

ANALYSIS

Prepared by

Andres Carbacho-Burgos
Andres.Carbacho-Burgos@moodys.com
Economist

Contact Us

Email
help@economy.com

U.S./Canada
+1.866.275.3266

EMEA
+44.20.7772.5454 (London)
+420.224.222.929 (Prague)

Asia/Pacific
+852.3551.3077

All Others
+1.610.235.5299

Web
www.economy.com
www.moodysanalytics.com

Canada Housing Market Outlook: More Moderation, No Hard Landing

Introduction

There has been a lot of speculation about Canada's housing markets overheating during the past two years. However, the Moody's Analytics forecast model for the Brookfield RPS house price indexes indicates that overall house price growth in Canada will slow down as some markets, especially Toronto and Vancouver, become overvalued and less affordable while international capital inflows also slow down. In coming years, the Bank of Canada will raise interest rates in reaction to monetary tightening in the U.S., which will pull up on Canadian mortgage rates. The house price outlook calls for a deceleration of house price growth, not for a serious decline, though there are exceptions for smaller regions. Of the six major Canadian metro areas, only Edmonton will experience a slight house price decline in coming years, while the other five metro areas will have slow to moderate house price growth.

Canada Housing Market Outlook: More Moderation, No Hard Landing

BY ANDRES CARBACHO-BURGOS

The Canadian housing market has experienced a radical regional divergence over the past two years, but some basic laws of gravitation, and at least one policy intervention, point to regional convergence reasserting itself without any sort of hard landing. In particular, some of the largest house price imbalances are the result of international wealth inflows rather than excessive risk-taking by mortgage lenders, so there is little systemic financial risk.

More than most countries, Canada displays substantial regional concentration of industries, and there is also a wide variety of demographic profiles across the country. As a result, there may still be individual regions within Canada where housing markets perform poorly in coming years, but the baseline forecast is for no overall national house price correction.

Recent Performance

National metrics show signs of the Canadian housing market overheating, which will add to price pressure in the very short term. Sooner or later, however, this market tightness may already be leading to a slowdown in price growth as housing in the largest metro areas becomes less affordable, possibly also as residential construction starts to ramp up. In the case of Vancouver, the dizzying run-up in house prices over the past year has also prompted the imposition of a transfer tax on foreign purchases (effective as of August 2016) intended to reduce total demand.

As of July, national home sales are slightly more than 530,000 annualized units, down from a peak of more than 550,000 units in the second quarter, according to the Canadian Real Estate Association. By contrast, total listings are at a cyclical bottom, so that the

inventory-to-sales ratio has fallen to a cyclical low of only 4.6 months of sales. Residential construction has been flat over the past year at 200,000 annualized starts, and is still below the average of 225,000 from before last decade's recession.

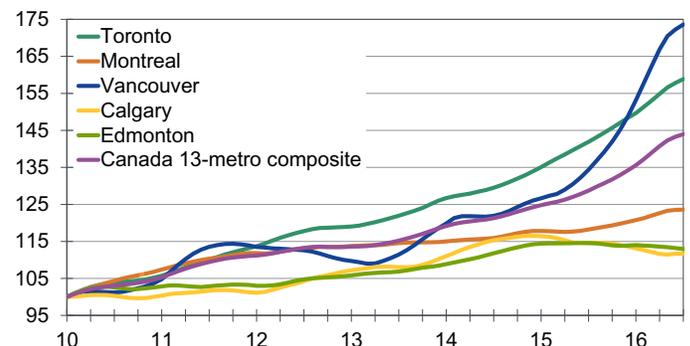
These economic statistics point to a tight housing market, but differences in regional economic performance have led to greatly different rates of demand growth between metro areas. The combination of different regional rates of capital inflows, substantially different demographic patterns, and the drastic fall in oil prices at the start of last year has driven a wedge between house prices in different provinces and metro areas. Of the largest metro areas, Toronto and Vancouver show the clearest upward divergence over the past three years (see Chart 1), but this divergence has also started extending to smaller nearby metro areas such as Abbotsford, Hamilton and Ottawa. For Toronto and Vancouver, a large part of the upward

pull is because of wealth inflows, often of foreign origin, that cannot be fully measured by macroeconomic data, and also because of relatively strong demographics. By contrast, the fall in the price of oil at the end of 2014 short-circuited what was previously moderate residential price growth in Calgary and Edmonton. This loss of house price momentum is likely to persist even after the price of oil starts to recover.

