 9%, from $420,000 to $382,000.

Scenario 2: Bubble bursting slowly, over a period of time

The Toronto 1989 crash was deeper and longer than the Vancouver 1994 market correction and it was the worst real estate bubble to burst in Canada since 1982. It's the model for Scenario 2, simulation of a housing market crash that draws out losses over five years. It's worse than Scenario 1 but better than Scenario 3, which is a full-blown, quick and steep market crash as was experienced in the U.S in 2008. The declines from scenario 2 are plotted in Figure 5.

Scenario 2 increases the 2001 (1998 for Toronto) prices for each city by 61% to establish a new stable price. It then decreases the current price to the new stable price five years later.

Under this scenario, the decline in house prices in each of the six major cities would be much more striking than in Scenario 1. While there is a slight decline in year one, in year two prices decline rapidly. By year three, more than half of the price decline would have set in, and the ensuing years would offer no respite, with continuing declines in each year.

Edmonton would experience the largest decline, reaching almost 40% — from $330,000 to $203,000 — over the course of almost five years. The first year would be devastating for Edmonton real estate prices. They would decline by $25,000, to an average housing price of $305,000 by the end of the first year. Over the total period, housing prices would lose $126,000 of their value.

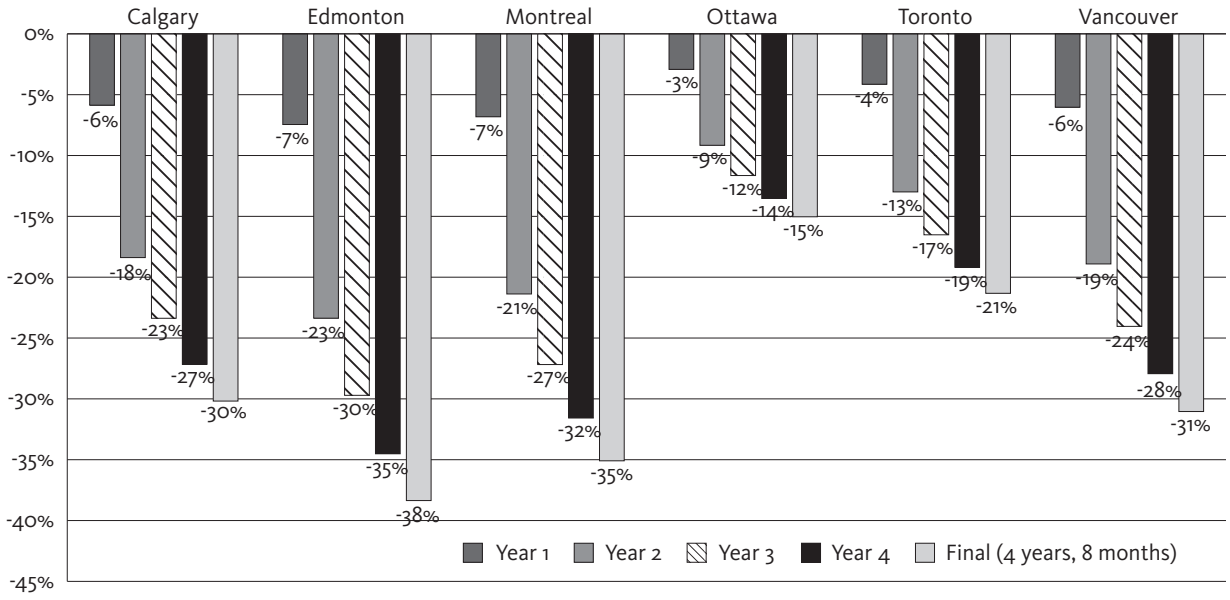
Montreal, Calgary and Vancouver would experience at least a 30% drop from today's prices. Prices in Montreal would drop from $307,000 to $200,000. Prices in Calgary would drop from $403,000 to just over $280,000, for a loss of $122,000. In Vancouver, prices would drop by 31%, from $658,000 to $454,000, losing $204,000 of their value.

In Toronto, prices would drop by 21%, from $420,000 to just over $330,000, losing about $90,000 of their value in the process.

By the end of Scenario 2, Ottawa house prices would have declined by 15%, dropping from $322,000 to just under $275,000.

While Scenario 2 represents a steep drop in housing prices, those who hold real estate through the entire boom and bust would see their houses appreciate 61% despite the significant declines in the final five years.

FIGURE 5 **A Canadian Bubble Burst (Scenario 2)**



Scenario 3: Bubble bursting rapidly and steeply

Asset declines in the U.S. market meltdown of 2008 were nothing short of historic.

Kings of industry became wards of the state, if they survived at all. Massive defaults sprung major leaks in the U.S. real estate market as the collapse of the entire international economy became a pressing danger. Housing prices were at the root of the problem: many large U.S. and international banks and insurance houses made risky bets that housing prices would go up indefinitely. As it turns out, it was one of the worst bets of the past half-century.

The U.S. housing bubble started to grow in 1997, much earlier than in Canada, which experienced stable inflation-adjusted housing prices until early-2001. While post-crash housing prices appear to have stabilized somewhat in the U.S., there may be a deeper drop ahead as more risky low-interest loans reset in the coming years.

