July 20, 2017

RBC WEALTH MANAGEMENT

# Global Insight Weekly

A closer look

## That was then, this is now

Kelly Bogdanov – San Francisco

**The U.S. Tech sector's new record high has brought back memories of the dot-com bubble. But unlike then, today's Tech sector is not propped up by fanciful talk. It's led by companies that are truly transforming the economy and our lives, and we believe Tech should be a source of attractive long-term returns.**

The S&P 500 Tech sector finally reached a new all-time high, 17 years after the bubble-era peak. Even though the sector could use a rest following a strong 11.7% run since mid-April, we still believe it can generate attractive long-term returns.

### Tech support

A lot has changed for the Tech sector since the bubble days.

The hopes and dreams that seemed dashed as the bubble was bursting are now playing out. The internet has indeed transformed our lives. Roughly 85% of the U.S. workforce is constantly or often connected to the internet during a typical workday. We imagine the numbers are similar in other developed nations.

The software industry has largely transformed into the cloud computing industry. Computer chips are passé—now chips for the Internet of Things, artificial intelligence, and self-driving cars are all the rage.

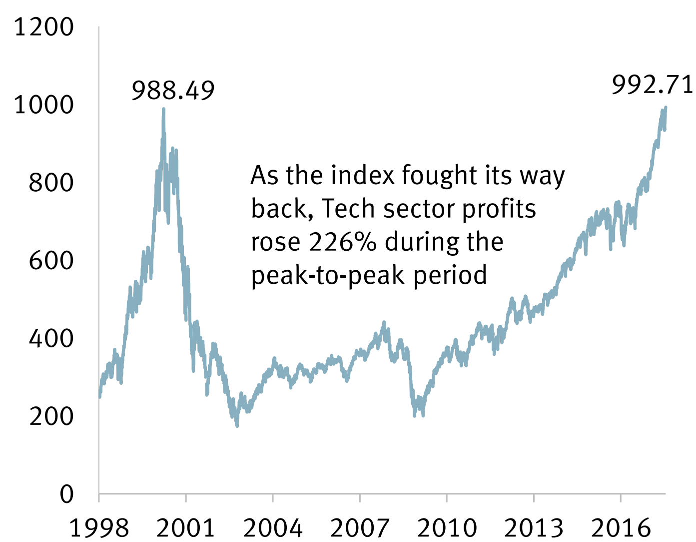
The sector is now led by real companies with real earnings and cash flows compared to the myriad of firms with hollow balance sheets and never-ending losses that used to capture imaginations.

Tech sector earnings per share have increased 226% since the previous bubble-era peak. The five S&P 500 companies with the biggest cash hoards are tech firms. They hold more than $570B total in cash.

Companies that weren't even listed on public exchanges during the bubble era are now among the largest and most innovative tech firms, including Alphabet (Google), Facebook, PayPal, and Salesforce.com.

**17 years later, U.S. Tech closes at an all-time high**

S&P 500 Information Technology Sector Index




Source - RBC Wealth Management, Bloomberg; data through 7/20/17

### Market pulse

3 The U.S. stock market's unnoticed catalyst

3 Canadian housing market cooling off

3 Takeaways from the surprise drop in U.K. inflation

4 Signs of steadiness in the Chinese economy

Click here for authors' contact information.

Priced (in USD) as of 7/20/17 market close, EST (unless otherwise stated).

**For important disclosures and required non-U.S. analyst disclosures, see page 6.**

Leadership is also coming from companies that were public back then but have since reinvented their products and services, such as Adobe Systems, Analog Devices, Apple, Microsoft, and NVIDIA, just to name a handful.

The U.S. is the home of eight of the 10 largest tech firms worldwide by market capitalization. U.S.-based firms garnered 66% of the revenues in the past 12 months among the largest 100 tech companies globally.

## Not over the top

While the industry's transformation has been nothing short of remarkable, ushering in a secular (long-term) growth phase that is impacting many segments of the global economy, there is another key difference between then and now that cannot be overlooked from an investment standpoint: valuation.

The Tech sector was wildly overvalued at 83x trailing and 60x forward earnings during the bubble era. Today, while its valuations are elevated, they are nowhere near those levels, registering at 24.6x trailing and 19.4x forward estimates (see upper chart). From our vantage point, the current price-to-earnings (P/E) ratios are reasonable considering the economy remains locked in an ultralow interest rate environment, which can accommodate moderately elevated valuations, and given we view the quality of earnings and balance sheets as high.

