

Focus

Feature Article

Our Thoughts

U.S. Inflation: A Tale of Two Indices

- America's Inflation, Everyone's Problem
- What Are Americans Still Buying?
- Canada: True North Strong

America's Inflation, Everyone's Problem



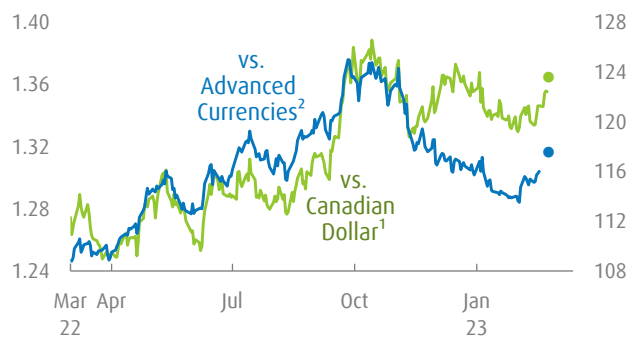
Douglas Porter, CFA
Chief Economist
douglas.porter@bmo.com

Last week we opined that the U.S. economic data pointed to higher for longer, and this week the markets said “yep”, with bonds, stocks and currencies selling off. **Adding some serious spice to the mix on Friday, January's core PCE deflator—aka the Fed's preferred inflation measure—jumped 0.6% m/m and 4.7% y/y.** The latter was a full four ticks above expectations, juiced also by upward revisions to earlier months. It actually gets worse when we dig into Chair Powell's supercore measure (services ex energy and housing), where the 3-month trend popped to an annualized 5.4% clip, flagging no let-up in underlying pressures whatsoever. The core results were notably concerning since they came in above what had already been surprisingly perky CPI and PPI figures.

Financial markets were already struggling to digest the recent run of robust U.S. economic data to start the year, and the PCE deflator only added to the discomfort. Ten-year Treasury yields pushed above 3.95% for the first time this year, while 2-year yields flared above 4.8% for the first time since the Global Financial Crisis blew open in 2007. **Markets are now fully priced for three more 25 bp rate hikes from the Fed, which would take the terminal rate to 5.25%-to-5.50%.** But some are now muttering about even more, with non-trivial odds of fed funds hitting 6% beginning to emerge. Stocks have naturally greeted this development as warmly as a skunk at a picnic, with the S&P 500 retreating for the third week in a row, and now down more than 5% from the early February high.

Chart 1
Dollar Daze

U.S. Dollar (as of February 24, 2023)



¹ (lhs : C\$/US\$); ² Trade-Weighted Dollar (rhs : Jan. 2006 = 100)
Sources: BMO Economics, Haver Analytics

The re-re-pricing on the Fed outlook has given the U.S. dollar yet another charge. After retreating steadily from the 20-year high hit last fall, the greenback has snapped back up since early February lows to reach its highest levels of 2023. For example, the **euro** has pulled back by more than 4% after nearly touching \$1.10 at the start of this month. The **yen** is also on its back heels again, sagging more than 6% in a month to above ¥136. And the **Canadian dollar** has certainly not escaped the broader downdraft, weakening below 73.5 cents (or \$1.362/US\$), down two cents so far this month. In the 15 years prior to the pandemic, the loonie was only weaker for one brief spell—when oil prices crashed below \$30 in late 2015.

The Canadian dollar is being undercut by the broader strength of the U.S. dollar, a related risk-off move, but also by some specific home-grown factors. The sudden reassessment of the potential for even more Fed rate hikes follows soon after the Bank of Canada rather publicly planted its flag in the on-pause field. True, the pause was billed as “conditional” on the inflation performance. But just as U.S. inflation surprised to the high side in January, Canada delivered a rare downside surprise in this week's CPI. Headline inflation cracked below 6% (at 5.9%) for the first time in nearly a year, **leaving Canada with one of the lowest inflation rates in the industrialized world.** Even Japan's rate is now not that much lower at 4.3%, and the BoJ is sticking with *negative* interest rates. Moreover, Canada's core inflation displayed some encouraging

signals, with ex food & energy prices rising only 0.1% m/m in seasonally adjusted terms. That's the smallest monthly rise in nearly two years, clipping the 3-month trend to a manageable 3.1% (the similar measure in the U.S. was 4.6%).

The not-terrible domestic inflation reading temporarily calmed some of the more aggressive expectations for the Bank of Canada later this year. The blow-out January jobs report, and a run of reasonably good growth figures to start 2023, had convinced markets that the Bank would hike yet again by summer. Those expectations have been revived by the strong U.S. inflation result, as well as by the sagging Canadian dollar.

The main arguments for why the Bank could consider deviating meaningfully from the Fed are two-pronged: 1) Canadian households are much more indebted than their U.S. counterparts, and mortgages are on a shorter cycle than stateside, leaving **the economy much more sensitive to higher rates**; and 2) **wage and price pressures are a bit less intense in Canada**. The latest CPI results highlighted some of that gap, and so too did job openings. The job vacancy rate in Canada has dipped below 5% in recent months, while the U.S. rate picked back up to 6.7% in December. And most major measures of wages are running consistently stronger than in Canada.

True, the BoC can deviate a bit from the Fed, but the currency will act as a limiter on the extent of that deviation. That is, the Bank may not have the luxury of staying on the sidelines if the Fed is still busily marching rates down the field, driving the loonie lower (and thereby sending imported costs flaring higher). Import prices were up 13% y/y in Q4, outpacing export prices for the first time in two years. At least some of that import price inflation has been sparked by a 5% drop in the Canadian dollar in the past year.

Alongside recent surprisingly solid growth results, this has prompted the market to again nearly fully price in one additional 25 bp hike from the BoC, pushing GoC yields higher across the curve. **The five-year yield—important for the housing market—has vaulted above 3.6%, up by more than 70 bps just since the Bank signalled its pause less than a month ago.** While still roughly 25 bps below the extreme peaks reached last October, yields had not previously been in this zone since 2007. Note that, in inflation-adjusted terms, home prices were 40% lower than current levels back then. While we're not looking for a pullback of that magnitude, it's safe to say that the back-up in bond yields will put a further chill in a frosty domestic housing market.

The title of this piece is certainly not meant to imply that it's only the U.S. economy dealing with a serious inflation issue. In fact, European price trends have long since overtaken their American counterparts. The Euro Area's inflation rate was confirmed at 8.6% in January, down 2 ppts from October's peak, but now more than 2 ppts north of the U.S. tally. Britain is even loftier at 10.1%. However, a much larger share of Europe's inflation has been driven by energy costs—even with core CPI hitting a new high of 5.3%, it's still below the 5.5% U.S. pace. And, **the recent melt in natural gas should help cool headline Euro Area CPI aggressively in the months ahead.** Gas prices in the Netherlands are now down 60% from a year ago, and back to levels last seen in the summer of 2021. The war in Ukraine is regrettably still grinding on at its one-year anniversary today, but Mother Nature did her part for the right side this winter.

What Are Americans Still Buying?



