

Credit Research

10 October 2019

## Hybrid Capital

# Seeking Value down the Capital Structure

- With the rally in Treasuries driving long corporate yields to near all-time lows, we
  believe the hybrid capital instruments of investment grade issuers offer an
  attractive way to enhance the yield of credit portfolios. Our house view calls for a
  modest but positive US growth backdrop, which should be sufficient to keep
  corporate fundamentals robust and support moving down the capital structure
  of high-quality issuers.
- Total returns across the preferred/hybrid market (bank preferred, corporate, and insurance hybrids) have exceeded 14%, which represents significant outperformance versus BBs and the intermediate BBB index.
- Despite the outperformance, hybrid valuations look attractive versus senior debt.
   Across the different hybrid segments, median spreads are 250-350bp with a BBB/BBB- rating.
- Hybrids offer a significant pickup over senior debt. Bank preferred spreads to call are about 3.5-4.0x senior debt (of similar maturity), while the ratio for insurance/corporate hybrids is about 3.0x, meaningfully wider than our "fair" estimate of 1.5-2.0x.
- While they appear cheap in terms of yield/spread to call, hybrids face significant
  extension risk if spreads widen. The risk is exacerbated in the current environment
  given the potential discontinuation of Libor in 2021, which could freeze Libor at the
  last available level.
- Across the different segments of the hybrid/preferred market, we screen for securities that offer attractive pickup over senior debt, have limited extension risk – either due to a high reset spread or because they lose equity credit after the first call date – and have supportive underlying credit fundamentals.
- Among bank preferreds, we believe PNC 4.85s, USB 5.3s, STT 5.625s, and C 5s appear cheap, while the GS 5.3s look rich. Within the corporate/insurance hybrid sector, MPLX 6.875s, ALL 5.7s, EMACN 6.75s, ENCBN 6s, TRPCN 5.875s, and select PRU hybrids screen as cheap. Conversely, GM preferreds appear rich.

This document is intended for institutional investors and is not subject to all of the independence and disclosure standards applicable to debt research reports prepared for retail investors under U.S. FINRA Rule 2242. Barclays trades the securities covered in this report for its own account and on a discretionary basis on behalf of certain clients. Such trading interests may be contrary to the recommendations offered in this report.

PLEASE SEE ANALYST CERTIFICATIONS AND IMPORTANT DISCLOSURES STARTING AFTER PAGE 7

## Credit Strategy

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

#### Fundamental Credit Research

Brian Monteleone +1 212 412 5184 brian.monteleone@barclays.com BCI, US

#### Harry Mateer

+1 212 412 7903 harry.mateer@barclays.com BCI, US

#### Peter Troisi +1 212 412 3695 peter.troisi@barclays.com BCI, US

Srinjoy Banerjee, CFA +1 212 526 3521 srinjoy.banerjee@barclays.com BCI, US

www.barclays.com

### Assessing the Hybrid Capital Landscape

As Treasuries have rallied, sending long corporate index yields to near all-time lows, meeting yield targets has become increasingly challenging. Moving down the quality spectrum, especially into BBB/BBB- credit, is one way to enhance yields, a strategy that we believe is attractive given valuations in that part of the market. However, concerns about elevated leverage and downgrade risk in lower-rated BBB credits has limited the extent of this migration. These worries have been exacerbated recently by a worsening US and global macroeconomic backdrop.

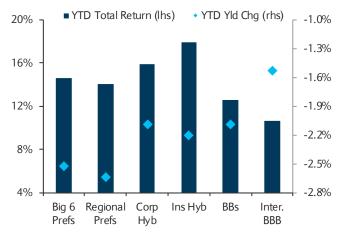
Another way for investors to pick up yield is to stay in higher-quality credits but move down their capital structure, specifically preferred and hybrids of A/high BBB issuers. As detailed in our Global Outlook, while our house view is for a growth slowdown, we do not think there will be a US or a global recession in 2020 given still-healthy labor markets and consumption and accommodative central bank policy. For investment grade credit, a modest but positive US growth backdrop should be sufficient to keep corporate fundamentals robust and support moving down the capital structure of higher quality issuers.

Specifically, we focus on three sub-segments of the hybrid/preferred universe: \$1000-par US bank preferreds (split between big 6 and regional banks) and insurance and corporate hybrids. Within each universe, we focus on the more liquid segments of the market. In total, we include about \$50bn of bank preferreds, \$35bn of corporate hybrids, and \$20bn of insurance hybrids.

Bank preferreds: This includes big 6 and regionals banks. Most securities in the universe we consider have the same structure: they are perpetual and, after an initial non-call fixed-coupon period, become callable either continuously or every coupon date. Coupons are non-cumulative, are fixed initially, and turn into floating after the first call date. The call dates, reset spreads, and, for some recent deals, benchmark floating rates differ across securities. Preferreds continue to receive Tier 1 treatment after their call dates; therefore, the call/extension decision is driven primarily by reset spread.