Some degree of economic or demographic weakness has dragged on demand in other provinces in Canada and pulled down house price growth below the national rate over the past three years. For the Atlantic Provinces, a large part of this weakness is

Chart 1: Toronto and Vancouver Break Away

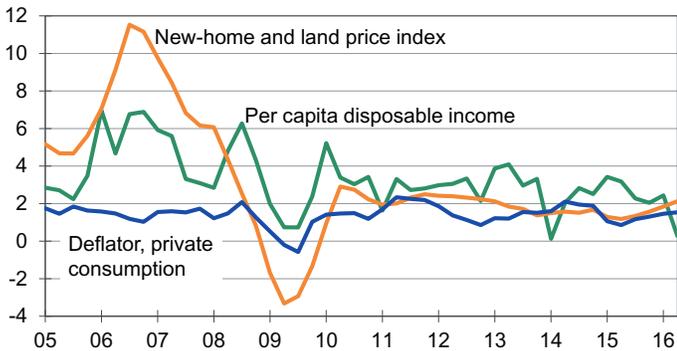
Brookfield RPS composite house prices, Jan 2010=100, SA



Sources: Brookfield RPS, Moody's Analytics

Chart 2: Inflation, New-Home Prices Are Subdued

Canada macroeconomic indicators, % change yr ago



Sources: Statistics Canada, Moody's Analytics

demographic: New Brunswick and Nova Scotia had slight population declines in 2013-2014, as did Newfoundland in 2015. By contrast, an improvement in the economy, led by increased trade and tourism, helped house price appreciation in Quebec pick up after 2013, though it still lagged the national growth rate. Last, Manitoba and Saskatchewan in the past three years have been hit by falling agricultural prices as well as declining oil prices; not surprisingly, their slower median income growth has translated into slower residential price gains as well.

The concentration of demand growth in the largest metro areas of Toronto and Vancouver has also led to space being at a premium, especially in areas where detached home construction is restricted by zoning regulations or elevated land prices. Consequently, house price growth has been stronger than condo apartment price growth since 2010, and is likely to remain so as long as wealth inflows focus on these two large metro areas. However, Vancouver's new transfer tax already seems to be slowing single-family home sales and house price growth.

The macroeconomic forecast

In the Moody's Analytics forecast model using Brookfield RPS house price indexes in Canada, the long-term determinants of residential price trends are per capita disposable income, the supply price as proxied by the new-home and land value price index, and the deflator for consumer spending. Of these three, the third is the default trend measure: If all other macroeconomic drivers

are unchanged in the forecast model using Brookfield RPS house price indexes, house prices will trend upward at the rate of consumer price inflation.

By comparison, per capita disposable income and the new-home and land value price index are more

volatile as seen in the past decade, but over the last five years they have been relatively stable and are likely to remain so in the medium term (see Chart 2).

Within a five-year horizon, per capita disposable income growth will initially sputter because of low oil and agricultural commodity prices, but once these start to recover, real per capita disposable income will reach a non-business cycle trend growth rate of about 1% per year.

The forecast for the new-home and land value price index is less sanguine. Moody's Analytics assumes that as economic recoveries in Asia and Europe start to gather pace, capital inflows to the U.S. and Canada will diminish at the same time that there is a pullback from new-house and land purchases in Toronto and Vancouver as affordability starts to deteriorate for all but the highest-income earners. As a result, new-home and land value price growth will likely lag consumer price inflation.

Combining the three forecasts leads to a five-year trend residential price growth rate of slightly less than 3%, or slightly less than 1% after adjusting for consumer price inflation. In the near term, this trend will be disrupted by business cycle considerations as the national economy adapts to changing global conditions. In particular, five-year mortgage rates will move from their current low of less than 4% to almost 6% as the Bank of Canada tightens interest rates in response to tighter macroeconomic capacity and to prevent destabilizing capital outflows as the U.S. raises interest rates.

Though the national unemployment rate pushed up past 7.2% in the wake of last year's oil price shock, it has already started to decrease in the second quarter and continued to do so as the Brent oil price starts to recover to a more normal trend, restarting oil production and restoring momentum in Alberta's economy. Finally, multifamily construction will decline over the next few years given that recent new construction has pushed rental vacancy rates closer to normal in Toronto and Vancouver, but single-family homebuilding will hold steady in large part thanks to already-high prices in both metro areas and because of the start of recovery in the country's oil belt.