Sal Guatieri
Senior Economist
sal.guatieri@bmo.com

Despite rising loan costs and high inflation, **U.S. consumers turned on the jets in January**, stoked by unusually temperate weather and a spike in after-tax income. The 1.1% sprint in real spending, following declines the prior two months, has consumers on track for a roughly 3% annualized gain in Q1, double the prior pace. Yet, given that special factors (weather, seasonal adjustment) likely played some role, it's hard to take the pulse of underlying demand. A look at **what people are still buying (or not) might shed some light on the outlook for both spending and the economy**. We tracked spending over the past six months to iron out the September-October gains that were juiced by early holiday discounting, the November-December losses that marked some payback, and the January spike that was partly due to warmer weather. On this basis, real spending looks to have picked up moderately from an earlier downshift. Here is the breakdown by key categories:

Still going strong:

- **services:** notably hotel stays (travel related), personal care, health care (doctor and dentist visits are still going strong amid catch up from the pandemic), air travel, and recreation (such as sports and live entertainment)
- **public transportation** including taxis and ride-sharing services (reflecting the return to office)

Rising more modestly:

- **goods:** notably furniture and appliances (basically, anything housing-related)
- **food services:** prior to the January spike, people were cutting back on restaurant visits, which is likely a sign of waning discretionary demand by lower-income groups that have largely exhausted excess savings
- laundry services and clothing, both supported by the return to office
- **autos:** seeing through part of the January spike and noting that preliminary data suggest new vehicle sales fell by one million in February

Stalled:

- **gasoline**, oddly, despite lower prices and a thirst for travel
- **recreational goods and vehicles**, which were hot in the early days of the pandemic

Cutting back:

- **groceries:** notably, egg consumption has plunged due to soaring prices and worsening shortages due to avian flu ravaging the supply of hens
- **household supplies, personal care products**, and (surprisingly) **jewellery** (given that upper-income earners still have substantial excess savings)

What can we take away from this mix of strength in some areas but weakness in others? Three things stand out. **First**, consumers remain keen on buying services, especially anything related to travel or the return to office. And, there is still some "revenge" spending for recreational services. **Second**, there is less pent-up demand for goods, especially the recreational kind. And **third**, households are cutting back on things that have become much more expensive, such as food.

The key message is that **American consumers continue to chug along on the back of previously deferred services in the pandemic**. Excess savings and sturdy job markets are taking the sting out of the rising cost of credit and most other items. So long as two-thirds of the economy continues to plod forward, it should remain on course for either a mild downturn or even a soft landing. But its ultimate fate will be decided by the path for inflation and the Fed.

Canada: True North Strong



Benjamin Reitzes
Canadian Rates &
Macro Strategist
benjamin.reitzes@bmo.com

The Canadian economy ended 2022 in surprisingly good shape, with retail sales rebounding from softness in the prior two months, home sales climbing (though they fell back in January), and service sectors likely continuing their solid run. December GDP, out next week, is expected to be flat-to-slightly higher. While that might not sound like much, it comes after the most aggressive Bank of Canada rate hike campaign in a generation. If in February 2022 someone said that the Canadian economy would still be holding up well after 425 bps of rate hikes, we would have been politely skeptical.

The early data suggest momentum held firm into 2023. Employment exploded higher in January, though it's always best to take any individual month of the Labour Force Survey with a grain of salt. The early estimate for January retail sales was positive as well, while wholesale trade surged 3% and manufacturing activity jumped 3.9%. That points to a solid start to the year for GDP, suggesting Q1 growth could be far stronger than our call for a modest 0.5% increase (which is in line with the BoC's latest forecast). **If GDP growth clocks in at anything close to potential** (estimated to be around 2%), the positive output gap won't shrink, and **there will be renewed pressure on the BoC to resume tightening policy.**

January inflation figures were a step in the right direction, supporting the BoC's "conditional pause", but there's still plenty of work to be done before inflation gets back to 2%. The smaller-than-expected headline increase was certainly welcome, though the details of the report were mixed, with a few categories seeing unusual weakness. We'll be watching to see if that becomes a trend. The yearly headline and core inflation rates are likely to keep falling given the base effects (prices rose sharply in the first half of 2022), **but that won't be enough to satisfy policymakers that inflation is headed to target.** They'll want to see the shorter-term metrics (e.g. 3-month annualized per cent change) for core inflation continue to decelerate. Unfortunately, that will take consistent monthly prints of 0.2% or lower... something we haven't seen since 2020.

Key Takeaway: The Canadian economy is holding firm despite the 425 bps in rate hikes over the past year. Unless the data do another U-turn weaker over the next month or two, the Bank of Canada might be forced to jump back into action and push rates to levels not seen in over 20 years.



Priscilla Thiagamoorthy
Senior Economist
priscilla.thiagamoorthy@bmo.com

*Indications of stronger growth and a move toward price stability are **good news** for the economy.*

Good News

Bad News

Canada

- Short-term inflation metrics continue to improve
- C\$ weakens as BoC's conditional policy pause deviates from a hawkish Fed

Consumer Prices slowed to +5.9% y/y (Jan.)
—lowest inflation rate since last Feb.

Retail Sales Volumes +1.3% (Dec.)—StatCan estimates January nominal sales grew 0.7%

New Housing Price Index +2.7% y/y (Jan.)
—slowing

SEPH Employment +91,428 (Dec.)

Wholesale Trade +3.0% (Jan. A)

Manufacturing Sales +3.9% (Jan. A)

Ottawa budget deficit \$2.0 bln (Dec.)
—vs. \$3.6 bln surplus last year

United States

- Rising inflation puts more pressure on the Fed
- Stocks fall; 2-yr yield hits highest since 2007
- FOMC Minutes signal at least two more 25 bp hikes

Real Personal Spending +1.1% (Jan.)

Personal Income +0.6% (Jan.)

Chicago Fed National Activity Index 0.23 (Jan.)

New Home Sales +7.2% to 670,000 a.r. (Jan.)

U of M Consumer Sentiment revised up to 67.0 (Feb.)—and year-ahead inflation expectations revised down a tick to 4.1%

Core PCE Deflator accelerated to +0.6% (Jan.)
—and Fed's supercore +0.6%

Existing Home Sales -0.7% to 4.0 mln a.r. (Jan.)

Real GDP revised down to +2.7% a.r. (Q4 S)—but a still-healthy 2022 finish

Japan

- Inflation hits a fresh 40-year high...
- ...will the BoJ step away from the sidelines soon?

Department Store Sales +15.1% y/y (Jan.)

Services PMI +1.3 pts to 53.6 (Feb. P)

Consumer Prices +4.3% y/y (Jan.)

Manufacturing PMI -1.5 pts to 47.4 (Feb. P)

Europe

- ECB President Lagarde: what comes after March's 50 bp hike "will be data dependent"

Euro Area—Services PMI +2.2 pts to 53.0 (Feb. P)

Euro Area—Consumer Confidence +1.7 pts to -19.0 (Feb. P)

Germany—GfK Consumer Confidence +3.3 pts to -30.5 (Mar.)

Germany—ZEW Survey +11.2 pts to 28.1 (Feb.)

Germany—ifo Business Climate +1.0 pts to 91.1 (Feb.)

France—Business Confidence +1 pt to 103 (Feb.)

