

HOUSING MARKET ASSESSMENT

Canada

Date Released: First Quarter 2020



Highlights

- The Housing Market Assessment (HMA)¹ indicates a moderate degree of overall vulnerability in Canada for a fourth consecutive quarter. Evidence of overvaluation at the national level remains moderate.
- In Victoria, although easing, price acceleration and overvaluation imbalances are still signaled, thus keeping a high overall degree of vulnerability. In Vancouver, the evidence of overvaluation remains moderate, as does the overall rating.
- Evidence of overheating and price acceleration are still flagged in Toronto and Hamilton. Overall, the degree of vulnerability remains moderate in these two regions.
- The evidence of overbuilding in Saskatoon eased from moderate to low, which results in a reduction in the overall degree of vulnerability to low. Although moderate evidence of overbuilding is still detected in Edmonton and Calgary, the intensity and persistence of the signals no longer sustain a moderate rating in the overall assessment, which is also downgraded to low. However, overall vulnerability remains moderate in Regina where evidence of overbuilding remains high.
- The overall degree of vulnerability in Winnipeg is reduced to low, as evidence of overvaluation eased from moderate to low.
- A low degree of overall vulnerability is sustained for Ottawa, Montréal, Québec, Moncton, Halifax and St. John's. However, evidence of overheating persists in the resale markets of Montréal and Moncton.

Overview of HMA Results

As Canada's authority on housing, CMHC contributes to market stability by providing information on potential imbalances that could affect housing markets. With the Housing Market Assessment (HMA), CMHC offers information and analysis that can help Canadians make informed decisions and contribute to an orderly adjustment of housing market imbalances.

The HMA is an analytical framework that provides a comprehensive view of housing market vulnerabilities.

It is intended to identify imbalances in the housing market; it is not a framework to identify long-term challenges related to housing affordability. It considers four main factors: overheating, price acceleration, overvaluation and overbuilding. Overheating is detected when sales greatly outpace new listings in the market for existing homes. Price acceleration is signaled when the growth rate of house prices exhibits an upward trend. Overvaluation indicates that house prices are elevated compared to price levels supported by personal disposable income, population, interest rates, and other housing market

fundamentals². Overbuilding is flagged when the rental apartment vacancy rate and/or inventory of newly built and unsold housing units are significantly above normal levels.

The HMA combines the results from a technical framework with insights gained through CMHC analysts' knowledge of local market conditions. These insights allow CMHC to provide additional context and interpretation to the results of the HMA framework.

Colour codes indicate the degree of market vulnerability. The HMA is a comprehensive framework that considers both the intensity (magnitude) and the persistence

¹ Results are based on data as of the end of September 2019 (the annual rental apartment vacancy rates are from October 2019) and market intelligence up to the end of December 2019. This national report provides the housing market assessment at the national level and summary assessment results for 15 Census Metropolitan Areas (CMAs). For each of these CMAs, CMHC also issues a local report with more information and analysis.

² Other fundamental factors include mortgage-borrowing capacity of households, required minimum down payment, and labor productivity.

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of signals of imbalances. Generally, low intensity and persistence are associated with low evidence of vulnerability. As the number of intense and persistent signals increases, the associated degree of vulnerability

becomes higher. Overheating and price acceleration are each assessed with a single indicator. Colour scales for these factors vary between green and yellow only. Overvaluation and overbuilding are assessed with

multiple indicators. Their colour scales, as well as the colour scale for the overall assessment, change among green, yellow and red to reflect different degrees of imbalances.³

