

September 20, 2010

### Highlights

- In recent months, Canada's housing market has been the subject of a growing number of breathless reports, all proclaiming the imminent bursting of a bubble.
- While a grain of truth exists to this analysis, we dispute several elements of the boiler plate argument.
- In particular, a number of affordability measures suffer fatal flaws, and mislead in their claims that Canadian home prices are 40-60% overvalued.
- Superior affordability metrics pin the home price overvaluation at about 12% – an eminently manageable mismatch, and hardly deserving of the moniker “bubble”.
- Equally importantly, the coming moderation in Canadian home prices should easily sidestep systemic risks, with only middling consequences for households, banks, and the government.
- Just as the Bank of Canada ignored earlier strength in the housing market, it will mostly look through the coming weakness.
- From a bond market perspective, we believe the bear flattener should re-emerge as the Canadian trade of choice by early 2011, and view any market hesitancy owing to the housing market correction as an attractive opportunity to scale in.
- For more on Canadian household leverage in general, refer to our forthcoming report entitled “*Casting an Eye to Canadian Household Leverage*”.

### On Bubbles, Major Troubles, and the Lack Thereof for Canadian Housing

In recent months, Canada's housing market has been the subject of a growing number of breathless reports, all proclaiming the imminent bursting of a bubble. While a grain of truth exists to this analysis, we dispute the proclamation that the Canadian housing market has a major valuation problem, and calculate that the coming moderation and its consequences should be mild.

#### Grain of Truth

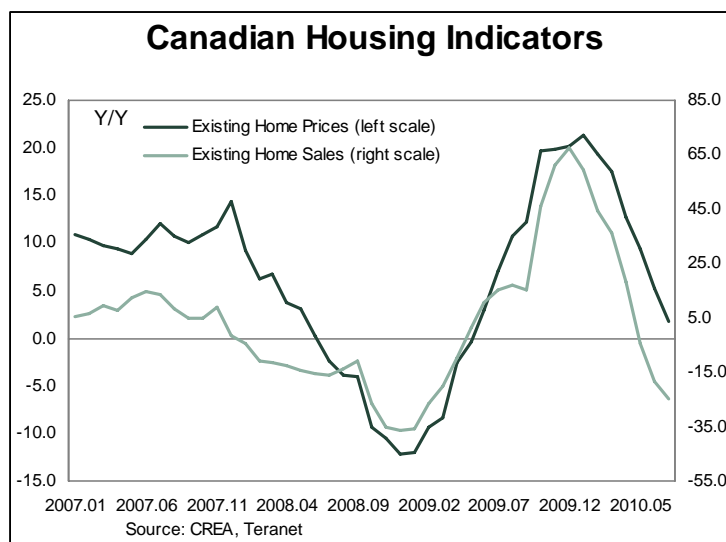
As in most things, there is a grain of truth embedded in the rhetoric. The Canadian housing market did rise swiftly in the immediate aftermath of the credit crunch, buoyed by ultra-low interest rates, an overhang of buyers who had opted to sit on their hands through the worst of the crunch, strong job creation, general fiscal stimulus, government programs both temporary (such as the renovation tax credit and the Insured Mortgage Purchase Program) and permanent (Canada Mortgage Bonds, CMHC insurance), and robustly flowing credit. With the first five of these six pillars eroding and further friction building from a trio of regulatory changes implemented in April plus a housing tax hike in July, the peak in the market has certainly come and gone.

The market now begins its descent back to Earth. Home sales are falling rapidly, housing starts are declining cautiously, and home prices are edging lower.

#### Going Against The Grain

However, we feel compelled to go against the grain in our insistence that Canada's housing market does not fit the definition of a bubble. A bubble is a major asset misvaluation that has catastrophic consequences once popped.

Applied to Canadian home prices, affordability is not nearly bad enough, the environment is not especially ripe for an outsized decline, and the consequences of a correction – both from systemic and central banking perspectives – should be limited even if the correction were to be far bigger than we project. We address each of these in turn.



