Macro Keys
US Equities: Endgame Approaching?

Global Macro Strategy

Global

Julian Emanuel
Strategist
julian.emanuel@ubs.com
+1-212-713-3845

Omar Elangbawy
Strategist
omar.elangbawy@ubs.com
+1-212-713 3303

Sibi Gnanasundaram
Associate Strategist
sibi.gnanasundaram@ubs.com
+1-212-713 9458

Patrick Buckley, PhD
Associate Strategist
patrick.buckley@ubs.com
+1-212-713 3496

2,611 Days

In our 10/30/15 note Signs of The Top?, we posited that the Bull Market had entered into the "Late Innings", categorized by surging M&A volumes, cyclically higher volatility and imminent Fed rate hike(s). Just this week, the current Bull became the second longest in history, 5 months after a "Fed liftoff" which was followed by the most volatile equity market selloff/recovery sequence in decades. The recent leadership change, into Financials and away from Utilities and Staples is typical as Fed hikes usually signal more growth even as the "endgame" crystallizes (Figure 1). What is "different this time" is that there is no sign of an economic acceleration even as multiples expand. UBS forecasts US GDP in 2016 of 1.5%, below the Fed's inflation measure, Core PCE, UBSe 1.6%. Periods of inflation above growth do not necessarily signal an imminent market downturn, but they have historically rewarded earnings growers over both defensive and cyclical groups (see 4/12, Q1 Earnings: Will Better than Expected be Good Enough?) while being accompanied by greater market risk.

The Tails: Going Stag(flation) vs. Politics as (Un)usual

YTD 2016 has shown that high volatility – market perception of risk – works to the upside as well as the downside. In this spirit, we revisit our downside (1,750) and upside (2,500) scenarios from 11/10/15's US Outlook 2016 and 1/28/16's What If...Global Risk Scenarios. To the downside, a listless economy while inflation creeps high enough to "force the Fed's hand" is the main risk, while the uncertainty of US political regime change has a mixed history with regard to market direction, with volatility as the common denominator. As stocks have priced out a great deal of uncertainty, trading toward the high end of their range while VIX hovers near the low end, we believe near term caution is warranted set against the backdrop of an eventual move to new all-time highs (see 4/29, Hedging S&P 500 Downside).

Figure 1: Endgame Approaching – How High, How Long?

Date of 1st Rate Hike	Advance from 1st Hike (%)	Time to Market Top (# months)	Fed Funds Rate Range (Tightening)
8/14/1977	41.1%	41	6.00 - 20.00%
12/16/1986	34.7%	8	6.00 - 7.25%
3/29/1988	41.9%	28	6.50 - 9.75%
6/30/1999	11.3%	9	4.75 - 6.50%
6/30/2004	37.2%	40	1.00 - 5.25%
12/16/2015	?	?	0.25 - ?.??%
Average	33.2%	25	

Source: Federal Reserve, Bloomberg, UBS

2,611 Days

Given the frustration of the past two years' extremely violent sideways trading, the majesty of the 7+ year S&P 500 bull market is frequently forgotten (Figure 2).

Figure 2: The Wonder Years

Source: Bloomberg, UBS

And while age alone does not portend the definitive end of a Bull Market, the current rally, at 2,611 days, is now the second longest in modern history, behind only the 1990-2000 bull market (Figure 3).

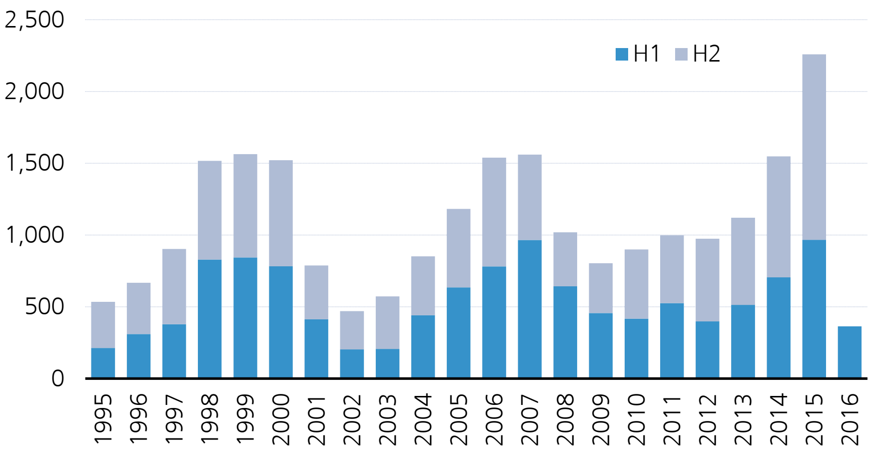
Figure 3: The Running of the Bulls

Start	End/ Current	S&P 500 Min	S&P 500 Max	Length (months)	Return
6/1/1932	3/10/1937	4.4	18.67	58	324%
3/31/1938	11/9/1938	8.5	13.79	7	62%
4/11/1939	10/25/1939	10.42	13.21	7	27%
4/28/1942	5/29/1946	7.47	19.25	50	158%
6/13/1949	8/2/1956	13.55	49.74	87	267%
10/22/1957	12/12/1961	38.98	72.64	50	86%
6/26/1962	2/9/1966	52.32	94.06	44	80%
10/7/1966	11/29/1968	73.2	108.37	26	48%
5/26/1970	1/11/1973	69.29	120.24	32	74%
10/3/1974	9/21/1976	62.28	107.83	24	73%
3/6/1978	1/6/1981	86.9	138.12	35	59%
8/12/1982	8/25/1987	102.42	336.77	61	229%
12/4/1987	7/16/1990	223.92	368.95	32	65%
10/11/1990	3/24/2000	295.46	1527.46	115	417%
10/9/2002	10/9/2007	776.76	1565.15	61	101%
3/6/2009	**Current**	**683.38**	**2095.15**	**87**	**207%**
	Avg. (ex. current):			46	138%

