



Perspectives from the Global Portfolio Advisory Committee

February 11, 2021

A "meme stock" moment, or more?

Kelly Bogdanova – San Francisco

Amid the postmortem on the GameStop saga, some investor unease is lingering. We do think the episode is indicative of a megashift at play—one that is bigger than the stock market. But at the same time, we don't think the meme stock phenomenon is a serious threat to traditional investment portfolios.

GameStop shares have come back to earth, reaching an intraday high of \$483 in late January but closing at \$51.10 per share today, and other stocks that were caught up in this whirlwind have retreated as well.

Yet we get the sense there is still some unease among individual investors about what happened, and about the risks that this may pose for the overall market. Some are wondering, does this episode indicate there is something bigger going on? After all, another group of small so-called "meme stocks" have pushed higher in recent trading sessions.

To this we say yes, there is definitely something bigger afoot—much, much bigger.

However, the root cause is not necessarily top of mind and is not even market-related. Moreover, we don't think the phenomenon is a serious threat to traditional investment portfolios.

A 21st century twist on the short squeeze

First, consider how the GameStop episode played out: It was a classic, painful short squeeze, but it unfolded in a novel and dramatic fashion.

Short squeezes have happened for many decades, and some of the most high-profile episodes even go way back

to the Roaring 1920s when the total value of the stock market was much smaller. Many readers' eyes would glaze over if we go into the details of how shorting works and how short squeezes play out, so we will forgo the particulars. (A simplistic definition from Investopedia is in the chart on the next page.)

The difference this go-around is the GameStop short squeeze unfolded in a unique way.

The proliferation and wide use of internet chat boards—in this case on the Reddit platform, primarily—opened the door for individual investors to communicate about their stock ideas and strategies to each other in real time.

Once they caught on that GameStop shares were heavily shorted (and therefore were vulnerable to a short squeeze), they bought the stock, effectively forcing many of the short sellers, including large hedge funds, to remove their short positions and buy shares, which then fueled a massive surge in price—and big losses for some hedge funds.

While any major short squeeze would probably gain press attention, this short squeeze was outsized as the stock surged 2,300 percent in just 11 trading sessions. Importantly, this drama exposed a development that had not been widely noticed before—some investors are using digital chat and other internet tools to form

For perspectives on the week from our regional analysts, please see pages 3–4.

Investment and insurance products offered through RBC Wealth Management are not insured by the FDIC or any other federal government agency, are not deposits or other obligations of, or guaranteed by, a bank or any bank affiliate, and are subject to investment risks, including possible loss of the principal amount invested.

stock strategies. This short squeeze involved individual investors, some of whom are new to stock picking.

Winds of digital change

We think the far more important consideration is the root cause of this episode.

From our vantage point, the much bigger phenomenon that's going on both underneath and above the surface is a megashift within society—the shift into the age of digitization.

The grip that digital technologies now have on day-to-day life has been accelerated by the sudden COVID-19 lockdowns and the tech tools that have facilitated working and living at home nearly 24/7.

This megashift, or period of megachange that some might describe as a new epoch, is not unlike those that occurred during the past 150 years. Think back to the megashift in the late 19th century when the agriculture-based economy transformed into the industrial age, or the megashift in transportation that was brought about by the steam engine and railroad system, or the megashift in international relations that was born out of the ashes of World War II as well as the additional shift after the Soviet Union's collapse.

These and other megashifts impacted economic, governmental, technological, and cultural trends. They transformed immigration and internal migration patterns, societal norms, religious traditions, and more. They had life-altering and even civilization-altering implications.

Today's digitization megashift is moving society at lightning speed through the proliferation of artificial intelligence (AI) and digital tracking, the advent of "smart cities," new personal and business banking technologies, new currency structures (think cryptocurrencies), the convergence of the technology and health care industries, and a myriad of other technologies, some of which even raise ethical and moral dilemmas.

