March 5, 2020

RBC WEALTH MANAGEMENT

Global Insight Weekly

Fear factor

Kelly Bogdanova – San Francisco

The coronavirus has induced hair-raising volatility, and the growth scare for the U.S. economy has markets looking over their shoulders. But a recession is by no means a fait accompli. We look at how markets have handled previous scares during this expansion cycle, and the economic clues we're watching to gauge the potential coronavirus impact.

With the coronavirus spreading further and more deaths being recorded outside of China, equity market volatility has persisted and sovereign yields, including Treasury yields, have continued to cascade lower. The 10-year Treasury yield dropped to 0.898 percent intraday on Mar. 5, a new all-time low. The S&P 500 has moved up or down by more than three percent in six of the past nine trading sessions.

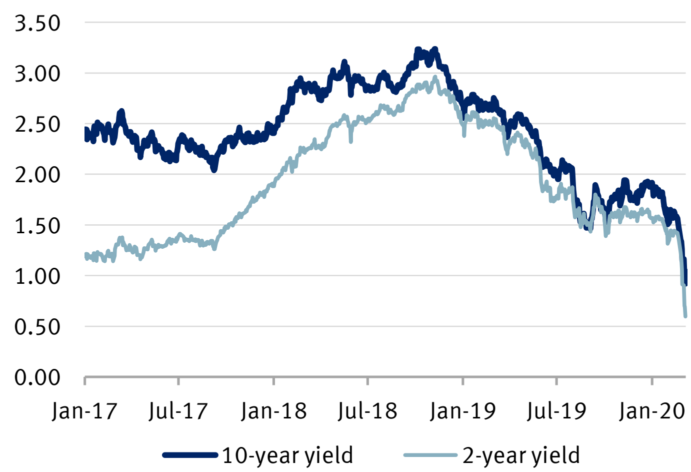
Markets are having a difficult time gauging the potential knock-on effects for economic growth as well as corporate sales and profits given the uncertainty about when the transmission of the disease will peak and the degree to which it will disrupt day-to-day life.

The Federal Reserve's surprise, emergency rate cut of 50 basis points and a follow-on move by the Bank of Canada were met warily by markets.

While we think they were reasonable moves to make, especially since yields had fallen below central bank target rates even before the cuts were announced, we recognize this is primarily a public health crisis, not a financial crisis. No amount of central bank liquidity will end the coronavirus. The solutions will ultimately come from the medical community. Governments' ability (or inability) to contain the spread of the virus, and the implementation of targeted fiscal spending, will also play important roles.

A sign of stress and a flight to safety

U.S. Treasury yields move even lower (%)



Source - RBC Wealth Management, Bloomberg; data through 3/5/20

Market pulse

Click here for authors' contact information. Priced (in USD) as of 3/5/20 market close, ET (unless otherwise stated). **For important disclosures and required non-U.S. analyst disclosures, see** **page 6.**
Produced: Mar 5, 2020 17:19ET; Disseminated: Mar 5, 2020 17:22ET

S&P 500 "growth scare" pullbacks post 2010

Peak-to-trough declines and performance after the troughs

Peak date	Trough date	Duration (# calendar days)	Decline (%)	Peak current year P/E level	Trough current year P/E level	Performance after the trough: 1-month return	3-month return	6-month return	12-month return
04/23/10	07/02/10	70	-16.0%	14.2	12.0	10.1%	12.1%	23.0%	31.0%
04/29/11	10/03/11	157	-19.4%	13.9	11.2	14.7%	16.2%	28.6%	28.7%
05/21/15	02/11/16	266	-14.2%	18.0	15.4	10.6%	12.9%	19.5%	26.6%
09/20/18	12/24/18	95	-19.8%	18.0	14.4	12.4%	19.0%	25.3%	37.4%
Median		**126**	**-17.7%**			**11.5%**	**14.5%**	**24.1%**	**29.8%**
Average		**147**	**-17.3%**			**11.9%**	**15.0%**	**24.1%**	**30.9%**

Source - RBC Capital Markets U.S. Equity Strategy, RBC Wealth Management, Bloomberg, FactSet, Thomson

Coronavirus chills

Concerns about economic growth are nothing new for this expansion cycle that began in 2009. They occurred in 2010, 2011, 2015–16, and the second half of 2018.

