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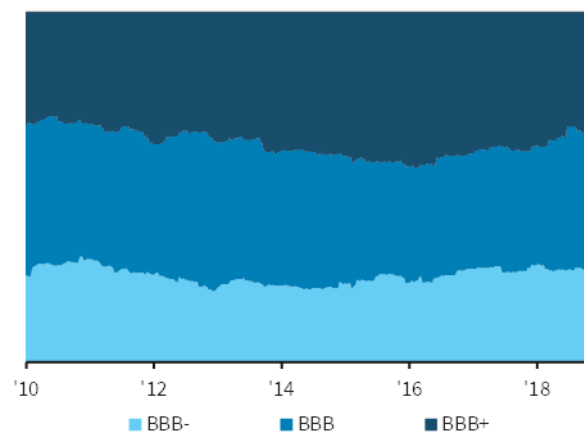
Angels Flirt but Won't Fall

The increased size of the BBB market has brought fallen angels to the forefront of investor concerns this year. In fact, we are hard pressed to think of another period when we have had more conversations with investors about or spent more time analyzing the implications of potential fallen angels for both the investment grade and high yield markets (*Gauging the Effect of Falling BBBs*).

Compressed spread levels have made the marginal cost of debt funding for BBB names relative to A names lower than in much of the post-crisis period. In addition, the increased leniency of rating agencies toward leverage from M&A transactions relative to the pre-2008 period has provided a runway for BBB names to increase the size of their debt structures (*M&A Deleveraging Stuck in the Slow Lane*), although more recently, the agencies appear to have shifted their tone (*M&A Names on Notice*). As a result of these factors, as well as the migration of subordinated bank debt into the BBB category, the BBB market has grown 64% since the end of 2013, outpacing the 20% growth of AAA-A debt over the same period. Conversely, the high yield market has shrunk by 5% as issuers have increasingly turned to the loan market for funding and rising stars have outpaced fallen angels. The par amount of BBBs in the Bloomberg Barclays Corporate Index alone is nearly \$2.5trn, and if floating-rate notes and 144a debt is included, that number eclipses \$3trn.

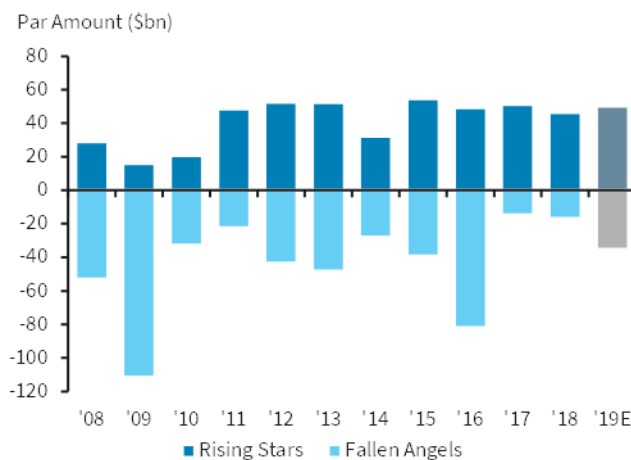
While the sheer size and relative growth of the BBB market are certainly concerning, particularly the number of companies that have undertaken large debt-funded M&A transactions, it is important to note that BBBs' hold on their investment grade status as a whole is not as tenuous as it may seem. Indeed, much of the growth in the investment grade market has been at the higher end of the spectrum; the portion of BBB- debt in the BBB market has not increased (Figure 1). Furthermore, as discussed later, the companies in the BBB market operate in more defensive sectors and have more levers to pull to prevent downgrades compared with past fallen angels. Using a top-down approach in conjunction with feedback from our fundamental analysts, we arrive at a total of **\$35bn of fallen angels** and **\$50bn of rising stars for 2019** (Figure 2).