To us, the meme stock chat board phenomenon and greater participation of individual investors in markets are very small outgrowths of the digitization megashift.

Keep your eyes on the long run

What does this mean for investment portfolios?

In the narrow scope of meme stocks and heightened investor communication about stocks and investment strategies, we think digitization will further increase the participation of individual investors in equity markets and that this participation will be more active.

Some individual investors are now more researchoriented, are more focused on individual stocks rather than indexes, and are embracing the options markets. Just like any new investment cycle, some are diligently doing their homework, while others are trying to ride the bull

What goes up during a short squeeze can come crashing down

GameStop (GME) daily high and closing price per share



Source - RBC Wealth Management, Bloomberg, Investopedia; data through 2/10/21

market wave the "easy" way (which rarely works in the long run).

We think the participation of individual investors will grow in number and influence, at least until the next deep and lengthy bear market takes root. In the interim, this doesn't mean that more GameStop-like episodes will automatically occur and it doesn't mean they won't. We don't count out additional bouts of market volatility related to meme stocks.

There are a number of regulatory issues raised by the GameStop/meme phenomenon, and we think regulators likely will be slow to act. Rule-making authorities tend to be reactive and lag technological innovations and trends. Bloomberg's regulatory and governmental analysts, for example, believe it could take up to a year for new regulations to emerge that will address this situation, and even then, they doubt there will be sweeping rule changes.

Overall, the meme stock phenomenon is unlikely to have a major impact on traditional, long-term-oriented investment portfolios, in our view. We think the specific episodes and related volatility will come and go.

But the megashift into the digital age is already having a major impact on our lives and we expect this will only accelerate. We think the broader digitization trends and the technological and lifestyle changes they inspire will impact investment portfolios and returns far, far more than the meme stock phenomenon.

UNITED STATES

Atul Bhatia, CFA – Minneapolis

- Poor economic data underscored the likelihood for additional years of accommodative monetary policy, as nonfarm payrolls for December and January showed a net loss of 178,000 jobs; all told, the pandemic has seen almost 10 million jobs disappear from the U.S. economy. With the Fed focused on a jobs recovery as a precursor to tightening monetary policy, the employment report heightened the prospects for a multiyear period of near zero policy rates.
- The Fed's other focus area of inflation is similarly unlikely to spur central bank action; January consumer prices rose only 1.4% compared to 2020. Despite benign current inflation, markets continue to believe in the Fed's ability to eventually manufacture higher prices. One of the most popular market-based indicators predicts annual inflation over a five-year period starting five years in the future. That measure—which is closely watched by the Fed—is at 2.4%, the highest level since 2018.
- The Treasury Department is planning to temporarily reduce its issuance of debt maturing in under a year, choosing to draw down its existing \$1.6 trillion cash holdings. Demand remains strong for short-term obligations and the move could see upcoming auction yields drop to 0%. Although the Treasury Department does not sell bills at negative yields as a matter of policy, secondary market yields can, and have, gone negative; any small dip below zero on bill rates this time should be temporary, in our view.
- Accommodative monetary policy, potential for fiscal stimulus, and optimism on pent-up consumer spending have combined to boost demand for riskier sections of the corporate bond market. The benchmark yield on debt from issuers rated CCC—one category above default—has declined from 10% in late October 2020 to just over 6.2% this week. The rally pushed yields on the broader high-yield corporate bond index below 4% this week for the first time ever. Pricing on sub-investment-grade debt now rivals historical levels for BBB bonds, the lowest-rated segment of investment grade.

