



US Equity Strategy

US-China trade war flares up again

We construct a basket of stocks that are most exposed to the US-China trade war which we believe are likely to underperform if trade tensions escalate further.

Interestingly, trade tensions have escalated again this week after optimism for a trade deal since the start of the year. We construct the basket using a robust process which identifies industries which are most exposed to US-China trade using US Census data and then select names in S&P 500 corresponding to those industries.

Trade tensions escalated this week when on May 5th President Trump tweeted that he plans on raising tariffs on \$200bn of Chinese goods from 10% to 25% by the end of the week. This tweet comes just as Liu He, China's chief trade negotiator, is planning to visit the U.S. in attempts to finalize a trade deal. Markets have reacted negatively, with the SPX down 2.2% in 3 days.

We construct an equal-weighted basket using a robust process which identifies industries which are most exposed to US-China trade using US Census data and then selects names in S&P 500 corresponding to those industries. Our new trade war basket adjusts for two unintended biases in our previous methodology. Firstly, while we had assumed previously that the U.S. companies would take the full brunt of tariff costs on their profit margins resulting in a selection bias towards companies with low profit margins, we have relaxed the assumption now by being agnostic to profitability margins. Secondly, while we had dropped stocks with an Overweight rating from Barclays' analysts previously, we now select all names in high US-China trade exposure industries irrespective of their analyst rating.

Our new trade war basket of 50 names better tracks trade war sentiment and has strongly underperformed the market since President Trump's recent tweets. Our new trade war basket underperformed the market during the heightened trade tensions of 1H2018 and, unlike our older methodology, had outperformed significantly with increased optimism of a trade deal earlier this year.

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 the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

PLEASE SEE ANALYST CERTIFICATION(S) AND IMPORTANT DISCLOSURES BEGINNING ON PAGE 8.

MACRO STRATEGY

U.S. Equity Strategy

Maneesh S. Deshpande

+1 212 526 2953

maneesh.deshpande@barclays.com

BCI, US

Japinder Chawla

+1 212 526 2771

japinder.chawla@barclays.com

BCI, US

Elias Krauklis

+1 212 526 9376

elias.krauklis@barclays.com

BCI, US

US-China trade war tension flare up again

The trade war between China and U.S., which had kept the markets on edge in the second half of 2018 with exchanges of tariffs and threats, and was followed by optimism since the start of this year with signs of a U.S.-China trade deal emerging, has seen tensions flare up yet again. In a May 5th tweet, U.S. President Donald Trump renewed a threat to raise tariffs on Chinese imports, specifically mentioning increasing the levy on \$200 billion in Chinese goods to 25% at the end of the week. Moreover, President Trump has warned that the US could also pursue the tariffs on the remaining \$300bn in Chinese imports, a move subject to public comment that could take up to three months to implement.

FIGURE 1

After a period of relative optimism and calm, trade war tensions have flared up again



Source: Barclays Research, Bloomberg

The tweet came ahead of a planned trip by a Chinese delegation, including chief trade negotiator Liu He, to Washington for an anticipated round of talks. The negotiations are entering their final phase, and while both sides have made compromises along the way in an effort to strike a deal, President Trump has apparently been frustrated with the deliberate pace of the talks, or even backtracking on its guarantees over intellectual property protections.

Up to this point, China has focused its concessions on addressing its trade imbalance by guaranteeing increased purchases of U.S. goods and opening market access, along with some structural issues. However, the snag appears to be over China's resistance to U.S. demands for legal changes addressing intellectual property theft and its disagreement over the corresponding enforcement mechanisms. In March, China revised its foreign investment law and increased protections against intellectual property theft by beefing up punitive measures. But the question of enforcing those provisions, particularly at the local level, remains divisive.

Refining the 'Trade War' basket

Given the recent spike in trade tensions we believe it is pertinent to revisit our framework for assessing the impact of a trade war on U.S. equities (*U.S. Equity Strategy: Trade War: Nowhere to Hide*, July 9th, 2018 and *US Equity Strategy: Trading the US-China Trade War*, October 19th, 2018) and highlight any potential limitations in our original implementation.

It is important to note that the level of international sales is not a good proxy to estimate the impact of tariffs imposed by China on US goods as what really matters is the level of actual

exports and imports. For example, sales of products manufactured and sold abroad are not subject to tariffs. Further, tariffs imposed by the US on imports also has a negative impact on US corporate earnings as companies import not only inputs into its production but also finished goods that are manufactured and assembled in a foreign subsidiary.

Since individual companies do not uniformly report actual imports and exports, we estimate exports and imports as a percentage of sales for each S&P 500 company by leveraging trade and input-output data from U.S. Census Bureau and Bureau of Economic Analysis respectively for the entire U.S. economy. We use the 5-digit level NAICS classification which gives a better estimate of these ratios for each company. However, a key drawback of this approach is that the NAICS classification for a company (which we obtain from Bloomberg) may not be accurate especially for companies whose operations encompass multiple industries.

