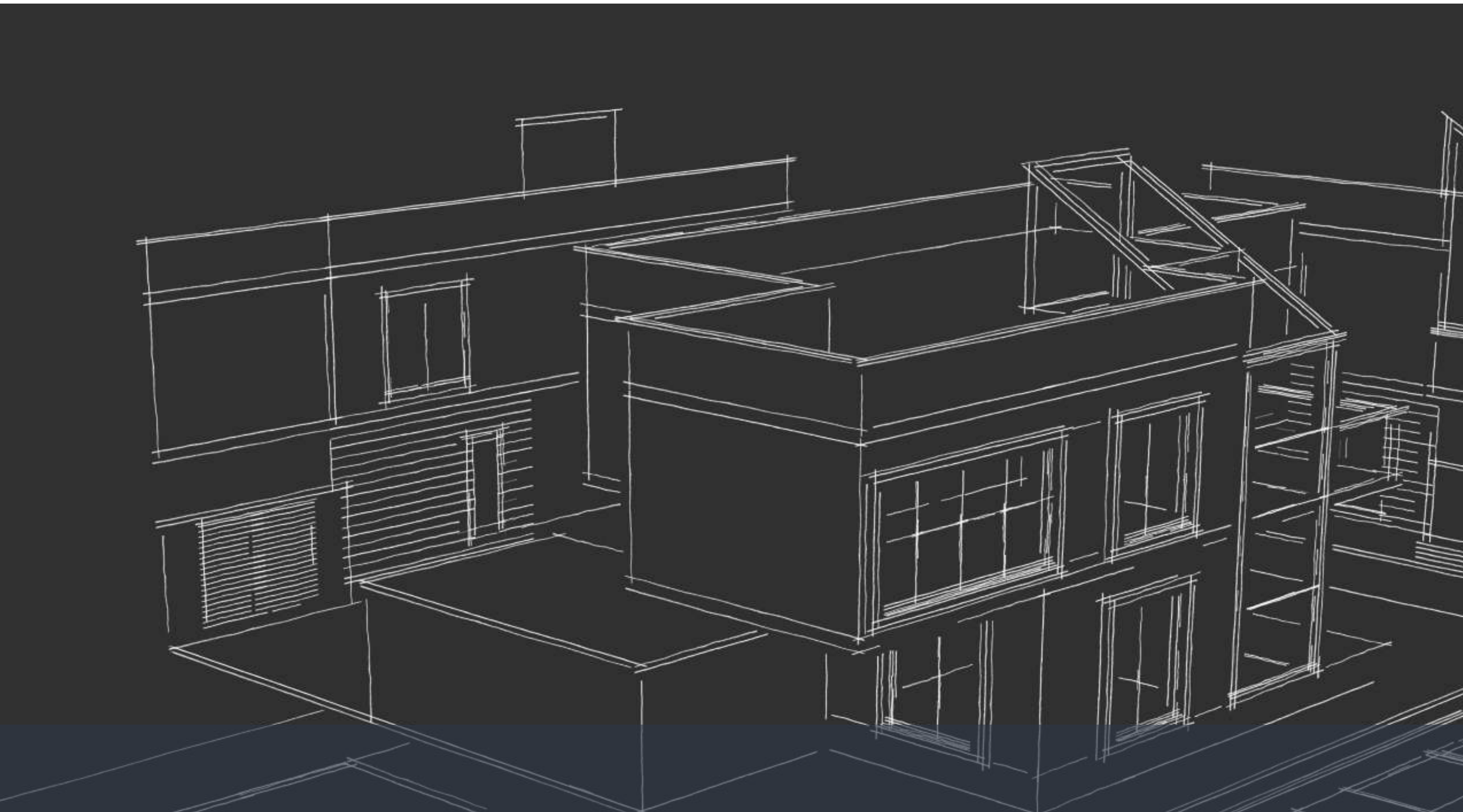
September 29, 2022

House Price Assessment – Update



OFFICE OF THE PARLIAMENTARY BUDGET OFFICER
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The Parliamentary Budget Officer (PBO) supports Parliament by providing economic and financial analysis for the purposes of raising the quality of parliamentary debate and promoting greater budget transparency and accountability.