CANADA

Mikhial Pasic, CFA – Vancouver; Richard Tan, CFA – Toronto

In the first six weeks of 2021, the S&P/TSX Composite
 Index has rallied about 6%, driven by healthy gains
 in all sectors with the exception of Consumer Staples.
 Generally speaking, the Consumer Staples sector is
 often associated with more stable businesses (e.g.
 grocers) and therefore could be expected to offer less

High-yield in name only

Current sub-investment-grade yields compared to historical BBB levels



Source - RBC Wealth Management, Bloomberg; data through 2/9/21

upside to an acceleration in economic growth, all else equal. The issue of inflation has become topical once **again** given the availability of inexpensive capital, global stimulus measures, and pent-up demand. As a result, we believe some investors have reduced their exposure to certain asset classes (e.g. fixed income) due to perceived limited upside, and/or have gone up the risk curve to protect their purchasing power. One investment theme that has grown in popularity is investing into companies with large and growing total addressable markets, even if it means foregoing shortterm profits. Investments in Canadian Health Care and Technology stocks are examples of this trend, and these also happen to be the best performing sectors year to date. Valuations for these sectors are elevated and tend to be more volatile, and therefore such investments require a higher risk appetite, in our view.

· The preferred share market is up roughly 3% in February as a pair of insurance companies issued a preferred share equivalent product to institutional **investors** this week. In our view, this development is supportive of the preferred share market from a supplydemand perspective because the proceeds from these offerings will likely be used to redeem existing preferred shares, and this in turn could spur reinvestment demand for other issues. Moreover, we believe the taxdeductible nature of the new structure is appealing to issuers because it helps lower their funding costs and reduces the likelihood of subsequent preferred share issuance. As this new market has taken shape since last summer, issuance costs have declined by more than 1%, further increasing the likelihood of redemption for a growing portion of the preferred share market.

EUROPE

Thomas McGarrity, CFA – London

- The STOXX Europe 600 Index was broadly flat during the week. The basic resources subsector (e.g., miners) outperformed, up over 3%, as base metal prices rose and inflation expectations continued to creep higher alongside optimism seemingly growing around fiscal stimulus plans in the U.S. and slowing COVID-19 infection rates globally. Despite a strong run in recent months, we believe the miners remain on sound footing and the outlook for the next six to 12 months appears positive. The miners are seeing upward revisions to consensus estimates for FY2021 earnings and we believe forthcoming results from the space could lead to further earnings upgrades, while high metal prices should translate into high shareholder payouts in the form of special dividends and/or share buybacks during 2021, in our view
- The Technology sector also outperformed, helped by Dialog Semiconductor, a supplier to the likes of Apple and Samsung, announcing it was being acquired by Japan's Renesas Electronics at a 20% premium to its share price on Feb. 5. Payments firm Adyen also gained over 15% during the week following its Q4 results beating consensus estimates. Adyen is one of the top 10 performers within the STOXX Europe 600 Index over the past 12 months, up almost 150% as the company has benefitted from the shift to e-commerce during the pandemic.
- Pharmaceutical group AstraZeneca reported full-year results for 2020. Product sales grew 10% y/y, while its core earnings per share rose 15%, driven primarily by the performance of its oncology medicines, where sales jumped 23%. In 2021, the company expects total revenue to increase by a low-teens percentage.
- Royal Dutch Shell hosted a Capital Markets Day to set out its plans for how it will achieve its target to be a net-zero carbon emissions energy business by 2050. Shell confirmed that its total oil production has begun its long-term decline, having peaked in 2019, while it will submit an "Energy Transition Plan" for an advisory shareholder vote at its annual general meeting every year, the first in the Energy sector to do so.

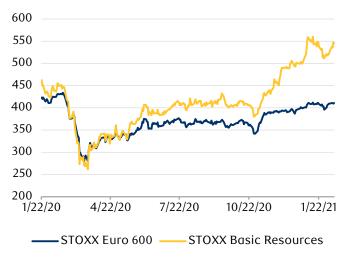
ASIA PACIFIC

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

 The Asia-Pacific equity market traded mostly higher during a holiday-shortened week. The rally is being led by China, where overall sentiment remains upbeat on the back of falling COVID-19 infection rates, expanding vaccination programs, and prospects of another large U.S. economic stimulus package. Most Asian markets

Basic Resources outperforming broader index

Higher metals prices may lead to continued gains for subsector



Source - RBC Wealth Management, Bloomberg; data as of 8:50 am ET 2/11/21

are closed for the next few days due to the Lunar New Year celebrations.