The forecast for housing-related macroeconomic fundamentals that are sensitive to the business cycle is summarized in Table 1. While total housing starts fall in the medium term, reduced apartment construction accounts for all of the decline. Income growth will be sufficient so that affordability, as measured by the ratio of median house prices to median family income, will stabilize by 2018. Last, there will be a slight increase in the debt burden, as measured by the ratio of mortgage credit to disposable income, but there have been no indications at any point of a mortgage lending bubble building up. In addition to the absence of any sort of bank deregulation, the percentage of mortgages in arrears is at a business cycle low, while the ratio of total consumer debt service to disposable income has fallen steadily over the past decade.

The valuation question

For individual Canadian metro areas, Moody's Analytics calculates long-term trend house prices in a manner similar to the national house price, and in that case regional differences come to the fore.¹ Long-term regional factors such as population density and historical house price sensitivity to financial wealth fluctuations result in metro areas with large population densities, scarce land, and strong population growth—mainly

¹ Trend house prices are not calculated for the Canadian provinces, as the province house price forecasts are mainly weighted averages of the metro area house price forecasts, so there is no need to have a trend-reversion effect.

Table 1: Canada Housing Market, History and Baseline Forecast

	Most recent	2014	2015	2016	2017	2018	2019	2020	2021
Detached single-family house price index, % change	9.2	4.5	5.6	8.7	5.4	3.2	2.2	2.2	2.5
Condo apt. price index, % change	4.9	2.4	3.7	4.7	3.2	2.4	1.7	1.7	1.9
Composite house price index, % change	8.3	4.3	5.1	7.9	5.0	2.9	2.0	1.9	2.2
Unemployment rate, %	7.0	6.9	6.9	7.0	6.7	6.6	6.6	6.7	6.6
Avg mortgage rate, 5-yr, %	3.70	4.10	3.80	3.70	4.40	5.40	5.80	5.90	5.90
Housing starts, ths	197.8	189.0	194.1	192.6	192.1	184.9	177.4	174.5	174.7
% change	2.9	0.6	2.7	-0.8	-0.3	-3.7	-4.1	-1.6	0.1
Ratio, median dwelling price/median family income	6.6	6.0	6.2	6.6	6.8	6.8	6.8	6.8	6.9
Ratio, outstanding mortgage debt/disp income	1.1	1.1	1.1	1.1	1.2	1.2	1.3	1.3	1.3

Sources: Brookfield RPS, Statistics Canada, CMHC, Moody's Analytics

Toronto and Vancouver, to a lesser extent Montreal and Ottawa—having relatively large house price trend values relative to the rest of the country. Consequently, these metro areas would have a higher bar to clear for being classified as having overvalued housing markets.

Even so, recent house price trends for Toronto, Vancouver, and neighboring metro areas still look unreasonable. While other large metro areas are within 10% of the current trend value for detached single-family homes, such homes in Toronto are overvalued by as much as 30%, with overvaluation in Vancouver reaching 60% (see Chart 3). Such a high degree of overvaluation does not necessarily imply a rapid reversion to trend involving house price declines, especially if net wealth inflows are high, but it does indicate that house prices will face significant downward drag in coming years, especially now that foreign purchases in Vancouver are subject to a 15% transfer tax.

For condo apartments, the overvaluation bar is harder to clear. The main reason is a not-so-subtle difference in the determination of the house price trend for the two types of housing. For detached homes, the main demand-side determinant of the long-term trend price is median family income. By contrast, the long-term determinant of the trend price for condo apartments is per capita disposable income, based on the assumption that a significant share of demand for condo apartments will be by non-family households. With per capita disposable income having greater variability by region than median family income, there is less room for dramatic degrees of over- or undervaluation. Of the large metro areas, only Toronto has moderately overvalued condo apartment prices (see Chart 4). Because of a much larger per capita disposable income and high population density, condo apartments in Vancouver are not significantly overvalued. By contrast,

faster income growth in Calgary before 2015 has led to condo apartments now being moderately undervalued.