Source: Bloomberg, UBS

Yet the current milestone comes just as "Signs of The Top" become clearer – a surge in M&A activity in 2015 exceeding the heady days of 1999-2000 and 2007 followed by a lull in deal-making (Figure 4) catalyzed by extreme market volatility, ending in the largest quarterly rebound since 1933, from -11.4% to close the quarter +0.8%.

Figure 4: The M&A Volume Spike ($bn)

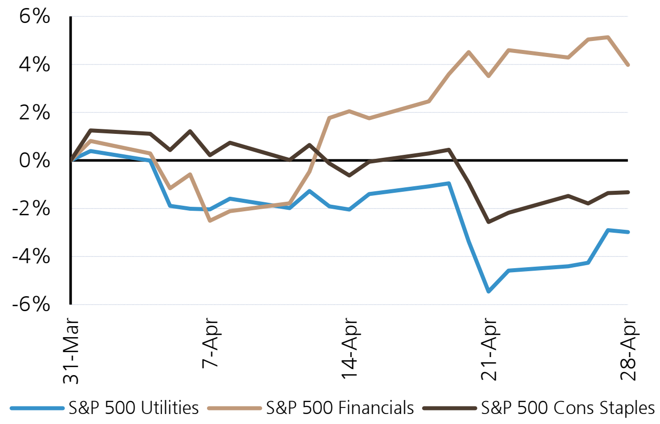


Source: Dealogic, UBS

The equity market volatility comes on the heels of the Fed's first rate hike in 9 years, on 12/16/2015, the first hike in the cycle traditionally being the demarcation point for the "countdown to the bull market peak" (Figure 1, p.1) with an intervening "time to the top" of as short as 8 months to as long as 41 months post the first hike.

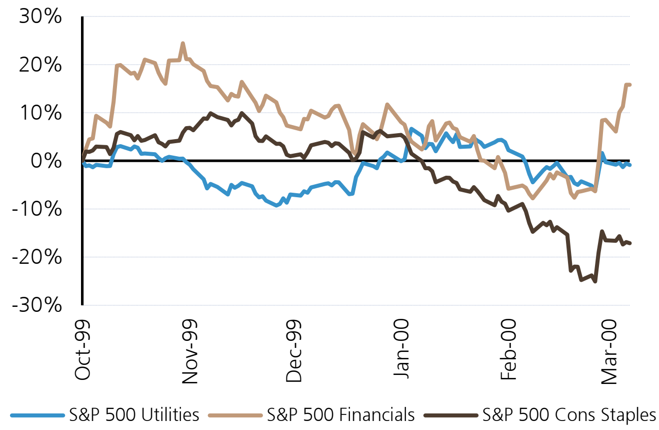
The leadership change of recent weeks, into Financials and away from Utilities and Staples (Figure 5) is reminiscent of the last stages of the 1999-2000 bull market top (Figure 6).

Figure 5: Late Cycle Rotation Beginning?



Source: Bloomberg, UBS

Figure 6: We've Seen this Motion Picture Before

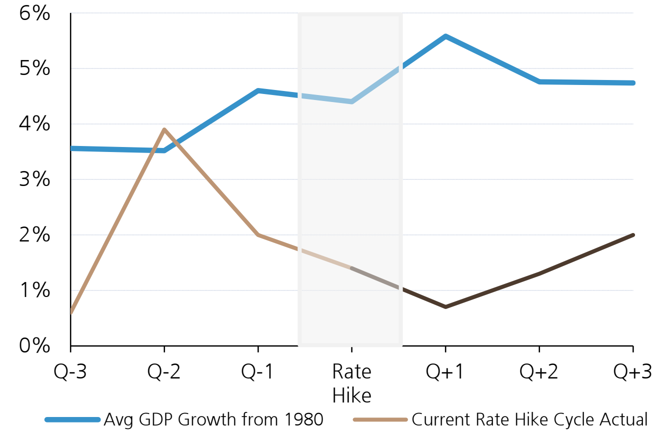


Source: Bloomberg, UBS

While this rotation reinforces our view that ultimately new all-time highs will be seen in the S&P 500 before the bull cycle ends, the immediate challenge for both

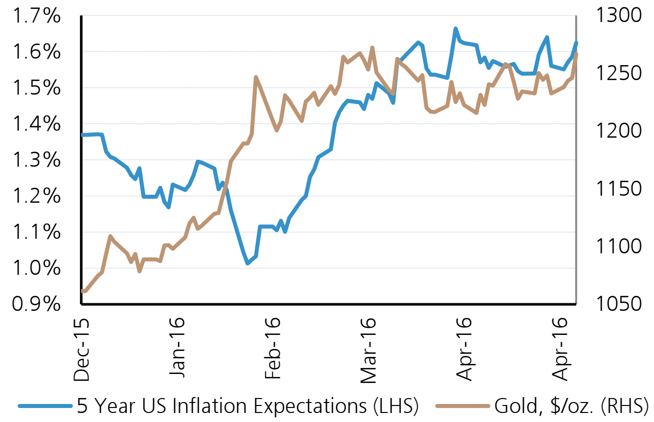
markets and the Fed is that the economy stubbornly refuses to accelerate, inconsistent with the roadmap of prior rate hike cycles (Figure 7) even as inflation expectations begin to build (Figure 8).

