House prices likely to fall for several years

- **The recent housing boom has resulted in the largest rises in house prices ever seen in Canada, which have been similar in magnitude to those during the recent boom in the US. Unfortunately, the subsequent falls in prices could also be just as severe as those elsewhere.**

- **We predict that nominal house prices are likely to decline by a cumulative 25% over the next few years, in the same ball-park as the recorded declines in the US and other countries**. Growth in future personal disposable income per worker will not close the large gap between house prices and income within any reasonable length of time.

- **Various housing affordability ratios have been used to rationalise high house prices relative to income. However, this justification is flawed and potentially misleading because it fails to take account of inflation**. In a low inflation environment, you should expect lower nominal mortgage rates to result in a lower housing affordability ratio. More importantly, the real burden of mortgage payments will change little over time because nominal household income is growing at a slower pace. **In short, while housing affordability may seem reasonable at present, longer-term housing affordability is anything but.**

- Even small rises in official interest rates have been shown to have a big effect on homeowner confidence in other countries under similar circumstances, as they can change perceptions towards the housing market very quickly. As such, **if the Bank of Canada does resume its monetary tightening this year, this could easily prove to be a tipping point for a house price collapse**.

- What's more, if house prices do decline as we predict, let alone more sharply, the knock-on effects to consumer spending and housing investment could be significant and perhaps even strong enough to push the economy into another recession.

- The falls in house prices that we predict would also have significant financial implications for the Canadian Mortgage and Housing Corporation (CMHC), the government-run financial institution that insures most high loan-to-value mortgages. According to our calculations, **a sharp decline in house prices could lead to losses of around C$10 billion, which would be enough to wipe out all of the CMHC equity**.

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# House price likely to fall for several years

The housing boom over the last ten years has resulted in the largest rises ever seen in Canadian house prices, raising concern that a new bubble is developing. Understandably, this concern has cast doubt on hopes of a painless rebalancing of the Canadian economy. In this Focus, we examine the extent of the housing bubble, and in the light of our assessment make some forecasts for house prices.

Housing prices

Since the start of the residential investment boom in 1999, the prices of resale houses have increased substantially across the country. However, some of the appreciation shown in the reported house price data (what little there is available) is the result of changes in the quality and size of house changing hands, and in geographical locations where most sales are taking place. This last factor is presumably partly why the rise in new house prices have been less pronounced, as a large amount of single-detached housing construction occurs around the fringes of many major city centres (properties which are relatively cheap).

A more reliable index covering only repeat sales of the same property is available, though unfortunately this index has only a short history (and it also starts at around the time the housing investment boom began). We have therefore extended this index back further using resale price data from a different source. (See Chart 1.)

**CHART 1: NATIONAL AVERAGE HOUSE PRICE (C$, 000s)**
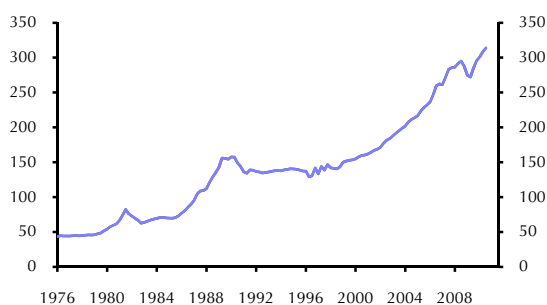
Source – Capital Economics

Using the quarterly growth of prices for two-storey homes and two-bedroom condo apartments from Q1 1976 to Q3 2010, we construct a quarterly national house price index (HPI) and an associated national house price level (HPL). The HPL is calculated on the basis that the average residential house price was close to $150,000 in 1999. This is assumption is taken from past reports published by CREA. According to our calculations, the national average house price has risen by an annual average of 7% from 1999, to around $314,000 in Q3 2010.

To compare average house price inflation between Canada and the US we plot our HPI against the repeat sales US Case-Shiller house price index, rebasing both to equal 100 in the year 1995. (See Chart 2.)

CHART 2: HOUSE PRICES IN CANADA & US (1995 = 100)
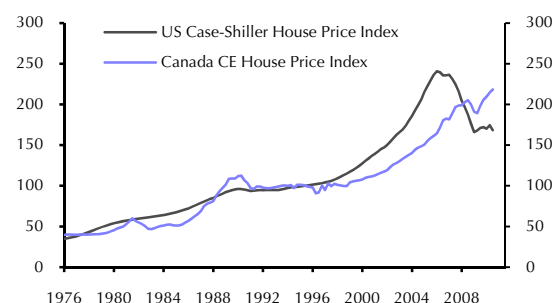
Sources – Thomson Datastream & Capital Economics

From 1995 to the peak, the cumulative increase in US house prices was 145%, compared to 125% in Canada. The rise in house prices has added around C$1.3 trillion to the value of the housing stock in Canada, compared to a scenario in which house prices had simply kept pace with general inflation.