Corporate hybrids: Corporate hybrids are much less homogeneous than bank preferreds. Some of the securities (especially those issued by MLPs) are perpetual, while others have long-dated maturities. Most pay cumulative coupons that switch to floating after the first call date, but some have non-cumulative coupons (including the recently issued AerCap

FIGURE 1
Year-to-Date Hybrid Performance



Source: Bloomberg, Bloomberg Barclays Indices, Barclays Research

FIGURE 2 Hybrid Capital Valuations

	Price		Spread to Call		Reset Spread	Rating
Big 6 Bank Prefs			271bp		347bp	BBB-
Reg Bank Prefs	\$102.8	4.6%	315bp	4.7	314bp	BBB-
Corp Hybrids	\$102.8	5.0%	336bp	5.3	364bp	BBB-
Insurance Hybrids	\$112.0	4.5%	266bp	9.5	303bp	BBB
Intermediate BBB*	\$105.6	2.7%	119bp	5.0**	NA	BBB
BB*	\$103.4	4.2%	249bp	4.7**	NA	BB

<sup>\*</sup> Yield metrics to worst. For spread, we use OAS. \*\* Years to maturity for BBBs and years to workout date for BBs.

Source: Bloomberg, Bloomberg Barclays Indices, Barclays Research

<sup>&</sup>lt;sup>1</sup> We also exclude securities callable in the next two years given that their yields to call are very sensitive to small moves in price.

5.875s). Given their structure – long maturities and no coupon steps – these hybrids generally continue to hold equity credit past the call date, although there are some exceptions. Securities with shorter final maturities partially lose equity treatment 20 years prior to maturity (often on or near the first call date). Furthermore, many European corporate hybrids have coupon steps, designed so that the securities lose S&P equity credit on the first call date. As discussed in detail below, all else equal, hybrids that lose equity credit on the first call date are more likely to be redeemed early.

**Insurance hybrids:** Similar to the corporate hybrid universe, there are different structures in the insurance hybrid sector. Many securities have a 30-year effective maturity,<sup>2</sup> which means they lose S&P equity credit on or around the first call date. At the other extreme, MetLife and Voya have perpetual non-cumulative preferred stocks similar to the structures issued by banks.

#### Strong Year-to-Date Returns; Current Valuations Still Attractive

Total returns across the hybrid universe have exceeded 14% (Figure 1), which represents significant outperformance versus BBs and the intermediate BBB index (the duration of intermediate corporates is closer to the duration of the hybrid space). Bank preferred yields have compressed more than 2.5%, well in excess of BBs and intermediate BBBs. Figure 2 shows the median statistics across the different preferred/hybrid groups. Although differences in structure affect the likelihood of call and make comparisons across different segments of the market challenging, this provides a sense of the potential opportunity set in each market. A few things stand out:

- Despite the compression in hybrid yields year-to-date, valuations still look attractive versus senior debt. Across the four hybrid segments, median spreads are 250-350bp with a BBB/BBB- rating. This compares favorably with intermediate BBB debt, as well as BBs, which trade at 119bp and 249bp spreads, respectively.
- Within the hybrid universe, bank preferreds (big 6 and regional) and corporate hybrids are similar rated and have similar time to first call of about five years. Corporate hybrids trade the widest at nearly 5% yield. Among banks, big 6 paper trades about 40bp tighter than regional preferreds, but the former has a better structure with meaningfully higher back-end spreads (347bp versus 314bp).
- The hybrid insurance sector stands out with a much higher median dollar price, tighter spread to call, longer time to call, and low back-end reset spread. However, the richer valuations are justified in part by better quality (the median rating is one notch higher) and better structures. As discussed above, many insurance hybrids lose rating agency credit after the first call date, limiting their extension risk.

Although corporate hybrids offer the highest yields/widest spreads among the different segments of the hybrid universe, the underlying senior debt of the issuers is also meaningfully wider than bank/insurance paper. In Figure 3, we adjust for this by looking at the hybrid/senior spread ratio (using a senior bond maturing close to the hybrid call date). Bank preferred spreads to call are about 3.5-4.0x senior debt (of similar maturity), while the ratio is about 3.0x for insurance/corporate hybrids (Figure 3). This is meaningfully wider than our "fair" estimate. Assuming zero recovery for hybrids and 40% recovery for senior debt implies a hybrid/senior ratio of 1.7x. Other considerations, such as coupon deferral risk, longer maturities, and the tax-advantaged nature of coupons (for preferreds) could drive the ratio wider or tighter. Overall we believe a "fair" hybrid/senior ratio is 1.5-2.0x.

<sup>&</sup>lt;sup>2</sup> In some cases, the securities have a legal final maturity that is longer than the maturity date that S&P deems to be the "effective" one.

FIGURE 3
Hybrid Valuations Compared with Senior Spreads

	Hybrid Spread to Call/ Senior Spread	Reset Spread/ Senior Spread
Big 6 Banks	3.5x	2.1x
Regional Banks	4.1x	2.2x
Corps	3.0x	1.5x
Insurance	2.9x	1.6x

Source: Bloomberg, Bloomberg Barclays Indices, Barclays Research

Another factor to consider is longer term spread volatility. For banks and regulated issuers, the ability to increase leverage significantly is generally limited by regulation, which, all else equal, should lower spread volatility. At the other extreme, energy sector revenues and valuations are more volatile, and investors should generally charge a higher premium for being short volatility (as hybrid instruments are) in these credits.

Importantly, while they appear cheap in terms of yield/spread to call, hybrids face significant extension risk if spreads widen. The risk is exacerbated in the current environment given the potential discontinuation of Libor in 2021, which could freeze Libor at the last available level (see *Libor Worries Afloat*). With Libor near 2% but likely to decline further (implied 1y forward 3m Libor is 1.4%), the downside could be substantial. Figure 3 shows the ratio of the reset spread to long-dated senior spread<sup>3</sup> (over swaps) of the issuer as a measure of extension risk. On average, bank preferreds have higher reset to senior spread ratios (of about 2x) than corporate and insurance hybrids, which are at 1.5-1.6x, although as we discuss later, there is significant variation across individual securities.