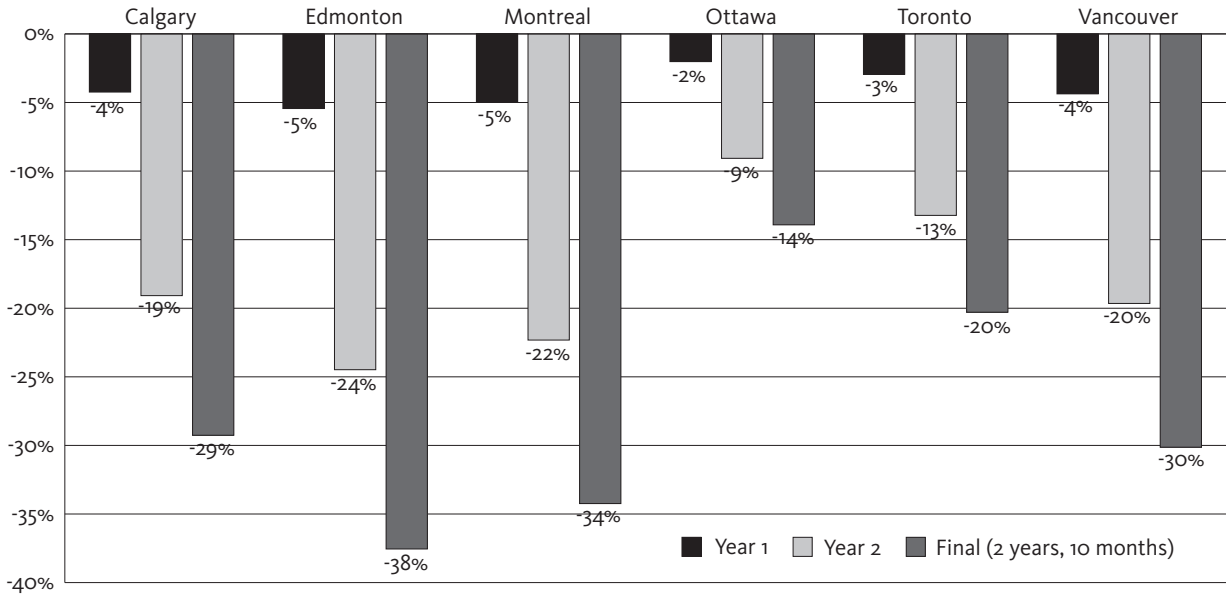
Scenario 3 maps the rise and fall of the worst-hit 9 U.S. bubble cities onto the six major Canadian markets. It assumes the U.S. housing prices of mid-2009 represent the new equilibrium for U.S. housing markets. Scenario 3's effects are plotted in Figure 6.

Scenario 3 is not actually the worst of the three scenarios in terms of ultimate price declines but it would be, by far, the most chillingly rapid. Similar to Scenario 2, there would be a minor decline in the first year but in year two, housing values would take their biggest hit. Not quite three years from the peak, housing prices would have reached their new low.

Under Scenario 3, Edmonton houses would lose 39% of their value in just over half the time it would take under Scenario 2. If Scenario 3 were to happen in Canada immediately, the average price of a residential property in Edmonton would drop from $330,000 to just $206,000 by early 2013, a drop of $41,000 a year.

House prices in Calgary and Montreal would drop by approximately 30%. Montreal residential property prices would drop from $307,000 to $202,000, a $35,000 a year loss for three years.

FIGURE 6 **Effects of a U.S.-style Housing Crash in Canada (Scenario 3)**



Calgary housing prices would drop from $403,000 to $285,000, a $39,000 a year loss for three years.[15]

In Vancouver, house prices would drop by 30%, from $658,000 to $460,000, a gut-wrenching $66,000 a year loss in property value over almost 3 years.

Both Toronto and Ottawa would experience somewhat smaller drops, but on a yearly basis they remain large. Ottawa would lose 14% or $15,000 a year over three years dropping from $322,000 to $277,000. Toronto would lose 20% or $28,000 a year with average house prices falling from $420,000 to $335,000.

Who would a housing crash hurt most?

What if housing prices do decline and do so rapidly as in Scenario 3? Certainly some new homeowners — young families that purchased homes with no downpayment — will find themselves owing more than their house is worth. Over-extending themselves with little or nothing down means that higher mortgage rates quickly translate into bigger monthly payments. In retrospect, fully utilizing more lax mortgage rules may not have been such a good idea for either the homeowner or the bank that recommended it.

While there would certainly be debate as to whether over-extended mortgage holders "deserve" their fate, there is a group who will certainly face bigger impacts than commonly recognized: seniors. It is those who look to their houses as a source of retirement savings who will likely be hit the hardest. Seniors who have paid off their mortgages and played by the rules may be about to see a second hit to their economic security in their golden years, after the collapse of the stock market in 2008.

Whether the crash is orderly, protracted, or sudden, seniors who can't wait for a decade or so for prices to recover will be most affected. And even if they can afford to wait, the sheer number of people who will be counting on selling their homes to make their retirement plans viable will mean a buyers', not a sellers', market.

Irrespective of the circumstance, policy makers should be keenly aware of the urgency of an overheated housing market. Whether it is re-

tiring Canadians relying on the equity in their homes or younger Canadians who stand to lose a substantial part of their initial investment, large fluctuations in housing prices have a profound effect on Canadians. That doesn't mean we have to sit idly by, waiting for markets to finish their recalibrations. Public policies can play an important role in offsetting or accelerating economic forces that create for a volatile housing market.