The cumulative increases of house prices during the two housing booms in Canada are shown in Table 1, both in nominal and inflation-adjusted terms. The key point here is that the appreciation in house prices from 1999 to 2010 is similar, if not greater, to what occurred during the 1985-89 housing boom.

Furthermore, the appreciation in house prices (both for new and existing houses) has exceeded growth in personal disposable income, shown here in the Table as per worker. Adjusted for inflation, the cumulative growth in real (resale) house prices have been at least triple that of real income growth. The same does not appear so for real new house prices, which have risen by a smaller 25%.

TABLE 1: CUMULATIVE HOUSE PRICE GROWTH IN BOOMS (%)

		1985 - 1989	1999 - 2007	1999 - Present
Capital Economics:	Nominal	120	90	110
	Real	80	55	65
Royal LePage:	Nominal	120	120	145
	Real	75	85	95
New House Price Index:	Nominal	60	55	55
	Real	30	25	25
Memorandum Items:				
Consumer Price Inflation		25	25	30
Disposable Income per Worker				
	Nominal	25	30	45
	Real	0	15	20

Sources – Teranet-National Bank & Capital Economics

House price to income ratio

To better gauge just how much house prices have risen relative to income we can easily compare our HPL to personal disposable income per worker. In Q3 2010, the HPL was around $314,000 and the disposable income per worker is $58,347. This tells us that the general level of house prices has risen to almost five and a half times income, well above the long-term historical average of 3.5. This indicates the fair value was around $205,000 in Q3 2010. (See Chart 3.)

House price to rent ratio

Another common measure used to evaluate fair value in house prices is the house price to rent ratio, as rental properties and homes for purchase are (in theory) competing alternatives. Chart 4 shows that the ratio of house prices to rents has risen to a record high, far above the peak reached in the previous boom.

CHART 3: HOUSE PRICE TO INCOME RATIO
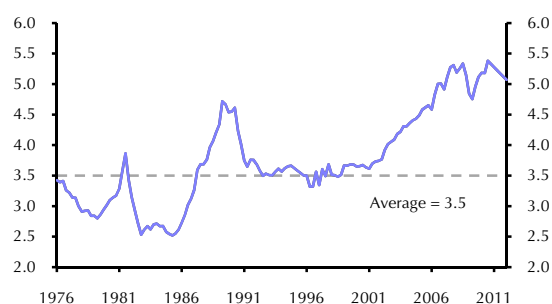
Sources – Thomson Datastream & Capital Economics

CHART 4: HOUSE PRICE TO CPI RENT RATIO (1995=100)
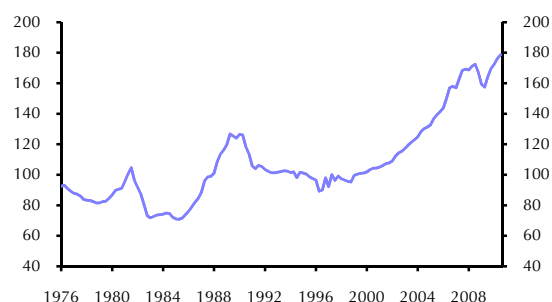
Sources – Thomson Datastream & Capital Economics

In short, both of these housing valuation ratios tell us that the current levels of house prices are relatively high and probably unsustainable. We should therefore expect a period when house price inflation either slows, or turns negative.

Mortgage payment to income ratio

However, other commentators have questioned whether these ratios have any relevance to today's housing valuations. It is often argued that financial innovation and very low interest rates have permitted borrowers to take on much more debt. Although house prices are high relative to income, the mortgage payments are still affordable. So what's the problem?

First, similar arguments were made in other countries with very low mortgage rates, including the US. However, this did not prevent house prices from falling in many of these countries. As such, it could just be a matter of timing before we see similar weakness in Canadian housing markets.

Second, mortgage payment to income ratios can be misleading because they fail to account for lower inflation. If real interest rates are constant, that is low nominal interest rates simply reflect low inflation, the real burden of the debt does not change over the lifetime of the loan. This reality, we suspect, has not been given very much consideration at all.

