

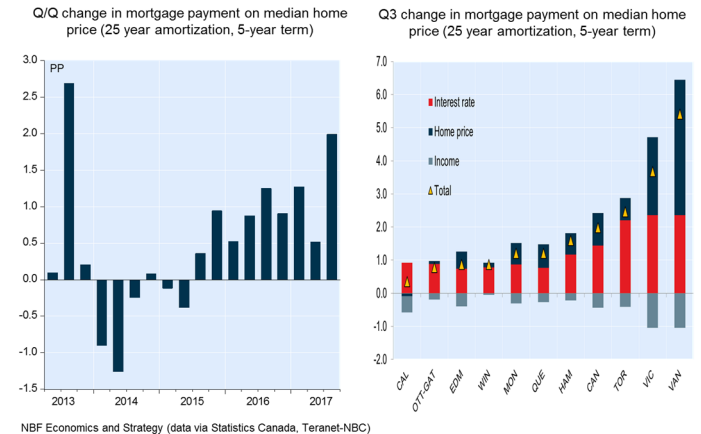
## Rising mortgage rates hurt affordability in Q3

**Mortgage payment as % of income:**  
**Q3 quarter-to-quarter change: +2.0 percentage points**  
**Q3 change from year earlier: +4.7 percentage points**

**NUMBERS:** Affordability continued to deteriorate in Q3 for Canadian housing. The mortgage payment on a representative home as a percentage of income (MPPI) registered an increase of 2.0 percentage points (a higher MPPI means lower affordability) after a 0.5-point rise in Q2. The markets with the worst deterioration were Vancouver (+5.4 points), Victoria (+3.7 points) and Toronto (+2.5 points) while Calgary was essentially spared during the quarter. Countrywide, affordability worsened in both the condo segment (+1.7 points) and the non-condo segment (+2.4 points). Seasonally adjusted Q3 home prices were up 2.2% from Q2; the benchmark mortgage rate (5-year term) rose 28 bps; and median household income was up 1.0%. The annual increase in the MPPI was 4.7 points, as a 1.9% rise of median income was more than offset by a 12.1% rise of home prices and a 7-basis-point upswing of the mortgage rate (a first increase in three years). The time required to accumulate the down payment on a representative home at a savings rate of 10% was 58.3 months, versus 47.9 months a year earlier. Note that median property prices were rebased according to 2016 census data published last month.

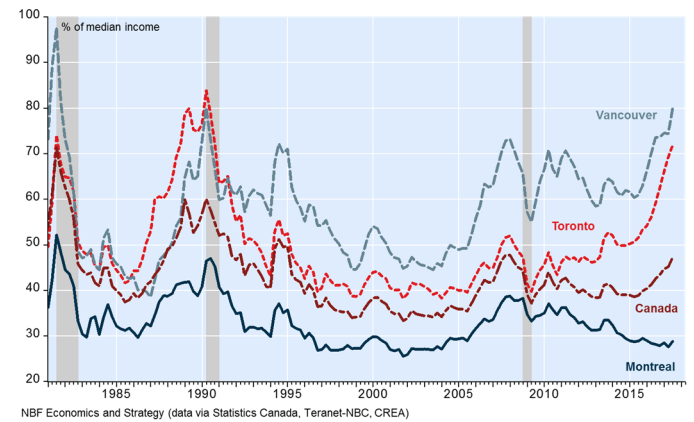
**OPINION:** Affordability worsened for a ninth quarter in a row in Q3, the longest run in three decades. It's worth noting that the Q3 deterioration - the most acute in 9 quarters - was exacerbated by the impact of higher mortgage rates resulting from Bank of Canada summer rate hikes (top chart). At the national level, more than 70% of the deterioration in affordability was due to higher interest rates; in Toronto, it was 90% (top chart). In Vancouver, affordability fell by the most since 1994 as potential homebuyers were also hit by a surge in home prices. As of Q3, the Toronto and Vancouver markets are now the least affordable since the early 1990's (middle chart). Given the Bank of Canada's stated intention to continue the normalization of monetary policy over the coming year, we expect a cumulative increase of about 100 basis points for the 5-year mortgage rates from the trough. Historically, such a change may have had a limited impact on the housing market but this time could be different. Twenty years ago, a 100 basis points increase in mortgage rates would have caused a deterioration of our national affordability measure by 3.5 percentage points. Today, a similar increase has an impact 60% larger given much higher home prices. The Toronto and Vancouver housing markets are particularly more sensitive to rising interest rates compared to other cities (bottom chart). This, combined with more stringent qualifying criteria for uninsured mortgages announced last week by OSFI, means that those markets are poised to experience home price declines in 2018.