Rising interest rates, particularly rising mortgage rates, will likely be the main drivers behind housing prices in the immediate future, and mortgage rates have nowhere to go but up. If mortgage rate increases can be kept manageable, under a 1% average increase over the 24 month rolling average, and if mortgage eligibility can gradually be rescued from the excesses of the zero-down, 40-year mortgages and reset closer to their historic 25-year amortization, housing prices may experience an orderly decline closer to Scenario 1 instead of the full-scale crash envisioned in Scenario 3. Of course, this is dependent on the Bank of Canada not pushing up the overnight rate too fast and the big banks not pushing up mortgage rates too high.

Bringing housing prices down just enough to moderate expectations but not so much as to cause a panic is a delicate balance. Government policy makers, the Bank of Canada, as well as rate setters at the big banks need to work together to steer the Canadian market towards a soft landing. The alternative is not acceptable.

Appendix A: Looking At Canadian Bubbles

In order to gain more perspective on the current housing price increase, it makes sense to examine in more detail the most recent bubbles in Canada.

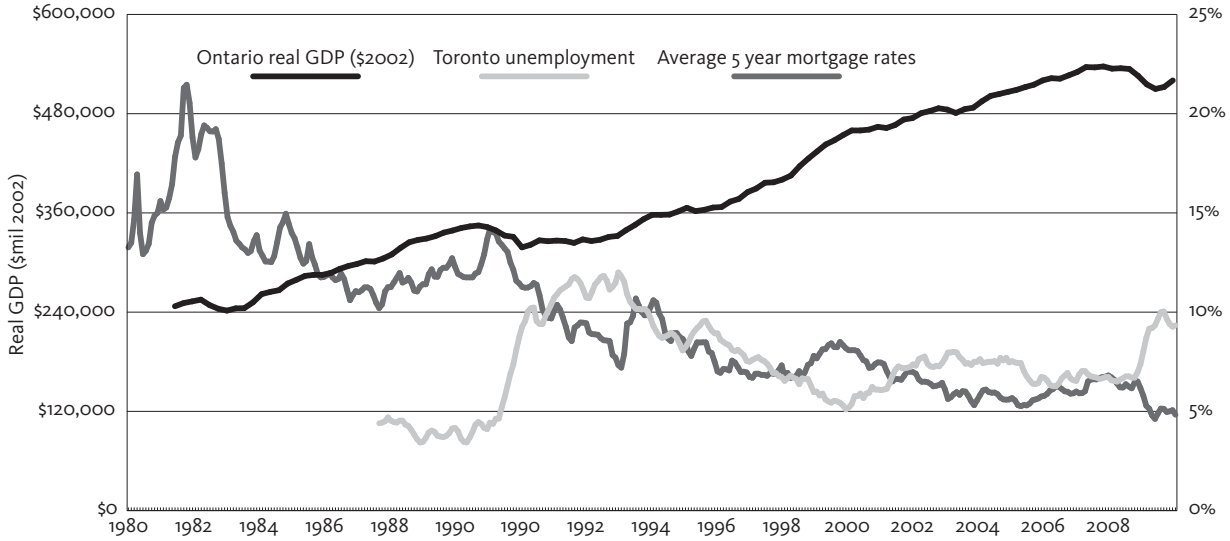
Figure 7 examines several other economic variables besides housing prices for Ontario and Toronto since 1980 with a view to determining what other factors may have been affecting Toronto housing prices. Real GDP is much less variable over time than either mortgage rates or unemployment. The only real dip in Ontario's GDP comes during the 1991 recession. Other than one brief period, real GDP grew relatively steadily over the past 30 years.

For both mortgage rates and unemployment there have been very significant spikes since 1980. The decision by the Bank of Canada to crush inflation arising from the OPEC crisis in the late-1970s is evident when mortgage rates spiked over 20% in late 1981. The massive spike in interest rates caused a massive spike in unemployment reaching 12.4% in Ontario by the end of 1982. When relating these changes in the early-1980s to housing prices, there is actually very little effect. Prior to the 1989 Toronto housing boom, house prices in Toronto were on par with those in other major cities resting within the $50,000 to $80,000 ($1980) price range. Within this safety zone, neither sky high interest rates nor sky high unemployment had a significant effect.

As unemployment backed away from its 1981 peak, it established a new low of between 3% and 4% in Toronto for much of the late-1980s. Interest rates moderated to some degree over this period, although they still remained high by present day standards. Unemployment rates this low have not been experienced since then and the inflation of the 1989 housing bubble began as unemployment discovered its new lows. The Toronto bubble hit its peak in 1989 just before the Bank of Canada again increased interest rates, driving mortgage rates to new highs of just over 14%. The war against inflation began anew at the Bank of Canada, driving Canada into recession and increasing unemployment in Toronto from 4% to 11% in one year between mid-1990 to mid-1991.

