



OneScore - December 2018

## Combining Quantitative and Fundamental Views in Credit

- We introduce *OneScore*, a quantitative framework for combining relative value and equity momentum characteristics of credit issuers. This report *highlights* issuers with top and bottom OneScores in each sector, alongside the views and commentary from Barclays' fundamental research team. We also provide back-tests of the *OneScore* framework for 1-, 3-, and 5-year periods within each sector.
- OneScore is based on quantitative scorecards for relative value (*Excess Spread over Peers - ESP*) and cross-asset momentum (*Equity Momentum in Credit - EMC*) published by our Quantitative Portfolio Strategy team.
- Fundamental and quantitative analysis can effectively complement each other in a "quantamental" research process. Quantitative models cover broad investment universes, but are based on relatively simple, although robust, economic relationships. Fundamental analysis is more detailed and can mitigate the selection risk inherent to a quantitative process.

Quantitative Portfolio Strategy

Credit Research  
13 December 2018

### Quantitative Portfolio Strategy

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## Quantitative Scorecards: Introduction

“Quantamental” research, which combines elements of quantitative and fundamental analysis, is becoming increasingly popular with investors. While quantitative models can handle large data sets and cover broad investment universe systematically, they are usually based on relatively simple, although robust, analytical frameworks. Fundamental research, on the other hand, can provide more depth to the analysis of a given issuer and thereby help mitigate the selection risk inherent to a quantitative model.

In 2016, Barclays’ Quantitative Portfolio Strategy team introduced quantitative scorecards based on relative value (Excess Spread over Peers – ESP) and cross-asset momentum (Equity Momentum in Credit – EMC) for issuer selection in credit.

The ESP scorecard is a quantitative framework designed to identify relative value opportunities in credit (please see [Relative Value Investing in Credit](#), 9 May 2016) after accounting for issuer characteristics and a selection of fundamental indicators. It assigns scores from 1 to 10 according relative valuation, with higher scores indicating attractiveness.

The EMC Scorecard is designed to differentiate issuers based on their stock price momentum. It is based on a positive empirical relationship between past equity returns and subsequent returns of corporate bonds.<sup>1</sup> It assigns scores from 1 to 10 to issuers, with a high score indicating strong equity momentum.<sup>2</sup>

The performance of ESP and EMC scorecards is well documented in our monthly reports, with the most recent updates provided in [Excess Spread over Peers \(ESP\) Scorecard - November 2018](#) and [Equity Momentum in Credit \(EMC\) Scorecard - November 2018](#).

In this report, we aggregate quantitative scores at the issuer level<sup>3</sup> and introduce *OneScore*, which combines ESP and EMC scores within individual industry sectors. *OneScore* is calculated as a rank of equally weighted ESP and EMC ranks. It assigns scores from 1 to 10 to each issuer, based on its relative valuation and equity momentum within a sector. This report presents up to ten issuers with top and bottom *OneScores* within each sector.<sup>4</sup> Similar to ESP and EMC, *OneScore* signals are calculated monthly, but *OneScore* reports will be published quarterly. Further methodology details on *OneScore*, ESP, and EMC scores are provided in the Appendix.

The *OneScore* framework demonstrated reasonably strong performance across all industry sectors in the past 12 months. Figure 1 reports outperformance of Top over Bottom *OneScore* portfolios<sup>5</sup> in each major index sector. Performance was strong in Consumer Cyclical, Healthcare, Communication and Insurance sectors. A more detailed performance analysis of *OneScore* portfolios is available in the Appendix.

<sup>1</sup>Please see [Equity Momentum in Credit \(EMC\)](#), 18 August 2017.

<sup>2</sup>For more details, please see [Quantitative Credit Scorecards for Relative Value \(ESP\) and Cross-Asset Momentum \(EMC\)](#), 22 February 2018.

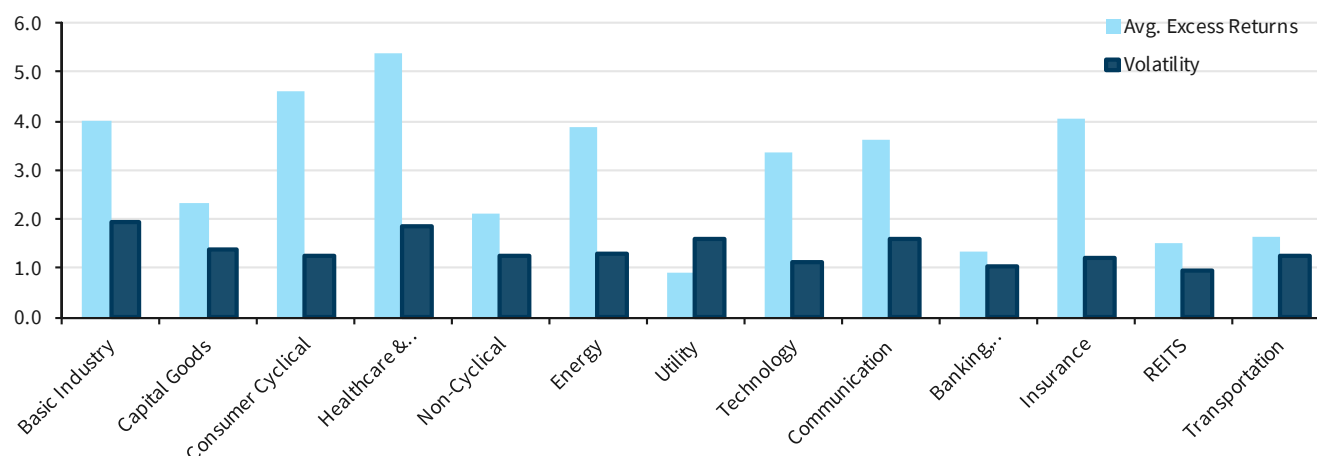
<sup>3</sup>Bonds with maturities 3 years or below are excluded.

<sup>4</sup>Some less populated sectors (eg, Transportation) have fewer than ten issuers per top/bottom category.

<sup>5</sup>Equally weighted issuer portfolios are used to avoid excessive issuer concentration.

FIGURE 1

**Outperformance of OneScore top over bottom portfolios by sector over 12 months ending on 30 November 2018, %/year**

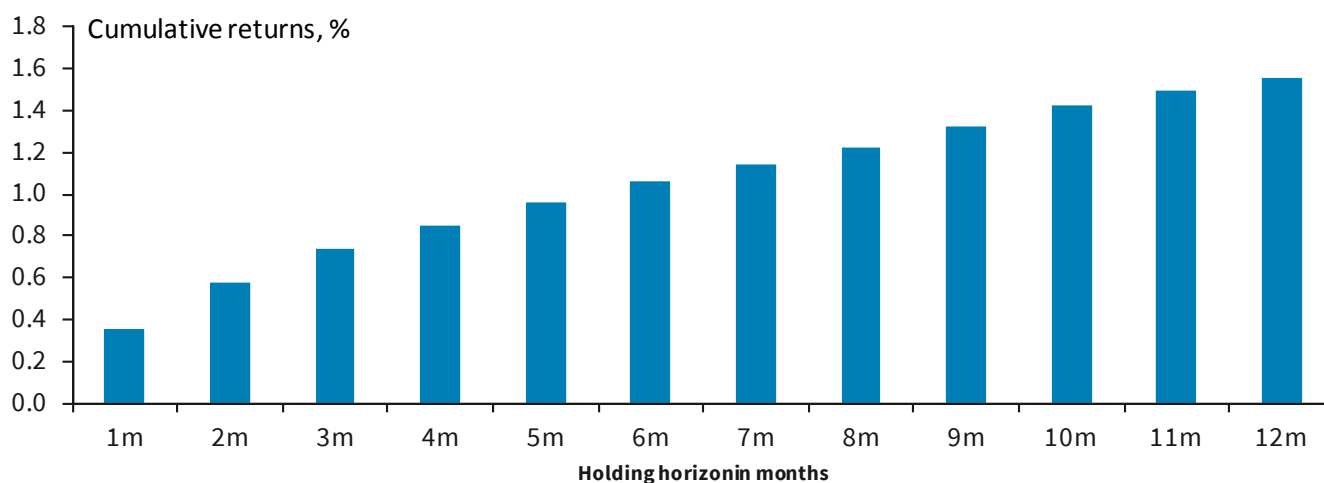


Note: Performance statistics are calculated as differences in returns between equally weighted top and bottom OneScore portfolios rebalanced monthly.  
Source: Bloomberg, Barclays Research

Even though OneScores are updated on a monthly basis, published OneScores remain informative for relatively long time horizons. Figure 6 summarizes the cumulative outperformance of top over bottom OneScore portfolios that were formed one to twelve months ago and maintained without rebalancing after their formation. The bar chart shows average returns over the past five years for static portfolios evaluated at horizons ranging from one to twelve months. Top OneScore portfolios formed using scores available at the beginning of the period demonstrated persistent outperformance over investment horizons as long as twelve months.