It's not yet clear if this will be just a garden variety "growth scare" for the U.S. economy—where the markets fear recession risks, but a recession ultimately is avoided. Or, whether the coronavirus will actually tip the U.S. economy into an outright recession, mild or otherwise.

We think there are more uncertainties and unknowns associated with the coronavirus risks than were posed by the risks associated with the U.S.-China trade disputes in 2018–19 and this cycle's previous growth scares.

The risk of a U.S. recession has risen to 31 percent from 24 percent at the beginning of the year, according to the Federal Reserve Bank of New York's probability model, which is based off of the Treasury market.

But a contraction in the economy is by no means a fait accompli. This gauge is still below the 38 percent peak reached in the summer of 2019 when trade tensions heated up between the U.S. and China.

How markets get over growth scares

Most equity markets tend to struggle with U.S. economic "growth scares" but then shake them off when they dissipate.

The peak-to-trough declines for the S&P 500 during the four prior growth scares of this expansion cycle ranged from 14.2 percent to 19.8 percent. (By comparison, so far at its worst point, the S&P has fallen 12.8 percent due to coronavirus headwinds.)

The prior peak-to-trough declines took an average of 147 calendar days to play out, although their length varied greatly by episode, with the shortest occurring for 70 days and the longest lasting 266 days.

Following those growth scares, because a recession did not materialize and the economic expansion persisted, the S&P 500 more than recouped the losses in six or 12 months after reaching its trough levels, as the table shows.

If the U.S. economy avoids a recession in 2020, by year end, we expect most stock markets will have advanced from today's levels, similar to what occurred in the prior growth scare episodes.

Revealing clues

To gauge U.S. recession risks during this coronavirus outbreak, we are monitoring consumer confidence along with our six favorite recession indicators, with a particular emphasis on unemployment claims and leading indicators of manufacturing (new orders minus inventories). Thus far, only one of our six favorite indicators is flashing red—the Treasury yield curve—and it has been for many months. But in fairness, the brunt of the coronavirus' impact on the domestic economy has probably not hit yet.

Additionally, we are monitoring corporate gauges such as global supply chain developments, and guidance from multinational companies about sales, earnings, and operations disruptions.

We haven't seen the last of volatility

Concerns around the coronavirus outbreak will probably go on suppressing investor attitudes for some months to come. Even assuming the outbreak peaks and begins receding by early summer, clarity around the sales and earnings costs of this health emergency will be a long time coming. We think there is more equity market volatility in store—in both directions.

If a recession doesn't materialize in the U.S. this year, most stock markets should be able to meaningfully climb from the current correction levels by the end of 2020, in our view. However, the probabilities of a more adverse economic outcome are higher than when the year began.