### Canada : Mortgage rate increase hurting affordability in Q3



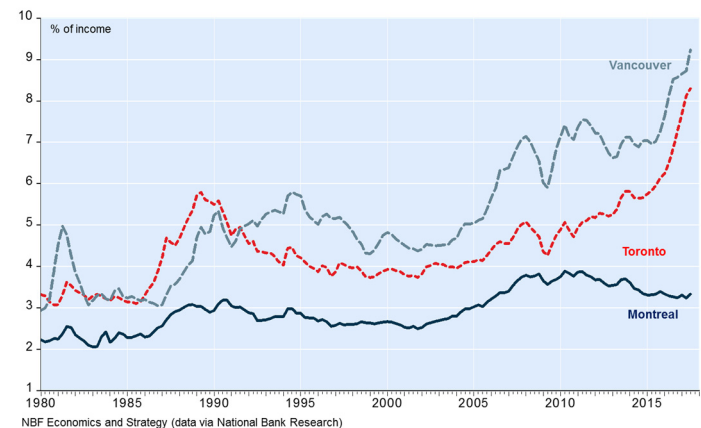
### Vancouver: The least affordable market since the early 1990's

Monthly mortgage payment on median home price (25 year amortization, 5-year term)



### Canada: Perspective on sensitivity to mortgage rate increase

Payment difference of a 100 bps rate shock as a percentage of monthly income (All dwellings)



# Housing Affordability Monitor

## Housing affordability statistics

Table 1

	A	B	C	D	E	F	G	H	I	J	K	L	M
All dwellings	Median home price	Q/Q % change	Y/Y % change	Downpayment: Months of saving	Avg. Since 2000	Mortgage payment as % of income	Q/Q diff. PP	Y/Y diff. PP	Avg. Since 2000	Qualifying annual Income	Median annual Income	Home-ownership rate (2016)	Monthly mortgage payment
<b>Urban Composite</b>	<b>\$ 566,116</b>	<b>2.2</b>	<b>12.1</b>	<b>58.3</b>	<b>32.3</b>	<b>47.2</b>	<b>2.0</b>	<b>4.7</b>	<b>39.5</b>	<b>\$ 95,903</b>	<b>\$ 65,048</b>	<b>68%</b>	<b>\$ 2,557</b>
Toronto	\$ 882,254	1.0	21.7	113.9	41.2	71.8	2.5	12.7	46.7	\$ 149,458	\$ 66,640	66%	\$ 3,986
Montreal	\$ 316,854	2.3	4.9	31.9	25.2	28.8	1.2	0.7	31.2	\$ 53,676	\$ 59,652	56%	\$ 1,431
Vancouver	\$ 1,019,839	5.5	9.3	353.6	55.6	79.9	5.4	6.4	59.5	\$ 172,765	\$ 69,218	64%	\$ 4,607
Calgary	\$ 445,170	-0.3	1.6	32.6	26.4	29.4	0.3	-0.1	33.8	\$ 75,414	\$ 81,956	73%	\$ 2,011
Edmonton	\$ 403,179	2.3	0.9	26.6	23.6	24.0	0.9	-0.3	30.5	\$ 68,300	\$ 90,959	70%	\$ 1,821
Ottawa/Gatineau	\$ 373,413	0.3	3.8	31.7	23.8	28.6	0.8	0.9	29.6	\$ 63,258	\$ 70,726	67%	\$ 1,687
Quebec	\$ 278,569	2.9	3.0	28.2	20.0	25.5	1.2	0.1	24.2	\$ 47,191	\$ 59,228	60%	\$ 1,258
Winnipeg	\$ 310,701	0.6	1.8	28.2	20.4	25.5	0.9	-0.1	25.0	\$ 52,634	\$ 66,025	67%	\$ 1,404
Hamilton	\$ 557,086	1.7	22.1	46.9	24.0	38.4	1.6	6.9	29.0	\$ 94,373	\$ 78,608	70%	\$ 2,517
Victoria	\$ 757,341	3.2	15.9	115.7	50.0	78.0	3.7	10.3	60.5	\$ 128,297	\$ 52,626	63%	\$ 3,421