FIGURE 1
The Breakdown of the BBB Cohort Is Stable



Source: Bloomberg Barclays Indices

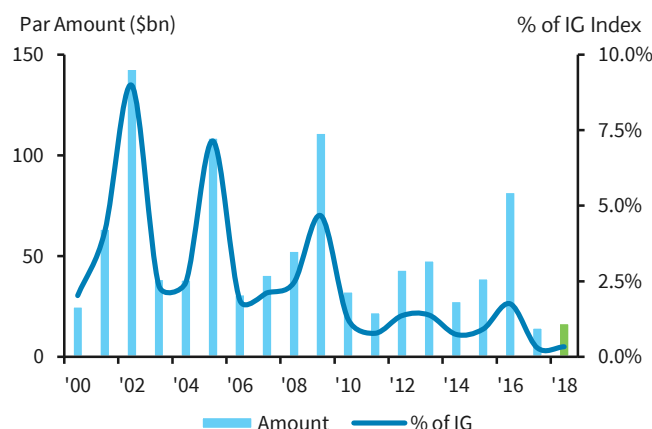
FIGURE 2
Rising Star and Fallen Angel Amounts per Year



Note: 2018 numbers are year-to-date and 2019 numbers (shaded grey) are estimates. Source: Bloomberg Barclays Live

FIGURE 3

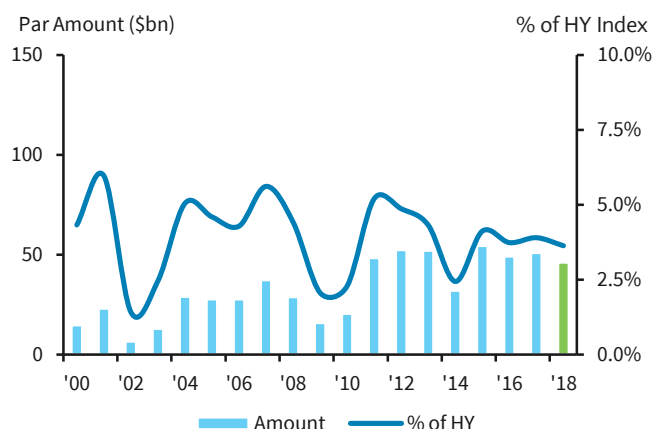
The Rate of Fallen Angels Has Declined in Recent Years...



Note: 2018 numbers highlighted green are year-to-date through September 30, 2018. Source: Bloomberg Barclays Indices

FIGURE 4

..While the Rising Star Rate Has Remained More Elevated



Note: 2018 numbers highlighted green are year-to-date through September 30, 2018. Source: Bloomberg Barclays Indices

Digging into 2018's Rising Stars and Fallen Angels

The continued strength of the macro backdrop and broadly improving credit fundamentals have provided support for rising stars and limited fallen angel volumes this year. Through the end of September, rising stars outnumbered fallen angels \$46bn to \$17bn in par amount, fairly similar to the balance seen for all of 2017 (\$51bn to \$15bn, respectively). We note that Teva, the largest fallen angel cap structure last year, is excluded from this total because it is counted as emerging market debt in the Bloomberg Barclays Indices.

While the 2018 year-to-date figures highlight the robust credit backdrop in absolute terms, the numbers are even more impressive when evaluated relative to the broader market. More specifically, the \$17bn in fallen angels are 0.7% the size of the current crop of BBBs and 0.3% of the entire Investment Grade Index (Figure 3). Conversely, the \$46bn of rising stars are 8.6% the size of the current BB index and 3.6% of the broader High Yield Index (Figure 4).

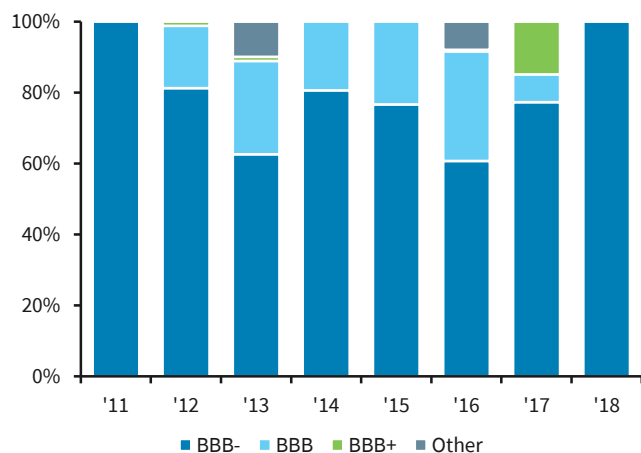
When we look at year-to-date rising stars and fallen angels by sector, we find that the two have been relatively balanced across industries. The consumer cyclical sector has been most represented in rising stars, at 27%, while subordinated debt in the banking sector has made up 32% of this year's fallen angels.