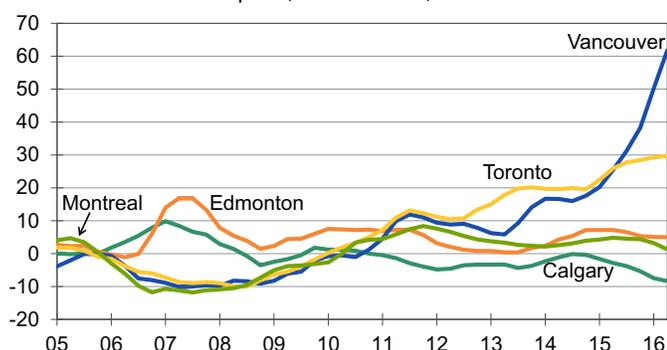
The regional forecast

Obtaining a short-term house price outlook for the Canadian metro areas requires quantifying the following forecast drivers:

- » Persistence effects from recent house price growth, usually from one or two previous quarters.
- » The tendency of house prices to revert to the trend level. In the case of undervaluation, this tendency usually takes the form of a rush to make opportunistic purchases of undervalued homes, especially for resale or rental use rather than occupation. For overvalued homes, this tendency usually takes the form of a house price deceleration after overconstruction or falling demand, possibly exacerbated by a decline in mortgage debt performance.

Chart 3: Is Vancouver Dangerously Overvalued?

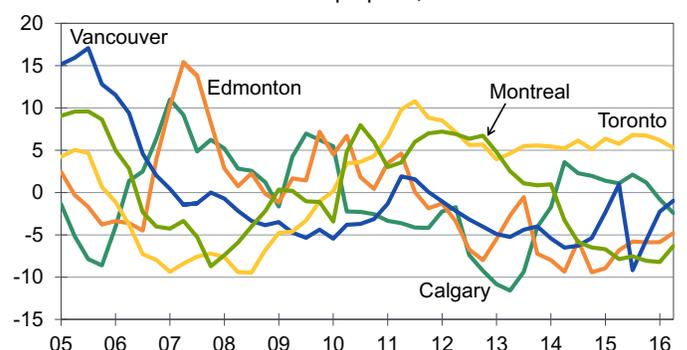
Brookfield RPS house price, s-f detached, % deviation from trend



Sources: Brookfield RPS, Moody's Analytics

Chart 4: Apartment Valuation Is More Moderate

Brookfield RPS median condo apt. price, % deviation from trend



Sources: Brookfield RPS, Moody's Analytics

- » Contemporaneous effects of long-term drivers that determine the trend house price level: income, population growth, new-home and land values, and national wealth.
- » Contemporaneous local or macroeconomic shocks, including significant changes to the unemployment rate, to the average five-year mortgage rate, and to the pace of residential construction relative to household formation.

Table 2 presents the outlook for detached single-family house prices in the Canadian metro areas with an eye to the first two of these broad drivers. The first column presents the degree of over- or undervaluation in the second quarter of 2016, the last for which there is historical data. A high degree of overvaluation may create significant downward drag on house prices in most regions, while a high degree of undervaluation can create upward pull, though of the top five Canadian metro areas only Calgary is currently undervalued. The second column shows the annualized rate of house price growth in the second quarter, again the last with history. The higher the rate of house price growth in this quarter, the stronger the house price growth forecast will be in the next few quarters.

The results of the forecast are shown in the third and fourth columns. The third column is the average annualized rate of house price growth in the four-quarter period from the second half of this year to mid-2017, which is significantly influenced by recent house price gains. The fourth column shows the average growth rate for the six quarter period running from the second half of 2017 to the end of 2018, where the persistence effects of the most recent house price appreciation have faded and reversion effects have become stronger, in addition to the effects of climbing mortgage interest rates.

In general, house price growth tends to decelerate nationwide by 2017-2018. The extreme case is Vancouver, where house prices peak in the third quarter of this year and then decline slightly through mid-2017: Low affordability and the likely reduction of international capital inflows in the wake

of the transfer tax finally end the steep appreciation that started in 2013. Toronto is much less sensitive to mean reversion effects and has only a gradual deceleration, caused mainly by higher mortgage rates. Improving fundamentals will help to lift Calgary house prices again, but house prices will trend slightly downward in Edmonton despite a gradual increase in the price of Brent crude oil. None of the six largest Canadian metro areas undergoes a major house price decline in the near term, but the forecast indicates that the Saskatchewan and Newfoundland housing markets are in for a rough two years, because of a combination of overvaluation and slow projected economic growth.