Table 1

Comparisons between the November 2019 and February 2020 reports

	Overheating		Price Acceleration		Overvaluation		Overbuilding		Overall Assessment	
	Nov. 19	Feb. 20	Nov. 19	Feb. 20	Nov. 19	Feb. 20	Nov. 19	Feb. 20	Nov. 19	Feb. 20
Canada	Low	Low	Low	Low	Moderate	Moderate	Low	Low	Moderate	Moderate
Victoria	Low	Low	Moderate	Moderate	Moderate	Moderate	Low	Low	High	High
Vancouver	Low	Low	Low	Low	Moderate	Moderate	Low	Low	Moderate	Moderate
Edmonton	Low	Low	Low	Low	Low	Low	Moderate	Moderate	Moderate	Low
Calgary	Low	Low	Low	Low	Low	Low	Moderate	Moderate	Moderate	Low
Saskatoon	Low	Low	Low	Low	Low	Low	Moderate	Low	Moderate	Low
Regina	Low	Low	Low	Low	Low	Low	High	High	Moderate	Moderate
Winnipeg	Low	Low	Low	Low	Moderate	Low	Moderate	Moderate	Moderate	Low
Hamilton	Moderate	Moderate	Moderate	Moderate	Low	Low	Low	Low	Moderate	Moderate
Toronto	Moderate	Moderate	Moderate	Moderate	Low	Low	Low	Low	Moderate	Moderate
Ottawa	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Montréal	Moderate	Moderate	Low	Low	Low	Low	Low	Low	Low	Low
Québec	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Moncton	Moderate	Moderate	Low	Low	Low	Low	Low	Low	Low	Low
Halifax	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
St. John's	Low	Low	Low	Low	Low	Low	Moderate	Moderate	Low	Low

Degree of vulnerability

Low

Moderate

High

Note 1: Colour codes indicate the degree of market vulnerability. The HMA is a comprehensive framework that considers both the intensity (magnitude) and the persistence of signals of imbalances. Generally, low intensity and persistence are associated with low evidence of vulnerability. As the number of intense and persistent signals increases, the associated degree of vulnerability becomes higher.

Note 2: Overheating and price acceleration are each assessed with a single indicator. Colour scales for these factors vary between green and yellow only. Overvaluation and overbuilding are assessed with multiple indicators. Their colour scales, as well as the colour scale for the overall assessment, change among green, yellow and red to reflect different degrees of imbalances.

³ More technical details on the HMA are provided in the Appendix.

HMA Results for Canada

Canada: ■ Moderate degree of vulnerability

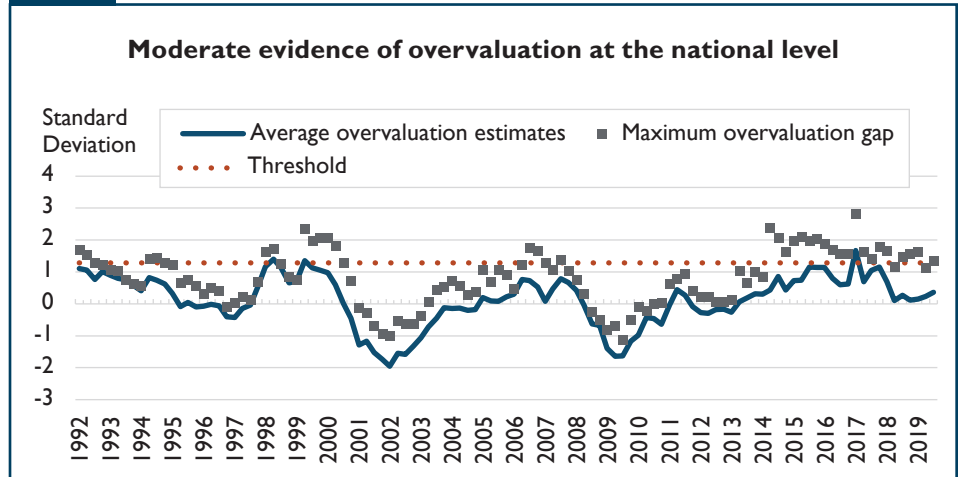
The overall degree of vulnerability of the Canadian housing market remains moderate for a fourth consecutive quarter. Moderate evidence of overvaluation is still detected at the national level.

In the third quarter of 2019, sustained population growth and the decline in the nominal mortgage rates in Canada supported higher house prices. However, increase in inflation-adjusted prices in the market was larger than the increase that could be explained by housing market fundamentals, which lead to a slight increase in the average of the overvaluation estimates (Figure 1).

This average gap between observed and fundamental prices remained nonetheless well below the critical threshold, as imbalances had eased in recent quarters. The moderate evidence of overvaluation comes from the fact that the highest overvaluation estimate from the selected models was above the threshold at least twice within the past year. There is still some persistence with the signals of overvaluation imbalances, although the intensity of these signals is lower.

Activity in the resale market picked up in the third quarter of 2019. MLS® sales increased while new listings remained relatively stable. The sales-to-new listings ratio therefore moved towards seller's market conditions and reached 60.7% (Figure 2). Overall, although the resale market has tightened, the new supply on the resale market was still enough to meet the demand, and the evidence of overheating remains low.