Figure 7: A Rate Hike Cycle Unlike All the Rest



Source: Bloomberg, UBS

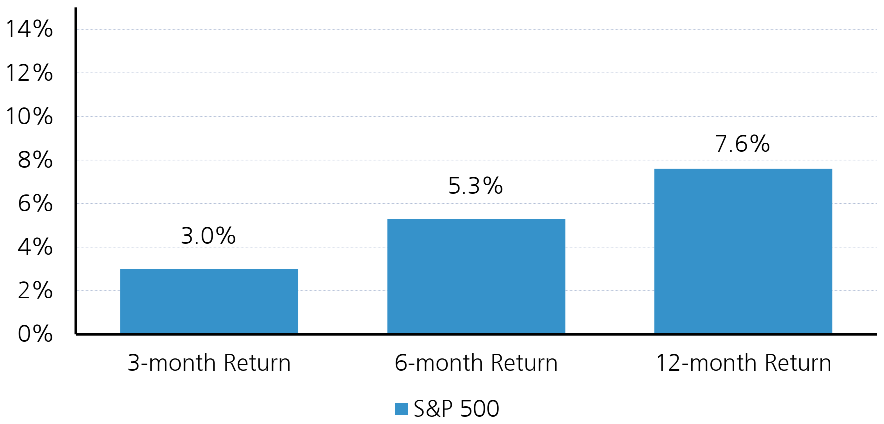
Figure 8: Inflation – In the Eye of the Beholder



Source: Bloomberg, UBS

Periods of inflation as measured by the Fed's preferred inflation indicator, Core PCE, in excess of US GDP do not in and of themselves necessarily signal an imminent market downturn (Figure 9).

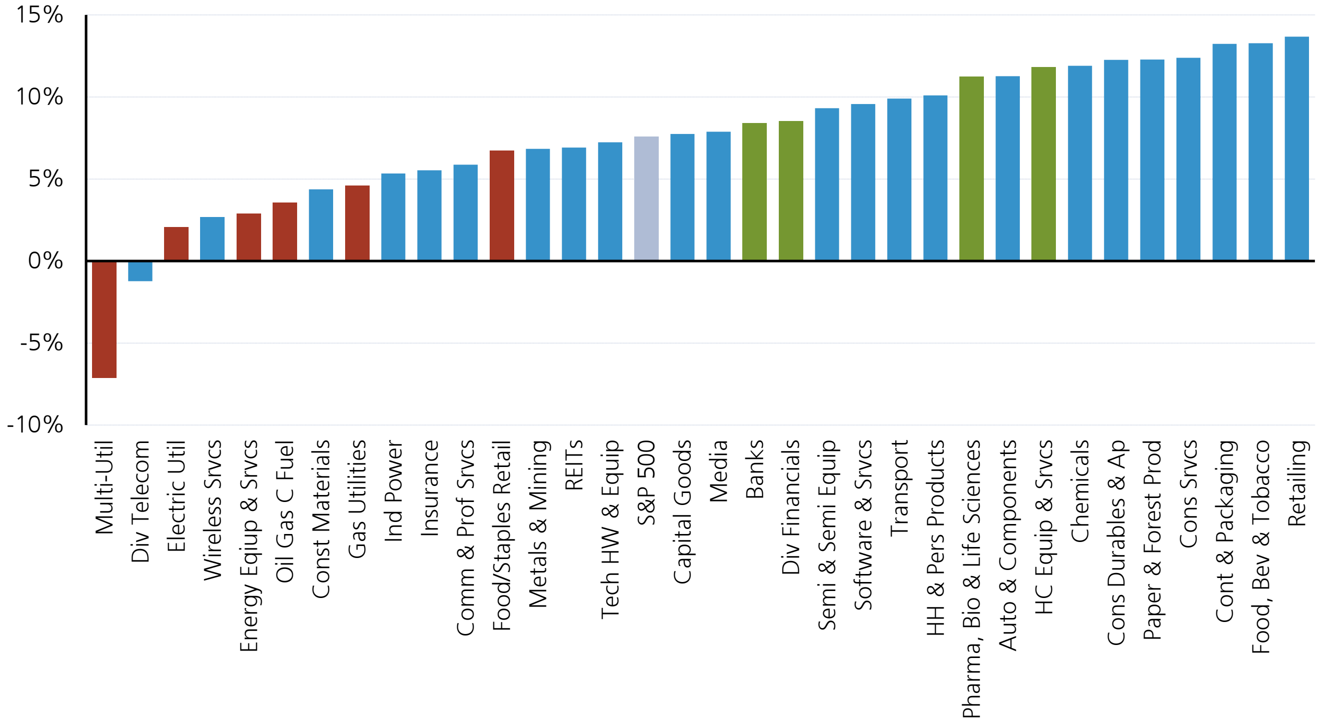
Figure 9: 3/6/12 Month Forward Returns when Core PCE > GDP (1990-Present)



Source: Bloomberg, UBS

Such periods in time have historically rewarded earnings growers, GARP, over both defensive and cyclical groups, Earnings Overachievers (Figure 10), lists of stocks with similar characteristics can be found in US Equity and Derivatives Strategy note from 4/12, Q1 Earnings: Will Better than Expected be Good Enough? on pages 7-8.