While this lack of sector concentration is similar to the trend in 2017, it stands in contrast to years when specific sectors experienced industry-wide stressors. For example, basic industries (which includes metals & mining) and energy represented a combined 82% of fallen angels in 2015-16. This year, no sector has constituted more than one-third of either rising stars or fallen angels, pointing to company-specific performance and fundamentals as the main driver of index-to-index moves in 2018.

Looking at the beginning-of-year ratings for the rising stars and fallen angels thus far in 2018, there is a slight skew toward rising stars' moving up more ratings notches than fallen angels move down (Figures 5 and 6). While all fallen angels in 2018 started the year as BBB-, only 70% of this year's rising stars started the year at BB+. Royal Bank of Scotland sub debt, ArcelorMittal, and Williams Companies were the three largest rising star issues year-to-date that started the year below BB+.

FIGURE 5

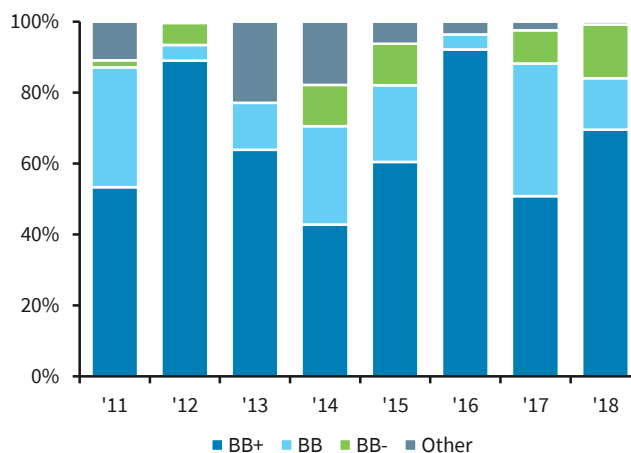
All Fallen Angels Thus Far in 2018 Started the Year at BBB-...



Source: Bloomberg Barclays Indices

FIGURE 6

...But Some Rising Stars This Year Have Moved Up More than One Rating Notch



Source: Bloomberg Barclays Indices

When Angels Fall; Some Perspectives on Performance

As discussed in *More Stars Rise; Bigger Angels Fall*, fallen angels tend to underperform the investment grade index starting five months prior to their downgrade to high yield. However, they generally outperform the High Yield Index for at least five months following the downgrade.

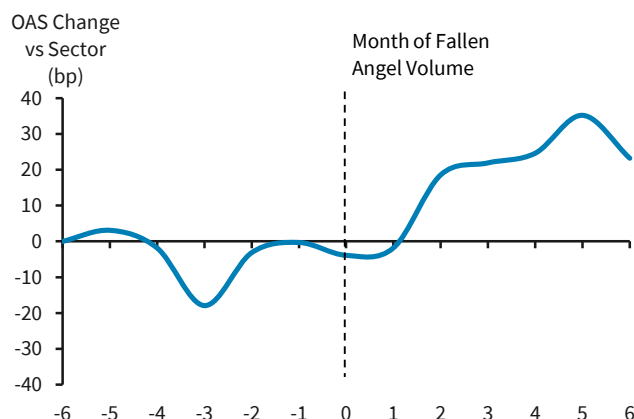
At least some of this performance can be attributed to investment grade accounts that sell prior to a downgrade in anticipation of negative ratings actions (due to either poor company performance or rating agencies' placing a company on negative outlook or review for downgrade). In addition, high yield accounts become opportunistic buyers once fallen angels are added to the US High Yield Index.

Tactical high yield investors may find better value in fallen angels. These credits generally enter the High Yield Index at cheap valuations given the underperformance leading up to a downgrade. Furthermore, although the fundamentals of fallen angel credits would have obviously been under near-term stress, longer-term fundamentals are likely to be more robust relative to tradition high yield credits. Active investors may, therefore, look to rotate out of existing high yield companies in the same sector as the fallen angel credit. Indeed, we find that the largest high yield name in the same sector as the fallen angel tends to underperform the rest of the sector in the months following the fallen angel's downgrade to high yield (Figure 7).

