RBC Financial Group

Financial Industry Monitoring Service

In-depth analysis of developments in the Canadian and U.S. financial services industries

Household asset valuations — Equities and housing

July 2005

The two biggest assets on household balance sheets in Canada and the United States are housing and equities, so determining if there is a price bubble in either of these two asset classes is critically important to assessing the overall health of household finances. This paper examines a variety of valuation benchmarks for both asset classes and concludes that equity markets are fairly valued, and that evidence on housing markets is mixed. We do not believe that the conditions exist for a protracted decline in house prices going forward. Just as economic expansions don't necessarily die of old age, there is nothing that says that housing booms have to end in a bust instead of a gradual controlled cooling in the pace of price appreciation.

This controlled cooling scenario — as opposed to a crash — is due to the absence of the kinds of challenges to house prices that have caused great difficulties in the past. A cooling scenario is also unlikely to materially impact the outlook for consumer spending for three reasons. First, the pattern of central bank responses over the years has been to step in and inject monetary stimulus through lower interest rates if major sectors of the economy look to be ratcheting overall economic growth and inflation below comfortable levels. Second, households react to house price changes in lagged fashion and in response to very imperfect estimates that they may make on the range of possible values of their homes. Lastly, the outlook for other drivers of consumer spending is robust enough to swamp any effect that a more modest outlook for house price appreciation may have.

Five measures of equity valuations

A look at equity valuations requires multiple approaches. Simply comparing stock market indexes to previous heights is a popular, but inadequate, approach because as time passes inflation, overall economic growth, changing growth rates in corporate profits, and other measures of corporate finances will drive nominal equity price indexes. What is missing is a benchmark against which to compare today's prices. With that in mind, we turn to five measures. None of them is perfect, but what we want to examine is whether or not there is compelling evidence of over- or under-valuation in today's North American equity markets using a variety of measures. For that, we use two of the key benchmark indexes — the Standard and Poor's 500 for the United States and the Standard and Poor's TSX 300 for Canada.

Chart 1

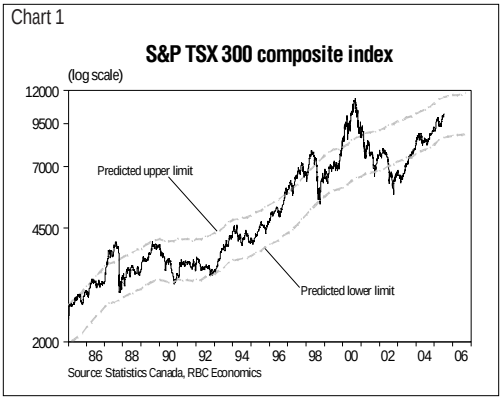
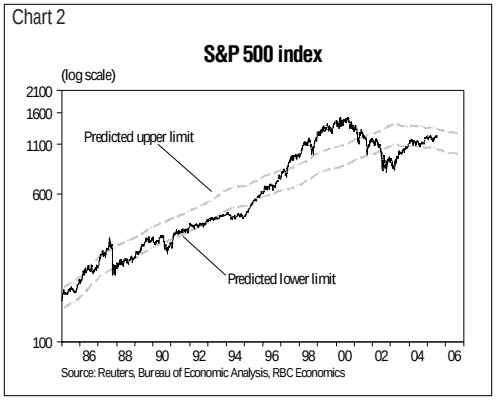