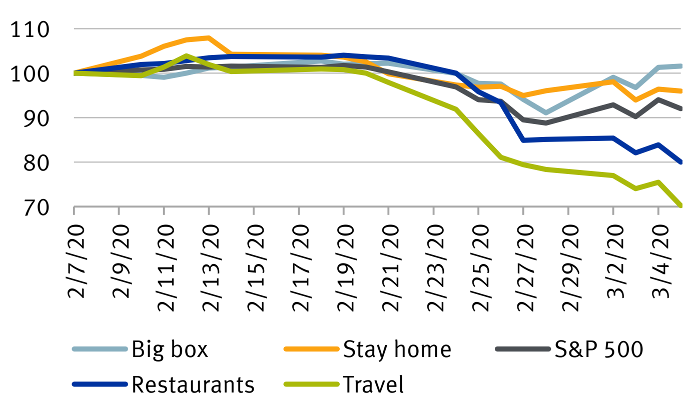
United States

Alan Robinson – Seattle

- Stock market volatility remained elevated during the week as investors wrestled with news flow on the coronavirus. Consumer confidence data is still relatively strong, though it has not yet caught up with recent developments. But consumer behavior appears to be changing, and **the performance of certain narrow stock groups in the U.S. markets highlights the effects of coronavirus fears on consumer-facing businesses**. News reports of widespread bulk purchases at big-box stores drove their shares higher, and in-home entertainment shares have beaten the market over recent weeks as consumers hunker down. On the other hand, **travel and restaurant stocks have performed poorly as consumers seek to avoid large crowds**.
- On March 4, executives from one of the travel companies, **United Airlines**, said the company **will reduce passenger-carrying capacity by 20% on international routes, and by 10%–12% on domestic routes**. Management is ready for these reductions to carry over into May.
- **The Federal Reserve delivered a rare intra-meeting rate cut** on Mar. 3, two weeks ahead of its scheduled meeting. The 50 basis point cut took the federal funds target rate to 1.00%–1.25%. The cut was seemingly intended to signal other global central banks to cut rates while providing support to beleaguered risk assets in the wake of recent volatility. However, equity investors read the signal as an indication that the coronavirus impact might be worse than they had thought, and the Dow Jones Index lost 786 points by the end of the trading day. Bond investors continued to pile into government securities, **sending the yield on the benchmark 10-year Treasury bond to a record low of 0.90%**, implying the market expects more cuts.
- The Democratic Party primary field narrowed significantly during the week after voters in 14 states selected their preferred candidate to face President Trump in the November election. "Super Tuesday" voters delivered surprise wins to former Vice President Joe Biden, who pulled ahead of Senator Bernie Sanders in the delegate count. Biden's outperformance prompted several candidates to end their presidential bids and pledge their support to him, including Mike Bloomberg and Amy Klobuchar. **Investors appeared heartened by Biden's consolidation of the moderate vote** against the more progressive Sanders, and stocks rallied strongly on the results.

Coronavirus is highly selective towards certain stock groups

Relative performance of niche stock groups



Note: Stock groups reflect average performance of COST, WMT (Big box); NFLX, ROKU (Stay home); CMG, DRI (Restaurants); and CUK, UAL (Travel).
Source - RBC Wealth Management, Thomson Reuters; daily data through 3/5/20; 2/7/20=100

Canada

Meika McKelvey & Richard Tan, CFA – Toronto

- **The Bank of Canada (BoC) followed the Federal Reserve this week with a 50 basis point (bps) cut to the policy rate**, now at 1.25%, while indicating there is potential for more easing if required. In its statement, **the BoC characterized the COVID-19 virus as a "material negative shock" to its outlook for both the global and domestic economies**, while adding that rail line blockades, strikes by Ontario teachers, and winter storms in some regions are dampening Canadian economic activity in the first quarter and causing concern.
- **Government of Canada (GoC) yields fell across all tenors immediately after the announcement**, although we believe the market reaction was driven by the increased expectation of additional easing rather than the decision to cut by 50 bps itself, as this was more than 70% priced in ahead of the announcement. GoC yields have been pushed even lower in the short end, as the market now expects an additional 50 bps of easing this year. If this comes to pass, it will represent 100 bps of cumulative cuts this year.
- We believe **it is important for fixed income investors to recognize monetary policy expectations that are priced in** before making a purchase. For example, if one expects the BoC to cut as much or more than the market is currently pricing, one might be more comfortable buying intermediate-term government bonds at these low levels. We believe GICs that mature within the next two years offer investors an attractive place to "hide out" where rates on offer are commensurate with the lower liquidity profile compared to government bonds and other alternatives.
- With respect to Canadian equities, **the monetary stimulus led to a healthy bounce across all 11 GICS sectors in the S&P/TSX Composite Index**. Should the BoC maintain its accommodative trajectory, we expect further multiple

expansion from Utilities, Real Estate, and Communication Services, which tend to be more capital-intensive. That said, we believe it remains a tough environment for Financials, particularly the Canadian banks within an ultra-low rate environment driven by additional declines in net interest margins. As a result, **we believe an Underweight position in the Canadian banks remains the right call** at this juncture.