Canadian Home Price Affordability		
Affordability Measure	Misvaluation	Int'l Unaffordability Ranking
<b>1) Inflation-Adjusted Home Price</b>	<b>+52%</b>	
<p><i>Description:</i> Home price deflated by CPI.  <i>Comment:</i> Fails to account for rising real incomes, rising quality of owned housing stock, or scarcity of land.</p>		
<b>2) Home Price to Rent Ratio</b>	<b>+63%</b>	<b>1/18 (IMF Q4'09), 9/22 (Econo Mag '10)</b>
<p><i>Description:</i> Home price as ratio to CPI rental component.  <i>Comment:</i> Fails to account for cost of borrowing, rising quality of owned housing stock, declining quality of rental stock, regulatory constraints, real decline in Cdn rents.</p>		
<b>3) Home Price to Income Ratio</b>	<b>+41%</b>	<b>7/18 nations (IMF, Q4 09)</b>
<p><i>Description:</i> Home price as ratio to Avg Household PDI.  <i>Comment:</i> Fails to account for cost of borrowing, ability to allocate a greater share of income to debt as real incomes rise.</p>		
<b>4) Carrying Cost</b>	<b>-2%</b>	
<p><i>Description:</i> % of Household PDI required for standard mortgage.  <i>Comment:</i> Overcomes most problems, but fails to reflect upside risk when borrowing rates are low.</p>		
<b>5) Carrying Cost w/ Threshold</b>	<b>+12%</b>	
<p><i>Description:</i> As with "Carrying Cost", but mortgage rate may not go below 7%.  <i>Comment:</i> Properly captures cost of housing stock in all but most exceptional conditions.</p>		
<p>As at September 2010.  <i>Note:</i> All affordability measures are defined as versus their long-run (1980-2010) norm, where applicable.  <i>Note:</i> International Unaffordability Ranking of 3/10 would indicate Canada was the 3rd most expensive nation out of 10.</p>		

## The Metaphysics of Housing Affordability

There are myriad definitions of housing affordability, all with their own spin on the situation. By our count, there are at least four major methodologies, and we introduce a fifth. Herein lies the primary challenge and source of dissent among pundits, as it is possible to simultaneously claim that Canadian home prices are 63% too high and 2% too low. A key goal, then, is to differentiate among these measures, evaluating the merit of each.

These methodologies are themselves highly mutable, depending upon the selection of home price measure, the historical time span examined, the “fair value” reference point, and whether viewed through a purely domestic or international prism. Our selections are outlined in Text Box 1.

### Text Box 1: Methodological Choices

For the purpose of this analysis, we clamp down on the mutability of the affordability methodologies, selecting what we believe to be the fairest and most conservative assumptions for each of the aforementioned choices.

For all of its flaws (prices do not control for house quality or geographic composition of sales), we employ Canada’s existing home price series. This is because it has a far longer history than the methodologically superior Teranet-National Bank HPI, and is more broadly focused than Statistics Canada’s new house price index. We examine the full available time period for this series – from 1980 until 2010. For “fair value” reference point, we reject the approach of comparing home prices versus a static and arbitrary historical reference. Instead, we compare affordability versus the average of the series. Each of these decisions aligns with the techniques employed by international agencies such as the IMF and OECD.

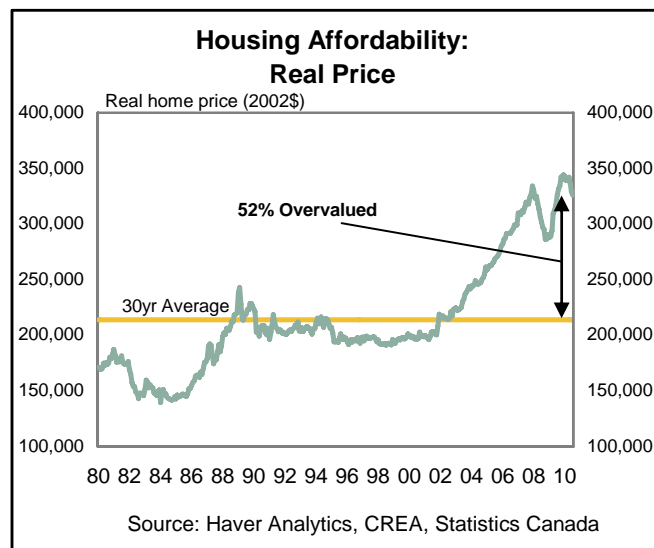
We focus primarily upon domestic affordability measures, citing international ones where available.