Table 2

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Condo	Median home price	Q/Q % change	Y/Y % change	Downpayment: Months of saving	Avg. Since 2000	Mortgage payment as % of income	Q/Q diff. PP	Y/Y diff. PP	Avg. Since 2000	Qualifying Income	Median Income	Home-ownership rate (2016)	Monthly mortgage payment	Monthly average rent
<b>Urban Composite</b>	<b>\$ 377,077</b>	<b>3.5</b>	<b>14.0</b>	<b>34.8</b>	<b>23.3</b>	<b>31.4</b>	<b>1.7</b>	<b>3.6</b>	<b>29.1</b>	<b>\$ 63,879</b>	<b>\$ 65,048</b>	<b>9%</b>	<b>\$ 1,703</b>	<b>\$ 1,257</b>
Toronto	\$ 494,329	4.1	24.4	44.5	24.6	40.2	2.6	7.8	30.0	\$ 83,741	\$ 66,640	15%	\$ 2,233	\$ 1,334
Montreal	\$ 258,565	1.4	2.0	26.0	21.7	23.5	0.8	-0.1	27.0	\$ 43,802	\$ 59,652	11%	\$ 1,168	\$ 796
Vancouver	\$ 564,480	5.6	17.5	54.5	29.9	44.2	3.1	6.4	37.1	\$ 95,625	\$ 69,218	22%	\$ 2,550	\$ 1,467
Calgary	\$ 275,738	-0.7	-2.6	20.2	18.9	18.2	0.1	-0.9	24.7	\$ 46,711	\$ 81,956	14%	\$ 1,246	\$ 1,234
Edmonton	\$ 245,209	0.9	-2.7	16.2	15.8	14.6	0.3	-0.7	20.9	\$ 41,540	\$ 90,959	12%	\$ 1,108	\$ 1,230
Ottawa/Gatineau	\$ 243,628	0.5	1.9	20.7	17.0	18.7	0.5	0.2	21.2	\$ 41,272	\$ 70,726	9%	\$ 1,101	\$ 1,208
Quebec	\$ 210,792	0.5	-3.8	21.4	16.3	19.3	0.5	-1.2	19.8	\$ 35,709	\$ 59,228	9%	\$ 952	\$ 811
Winnipeg	\$ 229,949	-0.5	-2.5	20.9	17.0	18.9	0.4	-0.9	21.1	\$ 38,954	\$ 66,025	6%	\$ 1,039	\$ 1,073
Hamilton	\$ 428,580	5.2	24.4	32.7	19.0	29.6	2.2	5.7	23.3	\$ 72,603	\$ 78,608	11%	\$ 1,936	\$ 1,048
Victoria	\$ 438,447	4.2	17.0	50.0	30.3	45.2	2.6	6.3	38.8	\$ 74,275	\$ 52,626	14%	\$ 1,981	\$ 1,201

