

Global Insight

Weekly



A closer look

Dangerous curves ahead?

Tom Garretson – Minneapolis

A flat U.S. Treasury yield curve flattened further this week, falling to the lowest levels seen during an economic expansion since 2005. But does a flat yield curve portend an economic slowdown, or are other factors at play?

Every yield curve has a story to tell, and there has been no shortage of market commentary over the past week looking to tell the story of the flattest yield curve that we have seen during an economic expansion since 2005, when the Fed was in the midst of another monetary policy tightening cycle.

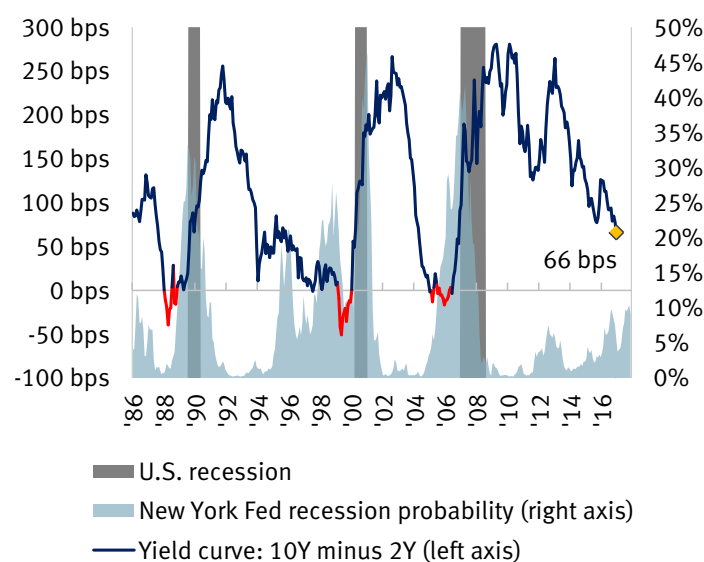
The yield curve, commonly measured as the yield difference between the 10Y Treasury and the 2Y Treasury, has long been seen as an economic growth barometer and as a key business cycle indicator, with inversions often portending a U.S. recession. Its track record isn't perfect—no economic indicator is—but a flattening curve is once again capturing headlines and the concern of investors.

As the chart shows, the curve has flattened to just 66 basis points (bps). The New York Fed's model of recession risk within 12 months based on the flatness of the curve has risen to 10%, the highest we have seen this cycle. The past three recessions were led by inverted yield curves, and while we believe we remain a long way off from an inverted curve, we think this topic deserves all of the attention it has received recently.

Yield curve drivers

Is this flattening yield curve a sign of the market's growth concerns with a 10Y yield of just 2.35%? Is it a sign that the Fed is being too aggressive as the 2Y Treasury has added 40 bps in just two months, jumping to 1.70%? Is the yield curve even relevant following all of the extraordinary measures put in place by global central banks since the financial crisis that may be suppressing yields? While central bank policies may be muddying the waters, we still see the curve as a key signal and representative of modest growth and low inflation risk, mixed with a view that the Fed may be taking too aggressive of a stance at the moment.

Recession risks rise as yield curves fall



Source - RBC Wealth Management, Bloomberg; data as of 11/16/17

Market pulse

- 3 U.S. high-yield bond selloff skewed to a few corners
- 3 How to upgrade quality in Canadian fixed income
- 3 Good macroeconomic news rolls in from Europe
- 4 Chinese housing market cools

Click [here](#) for authors' contact information.

Priced (in USD) as of 11/16/17 market close, EST (unless otherwise stated).

For important disclosures and required non-U.S. analyst disclosures, see [page 6](#).



Wealth
Management

Since the Fed began raising short-term rates in December 2015, boosting short-term rates by 100 bps with another 25 bps hike due in December, the U.S. 10Y Treasury has gained precisely ... 5 bps. The New York Fed also maintains a model that breaks the 10Y down into two key components, the risk-neutral yield and a term premium. The former is simply the expected average of short-term rates over 10 years priced into the 10Y, while the term premium is the compensation investors are receiving for the risk that short-term rates could deviate from expectations. While a purely academic exercise, it can be useful as a thought exercise when trying to understand yield curve dynamics.