We begin our analysis with some of the gaudier (and more questionable) affordability measures, working our way down to more reasonable (and reliable) estimates.

### 1) Inflation-Adjusted Home Price

Certainly the most elementary of the affordability measures is the inflation-adjusted home price. The premise is that the real cost of a home should remain fixed over time, and so the only concession towards rising home prices is the menace of inflation. This has an obvious charm. The measure makes the aggressive claim that Canadian home prices are a whopping 52%

overvalued, because the rise in home prices has substantially outpaced that of the consumer price index.



We reject this measure, and its assessment. Virtually no nation has housing that is affordable as defined by this measure, and for good reason. It neglects four basic facts.

- **Borrowing Cost:** The cost of a home can be far different than its price given mortgage rates that vary with time. There has been an aggressive secular decline in borrowing costs over the past thirty years, with the implication that the real cost of buying a house has not gone up by nearly so much.
- **Land Value:** The price of a home reflects more than just the raw materials and labour used to construct it. It also reflects the value of the underlying land. They aren’t making any more land these days, and so with an expanding population, the value of land and thus home prices overall can justifiably grow faster than inflation.
- **Rising Quality:** The average price of a home neglects the fact that – at least as defined in Canada’s existing home price measure – the quality of the home is not held constant. To the extent that houses have generally become both larger and more luxurious over the years, it makes sense that home prices would outgrow inflation.
- **Rising Income:** Real household income has risen moderately over the past thirty years, meaning quite simply that Canadian households can afford to pay more for their homes (more on this later).

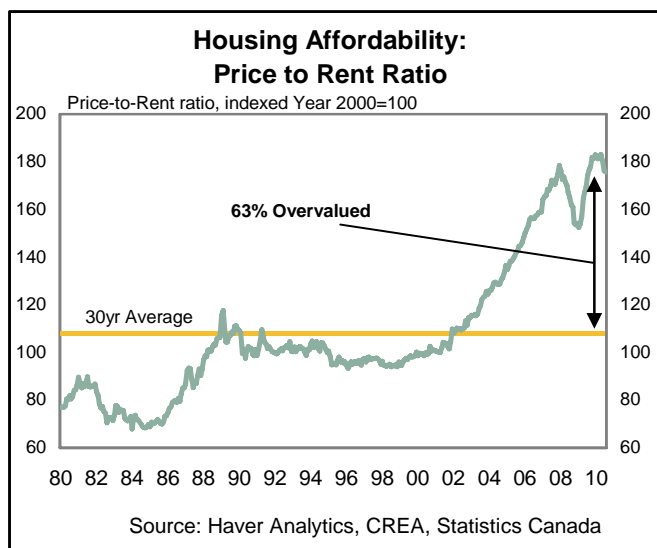
### 2) Home Price to Rent Ratio

The home price to rent ratio is another simple yet powerful concept. After all, aren’t buying and renting substitutes for each other? One should not be

substantially more expensive than the other, or people would switch to the cheaper option.

Attractively, this measure addresses two of the criticisms directed at the inflation-adjusted home price measure, namely the land value and rising income arguments. Once again, this affordability measure sounds the alarm, claiming that Canadian home prices are a jaw-dropping 63% overvalued.