The trade war basket that we had recommended in *US Equity Strategy: Trading the US-China Trade War*, October 19th, 2018 was created by estimating the impact of US and China trade tariffs on individual stocks and then selecting the 30 most impacted names. However, the selection process suffered from a few limitations, due to which the basket did not serve as a true proxy of evolving sentiment on the prospects of a US-China trade deal (Figure 1). While the basket did outperform the market during times of increased optimism of a potential US-China trade deal, in our opinion, the outperformance was not enough compared to the level of optimism at that time. With the tensions flaring up this week, we revisit the basket construction methodology and suggest a new basket that we believe is a better proxy of the sentiment surrounding the US-China trade war. We throw light on the limitations of the previous methodology below and show how we adapt the selection methodology to overcome these limitations.

FIGURE 2

While our original trade war basket underperformed strongly during prior times of high trade war tension, it did not outperform significantly during the optimistic 2019Q1



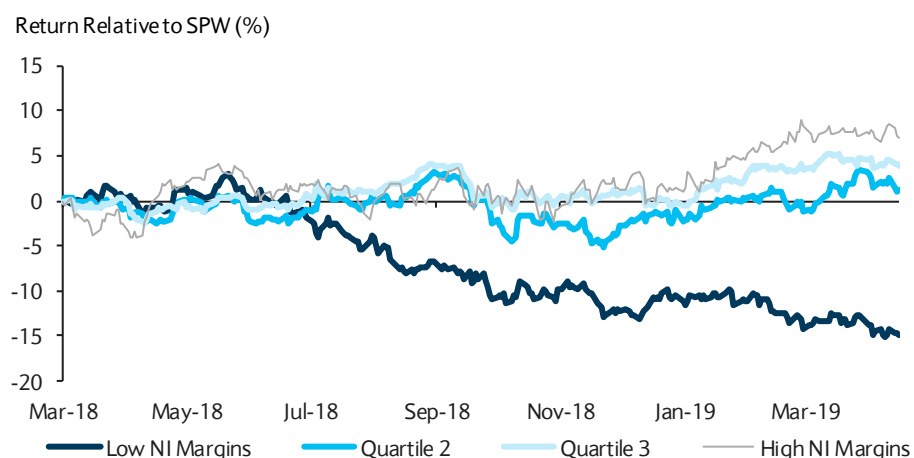
Source: Barclays Research, Bloomberg, US Census Bureau, BEA, 10-K filings of S&P 500 companies

A key assumption in our original basket construction was that U.S. companies bear the entire brunt of the impact of tariffs on both imports and exports. In reality, U.S. companies have responded by either passing some of the higher costs to their customers in the form of higher prices on products (and accepting some decline in market share), or forced suppliers to eat some of the higher tariff costs by lowering the prices of their supply parts/finished goods to the company. In some cases, companies have shifted their supply chain and production to other low cost countries in order to remain competitive.

This assumption that the U.S. companies simply absorb the tariffs as a hit to profit margins skewed the basket creation methodology towards companies with low margins as their earnings would be more negatively impacted. Figure 3 shows that among stocks with high levels of China imports and exports, companies with low profit margins have continued to underperform despite the rise in trade war optimism. Thus, our bias towards low margin stocks negatively impacted our trade war basket even as the trade war sentiment was improving. To correct this bias we adapt our selection methodology to select the NAICS industries that are most exposed to US-China trade and then include all names in those industries irrespective of their profitability margins.

FIGURE 3

Our prior trade war basket had a bias toward low margin stocks, which failed to rebound as trade war sentiment improved



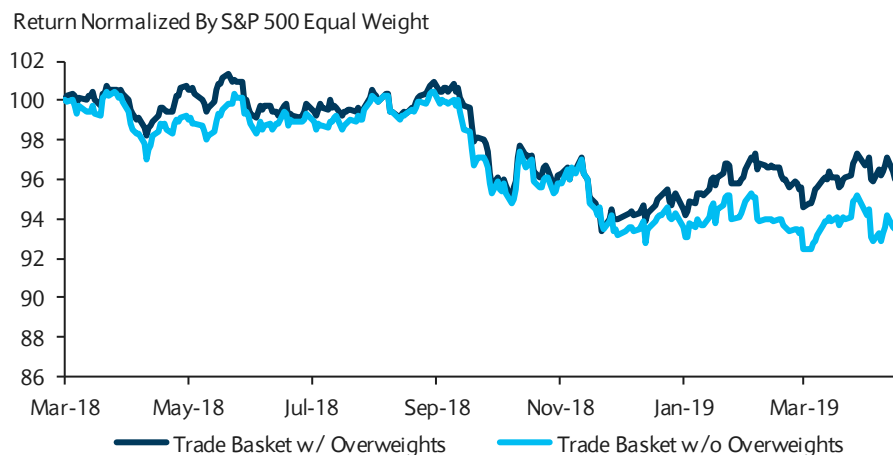
Source: Barclays Research, Bloomberg, US Census Bureau, BEA, 10-K filings of S&P 500 companies

Note: Margin baskets are calculated by taking the universe of high China imports and exports and creating quartiles on net income margin. Low NI Margins represents the basket with the lowest margins, followed by Quartile 2, Quartile 3, and High NI Margins.