In addition to the reset spread, extension risk is driven by the capital treatment/equity credit of the security after the call date. We divide the hybrid universe into two buckets based on their capital treatment after the first call date.

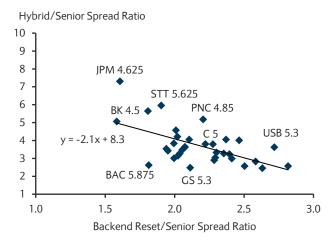
#### Securities Continuing to Receive Capital Treatment after the First Call Date

For securities that continue to receive the same treatment (all bank preferreds and many corporate hybrids), a reset spread to long-dated senior ratio of 1.5-2.0x is essentially at-themoney. Securities with resets meaningfully tighter than this range have very high extension risk, while those above the range have a higher likelihood of being redeemed on the first call date.

Figures 4 and 5 compare the hybrid/senior spread ratio with the ratio of hybrid reset to senior (a measure of extension risk). Most bank preferred resets are wider than our "fair" range, which limits overall extension risk. Furthermore, bank preferreds generally offer much higher compensation for extension risk than corporate/insurance hybrids. Given the significant downside from extension, we generally prefer higher-reset securities, but this suggests that for investors less concerned about extension risk, bank preferreds offer better risk/reward than non-bank securities.

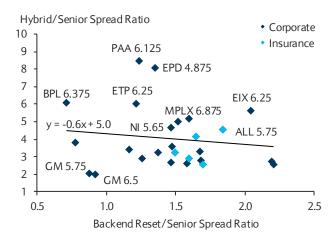
<sup>&</sup>lt;sup>3</sup> Where available, we use 30y senior spreads. For banks with no 30y bonds available, we use a flat 10s30s Treasury OAS curve.

FIGURE 4
Bank Preferreds



Source: Bloomberg, Bloomberg Barclays Indices, Barclays Research

# FIGURE 5 Corporate and Insurance Hybrids



Source: Bloomberg, Bloomberg Barclays Indices, Barclays Research

The following opportunities appear compelling:

- **Buy PNC 4.85s, USB 5.3s, and STT 5.625s**: PNC, US Bancorp (USB) and State Street (STT) are three of the highest quality US banks with the necessary scale and diversification to compete effectively with the larger banks and strong risk management cultures. While the reset rates on their preferreds may look low, when compared with senior spreads, the reset/senior spread ratio looks sufficiently high and the yield (4.2-4.6%) and spread compensation for moving down the capital structure is attractive.
- Buy C 5s: Many of the Citigroup (C) preferreds look attractive, but legacy securities that
  first become callable after 2021 carry elevated reset risk if Libor ends.<sup>4</sup> Therefore, we
  prefer C 5s, which are linked to SOFR and offer a 4.7% YTC with a solid reset spread of
  381.3bp.
- Sell GS 5.3s: Goldman Sachs (GS) 5.3s offer one of the lower hybrid/senior spread ratios, and at a 4.3% YTC, we find better value elsewhere. While Bank of America 5.875s also have a relatively low hybrid/senior ratio, the high YTC of 4.6% should limit the downside, in our view.
- Buy MPLX 6.875s: The MPLX 6.875s screen as cheap compared with the overall corporate hybrid universe (Figure 5). The reset spread is only 1.6x the senior long bond spread, near the tighter end of our fair value range. That said, we are Overweight the credit and expect spreads to tighten, which should lower extension risk. Our constructive stance is driven by the view that management will be able to hold leverage around 4x through 2020, as well as the partnership's commentary about potential asset sales.
- Sell GM 5.75s and 6.5s: The GM preferreds screen as rich, offering relatively limited pickup over senior debt and with low reset coupons of L+3.598% and L+3.436%, respectively. Although we are Overweight GM and see value in its senior debt securities, the 5.75% and 6.5% preferreds are rich, in our view.
- Buy ALL 5.75s: Allstate (ALL) 5.75s offer an attractive pickup over senior debt, with a
  reset/senior ratio of 1.8x. We are Underweight the credit based on tight senior
  valuations while we do not expect spreads to widen, there is little room for further
  upside, in our opinion. That said, the company is less sensitive to capital market volatility

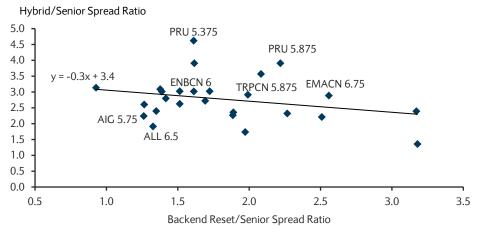
<sup>&</sup>lt;sup>4</sup> Many C preferreds will revert to Libor at time of issuance, which was typically very low.

than life insurance peers, and risks associated with higher severity claims from catastrophic weather events such as hurricanes are well managed, in our view. As a result, we are comfortable moving down the capital structure.