Moreover, internationally, the IMF calculated for the end of 2009 that Canada's home price to rent ratio was the most distorted from a pool of eighteen nations, and by the same amount as our estimate. Muddying the water, The Economist magazine more recently ranked Canada a middling 9<sup>th</sup> out of 22 according to this metric, and calculated the overvaluation to be only one-third as large.



We posit that the home price to rent ratio is sending another false alarm. Here is why the measure itself is flawed, and moreover why it is especially misleading for Canada:

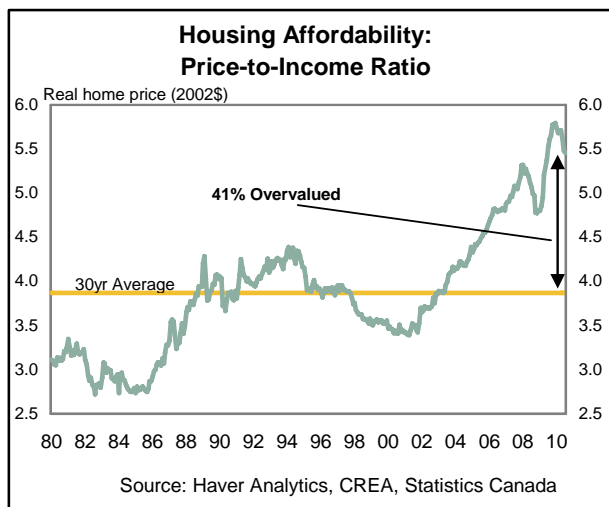
- **Borrowing Cost:** As with the prior measure, we note that the cost of borrowing plays no part in this measure, and yet this has declined sharply over the time horizon. The measure says nothing about the relative monthly payments needed to buy versus rent.
- **Regulatory Distortions:** Most of Canada has a form of rent control that limits the rate of increase in rent for existing tenants. This makes it difficult for rent to keep up with home prices.
- **Quality Divergence:** Just as Canada's existing home price measure fails to control for the rising quality of homes over time, the rental measure is arguably biased in the opposite direction. While the rent component of CPI should in principle hold quality constant, the reality is that even while controlling for

the number of bedrooms and other broad metrics, Canada's rental stock has aged far more than the owner-occupied stock, which is regularly rejuvenated by new construction projects. This is in part because builders struggle to recoup their investments in rental units due to regulatory constraints.

- **Declining Rents:** Although rents have not declined on a nominal basis, they have substantially underperformed inflation in Canada. The reason for this is some combination of the prior two bullets – declining quality and regulatory distortions. To illustrate, rent has risen by an average of 1.4% per year, notably less than the 2.0% increase in the CPI. Over thirty years, this amounts to about a 20% decline in the real cost of renting in Canada. Even more strikingly, and illustrating the special factors at work in Canada, U.S. rents have risen by an average of 0.8ppt faster than the U.S. CPI, meaning that the real cost of renting in Canada and the U.S. has diverged by over 40% in the past thirty years. In turn, Canadian rental costs don't appear to be a very good gauge for the affordability of purchased homes.
- **Weak Substitution Effect:** It is also useful to question whether renting versus buying is actually subject to a strong substitution effect. We believe not. Mathematically, both the 1980s and the 2000s suggest that long deviations can persist. The transactional costs of buying or selling a home means that the deviation in values must be very large to be worth pursuing. And while young families might elect to delay their entry into home ownership if the ratio between the two is unattractive, this is more a matter of when than if. Even more so, it is vanishingly rare for a household to switch from home ownership back to rented stock. There is a cultural element to this, as the aspiration to own one's own home goes beyond purely financial motives. Finally, the substitution effect is also weakened by the fact that rental units and owned units do not generally stand side by side – more often than not a switch involves a new neighbourhood altogether.

### 3) Home Price to Income Ratio

The home price to income ratio is a third measure of Canadian housing affordability that claims home prices are far too high, at about 41% overvalued. It improves in some ways upon its predecessors, in that it acknowledges the increase in real household disposable income over time that allows for more expensive homes without undue burden.



