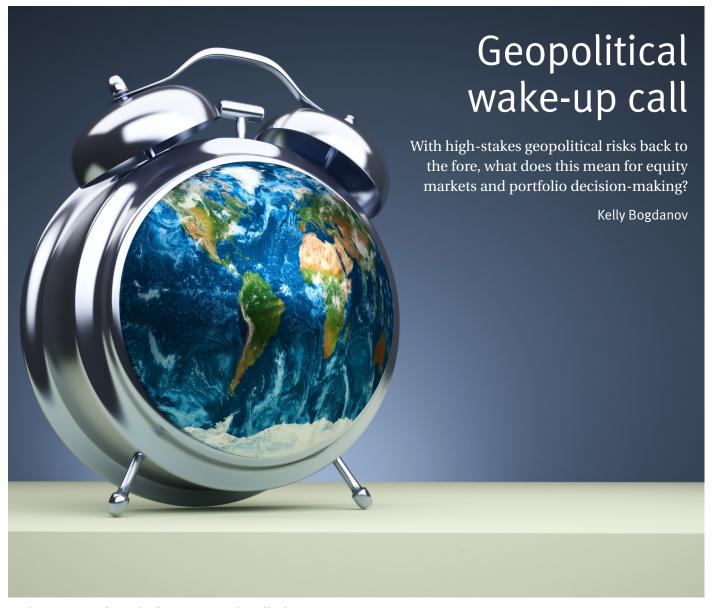
Global Insight Focus Article



For important and required non-U.S. analyst disclosures, see page 7

All values in U.S. dollars and priced as of August 31, 2017, market close, unless otherwise noted.





Kelly Bogdanov San Francisco, United States kelly.bogdanov@rbc.com

Markets are facing a simmering geopolitical pot as the U.S. and North Korea ramped up the rhetorical brinksmanship this summer. We revisit how equites reacted to past geopolitical crises, and discuss how to factor a wide range of outcomes into portfolio decisions if the showdown escalates into something more ominous.

After a multiyear hiatus, geopolitical risks are back on the table amid aggressive rhetoric between North Korea and the U.S. along with related missile tests and fresh economic sanctions.

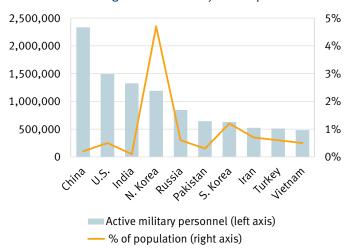
Factoring this or any credible geopolitical threat into investment decisions can be challenging given the wide range of potential outcomes, some with high stakes.

Add to that, there is an unpredictable, young leader on one side squaring off with an unpredictable, new president on the other side who campaigned on a non-interventionist foreign policy platform but is increasingly making interventionist moves in multiple regions of the world. Then there are the vital interests of South Korea along with the roles of neighboring China, Russia, and Japan.

The North Korea situation comes at a time when equity markets are sitting just beneath all-time highs and the global economy and corporate earnings continue to show signs of buoyancy. In other words, markets have good reasons to look past the geopolitical risks, as long as they don't escalate to a dangerous level.

We examine how previous geopolitical incidents impacted equities, highlight the proverbial "canaries in the coal mine" related to North Korea, and discuss rules of thumb about factoring geopolitical risks into portfolio decision-making.

The world's 10 largest militaries by active personnel



North Korea has one of the world's largest militaries, and the biggest force as a % of population.

Source - RBC Capital Markets, RBC Wealth Management, World Bank, OECD

Historically, equity markets have reacted to military clashes in a more muted manner than one may think.

Tension and release

Historically, equity markets have reacted to military clashes in a more muted manner than one may think.

The S&P 500 fell 6.3%, on average, in 17 post-WWII military conflicts listed in the table below. The market's reaction lasted an average of only 30 days. At times equities weakened during the run-up to the conflict as tensions were mounting, and recovered soon after it began.

But like any small sample size, there were notable deviations. Markets were not immune from volatility and losses. Some events sparked 10%+ corrections and negatively impacted the economy.

For example, the S&P 500 dropped 15% when the U.S. bombed Cambodia during the Vietnam War, and it declined 16% when Iraq invaded Kuwait. The 9/11 terrorist attacks brought about a decline of almost 12%. Each of these events occurred