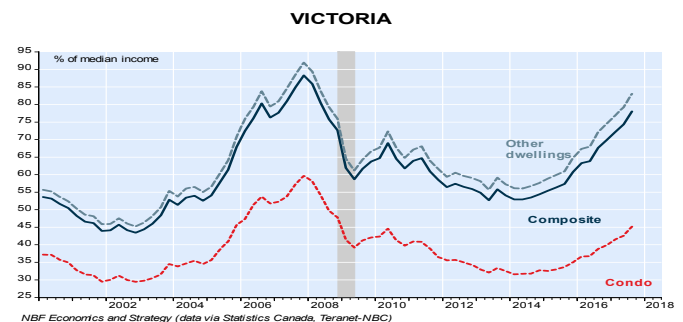
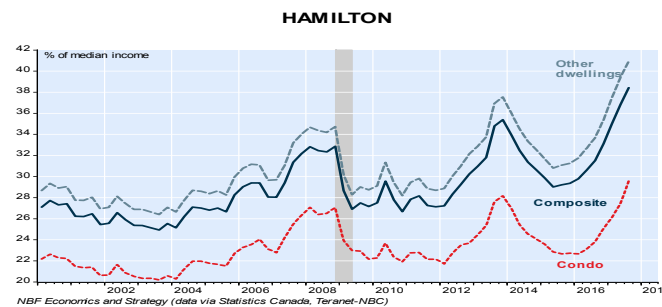
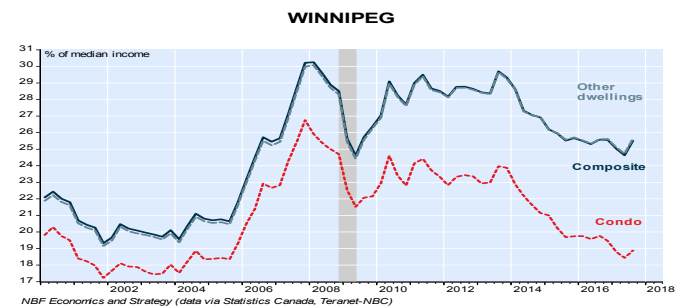
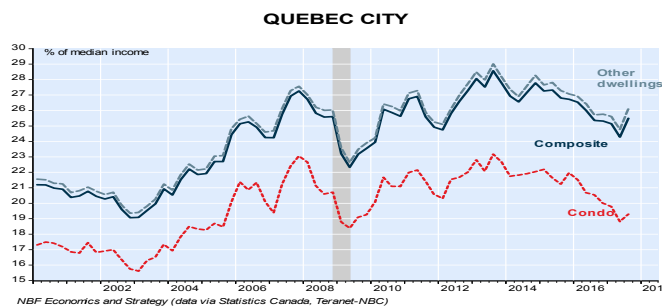
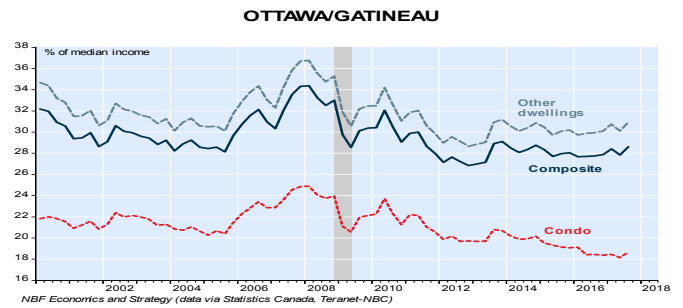
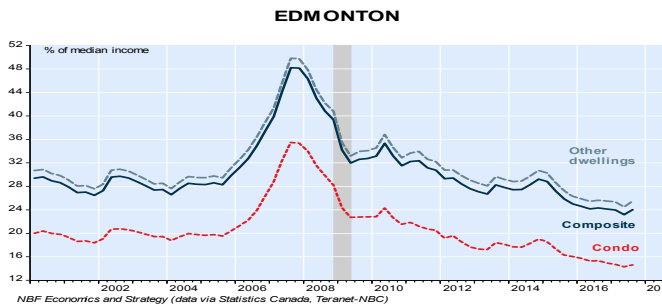
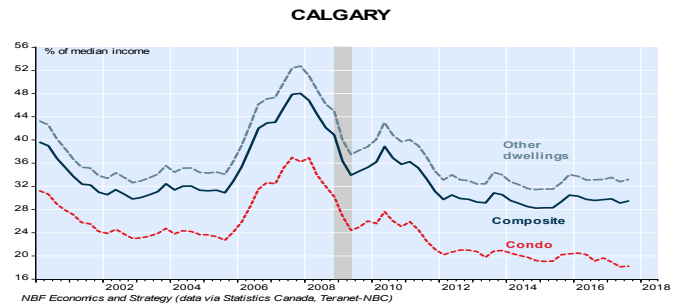
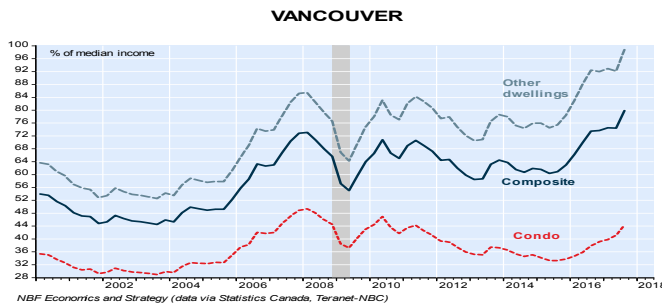
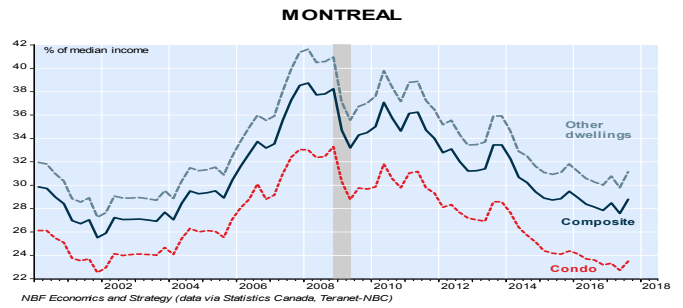
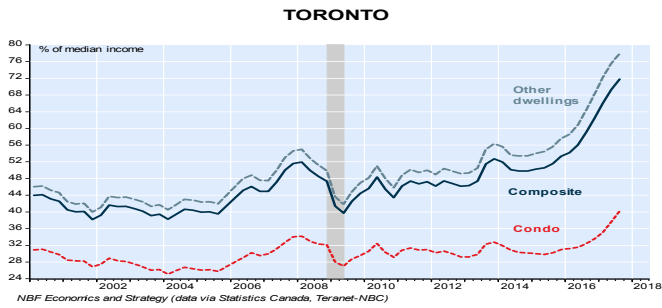
Table 3