Another limitation of our basket construction methodology was that after selecting the names with the highest estimated tariff impact, we had dropped names for which Barclays' analysts had an Overweight rating. As the tariff impact was not the only driver determining risk/reward for stocks, we had removed Overweight names to guard against including names with strong fundamentals and other positive catalysts that might create an unwarranted upside bias. However, as seen in Figure 4, the removal of these Overweight names suppressed returns even as trade war sentiment improved. We have therefore adapted our selection methodology to select the NAICS industries (rather than individual names) that are most exposed to US-China trade and then include all names in those industries irrespective of their analyst rating.

FIGURE 4

The removal of stocks with an Overweight rating from a Barclays' Analyst depressed returns for the trade war basket even as trade war sentiment was improving



Source: Barclays Research, Bloomberg, US Census Bureau, BEA, 10-K filings of S&P 500 companies

Having adapted our selection methodology for the removal of these two unintended biases (lower margins and removal of Overweight ratings), we create a new basket of names using NAICS industries that are most exposed to the US-China trade war. After selecting the 25 most exposed 5-digit level NAICS industries (i.e. the industries with the highest amount of imports and exports relative to their total sales), we include all names in those industries resulting in an equal-weighted basket of 50 stocks shown in Figure 5. Interestingly, all names in the basket belong to Information Technology, Industrials, Consumer Discretionary, Health Care, and Materials.

FIGURE 5

Names most impacted by US-China trade war based on our bottom-up framework

Ticker	Stock Price	GICS Sector	NAICS Industry Code	2019E Revenue	2019E NI Margin	Intl. Sales/Sales	China Exports / Sales	China Imports / Sales
AAPL	202.9	INFT	Broadcast wireless comms equipment	259,919	21%	64.9%	1.8%	45.6%
CSCO	53.47	INFT	Telephone apparatus manufacturing	52,322	30%	40.3%	0.2%	15.8%
HON	170.36	INDU	Environmental control manufacturing	37,126	16%	38.4%	0.5%	9.7%
NKE	82.77	COND	Leather manufacturing	40,843	11%	43.1%	0.9%	46.3%
QCOM	84.54	INFT	Broadcast wireless comms equipment	21,617	22%	98.4%	1.8%	45.6%
DHR	131.72	HLTH	Industrial process instruments manufacturing	20,620	17%	55.9%	2.6%	6.7%
HPQ	19.53	INFT	Electronic computer manufacturing	59,050	6%	62.6%	0.9%	49.3%
ETN	80.96	INDU	Switchgear and switchboard manufacturing	22,280	11%	45.4%	1.5%	7.8%
JCI	39.38	INDU	Other electronic component manufacturing	24,217	7%	57.0%	1.5%	11.4%
TEL	91.14	INFT	Other electronic component manufacturing	13,791	14%	65.7%	1.5%	11.4%
ROP	354.38	INDU	Industrial process instruments manufacturing	5,422	25%	21.0%	2.6%	6.7%
VFC	93.72	COND	Apparel manufacturing	14,025	11%	36.3%	0.1%	25.9%
APH	94.57	INFT	Other electronic component manufacturing	8,244	15%	69.5%	1.5%	11.4%
GLW	30.89	INFT	Communication wire and cable manufacturing	12,202	14%	70.2%	1.4%	11.6%
FTV	82.48	INDU	Industrial process instruments manufacturing	7,464	16%	44.2%	2.6%	6.7%
ROK	170.61	INDU	Watch, measuring device manufacturing	6,895	15%	45.3%	4.1%	5.3%
SWK	143.95	INDU	Cutlery and handtool manufacturing	14,707	9%	47.3%	0.8%	24.2%
NTAP	68.92	INFT	Computer storage device manufacturing	6,321	19%	44.7%	0.6%	11.6%
A	76.61	HLTH	Electricity, signal instruments manufacturing	5,238	19%	70.2%	5.9%	4.7%
MSI	143.05	INFT	Broadcast wireless comms equipment	7,858	17%	39.0%	1.8%	45.6%
WDC	46.7	INFT	Computer storage device manufacturing	15,512	4%	79.0%	0.6%	11.6%
HRS	179.38	INDU	Broadcast wireless comms equipment	6,936	15%	23.0%	1.8%	45.6%
MCHP	91.54	INFT	Watch, measuring device manufacturing	5,539	29%	80.8%	4.1%	5.3%
CWW	276.57	INDU	Air purification equipment manufacturing	11,739	9%	23.0%	1.1%	9.1%
STX	49.04	INFT	Computer storage device manufacturing	9,868	12%	71.4%	0.6%	11.6%
TPR	30.75	COND	Leather manufacturing	6,204	13%	47.7%	0.9%	46.3%
MLM	216.14	MATR	Clay product and refractory manufacturing	4,525	13%	1.3%	0.9%	16.8%
COO	290.93	HLTH	Ophthalmic goods manufacturing	2,685	23%	54.9%	1.5%	15.0%
MAS	38.28	INDU	Plumbing fixture fitting manufacturing	8,559	9%	21.0%	0.2%	17.9%
PVH	121.44	COND	Apparel manufacturing	9,984	8%	45.1%	0.1%	25.9%
HAS	100.81	COND	Doll, toy, and game manufacturing	4,961	11%	51.2%	0.2%	80.9%
CPRI	42.29	COND	Leather manufacturing	6,007	12%	25.6%	0.9%	46.3%
SNA	167.88	INDU	Cutlery and handtool manufacturing	3,787	18%	33.1%	0.8%	24.2%
JNPR	26.67	INFT	Telephone apparatus manufacturing	4,468	13%	47.1%	0.2%	15.8%
PKI	93.33	HLTH	Industrial process instruments manufacturing	2,921	15%	59.5%	2.6%	6.7%
AOS	50.3	INDU	Motor and generator manufacturing	3,251	14%	41.5%	1.1%	13.3%
WHR	136.98	COND	Small electrical appliance manufacturing	20,153	5%	56.0%	2.9%	60.6%
FLIR	51.7	INFT	Industrial process instruments manufacturing	1,930	16%	13.5%	2.6%	6.7%
ALLE	99.62	INDU	Other electronic component manufacturing	2,886	16%	31.1%	1.5%	11.4%
RL	124.39	COND	Apparel manufacturing	6,396	9%	33.3%	0.1%	25.9%
HOG	36.22	COND	Motorcycle, bicycle, parts manufacturing	4,693	12%	26.2%	0.1%	12.2%
GPS	25.06	COND	Apparel manufacturing	16,704	6%	22.7%	0.1%	25.9%
HBI	17.52	COND	Apparel manufacturing	6,946	9%	25.5%	0.1%	25.9%
SEE	43.21	MATR	Glass and glass product manufacturing	4,833	9%	58.4%	1.2%	8.2%
FL	55.94	COND	Leather manufacturing	8,250	7%	28.4%	0.9%	46.3%
LEG	38.88	COND	Upholstered furniture manufacturing	4,950	7%	31.0%	0.1%	20.3%
MAT	11.62	COND	Doll, toy, and game manufacturing	4,443	-4%	45.4%	0.2%	80.9%
UA	19.8	COND	Leather manufacturing	5,367	3%	11.5%	0.9%	46.3%
MMM	178.59	INDU	Other plastics product manufacturing	32,577	17%	60.3%	0.3%	8.6%
NWL	15.53	COND	Other plastics product manufacturing	8,387	8%	27.5%	0.3%	8.6%