The ratio between the forward P/Es of the Tech sector and the S&P 500 currently stands at 1.02, below the average level since 2004. Meanwhile, Tech is forecast to moderately outgrow the S&P 500 in 2017 and 2018, according to the Thomson Reuters I/B/E/S consensus data.

Despite its strong year-to-date rally, Tech's free cash flow yield—a measure of expected return—exceeds the S&P 500 and seven of 10 other sectors.

Furthermore, Tech is now on the dividend radar screen. The sector's dividend yield has risen to 1.29% from only 0.09% at the bubble's peak.

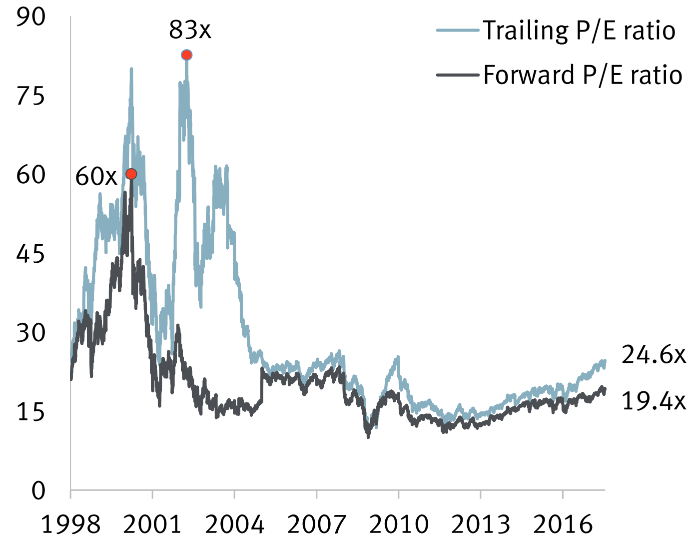
We think the sector's dividend yield expansion has much further to go, as some of the more mature companies with sizeable cash holdings have capacity to increase dividends, especially if overseas cash is repatriated as a part of a tax reform package. Among the five tech firms with the biggest cash holdings, roughly 85% of the cash is held overseas.

## Tech solution

Despite the potential near-term headwinds following Tech's strong run, innovation trends combined with reasonable valuations and attractive secular growth prospects are compelling reasons to own the U.S. Tech sector in equity portfolios. We believe the innovation wave has the sector well positioned to help lead the S&P 500 in the next year or longer.

### Tech valuations have drifted up but are nowhere near peak levels

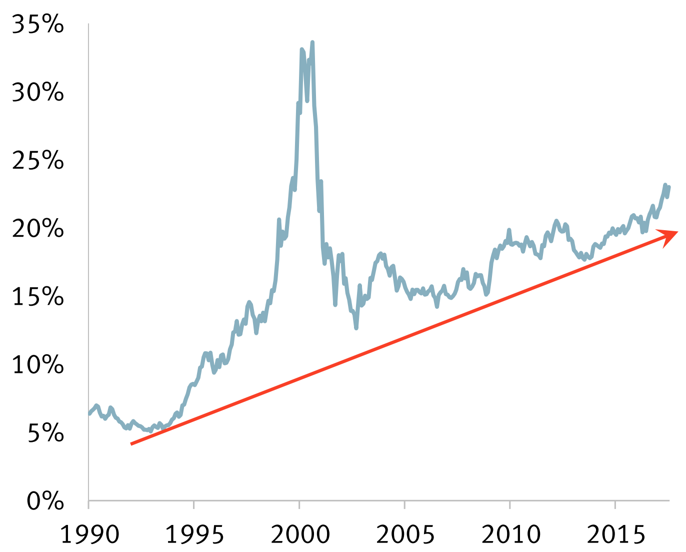
Tech sector price-to-earnings (P/E) ratios