Yet we are reluctant to trust this measure, either. For one, Canada does not seem especially out of line by the IMF's international calculations, placing 7<sup>th</sup> out of 18 nations at the end of 2009. While it would be little consolation if all seven nations were equally unjustifiably expensive, there is reason to think that this is not the case.

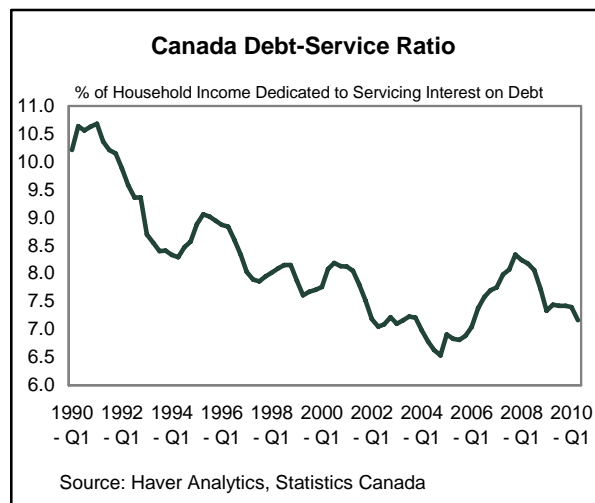
- Borrowing Cost:** This definition is another example of an affordability calculation that fails to accommodate the sharp decline in borrowing costs over the past several decades. Far less income is needed today to sustain a house of the same price as in 1980. In fact, on average you could buy a house for twice as much money in the 2000s compared to the 1980s, and yet make precisely the same monthly payment for each.
- Income Allocation:** While households would surely prefer to allocate a flat or better yet declining share of their income to finance their dwelling, it is nonetheless the case that as real incomes rise, households can afford to dedicate a larger fraction. After all, a doubling of income is unlikely to result in a doubling of consumption on all items, like chewing gum and long-distance phone calls. This extra capacity doesn't mean that people are compelled to buy more expensive homes, but simply that they can do so without duress.

#### 4) Carrying Cost

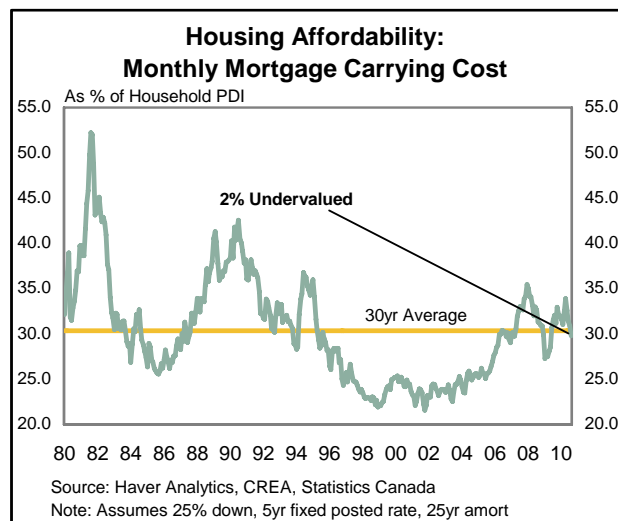
The carrying cost approach to affordability solves a major earlier criticism in that it approximates the actual monthly payments that someone with a mortgage would make. In turn, it fully reflects the sectoral decline in borrowing costs over the past several decades. The outcome is starkly different than earlier measures, with Canadian home prices now appearing 2% undervalued.

The measure is somewhat stylized in that it imagines all mortgages are taken at the current 5-year posted rate,

with a 25% down-payment and a 25-year amortization period. While many borrowers now choose down-payments of less than 25%, this fact is balanced by the popularity of variable rate mortgages (which are usually cheaper), by the use of amortization periods beyond 25 years (which reduces the monthly payment), and by traditional discounts off the posted mortgage rate. Overall, the fact that Canada's debt-service ratio is near its all-time low suggests that our assumptions have done no horrible injustice to the subject.