This report provides an update of PBO's assessment of house prices relative to a household's capacity to borrow and pay for the purchase of a house in selected Canadian cities. In addition, to gauge the potential downward adjustment in house prices in 2022, we consider scenarios based on assumed increases in mortgage rates and household debt service ratios.

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Parliamentary Budget Officer

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Table of Contents

Summary

This report provides an updated assessment of house prices relative to a household's capacity to borrow and pay for the purchase of a house in selected Canadian cities. We estimate the level of house prices that an average household would be able to afford under normal utilization of its borrowing capacity—the "affordable" house price.

In addition, to gauge the potential downward adjustment in house prices in 2022, we consider scenarios based on assumed increases in mortgage rates and household debt service ratios.

In recent months, house prices in several census metropolitan areas (CMAs) have declined from their record peaks as mortgage rates have increased sharply. In light of these developments, we are providing an update of our assessment of house price affordability in selected CMAs.

Key findings

- The rapid increase in house prices during the pandemic pushed the national average price up 52 per cent to a peak of $839,600 in February 2022 from $551,100 in February 2020. The national average house price has since declined by 7 per cent to $777,200 in August 2022.
- Since our February 2022 assessment, the Bank of Canada has increased its policy interest rate by 300 basis points and the average 5-year fixed mortgage lending rate breached 5 per cent in June—a first since 2010. As a result, house price affordability gaps have continued to widen in 2022 across the CMAs considered.
    - We estimate that the gap between the average house price and the affordable house price nationally was 67 per cent in August of this year.
    - Average house prices in Hamilton, Toronto, Halifax, Ottawa, Montréal, Victoria and Vancouver were more than 50 per cent higher than their respective affordable prices in August.
    - In August, average house prices exceeded affordable prices across all CMAs considered, ranging from 6 per cent in Edmonton to 109 per cent in Hamilton.
    - Our results suggest that, across the CMAs examined, households that recently purchased a home have become more financially vulnerable since our last report.

- To gauge the potential downward adjustment in house prices in 2022, we construct scenarios based on assumed increases in mortgage rates (to 6.25 per cent for the 5-year fixed rate) over the remainder of 2022 and assumed household debt service ratios (based on recent levels).
    - Our house price adjustment scenarios imply price declines at the national level (relative to peak prices in 2022) ranging from 12 per cent to 23 per cent by the end of this year.
    - These scenarios are illustrative in nature and should not be considered forecasts of house price declines.

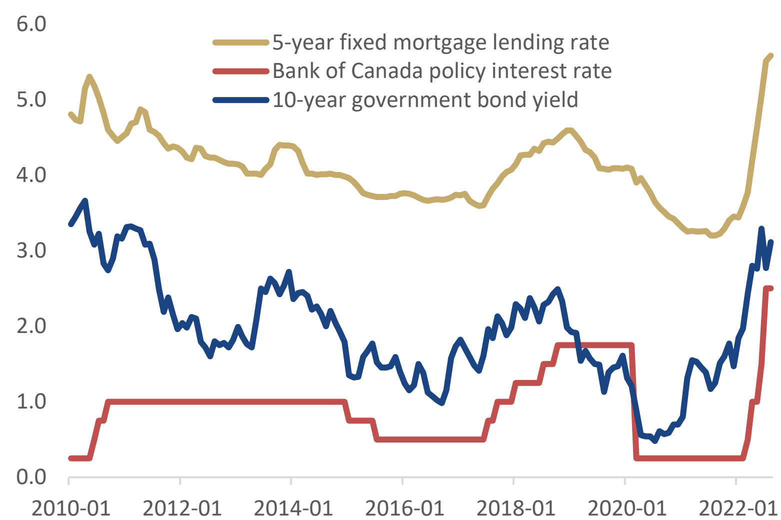
1. Recent developments

The rapid increase in Canadian house prices during the COVID-19 pandemic has pushed the (national) average price up 52 per cent to a peak of $839,600 in February 2022 from $551,100 in February 2020. The average house price has since declined (by 7 per cent) to $777,200 in August.[1] Our February 2022 analysis noted the sharp increase in average house prices and estimated that prices were well above levels that the average household could afford based on "normal" utilization of their borrowing capacity.[2]

Since our February report, the Bank of Canada has increased its policy interest rate by 300 basis points and the average 5-year fixed mortgage lending rate breached 5 per cent in June—a first since 2010 (Figure 1-1).[3] In terms of affordability, the recent sharp increase in mortgage rates has offset the increase in average household incomes observed since the start of the pandemic, leading to a significant reduction in the borrowing capacity of Canadian households and a further widening in the house price affordability gap—particularly in cities that have seen continued price gains.