Stock prices as of 8 May 2019; Source: US Census Bureau, BEA, 10-K filings of S&P 500 companies, Bloomberg, Barclays Research. Note: 2019 Estimates are sourced from Bloomberg consensus

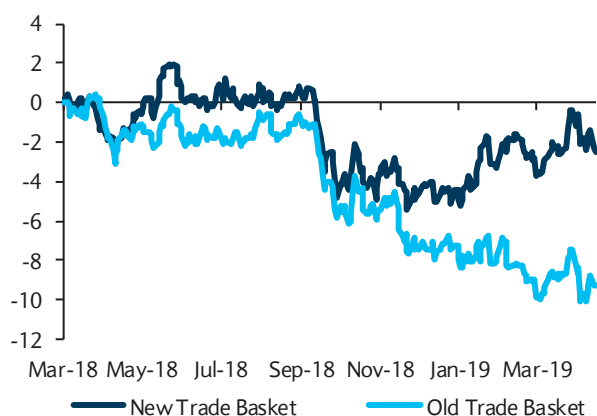
As expected this new trade war basket underperformed during the heightened trade tensions of 1H2018 and, unlike our original basket, outperformed during the recent trade optimism period (Figure 6). Additionally, it has underperformed the market strongly since the tweets from President Trump on 5th May, down 3.1% compared to only 2.1% for the SPX and the SPX Equal Weighted Index (SPW).

An additional benefit to the new methodology is that the contribution to active returns from industry tilts (Figure 7) is also tracking trade war sentiment much more closely. This shows that the reversal in performance from our new trade war basket is being driven by the industries most effected by heightened trade tensions, and not by stocks specific drivers.

FIGURE 6

Our new trade war basket tracks trade war sentiment significantly better ...

Active Return Relative to SPW



Source: US Census Bureau, BEA, 10-K filings of S&P 500 companies, Bloomberg, Barclays Research

FIGURE 7

... with the returns from industry tilts driving the improvement

Industry Tilt Contribution to Active Return



Source: US Census Bureau, BEA, 10-K filings of S&P 500 companies, Bloomberg, Barclays Research

Note: Contribution to active returns from Industry Tilts is computed using the Bloomberg Attribution framework and the Bloomberg US Fundamental Risk Model. Active returns from industry tilts are the returns from industry exposures removing all ancillary exposures (Momentum, Growth, Beta, etc.)

ANALYST(S) CERTIFICATION(S):

I, Maneesh S. Deshpande, hereby certify (1) that the views expressed in this research report accurately reflect my personal views about any or all of the subject securities or issuers referred to in this research report and (2) no part of my 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:

Where any companies are the subject of this research report, for current important disclosures regarding those companies 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.

The analysts responsible for preparing this research report have received compensation based upon various factors including the firm's total revenues, a portion of which is generated by investment banking activities, 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.

Analysts regularly conduct site visits to view the material operations of covered companies, but Barclays policy prohibits them from accepting payment or reimbursement by any covered company of their travel expenses for such visits.

Barclays 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 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.barclays.com/S/RD.htm>. In order to access Barclays Research Conflict Management Policy Statement, please refer to: <https://publicresearch.barclays.com/S/CM.htm>.