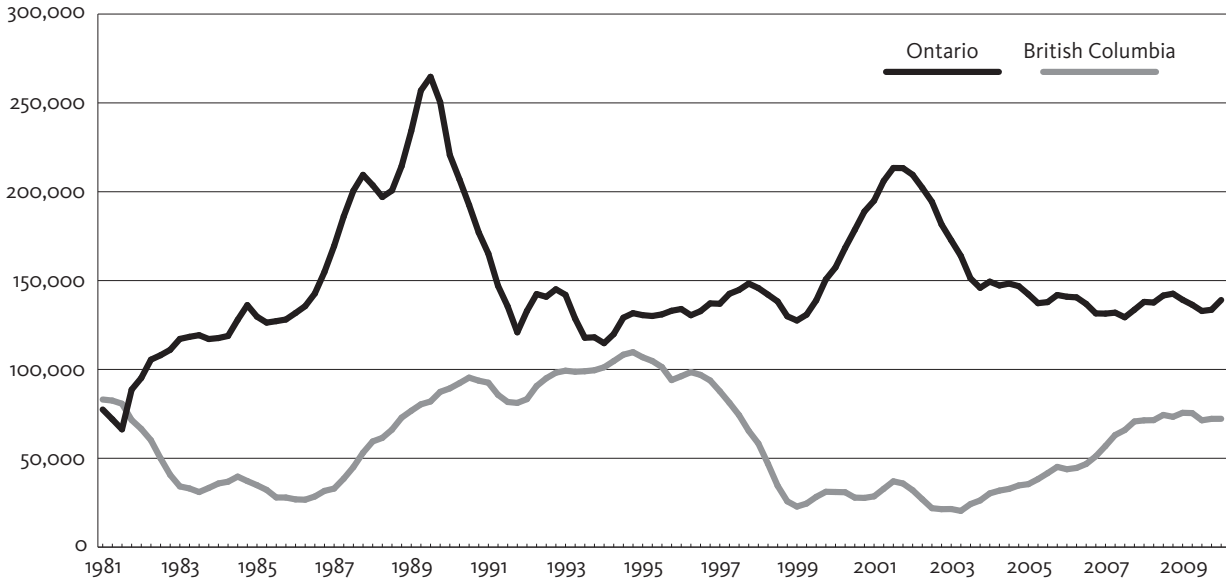
The significantly lower unemployment in Toronto brought a rapid influx of people to the province (i.e. population increased much more than birth rates would otherwise explain). No doubt more people seeking homes was part of the demand side for why prices spiked. The influx

FIGURE 7 **What Else Was Happening in Toronto**



SOURCE Statistics Canada, CMHC, Ontario Ministry of Finance[16]

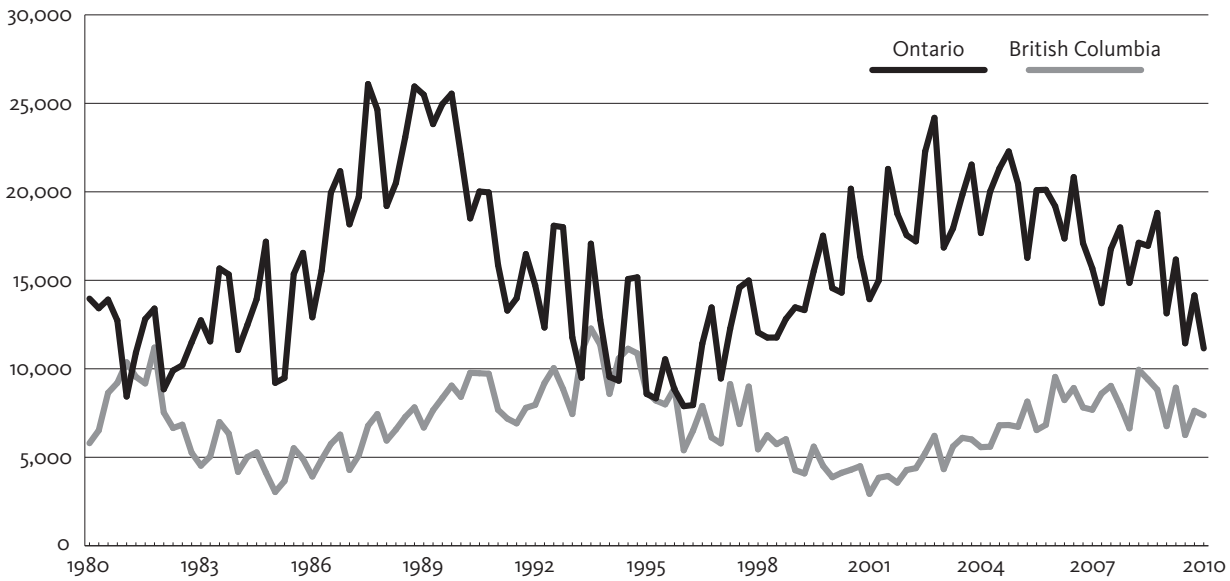
FIGURE 8 **Net population change Ontario and BC (Year over year difference)**



SOURCE Statistics Canada

of people peaked three months after real estate prices peaked. From that point forward, migration to Ontario slowed. It was only in late-1999 that migration again picked up steam. This time though, there is not a commensurate increase in housing prices. What is interesting about On-

FIGURE 9 **Housing Completions: Toronto and Vancouver**



SOURCE CMHC

tario's second big migration bump in 2000 is that it marks the beginning of the gradual, yet substantial, increase in housing prices that Torontonians experienced all the way through 2010.

If we look closer to present day Toronto, mortgage rates have been declining since the mid-1990s, allowing Torontonians to carry a larger mortgage for the same monthly payment. Net migration has remained flat since 2002, as seen in Figure 8, and is not likely a major factor in housing price increases. In 2008, the financial crisis hit, immediately increasing unemployment and decreasing house prices in Toronto. Interest rates also dropped, in an attempt to stimulate the economy with mortgage rates following suit. However, while unemployment increased and remained around the 8% level, housing prices also bounced back, setting new highs, likely based on record-low mortgage rates.

If we focus on Vancouver, population influxes from the late-80s through the early-90s likely helped to drive demand for housing as more people were competing for the same houses. The housing boom that peaked in 1994 is likely partially related to the surge in population over that same period. Immigration tapered off in Vancouver, pulling housing prices down after 1994. It is not until the early-2000s that we saw an increased movement of people to Vancouver. While the rate of population growth did increase throughout the 2000s as housing prices skyrocketed, the inflows never matched those of the mid-1990s.