As the upper chart shows, the expected average short-term rate priced into the 10Y has risen along with rate hikes. But this has been almost completely offset by a decline in the term premium, which is now negative—meaning that investors are confident that short-term rates won't rise faster or higher than expected. A simple explanation would be that each rate hike brings us one rate hike closer to the next rate cut.

We expect this dynamic to continue to play out with those two factors offsetting each other to keep the 10Y yield range-bound around current levels. This long trend of curve flattening should continue, in our view, as Fed rate hikes continue at a slow and steady pace, with little upside risk to growth and inflation keeping a lid on 10Y yields below 3%.

Diagnosis doesn't matter, prescription is the same

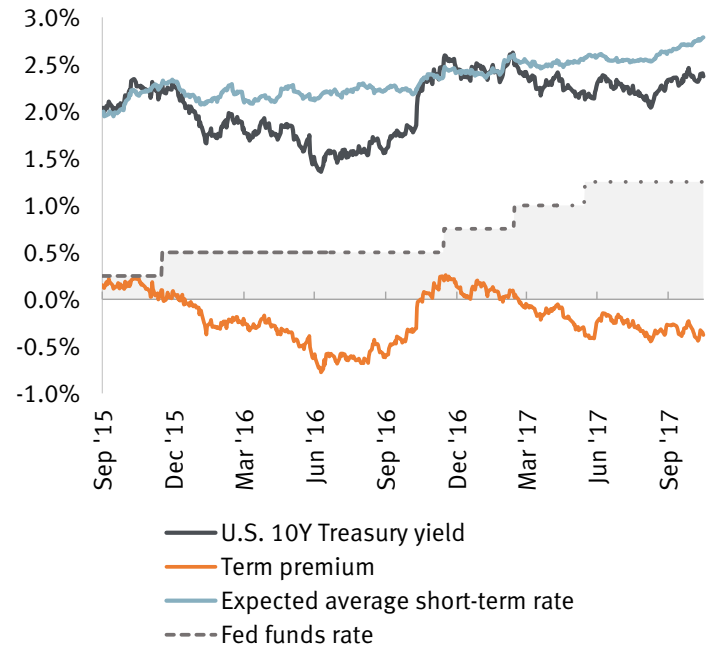
Regardless of what is driving a flatter yield curve, the prescription is the same: the Fed will likely have to keep a light hand on the rate hike throttle. With a yield curve spread of just 66 bps between 2Y and 10Y Treasuries, the cushion is roughly just three 25 bps rate hikes before the Fed risks inverting the curve—assuming the 10Y maintains current levels. With few signs of overheating sectors in the economy and low inflation, we think the Fed has room to be cautious and it will be a slow rate hike pace rather than a higher 10Y that keeps the yield curve steep over the near term.

Stay the course—for now

We would caution against looking to past Fed tightening cycles to guide asset class performance going forward—there simply haven't been enough to draw statistically significant conclusions from. But the lower chart shows relative performance of major asset classes for the past two cycles. We expect the current one to play out like the 1990s, when the Fed raised rates quickly early in the decade, paused for nearly three years as inflationary pressures eased, before resuming hikes into the 2001 recession. Even as the curve flattens toward 0 bps, we would still expect equities to outperform bonds, Financials to outperform the S&P 500, and for long duration to modestly outperform short duration.

