Trend & Cycle: The Long View – May 2024

Robert Sluymer, CFA | Technical Strategist, Portfolio Advisory Group

May 6, 2024 / RBC Capital Markets, LLC / Portfolio Advisory Group

All values in U.S. dollars and priced as of market close on May 3, 2024 unless otherwise noted

For Important Disclosures, see page 22.

Produced: May 6, 2024 09:55; Disseminated May 6, 2024 10:10ET

RBC Wealth Management

Trend & Cycle: The Long View – May 2024

- **Structural/secular outlook** – The longer-term uptrend for equity markets remains intact with a positive 16-18 year cycle that is likely to carry the S&P higher into the mid-2030s potentially toward S&P 14,000. Slides 4-5.

- **4-year cycle – Where are we now?** We view the longer-term uptrend for the S&P 500 to follow a cycle that sees lows develop every 3-4-years. While the magnitude of each cycle varies significantly, the average cycle upside is 110% followed by 20-25% bear markets that often bottom near the rising 4-year moving average. The Q4 2022 lows at the S&P 500's rising 4-year has defined the lows for the current cycle with the recent breakout above a broad 2-year trading range confirmation of the cycle continuing to improve, with secular growth and cyclicals leading to the upside. Slides 6-8.

- **Tactical/multi-month outlook** – Intermediate-term/weekly momentum indicators are helpful technical tools to navigate the 1-2 quarter market swings that develop most years. Our expectation has been for a pullback to develop in mid-late Q1 given most markets rebounded into overbought territory by mid Q1 setting the stage for the pullback that is currently underway. After a 6% correction for the S&P, an oversold short-term bounce is developing that we expect will result in a zig-zag pattern through Q2 that should see weekly indicators move into oversold levels later in Q2 and set the stage for a summer rally. Slide 9.

- **Risks/concerns** – While the current 4-year cycle remains intact with participation broadening in Q1 we are monitoring the following three key technical developments. First, monthly momentum has moved from oversold levels in Q4 to overbought levels in 2024. To be clear, in strong uptrends momentum indicators, tracking the rate of change of a market, will become overbought quickly, remain overbought and begin to flat line as the underlying trend becomes more linear. However, monthly momentum peaks often precede major cycle highs so we will be focusing on this indicator often in the coming months to ensure the underlying uptrend is not deteriorating. The next two concerns relate to interest rates and the US dollar. Tactically both are showing early signs of peaking and moving lower moving into Q2 which we view to an encouraging development for equities. However, a move above 5% by the US 10-year yield and above 107 for the US dollar DXY index would be major headwinds for equities that could prematurely abort the current cycle. Slide 14-15

Trend & Cycle: The Long View – May 2024

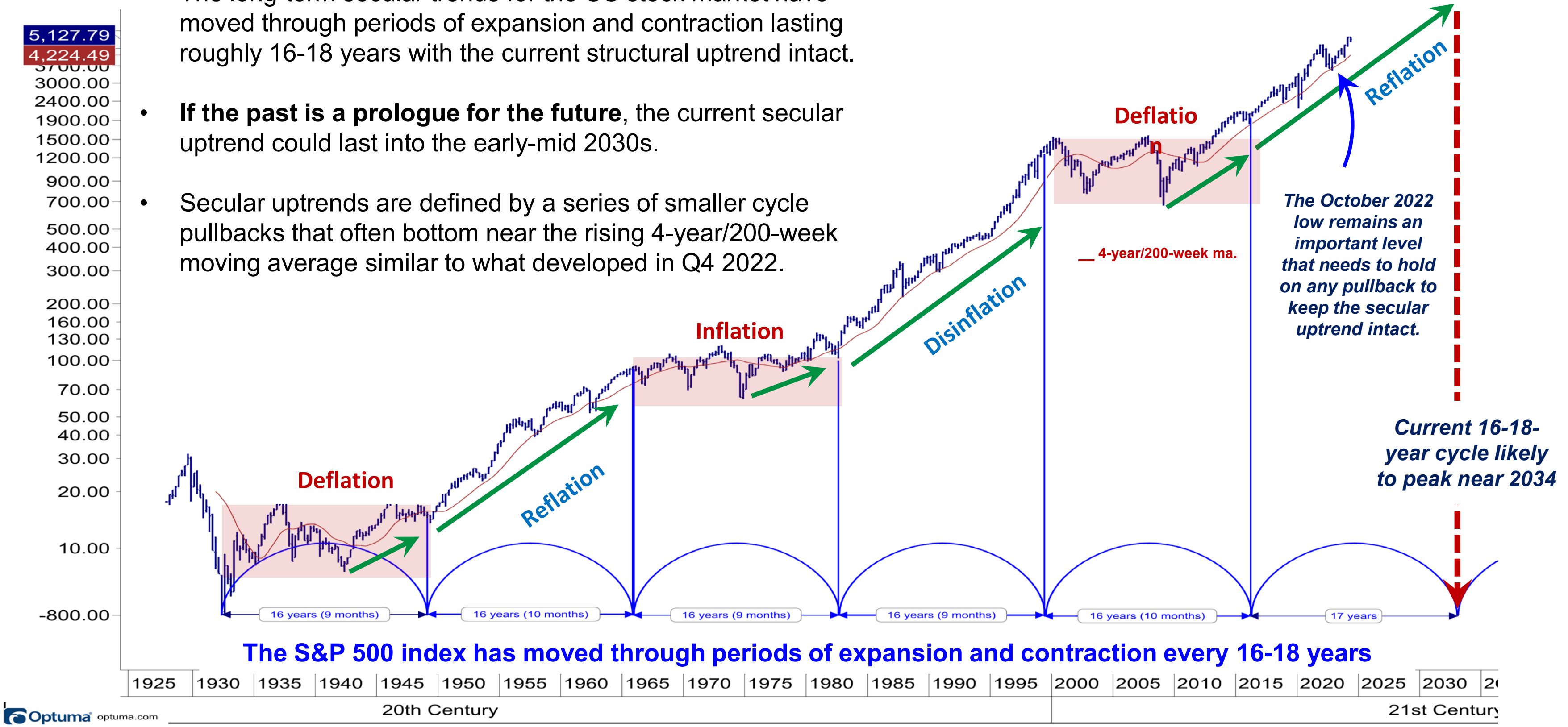
- **Interest rates** – We continue view the Q4 2023 highs at 5% for the US 10-year yield to be the highs for the current cycle with the recent rebound in Q1 back to 4.7% showing early signs of peaking. Our expectation is for the 10-year yield to remain in a volatile trading range below 4.7% but above 3.8-4% through Q2. While the recent pullback in 10-year yields is encouraging, with further downside likely we would view a move above 5% to be a major risk for stocks that could prematurely abort the current 4-year cycle.
- **Currencies** – The US dollar established its cycle high in Q4 2022 and has remained in a choppy downtrend above support at 100 and below resistance at 107. Similar to our view on interest rates, beyond short-term bounces, we do not expect significant upside in the US dollar which should be a net positive for equity markets globally. However, a move above 107 would be a net negative for equities.
- **Commodities** – **WTI Oil** is likely to remain in a broad trading range through Q2 into Q3 with resistance in the mid-high 80s and support in the mid-low 70s that we expect will hold in the current pullback. **Gold's** long-term profile remains positive following its breakout above major resistance between the 2011 high at 1921 and the 2022-2024 highs around 2100. With gold now at its next extension resistance level near 2360 we expect a short-term pullback. **Copper's** longer-term profile remains positive with the recent reversal of its 2022-2024 downtrend supportive of our positive outlook. Similar to gold, after a strong surge in Q1 into Q2 to a broad resistance band near 500, a short-lived pullback is likely. Slides 17-19.