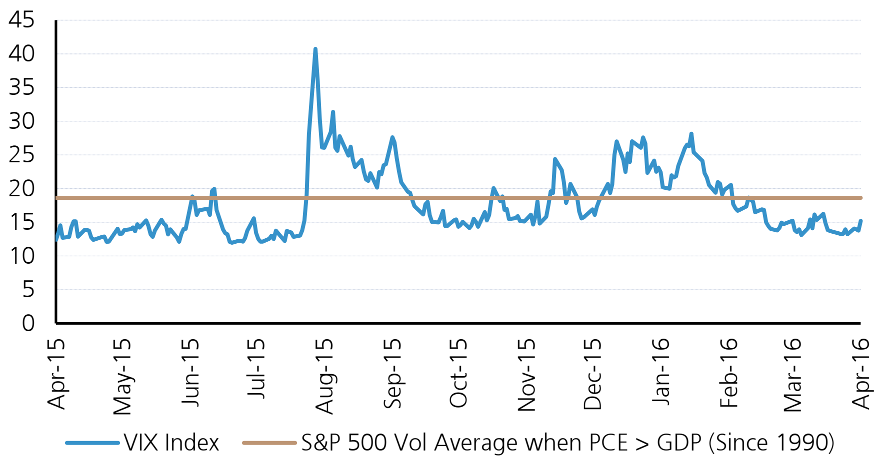
Figure 10: Industry Group Return Averages When Core PCE > GDP (1990-Present)



Source: Bloomberg, UBS

What has been a consistent feature of these periods where Core PCE is greater than US GDP is elevated volatility – greater risk – and in this context we would expect a reversion to the longer run mean (Figure 11) in the days and weeks ahead as the uncertainty over Fed policy, BOJ policy, the US economy, and politics, both abroad and in the US, persists and likely intensifies.

Figure 11: Temporary Calm Within the Storm?



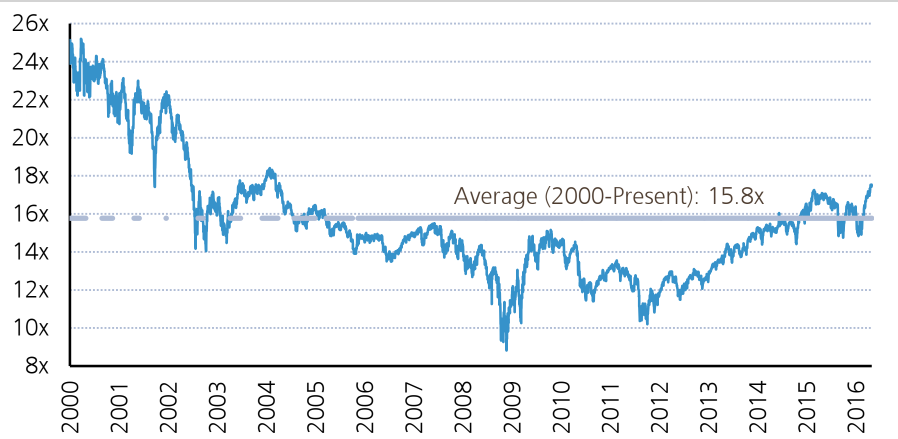
Source: Bloomberg, UBS

The Tails: Going Stag(flation) vs. Politics as (Un)usual

Secure in the knowledge that high volatility works to the upside as well as the downside, reinforced by the rollercoaster that has been the first four months of 2016, we revisit our downside (1,750) and upside (2,500) scenarios from 11/10/15's US Outlook 2016 and 1/28/16's What If...Global Risk Scenarios, set against our year end S&P 500 price target of 2,175, unchanged from early February.

To the downside, a listless economy insufficiently strong to propel earnings on a trajectory where 2017 growth expectations are achievable (Consensus expects +14.3%, UBSe +5.9%) while inflation creeps high enough to "force the Fed's hand" What If...Global Risk Scenarios, p. 2 is the main risk, particularly since the Fed's most recent commentary has downplayed the threat of International (China) instability. Such a combination would likely stir talk of "stagflation", a malady endemic of the late 1970's and early 1980's, an era where much of the time P/E's fell below 10x; on 2017E earnings of $126, 1,750 would represent a multiple of 13.9x, well within the range of some of the more stressed periods of the past 10 years (Figure 12).

Figure 12: S&P 500 Forward PE (2000-Current)



Source: FactSet, UBS

For most of the past 6 months, the political risk associated with the impending regime change in Washington DC has been part of the background, largely dominated by noise surrounding recession fears, China volatility, gridlock in the High Yield and Energy markets and the uncertain evolution of Fed policy.