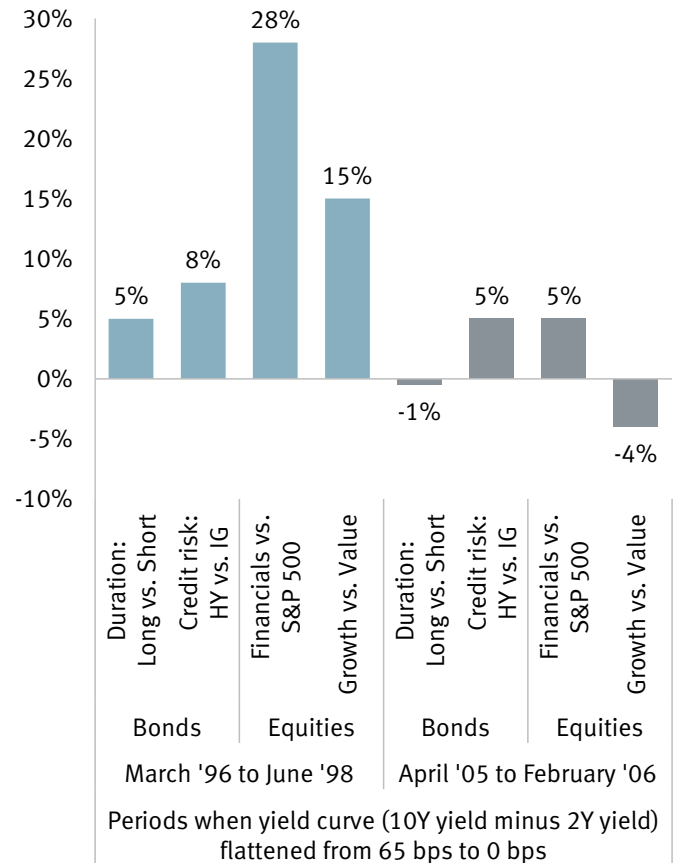
For now we think investors can maintain the playbook that has worked to this point, but the yield curve remains an important signal and merits all of the scrutiny that it is receiving.

Why the curve is flat: Decomposing the 10Y Treasury yield



Source - RBC Wealth Management, Bloomberg; data through 11/14/17

Relative performance over past two flattening cycles



Source - RBC Wealth Management, Bloomberg; data as of 11/16/17



United States

Bill Kuehn & Sam Renikoff – Minneapolis

- **High-yield bonds have sold off** in 12 of the last 16 days, according to the Bloomberg Barclays High Yield Index, with spreads widening as much as 42 basis points (bps) in the last three weeks. A litany of factors has **roiled the riskiest corner of the market**, including a string of poor earnings reports and rating downgrades, recession concerns, and disputes over tax reform. The high-yield market has already had its **worst month of the year**, returning -1.31%, wiping out the prior two months' returns.
- While bonds are noticeably down across the market, the **extent of the selloff** appears to be **skewed toward a few specific corners**. B-rated credits have seen the brunt of the selling pressure, where spreads have widened out 55 bps vs. 40 for CCC credits and 30 for BB credits. The **largest underperformers** were B-rated Telecom credits—by and large the worst-performing sector with spreads 23% wider over the last three weeks relative to just 12% for the average sector ex-Telecom. With this skewness in mind, we **maintain our Underweight recommendation** on high yield, where yields are still 100 bps lower than the 5-year average, while credits rated BBB and better look historically attractive.
- Equity markets have also **taken notice of the flatter yield curve**, with the S&P 500 pulling back 1.2% as concerns mounted, but later bouncing back on positive corporate news and passage of tax cut legislation in the House of Representatives. While changes in the yield curve should be monitored closely, our analysis of historical data shows that **equities can continue to provide positive returns** in a flattening yield curve environment, especially when the flattening is not accompanied by elevated recession risks.