Materially Mentioned Stocks (Ticker, Date, Price)

Agilent Technologies (A, 08-May-2019, USD 76.61), Overweight/Neutral, CD/CE/D/J/K/L/M/N

Allegion plc (ALLE, 08-May-2019, USD 99.62), Overweight/Neutral, CE/J

Danaher Corp. (DHR, 08-May-2019, USD 131.72), Rating Suspended/Neutral, A/CD/CE/D/J/K/L/M/N

Other Material Conflicts: Barclays Bank PLC and/or its affiliate is serving as exclusive financial advisor to Danaher Corporation (NYSE: DHR) in relation to its announced definitive agreement with General Electric (NYSE: GE) to acquire the BioPharma division of GE Life Sciences. The rating, price target and estimates (as applicable) on Danaher Corporation (NYSE: DHR) previously issued by the Firm's Research department have been temporarily suspended due to this potential transaction.

Eaton Corporation (ETN, 08-May-2019, USD 80.96), Underweight/Neutral, CE/E/J/K/L/M

Foot Locker (FL, 08-May-2019, USD 55.94), Overweight/Positive, CD/CE/J/K/N

Fortive Corporation (FTV, 08-May-2019, USD 82.48), Overweight/Neutral, A/CD/CE/D/J/K/L/M

Harley-Davidson (HOG, 08-May-2019, USD 36.22), Underweight/Neutral, A/CD/CE/D/J/K/L/M

Harris Corp (HRS, 08-May-2019, USD 179.38), Overweight/Positive, CD/CE/J

Hasbro, Inc. (HAS, 08-May-2019, USD 100.81), Overweight/Neutral, CD/CE/J

Honeywell International Inc. (HON, 08-May-2019, USD 170.36), Overweight/Neutral, A/CD/CE/D/J/K/L/M/N

Johnson Controls International (JCI, 08-May-2019, USD 39.38), Rating Suspended/Neutral, A/CD/D/E/J/K/L/M/N

Other Material Conflicts: Barclays Bank PLC and/or its affiliate is serving as financial advisor to Johnson Controls International plc (NYSE: JCI) in relation to its announced definitive agreement to sell its Power Solutions business to Brookfield Business Partners L.P. (NYSE: BBU). The rating, price target and estimates (as applicable) on Johnson Controls International plc (NYSE: JCI) previously issued by the Firm's Research department have been temporarily suspended due to this potential transaction.

Martin Marietta (MLM, 08-May-2019, USD 216.14), Equal Weight/Positive, CD/J

Masco Corp. (MAS, 08-May-2019, USD 38.28), Overweight/Neutral, CD/CE/J

Mattel, Inc. (MAT, 08-May-2019, USD 11.62), Underweight/Neutral, CD/CE/J/K/N

Newell Brands Inc. (NWL, 08-May-2019, USD 15.53), Equal Weight/Neutral, CD/CE/D/J/K/L/M/N

Nike Inc. (NKE, 08-May-2019, USD 82.77), Overweight/Positive, CD/CE/D/J/K/L/M/N

PerkinElmer Inc. (PKI, 08-May-2019, USD 93.33), Equal Weight/Neutral, CD/CE/D/J/K/L/M/N

QUALCOMM, Inc. (QCOM, 08-May-2019, USD 84.54), Overweight/Neutral, CD/CE/D/J/K/L/M

Rockwell Automation Inc. (ROK, 08-May-2019, USD 170.61), Equal Weight/Neutral, CD/CE/J

Roper Technologies Inc (ROP, 08-May-2019, USD 354.38), Equal Weight/Neutral, CD/CE/J

IMPORTANT DISCLOSURES CONTINUED

Sealed Air Corp. (SEE, 08-May-2019, USD 43.21), Overweight/Positive, CD/CE/J

Stanley Black & Decker Inc. (SWK, 08-May-2019, USD 143.95), Overweight/Neutral, A/CD/CE/D/J/K/L/M/N

The 3M Company (MMM, 08-May-2019, USD 178.59), Underweight/Neutral, A/CD/CE/D/J/K/L/M/N

Under Armour Inc. (UAA, 08-May-2019, USD 22.28), Overweight/Positive, CD/CE/J

Non-covered Stocks (Ticker, Date, Price)