#### Securities That Lose S&P Equity Credit after the First Call Date

Some corporate and insurance hybrids lose S&P equity credit on the first call date and, all else equal, are more likely to be redeemed than securities that continue to receive rating agency credit. From the issuer's standpoint, the securities become like debt (from a rating agency credit perspective) and may be redeemed as long as the reset spread is wider than senior spreads. Figure 6 shows the relationship between the hybrid/senior spread ratio and the ratio of hybrid reset to senior (a measure of extension risk) for this cohort. These securities generally trade tighter than securities with higher extension risk – the average hybrid/senior spread ratio is about 2.9x, compared with nearly 4x for the hybrids in Figure 4.

FIGURE 6
Corporate/Insurance Hybrids Likely to Lose Capital Treatment on First Call Date



Source: Bloomberg, Bloomberg Barclays Indices, Barclays Research

The following opportunities appear compelling:

- Buy PRU 5.375s and 5.875s: Prudential (PRU) hybrids offer significant pickup over senior debt and have limited extension risk given that the securities lose S&P equity credit after the first call date. PRU has reduced its total leverage over the past five years by lowering its operating debt balances, and its ratings have improved, migrating to the A index through upgrades from Moody's and Fitch. The life insurance business is inherently vulnerable to lower interest rates, but PRU's diversity is a strong mitigating factor. Although margin compression is likely in this rate environment, we expect the company to generate top-tier operating results.
- Buy EMACN 6.75s: We are Overweight Emera (EMACN) holdco given the company's
  deleveraging strategy and cheap valuations relative to the BBB utility sector. The
  company has successfully defended its investment grade ratings at Moody's. We
  recommend buying EMACN 6.75% hybrids as a high-beta long on the credit.
- Buy ENBCN 6s and TRPCN 5.875s: ENBCN 6s and TRPCN 5.875s trade about 3x senior spread. Given coupon steps, they lose S&P rating agency credit after the first call date limiting extension risk. We have Market Weight and Underweight ratings on TC Energy (TRPCN) and Enbridge (ENBCN), respectively. For TRPCN, the company's recent asset sales are helping to fund capex and facilitate some deleveraging to below 5x, consistent with management's goal, while the rating agencies' downgrades of TC Energy out of the single-A category earlier in 2019 removed a longstanding overhang. The Underweight

rating on ENBCN is driven primarily by valuation, albeit with some fundamental concerns associated with the company's Line 3 Replacement project, which has faced regulatory delays. That said, ENBCN's simplified structure, leverage target of 4.5-5.0x, and desire to avoid raising equity capital suggest that it will have more limited needs for junior subordinated capital.

• Sell EPD 5.25s, Buy TRPCN 5.875s: To add exposure to what we consider to be a better (ie, lower extension risk) structure, we recommend swapping from Enterprise (EPD) 5.25% 2077s into TC Energy (TRPCN) 5.875% 2076s. The TRPCN junior subs lose equity capital treatment at S&P on their first call date, so although the trade involves giving up some spread to call and pickup over senior, the TC Energy notes have a 1.9x ratio of reset to senior spread, versus 1.3x for the EPD 5.25s, implying lower extension risk. TRPCN has senior ratings that are comparable or slightly higher (Fitch) than EPD, stable ratings outlooks, and is also a large-cap midstream credit. Given their subordinated positions in the capital structure, we consider the higher dollar price of TC Energy's junior sub notes relative to those of EPD to be of little importance for valuation.

#### **Analyst Certification**

We, Srinjoy Banerjee, CFA, Shobhit Gupta, Harry Mateer, Brian Monteleone and Peter Troisi, 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 produced by the Investment Bank of Barclays Bank PLC and its affiliates (collectively and each individually, "Barclays").

All authors contributing to this research report are Research Analysts unless otherwise indicated. The publication date at the top of the report reflects the local time where the report was produced and may differ from the release date provided in GMT.

#### Availability of Disclosures:

For current important disclosures regarding any issuers which are the subject of this research report please refer to https://publicresearch.barclays.com or alternatively send a written request to: Barclays Research Compliance, 745 Seventh Avenue, 13th Floor, New York, NY 10019 or call +1-212-526-1072.

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 necessarily represent current market levels, prices or spreads, some or all of which may have changed since the publication of this document. Barclays Research Department produces various types of research including, but not limited to, fundamental analysis, equity-linked analysis, quantitative analysis, and trade ideas. Recommendations and trade ideas contained in one type of Barclays Research may differ from those contained in other types of Barclays Research, whether as a result of differing time horizons, methodologies, or otherwise. In order to access Barclays Statement regarding Research Dissemination Policies and Procedures, please refer to https://publicresearch.barcap.com/S/RD.htm. In order to access Barclays Research Conflict Management Policy Statement, please refer to: https://publicresearch.barcap.com/S/CM.htm.

#### Materially Mentioned Issuers/Bonds

ALLSTATE CORP/THE, A/CD/CE/D/E/J/K/L/M/N ALL 5 3/4 08/15/53 (USD 107.25, 08-Oct-2019)

**CITIGROUP INC**, A/CD/CE/D/E/GE/I/J/K/L/M/N C 5 PERP (USD 102.15, 08-Oct-2019)

EMERA INC, CD/J EMACN 6 3/4 06/15/76 (USD 109.25, 08-Oct-2019)

ENBRIDGE INC, CD/CE/J/K/M ENBCN 6 01/15/77 (USD 103.63, 08-Oct-2019)

**ENTERPRISE PRODUCTS OPERATING LLC**, A/CD/D/E/J/K/L/M EPD 5 1/4 08/16/77 (USD 99.83, 08-Oct-2019)

GENERAL MOTORS FINANCIAL CO INC, A/CD/D/E/J/K/L/M/N GM 5 3/4 PERP (USD 94.75, 08-Oct-2019) GM 6 1/2 PERP (USD 97.75, 08-Oct-2019)