Chart 2



Derek Holt
Assistant Chief Economist
(416) 974-6192
mailto:derek.holt@rbc.com

Ivana Rupcic
Economist
(416) 974-6525
mailto:ivana.rupcic@rbc.com

Available on the Internet at
www.rbc.com/economics

Chart 3

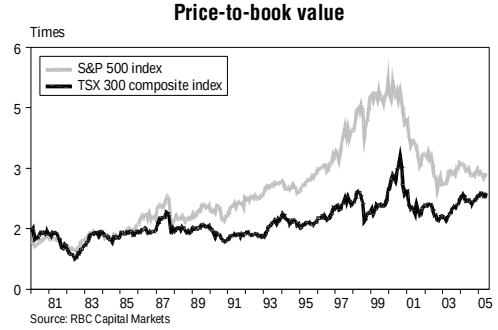


Chart 4

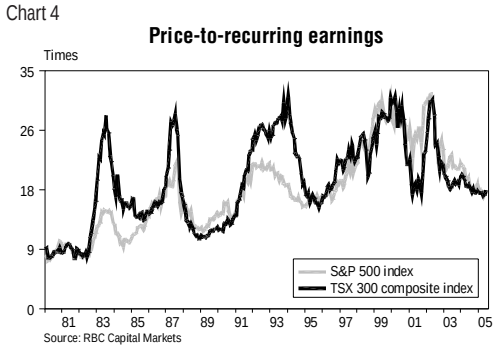


Chart 5

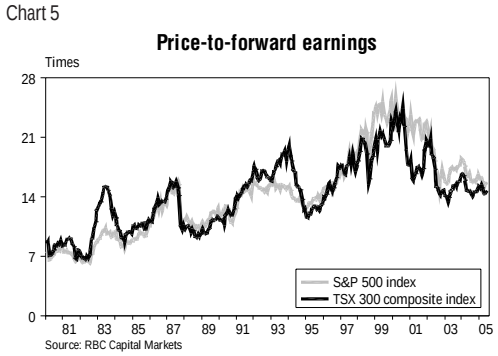
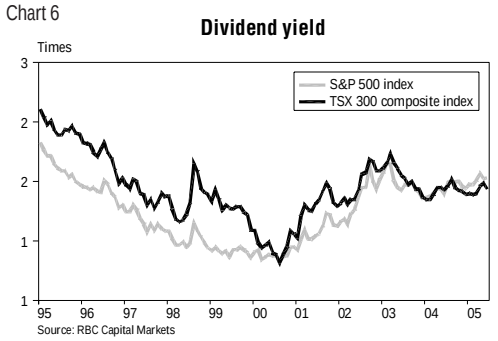


Chart 6



Measure 1 — The first equity valuation perspective is provided in charts 1 and 2. By relating stock market indexes to bond yields and corporate profits in a simple equation, we can develop upper and lower valuation bands based on the statistical concept of a 95% confidence interval. By this measure, all we can essentially say is that 95 times out of 100, we would expect stock markets to be trading within the bands. During times when they are not — as in 1987 and in the late 1990s — they may suggest over-valuation, while at other times — as in late 2002 or early 2003 — they may suggest under-valuation and, hence, a buying opportunity. At present, both markets lie well within their 95% confidence intervals, which suggests that markets are reasonably valued.

Measure 2 — Another measure is the price-to-book ratio (chart 3). This ratio compares today's equity prices to the historical issuance value of the underlying shares, including retained earnings. In the late 1990s, this ratio was flagging warning signs, particularly in the United States, as market prices traded between five and six times book values. Today's range of around three times book value is back closer to normal levels but is still higher than it was throughout the 1980s and early 1990s.

Measure 3 — Another approach is to compare price to an estimate of recurring earnings using the past year's earnings reports (chart 4). By comparing price to the underlying earnings that drive price trends, this ratio has the advantage of using a known benchmark based on actual results. Disadvantages include the fact that today's equity valuations should be properly expressed in relation to expected future earnings instead of a rear-view window perspective on earnings. In addition, even historical earnings can be restated and don't necessarily reflect the true cash flow position of the firm since they are based on accrual accounting concepts rooted in Generally Accepted Accounting Principles (GAAP). Nevertheless, what this ratio shows is that valuations were indeed lofty in the late 1990s, but have since pulled back more in line with historical norms.

Measure 4 — In order to address one of the deficiencies in the previous ratio, we can instead look at how prices compare to an estimate of forward-looking earnings based on the consensus analyst view over the next 12 months (chart 5). This ratio is a little better than the last one, but still has the flaw of not looking at all future cash flows and discounting them back in time individually. That is easier said than done for individual firms and a near impossibility for overall indexes. Whereas this measure was very high in the late 1990s, today it is much more reasonable.