FIGURE 2

**Average outperformance of top over bottom OneScore portfolios for various holding periods; average returns are calculated over the five-year sample ending on 30 November 2018**



Note: Performance statistics are calculated as differences in returns between equally weighted top and bottom OneScore portfolios.  
Source: Bloomberg, Barclays Research

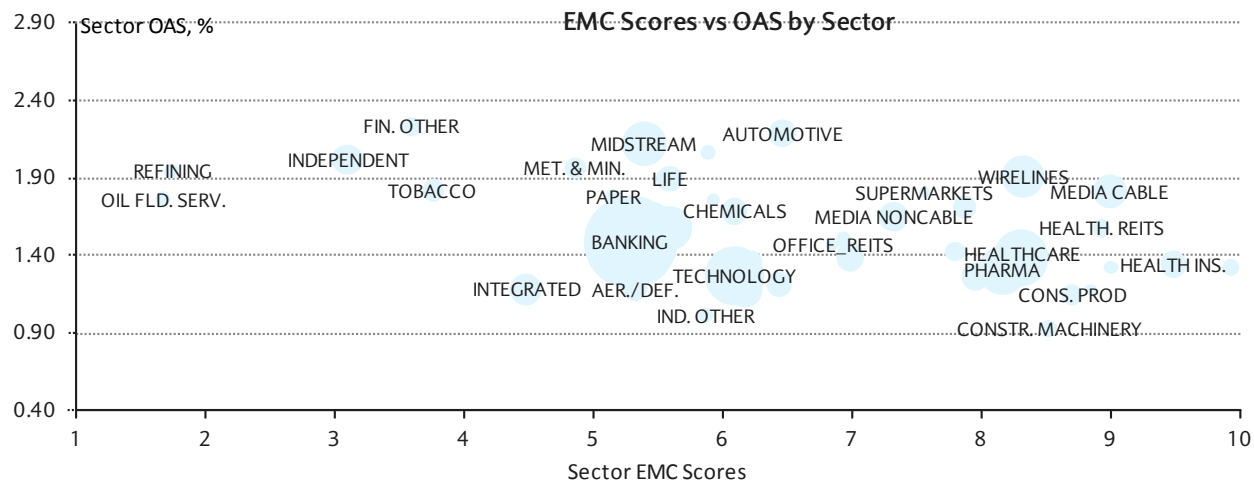
## Equity Momentum by Credit Sector

In *Corporate Sector Timing Using Equity Momentum*, we demonstrated that equity momentum (EMC) scores aggregated at the sector level can be used to time corporate bond sector allocation.

We report sector spreads versus aggregated sector equity momentum (EMC) scores as of 30 November 2018. Media Cable, Health Insurance, Health REITs, Wireless, and Consumer Products have high EMC scores. Sectors with weak EMC scores include energy sectors: Refining, Oil Field Services, and Independent.

FIGURE 3

Spread versus Relative Equity Momentum (EMC) by Sector in US IG, 30 November 2018



Source: Bloomberg, Barclays Research

In the following sections we report end-November top and bottom quantitative issuer scores alongside views and commentaries by our sector teams.

## Basic Industry

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*PPG Industries (PPG)* screens among the OneScore top picks, but we have a cautious view on the credit and an Underweight rating. Though spreads are wide for a single-A rating, we think PPG's capital allocation policies will result in a downgrade in 2019, as it continues to outspend cash flow and increase balance sheet leverage. We also think Trian's involvement in the equity is likely to accelerate this trend.

*DuPont (DD)* is among the bottom picks; however, the company is redeeming all of its debt at make whole levels, and we expect the ticker to be one of the top performers in 2018.

*International Paper (IP)* carries a weak OneScore, but we are constructive on fundamentals for the business. The market remains sceptical of IP's strategy, following a failed acquisition of Smurfit Kappa, but we think debt reduction may have a positive effect on 4Q18 results and can drive a correction in spreads.

*Westlake Chemical (WLK)* similarly has a OneScore of 2, but the business is well positioned relative to polyethylene peers, and we think management's conservative balance sheet policies may drive upward momentum from the rating agencies in 2019-20, helping to compress valuations versus BBB peers.

FIGURE 4

### Basic Industry: Top and Bottom Issuer Picks Based on OneScore, 30 November 2018

Ticker	Issuer Name	OAS	ESP Score	EMC Score	OneScore	Analyst Rating
<b>Top Picks</b>						
NEU	NEWMARKET CORP	1.30	8.8	9.4	10	-
PPG	PPG INDUSTRIES INC	1.26	8.6	9.0	10	Underweight
SUZANO	SUZANO AUSTRIA GMBH	2.85	9.4	7.1	10	-
BRASKM	BRASKEM FINANCE LTD	2.46	9.0	6.5	10	-
KCN	KINROSS GOLD CORP	3.30	9.8	5.5	10	Market Weight
RPM	RPM INTERNATIONAL INC	1.77	5.1	9.8	9	-
CELARA**	CELULOSA ARAUCO Y CONSTITUCION	2.22	6.5	8.0	9	-
FIBRBZ	FIBRIA OVERSEAS FINANCE LTD	2.28	9.6	4.9	9	-
WRK	WRKCO INC	1.68	7.5	6.3	9	Market Weight
ALB	ALBEMARLE CORP	1.77	6.1	7.3	8	-
<b>Bottom Picks</b>						
UFS	DOMTAR CORP	1.18	1.6	2.8	1	Market Weight
EMN	EASTMAN CHEMICAL CO	1.64	3.2	3.0	1	Market Weight
BHP	BHP BILLITON FINANCE USA LTD	1.09	2.8	3.5	1	Underweight
CE	CELANESE US HOLDINGS LLC	1.31	3.0	4.1	1	-
DD*	EI DU PONT DE NEMOURS & CO	0.72	1.2	5.9	1	Overweight
CBT	CABOT CORP	1.23	4.5	2.6	2	-
WLK	WESTLAKE CHEMICAL CORP	2.20	4.9	2.4	2	Overweight
IP	INTERNATIONAL PAPER CO	1.87	3.9	4.3	2	Overweight
GCN	GOLDCORP INC	1.75	5.3	3.2	3	Market Weight
NUE	NUCOR CORP	1.29	1.8	6.7	3	Market Weight

Note: \* Parent equity data are used \*\* Equity data are unavailable. All aggregation is implemented at the issuer level. All bonds of a given issuer are aggregated when calculating spreads, scores, and subsequent month returns (for the back-test). The issuer with the largest amount outstanding is selected for each ticker. Bonds with maturities of 3 year and below are excluded. Issuer scores are re-normalized within sector and range between 1 and 10. Source: Barclays Research

## Capital Goods

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*Lockheed Martin's (LMT)* OneScore is among the worst in Capital Goods, but we think the company's portfolio will be an outsized beneficiary from an acceleration of DoD outlays in 2019-20. Further, we expect the company to be upgraded to single-A in 2019 and think there is room for spreads to compress versus Raytheon, which also appears among names with the lowest score.

FIGURE 5

### Capital Goods: Top and Bottom Issuer Picks Based on OneScore, 30 November 2018

Ticker	Issuer Name	OAS	ESP Score	EMC Score	OneScore	Analyst Rating
<b>Top Picks</b>						
KMT	KENNAMETAL INC	1.61	8.9	9.7	10	-
OSK	OSHKOSH CORP	1.76	8.7	9.9	10	-
WAB	WABTEC CORP	2.24	9.7	8.3	10	-
BMS	BEMIS CO INC	1.67	9.0	8.6	10	-
ALLE	ALLEGION US HOLDING CO INC	1.76	7.8	9.4	10	-
LII	LENNOX INTERNATIONAL INC	1.48	7.6	9.2	10	-
EMBRBZ	EMBRAER NETHERLANDS FINANCE BV	1.97	8.5	6.9	9	-
ROK	ROCKWELL AUTOMATION INC	0.97	9.3	6.1	9	-
SON	SONOCO PRODUCTS CO	1.84	7.3	7.6	9	-
DE*	JOHN DEERE CAPITAL CORP	0.75	4.9	9.6	9	-
<b>Bottom Picks</b>						
NOC	NORTHROP GRUMMAN CORP	1.20	1.4	2.0	1	Market Weight
CR	CRANE CO	1.23	1.1	4.0	1	-
RTN	RAYTHEON CO	0.83	2.7	2.4	1	-
HRS	HARRIS CORP	1.58	2.8	2.5	1	-
LMT	LOCKHEED MARTIN CORP	1.19	1.6	4.1	1	Overweight
MAS	MASCO CORP	1.68	2.5	3.1	1	-
MHK	MOHAWK INDUSTRIES INC	1.16	4.8	1.3	2	-
FTV	FORTIVE CORP	1.39	1.7	4.7	2	-
LLL	L3 TECHNOLOGIES INC	1.35	4.7	2.3	2	-
CNHI	CNH INDUSTRIAL NV	1.76	5.4	1.7	2	Market Weight

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## Consumer Cyclical

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While we maintain a Market Weight rating on *Target (TGT)*, reflecting its higher-quality bias and balance sheet strength, we believe that its presence in the bottom picks, with an ESP score of 4 and EMC score of 1, reflect in part the company's recent margin performance, which was hampered by higher supply chain and transport costs associated with stronger online sales and an acceleration of holiday inventory receipts. These potential structural concerns were mitigated, in our view, by strong comp growth, with a same-store sales increase of 5.1%, among the highest in our coverage group.

While Walgreens (WBA) ranks among the top picks, with an EMC score of 9.9 and ESP score of 6.6, resulting in a OneScore of 10, we rate the credit Underweight on the expectation that the company will have to utilize its balance sheet capacity to better position itself against a more dynamic and competitive retail healthcare landscape.

In case of QVCN, our fundamental view is aligned with the quantitative view. QVCN continues to trade wide to its ratings bucket, as investors remain concerned about Amazon's effect on the retail segment, which QVC straddles. We think the company's migration to e-commerce remains underappreciated by investors.

Lowe's ranks among the list of bottom picks, which dovetails nicely with our Underweight rating. Our rating is predicated on tight valuation, our view that recent initiatives will not begin to gain traction before a few more quarters, and the potential risk from the company's reassessing its financial policy after recent changes at the CEO and CFO level.