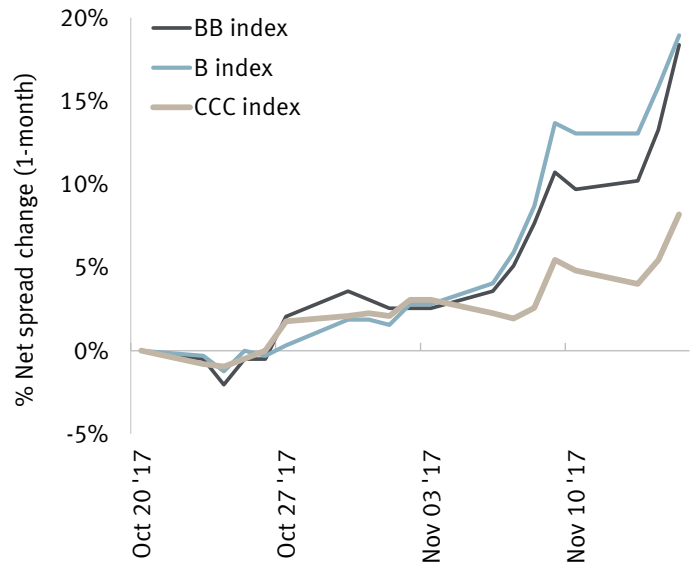


Canada

Diana Di Luca – Toronto

- Bank of Canada (BoC) Senior Deputy Governor Carolyn Wilkins, speaking in New York on November 15, **reiterated the most recent BoC message**—monetary policy changes (e.g., rate increases) will likely be slow and gradual. Wilkins also discussed **NAFTA's impact on business investment** and said that the uncertainty surrounding NAFTA is clearly affecting businesses and potential investment decisions. Interest rate expectations have been unchanged following her comments, with the market pricing in an approximate 40% chance the next hike will occur in January and an April hike is fully priced in.

B-rated credits lead the high-yield selloff



Source - RBC Wealth Management, Bloomberg; data through 11/15/17

- **The recent weakness in the high-yield market has paid off** for investors who upgraded quality earlier this year, and we continue to think this is a strategy that can improve relative performance for Canadian fixed income investors. The **move higher in rates** since early June means that high-quality credit has been paying progressively higher yields and, despite the recent selloff in lower-rated bonds, the yield pick-up to own a riskier bond remains near the lowest level in nearly a decade. One of the easiest trades investors can look at to **upgrade quality** is actually in their government bond holdings, where lower-rated provincial bonds can be swapped into higher-rated federal bonds.
- The **TSX Preferred Share Index** rose to a fresh **year-to-date high** during the week, and is trading at its **highest level since July 2015**. The preferred share market has been resilient despite an 8 basis point decline in the 5-year Government of Canada yield over the past month. We continue to favour a mix of heavily discounted rate resets, perpetual issues, and rate resets with large reset spreads.



Europe

Frédérique Carrier & Thomas McGarrity – London

- **The STOXX Europe 600 Index was down some 2% during the week, as investors looked to lock in gains** after a strong performance year to date. This profit-taking streak has been the longest since autumn 2016, and **mining and energy in particular bore the brunt of the move**, as they responded to weaker-than-expected growth in China and lower energy prices, respectively.

- **Equities also took their cue from fixed income where high-yield spreads backed up.** In Europe, we had highlighted for a while that high-yield spreads did not reflect underlying risk. The recent widening of high-yield spreads has made valuations slightly more attractive; however, these spreads remain at historically tight levels.
- **Good macroeconomic news continued to roll in from Europe,** with German Q3 GDP exceeding consensus expectations at 0.8% q/q and 2.8% y/y, while in Italy GDP reached 0.5% q/q and 1.8% y/y. In both instances, these annual growth levels have not been seen since 2011. **Overall eurozone Q3 GDP rose 2.5% y/y,** with inflation stable at 1.4% y/y in October.
- **In the U.K., the September unemployment rate held steady at 4.3%,** the lowest level in more than 40 years. Average weekly earnings remained relatively subdued at 2.2% y/y. **RBC economists pointed to an actual fall in employment in the three months to September relative to the previous three months.** 14,000 jobs were lost in Q3, the worst loss since 2015. While they caution against reading too much into one data point, it is, nevertheless, **something to watch carefully.**
- The U.K. Consumer Price Index came in slightly below consensus expectations and core annual inflation remained stable at 2.7% y/y, a level that has been maintained for three consecutive months. Clients who follow **housing prices in the U.K.** will have noticed that the Rightmove House Price Index suggests a **1.8% y/y increase in November at the national level, but a 2.4% y/y fall in London,** the third consecutive month prices have fallen.