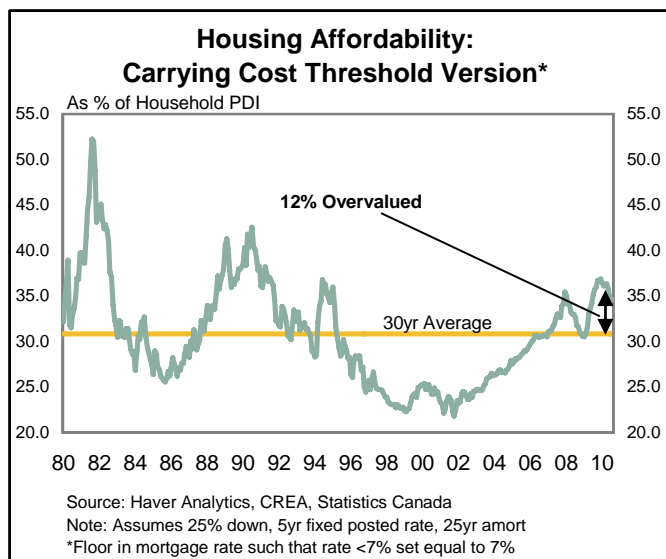
The far greater criticism of this measure is that it overstates affordability when interest rates are extremely low, such as today. What is an easily affordable mortgage now might well become distinctly unaffordable should borrowing costs rise markedly—a not unreasonable expectation over the next few years despite a slow-moving Bank of Canada. In conclusion, the carrying cost measure is quite accurate in its assessment of the contemporaneous affordability of home prices, but is myopic, saying little about the future.



## 5) Threshold Carrying Cost

We introduce a fifth measure of housing affordability that solves the remaining flaw in the traditional carrying cost approach. The basic problem with that measure is that it blissfully ignores the imminent deterioration in affordability when interest rates go from record low levels to more normal levels. To resolve this, we have created a threshold carrying cost measure that is identical to the traditional carrying cost approach, except that when the 5-year mortgage rate drops below a posted level of 7% (the average mortgage rate of the past fifteen years – broadly, the modern era of inflation targeting), it is kept at a floor of 7% in the calculation. For reference, the current posted mortgage rate is 5.39% (recall that actual mortgage rates are often discounted by 1.00-1.50% from this level).

In this way, affordability does not crater as conditions normalize, because it never spiked when rates fell very low. Using the threshold carrying cost measure, Canadian home prices are currently 12% overvalued. This, to us, rings true. The measure overcomes all of the major criticisms of earlier affordability calculations, and squares with what we are seeing in the market.



### Triggers

The determination that Canadian home prices are moderately too high does not necessarily translate into the conclusion that they will immediately correct. As all of the affordability measure charts show, home prices can diverge from their appropriate level for many years. There is no such thing as an immaculate correction. Instead, a trigger is needed.

The trigger might be something as simple as affordability deteriorating to a point that home prices become out of reach of most households. The current 12% overvaluation is not large enough for this to happen. Or it might be the en masse resetting of mortgage rates – a

contributing factor to the U.S. correction. Again, there is no Canadian parallel.

In fact, we believe the trigger has already been pulled for Canadian home prices, having come in the form of regulatory tightening earlier this year, combined with ongoing monetary tightening.

With the correction now underway, the next question is how far it will go. The fact that home prices are 12% too high does not guarantee that they will fall by precisely 12%. In the U.S. example, home prices corrected well past traditional fair value, due to a simultaneous financial shock and recession. In Canada's case, this correction should be well behaved as financial markets are functioning normally and Canadian economic and job growth is respectable. Moreover, the recent appetite for homes has been driven less by speculators, and more by first-time homebuyers. They are less likely to turn tail and run if the market suffers a moderate setback. In turn, we predict a 10% decline in home prices, spanning Q2 2010 to Q4 2011, which essentially addresses the affordability issue (rising incomes should finish the job).