Equity leadership

- **Growth/technology** remain in long-term uptrends with intermediate-term/weekly corrections taking hold following surges in Q4-Q1. Similar to our market view, we expect further choppy trading into mid-late Q2 by which time weekly indicators should be bottoming for another upside attempt with semiconductors and media likely to lead.
- **Cyclicals** – Longer-term profiles, notably industrials, remain positive with tactical pullbacks underway similar to growth stocks following strong rebounds in Q4-Q1, with Q2-Q3 pullbacks in industrial, energy, materials and financials viewed as opportunities.
- **Safety sectors** such as utilities, staples and healthcare are recovering from oversold levels moving into late Q1/early Q3. While dividend income needs support having some exposure in these sectors, we do not expect them to outperform the market through year-end.

S&P 500 - Generational trends and cycles lasting roughly 16-18 years

- The long-term secular trends for the US stock market have moved through periods of expansion and contraction lasting roughly 16-18 years with the current structural uptrend intact.
- **If the past is a prologue for the future**, the current secular uptrend could last into the early-mid 2030s.
- Secular uptrends are defined by a series of smaller cycle pullbacks that often bottom near the rising 4-year/200-week moving average similar to what developed in Q4 2022.

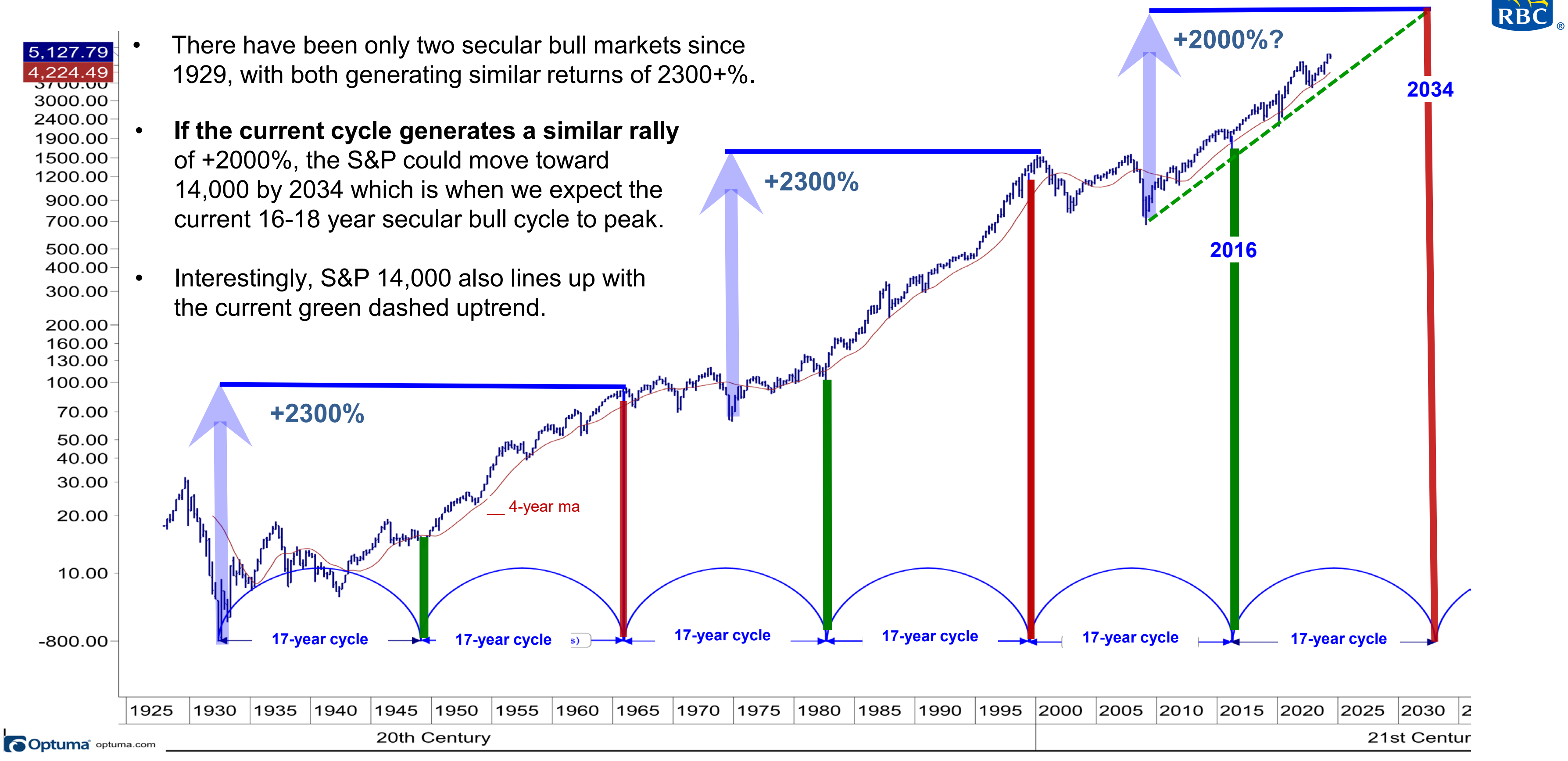


Source: RBC Wealth Management, Bloomberg, Optuma

Could the S&P rally to 14,000?