We can also see the preferences of the high yield buyer base when fallen angel bonds are broken out by duration. As Figure 8 illustrates, in the six months preceding downgrade, the spread performance of fallen angel bonds with less than ten years to maturity is roughly equivalent to that of bonds with more than ten years to maturity; the former underperforms other BBBs by 106bp on average, while the latter underperforms by 139bp. However, after the downgrade occurs, shorter-duration fallen angel debt outperforms BBs by nearly 50bp, while longer-duration bonds continue to underperform for several months before ending up roughly in line.

FIGURE 7

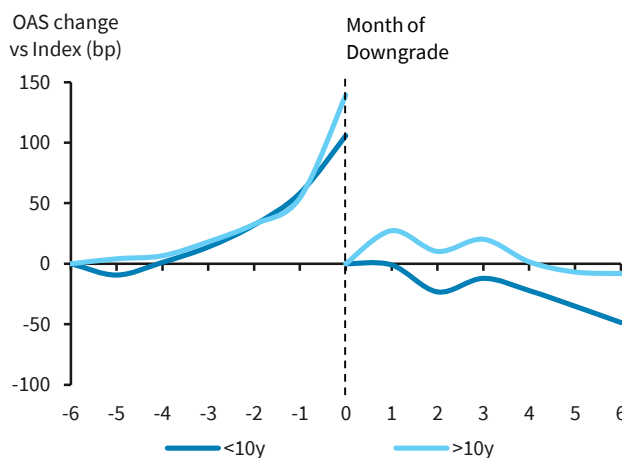
Performance of Largest High Yield Issuer Relative to the Sector When a Large Fallen Angel Volume Enters the Sector



Source: Bloomberg Barclays Indices

FIGURE 8

Spread Performance of Fallen Angels Broken out by Bond Duration



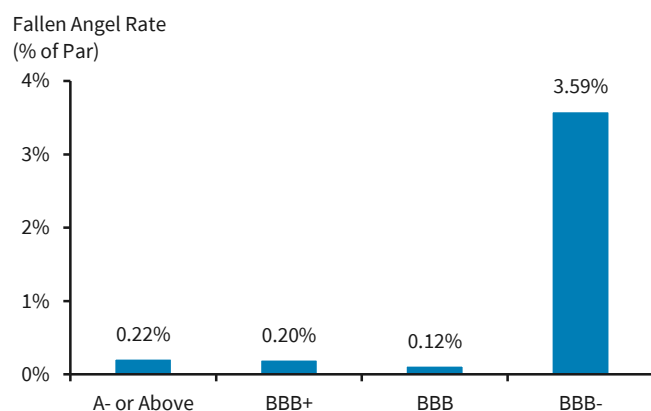
Source: Bloomberg Barclays Indices

Top-Down Expectations for 2019

Given our view that the relatively benign credit environment should continue for at least the medium term, we believe that recent rating migration trends can provide some context for our 2019 estimates of fallen angels and rising stars. As a result, we looked back at the migration rates (Figure 9) of bonds that were rated at the end of September 2017 and September 2018 in order to form a basis for our 2019 estimates. It is worth noting that our analysis of fallen angels includes 144A bonds (because they are included in the US High Yield Index) and excludes emerging market issuers (which are in the US Credit Corporate Index but not the US High Yield Index).

FIGURE 9

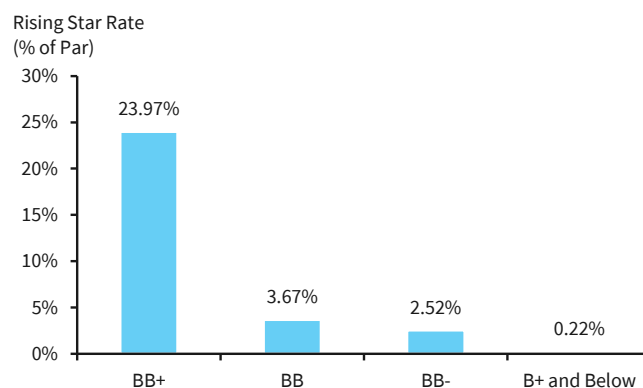
Past 12-month Fallen Angel Rate by Ratings



Source: Bloomberg Barclays Indices

FIGURE 10

Past 12-month Rising Star Rate by Ratings



Source: Bloomberg Barclays Indices

This analysis points to a fallen angel amount of \$30bn, versus our expectation of \$35bn, and a rising star amount of \$50bn, in line with our estimate. That said, we understand that fallen angel and rising star figures can often be “lumpy” – movements by one large credit or a handful of issuers can cause numbers to vary greatly. As a result, we use our top-down analysis to provide a rough framework for our fundamental analysis, which we believe is a more accurate predictor of next year’s fallen angels and rising stars.