FIGURE 6

### Consumer Cyclical: Top and Bottom Issuer Picks Based on OneScore, 30 November 2018

Ticker	Issuer Name	OAS	ESP Score	EMC Score	OneScore	Analyst Rating
Top Picks						
DLTR	DOLLAR TREE INC	1.87	8.2	8.9	10	-
QVCN*	QVC INC	2.49	8.6	8.6	10	Overweight
CBG	CBRE SERVICES INC	1.70	9.8	6.9	10	-
BABA	ALIBABA GROUP HOLDING LTD	1.57	9.6	7.0	10	-
WBA	WALGREENS BOOTS ALLIANCE INC	1.68	6.6	9.9	10	Underweight
GM*	GENERAL MOTORS FINANCIAL CO IN	2.18	8.7	7.6	10	Market Weight
ORLY	O'REILLY AUTOMOTIVE INC	1.37	6.8	9.4	10	-
CHH	CHOICE HOTELS INTERNATIONAL IN	1.78	7.9	8.2	10	-
DG	DOLLAR GENERAL CORP	1.40	6.9	9.1	9	-
DRI	DARDEN RESTAURANTS INC	1.72	7.2	8.8	9	-
Bottom Picks						
BWA	BORGWARNER INC	1.49	1.8	2.8	1	-
BOSUNI**	BOSTON UNIVERSITY	0.98	2.2	3.0	1	-
TGT	TARGET CORP	1.09	3.7	1.5	1	Market Weight
APTV	APTIV PLC	1.82	4.1	1.6	1	-
STNFRD**	BOARD OF TRUSTEES OF THE LELAN	0.67	1.4	4.7	1	-
UNIVND**	UNIVERSITY OF NOTRE DAME DU LA	0.60	1.2	5.0	1	-
AN	AUTONATION INC	2.22	4.4	2.1	1	-
GRWASH**	GEORGE WASHINGTON UNIVERSITY/T	1.12	3.6	3.3	2	-
JHUNIV**	JOHNS HOPKINS UNIVERSITY	1.19	5.3	1.7	2	-
LOW	LOWE'S COS INC	1.13	3.0	4.0	2	Underweight

Note: \* Parent equity data are used \*\* Equity data are unavailable. All aggregation is implemented at the issuer level. All bonds of a given issuer are aggregated when calculating spreads, scores, and subsequent month returns (for the back-test). The issuer with the largest amount outstanding is selected for each ticker. Bonds with maturities of 3 year and below are excluded. Issuer scores are re-normalized within sector and range between 1 and 10. Source: Barclays Research.

## Healthcare and Pharmaceutical

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*AmerisourceBergen Corp (ABC)* appears among OneScore top picks, with ESP and EMC scores of 9.5 and 6.4, respectively. However, earnings have been under pressure, due to the higher costs associated with ongoing remediation efforts at PharMEDium's Memphis facility, which is also negatively affecting volumes. Moreover, despite leverage of just 2.0x on a gross debt/EBITDA basis, already thin and still declining margins increase event risk, in our view, as we do not foresee pharmaceutical distribution pressures abating near term.

FIGURE 7

### Healthcare & Pharmaceutical: Top and Bottom Issuer Picks Based on OneScore, 30 November 2018

Ticker	Issuer Name	OAS	ESP Score	EMC Score	OneScore	Analyst Rating
<b>Top Picks</b>						
ROSW	GENENTECH INC	1.25	9.3	8.9	10	-
A	AGILENT TECHNOLOGIES INC	1.05	7.4	9.3	10	-
TOLHOS**	TOLEDO HOSPITAL/THE	2.17	9.6	7.0	10	-
SANFP	SANOFI	0.71	7.9	8.5	10	-
JNJ	JOHNSON & JOHNSON	0.74	7.8	8.4	10	-
ABC	AMERISOURCEBERGEN CORP	1.68	9.5	6.4	10	Underweight
CVS	CVS HEALTH CORP	1.64	6.0	9.6	10	-
ESRX	EXPRESS SCRIPTS HOLDING CO	1.46	5.8	9.8	9	-
CRSTUS**	CHRISTUS HEALTH	1.24	10.0	5.4	9	-
<b>Bottom Picks</b>						
JHHSYS**	JOHNS HOPKINS HEALTH SYSTEM CO	0.99	1.8	1.9	1	-
ORHLTH**	ORLANDO HEALTH OBLIGATED GROUP	1.15	2.2	1.7	1	-
LH	LABORATORY CORP OF AMERICA HOL	1.34	3.0	1.2	1	-
AGN	ALLERGAN FUNDING SCS	1.71	2.6	2.3	1	Market Weight
DGX	QUEST DIAGNOSTICS INC	1.38	3.7	1.4	1	-
DUKHEA**	DUKE UNIVERSITY HEALTH SYSTEM	0.95	1.6	3.5	1	-
STNFHC**	STANFORD HEALTH CARE	0.95	1.4	3.8	1	-
NSHRLI**	NORTHWELL HEALTHCARE INC	1.46	2.5	3.3	2	-
MAYOCL**	MAYO CLINIC	1.03	2.9	3.2	2	-
INUHLT**	INDIANA UNIVERSITY HEALTH INC	0.88	1.1	5.6	2	-

Notes: \* Parent equity data are used. \*\* Equity data is unavailable. All aggregation is implemented at the issuer level. All bonds of a given issuer are aggregated when calculating spreads, scores, and subsequent month returns (for the back-test). The issuer with the largest amount outstanding is selected for each ticker. Bonds with maturities of 3 year and below are excluded. Issuer scores are re-normalized within sector and range between 1 and 10. Source: Barclays Research



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## Consumer Non-Cyclical

The OneScore framework is aligned with our Overweight rating on *Campbell* (CPB, OneScore=10) and Underweight ratings on *Constellation Brands* (STZ, OneScore=1) and *General Mills* (GIS, OneScore=2). With regard to CPB, our Overweight is predicated on attractive valuation (supported by the framework ESP valuation of 9) and the potential benefit from divestiture-related debt reduction. Further, we view Third Point's objectives as aligned with those of the company with regard to balance sheet (and the need for improvement) and see the naming of a CEO by year-end as potentially positive. Our Underweight ratings on STZ and GIS are anchored by tight relative valuation, which is consistent with the framework, given ESP scores of 1.8 and 2.9, respectively.

One of the credits where the framework deviates somewhat from our fundamental view is *Procter & Gamble* (PG). The credit appears among the top picks of the OneScore framework in the Consumer Non-Cyclical sector as a result of an average relative value (ESP=4.6) and strong equity momentum (EMC=9.0). Our Underweight rating reflects primarily tight valuation and already-weak credit metrics for the company's low-AA credit rating, which we think suggests limited likelihood of outperformance versus the sector.

While BATSLN is a OneScore bottom pick, we have an Overweight rating. The BATSLN EUR bonds widened 10-70bp, GBP bonds 10-45bp and USD bonds 40-70bp after the FDA headlines. As a comparison, EUR bond spreads widened 5-20bp and USD spreads widened 10-15bp when BAT had announced the Reynolds acquisition in October 2016, which led to Moody's adjusted leverage increasing 1.5x and a two-notch downgrade. **We believe that the reaction to the FDA headlines was overdone and priced in the worst-case scenario that BAT would immediately lose 25% of its EBIT if menthol cigarettes were banned. We expect this to be a very long process that could take many years, with no guarantee that the ban will eventually be implemented. We maintain our Overweight rating on the name, given current valuations.** In EUR, BATSLN bonds are now trading 50-120bp wider for the intermediate-maturity bonds than HEIANA, which we view as too wide, despite the one-notch rating difference at Moody's. Also, HEIANA's management has been clear that it will be pursuing a more acquisitive strategy, despite leverage metrics already stretched at S&P and Moody's, whereas BAT is pursuing a deleveraging strategy. We widen our fair value target between BATSLN and HEIANA slightly, to 20-25bp, given the increased regulatory risk for tobacco. We have a preference for the shorter- and intermediate-dated bonds until there is more clarity on the FDA's plan.

FIGURE 8

**Consumer Non-Cyclical: Top and Bottom Issuer Picks Based on OneScore, 30 November 2018**

Ticker	Issuer Name	OAS	ESP Score	EMC Score	OneScore	Analyst Rating
<b>Top Picks</b>						
ADNA	KONINKLIJKE AHOLD DELHAIZE NV	2.09	9.4	8.7	10	Market Weight
KOF	COCA-COLA FEMSA SAB DE CV	1.36	8.3	7.7	10	-
CPB	CAMPBELL SOUP CO	2.03	8.5	7.1	10	Overweight
MDLZ	MONDELEZ INTERNATIONAL INC	1.32	7.1	8.1	10	Market Weight
UNANA	UNILEVER CAPITAL CORP	0.84	9.0	6.2	10	-
NWL	NEWELL BRANDS INC	2.22	5.2	9.8	9	Market Weight
HAS	HASBRO INC	2.31	10.0	4.3	9	-
PM	PHILIP MORRIS INTERNATIONAL IN	1.36	7.5	6.9	9	Market Weight
WHR	WHIRLPOOL CORP	1.91	6.4	7.3	9	-
PG	PROCTER & GAMBLE CO/THE	0.62	4.6	9.0	8	Underweight
<b>Bottom Picks</b>						
BATSLN	BAT CAPITAL CORP	2.12	2.3	1.2	1	Overweight
STZ	CONSTELLATION BRANDS INC	1.51	1.8	2.5	1	Underweight
BFB	BROWN-FORMAN CORP	1.03	1.6	2.9	1	-
SUNTOR**	BEAM SUNTORY INC	1.07	3.7	3.1	1	-
GIS	GENERAL MILLS INC	1.56	2.9	3.9	2	Underweight
TAP	MOLSON COORS BREWING CO	1.90	1.4	5.8	2	Market Weight
KHC*	KRAFT HEINZ FOODS CO	2.06	5.6	1.8	2	Market Weight
K	KELLOGG CO	1.56	5.0	2.7	2	Market Weight
CAG	CONAGRA BRANDS INC	1.92	7.3	1.4	3	-
CL	COLGATE-PALMOLIVE CO	0.68	3.1	5.6	3	-

Note: \* Parent equity data are used. \*\* Equity data are unavailable. All aggregation is implemented at the issuer level. All bonds of a given issuer are aggregated when calculating spreads, scores, and subsequent month returns (for the back-test). The issuer with the largest amount outstanding is selected for each ticker. Bonds with maturities of 3 year and below are excluded. Issuer scores are re-normalized within sector and range between 1 and 10. Source: Barclays Research

## Energy

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Among the OneScore model's top picks, we have Underweight ratings on *Cimarex (XEC)*, *ConocoPhillips (COP)* and *TransCanada (TRPCN)*. For XEC, our rating is driven by our estimate that the company will outspend cash flow in 2019, which we think is a negative outlier within a sector that is broadly doing better at generating at least breakeven cash flow. In addition, as discussed in *Liquidity: Potential Issuers* (November 27, 2018), we expect XEC to issue debt in 2019 to refinance the capital structure of Resolute Energy, which it is acquiring. For COP, our Underweight rating is predicated on the company's relatively tight spreads and our preference within the higher-quality bucket for EOG Resources (EOG), which is still paying down debt. Finally, our rating on TRPCN reflects our view that the company's single-A rating at Moody's is at risk, which could trigger technical selling if it falls fully out of single-A dedicated portfolios.