U.K.—Manufacturing PMI +2.2 pts to 49.2;

Services PMI +4.6 pts to 53.3 (Feb. P)

U.K.—GfK Consumer Confidence +7 pts to -38 (Feb.)

Euro Area—Consumer Prices revised up to +8.6% y/y (Jan.)—and core +5.3% y/y

Euro Area—Manufacturing PMI -0.3 pts to 48.5 (Feb. P)

Germany—Real GDP revised down to -0.4% q/q (Q4)

France—Retail Sales -2.6% y/y (Jan.)

France—Consumer Confidence -1 pts to 82 (Feb.)

Other

- RBNZ raises rates by 50 bps; signals more hikes to come

Mexico—Real GDP revised up to +0.5% q/q (Q4)

U.S. Inflation: A Tale of Two Indices



Michael Gregory, CFA
Deputy Chief Economist
michael.gregory@bmo.com

There are two official measures of inflation facing American households, the **Consumer Price Index (CPI)** and the **Personal Consumption Expenditures price index (PCE price index or PCEPI)**. This week, the PCE price index increased 0.6% in January, lifting the annual change a tenth to 5.4% y/y. Despite drifting up, it is still down from June's 40-year high of 7.0% (Chart 1). Last week, the CPI rose 0.5% in January, lowering the annual change by a tenth to a 15-month low of 6.4% y/y. This is down from the four-decade high of 9.1% also reached last June.

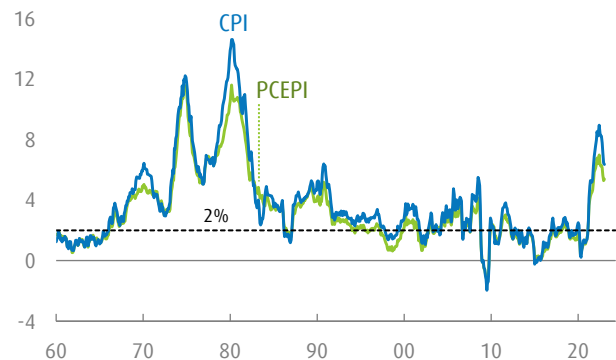
These two measures display different inflation rates, as they typically do, and we discuss the reasons why below. **The PCE price index has been the Fed's preferred price metric** since 2000 (before, it tracked the CPI), with a 2% annual change in the PCEPI becoming the FOMC's formal inflation target in January 2012. Despite the policy status, the CPI remains more popular; its results regularly make the media headlines. The affinity partly reflects the fact that the CPI is released earlier (e.g., by 10 days this month), has been around longer and is more comparable with international inflation measures. The CPI is also widely followed because it's used for making cost-of-living adjustments (COLAs) to wages and benefits, and for escalating other contract prices and costs.

As mentioned above, the CPI and PCEPI show different inflation rates, 6.4% and 5.4% respectively in January, for a divergence of 1.0 ppts. Since (monthly) PCEPI inflation figures started in 1960, the difference has ranged from 3.9 ppts in June 1980 to -1.7 bps in August 1983 with a median of 39 bps (Chart 2). The latest spread has narrowed from the 40-year high of 2.1 ppts hit in July. Casual observation notes that the most extreme divergences occur when the inflation rates themselves are at extremes, which is a good segue into the discussion on why these two metrics generate different results.

The CPI and PCEPI are constructed differently and any consequent divergence in calculated inflation rates can be dissected into a formula effect, a scope effect, a weight effect and an 'other effects' remainder. In Table 1,

Chart 1
Inflation, Two Ways

United States (y/y % chng)

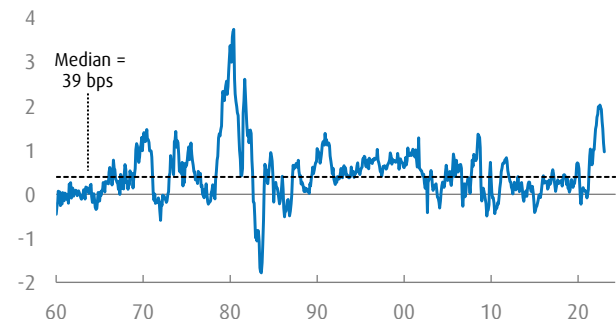


Sources: BMO Economics, Haver Analytics

Chart 2
Faster-Running CPI

United States (ppts)

Annual Change in CPI less PCEPI



Sources: BMO Economics, Haver Analytics

Table 1
Reconciliation of PCEPI Inflation with CPI Inflation

2022Q4 (y/y % chng)

PCE Price Index	5.7
Formula Effect	0.11 ppts
Scope Effect	-0.35 ppts
Weight Effect	1.51 ppts
Other Effects	0.18 ppts
CPI	7.2

Figures do not add due to rounding

Sources: BMO Economics, author's calculations, BEA

we show the reconciliation between the annual changes in the CPI and PCE price index for 2022Q4.

Formula effect: Calculated by the Bureau of Labor Statistics (BLS), the CPI measures the prices of items in a representative basket of goods and services for urban households. When comparing two periods and determining an inflation rate, the basket may not change. Technically, this is a Laspeyres index formula. Note that beginning January 2023, the basket is being updated annually instead of biennially but the BLS smooths the impact of basket updates to avoid distorting year-on-year inflation rates.

Calculated by the Bureau of Economic Analysis (BEA... the GDP folks), the PCEPI includes the prices of all goods and services purchased or used by all households. This time, when comparing two periods and determining an inflation rate, what was bought or used is the 'basket' and it changes each period. Technically, this is a Fisher Ideal index formula.

For both the CPI and PCEPI, these are essentially weighted averages of prices with the relative importance or weights of items based on surveys. When prices rise, households tend to purchase less of the more expensive goods and services and substitute them for more affordable alternatives, given their budget constraints. By construction, this gets reflected in the PCEPI but not in the CPI (that's why the PCEPI is considered to be closer to a true COLA index). The lack of substitution biases up the CPI relative to the PCEPI. In 2022Q4, the formula effect alone contributed 11 bps to the divergence between CPI and PCEPI yearly inflation rates. And, it typically averages around 16 bps (*Chart 3*).

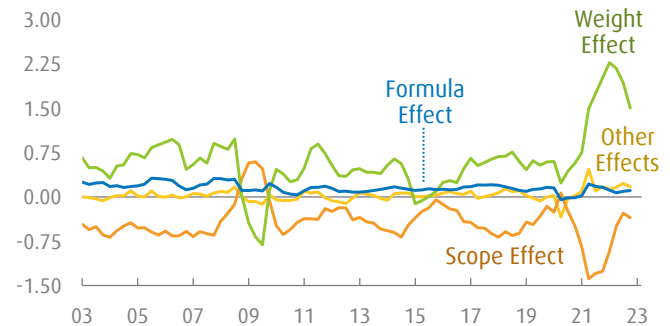
Scope effect: The PCE price index is a much broader concept than the CPI. It includes the prices of all items, not just the expenditures paid for 'out of pocket'. The CPI includes only the latter. As such, the PCEPI includes the prices of goods and services bought on behalf of households by governments and businesses, along with final consumption expenditures of non-profit institutions serving households (think of a service club). For example, along with the prices of medical goods and services paid directly by consumers, the costs of such things such as Medicare and employer-sponsored health insurance are also included. Education prices include the cost of public education along with tuition. About 25% of PCE outlays are not covered by the CPI.