Bottom-Up Expectations for 2019

Our bottom-up analysis includes a quantitative screen to find potential fallen angel and rising star candidates. This analysis is the most significant input to our forecast and is weighted by each company’s likelihood of receiving an upgrade.

For fallen angels, we screened for any issuer that carries a BBB or BBB- index rating and has either a) a negative outlook or is on review for downgrade at one or more agency, or b) an Underweight rating from one of our analysts.

For rising stars, we screened for any issuer that carries a BB or BB+ index rating and has either: a) a positive outlook or is on review for upgrade at one or more agency, or b) an Overweight rating from one of our analysts.

These two lists are then divided into three segments based on our analysts’ expectations that each name will become a fallen angel or rising star before the end of 2019:

- Likely – Greater than 50%
- Modestly likely – 10-50%
- Unlikely – Less than a 10%

To estimate our total rising star and fallen angel volumes, we weight the likely candidates at a 75% chance of upgrade/downgrade, the modestly likely candidates at 25%, and the unlikely candidates at 0%. The remainder of our forecast accounts for uncovered credits, to which we apply the Index trailing twelve month probability of upgrade/downgrade. As a result, we arrive at an estimate of \$35bn of fallen angels and \$50bn of rising stars in 2019.

In Figures 11-13, we present the credits that our fundamental analysts believe are likely fallen angel and rising star candidates, including their comments for each one.