Within OneScore's bottom picks, our Overweight ratings on *Canadian Natural Resources (CNQCN)* and *Continental Resources (CLR)* reflect our view that both companies remain in debt reduction mode, which we think will drive a positive technical in bonds and lower leverage in 2019. Conversely, our Underweight ratings on *Noble (NBL)* and *Phillips 66 (PSX)* are consistent with the OneScore model. Our fundamental view on NBL reflects our estimate of negative free cash flow next year, while PSX trades at the tight end of its sector, and we think it receives a premium for diversification that is overvalued because of the procyclicality of several of its business segments.

FIGURE 9

### Energy: Top and Bottom Issuer Picks Based on OneScore, 30 November 2018

Ticker	Issuer Name	OAS	ESP Score	EMC Score	OneScore	Analyst Rating
<b>Top Picks</b>						
TRPCN*	TRANSCANADA PIPELINES LTD	1.95	9.6	9.4	10	Underweight
CVX	CHEVRON CORP	0.76	7.9	9.7	10	-
NFG	NATIONAL FUEL GAS CO	1.86	9.9	7.8	10	-
BWP*	BOARDWALK PIPELINES LP	2.21	8.8	8.5	10	Market Weight
CPGX*	COLUMBIA PIPELINE GROUP INC	1.76	7.8	9.3	10	-
XEC	CIMAREX ENERGY CO	2.03	8.2	8.7	10	Underweight
EQM	EQM MIDSTREAM PARTNERS LP	2.52	10.0	6.2	9	-
HP	HELMERICH & PAYNE INTERNATIONAL	1.47	9.1	6.6	9	-
COP	CONOCOPHILLIPS	1.59	8.5	6.5	9	Underweight
<b>Bottom Picks</b>						
ECACN	ENCANA CORP	2.75	1.9	1.1	1	Market Weight
BHI*	BAKER HUGHES A GE CO LLC / BAK	1.74	2.0	1.3	1	Market Weight
NBL	NOBLE ENERGY INC	2.33	2.2	3.5	1	Underweight
HAL	HALLIBURTON CO	1.85	3.4	2.5	1	Market Weight
DVN	DEVON ENERGY CORP	2.37	4.8	1.4	1	Market Weight
CNQCN	CANADIAN NATURAL RESOURCES LTD	1.98	4.0	2.6	2	Overweight
MRO	MARATHON OIL CORP	2.26	3.8	2.8	2	Market Weight
PSX	PHILLIPS 66	1.64	3.5	3.1	2	Underweight
PSXP	PHILLIPS 66 PARTNERS LP	1.95	1.3	5.4	2	-
CLR	CONTINENTAL RESOURCES INC/OK	2.03	5.4	1.9	2	Overweight

Notes: Parent equity data are used. \*\* Equity data are unavailable. All aggregation is implemented at the issuer level. All bonds of a given issuer are aggregated when calculating spreads, scores, and subsequent month returns (for the back-test). The issuer with the largest amount outstanding is selected for each ticker. Bonds with maturities of 3 year and below are excluded. Issuer scores are re-normalized within sector and range between 1 and 10. Source: Barclays Research

## Utility

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We are Overweight rated on *NiSource (NI)*, which has a low OneScore, given relatively wide valuations versus the utility index, a reiterated strategy to improve FFO/debt metrics and our expectation of manageable penalties from the Massachusetts gas explosion. We are also Overweight rated on *First Energy (FE)* holding company, which has a low OneScore on a FE ticker basis, given the successful exit from merchant generation and a renewed focus on regulated operations. *PPL Capital (PPL)* has a low OneScore. We are Overweight the holding company, as we view UK related-risks as manageable and see spreads as offering a pickup versus similarly leveraged holding companies. We are Underweight Kentucky Utilities and Market Weight PPL Electric Utilities because despite stable credit profiles, they have unattractive valuations versus the index.

FIGURE 10

### Utility: Top and Bottom Issuer Picks Based on OneScore, 30 November 2018

Ticker	Issuer Name	OAS	ESP Score	EMC Score	OneScore	Analyst Rating
Top Picks						
OGE*	OKLAHOMA GAS & ELECTRIC CO	1.18	8.6	9.2	10	-
PNW*	ARIZONA PUBLIC SERVICE CO	1.23	7.4	9.5	10	-
ENRSIS	ENEL AMERICAS SA	2.13	9.7	6.8	10	-
WEC*	WISCONSIN ELECTRIC POWER CO	1.29	8.2	7.1	10	-
NRUC**	NATIONAL RURAL UTILITIES COOPE	1.07	9.0	6.1	10	-
BKH	BLACK HILLS CORP	1.34	5.0	9.8	10	-
OGS	ONE GAS INC	1.14	6.6	7.6	9	-
IBESM	IBERDROLA INTERNATIONAL BV	2.17	8.9	5.2	9	-
AWK	AMERICAN WATER CAPITAL CORP	1.15	5.3	8.7	9	-
XEL*	NORTHERN STATES POWER CO/MN	1.08	4.9	9.0	9	Underweight
Bottom Picks						
WGL*	WASHINGTON GAS LIGHT CO	1.01	1.2	1.3	1	-
AVA	AVISTA CORP	1.17	1.5	1.8	1	-
EE	EL PASO ELECTRIC CO	1.81	2.3	1.6	1	-
FE	FIRSTENERGY CORP	1.52	2.0	3.3	1	Overweight
NI	NISOURCE INC	1.60	2.4	2.8	1	Overweight
PPL	PPL CAPITAL FUNDING INC	1.33	2.8	3.4	2	Overweight
SWX*	SOUTHWEST GAS CORP	1.20	4.2	2.4	2	-
NGGLN	NATIONAL GRID USA	1.75	4.5	2.3	2	-
ETR*	ENTERGY LOUISIANA LLC	0.98	3.9	4.2	2	Underweight
LNT*	INTERSTATE POWER & LIGHT CO	1.13	2.6	5.7	2	-

Note: \* Parent equity data are used. \*\* Equity data are unavailable. All aggregation is implemented at the issuer level. All bonds of a given issuer are aggregated when calculating spreads, scores, and subsequent month returns (for the back-test). The issuer with the largest amount outstanding is selected for each ticker. Bonds with maturities of 3 year and below are excluded. Issuer scores are re-normalized within sector and range between 1 and 10. Source: Barclays Research

## Technology

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Among the OneScore model's bottom picks, we have an Overweight rating on *Alphabet (GOOGL)*, as the company has less than \$4bn in debt and over \$100bn in cash, a differential that continues to expand. Historically, GOOGL bonds have traded inside of AAA rated Microsoft (MSFT) and we expect this mean reversion eventually to take place.

FIGURE 11

### Technology: Top and Bottom Issuer Picks Based on OneScore, 30 November 2018

Ticker	Issuer Name	OAS	ESP Score	EMC Score	OneScore	Analyst Rating
<b>Top Picks</b>						
TECD	TECH DATA CORP	2.30	8.6	10.0	10	-
G	GENPACT LUXEMBOURG SARL	2.04	9.5	9.0	10	-
CA	CA INC	1.65	9.3	8.6	10	-
XLNX	XILINX INC	1.19	8.0	9.7	10	-
AVGO	BROADCOM CORP / BROADCOM CAYMA	1.99	8.1	8.8	9	-
CTXS	CITRIX SYSTEMS INC	2.36	9.7	7.3	9	-
ADSK	AUTODESK INC	1.54	6.3	9.2	9	-
MSI	MOTOROLA SOLUTIONS INC	1.90	5.6	9.5	9	Market Weight
XRX	XEROX CORP	3.63	9.8	5.1	9	-
<b>Bottom Picks</b>						
AAPL	APPLE INC	0.89	4.2	1.5	1	Market Weight
NVDA	NVIDIA CORP	1.23	4.9	1.2	1	-
TSS	TOTAL SYSTEM SERVICES INC	1.49	2.4	3.9	1	-
TXN	TEXAS INSTRUMENTS INC	0.85	1.7	4.6	1	-
ADBE	ADOBE INC	0.84	1.3	5.8	2	-
GOOGL	ALPHABET INC	0.62	1.5	5.6	2	Overweight
MRVL	MARVELL TECHNOLOGY GROUP LTD	1.79	5.4	1.7	2	-
JBL	JABIL INC	1.98	4.1	3.4	2	-
APH	AMPHENOL CORP	0.94	3.5	4.2	2	-
CRM	SALESFORCE.COM INC	0.79	1.2	6.6	2	-

Note: \* Parent equity data are used. \*\* Equity data are unavailable. All aggregation is implemented at the issuer level. All bonds of a given issuer are aggregated when calculating spreads, scores, and subsequent month returns (for the back-test). The issuer with the largest amount outstanding is selected for each ticker. Bonds with maturities of 3 year and below are excluded. Issuer scores are re-normalized within sector and range between 1 and 10. Source: Barclays Research

## Communications

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We are Overweight rated on *Time Warner Cable (TWC)*, as we believe the weakness in spreads is being driven by reports of leveraged M&A. Furthermore, we think the integration of Time Warner Cable with Charter Communications is nearly complete, which could lead to a reduction in operating costs and an improvement in cash flows, which should be a positive for the credit.