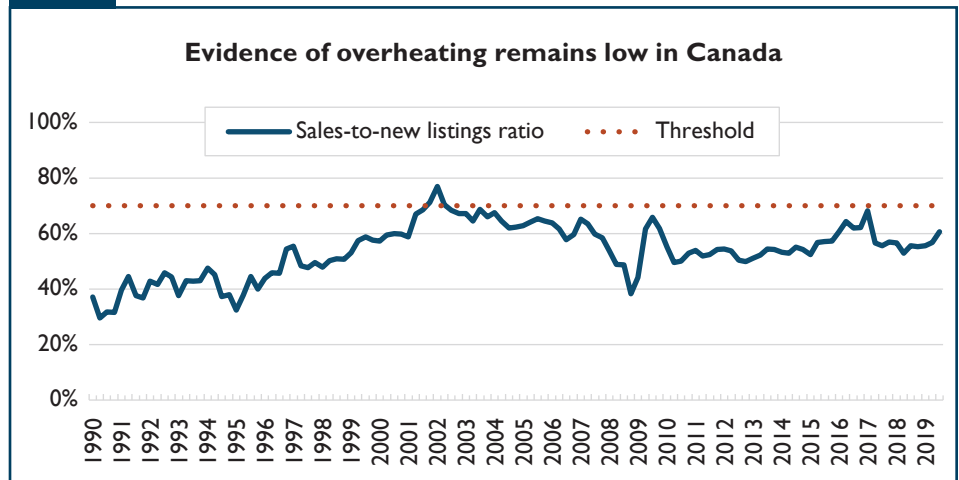
Figure 1



Sources: CREA, Statistics Canada, Teranet and National Bank of Canada, and calculations by CMHC

Note: The average estimate of overvaluation is the average gap between actual house prices and their fundamental level estimated from a group of selected models. These include demand, supply, hybrid, and borrowing capacity models. There are five models in total, each of which is estimated using four measures of house prices to generate twenty unique estimates of overvaluation. The selection of models is conducted with a set of cointegration tests, and the selected models are estimated with Dynamic Seemingly Unrelated Regression (DSUR). The maximum overvaluation gap is obtained from the model that has the largest gap between the actual price and the estimated price. The threshold is fixed at a critical value of 1.285 for a confidence level of 90%. Overvaluation is signaled when overvaluation estimates lie above the threshold.

Figure 2



Sources: CREA and calculations by CMHC

Note: The sales-to-new listings ratio is the number of existing home sales divided by the number of new listings entering the market.

The evidence of price acceleration also remains low (Figure 3). The inflation-adjusted MLS® national average price increased by 1.8% in the third quarter of 2019 from the same period in 2018. This follows a decline of the real average price on a year-over-year basis for six consecutive quarters. Price growth may have started to recover, but not sufficiently fast to suggest price acceleration.

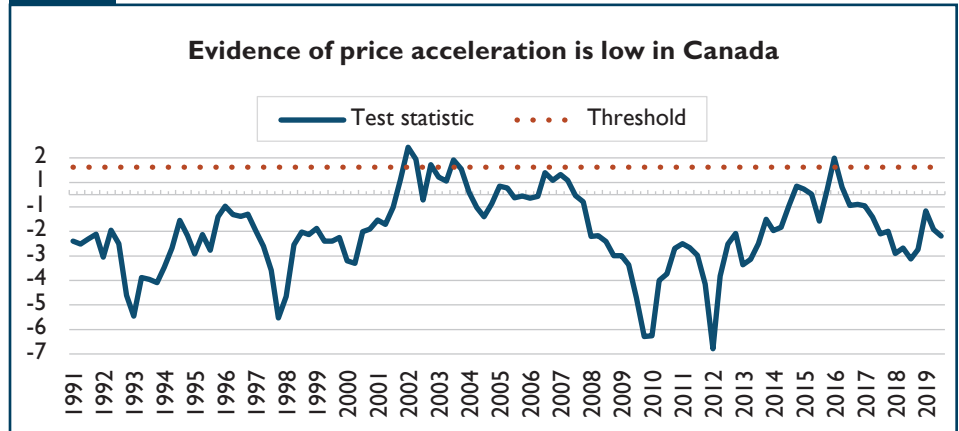
Finally, the evidence of overbuilding remains low, as the inventories of completed and unsold homeowner units per 10,000 population (Figure 4) and the rental apartment vacancy rate remained below their respective overbuilding thresholds (Figure 5). In fact, the vacancy rate trended lower in October 2019, indicating that the rental market has tightened further.