However, a more complete and comprehensive spending picture comes with a consequence. Roughly 20% of PCEPI prices or costs are unobservable (e.g. financial services furnished without payment), or are infrequently observed, and must be estimated by the BEA on a monthly basis. In 2022Q4, the scope effect contributed -35 bps to the discrepancy between CPI and PCEPI yearly inflation rates, and it typically stays on the negative side of the ledger (it tends to bias up PCEPI inflation relative to the CPI).

Chart 3
Special Effects

United States (% : s.a.a.r. : 4-qtr m.a.)

Contributions to CPI-PCEPI Divergence



Sources: BMO Economics, Haver Analytics

Weight effect: The source for the CPI's relative importance of items, or spending weights, is the BLS's Consumer Expenditure Survey. However, the source for the PCEPI's weights are all business surveys such as the Quarterly Services Survey and the Census Bureau's other surveys on retail sales. Different surveys can give rise to different weights, but it's the broader scope of the PCEPI that impacts weights the most.

The weights of most items that both indices share will necessarily be smaller in the PCEPI. And, in an area like medical goods and services, that includes large outlays not covered in the CPI, the PCEPI weights will be noticeably larger. Meantime, in determining the contribution to the discrepancy between CPI and PCEPI inflation rates, the largest-weighted CPI items end up having the most influence, such as rent of shelter and energy. In 2022Q4, the weight effect alone (151 bps) could account for all the discrepancy.

Other effects: While item weights are derived from different sources, usually the CPI and PCEPI use the same item price. However, in some case, different prices are used. For example, the CPI figure for airline fares is based on a sampling of routes. The PCEPI figure is based on airlines' passenger revenues and miles flown.

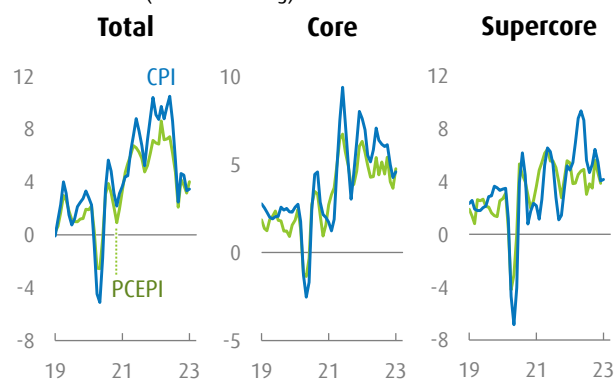
Data revision is another issue. The seasonally unadjusted CPI is nearly never revised, with only the seasonal adjustment factors getting re-estimated annually (this had a noticeable impact this year in turning the 'tenth dial' on some monthly moves). The BEA doesn't publish seasonally unadjusted PCE price data, and the published figures get revised often (monthly back two periods, annually for up to five years). In 2022Q4, these other effects contributed 18 bps to the divergence between CPI and PCEPI yearly inflation rates.

As a final note, markets were recently focussing more than normal on how the CPI and PCEPI were constructed as they scrambled to create a CPI version of **the Fed's new favourite inflation metric, the PCEPI's core services excluding housing costs**, also known as 'supercore'. In January, it increased 0.6% which lifted the annual change by four tenths to 4.6% y/y. The version the market seems to have settled on is the CPI's core services excluding tenant and owners' equivalent rents. In January, it increased 0.4% which kept the annual change at 6.2% y/y. From a technical perspective, this could have been made even more comparable. While food services are included in the food component of the CPI, they are not in the PCEPI. So, excluding food, energy and other goods still leaves food services in the PCEPI but not the CPI. Adding food services back into the CPI version has it increasing 0.4% in January which lifted the annual change by a tenth to 6.6% y/y. However, the refinement does little to change the general conclusion... **underlying inflation is still appearing stubborn no matter how you measure it** (Chart 4).

Chart 4

Short-term Trends Start to Bend

United States (3-mnth % chng)



Sources: BMO Economics, Haver Analytics

Economic Forecast Summary for February 24, 2023

	2022				2023				Annual		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
CANADA											
Real GDP (q/q % chng : a.r.)	2.8	3.2	2.9	1.5	0.5	-1.0	-1.0	1.0	5.0	3.6	0.7
Consumer Price Index (y/y % chng)	5.8	7.5	7.2	6.7	5.5 ↓	3.8	3.5	3.2 ↑	3.4	6.8	4.0
Unemployment Rate (percent)	5.7	5.1	5.1	5.1	5.1	5.4	5.6	5.8	7.5	5.3	5.5
Housing Starts (000s : a.r.)	241	271	281	258	233	242	225	220	274	263	230
Current Account Balance (\$blns : a.r.)	3.7	10.6	-44.4	-44.0 ↑	-37.5 ↑	-36.5 ↑	-36.5 ↑	-37.5 ↑	-6.7	-18.5 ↑	-37.0 ↑
Interest Rates	(average for the quarter : %)										
Overnight Rate	0.33	1.17	2.75	3.92	4.50	4.50	4.50	4.50	0.25	2.04	4.50
3-month Treasury Bill	0.39	1.43	2.91	3.96	4.40 ↑	4.45 ↑	4.45 ↑	4.45 ↑	0.11	2.17	4.45 ↑
10-year Bond	1.92	2.98	3.01	3.16	3.10 ↑	3.20 ↑	3.10	3.05	1.36	2.77	3.10 ↑
Canada-U.S. Interest Rate Spreads	(average for the quarter : bps)										
90-day	9	33	16	-22	-36 ↓	-53 ↑	-60 ↑	-60 ↑	7	9	-53 ↑
10-year	-2	5	-10	-67	-57 ↑	-54 ↑	-53	-51	-8	-18	-54 ↑
UNITED STATES											
Real GDP (q/q % chng : a.r.)	-1.6	-0.6	3.2	2.7	0.5	-1.0	-1.0	0.8	5.9	2.1	0.7
Consumer Price Index (y/y % chng)	8.0	8.6	8.3	7.1	6.0 ↑	4.5	3.9	3.5	4.7	8.0	4.5 ↑
Unemployment Rate (percent)	3.8	3.6	3.5	3.6	3.5	4.0	4.6	4.8	5.4	3.6	4.2
Housing Starts (mlns : a.r.)	1.72	1.65	1.45	1.41	1.34	1.33	1.34	1.37	1.61	1.56	1.34
Current Account Balance (\$trlns : a.r.)	-1.13	-0.95	-0.87	-0.87	-0.86 ↓	-0.87 ↓	-0.87	-0.88 ↓	-0.85	-0.95 ↑	-0.87 ↓
Interest Rates	(average for the quarter : %)										
Fed Funds Target Rate	0.21	0.96	2.63	3.79	4.63	5.04	5.13	5.13	0.13	1.90	4.98
3-month Treasury Bill	0.30	1.10	2.75	4.18	4.80 ↑	5.00 ↑	5.05	5.05	0.05	2.08	5.00 ↑
10-year Note	1.94	2.93	3.10	3.83	3.65 ↑	3.75 ↑	3.65	3.55	1.44	2.95	3.65 ↑
EXCHANGE RATES											
(average for the quarter)											
US\$/C\$	79.0	78.4	76.6	73.7	74.7	75.4	76.0	76.7	79.8	76.9	75.7
C\$/US\$	1.27	1.28	1.31	1.36	1.34	1.33	1.32	1.30	1.25	1.30	1.32
¥/US\$	116	130	138	141	132	132	130	129	110	131	130
US\$/Euro	1.12	1.06	1.01	1.02	1.08	1.09	1.10	1.11	1.18	1.05	1.09
US\$/£	1.34	1.26	1.18	1.17	1.22	1.23	1.24	1.26	1.38	1.24	1.24