However, housing prices are not only driven by the demand side. The supply of houses also changes as new ones are built. Figure 9 shows the housing completions for Ontario and BC. Ontario housing completions in Toronto's 1989 bubble nicely tracked prices. As prices continued upwards, builders rushed to cash in on the trend by building new units to meet demand. As housing prices collapsed following their 1989 peak, builders found it harder to unload homes they'd already built and so also cut back on building new ones.

FIGURE 10 **People per Dwelling is Declining**

Census Year	Toronto People per Dwelling	Vancouver People per Dwelling
2006	2.7	2.4
2001	2.8	2.5
1996	2.9	2.6

SOURCE Statistics Canada

Vancouver builders followed a similar trend during the 1994 run up in prices. As Vancouver house prices increased, builders again rushed to meet the demand and cash in. New home completions hit a peak of over 12,000 units per quarter in the Fall of 1993, approximately one year before Vancouver housing prices hit their peak in 1994. As housing prices dropped, builders had a harder time making a profit on new homes and therefore cut back on housing completions.

More recently, Ontario housing completions were on an upswing through the early-2000s, possibly in reaction to the increases in population several years earlier in addition to higher prices. What is interesting is that since that upswing, new house completion has actually declined even though housing prices are on a tear. With housing prices now at a new all-time high in Toronto, builders either are not willing or are not able to keep up. The new house completion trend in Toronto is actually on a decline.

Vancouver, for its, part has seen an increase in home completions from the lows of the late-90s of approximately 4,000 homes per quarter to almost 10,000 by 2008. However, as housing prices continue to explode from the 2008 recessionary dip, the housing completion trend, as in Toronto, is on a decline. In both cases, the lack of adequate new houses being put on the market by builders is only increasing pressure on housing prices.

What is interesting is that once we combine housing stock with population, as in Figure 10, we find that the average number of people per private dwelling has actually been going down over time. Presumably, prices will be bid up if there are more people bidding on the same number of houses, perhaps explaining the recent increase in prices. However, the trend is in the opposite direction. The stock of private dwellings is actually increasing at a faster rate than population growth, meaning more houses are being built than people are being added to the population. The trend is happening even faster in Vancouver where prices are higher than in Toronto. Builders are keeping up with population growth and then some in these two cities. Likely changing preferences, such as more Canadians living on their own, are driving housing prices despite traditional demand and supply figures are pushing the other way.

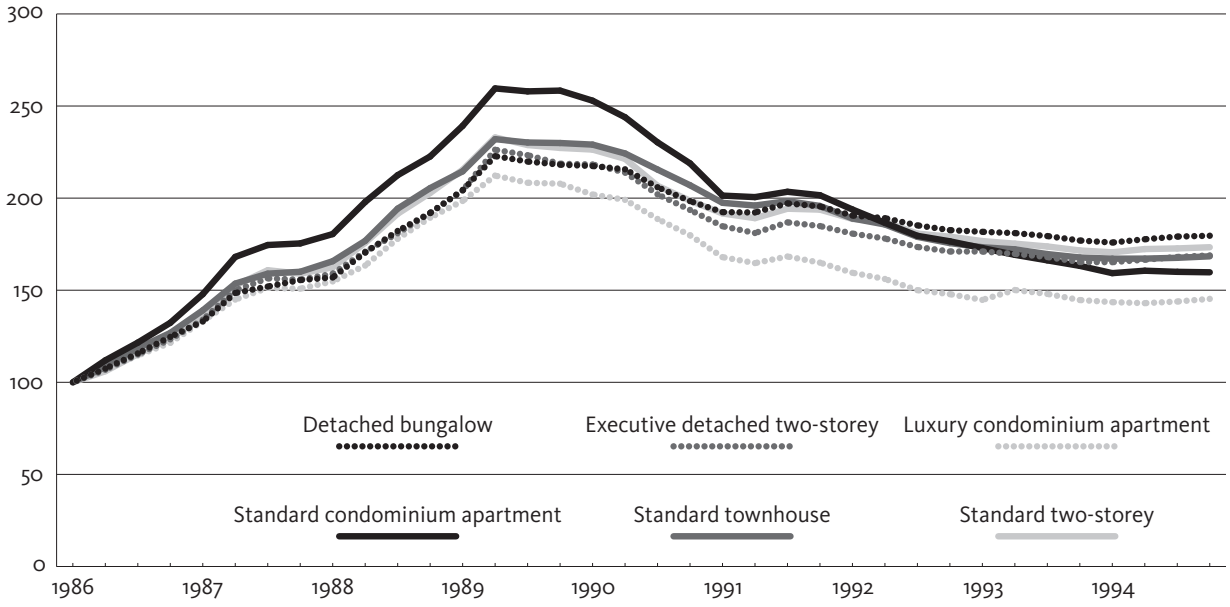
The 1989 Toronto Bubble

The 1989 Toronto bubble is the largest in recent Canadian memory. As the Toronto bubble inflated, so did the Vancouver bubble, though it did not peak until 1994. While the Toronto bubble ran out of steam in 1989, the Vancouver bubble that started only two years later continued to 1994. It is interesting to note that these were relatively isolated phenomena. Housing prices in the other large cities in Canada remained almost completely unaffected by the run up in prices in Toronto and Vancouver.[17]

In the GTA, housing prices started picking up steam in mid-1985. Their 1984 average was $95,000. Housing prices hit their peak in April 1989 at an average price of $261,000, a run up of almost 175% in 5 years. The subsequent crash saw prices fall 28% from their April 1989 high to a new low of $189,000 in August of 1993.