Among the OneScore model's bottom picks, we have *Viacom (VIA)* and *Disney (DIS)* rated Market Weight. We expect Viacom to continue to deleverage its balance sheet and S&P to stabilize ratings in the near term, which could lead to in-line performance. Similarly, Disney is one of the very few single A names in Communications, which means demand for these bonds remains robust, despite the tightness in spreads. Disney bonds are also very defensive in nature, offering protection in a market downturn.

FIGURE 12

Communications: Top and Bottom Issuer Picks Based on OneScore, 30 November 2018

Ticker	Issuer Name	OAS	ESP Score	EMC Score	OneScore	Analyst Rating
Top Picks						
BRITEL*	BRITISH TELECOMMUNICATIONS PLC	2.27	9.5	10.0	10	Market Weight
DT*	DEUTSCHE TELEKOM INTERNATIONAL	2.10	9.2	9.2	10	-
OMC	OMNICOM GROUP INC / OMNICOM CA	1.43	10.0	6.7	10	-
VOD	VODAFONE GROUP PLC	2.03	8.4	5.9	10	Market Weight
TWC	TIME WARNER CABLE LLC	3.24	6.7	7.4	9	Overweight
TELEFO	TELEFONICA EMISIONES SAU	2.34	5.4	8.6	9	-
CHTR	CHARTER COMMUNICATIONS OPERATI	2.50	6.2	7.4	9	Market Weight
RELLN	RELX CAPITAL INC	1.08	8.6	4.5	8	-
VZ	VERIZON COMMUNICATIONS INC	1.61	4.3	8.9	8	Market Weight
IPG	INTERPUBLIC GROUP OF COS INC/T	1.72	8.9	4.0	8	-
Bottom Picks						
VIA	VIACOM INC	1.90	1.5	4.3	1	Market Weight
MCO	MOODY'S CORP	1.12	3.2	3.7	1	-
WPPLN	WPP FINANCE 2010	2.22	5.6	1.8	1	-
CBS	CBS CORP	1.68	4.8	2.9	2	Market Weight
TCN	TELUS CORP	1.39	2.9	4.8	2	-
ATVI	ACTIVISION BLIZZARD INC	1.49	7.3	1.3	3	-
DIS	WALT DISNEY CO/THE	0.84	3.5	5.1	3	Market Weight
RCICN	ROGERS COMMUNICATIONS INC	1.42	2.4	6.2	3	-
AMXLMM	AMERICA MOVIL SAB DE CV	1.73	6.5	2.4	3	-

Note: \* Parent equity data are used. \*\* Equity data are unavailable. All aggregation is implemented at the issuer level. All bonds of a given issuer are aggregated when calculating spreads, scores, and subsequent month returns (for the back-test). The issuer with the largest amount outstanding is selected for each ticker. Bonds with maturities of 3 year and below are excluded. Issuer scores are re-normalized within sector and range between 1 and 10. Source: Barclays Research

## Banking, Brokerage, Financing

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Within OneScore's top picks, we have an Overweight rating on *AerCap (AER)*. We believe management's conservative liquidity positioning and recent guidance for leverage at the low end of its 2.7-3.0x target, a market-leading position in aircraft leasing, and a continued reduction in fleet age will be supportive of the credit.

FIGURE 13

### Banking, Brokerage, Financing: Top and Bottom Issuer Picks Based on OneScore, 30 November 2018

Ticker	Issuer Name	OAS	ESP Score	EMC Score	OneScore	Analyst Rating
<b>Top Picks</b>						
NYCB	NEW YORK COMMUNITY BANCORP INC	2.84	9.1	9.3	10	-
HSBC	HSBC HOLDINGS PLC	1.73	8.5	8.3	10	Market Weight
ARCC	ARES CAPITAL CORP	2.01	8.9	7.8	10	-
SANTAN	BANCO SANTANDER SA	2.19	9.7	6.9	10	Market Weight
BEN	FRANKLIN RESOURCES INC	0.96	6.5	9.9	10	-
SANUK*	SANTANDER UK GROUP HOLDINGS PL	2.05	9.2	7.1	10	-
PSEC	PROSPECT CAPITAL CORP	3.01	9.9	6.2	10	-
SOV*	SANTANDER HOLDINGS USA INC	1.89	9.0	7.1	10	-
ISPIM	INTESA SANPAOLO SPA	3.44	10.0	6.0	10	Market Weight
AER*	AERCAP IRELAND CAPITAL DAC / A	2.12	6.9	8.8	9	Overweight
<b>Bottom Picks</b>						
UNBC*	MUFG AMERICAS HOLDINGS CORP	0.81	1.9	2.7	1	-
CS	CREDIT SUISSE GROUP FUNDING GU	1.66	3.3	1.3	1	Market Weight
CFG	CITIZENS BANK NA/PROVIDENCE RI	0.98	1.7	3.1	1	-
RF	REGIONS FINANCIAL CORP	1.34	2.3	2.5	1	-
SUMIBK	SUMITOMO MITSUI FINANCIAL GROU	1.05	1.6	3.4	1	-
BKU	BANKUNITED INC	1.67	1.5	3.5	1	-
SIVB	SVB FINANCIAL GROUP	1.34	1.8	3.6	1	-
SF	STIFEL FINANCIAL CORP	1.47	1.4	4.1	1	-
KEY	KEYBANK NA/CLEVELAND OH	0.93	1.3	4.4	1	-
SCHW	CHARLES SCHWAB CORP/THE	0.91	3.6	2.4	2	-

Notes: \* Parent equity data are used. \*\* Equity data are unavailable. All aggregation is implemented at the issuer level. All bonds of a given issuer are aggregated when calculating spreads, scores, and subsequent month returns (for the back-test). The issuer with the largest amount outstanding is selected for each ticker. Bonds with maturities of 3 year and below are excluded. Issuer scores are re-normalized within sector and range between 1 and 10. Source: Barclays Research

## Insurance

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*Assured Guarantee (AGO)* has a high OneScore rating, but we do not see value in the company's bonds or selling CDS protection at current levels. AGO's niche focus is bond insurance, a market that has materially declined over the past ten years and is unlikely to expand. The majority of AGO's earnings are from its legacy portfolio, which continues to amortize, although the higher risk exposures in it, including wrapped Puerto Rico bonds and pre-crisis structured credit, appear well contained relative to the company's capital position.

Despite its higher OneScore rating, which is supported by the robust capital position and defensive business model and balance sheet, we rate the *Munich Re (MUNRE)* group Underweight, as we find valuations rich relative to its reinsurance peer group and to the wider insurance sector in Europe.

Among the OneScore model's bottom picks, our Overweight rating on *AIG* reflects our view that the company is in the early stages of a fundamental recovery that will restore the profitability of its globally diversified property and casualty insurance franchise. There were early signs of progress in the company's 3Q results, and despite catastrophe losses sustained by the industry in 4Q from natural events, we think that AIG's enhanced reinsurance protection and underwriting actions will begin to take hold over the next few quarters. Subsequent to quarter-end, the company announced the redemption of about \$1bn of hybrid securities acquired through a recent acquisition, which will reduce leverage, a positive fundamental step.

FIGURE 14

### Insurance: Top and Bottom Issuer Picks Based on OneScore, 30 November 2018

Ticker	Issuer Name	OAS	ESP Score	EMC Score	OneScore	Analyst Rating
<b>Top Picks</b>						
AGO	ASSURED GUARANTY US HOLDINGS I	1.83	8.8	9.2	10	Underweight
CI	HALFMOON PARENT INC	1.59	7.9	10.0	10	-
MUNRE	MUNICH RE AMERICA CORP	1.47	9.7	7.3	10	Underweight
AET	AETNA INC	1.64	7.3	9.5	10	-
CINF	CINCINNATI FINANCIAL CORP	1.54	7.6	8.8	10	-
RNR	RENAISSANCERE FINANCE INC	1.31	7.4	8.3	10	-
AHL	ASPEN INSURANCE HOLDINGS LTD	1.83	9.1	6.5	9	-
MCY	MERCURY GENERAL CORP	1.93	8.6	6.9	9	-
SRENVX*	SWISS RE AMERICA HOLDING CORP	1.44	9.5	5.9	9	Market Weight
<b>Bottom Picks</b>						
HIG	HARTFORD FINANCIAL SERVICES GR	1.48	1.2	1.3	1	Market Weight
VOYA	VOYA FINANCIAL INC	1.74	1.3	2.8	1	Market Weight
ALL	ALLSTATE CORP/THE	1.63	3.7	1.5	1	Market Weight
PGR	PROGRESSIVE CORP/THE	1.16	1.5	4.4	1	-
UNM	UNUM GROUP	2.04	3.1	3.3	1	-
ACGL	ARCH CAPITAL FINANCE LLC	1.46	1.6	5.6	2	-
PFG	PRINCIPAL FINANCIAL GROUP INC	1.40	4.1	3.4	2	-
AIG	AMERICAN INTERNATIONAL GROUP I	2.06	5.0	2.7	2	Overweight
MKL	MARKEL CORP	1.61	1.8	6.0	2	-
RE	EVEREST REINSURANCE HOLDINGS I	1.87	2.5	5.3	2	-

Note: \* Parent equity data are used. \*\* Equity data are unavailable. All aggregation is implemented at the issuer level. All bonds of a given issuer are aggregated when calculating spreads, scores, and subsequent month returns (for the back-test). The issuer with the largest amount outstanding is selected for each ticker. Bonds with maturities of 3 year and below are excluded. Issuer scores are re-normalized within sector and range between 1 and 10. Source: Barclays Research



## REITS

REITs sector is currently not covered by Barclays Credit Research.