Blocked areas mark BMO Capital Markets forecasts; up and down arrows (↑↓) indicate forecast changes; spreads may differ due to rounding

Canada



Benjamin Reitzes
Canadian Rates &
Macro Strategist
benjamin.reitzes@bmo.com



Shelly Kaushik
Economist
shelly.kaushik@bmo.com

Current Account Balance

Monday, 8:30 am

Q4 (e)	-\$11.0 bln (-\$44.0 bln a.r.)
Consensus	-\$11.0 bln (-\$44.0 bln a.r.)
Q3	-\$11.1 bln (-\$44.4 bln a.r.)

Canada's **current account** deficit was likely little changed in Q4; we look for a slightly narrower shortfall of about \$11 bln (or \$44 bln a.r.) from \$11.1 bln (\$44.4 bln a.r.) in the third quarter. This would be the second straight deficit on the back of much smaller goods trade surpluses, primarily from lower commodity prices, which stepped down again in Q4. Meantime, the services deficit was little changed as travel flows have returned to more normal patterns. Our estimate would put the current account deficit at about a manageable 1.6% of GDP, which would put limited pressure on the Canadian dollar given relatively healthy financial flows.

Real GDP

Tuesday, 8:30 am

	Real GDP	Chain Prices
Q4 (e)	+1.5% a.r.	-1.9% a.r.
Consensus	+1.5% a.r.	n.a.
Q3	+2.9% a.r.	-5.4% a.r.

The economy has held up surprisingly well in the face of the most aggressive rate hike campaign in a generation. **GDP growth** held in positive territory in Q4, though slowed to about half the pace of the prior quarter. We're expecting growth to clock in at 1.5%, in line with StatCan's flash estimate. Retail sales rebounded from their steepest non-pandemic quarterly drop since the GFC, though the increase in services spending likely decelerated. Consumption looks to add to growth in Q4 after being a drag in Q3. Business investment was likely mixed, with falling machinery/electrical import volumes pointing to another drop in machinery and equipment spending, while non-residential construction is expected to see a decent gain. The latter contrasts with the residential sector which looks to see a third consecutive steep quarterly contraction. Home sales and housing starts slumped, while renovation activity likely provided a small positive offset. Following back-to-back large inventory builds, we anticipate a smaller increase will be a drag on growth. However, net exports should provide an offset as export volumes contracted less than imports in the quarter.

Monthly Real GDP

Dec. (e)	unch
Consensus	unch
Nov.	+0.1%

For **December GDP**, we're looking for a flat reading, in line with the flash estimate, with a decent chance of a +0.1% print. Services drove growth in the prior two months, and that was likely the case once again, with retail and home sales firming. Wholesale and manufacturing activity fell according to earlier data, while StatCan flagged a pullback in mining/oil/gas. Despite a big employment gain, hours worked dipped in December, suggesting broader activity likely struggled. Looking ahead to January, hours worked surged, retail activity looks to have turned higher and wholesale trade rebounded, pointing to a decent start to the year for monthly GDP.

United States



Sal Guatieri
Senior Economist
sal.guatieri@bmo.com



Priscilla Thiagamoorthy
Senior Economist
priscilla.thiagamoorthy@bmo.com

Durable Goods Orders

Monday, 8:30 am

	Durable Orders	Core Orders
Jan. (e)	-4.0%	-0.3%
Consensus	-3.9%	-0.1%
Dec.	+5.6%	-0.1%

Durable goods orders look to decline 4.0% in January, wiping out most of the prior month's jump, as Boeing orders lost altitude after soaring to multi-year highs in December. Excluding aircraft and defense items, capital goods orders likely extended a downward trend to four of the past five months, as ISM factory orders plumbed their lowest ebb since the 2020 shutdowns. Fewer purchases of business machinery should more than offset an upturn in the auto space. You wouldn't know it from the payrolls data, but the sector is struggling to make headway, as January's weather-

ISM Manufacturing PMI

Wednesday, 10:00 am

Feb. (e) 47.4

Consensus 48.0

Jan. 47.4

related bounce in production merely retraced half of the prior month's slide and was still the second-weakest level of activity in the past year.

After sliding for five straight months to the lowest level since the onset of the pandemic, the **ISM manufacturing PMI** looks to hold steady at 47.4 in February. New orders are expected to shrink again as higher borrowing costs continue to weigh on sales, though production could edge up amid the still-expanding employment picture. Meantime, the prices sub-index likely climbed again as producer costs showed some vigour more recently. With the Fed on track to raise rates at least a couple more times, the ISM's manufacturing gauge will likely continue to lose steam, falling deeper into contractionary terrain.

ISM Services PMI

Friday, 10:00 am

Feb. (e) 54.2

Consensus 54.5

Jan. 55.2

The **ISM services PMI** report for January raised a few eyebrows, with the gauge unexpectedly rebounding well into expansionary terrain, up 6 pts to 55.2. We expect to see some reversal in February, with the index likely falling a point to 54.2. Business activity and new orders likely retraced some of the prior month's surge but are expected to remain robust in the expansion zone. Meanwhile, employment has held relatively steady, oscillating around the 50-mark. The prices sub-index remains high, much to the dismay of the Fed. Looking ahead, momentum for the still-strong services sector will depend on labour market conditions. Robust services demand could keep inflation sticky, putting more pressure on the Fed to keep going with rate hikes.