FIGURE 11
Falling Angel Candidates for 2019

Ticker	Sector	Par (\$mn)	Index Rating	OAS (bp)	Research Commentary
MYL	Consumer Non-Cyclical	\$9,241	BAA3	181	Absent a concerted effort to repay more debt than is coming due over the coming year, we believe there is a growing gap between what Mylan's organic earnings base implies for leverage over the medium term (ie, the next 12-18 months) and what the rating agencies have indicated they want to see to affirm their existing ratings and outlooks on the credit. Since the acquisition of Meda AB, leverage on a reported basis has hovered just below 4.0x. Furthermore, on the company's 2Q earnings call back in August, management conveyed confidence in securing approval for generic Advair "ahead of the goal date in mid-October" – still, investors have yet to receive an update from Mylan or the FDA regarding this particular application, causing some concern about its approvability. In this context, the rating agencies have long touted Mylan's attractive product pipeline as a key factor supporting their constructive view; any material revision to its commercial opportunity may alter the lens through which the agencies evaluate the company's credit profile. Given these dynamics, we do not believe the agencies would view the pursuit of debt-funded M&A favorably; as such, media reports citing Mylan as a potential suitor for business units of any notable size have caused spreads to underperform (see "Stada, eyeing OTC expansion, circles Bristol-Myers' French Upsa business: report," FiercePharma, October 9, 2018). (Brittany Chen)
SYF	Banking	\$6,750	BAA3	171	Synchrony lost a relationship with one of its top five retail partners (Walmart) in July, ending a 19-year relationship. This triggered S&P and Fitch (no Moody's rating) to change their outlooks on SYF's BBB- ratings to negative. Both rating agencies have pointed out that the concentration in top merchant partners is a constraint on SYF's ratings and that the loss of another key merchant partner could lead to negative rating momentum or lower rating. With only two ratings, a downgrade by either S&P or Fitch would push SYF into the High Yield Index. Since July, SYF has announced early extensions of partnerships with Lowe's and JC Penney, leaving Sam's Club and The Gap outstanding top partners yet to be renewed. We perceive the risk of non-renewal at Sam's Club's to be the highest risk, as it is part of Walmart. While the timing of a renewal has not been announced, we expect to hear more about it in 2019. If SYF were to lose the Sam's Club portfolio as well, it would remove another ~\$5bn (estimated) of loan receivables. While the company has the capacity to offset the potential portfolio loss with new partnerships (as it did with PayPal this year), which could protect the ratings, SYF faces the highest risk of crossover to high yield of the bank and finance companies, in our view. (Brian Monteleone)
XRX	Technology	\$4,316	BAA3	159	Xerox was recently downgraded at Fitch to BB+, and should the fundamental pressures continue, a downgrade from Moody's or S&P could become possible in the near term. Furthermore, operational separation from its partner Fujifilm could present some business risk, given that the US printer manufacturer purchases about \$1.5bn (or about 25%) of its COGS from its JV with Fujifilm (Fuji-Xerox, 75%-25% ownership respectively), and it reduces the possibility of a strategic tie-up between the two companies, which could have been materially credit positive for Xerox – although given recent commentary from Fujifilm, such a tie-up is still possible. While Moody's adjusted leverage for Xerox of 2.4x is currently below the 2.5x threshold, revenue pressures are expected to continue; furthermore, the company also recently announced a new \$1bn share repurchase authorization (\$500mn of this to be used this year) that could limit the company's ability to pay down debt. S&P makes a similar case for a potential downgrade, tied to revenue pressures, as well as the agency's adjusted leverage threshold of 2x. (Sandeep Gupta; company is Not Covered)
BHARTI	Comm.	\$3,500	BAA3	263	Bharti could potentially lose its investment grade rating by end-2018 because of the deterioration in operating performance, and any tangible deleveraging progress could take some time to execute. Bharti's long-term business profile remains supported by its position as the second-largest mobile operator in India, behind the merged entity of Vodafone India/Idea Cellular. On another hand, Bharti's outlook remains difficult over the next 12 months. The competitive environment has not eased, as Jio remains focused on building market share by providing promotional offers and price discounts on its mobile packages. While Bharti is reportedly in advanced talks to monetize a stake in its African business, the timing and size of any transaction are uncertain and would likely be insufficient for Bharti to fully secure investment grade metrics ("Bharti Airtel to monetize Africa business to raise USD2.5bn," CNBC TV-18). In FY19-20, Bharti could dispose of a stake in its tower business to reduce the pressure on its financial profile. That said, there would likely be some execution risk, and the stake disposal depends on the completion of the Infratel/Indus Towers merger (expected to be completed by March 2019). (Justin Ong)
BBBY	Consumer Non-Cyclical	\$1,500	BAA3	421	Bed Bath & Beyond currently has low-BBB ratings at both Moody's and S&P, and while the outlook is Stable at Moody's, it is negative at S&P. The latter has outlined a potential downgrade scenario in which sales decline 100bp below its base forecast of a low-single-digit decrease and EBITDA margin contracts 75bp below the agency's expectations (of a 130bp decline) for 2018. Consensus expectations are for sales to decrease 1.7% in 2018, and we estimate that EBITDA margins could contract 260-265bp given the company's outlook for FY18. This would result in adjusted leverage moving up nearly a turn, to 4.7x at year-end based on 8x rent (and 3.8x based on 6x rent; netting out cash and short-term investments would benefit leverage by 0.7x). While Moody's stable outlook is predicated on the pace of operating margin erosion not worsening (and stabilizing next FY), consensus expectations are for a 60bp contraction in the next FY. We also note that the current consensus forecast of operating profit of \$427mn for the FY would represent 30% of the level generated three years ago. (Priya Ohri-Gupta; company is Not Covered)