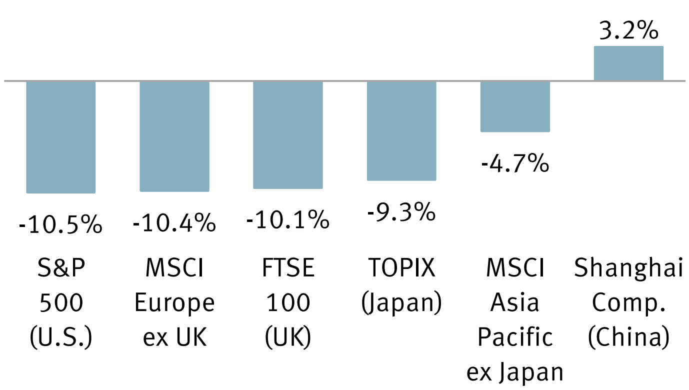
Europe

Frédérique Carrier & Thomas McGarrity, CFA – London

- Both European and UK equities suffered during the week. In both regions, **banks were by far the worst-performing sector**. From their highs in the last six months, European and UK banks are down more than 20%.
- That underperformance should not be surprising as **weaker economic growth caused by the coronavirus will likely dampen loan growth as well as increase the number of nonperforming loans**, while expectations of higher interest rates in the UK have all but evaporated. RBC Capital Markets sees the **investment banks and private banks as the most exposed**, and has reduced its earnings estimates for the banking sector as a whole by a range of high single digits to low teens.
- With several major central banks loosening monetary policy, attention has turned to the Bank of England (BoE) and European Central Bank (ECB). The BoE, with new Governor Andrew Bailey starting his tenure on Mar. 16, has at least 50 basis points (bps) of leeway to decrease rates, in our view, given the bank rate is currently 0.75%. **RBC Capital Markets expects the BoE to act before its next policy meeting on Mar. 26 and cut rates by 25 bps**. With the UK economy likely to struggle to find traction in the first half of the year and the prospect of a "no-trade-deal" Brexit set to upset growth in the second half, RBC Capital Markets expects a second rate cut in the latter half of the year. However, this could be brought forward should the economic situation worsen.
- **RBC Capital Markets believes the ECB's support will target specific sectors that are potentially under stress**, such as small and medium-sized enterprises, as lowering interest rates deeper into negative territory may not be so productive. According to RBC Capital Markets, the most effective way to combat widening credit and sovereign spreads would be to increase asset purchases (quantitative easing), accompanied by expanding the eligible basket of assets the ECB can purchase to include senior bank paper.

International stocks outperform the U.S. during correction

Price returns since S&P 500 high on 2/19/20



Source - RBC Wealth Management, Bloomberg; data as of 3/5/20 at 13:00ET

Asia Pacific

Jasmine Duan – Hong Kong & Nicholas Gwee, CFA – Singapore

- **Asian equities bounced back strongly this week**. The Federal Reserve's emergency rate cut has raised market expectations that other central banks will follow suit.
- **China's Shanghai Composite Index is up 6.5%** for the week through Mar. 5, leading Asian equity markets, and has **fully recovered to the level it was at before the coronavirus outbreak**. As of Mar. 4, 21 provinces in China have lowered their emergency response levels due to the decline of new cases. **Many provinces are gradually shifting the focus from containing the virus to resuming factory production**. According to an estimate from Bloomberg, as of the end of February, China's economy is running at 60%–70% of its normal level. State-owned enterprises and large corporations have been relatively faster in resuming operations, while operating rates for small and medium-sized companies are still low—32.8% as of Feb. 26, according to China's Ministry of Industry and Information Technology.
- China's official Manufacturing Purchasing Managers' Index (PMI) for February plunged to a record low of 35.7, much lower than the consensus estimate of 45. The Non-manufacturing PMI fell even more significantly, down 24.5 to a record low of 29.6. The data clearly shows how the coronavirus has weighed on the economy. **February may be a bottom for China's economy**, in our view. With factories resuming operations, we should see economic data pick up in March. However, as the virus is spreading globally, **recovery could be slower on the demand side**. China is stepping up measures to prevent coronavirus cases being imported back from other virus-hit nations.
- **The Japanese government is still committed to host the Tokyo 2020 Olympics**, although the games could be delayed to later in the year. If the event is cancelled, tourism, a major contributor to Japan's economy, could take a hit. Prime Minister Shinzo Abe said the government is ready to deploy further fiscal stimulus measures if needed.

