Leverage in the Rear-View Mirror Is Larger than It Appears

Shobhit Gupta
+1 212 412 2056
shobhit.gupta@barclays.com
BCI, US

Ryan Preclaw, CFA
+1 212 412 2249
ryan.preclaw@barclays.com
BCI, US

Bruno Velloso
+ 1 212 412 2345
bruno.velloso@barclays.com
BCI, US

Despite significant tightening over the month, US investment grade corporate spreads, at 155bp, are nearly 35bp wide of year-to-date tights. There are several plausible explanations for the year-to-date move wider, including contagion from weak global growth (especially in emerging markets), poor supply-demand technicals, and deteriorating company-level fundamentals. While the first two causes appear to be behind much of the underperformance, in our view (*Credit Market Outlook: Technical Difficulties*, September 22, 2015), many investors are concerned about the third possible explanation – that weak valuations reflect a substantial deterioration in corporate fundamentals. Credit quality has deteriorated in pockets of the market, most notably in energy and metals & mining, and aggregate leverage is up from trough levels reached earlier in the decade. Nevertheless, we remain less concerned about aggregate corporate fundamentals for three reasons:

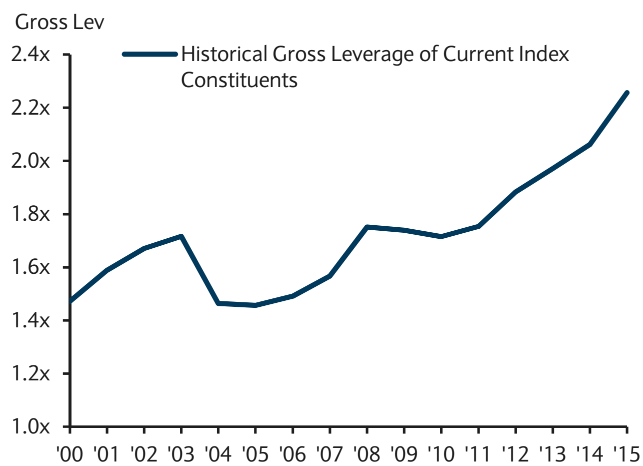
- First, while aggregate total leverage has risen off its lows, net leverage remains in the middle of the historical range (Figure 2);
- Second, other measures of credit quality (such as the capacity to pay near-term maturities with cash on hand) look better than their historical averages; and
- Third, we see virtually no relationship between aggregate leverage and credit index performance. Even if leverage continues to rise, there is no evidence to suggest that returns will be materially influenced by the change.

How Much Has Leverage Increased?

We think that measuring leverage for an index or portfolio is more complex than is often appreciated (*How Do We Measure Leverage? Let Us Count the Ways*, May 8, 2015). Nevertheless, we have heard concerns about leverage from many clients who have cited a commonly used measure: an average of total debt/EBITDA, weighted by current index

FIGURE 1

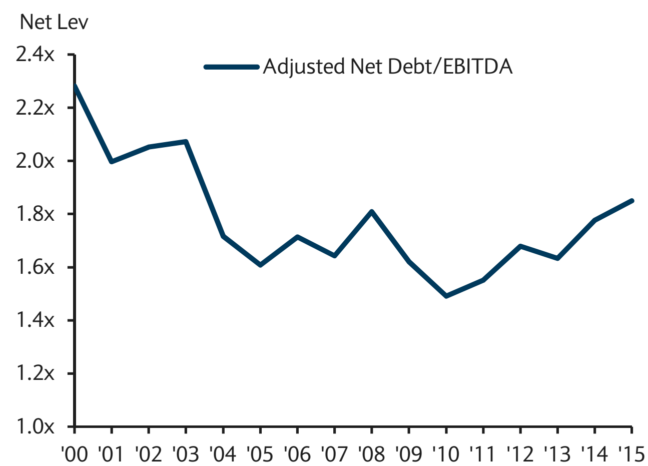
Gross Leverage among Non-financial Corporate Issuers Has Risen, If Measured Using a Constant Universe…



Note: Total debt/one-year forward EBITDA. Calculated by taking weighted-average of issuer-level leverage, assuming current index market weights and excluding financials, autos, and outliers (>5x). Source: FactSet, Barclays Research

FIGURE 2

…But We Believe Our Adjusted Measurement of Net Leverage More Accurately Captures Credit Risk



Note: Net debt/one-year forward EBITDA. Calculated by taking a weighted average of issuer-level leverage (using index market value at the end of each year). Excluding financials and autos. Source: FactSet, Barclays Research weights and excluding financial firms, automakers (because they have historically had a significant financing component), and outliers. By that measure, the evolution of leverage is understandably concerning; it has almost doubled from less than 1.3x in 2000 to more than 2.3x times today (Figure 1). **This measure offers a few insights, but it is terminally flawed as a way of measuring the risk that leverage poses to credit performance.** We see three issues in particular:

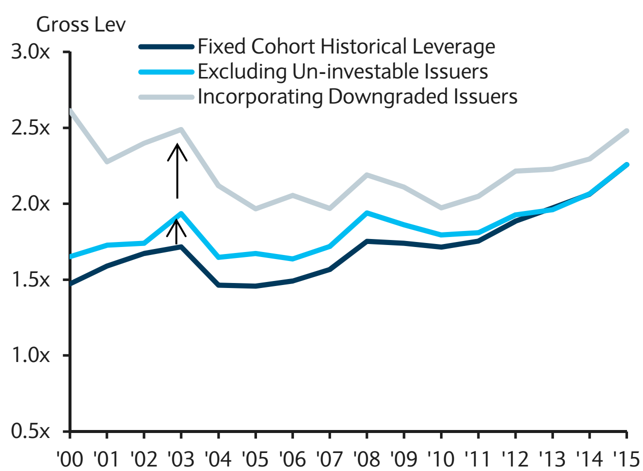
- **It includes leverage for companies that did not have index-eligible debt outstanding in previous years.** These companies tended to have very low leverage prior to entering the index because they had no bonds outstanding and, therefore, bias the index leverage estimate downward in earlier years. A company such as Apple, for example, receives a high weight in the leverage calculation (it is currently the fifth largest non-financial issuer), but had 0x leverage in the mid-2000s and no investable bonds outstanding. Its leverage (or lack thereof) should not be considered as a component of credit risk historically because investors could not have been exposed to it at the time. Figures 3 and 4 show that excluding these "un-investable" issuers during the years they were not in the index substantially elevates index leverage estimates in previous years.

- **The measure includes only present index constituents, which induces a survivorship bias.** Issuers that were at one point in the index, but have since dropped out (most likely because of default or downgrade) are excluded using the fixed cohort method. Ultimately, these will tend to be lower-quality issuers, and excluding them biases historical estimates of index leverage downward. In a sense, the strategy in Figure 1 is only "picking the winners." The companies included in the cohort are primarily those that were lower risk, or were higher risk but have executed their growth and business plans successfully; it is not surprising that they would tend to increase leverage as they become larger and more established. By incorporating issuers that are no longer in the index, we find that while gross leverage is at a post-crisis high, it is no longer a historical peak (Figure 3).

- **Net debt/EBITDA more directly measures a company's ability to pay debt, and that measure has increased substantially less than total debt/EBITDA.** Our preference for leverage is to subtract cash balances from debt, since a company can, in theory, draw from this source to pay back obligations. While gross leverage has increased from a trough of roughly 1.9x in 2010 to a high of 2.5x in 2015, net leverage numbers show a much smaller increase (from about 1.5x in 2010 to 1.8x in 2015) and a generally more

FIGURE 3

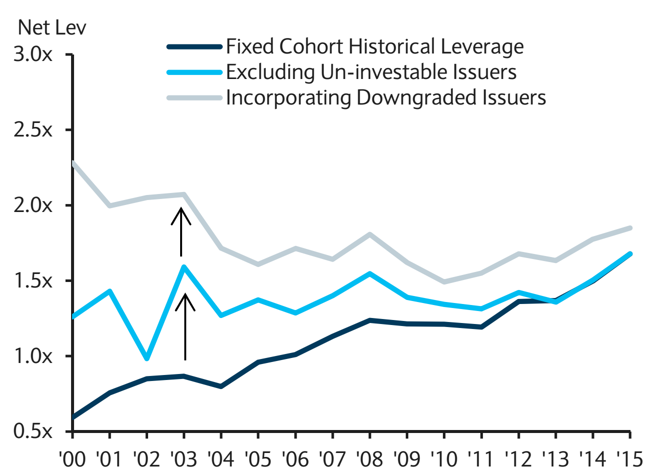
Historical Gross Leverage, with Adjustments (ex-Financials)



Note: Index-weighted average leverage. Total debt/one-year forward EBITDA. Source: FactSet, Barclays Research

FIGURE 4

Historical Net Leverage, with Adjustments (ex-Financials)



Note: Index-weighted average leverage. Total debt/one-year forward EBITDA. Source: FactSet, Barclays Research stable series (Figure 4). Therefore, while gross leverage figures appear to be suggesting a substantial increase, credit risk has actually been relatively muted because these issuers are also holding more cash.

In our view, the "adjusted" net leverage series in Figure 2 more fully captures the credit risk for investors benchmarked to the US corporate (ex-financials) index. It seeks to represent the index exposures and corresponding leverages faced at any given moment (including issuers with the highest leverage, since benchmarked investors will be exposed to even the riskiest investment grade issuers). By this measure, leverage has increased since 2010, although it remains well below historical peaks and has been generally range-bound at 1.5-1.8x over the past 12 years. Leverage is higher, but still in line with historical averages.