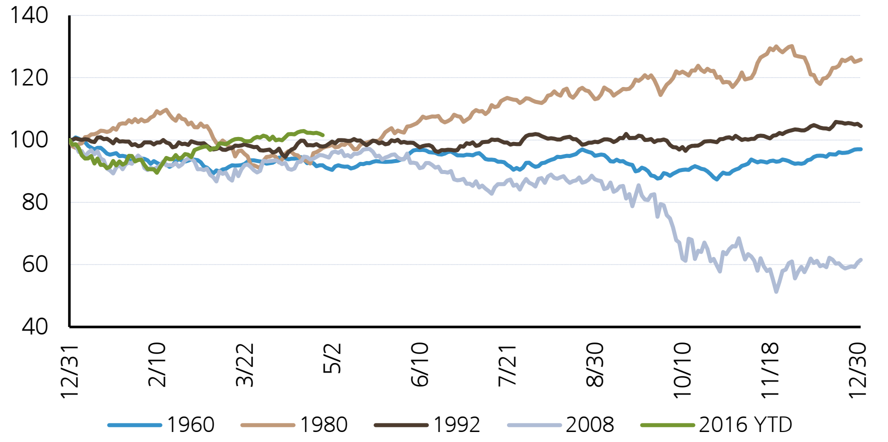
While in aggregate, presidential election years since 1901 have on average been flat in the first half of the year and showed strong gains (averaging around 7%) in 2H, the performance in eighth years of presidential terms has been decidedly downbeat, perhaps as a reflection of change being a legal imperative rather than the electorate's choice. These years include the bear markets of 2008 (Financial Crisis), 2000 (Tech Bubble burst) and the stagnant tape of 1960, a year that ushered in an unprecedented decade of social unrest during the Vietnam War.

Given the restless nature of the electorate in 2016 which has fostered the rise of a number of "outsider candidates" we believe the best way to examine the

prospective equity market movements of the next 8 months is to zero in on other years where the potential for change was palpable. Generational change votes such as Kennedy vs. Nixon, 1960 – Kennedy was the youngest US president elected to office and Obama vs. McCain, 2008 – Obama born in the tumultuous 1960's or those contests marked by significant third party candidates, Reagan vs. Carter vs. Anderson, 1980 and Clinton vs. Bush vs. Perot 1992 were other such similar times of prospective transformation.

While stocks performed differently in the analogous election years of 1960, 1980, 1992 and 2008 (Figure 13) the common denominator was market volatility.

Figure 13: S&P 500 Election Year Returns (Indexed to 100)



Source: Bloomberg, UBS

With the S&P 500 having rallied 16% off its February low in a frantic 10 weeks as the VIX first overshot to the upside then overshot to the downside, plunging to 12.5 on April 20, the uncertainties engendered by global Central Banks, politics and geopolitics, and the relationship of growth vs. inflation leave us cautious on the near term prospects for US equities.

To be clear, we maintain the view that the S&P 500 will end 2016 at 2,175, driven by a prospective earnings recovery fuelled by a recovery in economic growth to 2.5% in 2017E, set against low but rising interest rates and a stable oil price.

For ideas on how to hedge near term equity market risk, please see US Equity and Derivatives Strategy, 4/29, Hedging S&P 500 Downside.

Valuation Method and Risk Statement

Past performance is not indicative of future returns. Investing in equities globally poses country, industry and company-specific risks. Valuations can be impacted by changes in the macroeconomic landscape as well as financial market stability.

Required Disclosures

This report has been prepared by UBS Securities LLC, an affiliate of UBS AG. UBS AG, its subsidiaries, branches and affiliates are referred to herein as UBS.

For information on the ways in which UBS manages conflicts and maintains independence of its research product; historical performance information; and certain additional disclosures concerning UBS research recommendations, please visit www.ubs.com/disclosures. The figures contained in performance charts refer to the past; past performance is not a reliable indicator of future results. Additional information will be made available upon request. UBS Securities Co. Limited is licensed to conduct securities investment consultancy businesses by the China Securities Regulatory Commission. UBS acts or may act as principal in the debt securities (or in related derivatives) that may be the subject of this report.

Analyst Certification: Each research analyst primarily responsible for the content of this research report, in whole or in part, certifies that with respect to each security or issuer that the analyst covered in this report: (1) all of the views expressed accurately reflect his or her personal views about those securities or issuers and were prepared in an independent manner, including with respect to UBS, and (2) no part of his or her compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed by that research analyst in the research report.

Research analysts contributing to this report who are employed by any non-US affiliate of UBS Securities LLC are not registered/qualified as research analysts with FINRA. Such analysts may not be associated persons of UBS Securities LLC and therefore are not subject to the FINRA restrictions on communications with a subject company, public appearances, and trading securities held by a research analyst account. The name of each affiliate and analyst employed by that affiliate contributing to this report, if any, follows.

UBS Securities LLC: Julian Emanuel; Omar Elangbawy; Sibi Gnanasundaram; Patrick Buckley, PhD.

Unless otherwise indicated, please refer to the Valuation and Risk sections within the body of this report. For a complete set of disclosure statements associated with the companies discussed in this report, including information on valuation and risk, please contact UBS Securities LLC, 1285 Avenue of Americas, New York, NY 10019, USA, Attention: Investment Research.

Global Disclaimer

This document has been prepared by UBS Securities LLC, an affiliate of UBS AG. UBS AG, its subsidiaries, branches and affiliates are referred to herein as UBS.

Global Research is provided to our clients through UBS Neo and, in certain instances, UBS.com (each a "System"). It may also be made available through third party vendors and distributed by UBS and/or third parties via e-mail or alternative electronic means. The level and types of services provided by Global Research to a client may vary depending upon various factors such as a client's individual preferences as to the frequency and manner of receiving communications, a client's risk profile and investment focus and perspective (e.g. market wide, sector specific, long-term, short-term, etc.), the size and scope of the overall client relationship with UBS and legal and regulatory constraints.