Source - RBC Wealth Management, Bloomberg; data through 7/19/17

### Tech makes up 23% of the S&P 500, well below bubble levels

Tech sector as a percentage of S&P 500 market capitalization




Source - RBC Wealth Management, Bloomberg; monthly data through 7/18/17

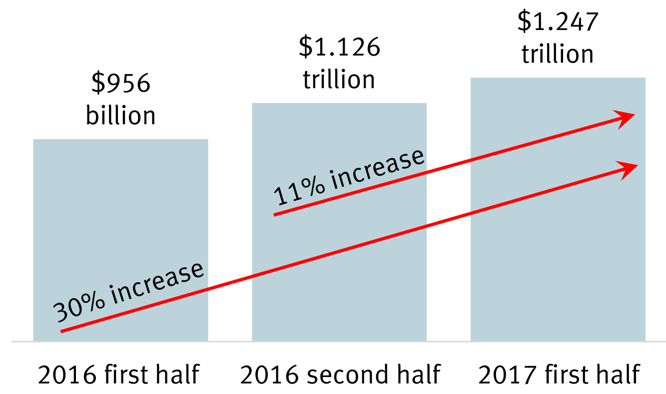
## United States

Kelly Bogdanov – San Francisco

- The equity market continued its winning ways with the **S&P 500, Dow, and NASDAQ** climbing to **new all-time highs** during the week. Solid corporate earnings reports helped boost the market.
- **One catalyst that has largely gone unnoticed is improved M&A activity** during the first half of this year, up 11% since last period and 30% y/y (see chart). We believe domestic M&A will remain healthy so long as U.S. GDP averages 2% or more and the global economy continues to firm. In our view, the **retail and packaged goods industries are candidates for consolidation** given the pricing and volume challenges caused by technological innovations and customers' changing purchasing patterns—i.e., the "Amazon effect." Further out, RBC Capital Markets anticipates deals will transpire in the **banking industry**, potentially in late 2018 and into early 2019. Banks will likely seek to improve profitability and acquire deposit franchises as the Fed unwinds its balance sheet.

M&A has increased despite Washington uncertainties

U.S. merger and acquisition volume




Source - RBC Wealth Management, Bloomberg; data as of 7/18/17

## Canada

Alicia Buckiewicz & Farazeh Mahboob – Toronto

- Data released this month showed that the **Canadian housing market has cooled** since April. The Canadian Real Estate Association reported that **home sales fell 6.7% in June**, which is the **sharpest monthly decline since 2010**. Sales declined 11.4% y/y nationwide, with the decline most pronounced in Toronto. Nationally, price action was also negative, with prices down approximately 10% from the April peak. **Excluding Toronto and Vancouver, the picture is brighter**, with prices still up 5% y/y and monthly price gains recorded in Alberta, Manitoba, New Brunswick, and Prince Edward Island. The recent run of softer housing data comes against a backdrop of tighter policy on a number of fronts, including the newly introduced measures in Ontario designed to ease affordability pressures in the Greater Toronto Area.
- **RBC Capital Markets' energy team has cut its WTI crude forecasts** to annual average prices of $48.47/barrel (bbl) in 2017 (from $54.50/bbl) and $50/bbl in 2018 (from $60/bbl). U.S. oil supply growth forecasts, while down from previous expectations, remain robust while RBC Capital Markets expected shallower global inventory draws despite OPEC's agreement to cap production. RBC Capital Markets believes it is likely that OPEC will extend its existing agreement beyond March 31, 2018 with its next meeting slated for November 30. **The most important factor underlying a sustained oil price recovery revolves around long cycle-time projects beginning to fade**, which RBC Capital Markets anticipates in 2019.
- In light of the lower crude oil forecasts, **RBC Capital Markets' energy team lowered its cash flow per share estimates for its Canadian integrated and senior producer coverage universe** by 17% and 22% on average in 2017 and 2018, respectively. RBC Capital Markets' updated forecasts align with our more cautious outlook for crude oil. In the current environment, **we continue to favour well-capitalized producers with visible production growth and above-average execution capability**.

## Europe

Frédérique Carrier & Thomas McGarrity – London

- As expected, the **European Central Bank** (ECB) kept its **policy unchanged** at its July meeting. The euro continued to strengthen versus the U.S. dollar (see chart on next page), crossing above $1.16 for the first time since May 2016, as **ECB President Mario Draghi did not suggest the euro's recent strength was becoming uncomfortable** for policymakers. We expect the ECB to discuss some sort of changes to its monetary policy at its next meeting in September. RBC Capital Markets still sees the ECB extending its bond-buying program into the middle of next year but with purchases tapered to reflect the improvement in the euro area economy and the scarcity of government bonds available.
- There was a **surprise drop in U.K. inflation** in June. The Consumer Price Index eased to 2.6% y/y, from 2.9% y/y in May, and versus consensus expectations for it to remain flat. Key drivers of the decline were lower prices for fuel and the "recreation and culture" component of the inflation

basket. RBC Capital Markets believes June was a blip, and inflation in the U.K. will continue to head towards 3% y/y. We believe the dip in inflation has **diminished the chances of increasing hawkish sentiment** from the Bank of England's Monetary Policy Committee at its August meeting, with the **key focus shifting back to the downside risks to the U.K. economy**, rather than trying to counter a bout of above-target inflation.