The degree of vulnerability of the housing market varies across regions. In Victoria, a high degree of overall vulnerability is maintained as price acceleration and overvaluation are still flagged. However, these imbalances are easing. A moderate rating of overall vulnerability is maintained for Vancouver, where moderate evidence of overvaluation is still signaled.

After being flagged with a high degree of vulnerability for at least three years, Hamilton and Toronto receive an overall moderate rating for a second consecutive quarter. The evidence of overvaluation stays low as house prices remained close to the levels supported by housing market fundamentals. However, overheating and price acceleration imbalances in these regions are still signaled.

The overall rating is downgraded from moderate to low in several markets of the Prairies. In Saskatoon, the rental apartment vacancy rate from CMHC's October 2019 survey dropped below the overbuilding threshold. Consequently, the evidence of overbuilding has eased from moderate to low, as well as the overall degree of vulnerability.

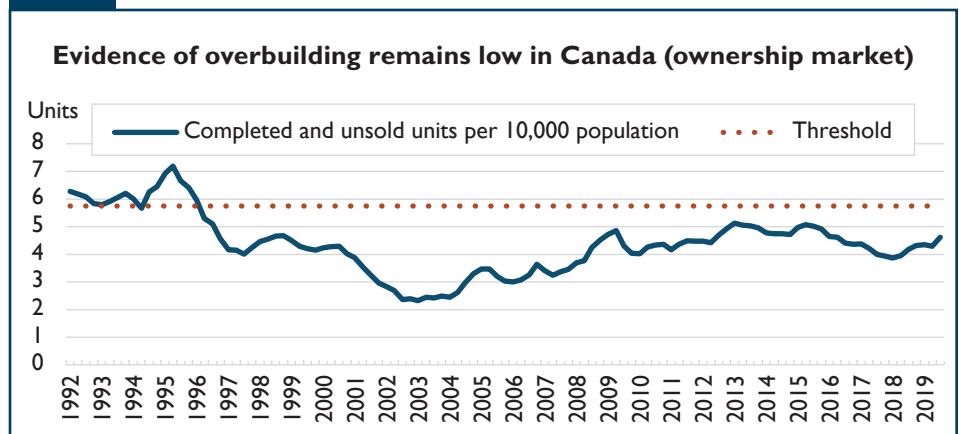
Figure 3



Sources: CREA and calculations by CMHC

Note: The test is done using the MLS® average price. Other price indices are also monitored.

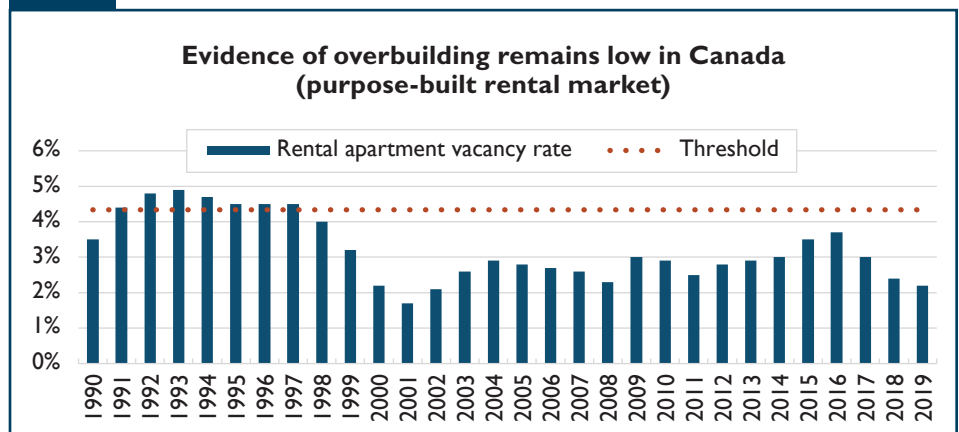
Figure 4



Sources: Statistics Canada and CMHC

Note: Overbuilding is signaled when the supply of readily available housing units significantly exceeds demand. This figure presents one of the two indicators the HMA uses to assess overbuilding conditions in the housing market: the inventory of newly completed but unsold housing units per 10,000 population.