Furthermore, measures of leverage are proxies for measuring the credit risk of holding debt. Although measures of net leverage have risen, this does not necessarily imply that credit risk itself is substantially higher. Indeed, while net debt totals have risen relative to free cash flows, there has also been a meaningful change in the maturity composition of that debt. Following the crisis, companies shifted away from commercial paper and extended the maturity of their debt. Figure 5 shows that debt with a maturity of less than five years has declined from about 75% of total debt in 2007, to roughly 50%. Because issuers are also carrying more cash, they have an increased capacity to survive market shocks: in the early 2000s (ostensibly the period of highest credit quality), issuers held only enough cash to cover about 2.5 years of upcoming maturities; now, companies could pay for their next five years of maturities with cash on hand (Figure 6).

Index Leverage Does Not Drive Index Returns

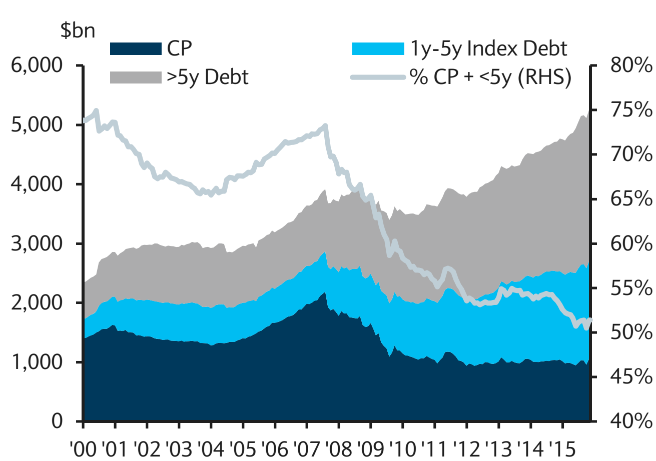
There are two ways that leverage could affect credit returns:

1) Aggregate leverage might influence the level or evolution of index-level spreads, shifting the risk premium that investors demand for owning credit as an asset class.

2) Leverage could migrate within the index, independent of what is happening in the macro environment. If issuers migrate to higher leverage and, therefore, higher spreads because of idiosyncratic factors (such as shifts in corporate policy targeting higher leverage, or a stronger US dollar weighing on revenues), returns could be affected even if the macro risk premium does not change.

FIGURE 5

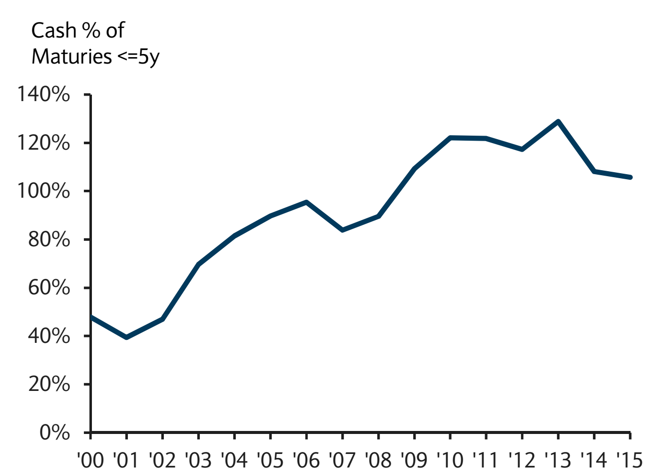
The Average Maturity of Debt Has Increased Substantially…



Source: Bloomberg, Barclays Research

FIGURE 6

…and So Has the Ability to Cover Near-Term Maturities with Cash on Hand



Note: Index weighted average (excluding financials and autos). Source: FactSet, Bloomberg, Barclays Research

We see no evidence that aggregate leverage influences the risk premium. Leverage migration likely does have some influence – in particular, downgrades to high yield could be a meaningful drag on performance. Outside of downgrades to high yield, however, the effect of leverage migration on spreads is limited, in our view. We consider these factors in more detail below.

Aggregate Leverage Does Not Influence Aggregate Returns

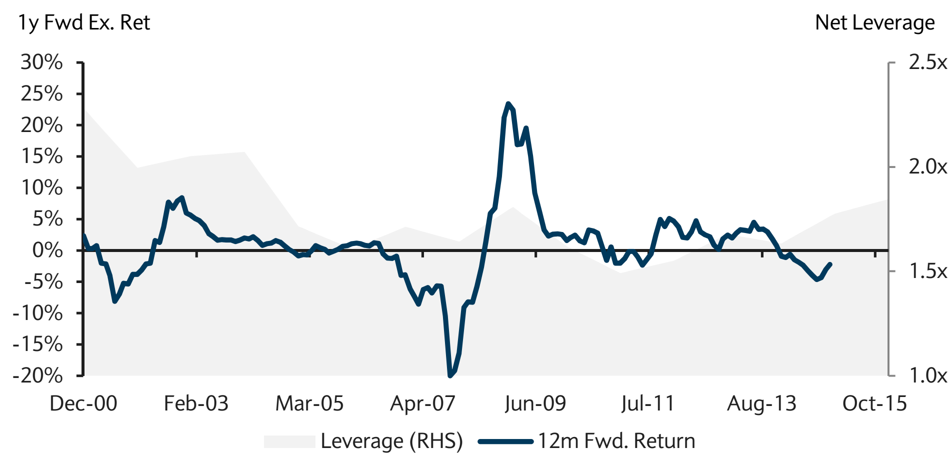
There does not appear to be any consistent relationship between aggregate leverage and aggregate spreads or returns:

- A regression of change in index spread (using an index that excludes financial and autos) on change in weighted average leverage does not show a statistically significant relationship.
- Likewise, a regression of returns as a function of starting spread and leverage suggests no statistically significant relationship between leverage and returns.

Figure 7 illustrates how independent leverage is from returns. We have seen good returns when leverage has been both high and low and bad returns in both states as well. The extremes for both fundamentals and returns are equally ambiguous: the worst returns were during the 2008 financial crisis, which was a period of only moderate leverage; the best followed the crisis and happened when leverage had actually risen. The high point for leverage was in the early 2000s; again, there were periods of both good and bad returns.

FIGURE 7

The US Corporate Index Has Produced Good and Bad Returns in Both High and Low Leverage States

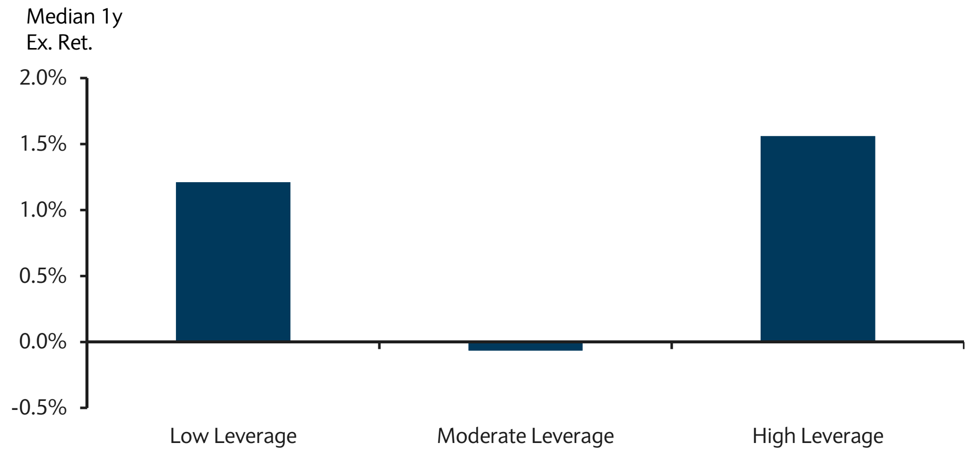


Source: FactSet, Barclays Research

In fact, the one-year returns are virtually identical when leverage has been high and when it has been low (Figure 8). The worst leverage for returns appears to be moderate (although that is skewed by moderate leverage during the 2008 crisis period). In our view, the implication is that for investment grade companies, leverage has essentially no connection to aggregate returns, which are driven instead by economic cycles and other broad-based shifts in risk preferences.

FIGURE 8

US Non-financial Corporate Index Returns Appear to Be Unrelated to the Aggregate Leverage of Index Issuers



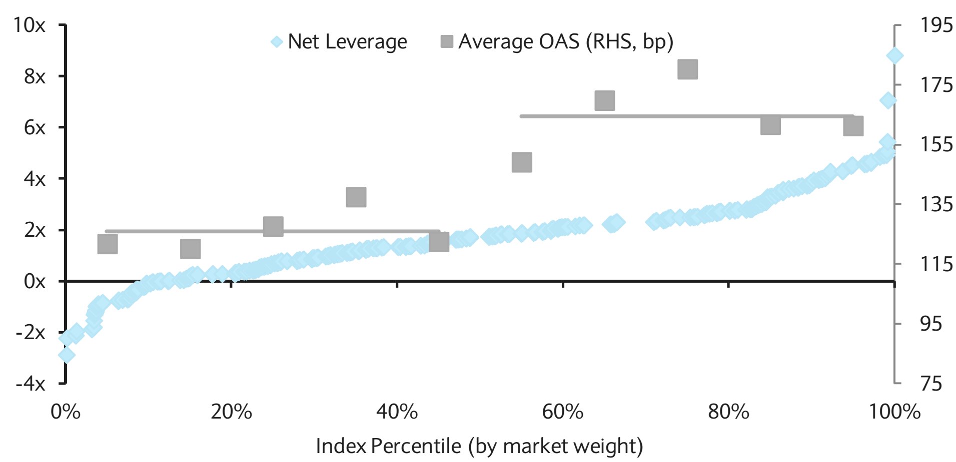
Note: Leverage states are defined by tercile. Source: FactSet, Barclays Research