As noted in Figure 7, historically low unemployment through the late-1980s, drawing in net migration and new demand, likely drove the inflation of the bubble. Builders tried to keep up increasing house completions (Figure 9) throughout, however prices did not relent. The spike in interest rates in 1990, combined with the inevi-

FIGURE 11 **1989 Toronto Bubble by Housing Type**



SOURCE Royal Lepage Survey of Canadian House Prices and Authors Calculations17

table spike in unemployment, deflated the 1989 bubble in short order as the influx of new population also dropped off.

It is important to note that even though housing prices did see a significant contraction between 1989 and 1993, the 1993 price was still significantly above the previous equilibrium level of approximately $95,000 experienced 9 years earlier. Between the start of the bubble and its end, housing prices nonetheless appreciated almost 100%, with only 42% of that appreciation due to inflation. That new plateau, even in inflation-adjusted terms, has not been breached since.

The Toronto bubble was characterized initially by rising prices in the standard condominium market. The other housing types for their part did not experience the same sort of excesses seen by condos. While the other housing types did not spike as high, they still went along for the ride.

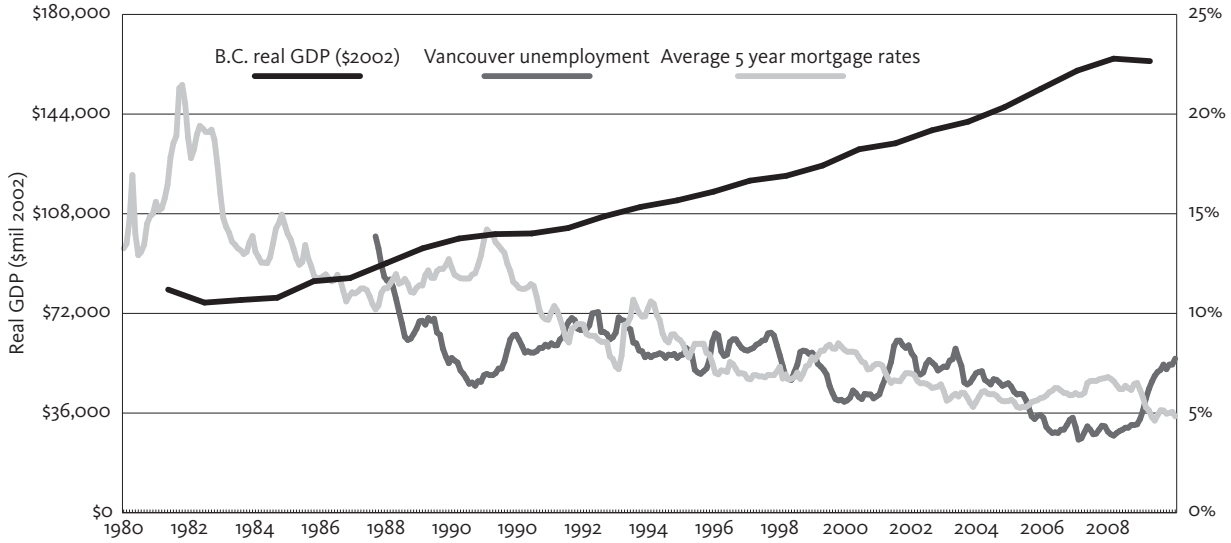
Since condominiums drove the bubble, they were also the class that had the most to lose when it burst. Sure enough the highest flying housing class lost the most value when housing prices came crashing down. The sale price for a standard condominium in Toronto dropped by, on average, 39%. All other housing classes were relatively uniform, losing approximately 27% of their value, with luxury condos losing slightly more, at -32%.

In the run up to the bubble's peak, average 5 year mortgage rates were also climbing. They reached 12.7% by the peak of the housing bubble. However, only a year later mortgage rates spiked to over 14%, putting the final nail in the coffin of the 1989 Toronto bubble.

The 1994 Vancouver Correction

Vancouver has stood out for some time as the most expensive city in Canada for residential real estate. Since 1990, Vancouverites have paid more for their homes than any other city resident in Canada. The situation has gotten markedly worse since 2001. Despite this dubious honour, Vancouver has not experienced a significant price decline since 1981.

FIGURE 12 **What was Affecting Vancouver**



SOURCE Statistics Canada, CMHC, Ontario Ministry of Finance[19]

Instead of a bursting of the bubble, the 1994 peak in inflation-adjusted prices in Vancouver might be better termed a "correction". Certainly, inflation-adjusted prices declined in Vancouver between 1994 and 1998. However, the decline was minor compared to Toronto and prices remained relatively high until they resumed their upward climb in 2002.

In contrast to the situation in Toronto in 1989, unemployment rates remained relatively stable, rising slightly in the lead up to 1994. Population growth, however, increased markedly as the bubble inflated, as seen in Figure 8. It wasn't until 1996, a full two years after the 1994 price peak, that population growth rates started to decline. Interest rates were dropping throughout the early-1990s and it appears that lower interest rates, combined with stronger population growth, may have been the key components of the 1994 price peak.