S&P 500 responses to select acts of war and terrorism since WWII

		# trading	# trading # trading		
		days to	% change	days back	
Events	Start date	trough	to trough	to even	
Acts of war		<u> </u>	<u> </u>		
U.S.					
U-2 spy shot down; cover unwound	May 7, 1960	2	-0.6%	4	
Bay of Pigs invasion	Apr 15, 1961	6	-3.0%	14	
Cuban Missile Crisis	Oct 16, 1962	6	-6.3%	13	
Gulf of Tonkin incident (Vietnam)	Aug 2, 1964	4	-2.2%	29	
Tet Offensive (Vietnam)	Jan 29, 1968	25	-6.0%	46	
Cambodian Campaign (Vietnam)	May 1, 1970	18	-14.9%	86	
U.S. invades Grenada	Oct 25, 1983	11	-2.8%	15	
Lead-up to U.S. Panama invasion	Dec 15, 1989	2	-2.2%	8	
Lead-up to Gulf War: Desert Storm	Jan 1, 1991	6	-5.7%	13	
U.S. spy plane captured in China	Apr 1, 2001	3	-4.9%	7	
War in Afghanistan	Oct 7, 2001	1	-0.8%	3	
Lead-up to Iraq War	Feb 5, 2003	24	-5.6%	28	
External					
N. Korea invades S. Korea	Jun 25, 1950	15	-12.9%	56	
Lead-up to Six-Day War (June 6)	May 14, 1967	15	-5.6%	20	
Yom Kippur War / Arab oil embargo	Oct 6, 1973	42	-16.1%	6 years*	
Soviet-Afghan War	Dec 24, 1979	7	-2.3%	10	
Iraq invades Kuwait / oilfields seized	Aug 2, 1990	50	-15.9%	131	
Average		14	-6.3%	30	
Terrorism					
U.S. Embassy seized in Iran	Nov 4, 1979	3	-1.0%	6	
U.S. Marines killed in Lebanon	Oct 23, 1983	12	-2.5%	15	
Oklahoma City bombing	Apr 19, 1995	1	-0.1%	3	
U.S. Embassy bombings in Africa	Aug 7, 1998	5	-2.5%	7	
WTC, Pentagon, airplane attacks	Sep 11, 2001	5	-11.6%	19	
Madrid train bombings	Mar 11, 2004	3	-1.7%	5	
London Underground bombings	Jul 7, 2005	no S&I	no S&P decline; FTSE -1.4%		
Paris Bataclan, restaurant attacks	Nov 13, 2015	1	-1.1%	2	
Nice Bastille Day attacks	Jul 14, 2016	1	-0.1%	2	
Average		4	-2.6%	7	

^{*} Other economic and monetary policy factors negatively influenced the number of days it took the market to get back to even; this is not counted in the average number of trading days back to even.

Source - RBC Wealth Management, RBC Global Asset Management, Wikipedia, The National Security Archive at George Washington University, U.S. Naval Institute. Data attempts to capture any pre-event impact.

The lesson seems to be that when military aggression or wars are significant on a geopolitical scale, it does not necessarily mean equity markets will automatically sell off sharply. during recessions and likely extended or exacerbated the periods of economic weakness.

It may seem surprising the market did not react more sharply to the Cuban Missile Crisis or the Six-Day War Israel faced given their gravity. The lesson seems to be that when military aggression or wars are significant on a geopolitical scale, it does not necessarily mean equity markets will automatically sell off sharply. Numerous circumstances shape market performance at any given time.

In the case of the Cuban Missile Crisis, the S&P 500 had already plunged 26% months ahead of the confrontation. This "flash crash" had far more to do with extremely high equity valuations, the unwinding of market excesses, and trading mechanics than the prevailing geopolitical strains. The drop may have muted the subsequent selloff during the Cuban Missile Crisis.

It goes without saying that local equity markets could be affected more dramatically by military clashes or a major terrorist attack if the civilian population and infrastructure are seriously impacted.

Stress tests

The canaries in the coal mine of any forthcoming stress on the Korean Peninsula would likely be gold, South Korea's government bond market, and select currencies.

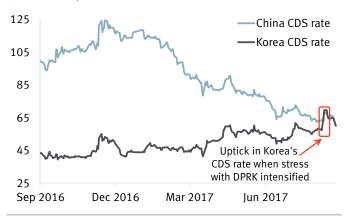
Gold is typically the go-to safe haven when trouble hits. Bullion bounced 5% when North Korea recently tested longer-range missiles and the related rhetoric escalated. If tensions re-emerge gold would likely benefit, but otherwise faces some near-term headwinds (see page 21 for more).

South Korea's bond market is on guard, as the 10-year government yield now trades at a modest yield premium to the comparable U.S. Treasury yield, erasing a long-standing discount. We think the premium would increase if risks of a military conflict flare up again, as South Korea bond yields would likely rise while Treasury yields could fall (and bond prices would do the opposite).

Credit default swap rates are another important risk measure. The cost of insuring 5-year South Korea government bonds against default jumped 22% in just three

Credit default swap (CDS) rates for 5-year sovereigns

(in USD basis points)



The cost to insure Korean and Chinese bonds against default is now roughly the same.

Source - RBC Wealth Management, Bloomberg; data through 8/25/17

As geopolitical events play out, the market ultimately gauges the potential economic implications.

days when the prospect of a North Korea-U.S. military clash increased. By this indicator, the risk of South Korea sovereigns is now nearly equal to that of Chinese government bonds.