	A	B	C	D	E	F	G	H	I	J	K	L	M
Other dwellings	Median home price	Q/Q % change	Y/Y % change	Downpayment: Months of saving	Avg. Since 2000	Mortgage payment as % of income	Q/Q diff. PP	Y/Y diff. PP	Avg. Since 2000	Qualifying Income	Median Income	Home-ownership rate (2016)	Monthly mortgage payment
<b>Urban Composite</b>	<b>\$ 718,366</b>	<b>2.0</b>	<b>11.8</b>	<b>86.4</b>	<b>41.6</b>	<b>59.9</b>	<b>2.4</b>	<b>5.8</b>	<b>49.3</b>	<b>\$ 121,694</b>	<b>\$ 65,048</b>	<b>59%</b>	<b>\$ 3,245</b>
Toronto	\$ 957,704	0.5	21.3	127.4	44.4	77.9	2.3	13.6	49.7	\$ 162,239	\$ 66,640	52%	\$ 4,326
Montreal	\$ 342,758	2.5	5.4	34.5	27.0	31.1	1.4	0.9	33.5	\$ 58,065	\$ 59,652	45%	\$ 1,548
Vancouver	\$ 1,261,544	5.5	7.5	437.4	88.9	98.8	6.7	6.4	71.2	\$ 213,711	\$ 69,218	42%	\$ 5,699
Calgary	\$ 501,804	-0.2	2.3	36.9	29.2	33.2	0.4	0.1	37.3	\$ 85,008	\$ 81,956	59%	\$ 2,267
Edmonton	\$ 426,987	2.4	1.4	28.2	24.7	25.4	1.0	-0.2	31.9	\$ 72,334	\$ 90,959	57%	\$ 1,929
Ottawa/Gatineau	\$ 403,670	0.3	4.0	34.2	25.5	30.9	0.8	1.0	31.7	\$ 68,383	\$ 70,726	58%	\$ 1,824
Quebec	\$ 285,290	3.3	4.0	28.9	20.3	26.1	1.3	0.4	24.6	\$ 48,329	\$ 59,228	51%	\$ 1,289
Winnipeg	\$ 312,093	0.7	2.1	28.4	20.4	25.6	0.9	0.0	24.9	\$ 52,870	\$ 66,025	61%	\$ 1,410
Hamilton	\$ 593,406	1.3	21.8	52.4	25.6	40.9	1.5	7.3	30.8	\$ 100,526	\$ 78,608	60%	\$ 2,681
Victoria	\$ 805,930	3.0	15.8	126.8	53.0	83.0	3.8	10.9	63.5	\$ 136,528	\$ 52,626	49%	\$ 3,641