Figure 5



Source: CMHC (Rental Market Survey)

Note: Overbuilding is signaled when the supply of readily available housing units significantly exceeds demand. This figure shows one of the two indicators the HMA uses to assess overbuilding conditions in the housing market: the rental apartment vacancy rate. CMHC conducts the Rental Market Survey every year in October. The last data point presented in this figure is from October 2019.

In Calgary and Edmonton, evidence of overbuilding is still detected in the homeownership market. However, the rental apartment vacancy rates remained below the critical thresholds, therefore, the intensity and persistence of the overbuilding signals no longer sustain an overall moderate degree of vulnerability in these regions. As a result, the overall assessment in Calgary and Edmonton has eased to low.

The overall degree of vulnerability is now also low in Winnipeg, where evidence of overvaluation has eased from moderate to low. However, an overall moderate rating is maintained in Regina, where evidence of overbuilding remains high.

Finally, an overall low degree of vulnerability is sustained for Ottawa, Montréal, Québec, Moncton, Halifax and St. John's. However, with increasingly strong demand and low supply, evidence of overheating persists in the resale markets of Montréal and Moncton.

HMA Summary Results for 15 Census Metropolitan Areas (CMAs)

Victoria: ■ High degree of vulnerability

The Victoria housing market continues to show a high degree of overall vulnerability due to evidence of price acceleration and overvaluation. The HMA framework still signals price acceleration, but as home prices stabilize in many segments of the market, the imbalances are easing. Moderate evidence remains for overvaluation, however, declining inflation-adjusted home prices combined with growing personal disposable income and population have further narrowed the

imbalances between observed and fundamental prices in the third quarter of 2019. Evidence of overheating remains low, as the sales-to-new listings ratio is well below the overheating threshold. The low rental apartment vacancy rate and inventory of newly completed and unsold housing units per 10,000 population maintain a low rating for overbuilding.

Vancouver: ■ Moderate degree of vulnerability

The overall assessment of a moderate degree of vulnerability is maintained for Vancouver. Consumers faced reduced buying power in the third quarter of 2019 as personal disposable income decreased and interest rates increased in real terms. However, inflation-adjusted home prices declined over the same period. As a result, the average of the overvaluation estimates remained relatively unchanged and well below the overvaluation threshold. Although the intensity of the signals of imbalances in Vancouver significantly declined over the past year as house prices moderated, the evidence of overvaluation remains moderate since the maximum overvaluation estimate from the selected models was still above the threshold twice over the past four quarters. Meanwhile, the evidence of overheating, price acceleration and overbuilding remain low.

Edmonton: ■ Low degree of vulnerability

A moderate degree of vulnerability related to overbuilding continues to be detected as the inventory of completed and unsold units per 10,000 population increased further above the critical threshold in the third quarter of 2019. The demand for new homes weakened as unemployment continues to be high while real personal disposable income falls in the Edmonton CMA.

However, the rental market tightened with the vacancy rate decreasing to 4.9% in 2019 from 5.3% in 2018 to fall further below the critical threshold. Overheating, price acceleration and overvaluation all retained their low ratings. Overall, the degree of vulnerability of the housing market in Edmonton is now low.

Calgary: ■ Low degree of vulnerability

The Calgary housing market is now assessed as having a low degree of overall vulnerability. With the rental market vacancy rate below its critical threshold, moderate evidence of overbuilding is signaled due to ongoing elevated new home inventories. Apartment units continued to make up the largest share of inventories, with an increase in absorptions in the third quarter of 2019 being matched by additional completions of new units compared with the same period a year ago. Evidence of overheating, price acceleration, and overvaluation remain low as a result of persistent buyers' market conditions and modest economic growth.

Saskatoon: ■ Low degree of vulnerability

Saskatoon's housing market has moved to exhibiting low evidence of overbuilding as of the third quarter of 2019. Consistently declining inventories of completed and unsold homes combined with a significant decline in the rental apartment vacancy rate, as of October 2019, has pushed both indicators of overbuilding below their respective critical thresholds. Combined with a continued low degree of vulnerability related to overheating, price acceleration and overvaluation, the result is that the overall assessment for the Saskatoon CMA has also moved to a low degree of vulnerability.