Last, Table 3 summarizes the medium-term house price outlook for the census metropolitan areas, sorting them in order of strongest to weakest average annualized house price growth for the five-year period from the third quarter of 2016 to the third quarter of 2021. Four of the five strongest performers are in Ontario. Toronto and possibly Oshawa benefit from strong foreign capital inflows, and most of the metro areas in Ontario also benefit from good projected income growth and from the lack of any extended house price correction in the historical data, pointing to weak mean reversion effects thanks to nonmeasurable factors such as wealth and good mortgage credit quality. Saint John, New Brunswick is also in the top five and is the only Atlantic metro area with good house price growth, largely because of the extended weakness in the housing market from 2011 to 2015, which has left a substantial portion of the area's housing stock undervalued and subject to opportunistic purchases.

The weak performers are the same ones previously noted. The Quebec metro area suffers from relatively weak income growth and from the demographic gravity effects of closeness to the much larger Montreal metro area. Edmonton, Regina, Saskatoon and St. John's, Newfoundland and Labrador all suffer from slow income growth due to a combination of low oil and other commodity price forecasts, though Calgary does significantly better thanks to a more diversified economy and stronger projected household formation.

Vancouver house price growth is significantly weak because of the projected effects of the new transfer tax on foreign purchases and the stronger projected residential construction relative to household formation. Low housing affordability will at least temporarily slow down purchase demand in the medium term and will thus drag on house price growth.

Risks

In addition to a baseline forecast, Moody's Analytics encapsulates risks to the outlook in a set of alternative global macroeconomic scenarios. While presenting the scenario results for all Canadian metro areas is beyond the scope of this short article, the brief discussion of alternative scenarios that follows should give a taste of the range of possibilities.

Four of the alternative scenarios are pure business cycle scenarios in the sense that the projected house prices always return to a trend growth rate, though for the stronger downside scenarios this results in a house price trend that is at a lower level than the baseline forecast. The first scenario is the only upside risk scenario and envisions a slightly faster economic recovery, with little effect on house prices. The second, third and fourth scenarios are downside scenarios with varying degrees of severity. The worst is the fourth scenario, which assumes simultaneous financial crises in Europe and China plus mishandling of monetary policy in the U.S.

For each alternative scenario, the starting point, including the relative degree of over- or undervaluation, is the same. A metro area such as Vancouver might have house price growth being a hair faster in the first upside scenario, while house prices decline by up to 22% from peak in the fourth and worst scenario (see Chart 5). Note, though, that even in the fourth scenario, Vancouver's relatively strong economic fundamentals help house prices recover at a slightly faster rate than the national house price growth rate.

Three other scenarios are not business cycle scenarios, in the sense that they assume a permanent alteration to trend house price appreciation rates, among other key variables. The fifth scenario assumes perma-