Figure 1-1 5-year fixed mortgage lending rate, Bank of Canada policy interest rate and 10-year benchmark bond yield

Per cent



Sources: Canada Mortgage and Housing Corporation and Bank of Canada.

Note: The last data point shown is August 2022.

2. Household borrowing capacity

Using a methodology developed at the International Monetary Fund (IMF), this report provides an update on our assessment of house prices relative to a household's capacity to borrow and pay for the purchase of a house in selected Canadian cities.

Specifically, we estimate the house price that an average household would be able to afford under normal utilization of its borrowing capacity, also known as the "affordable" house price. House prices that exceed affordable levels imply that a household is stretching its finances and borrowing capacity, which increases its vulnerability to adverse income and interest rate shocks.

Our analysis examines average house prices and borrowing capacity in selected census metropolitan areas (CMAs): Halifax, Québec, Montréal, Ottawa (that is, Ottawa–Gatineau, Ontario part), Toronto, Hamilton, Winnipeg, Edmonton, Calgary, Vancouver and Victoria.[4]

We rely on various databases and assumptions to estimate house price affordability over 2015 to 2022 and to project series in the short term. The data and assumptions used in this analysis are detailed in the appendix.

The methodology used in this report is based on the borrowing capacity methodology developed at the IMF, which was used in 2019 to estimate the affordability of houses in Canadian cities.[5] PBO's February 2022 report describes this methodology in greater detail.

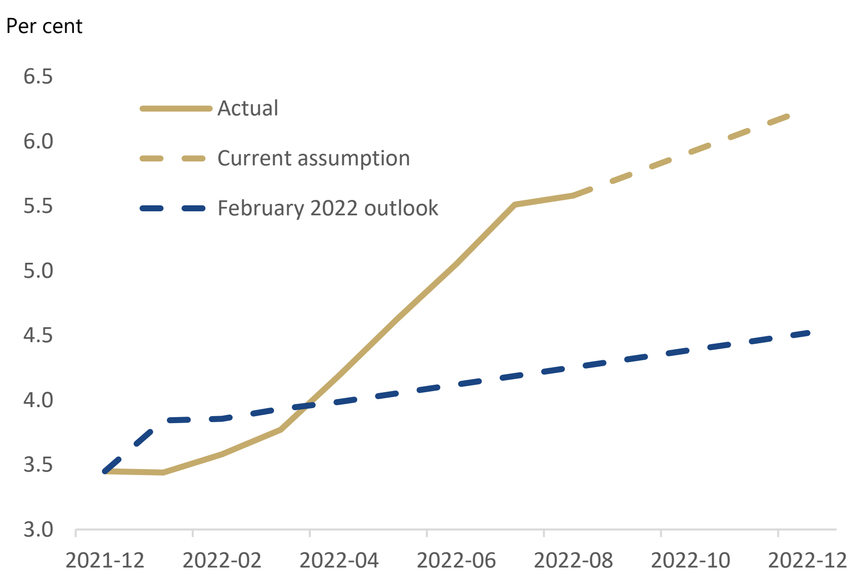
3. Short-term outlook

In light of recent developments in the housing market in 2022, we provide an updated comparison of affordable house prices for the average household in each CMA with observed average house prices. In addition, using our borrowing capacity approach, we provide a short-term projection of affordable house prices given further assumed increases in mortgage lending rates.

In our previous report (which was based on data through December 2021), we projected a steady, moderate increase in the 5-year fixed mortgage lending rate in 2022. Figure 3-1 shows our earlier projection and the average mortgage rate observed between December 2021 and August 2022, as well as an updated outlook for September through December 2022. The increase in the second quarter was much more pronounced than projected in our previous report, reflecting the increases in inflation and corresponding shift in monetary policy.