- Swiss pharmaceutical group **Novartis beat consensus earnings estimates** by 3% for Q2. The company benefitted from **higher-than-expected sales from recently launched drugs**, which helped offset the impact of the ongoing decline of Gleevec, formerly Novartis' best-selling drug, which is now exposed to generic competition.
- **SAP**, the largest European software vendor, **nudged up its revenue guidance** for 2017 and announced a **€500M share buyback**. Operating profit was slightly below consensus expectations, however, as ongoing investments in its cloud business and increased hiring weighed on its operating margin.
- **Unilever's operating profit** for the first half of 2017 **beat consensus estimates** by 5%, as its **operating margin increased** 180 basis points to 17.8%, 100 basis points ahead of expectations. After rejecting Kraft Heinz's takeover bid earlier in 2017, Unilever set a target to achieve a 20% operating margin by 2020.

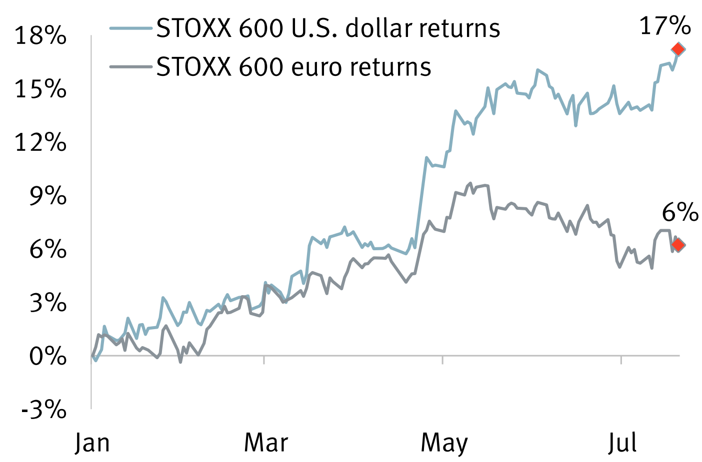
## Asia Pacific

Jay Roberts – Hong Kong

- China's economy grew by 6.9% y/y in Q2, faster than forecast and the same pace as in Q1. **A broad range of economic indicators corroborate the steadiness at present in the Chinese economy**. Primarily, these include both official and unofficial leading indicators, which range from moderately positive in the manufacturing sector to robust in the larger services sector.
- At present, the **Chinese economy is performing above expectations**, in our view. A number of data points for the month of June, for example, show decent strength in the economy. These include: **industrial production, +8% y/y; retail sales, +11% y/y; commercial vehicle sales, +19% y/y**; and good data in the housing market.
- **E-commerce in China continues to grow at a far more rapid rate** than the broad economy. The National Bureau of Statistics stated that online retail sales in the first half of the year rose by 33% y/y. This growth is corroborated by strong revenue growth in China's largest internet companies, as well as by the number of packages delivered, heavily impacted by online sales. Deliveries rose by 31% y/y in June.

**A strengthening euro is the key driver of diverging investor returns in Europe**

STOXX Europe 600 returns, year to date




Source - RBC Wealth Management, Bloomberg; data through 7/20/17

- At the same time, the **authorities in China continue to tighten leverage in the financial sector**. It appears that as a result of recent, tighter policies, causing a funding squeeze for banks, some banks had pushed up yields on popular wealth management products in order to attract funds. The regulator has responded by ordering certain banks to lower the rates on these products.
- The stabilizing renminbi, along with more stringent controls on capital flows, has caused **capital outflows** from China to **decline significantly** from the very high levels seen at the start of 2016. China's **FX reserves have been moving up again** over the past few months. In parallel, the country's **holdings of U.S. Treasuries have also been rising**, up for a fourth consecutive month in May, according to the U.S. Treasury Department.
- China now holds $1.1T of U.S. government debt, slightly lower than Japan's holdings of $1.11T. A total of $6.1T of U.S. debt is held by foreigners, of which $4T is held by governments. This means that **China and Japan hold approximately one-third of all foreign holdings of U.S. Treasuries** and over a half of foreign government holdings of Treasuries.
- **Ping An Insurance** (2318 HK), the **second-largest insurance company in China**, is moving into **wealth and asset management outside Greater China for the first time**. Ping An's Lufax division will begin operating in Singapore with a focus on global clients rather than Singapore residents. Lufax manages $65B of client assets in China. The stock has been particularly strong this year, rising by over 50% in Hong Kong. Other Chinese companies, such as Alibaba (BABA), have also been expanding into other parts of Asia.