Table 2: Canada Subnational Forecast, Median Detached House Price

	% deviation from trend price, 2016Q2*	% change annualized, 2016Q2	Avg annualized house price growth, %, 2016Q3-2017Q2	Avg annualized house price growth, %, 2017Q3-2018Q4
Canada		10.9	5.5	3.1
Alberta		-2.9	4.3	1.1
<i>Calgary, Census metropolitan area</i>	-8.3	-3.9	7.4	2.8
<i>Edmonton, Census metropolitan area</i>	5.0	-0.8	0.1	-1.8
British Columbia		30.7	0.8	2.4
Abbotsford, Census metropolitan area	2.7	20.3	7.6	2.6
Kelowna, Census metropolitan area	-2.4	9.3	8.0	0.2
<i>Vancouver, Census metropolitan area</i>	61.8	40.8	-1.6	2.7
<i>Victoria, Census metropolitan area</i>	4.0	7.4	5.3	1.6
Manitoba		-1.1	0.9	0.5
<i>Winnipeg, Census metropolitan area</i>	-8.0	-0.8	0.5	0.3
New Brunswick		5.7	5.6	5.2
Moncton, Census metropolitan area	-0.6	0.6	3.5	3.7
Saint John, Census metropolitan area	-13.6	4.2	8.0	6.4
Newfoundland and Labrador		-0.3	0.5	-2.9
St. John's, Census metropolitan area	20.6	1.5	-0.5	-4.3
Nova Scotia		-2.9	5.8	5.9
<i>Halifax, Census metropolitan area</i>	-4.8	-3.2	5.8	4.8
Ontario		10.4	8.4	5.2
Barrie, Census metropolitan area	16.4	14.2	10.9	7.4
Brantford, Census metropolitan area	12.4	8.5	5.1	2.4
Greater Sudbury, Census metropolitan area	13.8	-1.7	1.6	1.2
Guelph, Census metropolitan area	15.3	6.8	7.2	5.2
<i>Hamilton, Census metropolitan area</i>	28.1	12.3	7.6	3.7
Kitchener, Census metropolitan area	11.5	2.4	6.6	4.7
Kingston, Census metropolitan area	-4.1	7.1	4.8	4.3
London, Census metropolitan area	9.2	7.8	5.9	2.9
<i>Ottawa-Gatineau, Census metropolitan area</i>	1.8	8.0	6.3	3.3
Oshawa, Census metropolitan area	36.0	17.2	10.3	6.2
Peterborough, Census metropolitan area	2.1	-3.6	3.3	5.1
St. Catharines-Niagara, Census metropolitan area	3.8	10.6	5.7	1.3
Thunder Bay, Census metropolitan area	22.7	0.5	2.2	0.5
<i>Toronto, Census metropolitan area</i>	29.7	12.2	9.7	6.9
Windsor, Census metropolitan area	-10.3	8.8	6.0	4.3
Prince Edward Island		-1.5	4.8	3.7
Quebec		3.7	4.7	2.6
<i>Montreal, Census metropolitan area</i>	1.3	2.6	4.9	3.0
<i>Quebec, Census metropolitan area</i>	21.2	6.1	3.1	-0.3
Saguenay, Census metropolitan area	11.2	7.7	4.3	0.6
Sherbrooke, Census metropolitan area	-5.8	-7.7	2.9	4.4
Trois-Rivieres, Census metropolitan area	8.3	17.6	7.8	1.0
Saskatchewan		-4.2	-4.5	-3.6
<i>Regina, Census metropolitan area</i>	8.6	-4.9	-8.0	-5.1
<i>Saskatoon, Census metropolitan area</i>	-2.1	-1.9	-3.7	-4.2

Italicized metro areas are part of the Brookfield RPS 13-metro area composite index.

*Census metropolitan areas only

Sources: Brookfield RPS, Moody's Analytics

Table 3: Medium-Term House Price Outlook, Census Metropolitan Areas

Avg annualized projected single-family house price growth, %, 2016Q3-2021Q3

Barrie	7.9
Toronto	6.7
Oshawa	6.7
Guelph	5.0
Saint John	4.9
Kitchener	4.8
<i>Hamilton</i>	4.1
Kingston	4.0
Windsor	3.9
Peterborough	3.8
<i>Halifax</i>	3.4
Abbotsford	3.2
Sherbrooke	3.2
<i>Ottawa-Gatineau</i>	3.1
London	3.0
Brantford	2.7
Kelowna	2.6
<i>Montreal</i>	2.5
<i>Calgary</i>	2.4
Moncton	2.3
Victoria	2.2
St. Catharines-Niagara	1.9
<i>Vancouver</i>	1.8
Trois-Rivieres	1.7
Greater Sudbury	1.1
Saguenay	0.8
Thunder Bay	0.5
<i>Winnipeg</i>	0.3
<i>Quebec</i>	0.2
St. John's	-0.1
<i>Saskatoon</i>	-0.9
<i>Edmonton</i>	-1.0
<i>Regina</i>	-1.8

Italicized metro areas are part of the Brookfield RPS 13-metro area composite index.

Sources: Brookfield RPS, Moody's Analytics

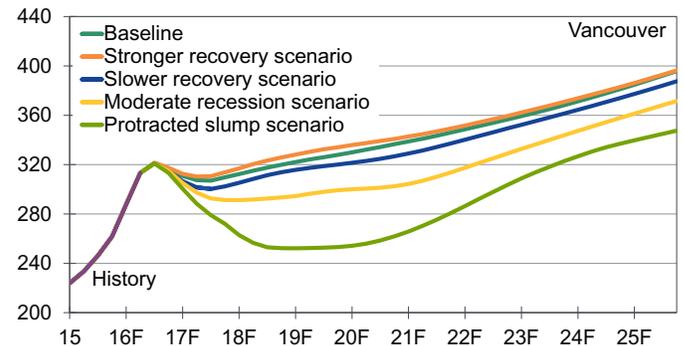
nently slower trend growth because of lower than predicted investment. The sixth scenario assumes a house price crash caused by a stagflation episode: Higher than expected oil prices lead to a bout of inflation and to sudden monetary tightening by the U.S. and Canada. The last scenario assumes that oil prices stay at a business cycle trough level of less than \$40 per barrel for the next four years, with deleterious effects on the oil-producing provinces of Canada.