- U.S. President Joe Biden had his first official phone call with Chinese President Xi Jinping to discuss their nations' bilateral relationship. While wishing Xi a happy Lunar New Year, Biden also raised concerns about Beijing's economic practices, human rights abuses, and increasingly assertive actions in the region. Separately, according to the White House, the Biden administration is reviewing actions put in place by former President Donald Trump in multiple spheres, and existing tariffs on Chinese goods will remain as is for now.
- China rolled out rules intended to root out monopolistic practices in the internet industry.
 The regulations, now in effect, ban sharing sensitive consumer data, forming alliances to squeeze out smaller rivals, and using below-cost services to drive out competitors. We think the move serves as a reminder, especially for the dominant players, that the government is now closely watching the space.
- Hong Kong's stock market turnover dropped to
 HK\$150 billion (US\$19 billion) on Feb. 9, 18% below this
 year's previously slowest day. Observers have broadly
 anticipated the slowdown, as trading links with the
 mainland closed ahead of the Lunar New Year holiday.
 Southbound activity has fueled a trading surge in Hong
 Kong, with net purchases by Chinese investors already
 at more than half of the full-year record from 2020.
- TikTok's sale to Oracle (ORCL US) and Walmart (WMT US) has been shelved indefinitely, per an unconfirmed Wall Street Journal report, as Biden undertakes a broad review of his predecessor's efforts to address potential security risks from Chinese tech companies.

MARKET Scorecard

Data as of February 11, 2021

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.

Examples of how to interpret currency data: CAD/USD 0.78 means 1 Canadian dollar will buy 0.78 U.S. dollar. CAD/USD 0.3% return means the Canadian dollar rose 0.3% vs. the U.S. dollar year to date. USD/JPY 104.74 means 1 U.S. dollar will buy 104.74 yen. USD/JPY 1.4% return means the U.S. dollar rose 1.4% vs. the yen year to date.

Source - Bloomberg; data as of 4:35 pm ET 2/11/21.