Following further increases in the Bank of Canada's policy rate in July and September, along with an additional increase of 75 basis points anticipated in October, we assume that the 5-year fixed mortgage lending rate will reach 6.25 per cent by the end of this year. This reflects a Bank of Canada policy interest rate of 4.0 per cent plus a "premium" of 225 basis points.

Figure 3-1 5-year fixed mortgage lending rate

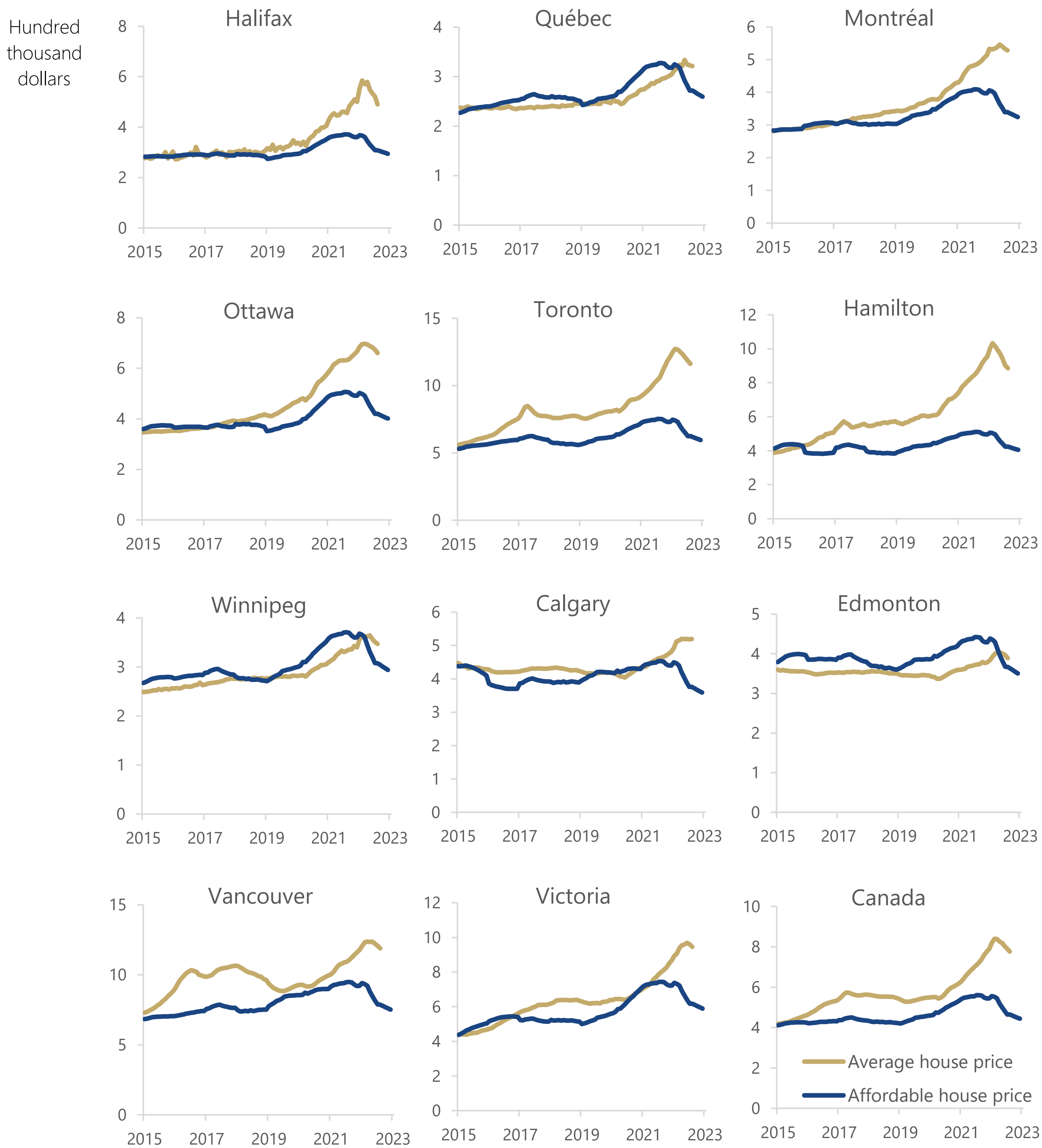


Sources: Canada Mortgage and Housing Corporation and Office of the Parliamentary Budget Officer.