NBF Economics and Strategy (data via Statistics Canada, Teranet-NBC, CREA)

# Housing Affordability Monitor

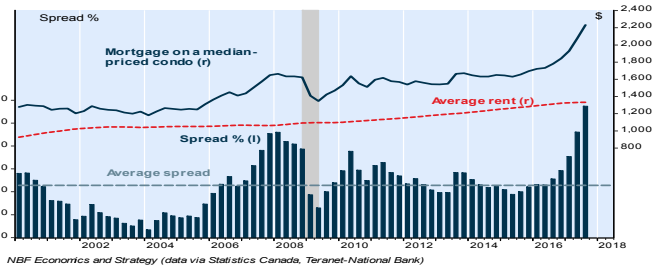
## Mortgage payment for a representative home as a % of income



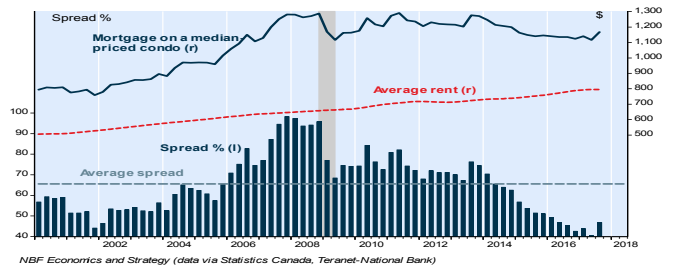
# Housing Affordability Monitor

## Monthly rent vs. mortgage payment for a condo

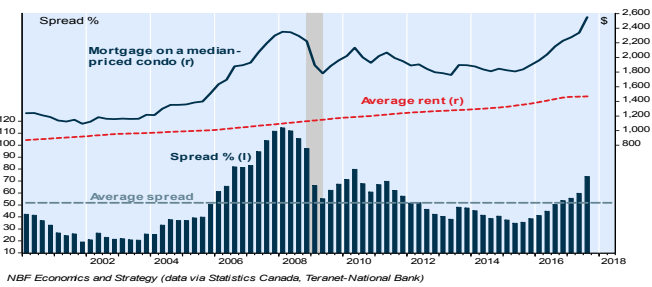
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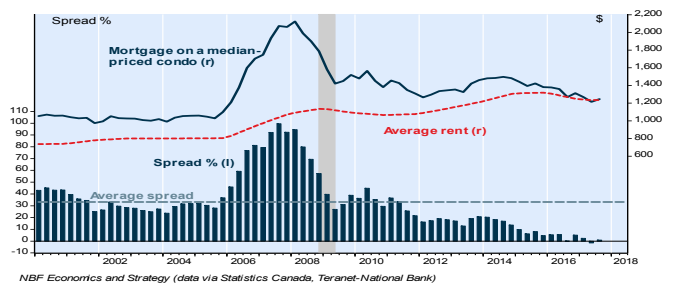
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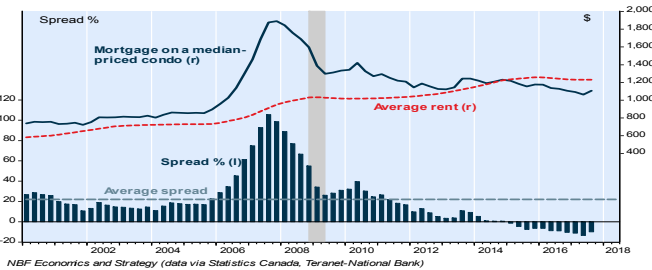
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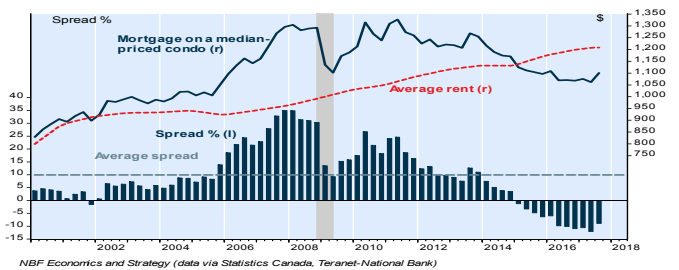
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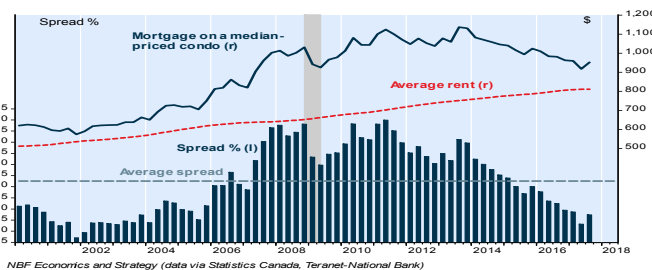
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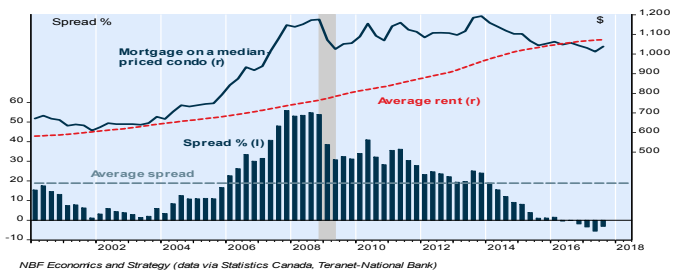
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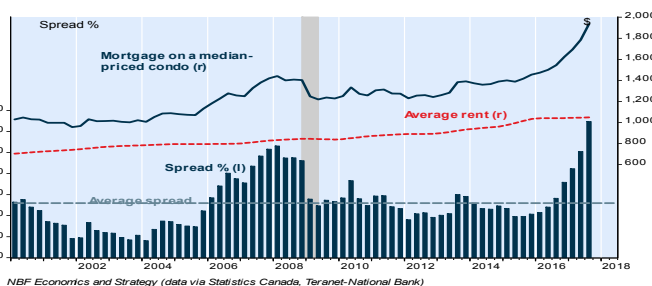
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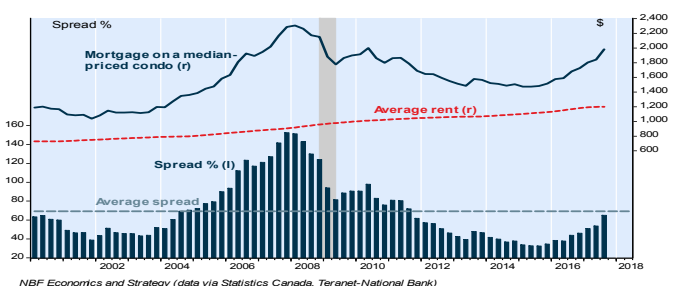
**WINNIPEG**