Financial Markets Update for February 24, 2023

		Feb 24 ¹	Feb 17	Week Ago	4 Weeks Ago	Dec 31, 2022
		(basis point change)				
Canadian Money Market	Call Money	4.50	4.50	0	0	25
	Prime Rate	6.70	6.70	0	0	25
U.S. Money Market	Fed Funds (effective)	4.75	4.75	0	25	25
	Prime Rate	7.75	7.75	0	25	25
3-Month Rates	Canada	4.51	4.50	1	16	28
	United States	4.81	4.79	3	15	47
	Japan	-0.14	-0.16	2	4	4
	United Kingdom	4.16	4.20	-4	6	29
	Australia	3.51	3.47	5	13	25
2-Year Bonds	Canada	4.29	4.15	14	61	24
	United States	4.82	4.62	20	61	39
10-Year Bonds	Canada	3.42	3.29	13	53	12
	United States	3.95	3.82	13	44	7
	Japan	0.50	0.50	0	2	9
	Germany	2.54	2.44	10	30	-3
	United Kingdom	3.65	3.51	14	33	-1
	Australia	3.82	3.82	0	27	-23
Risk Indicators	VIX	22.6	20.0	2.6 pts	4.1 pts	0.9 pts
	Inv. Grade CDS Spread ²	76	74	1	5	-6
	High Yield CDS Spread ²	459	454	6	29	-25
		(percent change)				
Currencies	US¢/C\$	73.38	74.22	-1.1	-2.3	-0.5
	C\$/US\$	1.363	1.347	—	—	—
	¥/US\$	136.31	134.15	1.6	5.0	4.0
	US\$/€	1.0545	1.0695	-1.4	-3.0	-1.5
	US\$/£	1.194	1.204	-0.8	-3.5	-1.2
	US¢/A\$	67.27	68.79	-2.2	-5.3	-1.3
Commodities	CRB Futures Index	266.94	267.57	-0.2	-3.9	-3.9
	Oil (generic contract)	75.03	76.55	-2.0	-5.8	-6.5
	Natural Gas (generic contract)	2.40	2.28	5.6	-22.7	-46.3
	Gold (spot price)	1,811.26	1,842.36	-1.7	-6.1	-0.7
Equities	S&P/TSX Composite	20,013	20,515	-2.5	-3.4	3.2
	S&P 500	3,950	4,079	-3.2	-3.0	2.9
	Nasdaq	11,356	11,787	-3.7	-2.3	8.5
	Dow Jones Industrial	32,730	33,827	-3.2	-3.7	-1.3
	Nikkei	27,453	27,513	-0.2	0.3	5.2
	Frankfurt DAX	15,240	15,482	-1.6	0.6	9.5
	London FT100	7,877	8,004	-1.6	1.4	5.7
	France CAC40	7,207	7,348	-1.9	1.5	11.3
	S&P ASX 200	7,307	7,347	-0.5	-2.5	3.8

¹ = as of 11:20 am ² = One day delay

	Monday February 27	Tuesday February 28	Wednesday March 1	Thursday March 2	Friday March 3
China			PMI Feb. (e) 50.7 Jan. 50.1 Non-mfg. Feb. (e) 55.0 Jan. 54.4 Caixin Manufacturing PMI Feb. (e) 51.3 Jan. 49.2		Caixin Services PMI Feb. (e) 54.8 Jan. 52.9
Japan		Industrial Production Jan. P (e) -2.9% -0.7% y/y Dec. +0.3% -2.4% y/y Retail Sales Jan. (e) +0.7% +4.1% y/y Dec. +1.1% +3.8% y/y	Manufacturing PMI Feb. F (e) 47.4 Jan. 48.9	Capital Spending Q4 (e) +7.1% y/y Q3 +9.8% y/y Consumer Confidence Feb. (e) 32.0 Jan. 31.0	Jobless Rate Jan. (e) 2.5% Dec. 2.5% Services PMI Feb. F (e) 53.6 Jan. 52.3
Europe	EURO AREA Adjusted Private Sector Credit Jan. +5.3% y/y Dec. +5.3% y/y Consumer Confidence Feb. F (e) -19.0 Jan. -20.7 Economic Confidence Feb. (e) 101.0 Jan. 99.9 ITALY Consumer Confidence Feb. (e) 101.4 Jan. 100.9	FRANCE Consumer Price Index Feb. P (e) +0.9% +7.1% y/y Jan. +0.4% +7.0% y/y Consumer Spending Jan. (e) +0.4% -4.6% y/y Dec. -1.3% -5.6% y/y Real GDP Q4 F (e) +0.1% +0.5% y/y Q4 P +0.1% +0.5% y/y Q3 +0.2% +1.0% y/y	EURO AREA Manufacturing PMI Feb. F (e) 48.5 Jan. 48.8 GERMANY Unemploy. Jobless Rate Feb. (e) -10,000 5.5% Jan. -22,000 5.5% Consumer Price Index Feb. P (e) +0.7% +9.0% y/y Jan. +0.5% +9.2% y/y UNITED KINGDOM Nationwide House Prices Feb. (e) -0.6% -1.0% y/y Jan. -0.6% +1.1% y/y Manufacturing PMI Feb. F (e) 49.2 Jan. 47.0	EURO AREA Consumer Price Index Feb. P (e) +0.5% +8.2% y/y Jan. -0.2% +8.6% y/y Core CPI Feb. P (e) +5.3% y/y Jan. +5.3% y/y Jobless Rate Jan. (e) 6.6% Dec. 6.6% ITALY Jobless Rate Jan. (e) 7.8% Dec. 7.8% Consumer Price Index Feb. P (e) -0.3% +9.5% y/y Jan. -1.5% +10.7% y/y	EURO AREA Services PMI Feb. F (e) 53.0 Jan. 50.8 Producer Price Index Jan. (e) -0.3% +17.7% y/y Dec. +1.1% +24.6% y/y GERMANY Trade Surplus Jan. (e) €11.0 bln Dec. €10.0 bln FRANCE Industrial Production Jan. (e) -0.2% +0.3% y/y Dec. +1.1% +1.4% y/y ITALY Real GDP Q4 F (e) -0.1% +1.7% y/y Q4 P -0.1% +1.7% y/y Q3 +0.5% +2.7% y/y UNITED KINGDOM Services PMI Feb. F (e) 53.3 Jan. 48.7
Other		AUSTRALIA Retail Sales Jan. (e) +1.5% Dec. -3.9% INDIA Real GDP Q4 (e) +4.6% y/y Q3 +6.3% y/y	AUSTRALIA Real GDP Q4 (e) +0.7% +2.7% y/y Q3 +0.6% +5.9% y/y Consumer Price Index Jan. (e) +8.1% y/y Dec. +8.4% y/y	AUSTRALIA Building Approvals Jan. (e) -7.5% Dec. +18.5% BRAZIL Real GDP Q4 (e) -0.3% +2.9% y/y Q3 +0.4% +3.6% y/y	

^D = date approximate

Upcoming Policy Meetings | Bank of England: Mar. 23, May 11, June 22 | European Central Bank: Mar. 16, May 4, June 15