Note: The current assumption covers September 2022 to December 2022.

Figure 3-2 shows estimated and projected affordable house prices based on household borrowing capacity from January 2015 to December 2022, compared to average house prices observed through August 2022.

Figure 3-2 House prices and household borrowing capacity



Sources: Canadian Real Estate Association and Office of the Parliamentary Budget Officer.

Note: Average house prices shown are MLS Composite Benchmark prices from CREA except for Halifax, which is the average residential sale price. Affordable prices are based on PBO calculations. The last data point shown is August 2022 for average house prices and December 2022 for affordable house prices.

House price affordability gap

The house price affordability gap is defined as the percentage difference between actual house prices and affordable house prices (for the average household) based on household borrowing capacity.

In August 2022, the national average house price was $777,200—2 per cent below its December 2021 level ($790,200), but 42 per cent higher compared to December 2019 ($548,400).[6] The 7 per cent decline since the national average price peaked in February 2022 has returned the average house price back its level in November 2021. However, average house prices in August remain higher compared to December 2021 levels for all CMAs examined, with the exception of Hamilton, Toronto, Halifax and Ottawa.

In addition, we estimate a 15 per cent decrease in borrowing capacity across all CMAs surveyed between December 2021 and August 2022 due to the increase in mortgage rates over the same period. This results in the corresponding decrease in affordable prices over 2022 shown in Figure 3-2.

In its July rate announcement , the Bank of Canada stated that the interest rates will need to rise further to achieve the 2 per cent inflation target. If 5-year fixed mortgage rates rise further, reaching 6.25 per cent by the end of 2022, we estimate that borrowing capacity of average households would decrease by 18 per cent in December 2022 compared to December 2021.[7]

Figure 3-3 shows that despite the recent decline in house prices, affordability gaps have continued to widen in 2022 across all the CMAs considered. In particular, we estimate that 7 of the 11 CMAs selected have an average price in August that is more than 50 per cent above affordable levels, and all CMAs now have a positive affordability gap exceeding 6 per cent.

Figure 3-3 Housing price affordability gap in selected CMAs

Per cent

Sources: Canadian Real Estate Association and Office of the Parliamentary Budget Officer.

Note: The house price affordability gap is defined as the percentage difference between actual house prices and affordable house prices (for the average household) based on household borrowing capacity.