Leverage Migration

An increase in leverage, absent a weakening of the broader macro environment, is likely to have a limited effect on spreads, in our view. Figure 9 shows the net leverage and average spread of industrial credit (ex-energy) in the US Credit Index. The relationship is what we would expect: credits with higher leverage trade wider on average. That said, the spread compensation does not increase uniformly with leverage. Instead, it appears that there are two broad leverage/spread buckets. Corporates with a net leverage of less than 1.75x (about 50% of the index by market value) trade on average in the range of 120-130bp. More highly leveraged issuers – credits leveraged more than 1.75x - have an average spread of about 165bp, nearly 40bp wider than the first cohort.

FIGURE 9

Net Leverage and Credit Spreads



Note: Corporates ex-energy, metals, and financials. Source: Barclays Research

The implication of the spread/leverage distribution in Figure 9 is that as long as a ticker stays in one of the buckets (admittedly somewhat arbitrarily defined) the spread effect of a leverage change is minimal. Only the credits that migrate from the low leverage bucket to the high leverage one would see a meaningful increase in spread. This mutes the effect of even widespread leverage deterioration: we estimate that a 10% increase in leverage across all credits (corresponding to 0.2x increase in net leverage overall) would lead to a spread widening of only 1-2bp, corresponding to about 10-15bp of loss in excess return terms, driven by credits that transition from the low to high spread bucket.

This assumes that all credits maintain their investment grade rating. In such a scenario, fallen angel volumes would likely also pick up. A downgrade out of the US Corporate Index and into the US High Yield Index would lead to a more significant loss – we estimate in *The Fundamental Value in Sector Spreads*, October 30, 2015, that losses stemming from a downgrade to high yield average around 10% historically. While this is significant at an individual credit level, its effect on overall index returns is fairly muted unless fallen angel volumes are significant. Figure 10 estimates the potential loss from fallen angels in different downgrade volume/loss rate scenarios. As discussed in *Angels More Energetic than Stars*, November 13, 2015, in the base case we expect 1-2% of the index (by market value) to be downgraded, which would result in 10-20bp of loss in excess return.

FIGURE 10

Potential Index Loss Due to Fallen Angels under Different Scenarios (Excess Returns, bp)

	Assumed Average Loss Rate For Each Downgraded Issuer		
% of Index Downgraded	**8%**	**10%**	**12%**
2%	16bp	20bp	24bp
5%	40bp	50bp	60bp
10%	80bp	100bp	120bp

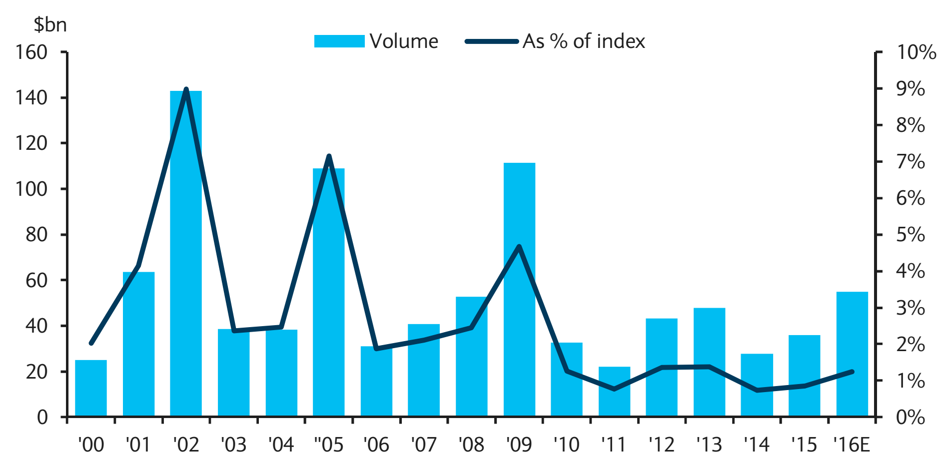
Note: Nine potential cases, by varying the potential amount of debt downgraded and potential average fallen angel underperformance in the event of downgrade. Source: Barclays Research

Under a more stressed scenario of a 5% downgrade rate with a -12% total return rate assumption, the potential loss is about 60bp. While that would significantly eat into the 160bp spread carry of the index, we note that such a scenario is highly unlikely. In the past 15 years, fallen angel volumes have exceeded 5% only twice (Figure 11). The elevated 2002 and 2005 downgrade volumes were driven by telecommunication companies and autos, respectively. Meanwhile, fallen angel volumes picked up in 2009 because of the financial crisis and subsequent recession.