## MARKET SCORECARD

### Data as of July 20, 2017

| Equities (local currency) | Level | MTD | YTD | 1 yr | 2 yr |
|---|---|---|---|---|---|
| S&P 500 | 2,473.45 | 2.1% | 10.5% | 13.8% | 16.2% |
| Dow Industrials (DJIA) | 21,611.78 | 1.2% | 9.4% | 16.2% | 19.4% |
| NASDAQ | 6,390.00 | 4.1% | 18.7% | 25.5% | 22.4% |
| Russell 2000 | 1,442.35 | 1.9% | 6.3% | 19.2% | 14.5% |
| S&P/TSX Comp | 15,264.64 | 0.5% | -0.2% | 5.0% | 5.8% |
| FTSE All-Share | 4,095.07 | 2.3% | 5.7% | 12.4% | 10.8% |
| STOXX Europe 600 | 384.07 | 1.2% | 6.3% | 12.7% | -5.6% |
| EURO STOXX 50 | 3,499.49 | 1.7% | 6.4% | 17.9% | -5.1% |
| Hang Seng | 26,740.21 | 3.8% | 21.5% | 22.2% | 5.3% |
| Shanghai Comp | 3,244.87 | 1.6% | 4.6% | 7.2% | -18.7% |
| Nikkei 225 | 20,144.59 | 0.6% | 5.4% | 20.8% | -2.5% |
| India Sensex | 31,904.40 | 3.2% | 19.8% | 14.3% | 12.3% |
| Singapore Straits Times | 3,293.13 | 2.1% | 14.3% | 11.8% | -2.4% |
| Brazil Ibovespa | 64,938.02 | 3.2% | 7.8% | 14.8% | 25.8% |
| Mexican Bolsa IPC | 51,151.59 | 2.6% | 12.1% | 7.7% | 12.3% |

| Commodities (USD) | Price | MTD | YTD | 1 yr | 2 yr |
|---|---|---|---|---|---|
| Gold (spot $/oz) | 1,243.91 | 0.2% | 8.0% | -5.5% | 13.4% |
| Silver (spot $/oz) | 16.33 | -1.8% | 2.6% | -15.9% | 11.0% |
| Copper ($/metric ton) | 5,929.50 | 0.0% | 7.4% | 19.7% | 8.6% |
| Oil (WTI spot/bbl) | 46.79 | 1.6% | -12.9% | 4.1% | -6.7% |
| Oil (Brent spot/bbl) | 49.31 | 2.9% | -13.2% | 4.5% | -13.0% |
| Natural Gas ($/mmBtu) | 3.03 | -0.1% | -18.6% | 14.0% | 7.4% |

| Govt bonds (bps chg) | Yield | MTD | YTD | 1 yr | 2 yr |
|---|---|---|---|---|---|
| U.S. 10-Yr Tsy | 2.259% | -4.5 | -18.5 | 67.9 | -11.3 |
| Canada 10-Yr | 1.883% | 12.1 | 16.2 | 76.0 | 30.5 |
| U.K. 10-Yr | 1.205% | -5.2 | -3.4 | 37.0 | -85.6 |
| Germany 10-Yr | 0.530% | 6.4 | 32.2 | 54.1 | -23.2 |
| **Fixed Income (returns)** | **Yield** | **MTD** | **YTD** | **1 yr** | **2 yr** |
| U.S. Aggregate | 2.51% | 0.4% | 2.7% | 0.0% | 6.2% |
| U.S. Invest Grade Corp | 3.12% | 0.7% | 4.5% | 2.2% | 11.3% |
| U.S. High Yield Corp | 5.48% | 0.8% | 5.7% | 10.3% | 15.6% |