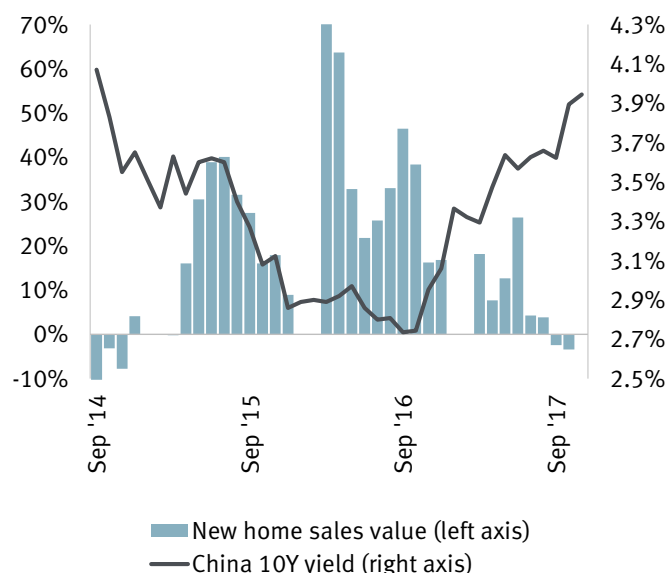
Asia Pacific

Jay Roberts – Hong Kong

- **Chinese markets wobbled in midweek on concerns of deleveraging** in the country, with the 10-year government bond yield going over 4% for the first time in three years. **Ripples were also felt in commodity markets.** Economic data, such as industrial production, was also a little weaker in October. The **value of new home sales** in China in October declined by 3.4% to RMB 909B (\$137B), the **largest drop in nearly three years.** Measures to cool property markets in localities with excessive price appreciation have been in place for quite a while.
- **Any further softness in Chinese economic data** would likely present a **headwind for Asian equities,** which have performed extremely well in 2017.

- **Chinese internet giant Tencent (700 HK)** posted yet another set of quarterly **results that beat expectations.** Tencent, which dominates in China in areas such as messaging, social networking, and online gaming, posted Q3 revenue growth of 61% y/y to RMB 65.2B (\$9.83B), above forecast and boosted by the extremely popular game Honour of Kings. Net income of RMB 18B (\$2.71B) rose by 69% y/y (forecast: RMB 15.8B). The stock gained 2.3% in Hong Kong. **The relatively small gain in the stock in spite of the supercharged growth rates is a reflection of the fact that it had already doubled in value in 2017** to become one of the world's largest internet companies by market capitalization.
- The **stock of AIA Group (1299 HK),** one of Asia's largest life insurance companies, **jumped higher** in Hong Kong on news that **China will relax the limits on foreign ownership in various areas of financial services.** For life insurance companies, the ownership limit of foreign companies in China will be lifted to 51% from 50% in three years, thereby giving foreign firms the potential to have a controlling interest. The restriction will be entirely lifted after five years. No such foreign ownership limit is in place for foreign non-life insurance companies operating in China. Ironically, AIA Group is the only foreign life insurance company that is currently allowed to wholly own its China unit as a result of negotiations when China joined the WTO in 2001.