S&P ~14,000?

- There have been only two secular bull markets since 1929, with both generating similar returns of 2300+%.
- **If the current cycle generates a similar rally** of +2000%, the S&P could move toward 14,000 by 2034 which is when we expect the current 16-18 year secular bull cycle to peak.
- Interestingly, S&P 14,000 also lines up with the current green dashed uptrend.

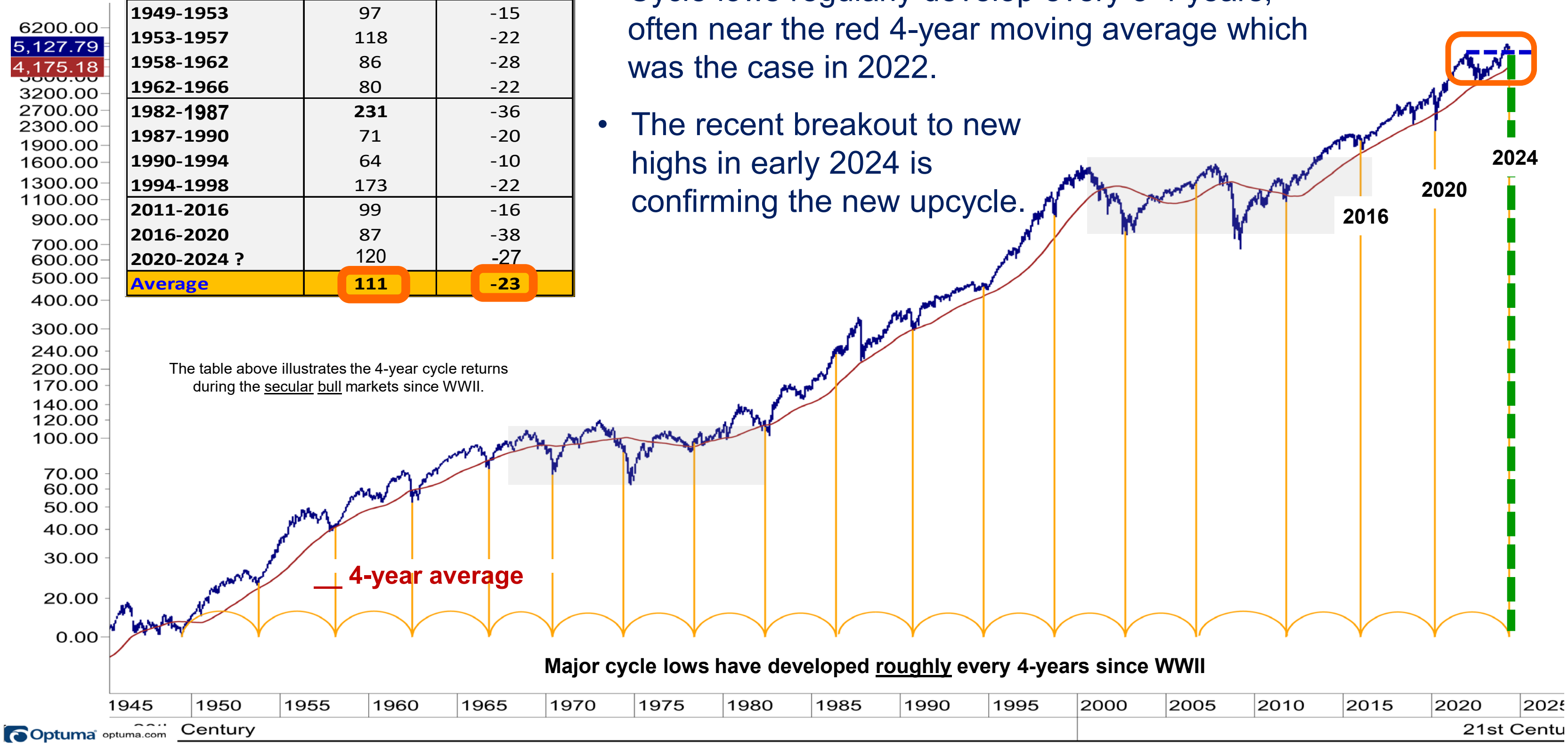


Source: RBC Wealth Management, Bloomberg, Optuma

S&P 500 - A **repetitive** 3-4 year cycle driven by central bank **liquidity** and economic **growth**

4 Year Cycle	% Rally	% Correction
1949-1953	97	-15
1953-1957	118	-22
1958-1962	86	-28
1962-1966	80	-22
1982-1987	231	-36
1987-1990	71	-20
1990-1994	64	-10
1994-1998	173	-22
2011-2016	99	-16
2016-2020	87	-38
2020-2024 ?	120	-27
Average	**111**	**-23**

- Cycle lows regularly develop every 3-4 years, often near the red 4-year moving average which was the case in 2022.
- The recent breakout to new highs in early 2024 is confirming the new upcycle.