Equities (local currency)	Level	MTD	YTD	1 уг	2 уг
S&P 500	3,916.38	5.4%	4.3%	16.6%	44.5%
Dow Industrials (DJIA)	31,430.70	4.8%	2.7%	7.4%	25.5%
Nasdaq	14,025.77	7.3%	8.8%	45.5%	91.9%
Russell 2000	2,285.32	10.2%	15.7%	36.2%	50.5%
S&P/TSX Comp	18,392.99	6.1%	5.5%	3.5%	18.1%
FTSE All-Share	3,726.46	2.3%	1.4%	-10.6%	-4.5%
STOXX Europe 600	411.35	3.9%	3.1%	-4.0%	13.9%
EURO STOXX 50	3,671.68	5.5%	3.4%	-4.0%	16.0%
Hang Seng	30,173.57	6.7%	10.8%	9.4%	7.2%
Shanghai Comp	3,655.09	4.9%	5.2%	26.0%	37.7%
Nikkei 225	29,562.93	6.9%	7.7%	24.8%	45.4%
India Sensex	51,531.52	11.3%	7.9%	25.0%	41.6%
Singapore Straits Times	2,925.48	0.8%	2.9%	-7.9%	-8.8%
Brazil Ibovespa	119,299.80	3.7%	0.2%	3.4%	26.4%
Mexican Bolsa IPC	44,060.09	2.5%	0.0%	-2.1%	1.8%
Gov't bonds (bps change)	Yield	MTD	YTD	1 yr	2 yr
U.S. 10-Yr Treasury	1.163%	9.8	25.0	-43.7	-149.0
Canada 10-Yr	0.998%	10.9	32.1	-35.9	-90.6
UK 10-Yr	0.470%	14.3	27.3	-9.9	-71.0
Germany 10-Yr	-0.458%	6.0	11.1	-6.7	-57.8
Fixed income (returns)	Yield	MTD	YTD	1 уг	2 уг
U.S. Aggregate	1.19%	-0.1%	-0.8%	4.7%	18.9%
U.S. Investment-Grade Corp	1.86%	0.0%	-1.3%	6.0%	25.4%
U.S. High-Yield Corp	3.95%	1.0%	1.3%	7.5%	18.9%
Commodities (USD)	Price	MTD	YTD	1 уг	2 уг
Gold (spot \$/oz)	1,826.33	-1.2%	-3.8%	16.5%	39.6%
Silver (spot \$/oz)	27.00	0.1%	2.3%	53.0%	71.9%
Copper (\$/metric ton)	8,303.00	5.6%	7.1%	44.9%	35.3%
Oil (WTI spot/bbl)	58.24	11.6%	20.0%	16.6%	11.1%
Oil (Brent spot/bbl)	60.87	8.9%	17.5%	12.7%	-1.0%
Natural Gas (\$/mmBtu)	2.85	11.2%	12.3%	59.5%	7.9%
Currencies	Rate	MTD	YTD	1 уг	2 уг
U.S. Dollar Index	90.4000	-0.2%	0.5%	-8.4%	-6.9%
CAD/USD	0.7873	0.6%	0.3%	4.6%	4.7%
USD/CAD	1.2701	-0.6%	-0.2%	-4.4%	-4.5%
EUR/USD	1.2132	0.0%	-0.7%	11.1%	7.6%
GBP/USD	1.3815	0.8%	1.1%	6.7%	7.5%
AUD/USD	0.7755	1.5%	0.8%	15.5%	9.8%
USD/JPY	104.7400	0.1%	1.4%	-4.6%	-5.1%
EUR/JPY	127.0700	0.0%	0.7%	6.0%	2.1%
EUR/GBP	0.8782	-0.8%	-1.7%	4.2%	0.2%
EUR/CHF	1.0797	-0.1%	-0.1%	1.4%	-4.6%
USD/SGD	1.3247	-0.3%	0.2%	-4.5%	-2.7%
USD/CNY	6.4583	0.5%	-1.1%	-7.0%	-4.9%
USD/MXN	19.9585	-3.0%	0.2%	7.0%	3.4%
USD/BRL	5.3854	-1.6%	3.6%	42.5%	43.4%

Authors

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

Atul Bhatia, CFA – Minneapolis, United States atul.bhatia@rbc.com; RBC Capital Markets, LLC

Mikhial Pasic, CFA – Vancouver, Canada mikhial.pasic@rbc.com; RBC Dominion Securities Inc.

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

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

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: Mikhial Pasic and Richard Tan, employees of RBC Wealth Management USA's foreign affiliate RBC Dominion Securities Inc.; Thomas McGarrity, an employee 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.

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' ratings of Outperform (O), Sector Perform (SP), and Underperform (U) 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.

Distribution of ratings – RBC Capital Markets, LLC Equity Research As of December 31, 2020

			Investment Banking Services Provided During Past 12 Months		
Rating	Count	Percent	Count	Percent	
Buy [Outperform]	828	54.83	299	36.11	
Hold [Sector Perform]	615	40.73	166	26.99	
Sell [Underperform]	67	4.44	12	17.91	

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.

As of March 31, 2020, RBC Capital Markets discontinued its Top Pick rating. Top Pick rated securities represented an analyst's best idea in the sector; expected to provide significant absolute returns over 12 months with a favorable risk-reward ratio. Top Pick rated securities have been reassigned to our Outperform rated securities category, which are securities expected to materially outperform sector average over 12 months.