For a metro area such as Calgary, the effects of the stagflation scenario would be

similar to the fourth ("protracted slump") scenario. But the slower long-term growth scenario would lead to slower near-term house price growth, while the low oil price scenario would seriously reduce long-term income growth and lead house prices to fall by nearly 9% over the coming decade (see Chart 6). For the oil-production belt of Canada's economy, the global demand for oil has significant local effects, including for housing markets. As a last note, it should be mentioned that the forecast model using Brookfield RPS house price measures is not an open economy model in the sense that there are no exchange rate, capital flow, or foreign interest rate drivers in the model. The effects of the global economy on the Canadian housing market in this model are entirely indirect, and

Chart 5: Vancouver Feels Effects of Transfer Tax

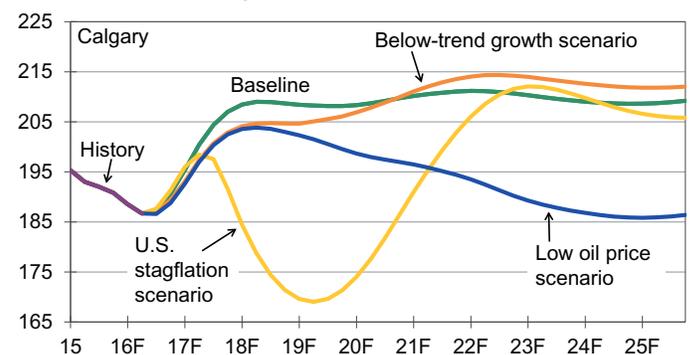
Brookfield RPS house price, s-f detached, Jan 2005=100, SA



Sources: Brookfield RPS, Moody's Analytics

Chart 6: Low Oil Prices Are Bad for Calgary

Brookfield RPS house price, s-f detached, Jan 2005=100, SA



Sources: Brookfield RPS, Moody's Analytics

they are determined by how global shocks would affect key macroeconomic drivers such as mortgage rates, the stock market index, the unemployment rate, and personal income growth at the national and regional levels. If Canada were a smaller economy, direct external drivers such as the ratio of capital account to GDP could be introduced. Indeed, the new transfer tax in Vancouver is intended to reduce upward price pressure by reducing foreign house purchases, but there is no exact correlation between capital inflows to Vancouver and the overall Canada capital account. Such capital inflows are still small relative to the size of the national economy, and there is no guarantee that their effects on housing markets will be concentrated in only a few cities in coming years.

Conclusion

Overall, the house price model combined with the baseline macroeconomic outlook

predicts a general slowing in the rate of house price growth. This slowing is relatively moderate in the case of Toronto, but it is stronger in other regions. In addition to a slight price decline for Edmonton, only the smaller provinces of Newfoundland and Labrador and Saskatchewan will go through a general house price decline in the next two years.

Important macroeconomic assumptions underlie this outlook. First, mortgage rates start to tighten over the next two years as U.S. and Canadian monetary policy reverts to pre-Great Recession normality. Second, oil prices start to recover but only at a moderate pace, so that Alberta's economy does not go through a rapid recovery. Third, there is no downturn in

the European or Asian economies over the next two years. These assumptions will be tested in coming months, particularly as the U.K. vote to leave the European Union has at least momentarily shaken global confidence. But as of yet, neither doubts as to the EU's long-term viability nor the low point in energy prices has changed the global baseline outlook.

About the Author

Andres Carbacho-Burgos is an economist at the West Chester office of Moody's Analytics. He covers the U.S. housing market, residential construction, and U.S. regional economies. Before joining Moody's Analytics, he taught economics at Texas State University, where he also researched open-economy macroeconomics and income inequality. Born in Chile, he obtained his PhD and Master's in economics from the University of Massachusetts at Amherst and his BA in economics from Carleton College.

About Brookfield RPS

Brookfield RPS

Brookfield RPS is a leading Canadian provider of outsourced appraisal management, mortgage-related services and real estate business intelligence to financial institutions, real estate professionals and consumers. The company's expertise in network management and real estate valuation, together with its innovative technologies and services, has established Brookfield RPS as the trusted source for residential real estate intelligence and analytics. Brookfield RPS is a subsidiary of Brookfield Asset Management Inc. (NYSE: BAM) (TSX: BAM.A) (Euronext: BAMA), which is a global alternative asset manager with approximately \$200 billion in assets under management, 30,000 operating employees and 700 investment professionals in over 20 countries. More information is available at www.brookfieldrps.com.