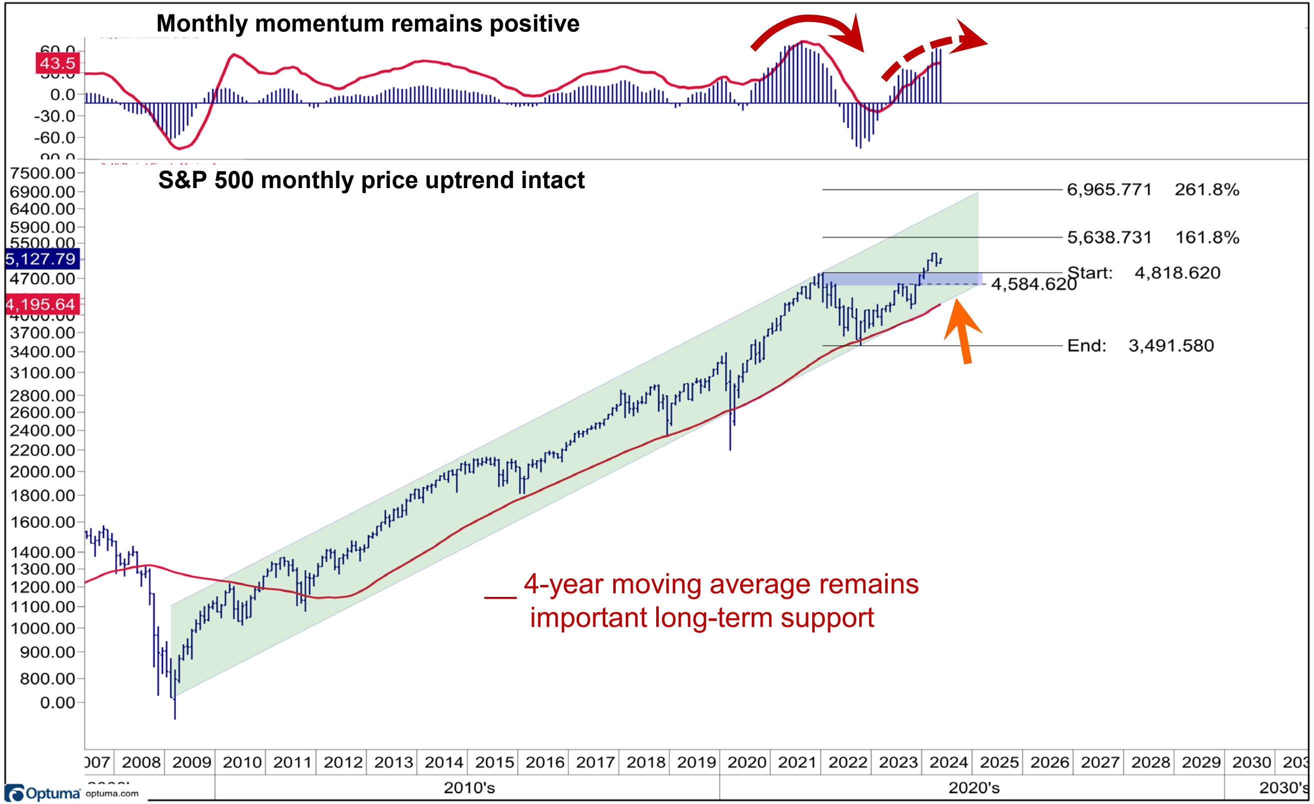
Source: RBC Wealth Management, Bloomberg, Optuma

S&P 500 Index – Uptrend intact with momentum becoming advanced.

Source: RBC Wealth Management, Bloomberg, Optuma

- One technical tool to monitor the trend of a market is to compare its shorter-term trend, measured by the green 4-month moving average (ma), to its longer-term trend, measured by the red 13-month ma.
- The current trend remains positive with the shorter-term green moving average above the longer-term red moving average as of March 2023.
- Another way to track the relationship between these two moving averages is to measure the vertical difference between the two and plot the difference as a histogram, as illustrated in the bottom panel.
- This indicator bottomed in Q4 2022, built positively into the summer of 2023 and remains positive and above the zero axis moving into Q2 2024.
- **With the data in the bottom panel now advanced we will be monitoring it closely in the coming months for signs that momentum is decelerating and potentially turning negative as an early warning sign the cycle is maturing.**

S&P 500 – Monthly momentum positive but at risk of decelerating.



Source: RBC Wealth Management, Bloomberg, Optuma

Cycle momentum

- Remains positive above the zero axis **but likely to begin peaking in the coming months** with a decline below the zero axis needed to signal the uptrend is reversing.

Uptrend intact

- Next major Fibonacci resistance is at 5638 followed by 6965.
- Support: 4818 then 4584.

What would change our positive view?

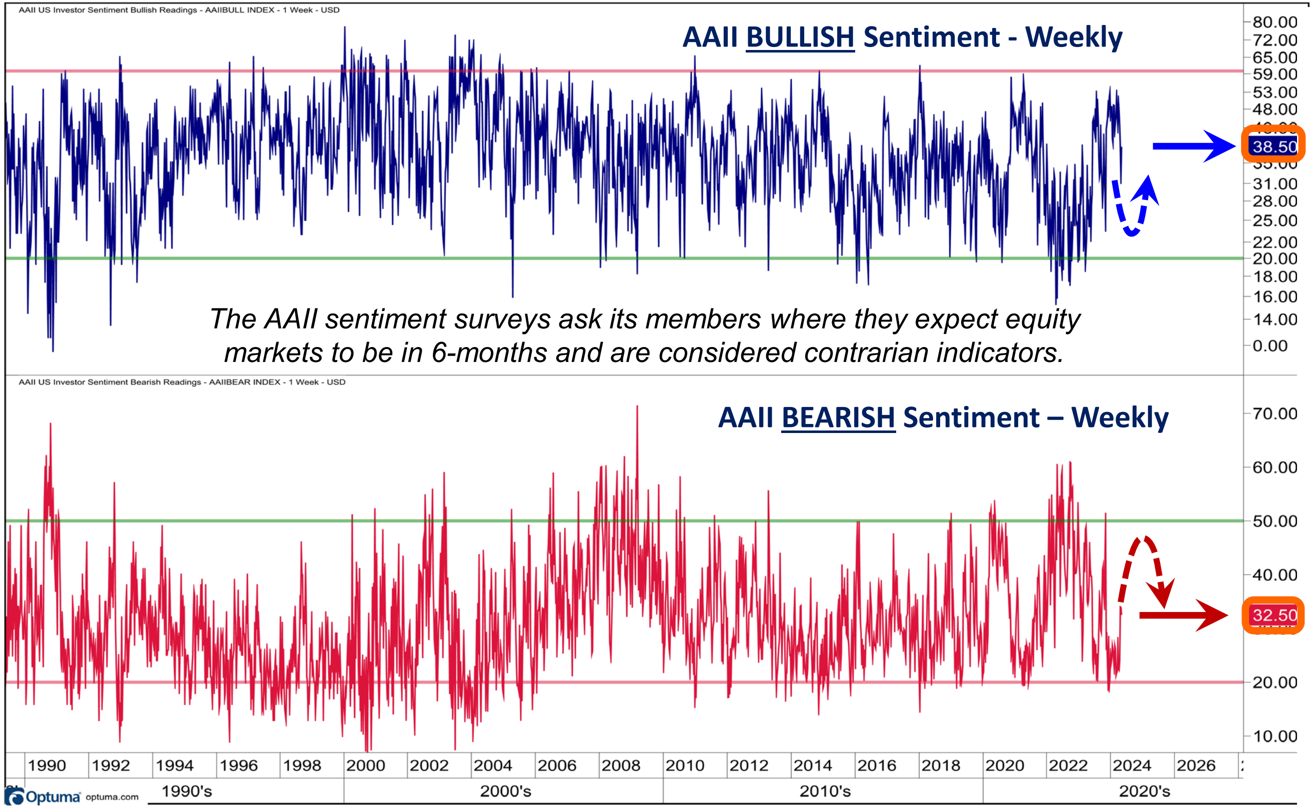
- A break below support near the 4-year moving average, currently at 4107, would be needed to confirm the **cycle** is failing.