Among currencies, South Korea's won qualifies as an obvious canary. It declined 2.7% against the dollar during the recent wave of stress. In contrast, the Swiss franc and Japanese yen are often viewed as safe havens. They rose against the dollar when the verbal confrontation intensified.

What's your comfort level?

More broadly, the North Korea uncertainties raise a pertinent question for equity investors: How should geopolitical risks be factored into portfolio decisions?

The difficulty in budgeting for geopolitical risks is that they are often unquantifiable and include multiple, complex scenarios that can be outside of the market's ability to recognize or grasp. Geopolitical events can occur unexpectedly, such as the 9/11 terrorist attacks. At other times, global markets may overreact like they did when Iraq invaded Kuwait.

In determining equity allocations, investors would be prudent to assume that significant geopolitical risks can crop up from time to time that could push the equity market into a temporary 5%–10% pullback or even a longer-lasting correction of greater magnitude.

If an investor's current allocation to equities cannot be sustained through these types of declines then there may be a mismatch between the equity weighting and liquidity needs, risk tolerance, or time horizon that should be addressed. Funds earmarked for equities should be long-term allocations given the steep swings the equity market can (and usually does) have.

As geopolitical events play out, the market ultimately gauges the potential economic implications. Indicators such as consumer and business confidence, retail sales, and manufacturing activity, along with commodity prices, tend to be the arbiters of whether a geopolitical event will have a transitory or longer-term impact on markets and economies.

Maintenance check

The North Korean flare-up is a reminder that it's always the right time for investors to assess whether their equity exposure is appropriate given their full financial profile and if equity allocations are properly calibrated to match one's liquidity needs, risk tolerance, and time horizon, among other factors.

With or without the escalation of concerns around North Korea our recommendation would argue for leaning against risk by scaling back equity allocations, or sector exposures or individual security positions that may have ballooned during the recent rally. The amplified geopolitical risks underscore this message.

Research resources

This document is produced by the Global Portfolio Advisory Committee within RBC Wealth Management's Portfolio Advisory Group. The RBC Wealth Management 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.

Global Portfolio Advisory Committee members:

Jim Allworth - Co-chair; Investment Strategist, RBC Dominion Securities Inc.

Kelly Bogdanov – Co-chair; Portfolio Analyst, RBC Wealth Management Portfolio Advisory Group – Equities, RBC Capital Markets, LLC

Frédérique Carrier – Co-chair; Managing Director, Head of Investment Strategies, Royal Bank of Canada Investment Management (U.K.) Limited

Mark Bayko, CFA – Head, Portfolio Management, RBC Dominion Securities Inc.

Craig Bishop – Lead Strategist, U.S. Fixed Income Strategies Group, RBC Wealth Management Portfolio Advisory Group, RBC Capital Markets, LLC

Janet Engels - Head of U.S. Equities, RBC Wealth Management Portfolio Advisory Group, RBC Capital Markets, LLC

Tom Garretson, CFA – Fixed Income Portfolio Advisor, RBC Wealth Management Portfolio Advisory Group, RBC Capital Markets, LLC

Christopher Girdler, CFA – Fixed Income Portfolio Advisor, RBC Wealth Management Portfolio Advisory Group, RBC Dominion Securities Inc.

Jack Lodge – Associate, Structured Solutions team, Royal Bank of Canada Investment Management (U.K.) Limited Patrick McAllister, CFA – Canadian Equities Portfolio Advisor, RBC Wealth Management Portfolio Advisory Group – Equities, RBC Dominion Securities Inc.

Jay Roberts – Head of Investment Solutions & Products, RBC Wealth Management Hong Kong, RBC Dominion Securities Inc.

Alan Robinson - Portfolio Analyst, RBC Wealth Management Portfolio Advisory Group - Equities, RBC Capital Markets, LLC

Alastair Whitfield - Head of Fixed Income - British Isles, Royal Bank of Canada Investment Management (U.K.) Limited

The RBC Investment Strategy Committee (RISC) consists of senior investment professionals drawn from individual, client-focused business units within RBC, including the Portfolio Advisory Group. The RISC builds a broad global investment outlook and develops specific guidelines that can be used to manage portfolios. The RISC is chaired by Daniel Chornous, CFA, Chief Investment Officer of RBC Global Asset Management Inc.

Required disclosures

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: Jim Allworth, Mark Bayko, Christopher Girdler, Patrick McAllister, and Jay Roberts, employees of RBC Wealth Management USA's foreign affiliate RBC Dominion Securities Inc.; and Frédérique Carrier, Alastair Whitfield, and Jack Lodge, 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/Disclosure-Lookup.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), 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	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 (0): 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.

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 perfo rmance 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. 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 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.

© 2017 RBC Capital Markets, LLC - Member NYSE/FINRA/SIPC
© 2017 RBC Dominion Securities Inc. - Member Canadian Investor Protection Fund
© 2017 RBC Europe Limited
© 2017 Royal Bank of Canada
All rights reserved
RBC1253