About the Brookfield RPS – Moody's Analytics House Price Forecasts

The Brookfield RPS – Moody's Analytics House Price Forecasts are based on fully specified regional econometric models that account for both housing supply-demand dynamics and long-term influences on house prices such as unemployment and changes in mortgage rates. Updated monthly and providing a 10-year forward-time horizon, the forecasts are available for the nation overall, its ten provinces and for 33 metropolitan areas, and cover three property style categories, comprising single-family detached, condominium apartments and aggregate, in a number of scenarios: a baseline house price scenario, reflecting the most likely outcome, and six alternative scenarios.

About Moody's Analytics

Moody's Analytics helps capital markets and credit risk management professionals worldwide respond to an evolving marketplace with confidence. With its team of economists, the company offers unique tools and best practices for measuring and managing risk through expertise and experience in credit analysis, economic research, and financial risk management. By offering leading-edge software and advisory services, as well as the proprietary credit research produced by Moody's Investors Service, Moody's Analytics integrates and customizes its offerings to address specific business challenges.

Concise and timely economic research by Moody's Analytics supports firms and policymakers in strategic planning, product and sales forecasting, credit risk and sensitivity management, and investment research. Our economic research publications provide in-depth analysis of the global economy, including the U.S. and all of its state and metropolitan areas, all European countries and their subnational areas, Asia, and the Americas. We track and forecast economic growth and cover specialized topics such as labor markets, housing, consumer spending and credit, output and income, mortgage activity, demographics, central bank behavior, and prices. We also provide real-time monitoring of macroeconomic indicators and analysis on timely topics such as monetary policy and sovereign risk. Our clients include multinational corporations, governments at all levels, central banks, financial regulators, retailers, mutual funds, financial institutions, utilities, residential and commercial real estate firms, insurance companies, and professional investors.

Moody's Analytics added the economic forecasting firm Economy.com to its portfolio in 2005. This unit is based in West Chester PA, a suburb of Philadelphia, with offices in London, Prague and Sydney. More information is available at www.economy.com.

Moody's Analytics is a subsidiary of Moody's Corporation (NYSE: MCO). Further information is available at www.moodyanalytics.com.

About Moody's Corporation

Moody's is an essential component of the global capital markets, providing credit ratings, research, tools and analysis that contribute to transparent and integrated financial markets. **Moody's Corporation** (NYSE: MCO) is the parent company of Moody's Investors Service, which provides credit ratings and research covering debt instruments and securities, and **Moody's Analytics**, which encompasses the growing array of Moody's nonratings businesses, including risk management software for financial institutions, quantitative credit analysis tools, economic research and data services, data and analytical tools for the structured finance market, and training and other professional services. The corporation, which reported revenue of \$3.5 billion in 2015, employs approximately 10,400 people worldwide and maintains a presence in 36 countries.

© 2016, Moody's Analytics, Moody's, and all other names, logos, and icons identifying Moody's Analytics and/or its products and services are trademarks of Moody's Analytics, Inc. or its affiliates. Third-party trademarks referenced herein are the property of their respective owners. All rights reserved. ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY COPYRIGHT LAW AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT. All information contained herein is obtained by Moody's from sources believed by it to be accurate and reliable. Because of the possibility of human and mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. Under no circumstances shall Moody's have any liability to any person or entity for (a) any loss or damage in whole or in part caused by, resulting from, or relating to, any error (negligent or otherwise) or other circumstance or contingency within or outside the control of Moody's or any of its directors, officers, employees or agents in connection with the procurement, collection, compilation, analysis, interpretation, communication, publication or delivery of any such information, or (b) any direct, indirect, special, consequential, compensatory or incidental damages whatsoever (including without limitation, lost profits), even if Moody's is advised in advance of the possibility of such damages, resulting from the use of or inability to use, any such information. The financial reporting, analysis, projections, observations, and other information contained herein are, and must be construed solely as, statements of opinion and not statements of fact or recommendations to purchase, sell, or hold any securities. NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY SUCH OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER. Each opinion must be weighed solely as one factor in any investment decision made by or on behalf of any user of the information contained herein, and each such user must accordingly make its own study and evaluation prior to investing.