Measure 5 — A further measure is the dividend yield (chart 6). If companies are tending to pay out very high dividends in relation to their share price, then one thing that it may signal is a buying opportunity. Or, if they are paying out low dividends in relation to prices, it may be a sell signal. Either way, today's dividend yield is considerably higher than it was in the late 1990s when prices were overinflated. The fact that it is on the somewhat high side of its long-run average suggests that valuations are generally fair.

As with all equity valuation measures, controlling for shifting market composition over the years is impossible. Overall, however, all of the above equity valuation measures tend to suggest that there is no evidence of either a large buying or selling

opportunity in North American equities. Conditions appear to point towards reasonable valuations. This does not preclude either upward or downward near-term movements in the markets, but tends to suggest that there is no clear evidence that market valuations lie at the extremes.

Four measures of housing valuations

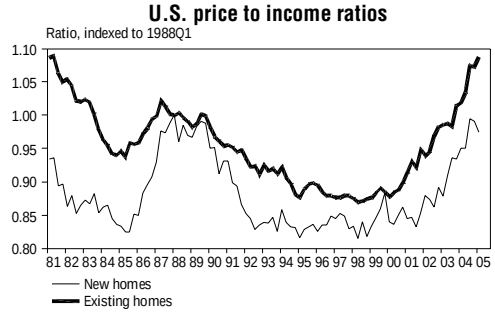
Compared to equity valuations, deriving suitable measures of housing valuations present even greater challenges because the stock of overall housing trades infrequently in less liquid markets, and both information and transactions costs are much higher than in equity markets. Furthermore, whereas equity valuation measures generally compare apples-to-apples in the numerator and denominator by, for example, comparing the prices to earnings of the same universe of companies, this is not the case for housing valuations. This, in turn, is because housing valuation measures often use different mixes of houses sold in the price measures at each point in time, and compare them to general benchmarks that don't reflect the composition of the numerator. With these strong cautions in mind, we look at four different valuation measures.

Measure 1 — The first measure is a simple price-to-income ratio, which compares the average price of a home to average disposable income per person. In the U.S., this ratio has been rising steadily since 2001 for both new and resale homes, though neither have been record-breakers (chart 7). In Canada, while the ratio for resale homes has trended up considerably in recent years, surpassing earlier peaks reached in the late 1980s, the same is not true for new homes where the pace of increase has been much more modest (chart 8). This is significant because new home sales represent one-third of the Canadian market. Comparisons between Canada and the U.S., however, may not be exact, as resale home prices in the U.S. are calculated as a weighted repeat sales index, and therefore measure average price changes in repeat sales on the same properties. This is not available in Canada.

The problem with this measure, however, is that it compares a stock variable — average home price — to a flow variable —average one-year income. The unique set of economic circumstances since 2001 that made housing an attractive investment occurred during a period when income growth was relatively weak. As a result, the run-up in the price-to-income ratio in the past four years has been exacerbated by slower-than-average income growth in both countries. It is also unlikely that those buyers who did purchase homes believed that their incomes would remain mired at such low levels and instead based their buying decisions on future growth expectations, which are not captured in the ratio. Moreover, another major problem with this measure is that it compares the average price of a home to the average income across the population, not just homeowners. Since those individuals who own homes tend to earn more and have faster growing incomes than those that do not own according to Census data, this comparison overstates the impact of home prices relative to income.