Lastly, slower economic growth, higher unemployment and an uncertain global outlook have all increased the financial risks confronting households. So far this has not deterred homebuyers from paying high prices relative to their income. This optimism might be due to the expectation that house price gains would outweigh the additional costs of repaying larger mortgage loans. Some homebuyers may also simply not understand the size of the long-term burden of mortgage debt that they are taking on. But as and when homebuyers reassess these risks, prices could fall sharply.

Long-term mortgage payment to income ratio
To illustrate the problems of longer-term affordability, we can calculate a typical mortgage payment and show this as a share of future disposable income per worker at year 5, 10, and 20. A higher ratio implies housing affordability is deteriorating, whereas lower ratio signifies an improvement.

Before we can do this, we need to make a few assumptions about future income growth, mortgage rates, and mortgage loan size. In our stylised example, we assumed that the parameters of the mortgage loan remained unchanged. This means that the mortgage payment is fixed over the entire term of the mortgage (which is 25 years). For income, we assume modest annual real income growth per worker of around 0.6%, compared to the historical average of 0.8% (from 1980 to 2010). For inflation, we pair this modest real income growth profile with an equally modest inflation projection of 1%.

The results show that longer-term housing affordability is not as comfortable as many homeowners may think. Although longer-term affordability is not quite as bad as it was around the peak in prices of the previous housing boom (1990), our estimates show that it is still fairly poor. (See Chart 5.)

CHART 5: LONGER-TERM HOUSING AFFORDABILITY
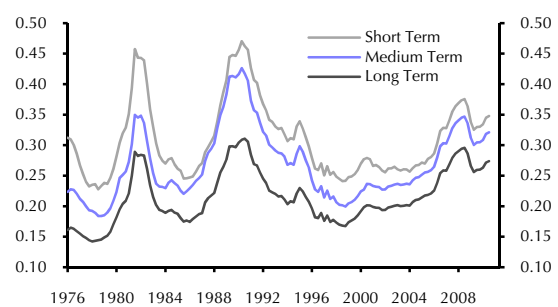
Sources – Thomson Datastream & Capital Economics

This evidence suggests that while near-term measures of housing affordability appear comforting, they should be considered alongside the longer-term costs of servicing a much larger mortgage loan.
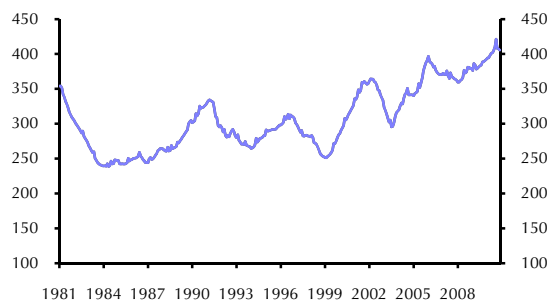
Without any adjustment in house prices over the coming years, the time it would take for income growth to materially improve longer term affordability would stretch into decades. This is simply not plausible. The most likely outcome over the next few years is a combination of modest real income growth per worker and substantial real house price declines. If real mortgage rates increase substantially, longer-term housing affordability would look much worse.

Demographic demand and supply
Of course, some people would tell you that the run-up in house prices is fully warranted because of changes in the underlying fundamentals of the market. Changing population demographics are a popular story. Strong net immigration and robust demand for second homes from baby-boomers are assumed to be lifting demand, while municipal planning restrictions are assumed to be adding to the upward pressure on real prices.

At first glance, the data on population growth appear to support this story. From 1999 to 2010, growth in the working age population has accelerated thanks to net immigration. Over this period, annual growth of the working age population has averaged close to 350,000, and more than 400,000 recently. (See Chart 6.)

CHART 6: ANNUAL CHANGE IN WORKING AGE POPULATION (000S)

However, if we assume two persons of working age per household, then the change in population equates to annual average housing demand of 175,000 units. Actual annual housing starts (completions) over this same period averaged 200,000 units. (See Chart 7.) Admittedly, a small fraction of these new units will go toward replacing lost capital stock due to demolition and conversions of older units each year. But overall, this does not suggest there is any shortage of housing units to satisfy the growth in population and household formation.