Regina: ■ Moderate degree of vulnerability

The overall assessment of a moderate degree of vulnerability is maintained in the Regina housing market due to overbuilding. While a sharp pullback in housing starts helped keep the inventory of completed and unsold units per 10,000 population below the HMA framework's critical threshold in the third quarter of 2019, this indicator was still above the threshold in two of the past four quarters. Therefore, the persistence of this indicator still signaled overbuilding imbalances. In addition, Regina's rental apartment vacancy rate of 7.8% for 2019 remained above the critical threshold for overbuilding. Therefore, a high overbuilding rating is maintained for Regina. Meanwhile, the evidence of overvaluation, overheating and price acceleration remain low.

Winnipeg: ■ Low degree of vulnerability

The overall degree of vulnerability moved from moderate to low in the Winnipeg CMA as the overvaluation rating has been downgraded to low. Population growth and low mortgage rates increased the price levels supported by housing market fundamentals while observed home prices continued to decline. This lead to a further decrease in the average overvaluation gap and signals of imbalances are no longer intense or persistent. However, there continued to be moderate evidence of overbuilding due to an elevated level of completed and unabsorbed units occurring in both the single detached and condominium apartment market segments. Evidence of overheating and price acceleration remain low as a result of continued balanced market conditions.

Hamilton: ■ Moderate degree of vulnerability

The overall assessment for the Hamilton housing market remains moderate. Both overheating and price acceleration are still signaled due to large market imbalances that developed at the beginning of the previous 3-year period. The gradual unwinding of those imbalances ceased in the last two quarters, as the sales-to-new listings ratio hovered around the overheating threshold. The number of new listings was unresponsive to higher sales activity during that time, placing greater upward pressure on house prices. However, actual house prices in Hamilton in the third quarter of 2019 remained closely aligned with most of the estimates of fundamental price levels, which are based on determinants like personal disposable income, population and interest rates. In particular, the size of the population 25-34 years of age, which historically makes up a large percentage of first-time buyers in Hamilton, continued to support price levels. The inventory of completed and unsold new homes remained small, providing low evidence of overbuilding.

Toronto: ■ Moderate degree of vulnerability

The Toronto housing market continues to exhibit a moderate degree of overall vulnerability. Evidence of overheating and price acceleration remains signaled given significant housing market imbalances observed within the last three years. While both price acceleration and overheating indicators are currently below their critical thresholds, market activity continues to rise, displayed by the sales-to-new listings ratio trending towards a sellers' market

and the accompanying stronger price growth. Evidence of overvaluation on the other hand remains low, as strong economic and demographic fundamentals coupled with house price moderation in 2017 and 2018 have narrowed housing market imbalances in recent years. Although, observed house prices grew at a faster rate than supported by housing market fundamentals in the third quarter of 2019. Low inventories of completed and unsold new housing units coupled with a low vacancy rate in the rental market indicate low evidence of overbuilding.

Ottawa: ■ Low degree of vulnerability

The low overall degree of vulnerability in Ottawa is maintained as evidence of overheating, price acceleration, overvaluation and overbuilding remain low. However, the overheating and price acceleration indicators both moved close to their respective critical thresholds in the third quarter of 2019. Sales grew much faster than listings, pushing up the sales-to-new listings ratio. With supply at historic lows and demand rising, the MLS® average home price grew faster. Despite this, the evidence of overvaluation remains low as the young adult population has been growing at a robust rate that supports the recent price growth. Finally, low inventories of completed and unsold new housing units coupled with a low vacancy rate in the rental market indicate low evidence of overbuilding.

Montréal: ■ Low degree of vulnerability

For over two years now, the overall degree of vulnerability has remained low for Montréal. Housing prices remained consistent with levels supported by economic and

demographic fundamentals, such as personal disposable income and the young-adult population. Evidence of overbuilding remains low, as the inventory of completed and unsold housing units, as well as the rental apartment vacancy rate, stayed at relatively low levels from a historical standpoint. However, evidence of overheating continued to be observed in the Montréal resale market due to a significant tightening of the resale market, as housing demand remains strong and supply low.

Québec: ■ Low degree of vulnerability

Driven by a dynamic job market, residential sales growth has been very robust over the past year. In the third quarter of 2019, the sales-to-new listings ratio reached its highest level since 2012. Nevertheless, there was still no significant imbalances between demand and supply. As a result, evidence of overheating remains low. Moreover, price growth remained modest, even negative when taking inflation into account. Evidence of price acceleration and overvaluation therefore remains low. Finally, the rental apartment vacancy rate and inventory of completed and unabsorbed new homeowner units does not signal evidence of overbuilding. Overall, the degree of vulnerability of the housing market in Québec remains low.