Our economists are forecasting modest but positive GDP growth in the US, which should limit fundamental deterioration (and fallen angel volumes) at an aggregate level. Sector-/credit-specific deterioration is definitely possible (even outside of energy). However, given the growth in the size of the index and decline in single-name/sector concentrations, it is more difficult for idiosyncratic factors to drive overall fallen angel volumes too high.

FIGURE 11

Historical Fallen Angel Volumes



Source: Barclays Research

Analyst Certification

We, Shobhit Gupta, Ryan Preclaw, CFA and Bruno Velloso, hereby certify (1) that the views expressed in this research report accurately reflect our personal views about any or all of the subject securities or issuers referred to in this research report and (2) no part of our compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed in this research report.

Important Disclosures:

Barclays Research is a part of the Investment Bank of Barclays Bank PLC and its affiliates (collectively and each individually, "Barclays"). Where any companies are the subject of this research report, for current important disclosures regarding those companies please send a written request to: Barclays Research Compliance, 745 Seventh Avenue, 13th Floor, New York, NY 10019 or refer to http://publicresearch.barclays.com or call 212-526-1072.

Barclays Capital Inc. and/or one of its affiliates does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that Barclays may have a conflict of interest that could affect the objectivity of this report. Barclays Capital Inc. and/or one of its affiliates regularly trades, generally deals as principal and generally provides liquidity (as market maker or otherwise) in the debt securities that are the subject of this research report (and related derivatives thereof). Barclays trading desks may have either a long and / or short position in such securities, other financial instruments and / or derivatives, which may pose a conflict with the interests of investing customers. Where permitted and subject to appropriate information barrier restrictions, Barclays fixed income research analysts regularly interact with its trading desk personnel regarding current market conditions and prices. Barclays fixed income research analysts receive compensation based on various factors including, but not limited to, the quality of their work, the overall performance of the firm (including the profitability of the Investment Banking Department), the profitability and revenues of the Markets business and the potential interest of the firm's investing clients in research with respect to the asset class covered by the analyst. To the extent that any historical pricing information was obtained from Barclays trading desks, the firm makes no representation that it is accurate or complete. All levels, prices and spreads are historical and do not represent current market levels, prices or spreads, some or all of which may have changed since the publication of this document. The Investment Bank's Research Department produces various types of research including, but not limited to, fundamental analysis, equity-linked analysis, quantitative analysis, and trade ideas. Recommendations contained in one type of research may differ from recommendations contained in other types of research, whether as a result of differing time horizons, methodologies, or otherwise. Unless otherwise indicated, trade ideas contained herein are provided as of the date of this report and are subject to change without notice due to changes in prices. In order to access Barclays Statement regarding Research Dissemination Policies and Procedures, please refer to *http://publicresearch.barcap.com/static/S_ResearchDissemination.html*. In order to access Barclays Research Conflict Management Policy Statement, please refer to: *http://publicresearch.barcap.com/static/S_ConflictManagement.html*.

Barclays legal entities involved in publishing research:

Barclays Bank PLC (Barclays, UK)
Barclays Capital Inc. (BCI, US)
Barclays Securities Japan Limited (BSJL, Japan)
Barclays Bank PLC, Tokyo branch (Barclays Bank, Japan)
Barclays Bank PLC, Hong Kong branch (Barclays Bank, Hong Kong)
Barclays Capital Canada Inc. (BCCI, Canada)
Absa Bank Limited (Absa, South Africa)
Barclays Bank Mexico, S.A. (BBMX, Mexico)
Barclays Capital Securities Taiwan Limited (BCSTW, Taiwan)
Barclays Capital Securities Limited (BCSL, South Korea)
Barclays Securities (India) Private Limited (BSIPL, India)
Barclays Bank PLC, India branch (Barclays Bank, India)
Barclays Bank PLC, Singapore branch (Barclays Bank, Singapore)
Barclays Bank PLC, Australia branch (Barclays Bank, Australia)

Disclaimer

This publication has been produced by the Investment Bank of Barclays Bank PLC and/or one or more of its affiliates (collectively and each individually, "Barclays"). It has been distributed by one or more Barclays legal entities that are a part of the Investment Bank as provided below. It is provided to our clients for information purposes only, and Barclays makes no express or implied warranties, and expressly disclaims all warranties of merchantability or fitness for a particular purpose or use with respect to any data included in this publication. Barclays will not treat unauthorized recipients of this report as its clients and accepts no liability for use by them of the contents which may not be suitable for their personal use. Prices shown are indicative and Barclays is not offering to buy or sell or soliciting offers to buy or sell any financial instrument.

Without limiting any of the foregoing and to the extent permitted by law, in no event shall Barclays, nor any affiliate, nor any of their respective officers, directors, partners, or employees have any liability for (a) any special, punitive, indirect, or consequential damages; or (b) any lost profits, lost revenue, loss of anticipated savings or loss of opportunity or other financial loss, even if notified of the possibility of such damages, arising from any use of this publication or its contents.