| Currencies | Rate | MTD | YTD | 1 yr | 2 yr |
|---|---|---|---|---|---|
| U.S. Dollar Index | 94.2790 | -1.4% | -7.8% | -3.0% | -3.8% |
| CAD/USD | 0.7945 | 3.0% | 6.8% | 3.7% | 3.2% |
| USD/CAD | 1.2586 | -2.9% | -6.4% | -3.6% | -3.1% |
| EUR/USD | 1.1632 | 1.8% | 10.6% | 5.6% | 7.5% |
| GBP/USD | 1.2973 | -0.4% | 5.1% | -1.8% | -16.6% |
| AUD/USD | 0.7959 | 3.5% | 10.4% | 6.4% | 8.0% |
| USD/JPY | 111.9000 | -0.4% | -4.3% | 4.7% | -10.0% |
| EUR/JPY | 130.1600 | 1.4% | 5.8% | 10.6% | -3.2% |
| EUR/GBP | 0.8966 | 2.2% | 5.0% | 7.5% | 28.9% |
| EUR/CHF | 1.1066 | 1.1% | 3.2% | 1.8% | 6.0% |
| USD/SGD | 1.3664 | -0.7% | -5.6% | 0.7% | -0.3% |
| USD/CNY | 6.7597 | -0.3% | -2.7% | 1.2% | 8.9% |
| USD/MXN | 17.4969 | -3.4% | -15.6% | -6.3% | 9.3% |
| USD/BRL | 3.1241 | -5.6% | -4.0% | -4.2% | -2.2% |

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 8:34 pm GMT 7/20/17.

Examples of how to interpret currency data: CAD/USD 0.78 means 1 Canadian dollar will buy 0.78 U.S. dollar. CAD/USD 5.6% return means the Canadian dollar rose 5.6% vs. the U.S. dollar year to date. USD/JPY 113.25 means 1 U.S. dollar will buy 113.25 yen. USD/JPY -3.2% return means the U.S. dollar fell 3.2% vs. the yen year to date.

## UPCOMING EVENTS

**Fri, Jul 21**
- ECB Survey of Prof. Forecasters
- U.S. Markit Manuf. PMI
- U.S. Markit Serv./Comp. PMI
- U.S. Existing-Home Sales (5.5M, -1.4% m/m)
- Canada CPI (1.1% y/y)
- Canada Retail Sales (0.3% m/m)

**Sun, Jul 23**
- Japan Nikkei Manuf. PMI (52.4)

**Mon, Jul 24**
- China Conf. Board Leading Eco. Index
- Eurozone Markit Manuf. PMI
- Eurozone Markit Serv./Comp. PMI
- Germany Markit Manuf. PMI
- Germany Markit Serv./Comp. PMI

**Tue, Jul 25**
- Germany IFO Surveys
- U.S. Conf. Board Consumer Confidence

**Wed, Jul 26**
- China Swift Global Payments
- China Industrial Profits
- U.K. Q2 GDP (0.3% q/q, 1.7% y/y)
- U.K. Index of Services
- Fed Meeting
- U.S. New Home Sales (616K)

**Thu, Jul 27**
- Japan CPI
- Japan Retail Sales

**Thu, Jul 27, cont.**
- Germany Consumer Confidence
- Germany Retail Sales
- U.S. Durable and Capital Goods
- U.S. Chicago Fed Nat'l Activity

**Fri, Jul 28**
- U.S. Q2 GDP (2.6% q/q, annl'zd)
- U.S. Core PCE

**Thu, Aug 3**
- BoE Meeting

The dates reflect North American time zones. All data reflect Bloomberg consensus forecasts where available.

## Authors

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

Alicia Buckiewicz, CFA – Toronto, Canada
alicia.buckiewicz@rbc.com; RBC Dominion Securities Inc.

Farazeh Mahboob – Toronto, Canada
farazeh.mahboob@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.mcgarrity@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: Alicia Buckiewicz, Farazeh Mahboob, 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).

Distribution of Ratings - RBC Capital Markets, LLC Equity Research
As of June 30, 2017

| | | | Investment Banking Services Provided During Past 12 Months | |
|---|---|---|---|---|
| Rating | Count | Percent | Count | Percent |
| Buy [Top Pick & Outperform] | 826 | 52.01 | 293 | 35.47 |
| Hold [Sector Perform] | 657 | 41.37 | 144 | 21.92 |
| Sell [Underperform] | 105 | 6.61 | 7 | 6.67 |

### 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.

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 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'), RBC Investment Services (Asia) Limited and RBC Investment Management (Asia) Limited, both entities are 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.