MARKET SCORECARD

Data as of March 5, 2020

Equities (local currency)	Level	MTD	YTD	1 yr	2 yr
S&P 500	3,023.94	2.4%	-6.4%	8.4%	11.1%
Dow Industrials (DJIA)	26,121.28	2.8%	-8.5%	1.2%	5.0%
NASDAQ	8,738.60	2.0%	-2.6%	15.3%	19.2%
Russell 2000	1,478.82	0.2%	-11.4%	-5.7%	-4.3%
S&P/TSX Comp	16,553.99	1.8%	-3.0%	2.9%	6.5%
FTSE All-Share	3,731.49	1.6%	-11.1%	-5.5%	-5.0%
STOXX Europe 600	380.76	1.4%	-8.4%	1.4%	2.7%
EURO STOXX 50	3,363.58	1.0%	-10.2%	1.1%	0.2%
Hang Seng	26,767.87	2.4%	-5.0%	-7.6%	-10.4%
Shanghai Comp	3,071.68	6.6%	0.7%	0.6%	-5.7%
Nikkei 225	21,329.12	0.9%	-9.8%	-1.8%	1.4%
India Sensex	38,470.61	0.5%	-6.7%	5.6%	14.0%
Singapore Straits Times	3,018.27	0.2%	-6.3%	-6.7%	-12.2%
Brazil Ibovespa	102,233.20	-1.9%	-11.6%	8.1%	18.8%
Mexican Bolsa IPC	42,344.86	2.5%	-2.7%	0.5%	-11.3%
Commodities (USD)	**Price**	**MTD**	**YTD**	**1 yr**	**2 yr**
Gold (spot $/oz)	1,669.73	5.3%	10.0%	29.6%	26.5%
Silver (spot $/oz)	17.43	4.8%	-2.3%	15.2%	6.1%
Copper ($/metric ton)	5,663.50	0.8%	-7.9%	-13.5%	-17.6%
Oil (WTI spot/bbl)	45.90	2.5%	-24.8%	-18.8%	-26.6%
Oil (Brent spot/bbl)	50.01	-1.0%	-24.2%	-24.1%	-23.7%
Natural Gas ($/mmBtu)	1.77	2.7%	-19.4%	-38.8%	-34.7%

Govt bonds (bps chg)	Yield	MTD	YTD	1 yr	2 yr
U.S. 10-Yr Tsy	0.920%	-24.5	-99.8	-179.7	-196.1
Canada 10-Yr	0.846%	-29.3	-85.6	-103.3	-134.8
U.K. 10-Yr	0.331%	-11.1	-49.1	-95.6	-116.4
Germany 10-Yr	-0.686%	-7.9	-50.1	-85.4	-132.9
Fixed Income (returns)	**Yield**	**MTD**	**YTD**	**1 yr**	**2 yr**
U.S. Aggregate	1.54%	0.6%	4.4%	12.3%	16.0%
U.S. Invest Grade Corp	2.28%	0.8%	4.5%	16.6%	20.2%
U.S. High Yield Corp	5.64%	1.4%	0.0%	7.6%	12.6%
Currencies	**Rate**	**MTD**	**YTD**	**1 yr**	**2 yr**
U.S. Dollar Index	96.5500	-1.6%	0.2%	-0.3%	7.2%
CAD/USD	0.7462	0.1%	-3.1%	-0.4%	-3.3%
USD/CAD	1.3402	-0.1%	3.2%	0.4%	3.4%
EUR/USD	1.1238	1.8%	0.2%	-0.6%	-8.9%
GBP/USD	1.2960	1.1%	-2.2%	-1.7%	-6.4%
AUD/USD	0.6614	1.6%	-5.8%	-6.6%	-14.8%
USD/JPY	106.1000	-1.8%	-2.3%	-5.2%	-0.1%
EUR/JPY	119.2400	0.0%	-2.1%	-5.8%	-9.0%
EUR/GBP	0.8672	0.7%	2.5%	1.1%	-2.6%
EUR/CHF	1.0620	-0.3%	-2.2%	-6.5%	-8.4%
USD/SGD	1.3830	-0.7%	2.8%	2.0%	4.9%
USD/CNY	6.9361	-0.8%	-0.4%	3.4%	9.2%
USD/MXN	19.8440	1.2%	4.8%	3.1%	5.6%
USD/BRL	4.6167	3.2%	14.7%	22.2%	42.4%