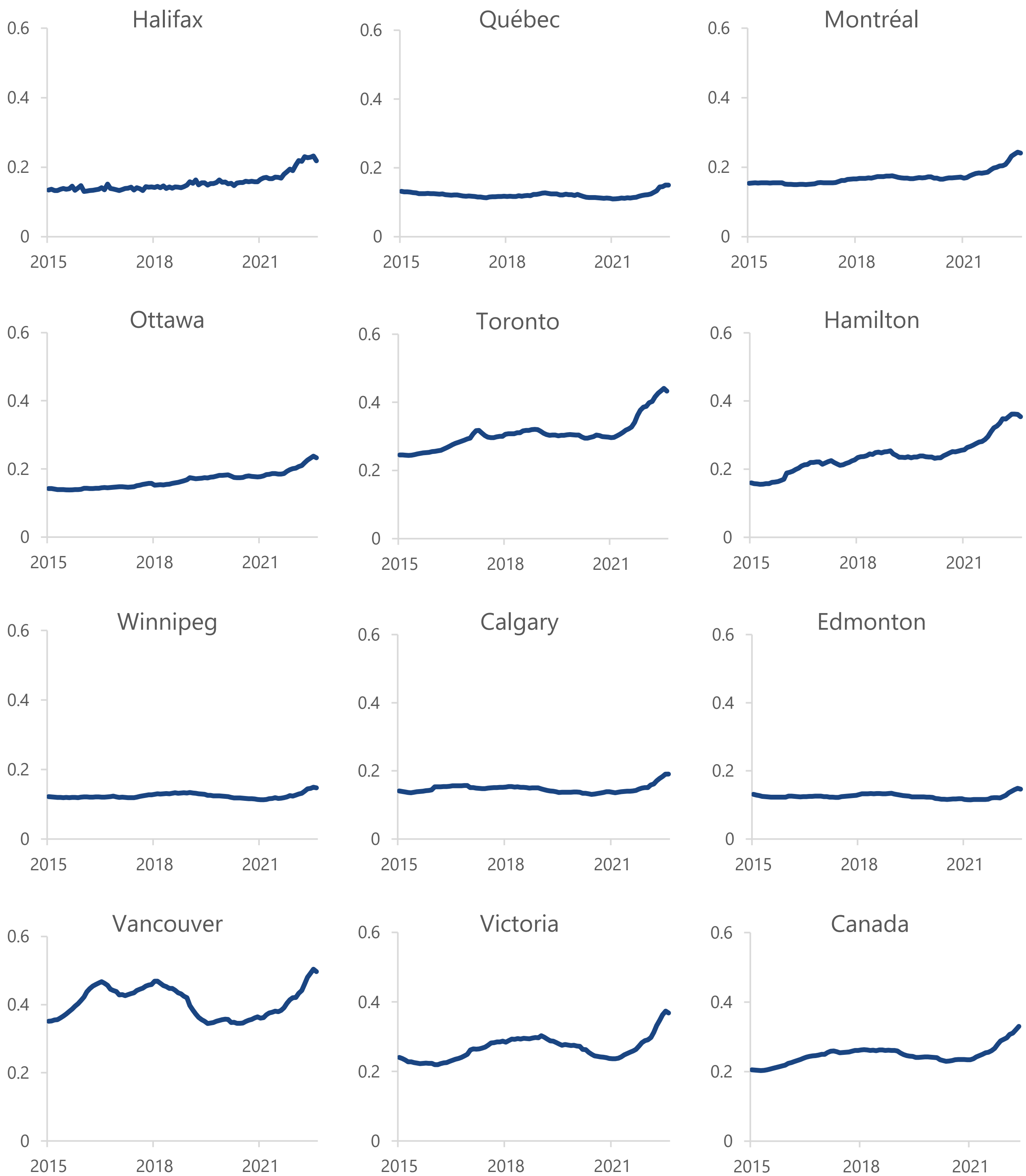
A positive gap indicates that house prices exceed affordable levels based on borrowing capacity. A negative gap indicates that households could afford a higher price for a house, given their borrowing capacity.

Since our previous report, the national housing affordability gap has increased from 45 per cent (in December 2021) to 67 per cent (in August 2022), an increase of 22 percentage points in eight months. This increase is attributable to higher mortgage rates, which lower household borrowing capacity. As of December 2019, the national house price affordability gap was 20 per cent; in January 2015, it was 2 per cent.

The August 2022 housing affordability gaps indicate that average income households across the country are stretching their finances to buy and pay for a home. To gauge the extent to which a household is stretching its finances, it is informative to examine its debt service ratio (DSR), which represents the share of a household's total income that is devoted to total mortgage payments (that is, principal plus interest). Since the onset of the pandemic and the continued rise in house prices, the implied DSR of the average household has been trending upwards, while debt servicing ratios remained relatively stable from 2000 to 2019 in many of the selected CMAs.[8]

Figure 3-4 shows DSRs for the average household purchasing a home in the CMAs considered. We estimate the household DSRs based on an average loan-to-value (LTV) ratio of 67 per cent (at origination), which corresponds to its historical average in 2019.

Figure 3-4 Household mortgage debt service ratios



Sources: Statistics Canada, Canadian Real Estate Association, Canada Mortgage and Housing Corporation and Office of the Parliamentary Budget Officer.

Note: The mortgage debt service ratio (DSR) is defined as total mortgage payments (principal plus interest) relative to total household income. The last data point is August 2022.

4. House price adjustment scenarios

As shown in Figure 3-2, average house prices began to fall as early as March 2022 in many of the CMAs assessed. This decline in prices reflects the sharp rise in mortgage rates that followed the Bank of Canada's policy rate increases.