Moncton: ■ Low degree of vulnerability

Overheating conditions persist in Moncton as the sales-to-new listings ratio has been above the critical threshold in the past five quarters. Demand for homes is increasing whilst active listings are at a 12 year

low. Prices continue to increase as the market tightens. A continued increase in the population of young adults and a drop in nominal interest rates in the third quarter of 2019 supported growth in price levels, but the growth in observed prices was higher than that supported by housing market fundamentals. However, price acceleration and overvaluation indicators remain below their critical thresholds hence a low degree of vulnerabilities is maintained. There is no evidence of overbuilding as most newly completed homes are being absorbed and the rental apartment vacancy rate is low. Overall, results continue to support a low degree of vulnerability for Moncton.

Halifax: ■ Low degree of vulnerability

Housing demand in Halifax continued to strengthen while supply remained low. As a result, the sales-to-new listings ratio increased slightly in the third quarter of 2019 from the previous quarter but remained below the overheating threshold. The growth in observed prices was higher than that supported by housing market fundamentals. However, price acceleration and overvaluation indicators remained below their critical thresholds hence a low degree of vulnerabilities is maintained. The rental apartment vacancy rate is the lowest on record in Halifax and the inventory of newly completed and unsold homeowner units relative to the population remained relatively stable and below the critical threshold. As a result, evidence of overbuilding remains low. The overall degree of vulnerability in Halifax remains low as none of the indicators show evidence of intense or persistent imbalances.

St. John's: ■ Low degree of vulnerability

The St. John's area housing market has an overall low degree of vulnerability. Improving employment and real personal disposable income growth has not translated into increased housing demand. Lackluster demand has been affected by a lack of population growth among young adults and ongoing fiscal uncertainty surrounding the provincial government. As a result, sales and listings activity have improved only marginally from multi-year lows and prices remain under downward pressure. This continues to keep the overheating, overvaluation and price acceleration indicators below levels of concern. The rental apartment vacancy rate remains below the overbuilding threshold. Meanwhile, in the new home market, the inventory of newly completed and unsold units relative to the population was above the threshold in three of the past four quarters, thus maintaining moderate evidence of overbuilding.

Appendix

What is CMHC's Housing Market Assessment?

To obtain an accurate picture of the overall state of the housing market, it is important to consider multiple data points and lines of evidence. The Housing Market Assessment (HMA) analytical framework provides a comprehensive and integrated view that relies on a combination of indicators to detect imbalances in housing markets for several metropolitan areas across Canada, and for Canada as a whole⁴.

⁴ The data for Canada include areas beyond the 15 CMAs covered in this report.

Specifically, the framework considers four main factors that may provide an early indication of vulnerability in the housing market: overheating, price acceleration, overvaluation and overbuilding. For each factor, the framework tests for the intensity (magnitude) and the persistence of signals. Generally, a situation in which we detect few signals with low intensity or lack of persistence is associated with a low degree of vulnerability. Conversely, as the number, intensity, and/or persistence of the signals increases, so does the evidence of imbalances in the housing market. Overheating and price acceleration are each assessed with a single indicator. Colour scales for these factors vary between green and yellow only. Overvaluation and overbuilding are assessed with multiple indicators. Their colour scales, as well as the colour scale for the overall assessment, change among green, yellow and red to reflect different degrees of imbalances.

1. **Overheating:** Sales greatly outpace new listings in the market for existing homes.
 - Moderate: Sales-to-new listings ratio lies above the threshold of overheating for at least two quarters over the past three years.
 - Low: Otherwise.
2. **Sustained acceleration in house prices:** A sustained increase in the growth rate of prices over a given period often indicates that expectations of future house-price appreciation may be excessive.

- Moderate: The Augmented Dickey-Fuller (ADF) test statistic⁵ stands above the critical threshold for at least one quarter during the past three years.

- Low: Otherwise.

3. **Overvaluation:** House prices are higher than levels supported by personal disposable income, population, interest rates, and other fundamentals.

- High: The average of the gaps obtained from a group of selected models is above the critical threshold for at least two quarters during the past year. The gap measures the distance between the actual price and the price level estimated from fundamental variables of housing markets.