**GOLDMAN SACHS GROUP INC/THE**, A/CD/CE/D/I/J/K/L/M/N GS 5.3 PERP (USD 105.50, 08-Oct-2019)

MPLX LP, A/CD/CE/D/J/K/L/M MPLX 6 7/8 PERP (USD 99.50, 08-Oct-2019)

PNC FINANCIAL SERVICES GROUP INC/THE, A/CD/CE/D/J/K/L/M/N PNC 4.85 PERP (USD 101.88, 08-Oct-2019)

PRUDENTIAL FINANCIAL INC, A/CD/CE/D/J/K/L/M PRU 5 3/8 05/15/45 (USD 106.52, 08-Oct-2019) PRU 5 7/8 09/15/42 (USD 106.90, 08-Oct-2019)

# **STATE STREET CORP**, A/CD/CE/D/J/K/L/M/N STT 5 5/8 PERP (USD 103.50, 08-Oct-2019)

TRANSCANADA TRUST, A/CD/D/J/L TRPCN 5 7/8 08/15/76 (USD 105.38, 08-Oct-2019)

US BANCORP, A/CD/CE/D/I/J/K/L/M/N USB 5.3 PERP (USD 106.88, 08-Oct-2019)

All pricing information is indicative only. Prices are sourced from Refinitiv as of the last available closing price at the time of production of the research report, unless another time and source is indicated.

#### Disclosure Legend:

A: Barclays Bank PLC and/or an affiliate has been lead manager or co-lead manager of a publicly disclosed offer of securities of the issuer in the previous 12 months.

**B**: An employee or non-executive director of Barclays PLC is a director of this issuer.

CD: Barclays Bank PLC and/or an affiliate is a market-maker in debt securities issued by this issuer.

CE: Barclays Bank PLC and/or an affiliate is a market-maker in equity securities issued by this issuer.

D: Barclays Bank PLC and/or an affiliate has received compensation for investment banking services from this issuer in the past 12 months.

E: Barclays Bank PLC and/or an affiliate expects to receive or intends to seek compensation for investment banking services from this issuer within the next 3 months.

FA: Barclays Bank PLC and/or an affiliate beneficially owns 1% or more of a class of equity securities of this issuer, as calculated in accordance with US regulations.

FB: Barclays Bank PLC and/or an affiliate beneficially owns a long position of more than 0.5% of a class of equity securities of this issuer, as calculated in accordance with EU regulations.

FC: Barclays Bank PLC and/or an affiliate beneficially owns a short position of more than 0.5% of a class of equity securities of this issuer, as calculated in accordance with EU regulations.

GD: One of the analysts on the fundamental credit coverage team (or a member of his or her household) has a financial interest in the debt or equity securities of this issuer.

GE: One of the analysts on the fundamental equity coverage team (or a member of his or her household) has a financial interest in the debt or equity securities of this issuer.

H: This issuer beneficially owns more than 5% of any class of common equity securities of Barclays PLC.

I: Barclays Bank PLC and/or an affiliate is party to an agreement with this issuer for the provision of financial services to Barclays Bank PLC and/or an affiliate.

J: Barclays Bank PLC and/or an affiliate is a liquidity provider and/or trades regularly in the securities of this issuer and/or in any related derivatives.

K: Barclays Bank PLC and/or an affiliate has received non-investment banking related compensation (including compensation for brokerage services, if applicable) from this issuer within the past 12 months.

L: This issuer is, or during the past 12 months has been, an investment banking client of Barclays Bank PLC and/or an affiliate.

M: This issuer is, or during the past 12 months has been, a non-investment banking client (securities related services) of Barclays Bank PLC and/or an affiliate.

N: This issuer is, or during the past 12 months has been, a non-investment banking client (non-securities related services) of Barclays Bank PLC and/or an affiliate.

O: Not in use.

P: A partner, director or officer of Barclays Capital Canada Inc. has, during the preceding 12 months, provided services to the subject company for remuneration, other than normal course investment advisory or trade execution services.

Q: Barclays Bank PLC and/or an affiliate is a Corporate Broker to this issuer.

R: Barclays Capital Canada Inc. and/or an affiliate has received compensation for investment banking services from this issuer in the past 12 months.

**S:** This issuer is a Corporate Broker to Barclays PLC.

T: Barclays Bank PLC and/or an affiliate is providing equity advisory services to this issuer.

U: The equity securities of this Canadian issuer include subordinate voting restricted shares.

V: The equity securities of this Canadian issuer include non-voting restricted shares.

#### Explanation of the Barclays Research Corporate Credit Sector Rating System

#### Overweight (OW):

For sectors rated against the Bloomberg Barclays U.S. Credit Index, the Bloomberg Barclays Pan-European Credit Index, the Bloomberg Barclays EM Asia USD High Grade Credit Index or the Bloomberg Barclays EM USD Corporate and Quasi-Sovereign Index, the analyst expects the six-month excess return of the sector to exceed the six-month excess return of the relevant index.

For sectors rated against the Bloomberg Barclays U.S. High Yield 2% Issuer Capped Credit Index, the Bloomberg Barclays Pan-European High Yield 3% Issuer Capped Credit Index excluding Financials, the Bloomberg Barclays Pan-European High Yield Finance Index or the Bloomberg Barclays EM Asia USD High Yield Corporate Credit Index, the analyst expects the six-month total return of the sector to exceed the six-month total return of the relevant index.