All Global Research is available on UBS Neo. Please contact your UBS sales representative if you wish to discuss your access to UBS Neo.

When you receive Global Research through a System, your access and/or use of such Global Research is subject to this Global Research Disclaimer and to the terms of use governing the applicable System.

When you receive Global Research via a third party vendor, e-mail or other electronic means, your use shall be subject to this Global Research Disclaimer and to UBS's Terms of Use/Disclaimer (http://www.ubs.com/global/en/legalinfo2/disclaimer.html). By accessing and/or using Global Research in this manner, you are indicating that you have read and agree to be bound by our Terms of Use/Disclaimer. In addition, you consent to UBS processing your personal data and using cookies in accordance with our Privacy Statement (http://www.ubs.com/global/en/legalinfo2/privacy.html) and cookie notice (http://www.ubs.com/global/en/homepage/cookies/cookie-management.html).

If you receive Global Research, whether through a System or by any other means, you agree that you shall not copy, revise, amend, create a derivative work, transfer to any third party, or in any way commercially exploit any UBS research provided via Global Research or otherwise, and that you shall not extract data from any research or estimates provided to you via Global Research or otherwise, without the prior written consent of UBS.

This document is for distribution only as may be permitted by law. It is not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation or would subject UBS to any registration or licensing requirement within such jurisdiction. It is published solely for information purposes; it is not an advertisement nor is it a solicitation or an offer to buy or sell any financial instruments or to participate in any particular trading strategy. No representation or warranty, either expressed or implied, is provided in relation to the accuracy, completeness or reliability of the information contained in this document ('the Information'), except with respect to Information concerning UBS. The Information is not intended to be a complete statement or summary of the securities, markets or developments referred to in the document. UBS does not undertake to update or keep current the Information. Any opinions expressed in this document may change without notice and may differ or be contrary to opinions expressed by other business areas or groups of UBS. Any statements contained in this report attributed to a third party represent UBS's interpretation of the data, information and/or opinions provided by that third party either publicly or through a subscription service, and such use and interpretation have not been reviewed by the third party.

Nothing in this document constitutes a representation that any investment strategy or recommendation is suitable or appropriate to an investor's individual circumstances or otherwise constitutes a personal recommendation. Investments involve risks, and investors should exercise prudence and their own judgement in making their investment decisions. The financial instruments described in the document may not be eligible for sale in all jurisdictions or to certain categories of investors. Options, derivative products and futures are not suitable for all investors, and trading in these instruments is considered risky. Mortgage and asset-backed securities may involve a high degree of risk and may be highly volatile in response to fluctuations in interest rates or other market conditions. Foreign currency rates of exchange may adversely affect the value, price or income of any security or related instrument referred to in the document. For investment advice, trade execution or other enquiries, clients should contact their local sales representative.

The value of any investment or income may go down as well as up, and investors may not get back the full (or any) amount invested. Past performance is not necessarily a guide to future performance. Neither UBS nor any of its directors, employees or agents accepts any liability for any loss (including investment loss) or damage arising out of the use of all or any of the Information.

Any prices stated in this document are for information purposes only and do not represent valuations for individual securities or other financial instruments. There is no representation that any transaction can or could have been effected at those prices, and any prices do not necessarily reflect UBS's internal books and records or theoretical model-based valuations and may be based on certain assumptions. Different assumptions by UBS or any other source may yield substantially different results.

This document and the Information are produced by UBS as part of its research function and are provided to you solely for general background information. UBS has no regard to the specific investment objectives, financial situation or particular needs of any specific recipient. In no circumstances may this document or any of the Information be used for any of the following purposes:

(i) valuation or accounting purposes;

(ii) to determine the amounts due or payable, the price or the value of any financial instrument or financial contract; or

(iii) to measure the performance of any financial instrument.

By receiving this document and the Information you will be deemed to represent and warrant to UBS that you will not use this document or any of the Information for any of the above purposes or otherwise rely upon this document or any of the Information.

Research will initiate, update and cease coverage solely at the discretion of UBS Investment Bank Research Management. The analysis contained in this document is based on numerous assumptions. Different assumptions could result in materially different results. The analyst(s) responsible for the preparation of this document may interact with trading desk personnel, sales personnel and other parties for the purpose of gathering, applying and interpreting market information. UBS relies on information barriers to control the flow of information contained in one or more areas within UBS into other areas, units, groups or affiliates of UBS. The compensation of the analyst who prepared this document is determined exclusively by research management and senior management (not including investment banking). Analyst compensation is not based on investment banking revenues; however, compensation may relate to the revenues of UBS Investment Bank as a whole, of which investment banking, sales and trading are a part.

For financial instruments admitted to trading on an EU regulated market: UBS AG, its affiliates or subsidiaries (excluding UBS Securities LLC) acts as a market maker or liquidity provider (in accordance with the interpretation of these terms in the UK) in the financial instruments of the issuer save that where the activity of liquidity provider is carried out in accordance with the definition given to it by the laws and regulations of any other EU jurisdictions, such information is separately disclosed in this document. For financial instruments admitted to trading on a non-EU regulated market: UBS may act as a market maker save that where this activity is carried out in the US in accordance with the definition given to it by the relevant laws and regulations, such activity will be specifically disclosed in this document. UBS may have issued a warrant the value of which is based on one or more of the financial instruments referred to in the document. UBS and its affiliates and employees may have long or short positions, trade as principal and buy and sell in instruments or derivatives identified herein; such transactions or positions may be inconsistent with the opinions expressed in this document.