**HAMILTON**



**VICTORIA**



## Methodology

The National Bank Housing Affordability Report measures housing affordability in 10 major census metropolitan areas (CMAs) and summarizes the results in a weighted-average composite of the 10 CMAs. We track the **condo market**, **other dwellings** (single detached, semi-detached) and the **market as a whole**.

We measure two hurdles for the purchase of a home. First, a household must save the **down-payment** amount. We measure this requirement as the number of months a median-income household will require to save for the minimum cash down payment (CMHC insured mortgage) of the representative home at a savings rate of 10% of its pre-tax income. We evaluate the representative home using the Teranet-National Bank House Price Index for the market in question to calculate the home price for months before and after the median home price measured by the 2016 Census. For **median household income** in each CMA, we take the Statistics Canada annual data up to 2013. For subsequent months, we extend the series using average weekly earnings growth as a proxy.

The second hurdle for the purchase of a home is the monthly mortgage payment. We measure this as the monthly payment on a median-priced home assuming a 25-year amortization period and a 5-year term. The resulting amount is presented as a percentage of income calculated as described above (sometimes referred as **MPPI**). Note that we do not take the down payment into account in this calculation because there is an opportunity cost in a household's use of these funds for that purpose. Also, we do not wish policy changes in this regard to affect our indicator over time. We also calculate the income needed to purchase the median property assuming that household devote 32% of its pre-tax income for mortgage payment (defined as **qualifying income**). For the condo market, we also compare the monthly mortgage payment to the average rent for a two-bedroom apartment in the same market. We calculate that rent from annual CMHC data, updated to the current month by the rent component of the Consumer Price Index. Note that data in the report was seasonally adjusted when necessary.



# Housing Affordability Monitor

## Economics and Strategy

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