Ratings: 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 shortterm 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 judgment as of the date of this report, are subject to change without notice and are provided in good faith but without legal responsibility. Past performance is not a guide to future performance, future returns are not guaranteed, and a loss of original capital may occur. Every province in Canada, state in the U.S., and most countries throughout the world have their own laws regulating the types of securities and other investment products which may be offered to their residents, as well as the process for doing so. As a result, the securities discussed in this report may not be eligible for sale in some jurisdictions. This report is not, and under no circumstances should be construed as, a solicitation to act as securities broker or dealer in any jurisdiction by any person or company that is not legally permitted to carry on the business of a securities broker or dealer in that jurisdiction. Nothing in this report constitutes legal, accounting or tax advice or individually tailored investment advice. This material is prepared for general circulation to clients, including clients who are affiliates of Royal Bank of Canada, and does not have regard to the particular circumstances or needs of any specific person who may read it. The investments or services contained in this report may not be suitable for you and it is recommended that you consult an independent investment advisor if you are in doubt about the suitability of such investments or services. To the full extent permitted by law neither Royal Bank of Canada nor any of its affiliates, nor any other person, accepts any liability whatsoever for any direct, indirect or consequential loss arising from, or in connection with, any use of this report or the information contained herein. No matter contained in this document may be reproduced or copied by any means without the prior written consent of Royal Bank of Canada in each instance. Additional information is available upon request.

To U.S. Residents: This publication has been approved by RBC Capital Markets, LLC, Member NYSE/FINRA/SIPC, which is a U.S. registered broker-dealer and which accepts responsibility for this report and its dissemination in the United States. RBC Capital Markets, LLC, is an indirect wholly-owned subsidiary of the Royal Bank of Canada and, as such, is a related issuer of Royal Bank of Canada. Any U.S. recipient of this report that is not a registered broker-dealer or a bank acting in a broker or dealer capacity and that wishes further information regarding, or to effect any transaction in, any of the securities discussed in this report, should contact and place orders with RBC Capital Markets, LLC. International investing involves risks not typically associated with

U.S. investing, including currency fluctuation, foreign taxation, political instability and different accounting standards.

To Canadian Residents: This publication has been approved by RBC Dominion Securities Inc. RBC Dominion Securities Inc.* and Royal Bank of Canada are separate corporate entities which are affiliated. *Member-Canadian Investor Protection Fund. @Registered trademark of Royal Bank of Canada. Used under license. RBC Wealth Management is a registered trademark of Royal Bank of Canada. Used under license.

RBC Wealth Management (British Isles): This publication is distributed by RBC Europe Limited and RBC Investment Solutions (CI) Limited. RBC Europe Limited is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority (FCA registration number: 124543). Registered office: 100 Bishopsgate, London, EC2N 4AA, UK. RBC Investment Solutions (CI) Limited is regulated by the Jersey Financial Services Commission in the conduct of investment business in Jersey. Registered office: Gaspé House, 66-72 Esplanade, St Helier, Jersey JE2 3QT, Channel Islands, registered company number 119162.

To Hong Kong Residents: This publication is distributed in Hong Kong by Royal Bank of Canada, Hong Kong Branch which is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission ('SFC'), and RBC Investment Services (Asia) Limited, which is regulated by the SFC.

To Singapore Residents: This publication is distributed in Singapore by the Royal Bank of Canada, Singapore Branch, a registered entity licensed by the Monetary Authority of Singapore. This material has been prepared for general circulation and does not take into account the objectives, financial situation, or needs of any recipient. You are advised to seek independent advice from a financial adviser before purchasing any product. If you do not obtain independent advice, you should consider whether the product is suitable for you. Past performance is not indicative of future performance. If you have any questions related to this publication, please contact the Royal Bank of Canada, Singapore Branch. Royal Bank of Canada, Singapore Branch accepts responsibility for this report and its dissemination in Singapore.

© 2021 RBC Capital Markets, LLC – Member NYSE/FINRA/SIPC © 2021 RBC Dominion Securities Inc. – Member Canadian Investor Protection Fund © 2021 RBC Europe Limited © 2021 Royal Bank of Canada All rights reserved RBC1253