AMPHENOL CORP-CL A (APH, 08-May-2019, USD 94.57, Refinitiv), A/CD/CE/D/J/K/L/M/N

APPLE INC (AAPL, 08-May-2019, USD 202.90, Refinitiv), CD/CE/E/J/K/L/M/N

CAPRI HOLDINGS LTD (CPRI, 08-May-2019, USD 42.29, Refinitiv), CE/D/J/K/L/M

CISCO SYSTEMS INC (CSCO, 08-May-2019, USD 53.47, Refinitiv), CD/CE/D/J/K/L/M/N

COOPER COS INC/THE (COO, 08-May-2019, USD 290.93, Refinitiv), CE/J

CORNING INC (GLW, 08-May-2019, USD 30.89, Refinitiv), CD/CE/D/J/K/L/M

FLIR SYSTEMS INC (FLIR, 08-May-2019, USD 51.70, Refinitiv), CD/CE/J

GAP INC/THE (GPS, 08-May-2019, USD 25.06, Refinitiv), CD/CE/J

HANESBRANDS INC (HBI, 08-May-2019, USD 17.52, Refinitiv), CD/CE/D/J/K/L/M/N

HP INC (HPQ, 08-May-2019, USD 19.53, Refinitiv), B/CD/CE/D/J/K/L/M/N

JUNIPER NETWORKS INC (JNPR, 08-May-2019, USD 26.67, Refinitiv), CD/CE/D/J/K/L/M

LEGGITT & PLATT INC (LEG, 08-May-2019, USD 38.88, Refinitiv), CD/CE/J

MICROCHIP TECHNOLOGY INC (MCHP, 08-May-2019, USD 91.54, Refinitiv), CD/CE/J/K/M

MOTOROLA SOLUTIONS INC (MSI, 08-May-2019, USD 143.05, Refinitiv), CD/J

NETAPP INC (NTAP, 08-May-2019, USD 68.92, Refinitiv), CD/CE/J

PVH CORP (PVH, 08-May-2019, USD 121.44, Refinitiv), CD/CE/D/J/K/L/M/N

RALPH LAUREN CORP (RL, 08-May-2019, USD 124.39, Refinitiv), A/CD/CE/D/J/K/L/M/N

SEAGATE TECHNOLOGY (STX, 08-May-2019, USD 49.04, Refinitiv), CE/J

SMITH (A.O.) CORP (AOS, 08-May-2019, USD 50.30, Refinitiv), CE/J/K/N

SNAP-ON INC (SNA, 08-May-2019, USD 167.88, Refinitiv), CD/CE/D/J/K/L/M/N

TAPESTRY INC (TPR, 08-May-2019, USD 30.75, Refinitiv), CD/CE/J/K/M

TE CONNECTIVITY LTD (TEL, 08-May-2019, USD 91.14, Refinitiv), A/CE/D/J/K/L/M/N

VF CORP (VFC, 08-May-2019, USD 93.72, Refinitiv), CD/CE/D/E/J/K/L/M/N

WESTERN DIGITAL CORP (WDC, 08-May-2019, USD 46.70, Refinitiv), CD/CE/J/K/M

WHIRLPOOL CORP (WHR, 08-May-2019, USD 136.98, Refinitiv), CD/CE/J/K/N

WW GRAINGER INC (GWW, 08-May-2019, USD 276.57, Refinitiv), CD/CE/J/K/M

Prices are sourced from Refinitiv as of the last available closing price in the relevant trading market, 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.

IMPORTANT DISCLOSURES CONTINUED

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.

Risk Disclosure(s)

Master limited partnerships (MLPs) are pass-through entities structured as publicly listed partnerships. For tax purposes, distributions to MLP unit holders may be treated as a return of principal. Investors should consult their own tax advisors before investing in MLP units.

Explanation of the U.S. Equity Strategy sector rating system:

Overweight: The performance of the S&P 500 sector is expected to outperform the performance of the S&P 500 index in the next 3–6 months.

Market Weight: The performance of the S&P 500 sector is expected to perform in line with the S&P 500 index in the next 3–6 months.

Underweight: The performance of the S&P 500 sector is expected to underperform the performance of the S&P 500 index in the next 3–6 months.

Guide to the Barclays Fundamental Equity Research Rating System:

Our coverage analysts use a relative rating system in which they rate stocks as Overweight, Equal Weight or Underweight (see definitions below) relative to other companies covered by the analyst or a team of analysts that are deemed to be in the same industry (the "industry coverage universe").

In addition to the stock rating, we provide industry views which rate the outlook for the industry coverage universe as Positive, Neutral or Negative (see definitions below). A rating system using terms such as buy, hold and sell is not the equivalent of our rating system. Investors should carefully read the entire research report including the definitions of all ratings and not infer its contents from ratings alone.

Stock Rating

Overweight - The stock is expected to outperform the unweighted expected total return of the industry coverage universe over a 12-month investment horizon.

Equal Weight - The stock is expected to perform in line with the unweighted expected total return of the industry coverage universe over a 12-month investment horizon.

Underweight - The stock is expected to underperform the unweighted expected total return of the industry coverage universe over a 12-month investment horizon.

Rating Suspended - The rating and target price have been suspended temporarily due to market events that made 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.

Industry View

Positive - industry coverage universe fundamentals/valuations are improving.

Neutral - industry coverage universe fundamentals/valuations are steady, neither improving nor deteriorating.

Negative - industry coverage universe fundamentals/valuations are deteriorating.

IMPORTANT DISCLOSURES CONTINUED

Below is the list of companies that constitute the "industry coverage universe":

U.S. Aerospace & Defense

Allegheny Technologies Inc. (ATI)	Arconic Inc (ARNC)	Boeing Co. (BA)
Bombardier Inc. (BBD.TO)	BWX Technologies Inc (BWXT)	General Dynamics Corp (GD)
Harris Corp (HRS)	Hexcel Corp (HXL)	Huntington Ingalls Industries Inc (HII)
L3 Technologies Inc (LLL)	Lockheed Martin Corp (LMT)	Northrop Grumman (NOC)
Raytheon Co (RTN)	Spirit AeroSystems Holdings (SPR)	Textron Inc (TXT)
TransDigm Group Inc. (TDG)	Triumph Group Inc (TGI)	Woodward Inc. (WWD)