Source: Bloomberg Barclays Indices, Barclays Research

FIGURE 12
Rising Star Candidates for 2019

Ticker	Sector	Par (\$mn)	Index Rating	OAS (bp)	Research Commentary
HCA	Consumer Non-Cyclical	\$13,800	BA1/BA2	180	We believe there is a high probability that the HCA first liens will be upgraded to investment grade, which could lead to an annualized total return of greater than +9%. The Mission Health acquisition may be funded with unsecured debt, which would reduce the secured to total debt ratio closer to Moody's target of 60%. More important, we do not believe that the CFR will be upgraded to IG, which implies that the first liens will maintain its collateral. Based on various IG comps, we estimate 3-6 points of potential upside in the 2047 notes, specifically. We also believe that the unsecured notes will tighten based on reweights. (Rishi Parekh)
ALLY	Banking	\$9,417	BA1/BA2	190	Since 2014, ALLY has been rated BB+ at two of the three rating agencies (S&P and Fitch), with Moody's currently at Ba3. Fitch has maintained a positive outlook on ALLY's BB+ rating for more than a year, and given the agency's 12-24 outlook horizon, we believe that it will upgrade ALLY to investment grade next year. This week, S&P revised the outlook on ALLY's BB+ rating to Positive, which positions it to be upgraded to IG in 2H19, in our view. We expect ALLY to meet S&P's upgrade conditions in 2019 despite the 12-24 month horizon of the Positive outlook, given ALLY's favorable fundamental outlook. Based on the outlooks from S&P and Fitch, our baseline expectation is that ALLY will move to the US Credit Index in 2019. (Peter Troisi)
NFX*	Energy	\$2,450	BA1	163	Within our coverage universe, we have an Overweight rating on split-rated Newfield, which we think is positioned for an upgrade at S&P (and a move into the Investment Grade Index) within the next several months. As discussed in <i>Global Energy Credit Top Ideas</i> (October 11, 2018), we estimate that NFX will be above S&P's upgrade triggers of 45% FFO/debt and free operating cash flow in 2H18, with further strengthening of credit metrics in 2019. (Harry Mateer)
STLD	Basic Industry	\$2,350	BA1	169	With best-in-class operating performance, STLD has maintained investment grade-worthy credit metrics (LTM net leverage less than 1.5x for the past eight quarters) and strong free cash flow for some time now, and we believe that an actual IG upgrade has been limited mainly by management's focus on growth (and reluctance to commit to IG ratings). While STLD's capital allocation plan remains focused on M&A and shareholder returns, on the 3Q18 earnings call, CFO Theresa Wagler alluded to a "quicker than anticipated" path to IG ratings by virtue of the strong domestic steel market and the company's confidence in the improving ability of the business model to weather the next cyclical downturn. In light of this commentary, we believe that STLD's rising star potential has increased and expect an upgrade in 4Q18/1Q19. We see 1.25pts of dollar price upside for the longer-dated notes in an IG upgrade scenario. (Brian Lalli)
WDC	Technology	\$2,300	BA1	232	While NAND prices have come under pressure and momentum is expected to slow, with WDC's leading market shares, strong execution, low leverage (1.8x total, 1.0x net), and strong free cash flow, the company has investment grade-like credit statistics. Moody's rates WDC (Baa3), Fitch has a BB+ rating (Positive Outlook), and S&P rates the company BB+ (Stable Outlook) but has a favorable credit view. (Jeffrey Harlib)

Note: *For more commentary on NFX, please see Harry Mateer's recent piece: *Energy and Pipelines: Newfield Exploration (NFX): A Rising Star on Sale*. Source: Bloomberg Barclays Indices, Barclays Research

FIGURE 13

Rising Star Candidates for 2019 (con't)

Ticker	Sector	Par (\$mn)	Index Rating	OAS (bp)	Research Commentary
HUN	Basic Industry	\$1,050	BA1	144	Huntsman's management remains committed to achieving an investment grade rating – as discussed at the May 2018 Investor Day, the company plans to maintain a conservative financial policy, with the expectation of funding upward of \$1.5bn in shareholder returns and \$2.2bn of bolt-on acquisitions over the next three years through free cash flow and proceeds from the sale of the remaining 53% of VNTR shares. Net leverage of 1.4x is comparable with IG-rated peers Eastman/EMN (LTM net leverage 2.8x) and Celanese/CE (LTM net leverage 1.5x), and we would expect Moody's and S&P to act on their positive outlooks assuming that the capital allocation policy remains consistent. (Brian Lalli)
TSCOLN	Consumer Non-Cyclical	\$850	BA1	238	Moody's changed its outlook on Tesco to positive in June 2018, and Fitch upgraded it to BBB- in October 2018. S&P has yet to take any action on the name. We commented in <i>Tesco (TSCOLN) – A step closer to IG</i> , April 11, 2018, that Tesco's management has been vocal about its commitment to returning to an investment grade rating and reducing its adjusted net leverage to below 3.0x. As at 1H18, the company's adjusted net leverage was 3.2x. Therefore, we expect it to continue its deleveraging efforts through further debt reduction and better free cash flow generation. Tesco's stronger balance sheet and significant deleveraging over the past few quarters, coupled with improved underlying operating performance, could pave a path back to IG in the next 12 months. (Karine Elias)
AEL	Insurance	\$500	BA1	240	AEL is a niche life insurer currently rated BBB-/Stable at S&P and BB+/Positive at Fitch. Fitch placed the company on positive outlook in September 2018, stating that the company could be upgraded if it maintains strong risk-based capital levels, continues to report stable operating results, and reduces leverage to below 25% (leverage is currently 25% by Fitch's calculation). Fitch's outlook horizon is 12-18 months, indicating that an upgrade to investment grade is possible in late 2019. (Peter Troisi; company is Not Covered)
STERV	Basic Industry	\$300	BA1	231	We expect EBITDA growth and margin improvement in 2018 as prior investments continue to ramp up. Management has tightened its net leverage ceiling from less than 3.0x to less than 2.0x during the last reporting period, signaling a willingness to maintain investment grade-commensurate metrics. Moody's rates Stora Ba1 with a positive outlook, and we have seen an improving trajectory for Stora's leverage metrics and free cash flow generation over the past 12 to 18 months. Stora is currently in line with the upgrade criteria; however, should the company choose to use its strengthened balance sheet more aggressively, an upgrade would be delayed. (Maggie O'Neal)