- Moderate: At least one of the selected models exhibits overvaluation.

- Low: Otherwise.

4. **Overbuilding:** Inventory of newly built and unsold housing units and/or rental apartment vacancy rate are significantly above normal levels.

- High: The inventory of newly completed and unsold units is above the threshold for at least two quarters during the past year, while the annual rental apartment vacancy rate is also above the threshold.

- Moderate: Either the inventory of newly completed and unsold units is above the threshold for at least two quarters during the past year or the rental apartment vacancy rate is above the threshold.

- Low: None of the previous conditions is present.

Overall assessment: Assess the degree of market vulnerability considering the combination of multiple factors.⁶

- High: More than one factor of price acceleration, overvaluation or overbuilding exhibits moderate or high evidence of imbalances.

- Moderate: The rating reflects three scenarios. The first is when the overall assessment is red in the past six quarters. The second is when only one of the factors of overbuilding or overvaluation is assessed red for at least two quarters during the past year. The last is when one factor is showing moderate evidence of imbalances, but another factor lies slightly below the threshold.

- Low: Otherwise.

The framework takes into account demographic, economic and financial determinants of the housing market such as population, personal disposable income, and interest rates to detect vulnerability. The framework also takes into account recent developments in both resale and residential construction markets.

The framework was developed on the basis of its ability to detect vulnerable housing market conditions in historical data, such as the house price bubble Toronto experienced in the late 1980s and early 1990s. The ability of the HMA to detect vulnerabilities relies on the assumption that historical relationships between prices and fundamental drivers of housing markets have not changed.

⁵ See Phillips, Wu and Yu (2008) "Explosive Behaviour in the 1990s NASDAQ: When Did Exuberance Escalate Asset Values?" for further details on the methodology.

⁶ The framework was tested against CMHC's mortgage insurance claims rate. The results show that the detection of more than one HMA factor is more problematic for insurance claims than the detection of just one factor. Therefore, the individual factors are jointly analysed to provide an overall assessment of the state of a given housing market, which is rated on our three-coloured scale (green, yellow, and red).

Enhancements to the Overvaluation Analytical Framework

The objective of the Housing Market Assessment (HMA) is to provide valuable insights on potential housing market imbalances across Canada and key census metropolitan areas (CMAs). By providing this information, CMHC helps Canadians make informed decisions and contributes to market stability. CMHC regularly reviews its products and services to ensure the highest quality to support decision making. In this context, CMHC recently enhanced the analytical framework for assessing housing price overvaluation.

First, CMHC implemented a new econometric procedure to estimate the level of fundamental house prices and detect the evidence of overvaluation. This new econometric technique exploits cross-sectional information from the 15 reported centres and therefore improves the precision of overvaluation estimates.⁷

CMHC also introduced a new model into the framework. This is in addition to the four econometric models (which include demand, supply, borrowing capacity and hybrid models) used to estimate the level of house prices consistent with fundamentals. This additional model constitutes an extension of the existing demand model, where disposable income, population and mortgage rates determine the level of house prices.

It is in line with economic theory and exhibits a good performance in terms of its ability to capture a long-run relationship between house prices and housing market fundamentals across the 15 centres and Canada. Compared to the existing demand model, the new demand model also captures the effect from both the size and structure of the population on house prices.

With the goal of improving the reliability of the overvaluation analytical framework, CMHC also enhanced the specification underlying the demand, supply and hybrid models and increased the robustness of the model selection procedure that determines the group of models to be used in the overvaluation assessment.⁸

⁷ The cointegration procedure conducted under the new overvaluation analytical framework to estimate the level of fundamental house prices is based on the Dynamic Seemingly Unrelated Regression (DSUR) developed by Mark, Ogaki and Sul (2005). This system approach takes into account the long-run cross-sectional correlation in the errors across cointegration equations for the various centres considered. Within the context of our system of cointegration equations where there is a high degree of cross-sectional dependence in the errors, the DSUR procedure offers substantial efficiency advantages over non-system (single-equation) approaches such as the one conducted under the previous analytical framework, that is, the Dynamic Ordinary Least Square (DOLS) developed by Stock and Watson (1993).

⁸ The overvaluation assessment uses exclusively the models that are statistically reliable according to the model selection process. This procedure, which is conducted with a set of cointegration tests, evaluates the ability of each model to detect potential overvaluation.

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