FIGURE 15

**REITS: Top and Bottom Issuer Picks Based on OneScore, 30 November 2018**

Ticker	Issuer Name	OAS	ESP Score	EMC Score	OneScore
Top Picks					
OHI	OMEGA HEALTHCARE INVESTORS INC	2.04	8.7	10.0	10
O	REALTY INCOME CORP	1.16	7.0	9.5	10
WELL	WELLTOWER INC	1.50	6.5	9.8	10
SKT	TANGER PROPERTIES LP	1.84	9.4	6.4	10
STOR	STORE CAPITAL CORP	1.91	9.1	6.7	10
UDR	UDR INC	1.25	6.2	9.2	10
VTR	VENTAS REALTY LP	1.51	6.4	9.1	10
MAA	MID-AMERICA APARTMENTS LP	1.32	7.9	7.3	9
EPR	EPR PROPERTIES	2.21	8.4	6.5	9
HCP	HCP INC	1.54	5.3	9.7	9
Bottom Picks					
WRE	WASHINGTON REAL ESTATE INVESTM	1.03	1.5	1.9	1
HIW	HIGHWOODS REALTY LP	1.56	1.6	2.7	1
SITC	SITE CENTERS CORP	1.62	1.9	3.2	1
GOVPIT	GOVERNMENT PROPERTIES INCOME T	1.50	4.3	1.2	1
BDN	BRANDYWINE OPERATING PARTNERSH	1.61	3.4	2.6	1
WRI	WEINGARTEN REALTY INVESTORS	1.12	1.8	4.2	1
BRX	BRIXMOR OPERATING PARTNERSHIP	1.62	2.7	4.0	2
PLD*	PROLOGIS LP	0.86	1.2	5.9	2
ARE	ALEXANDRIA REAL ESTATE EQUITIE	1.33	2.9	4.3	2
REG	REGENCY CENTERS LP	1.53	2.6	4.6	2

Note: \* Parent equity data are used. \*\* Equity data are unavailable. All aggregation is implemented at the issuer level. All bonds of a given issuer are aggregated when calculating spreads, scores, and subsequent month returns (for the back-test). The issuer with the largest amount outstanding is selected for each ticker. Bonds with maturities of 3 year and below are excluded. Issuer scores are re-normalized within sector and range between 1 and 10. Source: Barclays Research

## Transportation

Transportation is currently not covered by Barclays Credit Research.

FIGURE 16

### Transportation: Top and Bottom Issuer Picks Based on OneScore, 30 November 2018

Ticker	Issuer Name	OAS	ESP Score	EMC Score	OneScore
Top Picks					
SAVE	SPIRIT AIRLINES PASS THROUGH T	1.40	9.0	10.0	10
UAL*	UNITED AIRLINES 2016-1 CLASS A	1.16	7.5	9.5	10
DAL	DELTA AIR LINES INC	1.64	5.5	9.0	9
CP*	CANADIAN PACIFIC RAILWAY CO	1.46	6.5	7.5	9
LATAIR	LATAM AIRLINES 2015-1 PASS THR	2.02	8.0	6.0	9
CHRW	CH ROBINSON WORLDWIDE INC	1.41	9.5	4.5	8
Bottom Picks					
KSU	KANSAS CITY SOUTHERN	1.51	2.5	2.5	1
R	RYDER SYSTEM INC	1.04	3.5	1.5	2
FDX	FEDEX CORP	1.59	4.5	3.5	2
NSC	NORFOLK SOUTHERN CORP	1.23	3.0	5.5	3

Note: \* Parent equity data are used. \*\* Equity data are unavailable. All aggregation is implemented at the issuer level. All bonds of a given issuer are aggregated when calculating spreads, scores, and subsequent month returns (for the back-test). The issuer with the largest amount outstanding is selected for each ticker. Bonds with maturities of 3 year and below are excluded. Issuer scores are re-normalized within sector and range between 1 and 10. Source: Barclays Research

## Appendix – Methodology Overview

OneScore combines ESP and EMC scores within individual industry sectors. First, ESP and EMC signals are aggregated at the issuer level by averaging across issuer bonds with maturities above 3 years using market weights. Issuer-level signals are then ranked within individual sectors to ensure that each sector contains issuers with strong or weak relative value (ESP) or relative equity momentum (EMC). Resulting issuer-level ESP and EMC ranks are combined by applying equal weights. The resulting average ESP-EMC ranks are re-ranked within each sector. Finally, OneScores are assigned based on ranks falling into deciles groups, ranging from 1 to 10. A higher OneScore indicates relative attractiveness of an issuer within a given sector. Similar to ESP and EMC scores, OneScore scores are calculated monthly.

The ESP Scorecard is a quantitative framework designed to identify relative value opportunities in credit (please see [Relative Value Investing in Credit](#), 9 May 2016). The scorecard assigns scores from 1 to 10 to bonds according to their relative valuation, with a high score indicating attractiveness. The ESP Scorecard incorporates market and fundamental information. The framework is implemented in two steps:

*Step 1:* Peer groups are identified within the corporate bond universe. In this process, individual bonds are grouped based on their characteristics to capture systematic credit risk. The ESP Scorecard calculates the excess spread of each bond over its peer group average. Bonds with high or low excess spreads over peers are deemed undervalued or overvalued, respectively.

*Step 2:* In the second step, the ESP Scorecard corrects excess spreads for differences in issuer fundamental data using statistical analysis.

Investors can use the ESP Scorecard as a quantitative screening tool to identify potential relative value opportunities in credit. ESP Scores can be applied in conjunction with fundamental analysis and in combination with other signals; please see [Quantitative Credit Scorecards for Relative Value \(ESP\) and Cross-Asset Momentum \(EMC\)](#), 22 February 2018.

Quantitative Portfolio Strategy publishes the performance of the ESP Scorecard monthly. We make bond-level ESP scores available to investors on a monthly basis.

The EMC Scorecard is a quantitative framework designed to differentiate issuers based on their stock price momentum. It is based on a positive empirical relationship between past equity returns and subsequent returns of corporate bonds (please see [Equity Momentum in Credit \(EMC\)](#), 18 August 2017). The scorecard assigns scores from 1 to 10 to issuers, with a high score indicating strong equity momentum.

Portfolios sorted on EMC scores have demonstrated attractive risk-return characteristics over the past two decades. Investors can use the EMC Scorecard as a quantitative screening tool to identify issuers with a potentially improving outlook, as reflected in past trends of respective stock prices. The Scorecard can be used on a tactical basis in conjunction with fundamental analysis and, potentially, with other signals. We make bond-level EMC scores available on a monthly basis.

## Appendix – Performance Summary by Sector

Figure 16 reports performance statistics of Top and Bottom OneScore portfolios in each sector over different time horizons ending on 30 November 2018. Portfolios are equally weighted. Transaction costs are not included.

FIGURE 17

REITS: Top and Bottom Issuer Picks Based on OneScore, 30 November 2018

	Avg. Excess Returns, %/yr			Volatilities, %/yr			Information Ratios, %/yr		
	1y	3y	5y	1y	3y	5y	1y	3y	5y
<b>Top - Bottom</b>									
Basic Industry	4.02	10.30	8.58	1.94	5.55	4.98	2.07	1.86	1.72
Capital Goods	2.33	1.96	2.69	1.37	1.61	1.40	1.70	1.22	1.92
Consumer Cyclical	4.61	4.83	4.56	1.23	1.42	1.31	3.73	3.41	3.49
Healthcare & Pharma	5.38	3.78	3.38	1.85	2.01	1.86	2.91	1.88	1.82
Non-Cyclical	2.12	2.87	2.61	1.26	1.29	1.28	1.69	2.22	2.03
Energy	3.89	7.03	6.76	1.32	5.16	5.18	2.95	1.36	1.31
Utility	0.93	3.70	3.65	1.60	1.88	1.65	0.58	1.96	2.21
Technology	3.36	5.20	4.74	1.11	1.83	1.59	3.04	2.85	2.98
Communication	3.64	2.95	3.47	1.60	1.78	1.74	2.28	1.66	1.99
Banking, Brokerage, Financing	1.32	3.39	3.99	1.03	1.20	1.18	1.28	2.83	3.37
Insurance	4.04	5.13	4.37	1.20	2.04	1.80	3.38	2.51	2.42
REITS	1.51	3.42	2.89	0.93	1.24	1.20	1.61	2.76	2.40
Transportation	1.63	2.59	2.60	1.25	2.43	2.29	1.31	1.07	1.13
<b>Top</b>									
Basic Industry	-0.05	10.15	7.47	3.97	6.64	6.24	-0.01	1.53	1.20
Capital Goods	-0.45	2.73	2.76	1.99	2.62	2.23	-0.23	1.04	1.24
Consumer Cyclical	1.70	4.92	3.71	2.60	2.72	2.38	0.65	1.81	1.56
Healthcare & Pharma	2.31	4.24	3.28	2.53	2.36	2.24	0.91	1.80	1.47
Non-Cyclical	-1.76	3.40	2.76	2.57	2.70	2.39	-0.69	1.26	1.15
Energy	-0.43	8.58	4.74	4.26	12.06	10.45	-0.10	0.71	0.45
Utility	-1.87	4.62	3.59	3.65	3.27	2.74	-0.51	1.41	1.31
Technology	0.55	5.49	4.62	2.45	3.36	2.81	0.23	1.63	1.64
Communication	1.25	4.04	3.74	4.46	4.29	3.67	0.28	0.94	1.02
Banking, Brokerage, Financing	-0.56	3.77	4.16	2.07	2.72	2.37	-0.27	1.38	1.75
Insurance	0.67	4.88	4.14	2.18	2.21	2.15	0.31	2.20	1.93
REITS	1.13	4.84	3.74	1.92	1.84	1.81	0.59	2.63	2.07
Transportation	-0.38	3.98	2.99	3.03	3.53	3.17	-0.13	1.13	0.94
<b>Bottom</b>									
Basic Industry	-4.07	-0.15	-1.11	3.23	3.72	3.37	-1.26	-0.04	-0.33
Capital Goods	-2.78	0.77	0.07	2.54	2.36	2.01	-1.10	0.33	0.03
Consumer Cyclical	-2.91	0.08	-0.85	1.60	1.90	1.84	-1.82	0.04	-0.46
Healthcare & Pharma	-3.07	0.46	-0.10	2.29	2.88	2.60	-1.34	0.16	-0.04
Non-Cyclical	-3.88	0.53	0.15	2.42	2.27	2.08	-1.60	0.23	0.07
Energy	-4.32	1.56	-2.02	4.46	7.98	6.95	-0.97	0.20	-0.29
Utility	-2.80	0.92	-0.06	2.49	2.50	2.37	-1.13	0.37	-0.02
Technology	-2.81	0.29	-0.12	2.22	2.13	1.86	-1.26	0.13	-0.06
Communication	-2.39	1.08	0.27	3.43	3.87	3.39	-0.69	0.28	0.08
Banking, Brokerage, Financing	-1.88	0.38	0.18	1.42	2.19	1.85	-1.32	0.18	0.09
Insurance	-3.37	-0.25	-0.23	2.77	3.35	2.83	-1.22	-0.08	-0.08
REITS	-0.37	1.41	0.84	1.68	1.54	1.55	-0.22	0.92	0.55
Transportation	-2.01	1.39	0.39	2.30	3.32	2.86	-0.88	0.42	0.14

Note: Performance statistics are calculated as differences in returns between equally weighted top and bottom OneScore portfolios rebalanced monthly.