United Kingdom and the rest of Europe: Except as otherwise specified herein, this material is distributed by UBS Limited to persons who are eligible counterparties or professional clients. UBS Limited is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority. **France:** Prepared by UBS Limited and distributed by UBS Limited and UBS Securities France S.A. UBS Securities France S.A. is regulated by the ACPR (Autorité de Contrôle Prudentiel et de Résolution) and the Autorité des Marchés Financiers (AMF). Where an analyst of UBS Securities France S.A. has contributed to this document, the document is also deemed to have been prepared by UBS Securities France S.A. **Germany:** Prepared by UBS Limited and distributed by UBS Limited and UBS Deutschland AG. UBS Deutschland AG is regulated by the Bundesanstalt fur Finanzdienstleistungsaufsicht (BaFin). **Spain:** Prepared by UBS Limited and distributed by UBS Limited and UBS Securities España SV, SA. UBS Securities España SV, SA is regulated by the Comisión Nacional del Mercado de Valores (CNMV). **Turkey:** Distributed by UBS Limited. No information in this document is provided for the purpose of offering, marketing and sale by any means of any capital market instruments and services in the Republic of Turkey. Therefore, this document may not be considered as an offer made or to be made to residents of the Republic of Turkey. UBS AG is not licensed by the Turkish Capital Market Board under the provisions of the Capital Market Law (Law No. 6362). Accordingly, neither this document nor any other offering material related to the instruments/services may be utilized in connection with providing any capital market services to persons within the Republic of Turkey without the prior approval of the Capital Market Board. However, according to article 15 (d) (ii) of the Decree No. 32, there is no restriction on the purchase or sale of the securities abroad by residents of the Republic of Turkey. **Poland:** Distributed by UBS Limited (spolka z ograniczona odpowiedzialnoscia) Oddzial w Polsce regulated by the Polish Financial Supervision Authority. Where an analyst of UBS Limited (spolka z ograniczona odpowiedzialnoscia) Oddzial w Polsce has contributed to this