Government intervention and rising yields cool Chinese housing market



Source - RBC Wealth Management, Bloomberg; data through 11/16/17



MARKET SCORECARD

Data as of November 16, 2017

Equities (local currency)	Level	MTD	YTD	1 yr	2 yr
S&P 500	2,585.64	0.4%	15.5%	18.8%	25.9%
Dow Industrials (DJIA)	23,458.36	0.3%	18.7%	24.3%	34.2%
NASDAQ	6,793.29	1.0%	26.2%	28.3%	36.3%
Russell 2000	1,486.88	-1.1%	9.6%	14.2%	28.6%
S&P/TSX Comp	15,935.37	-0.6%	4.2%	8.2%	19.7%
FTSE All-Share	4,056.40	-1.5%	4.7%	10.4%	20.0%
STOXX Europe 600	384.93	-2.6%	6.5%	13.7%	3.9%
EURO STOXX 50	3,564.80	-3.0%	8.3%	17.8%	6.0%
Hang Seng	29,018.76	2.7%	31.9%	30.2%	31.8%
Shanghai Comp	3,399.25	0.2%	9.5%	6.1%	-5.8%
Nikkei 225	22,351.12	1.5%	16.9%	25.1%	15.2%
India Sensex	33,106.82	-0.3%	24.3%	25.9%	28.5%
Singapore Straits Times	3,341.30	-1.0%	16.0%	19.6%	14.6%
Brazil Ibovespa	72,511.79	-2.4%	20.4%	19.3%	54.8%
Mexican Bolsa IPC	47,747.69	-1.8%	4.6%	6.3%	9.5%

Commodities (USD)	Price	MTD	YTD	1 yr	2 yr
Gold (spot \$/oz)	1,278.58	0.6%	11.0%	4.4%	18.1%
Silver (spot \$/oz)	17.08	2.2%	7.3%	0.6%	19.9%
Copper (\$/metric ton)	6,736.25	-1.2%	22.0%	24.2%	43.5%
Oil (WTI spot/bbl)	55.14	1.4%	2.6%	21.0%	32.1%
Oil (Brent spot/bbl)	61.36	0.0%	8.0%	31.6%	37.7%
Natural Gas (\$/mmBtu)	3.08	6.2%	-17.4%	11.3%	29.0%

Govt bonds (bps chg)	Yield	MTD	YTD	1 yr	2 yr
U.S. 10-Yr Tsy	2.372%	-0.8	-7.3	14.9	10.4
Canada 10-Yr	1.972%	2.1	25.1	46.5	32.2
U.K. 10-Yr	1.309%	-2.3	7.0	-7.4	-63.0
Germany 10-Yr	0.376%	1.3	16.8	7.9	-15.4

Fixed Income (returns)	Yield	MTD	YTD	1 yr	2 yr
U.S. Aggregate	2.64%	0.1%	3.3%	2.8%	6.0%
U.S. Invest Grade Corp	3.25%	-0.3%	5.3%	5.3%	11.5%
U.S. High Yield Corp	5.97%	-1.3%	6.0%	8.9%	20.7%

Currencies	Rate	MTD	YTD	1 yr	2 yr
U.S. Dollar Index	93.9070	-0.7%	-8.1%	-6.5%	-5.6%
CAD/USD	0.7840	1.1%	5.4%	5.4%	4.5%
USD/CAD	1.2756	-1.0%	-5.1%	-5.1%	-4.3%
EUR/USD	1.1771	1.1%	11.9%	10.1%	10.2%
GBP/USD	1.3193	-0.7%	6.9%	6.0%	-13.2%
AUD/USD	0.7590	-0.9%	5.3%	1.5%	7.0%
USD/JPY	113.0300	-0.5%	-3.4%	3.6%	-8.2%
EUR/JPY	133.0600	0.5%	8.2%	14.1%	1.1%
EUR/GBP	0.8922	1.8%	4.5%	3.8%	26.9%
EUR/CHF	1.1700	0.7%	9.1%	9.2%	8.4%
USD/SGD	1.3562	-0.5%	-6.3%	-4.2%	-4.7%
USD/CNY	6.6303	-0.1%	-4.5%	-3.6%	4.1%
USD/MXN	19.0470	-0.5%	-8.1%	-5.7%	13.6%
USD/BRL	3.2775	0.2%	0.7%	-4.3%	-14.2%

Source - Bloomberg. Note: Equity returns do not include dividends, except for the German DAX and 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 8:36 pm GMT 11/16/17.