#### Market Weight (MW):

For sectors rated against the Bloomberg Barclays U.S. Credit Index, the Bloomberg Barclays Pan-European Credit Index, the Bloomberg Barclays EM Asia USD High Grade Credit Index or the Bloomberg Barclays EM USD Corporate and Quasi-Sovereign Index, the analyst expects the six-month excess return

of the sector to be in line with the six-month excess return of the relevant index.

For sectors rated against the Bloomberg Barclays U.S. High Yield 2% Issuer Capped Credit Index, the Bloomberg Barclays Pan-European High Yield 3% Issuer Capped Credit Index excluding Financials, the Bloomberg Barclays Pan-European High Yield Finance Index or the Bloomberg Barclays EM Asia USD High Yield Corporate Credit Index, the analyst expects the six-month total return of the sector to be in line with the six-month total return of the relevant index.

#### Underweight (UW):

For sectors rated against the Bloomberg Barclays U.S. Credit Index, the Bloomberg Barclays Pan-European Credit Index, the Bloomberg Barclays EM Asia USD High Grade Credit Index or the Bloomberg Barclays EM USD Corporate and Quasi-Sovereign Index, the analyst expects the six-month excess return of the sector to be less than the six-month excess return of the relevant index.

For sectors rated against the Bloomberg Barclays U.S. High Yield 2% Issuer Capped Credit Index, the Bloomberg Barclays Pan-European High Yield 3% Issuer Capped Credit Index excluding Financials, the Bloomberg Barclays Pan-European High Yield Finance Index or the Bloomberg Barclays EM Asia USD High Yield Corporate Credit Index, the analyst expects the six-month total return of the sector to be less than the six-month total return of the relevant index.

#### Sector definitions:

Sectors in U.S. High Grade Research are defined using the sector definitions of the Bloomberg Barclays U.S. Credit Index and are rated against the Bloomberg Barclays U.S. Credit Index.

Sectors in U.S. High Yield Research are defined using the sector definitions of the Bloomberg Barclays U.S. High Yield 2% Issuer Capped Credit Index and are rated against the Bloomberg Barclays U.S. High Yield 2% Issuer Capped Credit Index.

Sectors in European High Grade Research are defined using the sector definitions of the Bloomberg Barclays Pan-European Credit Index and are rated against the Bloomberg Barclays Pan-European Credit Index.

Sectors in Industrials and Utilities in European High Yield Research are defined using the sector definitions of the Bloomberg Barclays Pan-European High Yield 3% Issuer Capped Credit Index excluding Financials and are rated against the Bloomberg Barclays Pan-European High Yield 3% Issuer Capped Credit Index excluding Financials.

Sectors in Financials in European High Yield Research are defined using the sector definitions of the Bloomberg Barclays Pan-European High Yield Finance Index and are rated against the Bloomberg Barclays Pan-European High Yield Finance Index.

Sectors in Asia High Grade Research are defined on Barclays Live and are rated against the Bloomberg Barclays EM Asia USD High Grade Credit Index. Sectors in Asia High Yield Research are defined on Barclays Live and are rated against the Bloomberg Barclays EM Asia USD High Yield Corporate Credit Index.

Sectors in EEMEA and Latin America Research are defined on Barclays Live and are rated against the Bloomberg Barclays EM USD Corporate and Quasi Sovereign Index. These sectors may contain both High Grade and High Yield issuers.

To view sector definitions and monthly sector returns for Asia, EEMEA and Latin America Research, go to https://live.barcap.com/go/research/EMSectorReturns on Barclays Live.

#### Explanation of the Barclays Research Corporate Credit Rating System

For all High Grade issuers covered in the US, Europe or Asia, and for all issuers in Latin America and EEMEA, the credit rating system is based on the analyst's view of the expected excess return over a six-month period of the issuer's index-eligible corporate debt securities\* relative to the expected excess return of the relevant sector, as specified on the report.

Overweight (OW): The analyst expects the six-month excess return of the issuer's index-eligible corporate debt securities to exceed the six-month expected excess return of the relevant sector.

Market Weight (MW): The analyst expects the six-month excess return of the issuer's index-eligible corporate debt securities to be in line with the six-month expected excess return of the relevant sector.

**Underweight (UW):** The analyst expects the six-month excess return of the issuer's index-eligible corporate debt securities to be less than the six-month expected excess return of the relevant sector.

Rating Suspended (RS): The rating has been suspended temporarily due to market events that make coverage impracticable or to comply with applicable regulations and/or firm policies in certain circumstances including where the Investment Bank of Barclays Bank PLC is acting in an advisory capacity in a merger or strategic transaction involving the company.

Coverage Suspended (CS): Coverage of this issuer has been temporarily suspended.

Not Covered (NC): Barclays' fundamental credit research team does not provide formal, continuous coverage of this issuer and has not assigned a rating to the issuer or its debt securities. Any analysis, opinion or trade recommendation provided on a Not Covered issuer or its debt securities is valid only as of the publication date of this report and there should be no expectation that additional reports relating to the Not Covered issuer or its debt securities will be published thereafter.

For all High Yield issuers (excluding those covered in EEMEA or Latin America), the credit rating system is based on the analyst's view of the expected total returns over a six-month period of the rated debt security relative to the expected total return of the relevant sector, as specified on the report.