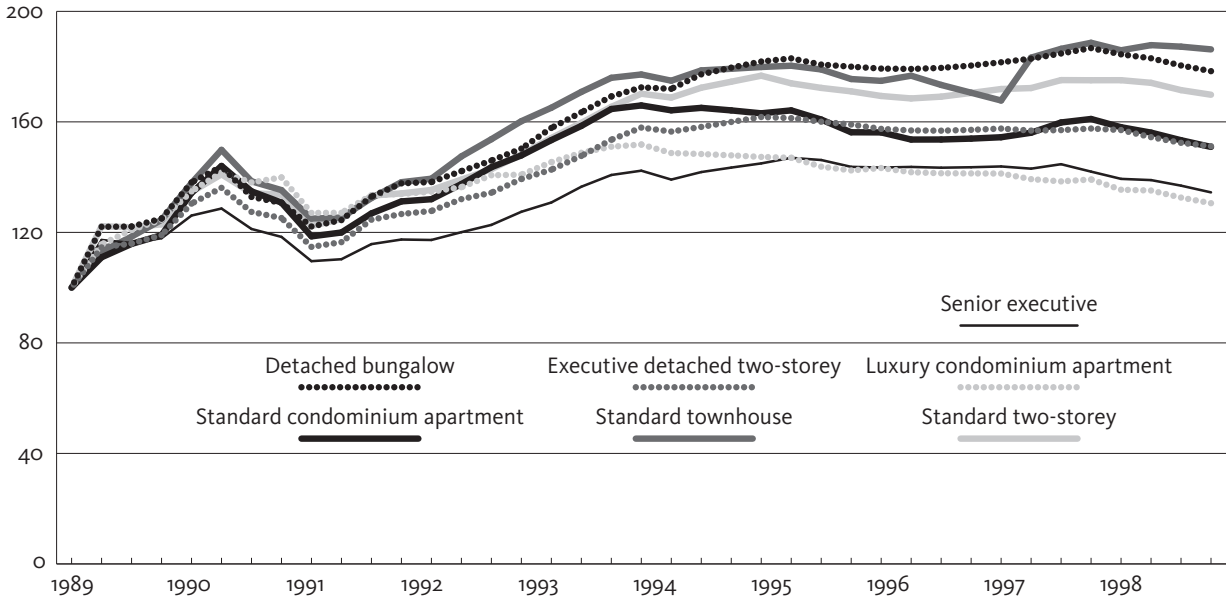
Average prices in Vancouver peaked at $330,000 in August 1994. The low point was four years later, in October of 1998, when average prices fell to approximately $275,000. Over the course of the drop, residential real estate lost 16% of its value, approximately half of what Torontonians lost in their 1989 bubble.

Of the price deflations examined in this paper, it is clear that what happened in Vancouver following 1994 is the preferable model. Prices retained much of their value and the decline was spread over a number of years, although with a gut-wrenching whipsaw in prices in the first year.

When the Vancouver data is examined by housing type, as in Figure 13, an interesting separation occurs. In particular, lower priced homes — including townhouses, bungalows and condominiums — rose more rapidly in the initial stages but they also retained much of that value following the 1994 peak. Higher end homes like luxury condominiums, senior and executive detached homes did not track the increase as closely and, in fact, lost more of their value following the peak.

In contrast to the 1989 Toronto bubble, housing prices in Vancouver separated by housing type did not change dramatically between the peak in 1994 and the low point in 1998. While

FIGURE 13 **More of a Correction than a Bubble: Vancouver 1994**



SOURCE Royal Lepage Survey of Canadian House Prices and Authors Calculations[20]

the average house price did go down, this was more likely the result of changing purchasing patterns rather than a decline in prices. That is to say, Vancouverites purchased more condos and townhouses and fewer luxury condos, weighting the average differently and bringing down the average price.

Appendix B
Study Methodology

All of the bubbles examined in this paper share a common form, as seen in Figure 14. Housing prices start at a stable inflation-adjusted level "A". The housing bubble picks up steam, increasing inflation-adjusted prices to a new high of "B". From that point, the bubble bursts and housing prices deflate to their new inflation-adjusted level "C".

In all of the bubbles examined in this paper, the new average housing price after the bubble burst (point C) is always higher than the initial starting price at point A. As such, anyone who held real estate through the entire cycle from A through C will make money (in inflation-adjusted terms), despite a decline between the peak B to the final price of C.

Often the process from A to C is quite lengthy, requiring a decade or more.

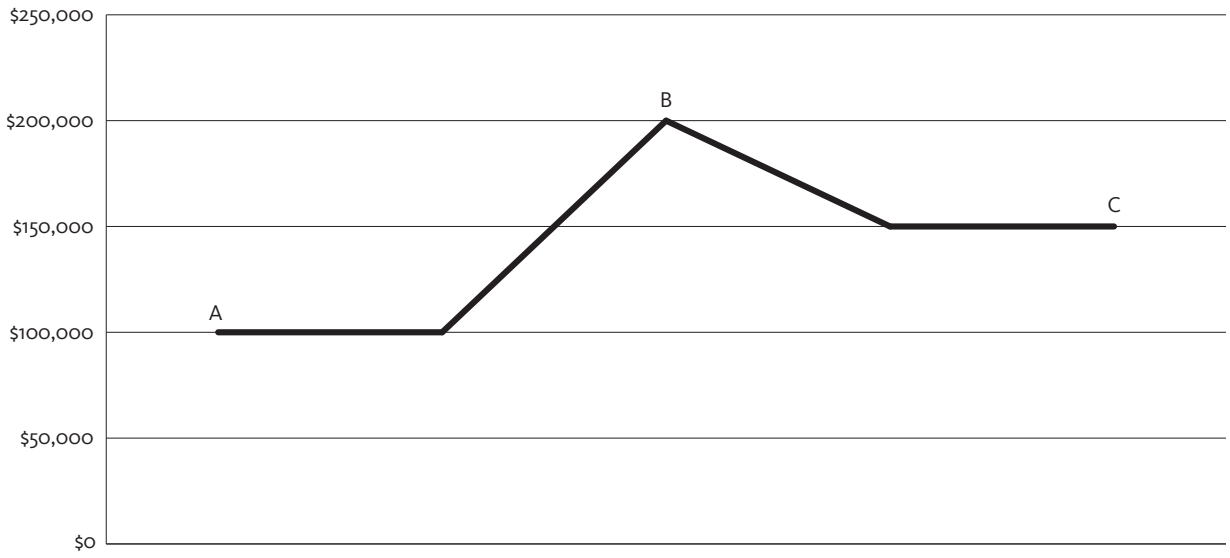
To construct real-world scenarios from historical events, the key variable is the percentage change from price A to price C. The percentage change between A and C is inflation-adjusted and re-inflated using an assumed inflation rate of 2ppa.