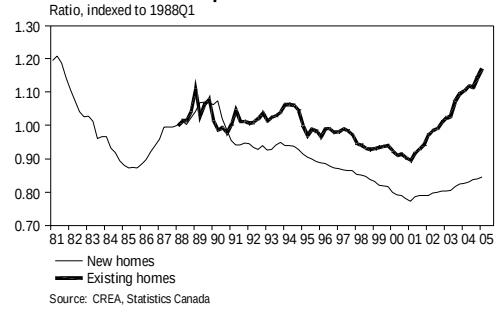
Measure 2 — A better approach in this case is to consider an affordability measure that captures the share of annual income necessary to service the costs of buying a home, including yearly mortgage principal and interest payments, property taxes and utilities. In this way, flows are being compared to one another. Looking at RBC

Chart 7



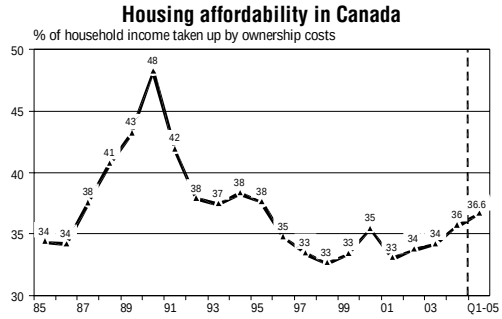
Source: BLS, Federal Housing Oversight Enterprise, Bureau of the Census, BEA

Chart 8



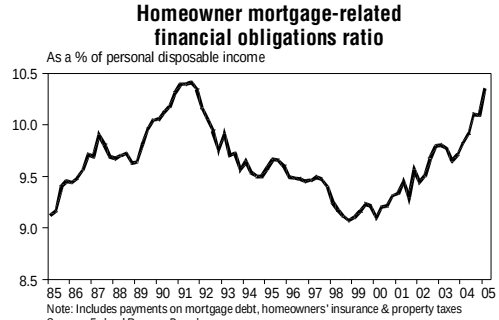
Source: CREA, Statistics Canada

Chart 9



Source: Statistics Canada, Royal LePage, RBC Financial Group

Chart 10



Note: Includes payments on mortgage debt, homeowners' insurance & property taxes
Source: Federal Reserve Board

Financial Group's housing affordability index (chart 9), conditions remain considerably more favourable than they were just over a decade ago even though affordability has deteriorated somewhat in recent years. As a result, while home prices today are much higher than they were back then, homeowners are better able to afford the costs associated with homeownership, suggesting that real estate prices are not grossly out of line when compared to the overall financial condition of households. However, some caution is required in this interpretation as well since historically low financing costs may be swamping the real impact that higher home prices are having on affordability.

Chart 11

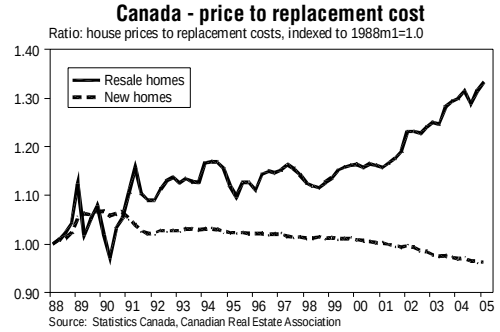


Chart 12

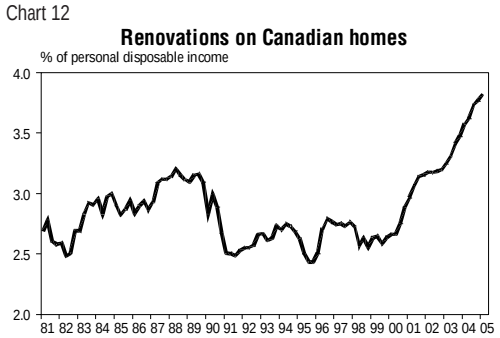


Chart 13

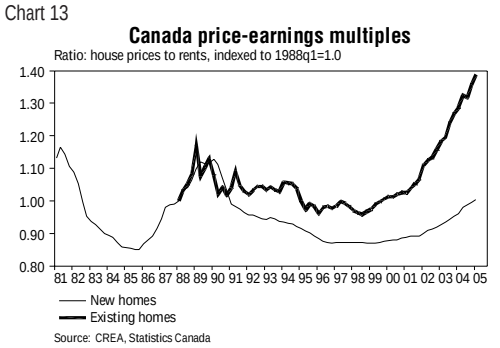
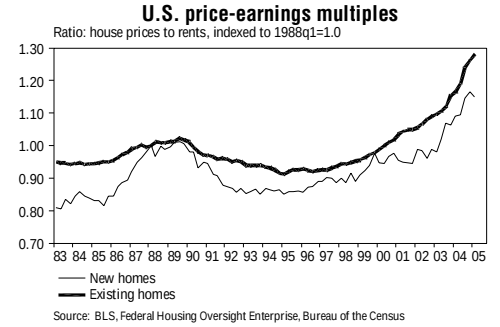