Other than disclosures relating to Barclays, the information contained in this publication has been obtained from sources that Barclays Research believes to be reliable, but Barclays does not represent or warrant that it is accurate or complete. Barclays is not responsible for, and makes no warranties whatsoever as to, the content of any third-party web site accessed via a hyperlink in this publication and such information is not incorporated by reference.

The views in this publication are those of the author(s) and are subject to change, and Barclays has no obligation to update its opinions or the information in this publication. If this publication contains recommendations, those recommendations reflect solely and exclusively those of the authoring analyst(s), and such opinions were prepared independently of any other interests, including those of Barclays and/or its affiliates. This publication does not constitute personal investment advice or take into account the individual financial circumstances or objectives of the clients who receive it. The securities discussed herein may not be suitable for all investors. Barclays recommends that investors independently evaluate each issuer, security or instrument discussed herein and consult any independent advisors they believe necessary. The value of and income from any investment may fluctuate from day to day as a result of changes in relevant economic markets (including changes in market liquidity). The information herein is not intended to predict actual results, which may differ substantially from those reflected. Past performance is not necessarily indicative of future results.

This document is being distributed (1) only by or with the approval of an authorised person (Barclays Bank PLC) or (2) to, and is directed at (a) persons in the United Kingdom having professional experience in matters relating to investments and who fall within the definition of "investment professionals" in Article

19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the "Order"); or (b) high net worth companies, unincorporated associations and partnerships and trustees of high value trusts as described in Article 49(2) of the Order; or (c) other persons to whom it may otherwise lawfully be communicated (all such persons being "Relevant Persons"). Any investment or investment activity to which this communication relates is only available to and will only be engaged in with Relevant Persons. Any other persons who receive this communication should not rely on or act upon it. Barclays Bank PLC is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority and is a member of the London Stock Exchange.

The Investment Bank of Barclays Bank PLC undertakes U.S. securities business in the name of its wholly owned subsidiary Barclays Capital Inc., a FINRA and SIPC member. Barclays Capital Inc., a U.S. registered broker/dealer, is distributing this material in the United States and, in connection therewith accepts responsibility for its contents. Any U.S. person wishing to effect a transaction in any security discussed herein should do so only by contacting a representative of Barclays Capital Inc. in the U.S. at 745 Seventh Avenue, New York, New York 10019.

Non-U.S. persons should contact and execute transactions through a Barclays Bank PLC branch or affiliate in their home jurisdiction unless local regulations permit otherwise.

Barclays Bank PLC, Paris Branch (registered in France under Paris RCS number 381 066 281) is regulated by the Autorité des marchés financiers and the Autorité de contrôle prudentiel. Registered office 34/36 Avenue de Friedland 75008 Paris.

This material is distributed in Canada by Barclays Capital Canada Inc., a registered investment dealer, a Dealer Member of IIROC (www.iiroc.ca), and a Member of the Canadian Investor Protection Fund (CIPF).

Subject to the conditions of this publication as set out above, the Corporate & Investment Banking Division of Absa Bank Limited, an authorised financial services provider (Registration No.: 1986/004794/06. Registered Credit Provider Reg No NCRCP7), is distributing this material in South Africa. Absa Bank Limited is regulated by the South African Reserve Bank. This publication is not, nor is it intended to be, advice as defined and/or contemplated in the (South African) Financial Advisory and Intermediary Services Act, 37 of 2002, or any other financial, investment, trading, tax, legal, accounting, retirement, actuarial or other professional advice or service whatsoever. Any South African person or entity wishing to effect a transaction in any security discussed herein should do so only by contacting a representative of the Corporate & Investment Banking Division of Absa Bank Limited in South Africa, 15 Alice Lane, Sandton, Johannesburg, Gauteng 2196. Absa Bank Limited is a member of the Barclays group.

In Japan, foreign exchange research reports are prepared and distributed by Barclays Bank PLC Tokyo Branch. Other research reports are distributed to institutional investors in Japan by Barclays Securities Japan Limited. Barclays Securities Japan Limited is a joint-stock company incorporated in Japan with registered office of 6-10-1 Roppongi, Minato-ku, Tokyo 106-6131, Japan. It is a subsidiary of Barclays Bank PLC and a registered financial instruments firm regulated by the Financial Services Agency of Japan. Registered Number: Kanto Zaimukyokucho (kinsho) No. 143.

Barclays Bank PLC, Hong Kong Branch is distributing this material in Hong Kong as an authorised institution regulated by the Hong Kong Monetary Authority. Registered Office: 41/F, Cheung Kong Center, 2 Queen's Road Central, Hong Kong.