Source: Barclays Research

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#### Analyst Certification

We, Srinjoy Banerjee, CFA, Brittany Chen, Albert Desclée, Karine Elias, Sandeep Gupta, Shobhit Gupta, Andrew Keches, CFA, Harry Mateer, Brian Monteleone, Priya Ohri-Gupta, CFA, Simon Polbennikov 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.

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#### Materially Mentioned Issuers/Bonds

##### AERCAP IRELAND CAPITAL DAC / AERCAP GLOBAL AVIATION TRUST, Overweight, A/CD/D/J/K/L/M/N

Representative Bond: AER 3 1/2 01/15/25 (USD 91.38, 12-Dec-2018)  
Representative Bond: AER 3 1/2 05/26/22 (USD 96.63, 12-Dec-2018)  
Representative Bond: AER 3 3/4 05/15/19 (USD 100.01, 12-Dec-2018)  
Representative Bond: AER 3 3/4 05/15/19 (USD 100.00, 12-Dec-2018)  
Representative Bond: AER 3 3/4 05/15/19 (USD 100.01, 12-Dec-2018)  
Representative Bond: AER 3 7/8 01/23/28 (USD 87.50, 12-Dec-2018)  
Representative Bond: AER 3.3 01/23/23 (USD 94.88, 12-Dec-2018)  
Representative Bond: AER 3.65 07/21/27 (USD 86.75, 12-Dec-2018)  
Representative Bond: AER 3.95 02/01/22 (USD 98.13, 12-Dec-2018)  
Representative Bond: AER 4 1/2 05/15/21 (USD 100.13, 12-Dec-2018)  
Representative Bond: AER 4 1/2 05/15/21 (USD 100.13, 12-Dec-2018)  
Representative Bond: AER 4 1/2 05/15/21 (USD 100.13, 12-Dec-2018)  
Representative Bond: AER 4 1/4 07/01/20 (USD 100.25, 12-Dec-2018)  
Representative Bond: AER 4 5/8 07/01/22 (USD 100.50, 12-Dec-2018)  
Representative Bond: AER 4 5/8 10/30/20 (USD 100.00, 12-Dec-2018)  
Representative Bond: AER 5 10/01/21 (USD 101.63, 12-Dec-2018)

##### ALLERGAN FINANCE LLC, Market Weight, A/CD/D/J/K/L/M/N

Representative Bond: AGN 3 1/4 10/01/22 (USD 96.74, 12-Dec-2018)

##### ALLSTATE CORP/THE, Market Weight, A/CD/CE/D/E/J/K/L/M/N

Representative Bond: ALL 3.28 12/15/26 (USD 96.13, 12-Dec-2018)

##### ALPHABET INC, Overweight, CD/CE/D/J/K/L/M/N

Representative Bond: GOOGL 1.998 08/15/26 (USD 89.81, 12-Dec-2018)

##### AMERICAN INTERNATIONAL GROUP INC, Overweight, A/CD/CE/D/J/K/L/M/N

Representative Bond: AIG 4.2 04/01/28 (USD 95.66, 12-Dec-2018)

##### AMERISOURCEBERGEN CORP, Underweight, CD/CE/J

Representative Bond: ABC 4 1/4 03/01/45 (USD 85.26, 12-Dec-2018)

**APPLE INC**, Market Weight, CD/CE/D/E/J/K/L/M/N  
Representative Bond: AAPL 2.45 08/04/26 (USD 91.39, 12-Dec-2018)

**ASSURED GUARANTY US HOLDINGS INC**, Underweight, CD/J/K/M  
Representative Bond: AGO 5 07/01/24 (USD 102.65, 12-Dec-2018)

**BAKER HUGHES A GE CO LLC**, Market Weight, A/CD/D/E/J/K/L/M/N  
Representative Bond: BHI 5 1/8 09/15/40 (USD 96.40, 12-Dec-2018)

**BANCO SANTANDER SA**, Market Weight, A/CD/CE/D/E/I/J/K/L/M/N  
Representative Bond: SANTAN 1 3/8 12/14/22 (EUR 102.49, 12-Dec-2018)

**BAT INTERNATIONAL FINANCE PLC**, Overweight, CD/D/E/J/K/L/M/N  
Representative Bond: BATSLN 0 7/8 10/13/23 (EUR 96.55, 12-Dec-2018)

**BHP BILLITON LTD**, Underweight, CD/CE/D/E/J/K/L/M/N  
Representative Bond: BHP 3.85 09/30/23 (USD 101.59, 12-Dec-2018)

**BOARDWALK PIPELINES LP**, Underweight, CD/D/J/K/L/M/N  
Representative Bond: BWP 4.95 12/15/24 (USD 100.12, 12-Dec-2018)

**BRITISH TELECOMMUNICATIONS PLC**, Market Weight, A/CD/D/J/K/L/M/N  
Representative Bond: BRITEL 0 5/8 03/10/21 (EUR 100.40, 12-Dec-2018)  
Representative Bond: BRITEL 9.125 5/9.125 12/15/30 (USD 134.46, 12-Dec-2018)

**CAMPBELL SOUP CO**, Overweight, A/CD/CE/D/J/K/L/M  
Representative Bond: CPB 4.15 03/15/28 (USD 93.15, 12-Dec-2018)  
Representative Bond: CPB 4.8 03/15/48 (USD 85.91, 12-Dec-2018)

**CANADIAN NATURAL RESOURCES LTD**, Overweight, CD/CE/D/J/K/L/M/N  
Representative Bond: CNQCN 3.45 11/15/2021 (USD 98.65, 12-Dec-2018)

**CBS CORP**, Market Weight, CD/CE/D/J/K/L/M/N  
Representative Bond: CBS 4.6 01/15/45 (USD 89.93, 12-Dec-2018)

**CHARTER COMMUNICATIONS OPERATING LLC / CHARTER COMMUNICATIONS OPERATING CAPITAL**, Overweight, CD/J/K/M/N  
Representative Bond: CHTR 3 3/4 02/15/28 (USD 91.12, 12-Dec-2018)

**CIMAREX ENERGY CO**, Underweight, CD/CE/FC/J/K/N  
Representative Bond: XEC 4 3/8 06/01/24 (USD 97.85, 12-Dec-2018)

**CONOCOPHILLIPS**, Underweight, CD/CE/D/J/K/L/M/N  
Representative Bond: COP 5.9 05/15/38 (USD 116.32, 12-Dec-2018)

**CONSTELLATION BRANDS INC**, Underweight, CD/CE/D/J/K/L/M/N  
Representative Bond: STZ 3.6 02/15/28 (USD 92.82, 12-Dec-2018)  
Representative Bond: STZ 4.1 02/15/48 (USD 85.22, 12-Dec-2018)

**CONTINENTAL RESOURCES INC/OK**, Overweight, CD/CE/J  
Representative Bond: CLR 4 3/8 01/15/28 (USD 94.95, 12-Dec-2018)

**CREDIT SUISSE GROUP AG**, Market Weight, A/CD/CE/D/J/K/L/M/N  
Representative Bond: CS 1 1/4 04/14/22 (EUR 100.48, 12-Dec-2018)

**DEVON ENERGY CORP**, Market Weight, CD/CE/D/J/K/L/M  
Representative Bond: DVN 5.85 12/15/25 (USD 104.97, 12-Dec-2018)

**DOMTAR CORP**, Market Weight, CD/J  
Representative Bond: UFS 4.4 04/01/22 (USD 99.85, 12-Dec-2018)

**EASTMAN CHEMICAL CO**, Market Weight, A/CD/CE/D/J/K/L/M  
Representative Bond: EMN 4.65 10/15/44 (USD 88.64, 12-Dec-2018)

**EI DU PONT DE NEMOURS & CO**, Overweight, CD/D/J/K/L/M/N  
Representative Bond: DD 3 5/8 01/15/21 (USD 100.64, 12-Dec-2018)

**ENCANA CORP**, Market Weight, CD/CE/J/K/M  
Representative Bond: ECACN 3.9 11/15/2021 (USD 99.69, 12-Dec-2018)

**ENTERGY LOUISIANA LLC**, Underweight, CD/CE/D/E/J/K/L/M  
Representative Bond: ETR 2.4 10/01/26 (USD 90.59, 12-Dec-2018)

**FIRSTENERGY CORP**, Overweight, A/CD/CE/D/E/J/K/L/M  
Representative Bond: FE 7 3/8 11/15/31 (USD 125.06, 12-Dec-2018)

**GENERAL MILLS INC**, Underweight, A/CD/CE/D/J/K/L/M/N  
Representative Bond: GIS 4.2 04/17/28 (USD 97.31, 12-Dec-2018)  
Representative Bond: GIS 4.7 04/17/48 (USD 91.30, 12-Dec-2018)

**GENERAL MOTORS CO**, Market Weight, A/CD/CE/D/E/J/K/L/M/N  
Representative Bond: GM 5 10/01/28 (USD 94.80, 12-Dec-2018)