Assuming that the DSR observed in August 2022 remains the same for average income homebuyers over the remainder of the year, it is possible that average house prices will continue to decline in the coming months as mortgage rates rise further, despite continued gains in household incomes.

To gauge the potential downward adjustment in house prices in 2022, we construct scenarios based on assumed increases in mortgage rates over the remainder of 2022 and assumed household debt service ratios. **However, our scenarios are illustrative in nature and should not be considered forecasts of house price declines**.

To construct our scenarios, we used the DSR observed in August 2022 in each CMA, as well as the DSR measured in December 2021, to represent the average household's new "normal" borrowing capacity. The assumed DSRs are combined with our assumed increase in the 5-year fixed mortgage rate to 6.25 per cent by December 2022, which is an increase of 0.67 percentage points from August 2022.[9]

Table 4-1 shows our scenarios of potential house price adjustments, measured as the projected average house price in December 2022 relative to the peak of the average price observed in each CMA in 2022.

Compared with the peak house prices in each CMA, the potential price adjustment for December 2022 ranges from a decline of 5 per cent in Calgary to a decline of 20 per cent in Hamilton (and a 12 per cent decline nationally) under the assumption that the debt service ratio of the average household remains at its August 2022 level (scenario 1).

In our second scenario, the potential downward adjustment from peak house prices is 23 per cent nationally, and ranges from 22 per cent in Vancouver, Toronto and Ottawa to 30 per cent in Halifax, under the assumption that the debt service ratio of the average household reverts to its December 2021 level.

As of August 2022, average house prices have declined from their peak level across almost all CMAs examined, ranging from 2 per cent in Victoria to 16 per cent in Halifax (7 per cent nationally). The extent to which average house prices will continue to fall over the coming months will depend, in part, on household debt-servicing capacity.

For example, under scenario 1, the potential decline in the average house price in 2022 (relative to its peak) in Halifax is 20 per cent. Since the average price in August 2022 is already 16 per cent below its peak, the average house price in Halifax could decrease further: by 4 per cent (measured relative to its peak), or by 14 per cent under scenario 2, by the end of this year.

Table 4-1 Potential adjustments in average house prices by CMA

Average house price in December 2022 relative to peak price in 2022

	Scenario 1: Aug. 2022 DSR	Scenario 2: Dec. 2021 DSR	*August 2022 house price relative to peak*
Calgary	-5%	-25%	*0%*
Edmonton	-8%	-24%	*-4%*
Halifax	-20%	-30%	*-16%*
Hamilton	-18%	-25%	*-14%*
Montréal	-8%	-23%	*-3%*
Québec	-8%	-25%	*-4%*
Ottawa	-10%	-22%	*-5%*
Toronto	-13%	-22%	*-9%*
Vancouver	-8%	-22%	*-4%*
Victoria	-7%	-27%	*-2%*
Winnipeg	-9%	-24%	*-5%*
Canada	-12%	-23%	*-7%*

Sources: Canadian Real Estate Association and Office of the Parliamentary Budget Officer.

Note: Average house prices in Halifax, Hamilton, Toronto and nationally peaked in February 2022; Vancouver and Ottawa in March 2022; Calgary and Edmonton in April 2022; Montréal, Québec and Winnipeg in May 2022; and Victoria in June 2022.

Appendix A: Data and assumptions

For the CMAs considered in this report, we use average monthly house prices from the Canadian Real Estate Association (CREA), based on their seasonally adjusted MLS Composite HPI Benchmark.[10] These prices reflect all housing types (that is, single family homes, townhouse/row house and apartments) and are based "on a hybrid model that merges Repeat-Sales and Hedonic Price approaches."[11]

For the amortization period, we assume that an average household contemplating a home purchase would amortize their mortgage over a period of 25 years. The mortgage lending rate in each month is the average of posted 5-year fixed rates calculated by Canada Mortgage and Housing Corporation (CMHC).[12]

Actual lending rates from CMHC for 5-year fixed rates mortgages for 2015 to August 2022 are combined with assumed rates for September to December 2022. The assumed rates are based on an updated outlook for the Bank of Canada policy rate, plus a premium (of ultimately 225 basis points) for the mortgage lending rate.