Source - Bloomberg. Note: Equity returns do not include dividends, except for the Brazilian Ibovespa. Bond yields in local currencies. Copper Index data and U.S. fixed income returns as of Wednesday's close. Dollar Index measures USD vs. six major currencies. Currency rates reflect market convention (CAD/USD is the exception). Currency returns quoted in terms of the first currency in each pairing. Data as of 9:35 pm GMT 3/5/20.

Examples of how to interpret currency data: CAD/USD 0.74 means 1 Canadian dollar will buy 0.74 U.S. dollar. CAD/USD -3.1% return means the Canadian dollar fell 3.1% vs. the U.S. dollar year to date. USD/JPY 106.08 means 1 U.S. dollar will buy 106.08 yen. USD/JPY -2.3% return means the U.S. dollar fell 2.3% vs. the yen year to date.

Authors

Kelly Bogdanova – San Francisco, United States
kelly.bogdanova@rbc.com; RBC Capital Markets, LLC

Alan Robinson – Seattle, United States
alan.robinson@rbc.com; RBC Capital Markets, LLC

Meika McKelvey – Toronto, Canada
meika.mckelvey@rbccm.com; RBC Dominion Securities Inc.

Richard Tan, CFA – Toronto, Canada
richard.tan@rbc.com; RBC Dominion Securities Inc.

Frédérique Carrier – London, United Kingdom
frederique.carrier@rbc.com; RBC Europe Limited

Thomas McGarrity, CFA – London, United Kingdom
thomas.mcgarrity@rbc.com; RBC Europe Limited

Jasmine Duan – Hong Kong, China
jasmine.duan@rbc.com; RBC Investment Services (Asia) Limited

Nicholas Gwee, CFA – Singapore
nicholas.gwee@rbc.com; Royal Bank of Canada, Singapore Branch

Disclosures and Disclaimer

Analyst Certification

All of the views expressed in this report accurately reflect the personal views of the responsible analyst(s) about any and all of the subject securities or issuers. No part of the compensation of the responsible analyst(s) named herein is, or will be, directly or indirectly, related to the specific recommendations or views expressed by the responsible analyst(s) in this report.

Important Disclosures

In the U.S., RBC Wealth Management operates as a division of RBC Capital Markets, LLC. In Canada, RBC Wealth Management includes, without limitation, RBC Dominion Securities Inc., which is a foreign affiliate of RBC Capital Markets, LLC. This report has been prepared by RBC Capital Markets, LLC. which is an indirect wholly-owned subsidiary of the Royal Bank of Canada and, as such, is a related issuer of Royal Bank of Canada.

Non-U.S. Analyst Disclosure: Meika McKelvey and Richard Tan, employees of RBC Wealth Management USA's foreign affiliate RBC Dominion Securities Inc.; Thomas McGarrity and Frédérique Carrier, employees of RBC Wealth Management USA's foreign affiliate RBC Europe Limited; Jasmine Duan, an employee of RBC Investment Services (Asia) Limited; and Nicholas Gwee, an employee of Royal Bank of Canada, Singapore Branch contributed to the preparation of this publication. These individuals are not registered with or qualified as research analysts with the U.S. Financial Industry Regulatory Authority ("FINRA") and, since they are not associated persons of RBC Wealth Management, they may not be subject to FINRA Rule 2241 governing communications with subject companies, the making of public appearances, and the trading of securities in accounts held by research analysts.

In the event that this is a compendium report (covers six or more companies), RBC Wealth Management may choose to provide important disclosure information by reference. To access current disclosures, clients should refer to https://www.rbccm.com/GLDisclosure/PublicWeb/DisclosureLookup.aspx?EntityID=2 to view disclosures regarding RBC Wealth Management and its affiliated firms. Such information is also available upon request to RBC Wealth Management Publishing, 60 South Sixth St, Minneapolis, MN 55402.