**GOLDCORP INC**, Market Weight, CD/CE/J  
Representative Bond: GCN 3.7 03/15/23 (USD 97.74, 12-Dec-2018)

**HALLIBURTON CO**, Market Weight, CD/CE/D/J/K/L/M/N  
Representative Bond: HAL 3.8 11/15/25 (USD 96.53, 12-Dec-2018)

**HARTFORD FINANCIAL SERVICES GROUP INC/THE**, Market Weight, A/CD/CE/D/J/K/L/M  
Representative Bond: HIG 4.4 03/15/48 (USD 91.71, 12-Dec-2018)

**HSBC HOLDINGS PLC**, Market Weight, CD/J/K/M/N  
Representative Bond: HSBC 3 06/30/25 (EUR 104.13, 12-Dec-2018)  
Representative Bond: HSBC 4 1/4 03/14/24 (USD 97.44, 12-Dec-2018)  
Representative Bond: HSBC 6 1/2 07/07/23 (GBP 117.09, 12-Dec-2018)

**INTERNATIONAL PAPER CO**, Overweight, CD/CE/FB/J  
Representative Bond: IP 4.8 06/15/44 (USD 91.26, 12-Dec-2018)

**INTESA SANPAOLO SPA**, Market Weight, A/CD/D/E/I/J/K/L/M/N  
Representative Bond: ISPIM 4 10/30/23 (EUR 107.48, 12-Dec-2018)

**KELLOGG CO**, Market Weight, CD/CE/D/J/K/L/M/N  
Representative Bond: K 4.3 05/15/28 (USD 98.43, 12-Dec-2018)

**KINROSS GOLD CORP**, Market Weight, CD/CE/J  
Representative Bond: KCN 5 1/8 09/01/21 (USD 100.38, 12-Dec-2018)

**KONINKLIJKE AHOLD DELHAIZE NV**, Market Weight, B/CD/J  
Representative Bond: ADNA 5.7 10/01/40 (USD 107.17, 12-Dec-2018)

**KRAFT HEINZ FOODS CO**, Market Weight, A/CD/D/E/J/K/L/M  
Representative Bond: KHC 4 5/8 01/30/29 (USD 98.08, 12-Dec-2018)

**LOCKHEED MARTIN CORP**, Overweight, CD/CE/D/J/K/L/M/N  
Representative Bond: LMT 4.09 09/15/52 (USD 93.96, 12-Dec-2018)

**LOWE'S COS INC**, Market Weight, CD/CE/J  
Representative Bond: LOW 2 1/2 04/15/26 (USD 90.74, 12-Dec-2018)

**MARATHON OIL CORP**, Market Weight, CD/CE/J  
Representative Bond: MRO 3.85 06/01/25 (USD 94.63, 12-Dec-2018)

**MOLSON COORS BREWING CO**, Market Weight, CD/CE/J/K/N  
Representative Bond: TAP 3 07/15/26 (USD 89.52, 12-Dec-2018)

**MONDELEZ INTERNATIONAL INC**, Market Weight, A/CD/CE/D/GE/J/K/L/M  
Representative Bond: MDLZ 4 1/8 05/07/28 (USD 98.46, 12-Dec-2018)  
Representative Bond: MDLZ 4 5/8 05/07/48 (USD 95.19, 12-Dec-2018)

**MOTOROLA SOLUTIONS INC**, Market Weight, CD/J  
Representative Bond: MSI 4 09/01/24 (USD 96.88, 12-Dec-2018)

**MUENCHENER RUECKVERSICHERUNGS-GESELLSCHAFT AG IN MUENCHEN**, Underweight, A/CD/D/J/K/L/M/N  
Representative Bond: MUNRE 6 05/26/41 (EUR 111.66, 12-Dec-2018)



**NEWELL BRANDS INC**, Underweight, CD/CE/D/J/K/L/M/N  
Representative Bond: NWL 3.15 04/01/21 (USD 100.01, 12-Dec-2018)  
Representative Bond: NWL 3.85 04/01/23 (USD 97.88, 12-Dec-2018)  
Representative Bond: NWL 4.2 04/01/26 (USD 96.72, 12-Dec-2018)

**NISOURCE FINANCE CORP**, Overweight, CD/D/E/J/K/L/M  
Representative Bond: NI 4.8 02/15/44 (USD 99.30, 12-Dec-2018)

**NOBLE ENERGY INC**, Underweight, CD/CE/D/J/K/L/M/N  
Other Material Conflicts: Barclays Bank PLC and/or its affiliate is serving as financial advisor to Noble Energy Mediterranean, a fully owned subsidiary of Noble Energy, Inc. (NYSE: NBL), in relation to the announced divestment of 7.5% working interest in the Tamar field, offshore Israel, to Tamar Petroleum Ltd. (TASE: TMRP).  
Representative Bond: NBL 3.9 11/15/24 (USD 95.97, 12-Dec-2018)

**NORTHERN STATES POWER CO/MN**, Underweight, CD/D/E/J/K/L/M  
Representative Bond: XEL 2.6 05/15/23 (USD 96.24, 12-Dec-2018)

**NORTHROP GRUMMAN CORP**, Market Weight, CD/CE/J  
Representative Bond: NOC 4.03 10/15/47 (USD 90.82, 12-Dec-2018)

**NUCOR CORP**, Market Weight, CD/CE/J  
Representative Bond: NUE 4 08/01/23 (USD 101.24, 12-Dec-2018)

**PHILIP MORRIS INTERNATIONAL INC**, Market Weight, CD/CE/D/J/K/L/M  
Representative Bond: PM 2 3/4 02/25/26 (USD 92.69, 12-Dec-2018)

**PHILLIPS 66**, Underweight, A/CD/CE/D/J/K/L/M/N  
Representative Bond: PSX 4.3 04/01/22 (USD 102.16, 12-Dec-2018)

**PPG INDUSTRIES INC**, Underweight, CD/J  
Representative Bond: PPG 2.3 11/15/19 (USD 99.28, 12-Dec-2018)

**PPL CAPITAL FUNDING INC**, Overweight, CD/D/E/J/K/L/M  
Representative Bond: PPL 3.95 03/15/24 (USD 98.75, 12-Dec-2018)

**PROCTER & GAMBLE CO/THE**, Underweight, A/CD/CE/D/E/J/K/L/M  
Representative Bond: PG 2.7 02/02/26 (USD 94.71, 12-Dec-2018)

**QVC INC**, Overweight, A/CD/D/E/J/K/L/M/N  
Representative Bond: QVCN 5.45 08/15/34 (USD 88.37, 12-Dec-2018)  
Representative Bond: QVCN 5.95 03/15/43 (USD 89.13, 12-Dec-2018)

**SWISS REINSURANCE CO LTD**, Market Weight, A/CD/D/J/K/L/M/N  
Representative Bond: SRENVX 2.6 PERP (EUR 98.95, 12-Dec-2018)

**TARGET CORP**, Market Weight, CD/CE/D/J/K/L/M/N  
Representative Bond: TGT 3 1/2 07/01/24 (USD 99.52, 12-Dec-2018)

**TIME WARNER CABLE LLC**, Overweight, CD/J  
Representative Bond: TWC 4 09/01/21 (USD 99.51, 12-Dec-2018)  
Representative Bond: TWC 4 1/2 09/15/42 (USD 80.48, 12-Dec-2018)

**TRANSCANADA PIPELINES LTD**, Underweight, A/CD/D/J/K/L/M  
Representative Bond: TRPCN 3 3/4 10/16/23 (USD 99.18, 12-Dec-2018)

**VERIZON COMMUNICATIONS INC**, Market Weight, A/CD/CE/D/E/J/K/L/M/N  
Representative Bond: VZ 4.862 08/21/46 (USD 98.70, 12-Dec-2018)

**VIACOM INC**, Market Weight, CD/CE/J  
Representative Bond: VIA 4 1/2 02/27/42 (USD 86.06, 12-Dec-2018)

**VODAFONE GROUP PLC**, Market Weight, A/CD/CE/D/J/K/L/M/N  
Representative Bond: VOD 7 7/8 02/15/30 (USD 135.43, 02-Jul-2017)

**VOYA FINANCIAL INC**, Market Weight, A/CD/CE/D/J/K/L/M  
Representative Bond: VOYA 3.65 06/15/26 (USD 93.87, 12-Dec-2018)

**WALGREENS BOOTS ALLIANCE INC**, Underweight, CD/CE/J/K/N

Representative Bond: WBA 3.45 06/01/26 (USD 93.85, 12-Dec-2018)

**WALT DISNEY CO/THE**, Market Weight, CD/CE/J/K/N

Representative Bond: DIS 1.85 07/30/26 (USD 87.70, 12-Dec-2018)

Representative Bond: DIS 3 07/30/46 (USD 80.80, 12-Dec-2018)

**WESTLAKE CHEMICAL CORP**, Overweight, CD/D/J/L

Representative Bond: WLK 5 08/15/46 (USD 91.91, 12-Dec-2018)

**WRKCO INC**, Market Weight, CD/D/J/K/L/M/N

Representative Bond: WRK 3 3/8 09/15/27 (USD 91.07, 12-Dec-2018)

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.

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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.

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#### **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.

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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.

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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 issuer level:**

24% have been assigned an Overweight rating which, for purposes of mandatory regulatory disclosures, is classified as a Buy rating; 65% of issuers with this rating category are investment banking clients of the Firm; 78% of the issuers with this rating have received financial services from the Firm.

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24% have been assigned an Underweight rating which, for purposes of mandatory regulatory disclosures, is classified as a Sell rating; 70% of issuers with this rating category are investment banking clients of the Firm; 81% 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:**

30% have been assigned an Overweight rating which, for purposes of mandatory regulatory disclosures, is classified as a Buy rating; 27% of issuers with this rating category are investment banking clients of the Firm; 73% of the issuers with this rating have received financial services from the Firm.

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