document, the document is also deemed to have been prepared by UBS Limited (spolka z ograniczona odpowiedzialnoscia) Oddzial w Polsce. **Russia:** Prepared and distributed by UBS Bank (OOO). **Switzerland:** Distributed by UBS AG to persons who are institutional investors only. UBS AG is regulated by the Swiss Financial Market Supervisory Authority (FINMA). **Italy:** Prepared by UBS Limited and distributed by UBS Limited and UBS Limited, Italy Branch. Where an analyst of UBS Limited, Italy Branch has contributed to this document, the document is also deemed to have been prepared by UBS Limited, Italy Branch. **South Africa:** Distributed by UBS South Africa (Pty) Limited (Registration No. 1995/011140/07), an authorised user of the JSE and an authorised Financial Services Provider (FSP 7328). **Israel:** This material is distributed by UBS Limited. UBS Limited is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority. UBS Securities Israel Ltd is a licensed Investment Marketer that is supervised by the Israel Securities Authority (ISA). UBS Limited and its affiliates incorporated outside Israel are not licensed under the Israeli Advisory Law. UBS Limited is not covered by insurance as required from a licensee under the Israeli Advisory Law. UBS may engage among others in issuance of Financial Assets or in distribution of Financial Assets of other issuers for fees or other benefits. UBS Limited and its affiliates may prefer various Financial Assets to which they have or may have Affiliation (as such term is defined under the Israeli Advisory Law). Nothing in this Material should be considered as investment advice under the Israeli Advisory Law. This Material is being issued only to and/or is directed only at persons who are Eligible Clients within the meaning of the Israeli Advisory Law, and this material must not be relied on or acted upon by any other persons. **Saudi Arabia:** This document has been issued by UBS AG (and/or any of its subsidiaries, branches or affiliates), a public company limited by shares, incorporated in Switzerland with its registered offices at Aeschenvorstadt 1, CH-4051 Basel and Bahnhofstrasse 45, CH-8001 Zurich. This publication has been approved by UBS Saudi Arabia (a subsidiary of UBS AG), a Saudi closed joint stock company incorporated in the Kingdom of Saudi Arabia under commercial register number 1010257812 having its registered office at Tatweer Towers, P.O. Box 75724, Riyadh 11588, Kingdom of Saudi Arabia. UBS Saudi Arabia is authorized and regulated by the Capital Market Authority to conduct securities business under license number 08113-37. **Dubai:** The information distributed by UBS AG Dubai Branch is intended for Professional Clients only and is not for further distribution within the United Arab Emirates. **United States:** Distributed to US persons by either UBS Securities LLC or by UBS Financial Services Inc., subsidiaries of UBS AG; or by a group, subsidiary or affiliate of UBS AG that is not registered as a US broker-dealer (a **'non-US affiliate'**) to major US institutional investors only. UBS Securities LLC or UBS Financial Services Inc. accepts responsibility for the content of a document prepared by another non-US affiliate when distributed to US persons by UBS Securities LLC or UBS Financial Services Inc. All transactions by a US person in the securities mentioned in this document must be effected through UBS Securities LLC or UBS Financial Services Inc., and not through a non-US affiliate. UBS Securities LLC is not acting as a municipal advisor to any municipal entity or obligated person within the meaning of Section 15B of the Securities Exchange Act (the "Municipal Advisor Rule"), and the opinions or views contained herein are not intended to be, and do not constitute, advice within the meaning of the Municipal Advisor Rule. **Canada:** Distributed by UBS Securities Canada Inc., a registered investment dealer in Canada and a Member-Canadian Investor Protection Fund, or by another affiliate of UBS AG that is registered to conduct business in Canada or is otherwise exempt from registration. **Brazil:** Except as otherwise specified herein, this material is prepared by UBS Brasil CCTVM S.A. to persons who are eligible investors residing in Brazil, which are considered to be: (i) financial institutions, (ii) insurance firms and investment capital companies, (iii) supplementary pension entities, (iv) entities that hold financial investments higher than R$300,000.00 and that confirm the status of qualified investors in written, (v) investment funds, (vi) securities portfolio managers and securities consultants duly authorized by Comissão de Valores Mobiliários (CVM), regarding their own investments, and (vii) social security systems created by the Federal Government, States, and Municipalities. **Hong Kong:** Distributed by UBS Securities Asia Limited and/or UBS AG, Hong Kong Branch. **Singapore:** Distributed by UBS Securities Pte. Ltd. [MCI (P) 018/09/2015 and Co. Reg. No.: 198500648C] or UBS AG, Singapore Branch. Please contact UBS Securities Pte. Ltd., an exempt financial adviser under the Singapore Financial Advisers Act (Cap. 110); or UBS AG, Singapore Branch, an exempt financial adviser under the Singapore Financial Advisers Act (Cap. 110) and a wholesale bank licensed under the Singapore Banking Act (Cap. 19) regulated by the Monetary Authority of Singapore, in respect of any matters arising from, or in connection with, the analysis or document. The recipients of this document represent and warrant that they are accredited and institutional investors as defined in the Securities and Futures Act (Cap. 289). **Japan:** Distributed by UBS Securities Japan Co., Ltd. to professional investors (except as otherwise permitted). Where this document has been prepared by UBS Securities Japan Co., Ltd., UBS Securities Japan Co., Ltd. is the author, publisher and distributor of the document. Distributed by UBS AG, Tokyo Branch to Professional Investors (except as otherwise permitted) in relation to foreign exchange and other banking businesses when relevant. **Australia:** Clients of UBS AG: Distributed by UBS AG (Holder of Australian Financial Services License No. 231087). Clients of UBS Securities Australia Ltd: Distributed by UBS Securities Australia Ltd (Holder of Australian Financial Services License No. 231098). Clients of UBS Wealth Management Australia Ltd: Distributed by UBS Wealth Management Australia Ltd (Holder of Australian Financial Services Licence No. 231127). This Document contains general information and/or general advice only and does not constitute personal financial product advice. As such, the Information in this document has been prepared without taking into account any investor's objectives, financial situation or needs, and investors should, before acting on the Information, consider the appropriateness of the Information, having regard to their objectives, financial situation and needs. If the Information contained in this document relates to the acquisition, or potential acquisition of a particular financial product by a 'Retail' client as defined by section 761G of the Corporations Act 2001 where a Product Disclosure Statement would be required, the retail client should obtain and consider the Product Disclosure Statement relating to the product before making any decision about whether to acquire the product. The UBS Securities Australia Limited Financial Services Guide is available at: www.ubs.com/ecs-research-fsg. **New Zealand:** Distributed by UBS New Zealand Ltd. The information and recommendations in this publication are provided for general information purposes only. To the extent that any such information or recommendations constitute financial advice, they do not take into account any person's particular financial situation or goals. We recommend that recipients seek advice specific to their circumstances from their financial advisor. **Korea:** Distributed in Korea by UBS Securities Pte. Ltd., Seoul Branch. This document may have been edited or contributed to from time to time by affiliates of UBS Securities Pte. Ltd., Seoul Branch. **Malaysia:** This material is authorized to be distributed in Malaysia by UBS Securities Malaysia Sdn. Bhd (Capital Markets Services License No.: CMSL/A0063/2007). This material is intended for professional/institutional clients only and not for distribution to any retail clients. **India:** Prepared by UBS Securities India Private Ltd. (Corporate Identity Number U67120MH1996PTC097299) 2/F, 2 North Avenue, Maker Maxity, Bandra Kurla Complex, Bandra (East), Mumbai (India) 400051. Phone: +912261556000. It provides brokerage services bearing SEBI Registration Numbers: NSE (Capital Market Segment): INB230951431, NSE (F&O Segment) INF230951431, NSE (Currency Derivatives Segment) INE230951431, BSE (Capital Market Segment) INB010951437; merchant banking services bearing SEBI Registration Number: INM000010809 and Research Analyst services bearing SEBI Registration Number: INH000001204. UBS AG, its affiliates or subsidiaries may have debt holdings or positions in the subject Indian company/companies. Within the past 12 months, UBS AG, its affiliates or subsidiaries may have received compensation for non-investment banking securities-related services and/or non-securities services from the subject Indian company/companies. The subject company/companies may have been a client/clients of UBS AG, its affiliates or subsidiaries during the 12 months preceding the date of distribution of the research report with respect to investment banking and/or non-investment banking securities-related services and/or non-securities services. With regard to information on associates, please refer to the Annual Report at: http://www.ubs.com/global/en/about_ubs/investor_relations/annualreporting.html

The disclosures contained in research documents produced by UBS Limited shall be governed by and construed in accordance with English law.

UBS