CHART 7: DEMOGRAPHIC DEMAND & NEW SUPPLY
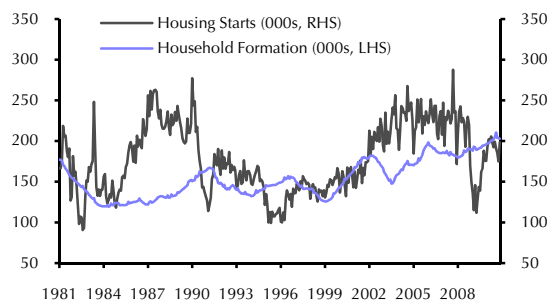
Excess new housing inventory

Indeed, there is actually an *excess supply* of new housing units. Inventory of newly completed unoccupied housing units is high by historical norms. The conclusion is the same if we adjust the data for growth in population. (See Chart 8.)

**CHART 8: NEWLY COMPLETED UNOCCUPIED UNITS (000S)**

Bank lending conditions

As we can see below, favourable bank lending conditions were likely a contributing factor to the ten year long housing boom. (See Chart 9.) This factor will surely also be less favourable in future.

Although lending conditions tightened from 1999 to 2003, house price inflation was strongest when lending conditions were being eased, particularly from 2004 to 2007. When the global financial crisis hit, lending conditions tightened and at the same time house prices fell. As the pace of tightening slowed and then began to ease, house prices had already begun to rise again.

CHART 9: LENDING CONDITIONS AND HOUSE PRICES
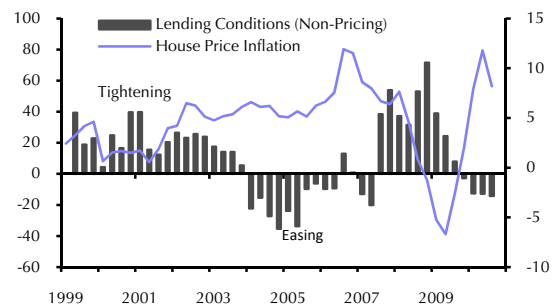
Housing price outlook and conclusions

We conclude that housing prices have formed a bubble and are at risk of falling substantially over the next few years.

To determine the most likely path for average house price we consider the previous boom-bust cycle and use our measure of house prices relative to income as a model.

If we assume that real disposable income grows at close to its historical annual average of around 2%, and add to that annual inflation of 2%, then nominal disposable income growth is 4% (which is being slightly generous given that we expect more subdued household income growth and lower inflation). This profile for income would bring the house price to income ratio back to its long-run average of 3.5 beyond year 2020. This is much longer than the previous housing correction of around three years, and therefore seems unreasonable.

Instead, if we impose the restriction that the correction in the house price to income ratio take only three years and that real mortgage rates remain largely unchanged, the same profile for income growth implies that average house prices must decline by a cumulative 25%. This prediction is almost twice as large as the correction that followed the 1985-89 housing boom, which was close to 15%. (See Chart 10.)
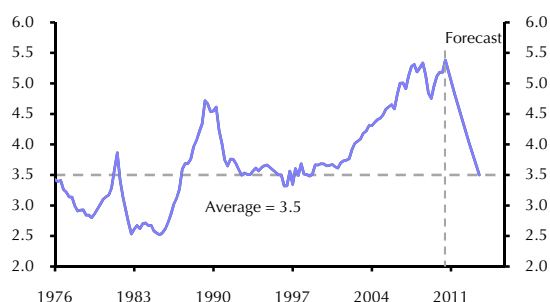
CHART 10: HOUSE PRICE TO INCOME RATIO FORECAST

Sources– Thomson Datastream & Capital Economics

It is also worth stressing that our forecasts assume that house prices simply drop back to fair value based on the historical average for the ratio of prices to incomes. In reality, just as they have been substantially *over*–valued for a long period, they fall well *below* fair value for a long period too.

What's more, if house prices do decline as we predict, let alone more sharply, the knock-on effects to consumer spending and housing investment could be significant and perhaps even strong enough to push the economy into another recession.

Finally, financial agencies such as Canada's Mortgage Housing Corporation (CMHC) could be exposed to significant capital losses. According to our reading of CMHC financial statements, insured mortgages and securitised mortgage guarantees total an amount close to C$800 billion. The total equity of CMHC is C$10 billion.

If house prices collapse further than we predict, say by 35%, with a default rate of 10% and average home equity of 10%, then the potential capital loss amounts to $20bn. Even if we assume that half of this amount is eventually recovered, that still leaves an expected loss of around $10bn. Under the same assumptions, the 25% decline in house prices that we expect over the next few years would still result in a considerable loss of around C$6bn.