Chart 14



The share of personal disposable income devoted to homeownership in the U.S. also shows that affordability conditions today are not historically out of line. The homeowner financial obligations ratio for mortgage-related debt (chart 10) shows the share of personal disposable income spent on principal and interest payments on mortgage debt, on homeowners' insurance costs and on property taxes. Though this ratio has risen sharply over the past year, it remains within a very tight historical range of about 9 to 10.5% of income. Moreover, with incomes on the way up, it is unlikely to move significantly above the levels seen over a decade ago. While the homeowner financial obligations in the U.S. is similar in spirit to the Canadian measure, there are a number of key differences - it does not include the amount spent on home heating costs and it only considers income earned by homeowners, which tends to be higher than for non-homeowners. As such the U.S. ratio is much lower.

Measure 3 — Another way of attempting to evaluate home prices is by looking at price relative to the cost of rebuilding a home all over again from scratch. This price-to-replacement cost ratio (chart 11) takes into account the cost of the inputs that go into building a home, such as materials and labour, thereby adding some supply and demand dimensions to valuation. The calculation of the ratio uses the housing replacement cost component of the CPI in Canada, but since this is not available in U.S. data, only Canada is considered here.

This measure has been trending up using existing home prices, but has been trending down steadily using new home prices. Part of the reason has to do with the increase in renovation activity in Canada, which has risen dramatically in recent years (chart 12). Since renovations are the domain of already existing homes, the recent increase in renovation activity points to one reason why existing home prices have been rising so much relative to new home prices, namely that the stock of existing homes has been upgraded substantially. Unfortunately, the price data available does not take into account such changes. This demand for workers and materials has therefore been putting more upward pressure on replacement costs than it has on new home prices, causes the ratio for new homes to decline.

Measure 4 — Another measure to consider is the price-earnings multiple. This is essentially a real estate variant of the same price-earnings ratio used to value stocks. It expresses house prices as a function of discounted expected future cash flows, which in this case are defined to be the potential rental costs of an owner-occupied housing unit. While this measure of rents is available in the United States, a slightly different definition is used in Canada. As a result, the two multiples cannot be directly compared to one another, only to their own histories. In Canada, while the price-

earnings ratio for existing homes has indeed risen sharply, it has not gone up nearly as much when looking at new home prices, and remains below the highs seen in the late 1980s (chart 13). In the U.S., the ratio for both new and existing homes has been rising steadily since the early 1990s (chart 14).

The case for a controlled cooling

Overall, while we think it is unlikely that North American housing markets are in a bubble, even if there is, the case for a controlled cooling is stronger than a popping. Although housing valuation measures have risen to some extent in both countries, there are economic arguments that support the case for rising valuations over time without necessarily implying overvaluation. Chief among them is a diminishing real estate discount rate. If we think about the real estate price-earnings ratio in a constant-growth perpetuity sense, a discount rate that is trending down will positively affect the price-earnings ratio. Factors contributing to a lower discount rate include lower liquidity risk due to both improved efficiencies and innovations in real estate credit markets. In addition, lower and more stable consumer prices and inflation expectations also support this case. Apart from discount rates, another reason that P/E ratios may be increasing is due to downward pressure on rents given excesses in many rental markets.