The starting stable price A for each city is the same for each scenario. In Toronto, that price is from 1998 and in all other cities it is from 2001. However, each scenario has a different percentage change between point A and point C. For instance, in the Toronto 1989 scenario, the price increase from point A to point C was 61%. This percentage change is applied to each city's starting A price to calculate the final C price for each city.

The B point in each scenario is the current average price for each city. For all of the scenarios and for all Canadian cities, point B is above point C, although this does not necessarily need to be the case. Each scenario then moves the price down from point B to point C at the same rate and over the same period as the scenario dictates. For instance, the price decline after the Toronto 1989 bubble took 4 years 9 months, so that time frame is reflected in how Canadian cities respond under this scenario.

The benefit of this approach is that cities that started with higher average prices, like Vancouver and Toronto, will remain higher even after the bubble bursts. As well, cities where house prices have increased the most, like Edmonton, have the most to lose when the bubble bursts, even though their absolute price level may be

FIGURE 14 **Basis for Scenarios**



lower. Finally, cities like Ottawa that have seen more moderate price increases will see almost no decline in price in some scenarios, as the drop from point B to point C is minimal.

Notes

1 http://www.yourhome.ca/homes/realestate/article/799961--canadian-housing-market-correction-in-the-cards-says-economist

2 http://www.theglobeandmail.com/report-on-business/economy/nearly-20-of-homes-overvalued-report/article1580185/#article

3 http://my.texterity.com/cgaresearchreports/debt2010#pg42

4 http://www.theglobeandmail.com/report-on-business/rising-mortgage-rates-rising-trouble/article1563265/#comments

5 These include variable rate borrowers needing to qualify at fixed rates, refinancing can now total only 90% of a home's value and rental properties will need to be purchased with at least 20% down.

6 "Vancouver" throughout this report refers to greater Vancouver and not merely the municipality of Vancouver.

7 "Toronto" throughout this report refers to the GTA and not merely to the municipality of Toronto. This includes the CREA MLS data from Toronto, Brampton, Durham Region, Mississauga, Orangeville and York Region

8 Comparing CREA number of sales for residential real estate in Vancouver, Alberta, Edmonton, Toronto, Ottawa and Montreal to the number of Canadian sales for residential real estate.

9 Prices are adjusted by the CPI for the city specifically. All prices are adjusted to $1980. Housing prices for Montreal from 1/1/2008 forward are obtained from the GMREB MLS Barometer, prior to that point Montreal prices are obtained from CREA.

10 Based on the median after-tax income of total under 65 economic families. Statistics Canada Custom Tabulation: Survey of Income and Labour Dynamics.

11 It may however that wealthier Canadians who did capture much of the income growth over the past 30 years have been enabled by this additional income to speculate in real estate markets, thereby pushing up prices. The concentration of income with wealthier Canadians does not significantly alter the median income, but it would create an additional pool of capital that might be used for real estate speculation.

12 Instead of utilizing average prices as in previous graphs, Figure 3 uses the American Case-Shiller methodology which compares the average percentage change in the sale of single family homes over time. Comparable Canadian data is available through the Teranet

index. Both are adjusted for 1997=100 to match the start of the American inflation adjusted price expansion. These prices are not inflation adjusted.

13 Not adjusted for inflation

14 See for instance, Garth Turner's blog www.greaterfool.ca

15 Readers may note that under Figure 3 Calgary prices had risen substantially more than other cities compared to the worst 9 US cities and as such might be expected to see the largest drop under Scenario 3. However, Figure 3 has a start date of 1997, but inflation adjusted prices in Calgary stayed stable until the start of 2002. As such, some of the initial run up in Calgary prices between 1997 and 2002 is not included in Scenario 3 in order that the start point represent the last time that prices found a stable equilibrium.

16 The provincial seasonally adjusted unemployment rate is used until 1987 at which point the 3 month moving average municipal seasonally adjusted unemployment rate is used. Statistics Canada only begins publication of municipal unemployment rates starting in 1987.

17 Again this may be related to the fact that immigration largely targeted these two largest Canadian cities.

18 Royal Lepage Survey of Canadian House prices converted to an index with 100=1986. Figure 11 ignores the initial starting points of each of the housing classes and instead sets them to an even value of 100 to determine which housing type had the largest relative change in price during the bubble.

19 The provincial seasonally adjusted unemployment rate is used until 1987 at which point the three month average municipal seasonally adjusted unemployment rate is used. Statistics Canada only begins publication of municipal unemployment rates starting in 1987.

20 Royal Lepage Survey of Canadian House prices converted to an index with 100=1997

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