S&P 500 with weekly Quadrant Balance momentum

- Weekly momentum indicators, tracking 2-4+ month swings, are unwinding from overbought levels reached in early-mid Q1 and likely to bottom and turn up by late Q2/early Q3.
- As such, we expect further choppy trading in Q2 with the S&P already bouncing from short-term oversold levels near its 20-week/100-day ma near 5000 with next support near 4818.
- Quadrant balance data continues to unwind with mid-late Q2, possibly early Q3, as a potential bottoming zone.

Source: RBC Wealth Management, Bloomberg, Optuma

AAII US Bullish and Bearish Sentiment



Source: RBC Wealth Management, Bloomberg, Optuma

Sentiment surveys are contrarian indicators.

- Bullish Sentiment is pulling back from elevated levels…
- …while bearish sentiment is building from low levels.
- We view this data to be supportive of a pause/pullback taking hold in equity markets with further declines in bullish sentiment and a rise in bearish sentiment readings an encouraging development to support equity markets later in Q2/Q3.

S&P/TSX Composite – Monthly

- The TSX successfully tested and rallied from support coinciding with the 4-year ma in Q4 2023 keeping the long-term uptrend intact.
- While a tactical multi-month pause is underway from resistance near 22,217, our view is that the TSX completed a secondary cycle low in Q4 with potential to break out above 22,217 in Q3 2024 with 24,884 the next key resistance level.
- Relative performance versus the S&P remains flat to weak and would need to push above the 2020-2022 highs to support overweighting the TSX vs the S&P 500.

Source: RBC Wealth Management, Bloomberg, Optuma

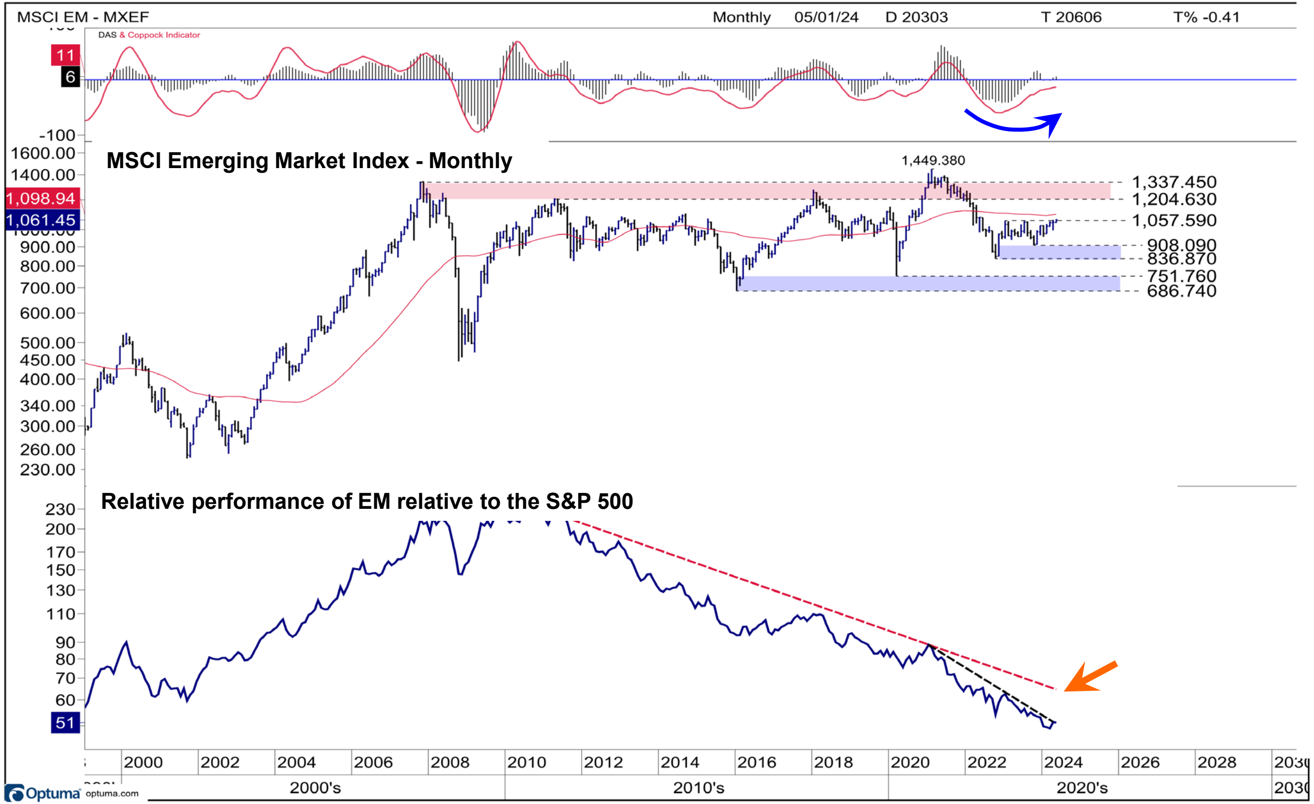
MSCI EAFE – Monthly with relative performance vs the S&P 500

Source: RBC Wealth Management, Bloomberg, Optuma

EAFE (Europe, Asia and Far East)