Taken together, although the various approaches to housing valuations suggest that home prices have risen quite a bit in recent years, this does not necessarily verify the existence of a late 1980s-type bubble. Over the past ten year period, the real average annual rate of return on resale homes stands at less than 2% in Canada and at about 3.5% in the U.S. This is in contrast to real equity returns over the same period, which are just shy of 7% in both countries. Although on a countrywide basis the gains do not appear too dramatic, there are very sizable variations across regional markets. For example, in the U.S., a deterioration in affordability is concentrated in states like California and Nevada while many states have posted improvements over the past five years (chart 16). In Canada, the appendix to this paper demonstrates that much of the run-up in price-earnings valuations has been concentrated in British Columbia. Markets like Toronto and Hamilton are only just climbing back up to late-1980s levels.

Non-price measures also point to exaggerated bubble fears. Today's relatively tight housing inventories suggest that a sharp pullback in prices is unlikely (chart 17), particularly against a backdrop of healthy labour markets and rising incomes.

Lastly, a comparison with the late 1980s and early 1990s shows that the economic environment today is much different in both countries, contributing to the strong demand for housing and the resulting pressure on recent home prices.

▲ Short-term interest rates are nowhere near the 10-15% range seen in Canada (chart 18), and they are also much lower today in the United States.

▲ Unemployment rates are considerably lower in both countries, particularly in Canada (chart 18, again).

▲ Robust Canadian real estate demand in the past number of years is largely attributable to the unleashing of pent-up demand built up during the 1990s.

Chart 15

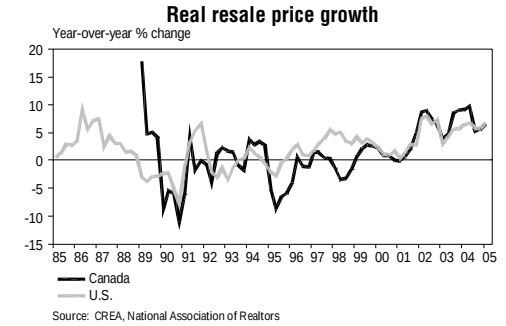


Chart 16

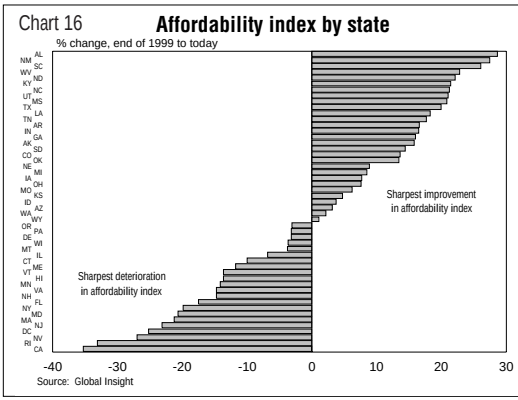


Chart 17

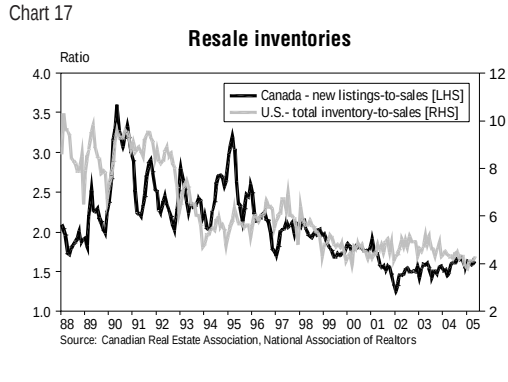
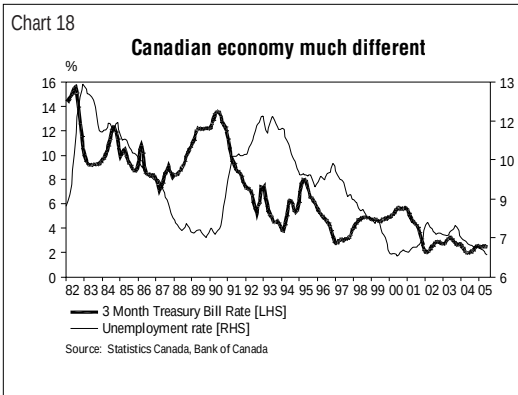


Chart 18



Appendix: Housing P/E ratios by city