U.S. CHPC & Beverages

Avon Products (AVP)	Brown-Forman (BFb)	Church & Dwight Co., Inc. (CHD)
Clorox Company (CLX)	Coca-Cola European Partners PLC (CCE.AS)	Coca-Cola European Partners PLC (CCEP)
Colgate-Palmolive (CL)	Constellation Brands (STZ)	Coty Inc. (COTY)
Edgewell Personal Care Company (EPC)	Energizer Holdings, Inc (ENR)	International Flavors & Fragrances (IFF)
Keurig Dr Pepper (KDP)	Kimberly-Clark Corp. (KMB)	Molson Coors Brewing Company (TAP)
Newell Brands Inc. (NWL)	PepsiCo Inc. (PEP)	Procter & Gamble (PG)
The Coca-Cola Company (KO)	The Estée Lauder Companies (EL)	

U.S. Homebuilding & Building Products

Advanced Drainage Systems Inc. (WMS)	BMC Stock Holdings, Inc. (BMCH)	Builders FirstSource Inc. (BLDR)
Continental Building Products, Inc. (CBPX)	D.R. Horton Inc. (DHI)	Forterra Inc. (FRTA)
Fortune Brands Home & Security, Inc. (FBHS)	Foundation Building Materials, Inc. (FBM)	GMS Inc. (GMS)
JELD-WEN Holding, Inc. (JELD)	KB Home (KBH)	Lennar Corp. (LEN)
Masco Corp. (MAS)	Mohawk Industries Inc. (MHK)	NCI Building Systems, Inc. (NCS)
Owens Corning Inc. (OC)	PulteGroup Inc. (PHM)	Realogy Holdings Corp. (RLGY)
SiteOne Landscape Supply Inc. (SITE)	Skyline Champion Corp. (SKY)	Taylor Morrison Home Corp. (TMHC)
Toll Brothers Inc. (TOL)		

U.S. Leisure

Carnival Corp. (CCL)	Harley-Davidson (HOG)	Hasbro, Inc. (HAS)
Mattel, Inc. (MAT)	Norwegian Cruise Line Holdings (NCLH)	Royal Caribbean (RCL)
Vail Resorts (MTN)		

U.S. Life Science Tools & Diagnostics

Agilent Technologies (A)	Bio-Rad Laboratories (BIO)	Bruker Corp (BRKR)
Charles River Laboratories (CRL)	Genomic Health Inc. (GHDX)	Hologic Inc. (HOLX)
ICON plc (ICLR)	Illumina Inc. (ILMN)	IQVIA (IQV)
Laboratory Corp. of America Hldgs. (LH)	Mettler Toledo (MTD)	Myriad Genetics Inc. (MYGN)
PerkinElmer Inc. (PKI)	PRA Health Sciences (PRAH)	QIAGEN N.V. (QGEN)
Quest Diagnostics (DGX)	Quidel Corp. (QDEL)	Syneos Health, Inc. (SYNH)
Thermo Fisher Scientific, Inc. (TMO)	Waters Corp. (WAT)	

U.S. Machinery & Construction

AECOM (ACM)	AGCO Corp. (AGCO)	Caterpillar (CAT)
CNH Industrial (CNHI)	Cummins (CMI)	Deere (DE)
Fluor Corp. (FLR)	Herc Rentals (HRI)	Jacobs Engineering (JEC)
Lincoln Electric (LECO)	Manitowoc (MTW)	Martin Marietta (MLM)
MasTec Inc. (MTZ)	Summit Materials (SUM)	Terex (TEX)
United Rentals (URI)	Vulcan Materials (VMC)	Welbilt (WBT)

U.S. Multi-Industry

Allegion plc (ALLE)	Colfax Corporation (CFX)	Danaher Corp. (DHR)
Dover Corporation (DOV)	Eaton Corporation (ETN)	Emerson Electric Co. (EMR)

IMPORTANT DISCLOSURES CONTINUED

Fortive Corporation (FTV)	Gardner Denver (GDI)	Gates Industrial Corp. Plc (GTES)
General Electric (GE)	HD Supply Inc (HDS)	Honeywell International Inc. (HON)
Ingersoll-Rand Plc (IR)	Johnson Controls International (JCI)	Kennametal (KMT)
Lennox International (LII)	nVent Electric plc (NVT)	Parker-Hannifin Corp (PH)
Pentair plc (PNR)	Regal Beloit Corporation (RBC)	Rexnord (RXN)
Rockwell Automation Inc. (ROK)	Roper Technologies Inc (ROP)	SPX Flow (FLOW)
Stanley Black & Decker Inc. (SWK)	The 3M Company (MMM)	United Technologies Corporation (UTX)

U.S. Paper & Packaging

Ardagh Group S.A. (ARD)	Avery Dennison Corp. (AVY)	Ball Corporation (BLL)
Bemis Company (BMS)	Berry Global Group Inc. (BERY)	Crown Holdings Inc. (CCK)
International Paper Co. (IP)	Owens-Illinois Inc. (OI)	Packaging Corp. of America (PKG)
Sealed Air Corp. (SEE)	Silgan Holdings Inc. (SLGN)	Sonoco Products Co. (SON)
Veritiv Corp. (VRTV)	WestRock Co. (WRK)	