References to a Recommended List in the recommendation history chart may include one or more recommended lists or model portfolios maintained by RBC Wealth Management or one of its affiliates. RBC Wealth Management recommended lists include the Guided Portfolio: Prime Income (RL 6), the Guided Portfolio: Dividend Growth (RL 8), the Guided Portfolio: ADR (RL 10), and the Guided Portfolio: All Cap Growth (RL 12). RBC Capital Markets recommended lists include the Strategy Focus List and the Fundamental Equity Weightings (FEW) portfolios. The abbreviation 'RL On' means the date a security was placed on a Recommended List. The abbreviation 'RL Off' means the date a security was removed from a Recommended List.

Distribution of Ratings

For the purpose of ratings distributions, regulatory rules require member firms to assign ratings to one of three rating categories - Buy, Hold/Neutral, or Sell - regardless of a firm's own rating categories. Although RBC Capital Markets, LLC ratings of Top Pick/Outperform, Sector Perform, and Underperform most closely correspond to Buy, Hold/Neutral and Sell, respectively, the meanings are not the same because our ratings are determined on a relative basis.

Explanation of RBC Capital Markets, LLC Equity Rating System

An analyst's "sector" is the universe of companies for which the analyst provides research coverage. Accordingly, the rating assigned to a particular stock represents solely the analyst's view of how that stock will perform over the next 12 months relative to the analyst's sector average.

Distribution of Ratings - RBC Capital Markets, LLC Equity Research
As of December 31, 2019

			Investment Banking Services Provided During Past 12 Months	
Rating	Count	Percent	Count	Percent
Buy [Top Pick & Outperform]	765	51.97	225	29.41
Hold [Sector Perform]	625	42.46	127	20.32
Sell [Underperform]	82	5.57	5	6.10

Ratings:

Top Pick (TP): Represents analyst's best idea in the sector; expected to provide significant absolute total return over 12 months with a favorable risk-reward ratio. **Outperform (O):** Expected to materially outperform sector average over 12 months. **Sector Perform (SP):** Returns expected to be in line with sector average over 12 months. **Underperform (U):** Returns expected to be materially below sector average over 12 months. **Restricted (R):** RBC policy precludes certain types of communications, including an investment recommendation, when RBC is acting as an advisor in certain merger or other strategic transactions and in certain other circumstances. **Not Rated (NR):** The rating, price targets and estimates have been removed due to applicable legal, regulatory or policy constraints which may include when RBC Capital Markets is acting in an advisory capacity involving the company.

Risk Rating:

The **Speculative** risk rating reflects a security's lower level of financial or operating predictability, illiquid share trading volumes, high balance sheet leverage, or limited operating history that result in a higher expectation of financial and/or stock price volatility.

Valuation and Risks to Rating and Price Target

When RBC Wealth Management assigns a value to a company in a research report, FINRA Rules and NYSE Rules (as incorporated into the FINRA Rulebook) require that the basis for the valuation and the impediments to obtaining that valuation be described. Where applicable, this information is included in the text of our research in the sections entitled "Valuation" and "Risks to Rating and Price Target", respectively.

The analyst(s) responsible for preparing this research report have received (or will receive) compensation that is based upon various factors, including total revenues of RBC Capital Markets, LLC, and its affiliates, a portion of which are or have been generated by investment banking activities of RBC Capital Markets, LLC and its affiliates.

Other Disclosures

Prepared with the assistance of our national research sources. RBC Wealth Management prepared this report and takes sole responsibility for its content and distribution. The content may have been based, at least in part, on material provided by our third-party correspondent research services. Our third-party correspondent has given RBC Wealth Management general permission to use its research reports as source materials, but has not reviewed or approved this report, nor has it been informed of its publication. Our third-party correspondent may from time to time have long or short positions in, effect transactions in, and make markets in securities referred to herein. Our third-party correspondent may from time to time perform investment banking or other services for, or solicit investment banking or other business from, any company mentioned in this report.