North American Calendar — February 27–March 3

	Monday February 27	Tuesday February 28	Wednesday March 1	Thursday March 2	Friday March 3
Canada	8:30 am Current Account Balance Q4 (e) -\$11.0 bln (-\$44.0 bln a.r.) <i>Consensus</i> -\$11.0 bln (-\$44.0 bln a.r.) Q3 -\$11.1 bln (-\$44.4 bln a.r.)	8:30 am Real GDP Q4 (e) +1.5% a.r. <i>Consensus</i> +1.5% a.r. Q3 +2.9% a.r. Chain Prices -1.9% a.r. <i>Consensus</i> n.a. Q3 -5.4% a.r. 8:30 am Monthly Real GDP Dec. (e) unch <i>Consensus</i> unch Nov. +0.1% Capital Expenditures Survey (2023) Alberta Budget British Columbia Budget 10:30 am 3-, 6- & 12-month bill auction \$18.0 bln (new cash \$2.4 bln)	9:30 am S&P Global Manufacturing PMI Feb. Jan. 51.0 Auto Sales^o Feb. Jan. +7.5% y/y Noon 2-year bond auction \$3.5 bln		8:30 am Labour Productivity Q4 (e) unch Q3 +0.5% 8:30 am Building Permits Jan. (e) +1.0% Dec. -7.3%
	United States	8:30 am Durable Orders Jan. (e) -4.0% <i>Consensus</i> -3.9% Dec. +5.6% Core Orders -0.3% <i>Consensus</i> -0.1% Dec. -0.1% 10:00 am Pending Home Sales Jan. (e) +1.5% <i>Consensus</i> +1.0% Dec. +2.5% 10:30 am Dallas Fed Mfg. Activity Feb. (e) -9.5^c Jan. -8.4 Fed Speaker: Governor Jefferson (10:30 am) 11:30 am 13- & 26-week bill auctions \$108 bln	8:30 am Goods Trade Deficit Jan. A (e) \$91.0 bln^c Dec. \$89.7 bln 8:30 am Wholesale and Retail Inventories (Jan. A) 9:00 am S&P CoreLogic Case-Shiller Home Price Index (20 city) Dec. (e) -0.6% +4.7% y/y <i>Consensus</i> -0.5% +4.8% y/y Nov. -0.5% +6.8% y/y 9:00 am FHFA House Price Index Dec. (e) -0.4% +6.4% y/y <i>Consensus</i> -0.2% +6.5% y/y Nov. -0.1% +8.2% y/y 9:45 am Chicago PMI Feb. (e) 45.0^c Jan. 44.3 10:00 am Conf. Board Consumer Confidence Index Feb. (e) 108.5^c Jan. 107.1 10:00 am Richmond Fed Mfg Index Feb. -5^c Jan. -11 Fed Speaker: Chicago's Goolsbee (2:30 pm) 11:00 am 4-, 8- & 17-week bill auction announcements	7:00 am MBA Mortgage Apps Feb. 24 Feb. 17 -13.3% 9:45 am S&P Global Manufacturing PMI (Feb. F) 10:00 am ISM Manufacturing PMI Feb. (e) 47.4 <i>Consensus</i> 48.0 Jan. 47.4 10:00 am Construction Spending Jan. (e) +0.2%^c Dec. -0.4% Autodata Total Vehicle Sales^o Feb. (e) 14.8 mln a.r. Jan. 16.2 mln a.r. 11:30 am 17-week bill auction	8:30 am Initial Claims Feb. 25 (e) 197k (+5k)^c Feb. 18 192k (-3k) 8:30 am Continuing Claims Feb. 18 (e) 1,675k (+21k)^c Feb. 11 1,654k (-37k) 8:30 am Productivity Unit Labour Costs Q4 F (e) +1.8% a.r. +2.5% a.r. <i>Consensus</i> +2.6% a.r. +1.4% a.r. Q4 P +3.0% a.r. +1.1% a.r. Q3 +1.4% a.r. +2.0% a.r. Fed Speaker: Governor Waller (4:00 pm) 11:00 am 13- & 26-week bill, 3-, 10 ^R -year note, 30 ^R -year bond auction announcements 11:30 am 4- & 8-week bill auctions

^c = consensus ^D = date approximate ^R = reopening **Upcoming Policy Meetings** | Bank of Canada: Mar. 8, Apr. 12, June 7 | FOMC: Mar. 21-22, May 2-3, June 13-14

General Disclosures

BMO Capital Markets is a trade name used by BMO Financial Group for the wholesale banking businesses of Bank of Montreal, BMO Harris Bank N.A. (member FDIC), Bank of Montreal Europe p.l.c., and Bank of Montreal (China) Co. Ltd, the institutional broker dealer business of BMO Capital Markets Corp. (Member FINRA and SIPC) and the agency broker dealer business of Clearpool Execution Services, LLC (Member FINRA and SIPC) in the U.S., and the institutional broker dealer businesses of BMO Nesbitt Burns Inc. (Member Investment Industry Regulatory Organization of Canada and Member Canadian Investor Protection Fund) in Canada and Asia, Bank of Montreal Europe p.l.c. (authorised and regulated by the Central Bank of Ireland) in Europe and BMO Capital Markets Limited (authorised and regulated by the Financial Conduct Authority) in the UK and Australia. BMO does not represent that this document may be lawfully distributed, or that any financial products may be lawfully offered or dealt with, in compliance with any regulatory requirements in other jurisdictions, or pursuant to an exemption available thereunder. This document is directed only at entities or persons in jurisdictions or countries where access to and use of the information is not contrary to local laws or regulations. Their contents have not been reviewed by any regulatory authority. Bank of Montreal or its subsidiaries ("BMO Financial Group") has lending arrangements with, or provide other remunerated services to, many issuers covered by BMO Capital Markets. The opinions, estimates and projections contained in this report are those of BMO Capital Markets as of the date of this report and are subject to change without notice. BMO Capital Markets endeavours to ensure that the contents have been compiled or derived from sources that we believe are reliable and contain information and opinions that are accurate and complete. However, BMO Capital Markets makes no representation or warranty, express or implied, in respect thereof, takes no responsibility for any errors and omissions contained herein and accepts no liability whatsoever for any loss arising from any use of, or reliance on, this report or its contents. Information may be available to BMO Capital Markets or its affiliates that is not reflected in this report. The information in this report is not intended to be used as the primary basis of investment decisions, and because of individual client objectives, should not be construed as advice designed to meet the particular investment needs of any investor. This document is not to be construed as an offer to sell, a solicitation for or an offer to buy, any products or services referenced herein (including, without limitation, any commodities, securities or other financial instruments), nor shall such information be considered as investment advice or as a recommendation to enter into any transaction. Each investor should consider obtaining independent advice before making any financial decisions. This document is provided for general information only and does not take into account any investor's particular needs, financial status or investment objectives. BMO Capital Markets or its affiliates will buy from or sell to customers the securities of issuers mentioned in this report on a principal basis. BMO Capital Markets or its affiliates, officers, directors or employees have a long or short position in many of the securities discussed herein, related securities or in options, futures or other derivative instruments based thereon. The reader should assume that BMO Capital Markets or its affiliates may have a conflict of interest and should not rely solely on this report in evaluating whether or not to buy or sell securities of issuers discussed herein.

Dissemination of Economic Publications: Our publications are disseminated via email and may also be available via our web site <https://economics.bmo.com>. Please contact your BMO Financial Group Representative for more information.

Additional Matters

This report is directed only at entities or persons in jurisdictions or countries where access to and use of the information is not contrary to local laws or regulations. Its contents have not been reviewed by any regulatory authority. BMO Capital Markets does not represent that this report may be lawfully distributed or that any financial products may be lawfully offered or dealt with, in compliance with regulatory requirements in other jurisdictions, or pursuant to an exemption available thereunder.

To Australian residents: BMO Capital Markets Limited and Bank of Montreal are exempt from the requirement to hold an Australian financial services licence under the Corporations Act in respect of financial services they provide to wholesale investors (as defined in the Corporations Act). BMO Capital Markets Limited is regulated by the UK Financial Conduct Authority under UK laws, and Bank of Montreal in Hong Kong is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission which differ from Australian laws. This document is only intended for wholesale clients (as defined in the Corporations Act 2001), Eligible Counterparties or Professional Clients (as defined in Annex II to MiFID II) and Professional Investors (as defined in the Securities and Futures Ordinance and the Securities and Futures (Professional Investor) Rules under the Securities and Futures Ordinance of Hong Kong).