U.S. Retail Broadlines/Hardlines

Advance Auto Parts Inc. (AAP)	AT HOME GROUP INC (HOME)	AutoZone Inc. (AZO)
Bed Bath & Beyond Inc. (BBBY)	Best Buy Co., Inc. (BBY)	Dick's Sporting Goods (DKS)
Floor & Decor (FND)	Foot Locker (FL)	Home Depot Inc. (HD)
Lowe's Companies, Inc. (LOW)	Lululemon Athletica Inc. (LULU)	National Vision Holdings Inc. (EYE)
Nike Inc. (NKE)	O'Reilly Automotive Inc. (ORLY)	Party City Holdco Inc. (PRTY)
Restoration Hardware (RH)	Sleep Number Corporation (SNBR)	Target Corp. (TGT)
Tempur Sealy International (TPX)	The Container Store Group (TCS)	Tractor Supply Co. (TSCO)
Under Armour Inc. (UAA)	Williams-Sonoma Inc. (WSM)	

U.S. Semiconductors

Advanced Micro Devices (AMD)	Analog Devices (ADI)	Aquantia Corp (AQ)
Broadcom Inc. (AVGO)	Cirrus Logic Inc. (CRUS)	Coherent Inc. (COHR)
Cypress Semiconductor Corp. (CY)	Finisar Corp. (FNSR)	Inphi Corporation (IPHI)
Intel Corp. (INTC)	Lumentum Holdings Inc. (LITE)	MACOM Technology Solutions Holdings, Inc. (MTSI)
MagnaChip Semiconductor (MX)	Marvell Technology Group, Ltd. (MRVL)	Maxim Integrated Products (MXIM)
Micron Technology, Inc. (MU)	NVIDIA Corp. (NVDA)	NXP Semiconductors NV (NXPI)
Qorvo Inc. (QRVO)	QUALCOMM, Inc. (QCOM)	Quantenna Communications, Inc. (QTNA)
Silicon Laboratories, Inc. (SLAB)	Skyworks Solutions, Inc. (SWKS)	Smart Global Holdings, Inc. (SGH)
Texas Instruments, Inc. (TXN)	Xilinx, Inc. (XLNX)	

Distribution of Ratings:

Barclays Equity Research has 1548 companies under coverage.

45% have been assigned an Overweight rating which, for purposes of mandatory regulatory disclosures, is classified as a Buy rating; 53% of

IMPORTANT DISCLOSURES CONTINUED

companies with this rating are investment banking clients of the Firm; 76% of the issuers with this rating have received financial services from the Firm.

38% have been assigned an Equal Weight rating which, for purposes of mandatory regulatory disclosures, is classified as a Hold rating; 45% of companies with this rating are investment banking clients of the Firm; 65% of the issuers with this rating have received financial services from the Firm.

15% have been assigned an Underweight rating which, for purposes of mandatory regulatory disclosures, is classified as a Sell rating; 30% of companies with this rating are investment banking clients of the Firm; 62% of the issuers with this rating have received financial services from the Firm.

Guide to the Barclays Research Price Target:

Each analyst has a single price target on the stocks that they cover. The price target represents that analyst's expectation of where the stock will trade in the next 12 months. Upside/downside scenarios, where provided, represent potential upside/potential downside to each analyst's price target over the same 12-month period.

Top Picks:

Barclays Equity Research's "Top Picks" represent the single best alpha-generating investment idea within each industry (as defined by the relevant "industry coverage universe"), taken from among the Overweight-rated stocks within that industry. Barclays Equity Research publishes "Top Picks" reports every quarter and analysts may also publish intra-quarter changes to their Top Picks, as necessary. While analysts may highlight other Overweight-rated stocks in their published research in addition to their Top Pick, there can only be one "Top Pick" for each industry. To view the current list of Top Picks, go to the Top Picks page on Barclays Live (<https://live.barcap.com/go/keyword/TopPicks>).

To see a list of companies that comprise a particular industry coverage universe, please go to <https://publicresearch.barclays.com>.

Types of investment recommendations produced by Barclays Equity 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 within Equity Research. Any such investment recommendations shall remain open until they are subsequently amended, rebalanced or closed in a future research report.

Disclosure of other investment recommendations produced by Barclays Equity Research:

Barclays Equity 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 Equity Research in the preceding 12 months please refer to <https://live.barcap.com/go/research/Recommendations>.

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: This material is being distributed to any "Authorised User" located in a Restricted EEA Country by Barclays Bank Ireland PLC. The Restricted EEA Countries are Finland, Austria, Luxembourg, Portugal, Liechtenstein, Iceland, Slovenia, Malta, Lithuania, Slovakia, Hungary, Romania and Bulgaria. For any other "Authorised User" located in a country of the European Economic Area, this material is being distributed by Barclays Bank PLC. Barclays Bank Ireland PLC is a bank authorised by the Central Bank of Ireland whose registered office is at 1 Molesworth Street, Dublin 2, Ireland. 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.

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 Zaimukyokuchō (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 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 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 this material, recipients in Singapore may contact the Singapore branch of Barclays Bank PLC, whose registered address is 10 Marina Boulevard, #23-01 Marina Bay Financial Centre Tower 2, Singapore 018983.

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.