Source: Bloomberg Barclays Indices, Barclays Research

Analyst Certification

We, Bradford Elliott, CFA, Shobhit Gupta, Rizwan Hussain, James K Martin and Scott Schachter, 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

ALLY FINANCIAL INC, A/CD/CE/D/E/J/K/L/M/N

AMERICAN EQUITY INVESTMENT LIFE HOLDING CO, CD/CE/J/K/M

BED BATH & BEYOND INC, CD/CE/FC/J

BHARTI AIRTEL LTD, CD/D/J/L

Representative Bond: BHARTI 4 3/8 06/10/25

HCA HEALTHCARE INC, A/CD/CE/D/J/K/L/M/N

HUNTSMAN INTERNATIONAL LLC, CD/D/E/J/K/L/M/N

MYLAN INC, CD/J/K/N

Representative Bond: MYL 3 1/8 01/15/23 (USD 94.62, 18-Oct-2018)

NEWFIELD EXPLORATION CO, Overweight, CD/CE/J/K/M

Valuation Methodology: NFX screens as cheap to the IG E&P comp set versus our forward leverage and cash flow estimates.

Risks that May Impede Achievement of the Rating: If S&P fails to upgrade NFX, we think that bonds would look rich compared to high yield alternatives if Newfield is no longer viewed as a rising star candidate.

Representative Bond: NFX 5 3/8 01/01/26 (USD 102.00, 18-Oct-2018)

STEEL DYNAMICS INC, CD/CE/J

STORA ENSO OYJ, CD/D/J/K/L/M

SYNCHRONY FINANCIAL, A/CD/CE/D/E/J/K/L/M/N

TESCO PLC, CD/D/J/K/L/M/N/Q

WESTERN DIGITAL CORP, CD/CE/J/K/M

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Overweight (OW):

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

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

Market Weight (MW):

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

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

Underweight (UW):

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

sector to be less than the six-month excess return of the relevant index.

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

Sector definitions:

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

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

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

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

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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.

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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:

23% have been assigned an Overweight rating which, for purposes of mandatory regulatory disclosures, is classified as a Buy rating; 68% of issuers with this rating category are investment banking clients of the Firm; 80% of the issuers with this rating have received financial services from the Firm.

53% have been assigned Market Weight rating which, for purposes of mandatory regulatory disclosures, is classified as a Hold rating; 68% of issuers with this rating category are investment banking clients of the Firm; 82% of the issuers with this rating have received financial services from the Firm.

24% have been assigned an Underweight rating which, for purposes of mandatory regulatory disclosures, is classified as a Sell rating; 69% 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.

Explanation of the Barclays EM Sovereign Credit Issuer Rating System

Overweight (OW):

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

Market Weight (MW):

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

Underweight (UW):

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

Rating Suspended (RS):

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

37% have been assigned an Overweight rating which, for purposes of mandatory regulatory disclosures, is classified as a Buy rating; 14% of issuers with this rating category are investment banking clients of the Firm; 64% of the issuers with this rating have received financial services from the Firm.

24% have been assigned Market Weight rating which, for purposes of mandatory regulatory disclosures, is classified as a Hold rating; 33% 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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