RBC Wealth Management endeavors to make all reasonable efforts to provide research simultaneously to all eligible clients, having regard to local time zones in overseas jurisdictions. In certain investment advisory accounts, RBC Wealth Management or a designated third party will act as overlay manager for our clients and will initiate transactions in the securities referenced herein for those accounts upon receipt of this report. These transactions may occur before or after your receipt of this report and may have a short-term impact on the market price of the securities in which transactions occur. RBC Wealth Management research is posted to our proprietary Web sites to ensure eligible clients receive coverage initiations and changes in rating, targets, and opinions in a timely manner. Additional distribution may be done by sales personnel via e-mail, fax, or regular mail. Clients may also receive our research via third-party vendors. Please contact your RBC Wealth Management Financial Advisor for more information regarding RBC Wealth Management research.

Conflicts Disclosure: RBC Wealth Management is registered with the Securities and Exchange Commission as a broker/dealer and an investment adviser, offering both brokerage and investment advisory services. RBC Wealth Management's Policy for Managing Conflicts of Interest in Relation to Investment Research is available from us on our website at https://www.rbccm.com/GLDisclosure/PublicWeb/DisclosureLookup.aspx?EntityID=2. Conflicts of interests related to our investment advisory business can be found in Part 2A Appendix 1 of the Firm's Form ADV or the RBC Advisory Programs Disclosure Document. Copies of any of these documents are available upon request through your Financial Advisor. We reserve the right to amend or supplement this policy, Part 2A Appendix 1 of the Form ADV, or the RBC Advisory Programs Disclosure Document at any time.

The authors are employed by one of the following entities: RBC Wealth Management USA, a division of RBC Capital Markets, LLC, a securities broker-dealer with principal offices located in Minnesota and New York, USA; by RBC Dominion Securities Inc., a securities broker-dealer with principal offices located in Toronto, Canada; by RBC Investment Services (Asia) Limited, a subsidiary of RBC Dominion Securities Inc., a securities broker-dealer with principal offices located in Hong Kong, China; by Royal Bank of Canada, Singapore Branch, a licensed wholesale bank with its principal office located in Singapore; and by RBC Europe Limited, a licensed bank with principal offices located in London, United Kingdom.

Research Resources

This document is produced by the Global Portfolio Advisory Committee within RBC Wealth Management's Portfolio Advisory Group. The RBC WM Portfolio Advisory Group provides support related to asset allocation and portfolio construction for the firm's Investment Advisors / Financial Advisors who are engaged in assembling portfolios incorporating individual marketable securities. The Committee leverages the broad market outlook as developed by the RBC Investment Strategy Committee, providing additional tactical and thematic support utilizing research from the RBC Investment Strategy Committee, RBC Capital Markets, and third-party resources.

Third-party disclaimers

The Global Industry Classification Standard ("GICS") was developed by and is the exclusive property and a service mark of MSCI Inc. ("MSCI") and Standard & Poor's Financial Services LLC ("S&P") and is licensed for use by RBC. Neither MSCI, S&P, nor any other party involved in making or compiling the GICS or any GICS classifications makes any express or implied warranties or representations with respect to such standard or classification (or the results to be obtained by the use thereof), and all such parties hereby expressly disclaim all warranties of originality, accuracy, completeness, merchantability and fitness for a particular purpose with respect to any of such standard or classification. Without limiting any of the foregoing, in no event shall MSCI, S&P, any of their affiliates or any third party involved in making or compiling the GICS or any GICS classifications have any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) even if notified of the possibility of such damages.

References herein to "LIBOR", "LIBO Rate", "L" or other LIBOR abbreviations means the London interbank offered rate as administered by ICE Benchmark Administration (or any other person that takes over the administration of such rate).

Disclaimer

The information contained in this report has been compiled by RBC Wealth Management, a division of RBC Capital Markets, LLC, from sources believed to be reliable, but no representation or warranty, express or implied, is made by Royal Bank of Canada, RBC Wealth Management, its affiliates or any other person as to its accuracy, completeness or correctness. All opinions and estimates contained in this report constitute RBC Wealth Management's