- The EAFE index has rallied back to test next key resistance near the highs in 2008 and 2021 at 2416.
- While a near-term pause is underway, we expect further upside in 2024 consistent with our positive outlook for the 4-year cycle.
- Overall, we view the long-term price profile to emerge from its 2008-2024 trading range in 2024 but ***relative performance versus the S&P 500 remains in a downtrend with no meaningful change in trend developing to support overweighting EAFE.***

MSCI Emerging Market Index and relative performance vs S&P 500



Source: RBC Wealth Management, Bloomberg, Optuma

- A cycle low is likely developing for EM as it bases above support near 900 with a move above first resistance at 1057 needed to complete the bottoming pattern.
- Interestingly, two of the weaker markets, notably Hong Kong and China are showing early signs of bottoming.
- Heavy resistance remains in a band between 1204-1337, with a move above that level needed to signal a new longer-term uptrend taking hold.
- While a tactical price bottom is in the early stages of developing, relative performance versus the S&P 500 remains in a downtrend and would need to reverse to the upside to technically support adding exposure.

US 10 Year Yield: Cycle peak likely in place at a critical level of 5%

Source: RBC Wealth Management, Bloomberg, Optuma

US Dollar DXY Index – Monthly

Source: RBC Wealth Management, Bloomberg, Optuma

- After a decline from 114 by the DXY US dollar index to 100 through 2023, monthly momentum is showing evidence of bottoming as the DXY bounces from support between 98.7-100.8.
- Key resistance is at 105-107 where we have expected the DXY to stall, with recent weakness in early May supportive of our view.
- ***RISK: Should the DXY index move above 107 it would signal further upside toward next resistance at 114-115 with equities very likely to weaken.***

Canadian Dollar / US Dollar - Monthly

Source: RBC Wealth Management, Bloomberg, Optuma

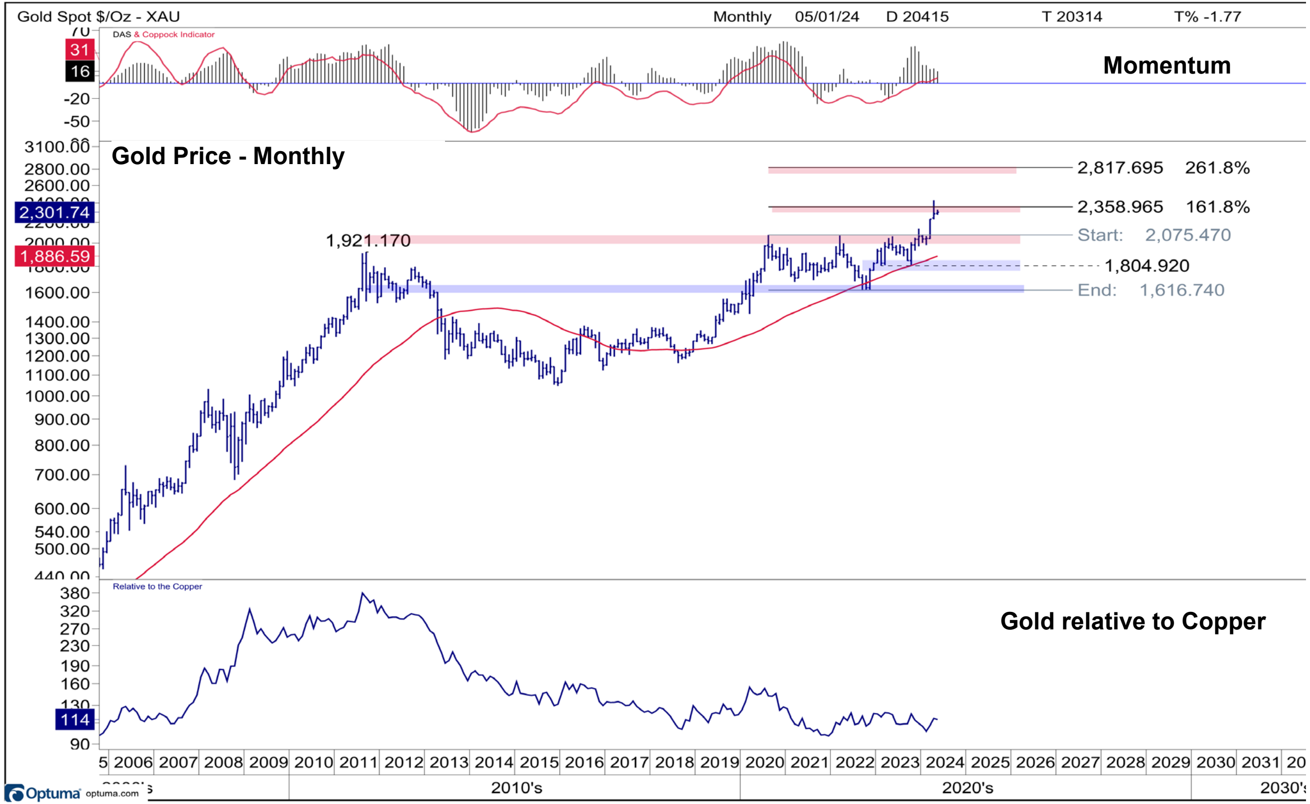
- Monthly cycle momentum has been building positively since Q4 2022 but is showing early signs of stalling.
- We continue to view the CADUSD to be in a bottoming pattern above 0.715 with a move above 0.76-0.77 needed to confirm a new uptrend is taking hold.
- Conversely, a break below key support at 0.715 would be a signal that the trading range in place since Q4 2022 is failing with next support at 0.68.

WTI Oil Future - Monthly

Source: RBC Wealth Management, Bloomberg, Optuma

- Monthly cycle momentum remains positive as WTI shows evidence of bottoming in the low 70s.
- After stalling near 93, WTI Oil remains in a broad, choppy trading range above support in the high 60s-low 70s with trading support near current levels between 75-77.
- Bottom line: We expect WTI to remain in a broad trading range above the mid-high 70s with heavy resistance in the upper 80s-low 90s.
- Note: For reference, we are using 10 to be the low end of WTI's long-term trading range for the Fibonacci retracements rather than the temporary spike into negative territory at -40.

Gold – Monthly – Longer-term profile remains positive.