### Systemic Risks

Will the coming correction wreak havoc on the Canadian economy, or worse yet create massive systemic consequences? Not likely. To determine this, we contemplate in turn households, banks, and the Canada Mortgage and Housing Corporation (CMHC).

- Household Risk:** Slowing home prices will moderately hurt household wealth, with the implication that consumer spending could be a bit more muted, both because of a reduced wealth effect, and based on a diminished need to purchase furniture and appliances. Based on an assumed housing wealth effect of 0.05, a 10% decline in home prices means consumer spending could grow 0.5ppt more slowly over the coming year. This is notable but not extreme. The Bank of Canada recently stress tested Canadian households in a scenario of rising interest rates. The conclusion was that the fraction of households struggling under the burden of debt would rise from 6.1% to 7.5%. This is substantial, but not a complete game changer. For more on the outlook for household deleveraging in Canada, refer to our forthcoming report entitled *"Casting an Eye to Canadian Household Leverage"*.
- Banking Risk:** The Canadian mortgage market is constructed in such a way that all mortgages with less than a 20% down-payment must first be insured before a bank can take them on. When combined with the voluntary insurance of other mortgages, roughly half of Canadian mortgages are insured. What this means is that Canadian banks are not especially exposed to a downturn in the mortgage

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market, and in fact they are completely immune to the riskiest mortgages of all (those with the lowest down-payments). Moreover, given the starting point of a very low 0.4% mortgage delinquency rate, even a doubling or tripling in this metric would have limited repercussions for the banks. Robust price gains from mid-2009 to mid-2010 mean that home prices would have to fall by far more than we predict for significant numbers of homeowners to have negative equity. The existence of recourse in most Canadian jurisdictions provides a further buffer.

- **CMHC:** Of course, the fact that banks are immune to low-down mortgages doesn't mean that the risk has simply vanished. Instead, it has been transferred onto the likes of CMHC – Canada's main mortgage insurer, and an agent of the government. In a previous report ("[Canadian Mortgage Market Primer](#)"), we calculated that the mortgage delinquency rate would need to go up several-fold before the insurance business ceased to be profitable, and that CMHC has a capital buffer deemed sufficient by Canada's insurance regulator. In a worst case scenario in which the capital buffer was wholly consumed, the buck would stop with the explicit guarantee that extends from the federal government to CMHC. And given Canada's strong fiscal position, there is little question that any such (highly improbable) blow would be absorbed easily.

The bottom line is that there are no systemic risks that extend from the coming housing correction, and the economic implications are relatively contained themselves, amounting to little more than the aforementioned ding to consumer spending growth, plus a decline in residential investment and real estate services.

### Central Banking Consequences

The Bank of Canada is unlikely to be overly influenced by the coming home price correction. There are two main thrusts to this.

First, the argument that the Bank of Canada will have to behave more dovishly when confronted by falling home prices does not fly. Rising interest rates do a net good by helping to take home prices down to a more affordable level, and by discouraging the recent leveraging of Canadian households. To significantly delay further rate hikes would only further worsen affordability and encourage more household leveraging. To be sure, the fact that consumer spending and residential investment will grow more modestly are relevant considerations, but the implications do not extend beyond that.

Second, the Bank of Canada has a very clear mandate, and it does not include asset prices. Just as the Bank of Canada refused to tighten as Canadian home prices rose 22% from trough to peak, they will have no qualms about raising rates as home prices fall 10% from peak to trough.

### Market Implications

From a bond market perspective, we believe the bear flattener should re-emerge as the Canadian trade of choice by early 2011, and view any market hesitancy owing to the housing market correction as an attractive opportunity to scale in.

On the curve, there is reason to think that the 5-year cash bond sector remains rich and the 5-year swap spread remains unusually narrow so long as the housing correction plays out. This is due to a diminished need to pay in swaps by banks.

More generally, Canada's financial market is likely to remain volatile as investors debate whether the Canadian housing correction and associated over-leveraged households are game-changers or not. They are not, though they deserve close attention.

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