Overweight (OW): The analyst expects the six-month total return of the debt security subject to this rating to exceed the six-month expected total return of the relevant sector.

Market Weight (MW): The analyst expects the six-month total return of the debt security subject to this rating to be in line with the six-month expected total return of the relevant sector.

**Underweight (UW):** The analyst expects the six-month total return of the rated debt security subject to this rating to be less than the six-month expected total return of the relevant sector.

Rating Suspended (RS): The rating has been suspended temporarily due to market events that make coverage impracticable or to comply with applicable regulations and/or firm policies in certain circumstances including where the Investment Bank of Barclays Bank PLC is acting in an advisory capacity in a merger or strategic transaction involving the company.

Coverage Suspended (CS): Coverage of this issuer has been temporarily suspended.

Not Covered (NC): Barclays' fundamental credit research team does not provide formal, continuous coverage of this issuer and has not assigned a rating to the issuer or its debt securities. Any analysis, opinion or trade recommendation provided on a Not Covered issuer or its debt securities is valid only as of the publication date of this report and there should be no expectation that additional reports relating to the Not Covered issuer or its debt securities will be published thereafter.

Where a recommendation is made at the issuer level, it does not apply to any sanctioned securities, where trading in such securities would be prohibited under applicable law, including sanctions laws and regulations.

\*In EEMEA and Latin America (and in certain other limited instances in other regions), analysts may occasionally rate issuers that are not part of the Bloomberg Barclays U.S. Credit Index, the Bloomberg Barclays Pan-European Credit Index, the Bloomberg Barclays EM Asia USD High Grade Credit Index or Bloomberg Barclays EM USD Corporate and Quasi Sovereign Index. In such cases the rating will reflect the analyst's view of the expected excess return over a six-month period of the issuer's corporate debt securities relative to the expected excess return of the relevant sector, as specified on the report.

#### Distribution of ratings assigned by Barclays Corporate Credit Research at the bond level:

21% have been assigned an Overweight rating which, for purposes of mandatory regulatory disclosures, is classified as a Buy rating; 54% of bonds with this rating category are investment banking clients of the Firm; 67% of the issuers with this rating have received financial services from the Firm. 54% have been assigned Market Weight rating which, for purposes of mandatory regulatory disclosures, is classified as a Hold rating; 58% of bonds with this rating category are investment banking clients of the Firm; 77% of the issuers with this rating have received financial services from the Firm. 25% have been assigned an Underweight rating which, for purposes of mandatory regulatory disclosures, is classified as a Sell rating; 43% of bonds with this rating category are investment banking clients of the Firm; 72% of the issuers with this rating have received financial services from the Firm.

#### Explanation of the Barclays EM Sovereign Credit Issuer Rating System

#### Overweight (OW):

The analyst expects the six-month excess return of the country's index eligible bonds to exceed the six-month excess return of the Bloomberg Barclays EM USD Sovereign Index.

#### Market Weight (MW):

The analyst expects the six-month excess return of the country's index eligible bonds to be in line with the six-month excess return of the Bloomberg Barclays EM USD Sovereign Index.

#### Underweight (UW):

The analyst expects the six-month excess return of the country's index eligible bonds to be less than the six-month excess return of the Bloomberg Barclays EM USD Sovereign Index.

#### Rating Suspended (RS):

The rating has been suspended temporarily due to market events that make coverage impracticable or to comply with applicable regulations and/or firm policies in certain circumstances including where the Investment Bank of Barclays Bank PLC is acting in an advisory capacity.

#### Distribution of ratings assigned by Barclays Emerging Markets Sovereign Research at the issuer level:

29% have been assigned an Overweight rating which, for purposes of mandatory regulatory disclosures, is classified as a Buy rating; 10% of issuers with this rating category are investment banking clients of the Firm; 60% of the issuers with this rating have received financial services from the Firm. 38% have been assigned Market Weight rating which, for purposes of mandatory regulatory disclosures, is classified as a Hold rating; 23% of issuers with this rating category are investment banking clients of the Firm; 69% of the issuers with this rating have received financial services from the Firm. 32% have been assigned an Underweight rating which, for purposes of mandatory regulatory disclosures, is classified as a Sell rating; 18% of issuers with this rating category are investment banking clients of the Firm; 91% of the issuers with this rating have received financial services from the Firm.

#### Types of investment recommendations produced by Barclays FICC Research:

In addition to any ratings assigned under Barclays' formal rating systems, this publication may contain investment recommendations in the form of trade ideas, thematic screens, scorecards or portfolio recommendations that have been produced by analysts in FICC Research. Any such investment recommendations produced by non-Credit Research teams shall remain open until they are subsequently amended, rebalanced or closed in a future research report. Any such investment recommendations produced by the Credit Research teams are valid at current market conditions and may not be otherwise relied upon.

#### Disclosure of other investment recommendations produced by Barclays FICC Research:

Barclays FICC Research may have published other investment recommendations in respect of the same securities/instruments recommended in this research report during the preceding 12 months. To view all investment recommendations published by Barclays FICC Research in the preceding 12 months please refer to <a href="https://live.barcap.com/go/research/Recommendations">https://live.barcap.com/go/research/Recommendations</a>.