Information on securities/instruments that trade in Taiwan or written by a Taiwan-based research analyst is distributed by Barclays Capital Securities Taiwan Limited to its clients. The material on securities/instruments not traded in Taiwan is not to be construed as 'recommendation' in Taiwan. Barclays Capital Securities Taiwan Limited does not accept orders from clients to trade in such securities. This material may not be distributed to the public media or used by the public media without prior written consent of Barclays.

This material is distributed in South Korea by Barclays Capital Securities Limited, Seoul Branch.

All Indian securities-related research and other equity research produced by the Investment Bank are distributed in India by Barclays Securities (India) Private Limited (BSIPL). BSIPL is a company incorporated under the Companies Act, 1956 having CIN U67120MH2006PTC161063. BSIPL is registered and regulated by the Securities and Exchange Board of India (SEBI) as a Research Analyst: INH000001519; Portfolio Manager INP000002585; Stock Broker/Trading and Clearing Member: National Stock Exchange of India Limited (NSE) Capital Market INB231292732, NSE Futures & Options INF231292732, NSE Currency derivatives INE231450334, Bombay Stock Exchange Limited (BSE) Capital Market INB011292738, BSE Futures & Options INF011292738; Merchant Banker: INM000011195; Depository Participant (DP) with the National Securities & Depositories Limited (NSDL): DP ID: IN-DP-NSDL-299-2008; Investment Adviser: INA000000391. The registered office of BSIPL is at 208, Ceejay House, Shivsagar Estate, Dr. A. Besant Road, Worli, Mumbai – 400 018, India. Telephone No: +91 2267196000. Fax number: +91 22 67196100. Any other reports produced by the Investment Bank are distributed in India by Barclays Bank PLC, India Branch, an associate of BSIPL in India that is registered with Reserve Bank of India (RBI) as a Banking Company under the provisions of The Banking Regulation Act, 1949 (Regn No BOM43) and registered with SEBI as Merchant Banker (Regn No INM000002129) and also as Banker to the Issue (Regn No INBI00000950). Barclays Investments and Loans (India) Limited, registered with RBI as Non Banking Financial Company (Regn No RBI CoR-07-00258), and Barclays Wealth Trustees (India) Private Limited, registered with Registrar of Companies (CIN U93000MH2008PTC188438), are associates of BSIPL in India that are not authorised to distribute any reports produced by the Investment Bank.

Barclays Bank PLC Frankfurt Branch distributes this material in Germany under the supervision of Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin).

This material is distributed in Malaysia by Barclays Capital Markets Malaysia Sdn Bhd.

This material is distributed in Brazil by Banco Barclays S.A.

This material is distributed in Mexico by Barclays Bank Mexico, S.A.

Barclays Bank PLC in the Dubai International Financial Centre (Registered No. 0060) is regulated by the Dubai Financial Services Authority (DFSA). Principal place of business in the Dubai International Financial Centre: The Gate Village, Building 4, Level 4, PO Box 506504, Dubai, United Arab Emirates. Barclays Bank PLC-DIFC Branch, may only undertake the financial services activities that fall within the scope of its existing DFSA licence. Related financial products or services are only available to Professional Clients, as defined by the Dubai Financial Services Authority.

Barclays Bank PLC in the UAE is regulated by the Central Bank of the UAE and is licensed to conduct business activities as a branch of a commercial bank incorporated outside the UAE in Dubai (Licence No.: 13/1844/2008, Registered Office: Building No. 6, Burj Dubai Business Hub, Sheikh Zayed Road, Dubai City) and Abu Dhabi (Licence No.: 13/952/2008, Registered Office: Al Jazira Towers, Hamdan Street, PO Box 2734, Abu Dhabi).

Barclays Bank PLC in the Qatar Financial Centre (Registered No. 00018) is authorised by the Qatar Financial Centre Regulatory Authority (QFCRA). Barclays Bank PLC-QFC Branch may only undertake the regulated activities that fall within the scope of its existing QFCRA licence. Principal place of business in Qatar: Qatar Financial Centre, Office 1002, 10th Floor, QFC Tower, Diplomatic Area, West Bay, PO Box 15891, Doha, Qatar. Related financial products or services are only available to Business Customers as defined by the Qatar Financial Centre Regulatory Authority.

This material is distributed in the UAE (including the Dubai International Financial Centre) and Qatar by Barclays Bank PLC.

This material is not intended for investors who are not Qualified Investors according to the laws of the Russian Federation as it might contain information about or description of the features of financial instruments not admitted for public offering and/or circulation in the Russian Federation and thus not eligible for non-Qualified Investors. If you are not a Qualified Investor according to the laws of the Russian Federation, please dispose of any copy of this material in your possession.

This material is distributed in Singapore by the Singapore branch of Barclays Bank PLC, a bank licensed in Singapore by the Monetary Authority of Singapore. For matters in connection with this report, recipients in Singapore may contact the Singapore branch of Barclays Bank PLC, whose registered address is 10