To Canadian Residents: BMO Nesbitt Burns Inc. furnishes this report to Canadian residents and accepts responsibility for the contents herein subject to the terms set out above. Any Canadian person wishing to effect transactions in any of the securities included in this report should do so through BMO Nesbitt Burns Inc.

To E.U. Residents: In an E.U. Member State this document is issued and distributed by Bank of Montreal Europe plc which is authorised and regulated in Ireland and operates in the E.U. on a passported basis. This document is only intended for Eligible Counterparties or Professional Clients, as defined in Annex II to "Markets in Financial Instruments Directive" 2014/65/EU ("MiFID II").

To U.K. Residents: In the UK this document is published by BMO Capital Markets Limited which is authorised and regulated by the Financial Conduct Authority. The contents hereof are intended solely for the use of, and may only be issued or passed on to, (i) persons who have professional experience in matters relating to investments falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the "Order") or (ii) high net worth entities falling within Article 49(2)(a) to (d) of the Order (all such persons together referred to as "relevant persons"). The contents hereof are not intended for the use of and may not be issued or passed on to retail clients.

To Hong Kong Residents: In Hong Kong, this report is published and distributed by Bank of Montreal. Bank of Montreal (incorporated in Canada with limited liability) is an authorized institution under the Banking Ordinance and a registered institution with the Securities and Futures Commission (CE No. AAK809) to carry on Type 1 (dealing in securities) and Type 4 (advising in securities) regulated activities under the Securities and Futures Ordinance (Cap 571 of the Laws of Hong Kong). This report has not been reviewed or approved by any regulatory authority in Hong Kong. Accordingly this report must not be issued, circulated or distributed in Hong Kong other than (a) to professional investors as defined in the Securities and Futures Ordinance and the Securities and Futures (Professional Investor) Rules under the Securities and Futures Ordinance of Hong Kong, or (b) in circumstances which do not result in or constitute an offer to the public in Hong Kong.

To Israeli residents: BMO Capital Markets is not licensed under the Israeli Law for the Regulation of Investment Advice, Investment Marketing and Portfolio Management of 1995 (the "Advice Law") nor does it carry insurance as required thereunder. This document is to be distributed solely to persons that are qualified clients (as defined under the Advice Law) and qualified investors under the Israeli Securities Law of 1968. This document represents the analysis of the analyst but there is no assurance that any assumption or estimation will materialize.

To Korean Residents: This report has been provided to you without charge for your convenience only. All information contained in this report is factual information and does not reflect any opinion or judgement of BMO Capital Markets. The information contained in this report should not be construed as offer, marketing, solicitation or investment advice with respect to financial investment products in this report.

To Japan Residents: This report has not been reviewed by any regulatory authority in Japan. This report is provided for information purposes only and it should not be construed as an offer to sell, a solicitation to buy, or a recommendation for any security, or as an offer to provide investment management or advisory or other services in Japan. Securities may not be offered or sold in Japan by means of this report or any other document other than to Qualified Financial Institutions within the meaning of item (i) of Article 17-3 of the Government Ordinance to enforce the Financial Instruments and Exchange Act (Kinyu Shohin Torihiki Ho Sekou Rei). Unless specified otherwise, the securities that may be offered to you are not and will not be registered in Japan pursuant to the Financial Instruments and Exchange Acts.

To Taiwanese Residents: This report is not intended to constitute investment advice nor a public offer for any investment products to investors in Taiwan. This report should only be accessed by investors in Taiwan that are qualified to invest in investment products pursuant to relevant Taiwanese laws and regulations, and subject to sales restrictions as set forth in the relevant Taiwanese laws and regulations. BMO Capital Markets has not and will not secure the required licenses in Taiwan for the offer of securities and investment services. Any offer of securities has not been and will not be registered or filed with or approved by the Financial Commission of Taiwan and/or other regulatory authority pursuant to relevant securities laws and regulations of Taiwan, and may not be issued, offered or sold within Taiwan through a public offering or in circumstances which constitute an offer that requires a registration, filing or approval of the Financial Supervisory Commission of Taiwan and/or other regulatory authority in Taiwan under relevant securities laws and regulations of Taiwan. No person or entity in Taiwan has been authorized to offer or sell the securities in Taiwan.

To PRC Residents: This material does not constitute an offer to sell or the solicitation of an offer to buy any financial products in the People's Republic of China (excluding Hong Kong, Macau and Taiwan, the "PRC"). BMO and its affiliates do not represent that this material may be lawfully distributed, or that any financial products may be lawfully offered, in compliance with any applicable registration or other requirements in the PRC, or pursuant to an exemption available thereunder, or assume any responsibility for facilitating any such distribution or offering. This material may not be distributed or published in the PRC, except under circumstances that will result in compliance with any applicable laws and regulations.

To Singapore Residents: This report is intended for general circulation and does not and is not intended to constitute the provision of financial advisory services, whether directly or indirectly, to persons in Singapore. You should seek advice from a financial adviser regarding the suitability of the investment products, taking into account your specific investment objectives, financial situation or particular needs before you make a commitment to purchase the investment product. This report has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, it should not be circulated or distributed, nor may the securities described herein be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (a) to an institutional investor or a relevant person as defined in and pursuant to and in accordance with the conditions of the relevant provisions of the Securities and Futures Act of Singapore or (b) otherwise pursuant to and in accordance with the conditions of, any other applicable provision of the SFA.

To Thai Residents: The contents hereof are intended solely for the use of persons qualified as Institutional Investors according to Notification of the Securities and Exchange Commission No. GoKor. 11/2547 Re: Characteristics of Advice which are not deemed as Conducting Derivatives Advisory Services dated 23 January 2004 (as amended). BMO and its affiliates do not represent that the material may be lawfully distributed, or that any financial products may be lawfully offered, in compliance with any regulatory requirements in Thailand, or pursuant to an exemption available under any applicable laws and regulations.

To U.S. Residents: BMO Capital Markets Corp. furnishes this report to U.S. residents and accepts responsibility for the contents herein, except to the extent that it refers to securities of Bank of Montreal.

These documents are provided to you on the express understanding that they must be held in complete confidence and not republished, retransmitted, distributed, disclosed, or otherwise made available, in whole or in part, directly or indirectly, in hard or soft copy, through any means, to any person, except with the prior written consent of BMO Capital Markets.

ADDITIONAL INFORMATION IS AVAILABLE UPON REQUEST

BMO Financial Group (NYSE, TSX: BMO) is an integrated financial services provider offering a range of retail banking, wealth management, and investment and corporate banking products. BMO serves Canadian retail clients through BMO Bank of Montreal and BMO Nesbitt Burns. In the United States, personal and commercial banking clients are served by BMO Harris Bank N.A., (Member FDIC). Investment and corporate banking services are provided in Canada and the US through BMO Capital Markets.

® Registered trademark of Bank of Montreal in the United States, Canada and elsewhere. ™ Trademark Bank of Montreal in the United States and Canada. © COPYRIGHT 2023 BMO CAPITAL MARKETS CORP. A member of BMO Financial Group