#### Legal entities involved in producing Barclays Research:

Barclays Bank PLC (Barclays, UK) Barclays Capital Inc. (BCI, US) Barclays Bank Ireland PLC, Frankfurt Branch (BBI, Frankfurt)
Barclays Bank Ireland PLC, Paris Branch (BBI, Paris)
Barclays Bank Ireland PLC, Milan Branch (BBI, Milan)
Barclays Securities Japan Limited (BSJL, Japan)
Barclays Bank PLC, Hong Kong branch (Barclays Bank, Hong Kong)
Barclays Capital Canada Inc. (BCCI, Canada)
Barclays Bank Mexico, S.A. (BBMX, Mexico)
Barclays Securities (India) Private Limited (BSIPL, India)
Barclays Bank PLC, India branch (Barclays Bank, India)
Barclays Bank PLC, Singapore branch (Barclays Bank, Singapore)

#### Disclaimer:

This publication has been produced by Barclays Research Department in the Investment Bank of Barclays Bank PLC and/or one or more of its affiliates (collectively and each individually, "Barclays"). It has been prepared for institutional investors only and not for retail investors. It has been distributed by one or more Barclays affiliated legal entities listed 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. To the extent that this publication states on the front page that it is intended for institutional investors and is not subject to all of the independence and disclosure standards applicable to debt research reports prepared for retail investors under U.S. FINRA Rule 2242, it is an "institutional debt research report" and distribution to retail investors is strictly prohibited. Barclays also distributes such institutional debt research reports to various issuers, media, regulatory and academic organisations for their own internal informational news gathering, regulatory or academic purposes and not for the purpose of making investment decisions regarding any debt securities. Media organisations are prohibited from re-publishing any opinion or recommendation concerning a debt issuer or debt security contained in any Barclays institutional debt research report. Any such recipients that do not want to continue receiving Barclays institutional debt research reports should contact debtresearch@barclays.com. 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 information or opinions contained in any written, electronic, audio or video presentations of third parties that are accessible via a direct hyperlink in this publication or via a hyperlink to a third-party web site ('Third-Party Content'). Any such Third-Party Content has not been adopted or endorsed by Barclays, does not represent the views or opinions of Barclays, and is not incorporated by reference into this publication. Third-Party Content is provided for information purposes only and Barclays has not independently verified its accuracy or completeness.

The views in this publication are solely and exclusively those of the authoring analyst(s) and are subject to change, and Barclays Research has no obligation to update its opinions or the information in this publication. Unless otherwise disclosed herein, the analysts who authored this report have not received any compensation from the subject companies in the past 12 months. If this publication contains recommendations, they are general recommendations that were prepared independently of any other interests, including those of Barclays and/or its affiliates, and/or the subject companies. This publication does not contain personal investment recommendations or investment advice or take into account the individual financial circumstances or investment objectives of the clients who receive it. The securities and other investments discussed herein may not be suitable for all investors. Barclays is not a fiduciary to any recipient of this publication. Investors must independently evaluate the merits and risks of the investments discussed herein, consult any independent advisors they believe necessary, and exercise independent judgment with regard to any investment decision. 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. The information provided does not constitute a financial benchmark and should not be used as a submission or contribution of input data for the purposes of determining a financial benchmark.

**United Kingdom:** 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.

European Economic Area ("EEA"): This material is being distributed in the EEA by Barclays Bank PLC. Barclays Bank PLC is not registered in France with the Autorité des marchés financiers or the Autorité de contrôle prudentiel.

Americas: 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.

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).

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

address is 10 Marina Boulevard, #23-01 Marina Bay Financial Centre Tower 2, Singapore 018983.

Japan: This material is being 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

Asia Pacific (excluding Japan): 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.

All Indian securities-related research and other equity research produced by Barclays' 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; 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 Barclays' 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 INB100000950). 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 Barclays' Investment Bank. 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 thi

This material is distributed to persons in Australia by Barclays Bank PLC. None of Barclays Bank PLC, nor any other Barclays group entity, holds an Australian financial services licence and instead relies on an exemption from the requirement to hold such a licence. This material is intended to only be distributed to "wholesale clients" as defined by the Australian Corporations Act 2001.

Middle East: Nothing herein should be considered investment advice as defined in the Israeli Regulation of Investment Advisory, Investment Marketing and Portfolio Management Law, 1995 ("Advisory Law"). This document is being made to eligible clients (as defined under the Advisory Law) only. Barclays Israeli branch previously held an investment marketing license with the Israel Securities Authority but it cancelled such license on 30/11/2014 as it solely provides its services to eligible clients pursuant to available exemptions under the Advisory Law, therefore a license with the Israel Securities Authority is not required. Accordingly, Barclays does not maintain an insurance coverage pursuant to the Advisory Law.

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

Russia: 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.

IRS Circular 230 Prepared Materials Disclaimer: Barclays does not provide tax advice and nothing contained herein should be construed to be tax advice. Please be advised that any discussion of U.S. tax matters contained herein (including any attachments) (i) is not intended or written to be used, and cannot be used, by you for the purpose of avoiding U.S. tax-related penalties; and (ii) was written to support the promotion or marketing of the transactions or other matters addressed herein. Accordingly, you should seek advice based on your particular circumstances from an independent tax advisor.

© Copyright Barclays Bank PLC (2019). All rights reserved. No part of this publication may be reproduced or redistributed in any manner without the prior written permission of Barclays. Barclays Bank PLC is registered in England No. 1026167. Registered office 1 Churchill Place, London, E14 5HP. Additional information regarding this publication will be furnished upon request.

BRCF2242