Average household income from 2015 to 2020 for each CMA is taken from Statistics Canada's Canadian Income Survey (CIS).[13] Average annual household income (excluding zero-income households) is calculated on a gross basis (that is, before taxes) and is converted to a monthly frequency.

For each CMA considered, we project average household income in 2021 from its 2020 level based on the observed growth in average household income at the national level over 2020 and 2021, using aggregate household income data from the National Accounts and estimates of the number of households from Statistics Canada.

For 2022, we used an updated outlook for household income and assume a constant annual increase in the number of households (205,600) based on its 2015–2021 historical average. By construction, our approach assumes that growth in average household income in each CMA is the same as growth at the national level. That said, differences in the levels of average household incomes across CMAs are maintained at their 2020 levels (in percentage terms).

Notes

1. The seasonally adjusted MLS HPI Benchmark Price adjusts retroactively to changes in the typical basket of features for houses sold in the period where the Benchmark Price is measured. As such, the December 2021 benchmark prices cited in the February 2022 report differ from those cited in this report for the same period. For more information on the methodology used to calculate the MLS HPI Benchmark Price see: https://www.crea.ca/wp-content/uploads/2016/07/HPI_Methodology.pdf.

2. See the February 2022 PBO report "House Price Assessment: A Borrowing Capacity Perspective." Available at: https://www.pbo-dpb.ca/en/publications/RP-2122-029-S--house-price-assessment-borrowing-capacity-perspective--evaluation-prix-proprietes-un-portrait-capacite-emprunt.

3. For more information see: https://www.bankofcanada.ca/rates/interest-rates/ and https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3410014501&request_locale=en.

4. Our analysis includes the same CMAs selected in the 2019 IMF working paper that assessed house prices in Canada using the borrowing capacity methodology.

5. See IMF Working Paper No. 19/248, Assessing House Prices in Canada. Available at: https://www.imf.org/en/Publications/WP/Issues/2019/11/15/Assessing-House-Prices-in-Canada-48777.

6. Based on the increase in the seasonally adjusted MLS Home Price Index (MLS HPI) Benchmark Price for Canada. For more information see: https://www.crea.ca/housing-market-stats/mls-home-price-index/.

7. Affordability is calculated using the methodology presented in the PBO's report entitled "House Price Assessment: A Borrowing Capacity Perspective." The formula breaks down annual household income growth on a monthly basis, meaning that the decline in affordability over the course of 2022 is the result of the effect of rising mortgage rates net of income growth. The report is available at: https://www.pbo-dpb.ca/en/publications/RP-2122-029-S--house-price-assessment-borrowing-capacity-perspective--evaluation-prix-proprietes-un-portrait-capacite-emprunt.

8. PBO's February 2022 report "House Price Assessment: A Borrowing Capacity Perspective" provides estimates of implied household DSRs by CMA from 2000 to 2021. Available at: https://www.pbo-dpb.ca/en/publications/RP-2122-029-S--house-price-assessment-borrowing-capacity-perspective--evaluation-prix-proprietes-un-portrait-capacite-emprunt.

9. The potential adjustment in house prices is measured as the difference between the peak price observed in each CMA between January and

August 2022, and a new affordable price calculated for December 2022 using the (implicit) DSR observed in August 2022 and December 2021 for each CMA rather than the average DSR from 2012 to 2014 used to calculate historical affordable house prices. The 5-year fixed mortgage rate is assumed to increase to 6.25 per cent by December 2022.

10. The HPI reference price for Halifax is not available. CREA's average residential selling price was used instead.

11. For more information see: https://www.crea.ca/housing-market-stats/mls-home-price-index/.

12. Statistics Canada. Table 34-10-0145-01. Canada Mortgage and Housing Corporation, conventional mortgage lending rate, 5-year term. Available at: https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3410014501&request_locale=en.

    However, contracted mortgage lending rates are typically discounted for most borrowers. All else equal, lower mortgage lending rates would increase the borrowing capacity of households and improve house price affordability.

13. For more information on the Canada Income Survey (CIS) see: https://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=5200.