Source: RBC Wealth Management, Bloomberg, Optuma

- Gold completed a major long-term breakout above 1921-2075 resistance in Q1 2024.
- Overall, the longer-term pattern for gold remains positive with gold now at its next pause point near 2360 coinciding with the 162% Fibonacci extension of 2021-2023 trading range.
- While a near-term pause is likely, we do not expect gold to break below its 2000-2100 support band.

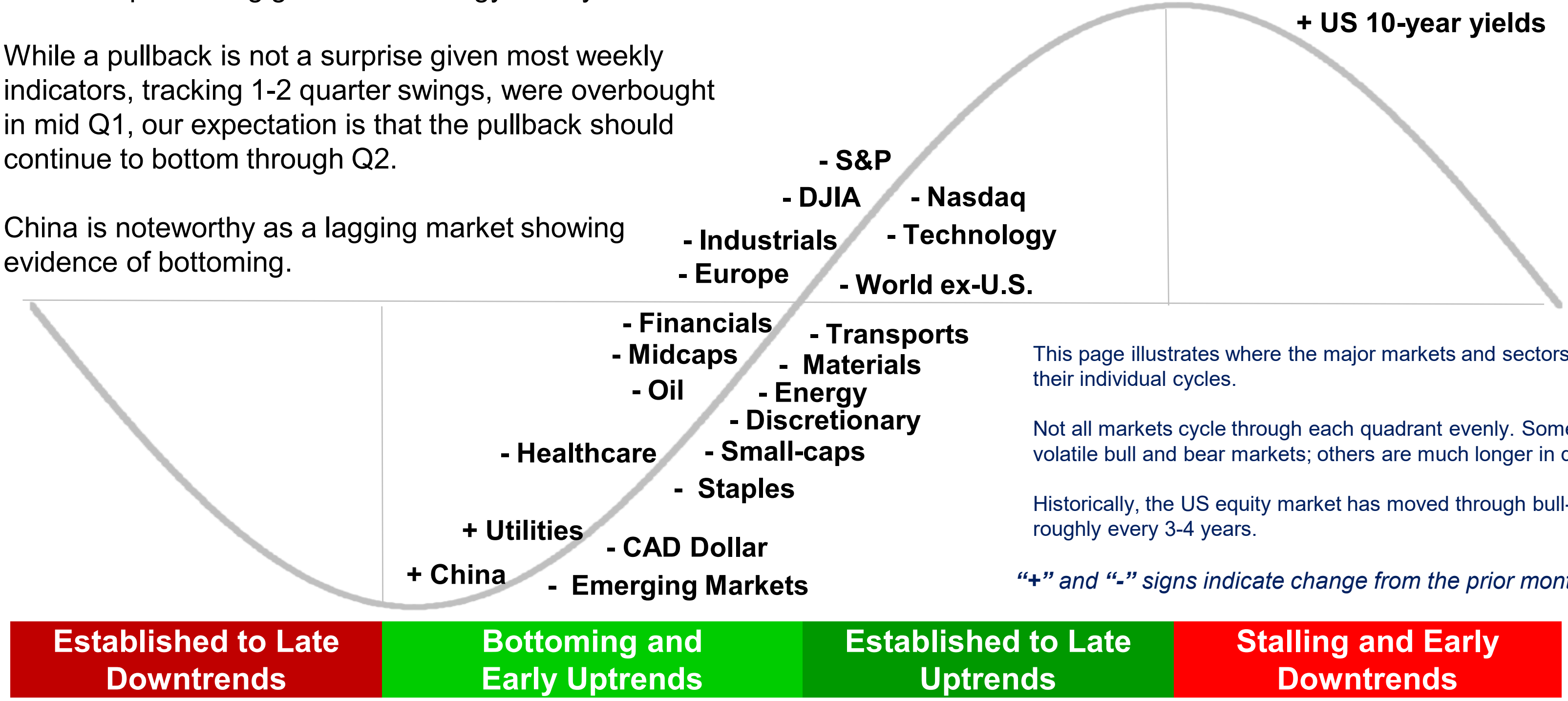
Copper - Monthly

- Monthly momentum bottomed in Q4 2022, similar to equity markets, as copper established its cycle lows near major support between 320-330 and with a secondary cycle developing in Q4 2023 near 350-360.
- The overall technical profile for copper remains positive following its upside reversal of the 2022-2024 downtrend.
- Tactically, however, with copper back to 457-501 resistance, a pullback is likely with support in a broad band between 388-431.

Source: RBC Wealth Management, Bloomberg, Optuma

Major markets and S&P sector cycles

- Most markets and sectors pulled back in April following strong Q4-Q1 surges, with rising interest rates and the US dollar pressuring growth/technology and cyclicals.
- While a pullback is not a surprise given most weekly indicators, tracking 1-2 quarter swings, were overbought in mid Q1, our expectation is that the pullback should continue to bottom through Q2.
- China is noteworthy as a lagging market showing evidence of bottoming.



This page illustrates where the major markets and sectors are within their individual cycles.

Not all markets cycle through each quadrant evenly. Some have short, volatile bull and bear markets; others are much longer in duration.