Examples of how to interpret currency data: CAD/USD 0.78 means 1 Canadian dollar will buy 0.78 U.S. dollar. CAD/USD 5.4% return means the Canadian dollar rose 5.4% vs. the U.S. dollar year to date. USD/JPY 113.03 means 1 U.S. dollar will buy 113.03 yen. USD/JPY -3.4% return means the U.S. dollar fell 3.4% vs. the yen year to date.

Authors

Tom Garretson, CFA – Minneapolis, United States

tom.garretson@rbc.com; RBC Capital Markets, LLC

Bill Kuehn – Minneapolis, United States

william.kuehn@rbc.com; RBC Capital Markets, LLC

Sam Renikoff – Minneapolis, United States

sam.renikoff@rbc.com; RBC Capital Markets, LLC

Diana Di Luca – Toronto, Canada

diana.diluca@rbc.com; RBC Dominion Securities Inc.

Frédérique Carrier – London, United Kingdom

frederique.carrier@rbc.com; Royal Bank of Canada Investment Management (U.K.) Ltd.

Thomas McGarrity, CFA – London, United Kingdom

thomas.mcgarritty@rbc.com; Royal Bank of Canada Investment Management (U.K.) Ltd.

Jay Roberts – Hong Kong, China

jay.roberts@rbc.com; RBC Dominion Securities Inc.

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: Diana Di Luca and Jay Roberts, employees of RBC Wealth Management USA's foreign affiliate RBC Dominion Securities Inc.; and Frédérique Carrier and Thomas McGarrity, employees of RBC Wealth Management USA's foreign affiliate Royal Bank of Canada Investment Management (U.K.) Limited; 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 <http://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), and former lists called the Guided Portfolio: Large Cap (RL 7), the Guided Portfolio: Midcap 111 (RL 9), and the Guided Portfolio: Global Equity (U.S.) (RL 11). 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 (TP)/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 (as described below).

Rating	Count	Percent	Investment Banking Services Provided During Past 12 Months	
			Count	Percent
Buy [Top Pick & Outperform]	859	52.92	294	34.23
Hold [Sector Perform]	660	40.67	154	23.33
Sell [Underperform]	104	6.41	7	6.73

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. Although RBC Capital Markets, LLC ratings of Top Pick (TP)/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 (as described below).

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.

Risk Rating:

As of March 31, 2013, RBC Capital Markets, LLC suspends its Average and Above Average risk ratings. 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 received 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 the member companies 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 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 Web site at <http://www.rbccm.com/GLDisclosure/PublicWeb/DisclosureLookup.aspx?EntityID=2>. Conflicts of interests related to our investment advisory business can be found in Part II of the Firm's Form ADV or the Investment Advisor Group 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 II of the ADV, or 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; and by Royal Bank of Canada Investment Management (U.K.) Limited, an investment management company 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 or consequential loss arising from 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 consent of Royal Bank of Canada. 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 Royal Bank of Canada Investment Management (U.K.) Limited and RBC Investment Solutions (CI) Limited. Royal Bank of Canada Investment Management (U.K.) Limited is authorised and regulated by the Financial Conduct Authority (Reference number: 146504). Registered office: Riverbank House, 2 Swan Lane, London, EC4R 3BF, 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. Financial Services provided to Australia: Financial services may be provided in Australia in accordance with applicable law. Financial services provided by the Royal Bank of Canada, Hong Kong Branch are provided pursuant to the Royal Bank of Canada's Australian Financial Services Licence ('AFSL') (No. 246521).

To Singapore Residents: This publication is distributed in Singapore by the Royal Bank of Canada, Singapore Branch, a registered entity granted offshore bank licence 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.

© RBC Capital Markets, LLC 2017 - Member NYSE/FINRA/SIPC

© RBC Dominion Securities Inc. 2017 - Member Canadian Investor Protection Fund

© RBC Europe Limited 2017

© Royal Bank of Canada 2017

All rights reserved

RBC1253