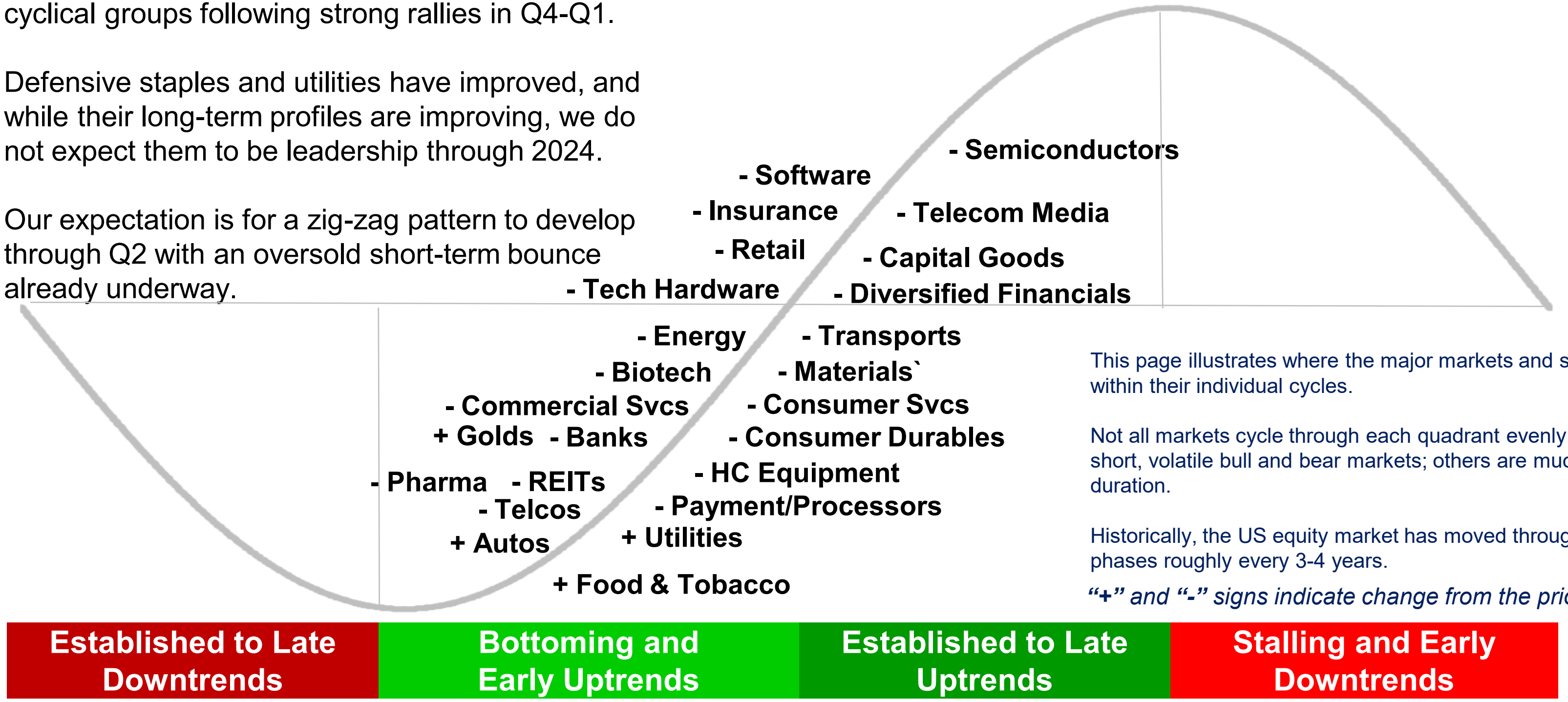
Historically, the US equity market has moved through bull-bear phases roughly every 3-4 years.

"+" and "-" signs indicate change from the prior month.

Source: RBC Wealth Management, Bloomberg, Optuma

Industry group cycles

- Overall, we view April weakness to be an extension of the pullbacks that began in mid-late Q1 for many of the more advanced growth and cyclical groups following strong rallies in Q4-Q1.
- Defensive staples and utilities have improved, and while their long-term profiles are improving, we do not expect them to be leadership through 2024.
- Our expectation is for a zig-zag pattern to develop through Q2 with an oversold short-term bounce already underway.



This page illustrates where the major markets and sectors are within their individual cycles.

Not all markets cycle through each quadrant evenly. Some have short, volatile bull and bear markets; others are much longer in duration.

Historically, the US equity market has moved through bull-bear phases roughly every 3-4 years.

"+" and "-" signs indicate change from the prior month.

Source: RBC Wealth Management, Bloomberg, Optuma

Disclosures

This comment is prepared by the Technical Research team at RBC Wealth Management. All views expressed are the opinions of Technical Research based solely on the historical technical behavior (price and volume) and their expectations of the most likely direction of a market or security. Technical Research opinions and recommendations may differ from the opinions, recommendations and / or ratings of RBC Capital Markets' fundamental equity and other research products. Fundamental equity research is available from your RBC Capital Markets salesperson. Opinions and recommendations in Technical Research could result in short-term price movements that are contrary to the recommendations and/or ratings in fundamental equity research.

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.

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, 250 Nicollet Mall, Suite 1800, Minneapolis, MN 55401-1931.

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). 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. As of April 3, 2023, U.S. RBC Wealth Management's quarterly reports will serve as the primary communication for its models and will highlight any changes to the model made during the quarter.

RBC Capital Markets 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 RBC Capital Markets ratings are determined on a relative basis.

Disclosures

Distribution of Ratings - RBC Capital Markets Equity Research, As of March 31, 2024			Investment Banking Services Provided During Past 12 Months	
Rating	Count	Percent	Count	Percent
Buy [Outperform]	831	56.84	264	31.77
Hold [Sector Perform]	585	40.01	151	25.81
Sell [Underperform]	46	3.15	4	8.70

Explanation of RBC Capital Markets 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.

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 Capital Markets 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 and its affiliates, a portion of which are or have been generated by investment banking activities of RBC Capital Markets and its affiliates.

Disclosures

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 author is employed by RBC Wealth Management, a division of RBC Capital Markets, LLC, a securities broker-dealer with principal offices located in Minnesota and New York, USA.

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.

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 RBC Wealth Management, 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 RBC Wealth Management 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 RBC Wealth Management in each instance. 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. Additional information 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 Royal Bank of Canada (Channel Islands) 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. Royal Bank of Canada (Channel Islands) 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.

Disclaimer

To persons receiving this from Royal Bank of Canada, Hong Kong Branch: This document is distributed in Hong Kong by Royal Bank of Canada, Hong Kong Branch which is regulated by the Hong Kong Monetary Authority and the SFC. This document is not for distribution in Hong Kong, to investors who are not “professional investors”, as defined in the Securities and Futures Ordinance (Cap. 571 of Hong Kong) and any rules made under that Ordinance. This document has been prepared for general circulation and does not take into account the objectives, financial situation, or needs of any recipient. Past performance is not indicative of future performance. WARNING: The contents of this document have not been reviewed by any regulatory authority in Hong Kong. Investors are advised to exercise caution in relation to the investment. If you are in doubt about any of the contents of this document, you should obtain independent professional advice.

To persons receiving this from Royal Bank of Canada, Singapore Branch: 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 publication is not for distribution in Singapore, to investors who are not “accredited investors” and “institutional investors”, as defined in the Securities and Futures Act 2001 of Singapore. This publication 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.