Morningstar Corporate Credit Research Highlights

In Time for St. Patrick's Day, Alexandria Real Estate Equities Issues Green Bonds

Morningstar Credit Ratings, LLC
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Issuer/Ticker	Current Issuer Credit Rating	Previous Issuer Credit Rating
Allergan **AGN**	BBB	BBB
Bausch Health Companies **BHC**	B-	B-
Anixter International **AXE**	BB+	BB+

Recent Notes Published by Credit Analysts

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- Global Grounding of 737 MAX Does Not Affect Our Credit Rating on **Boeing** (A, Stable)

Credit Market Insights

In Time for St. Patrick's Day, Alexandria Real Estate Equities Issues Green Bonds

Just in time for St. Patrick's Day, Alexandria Real Estate Equities (BBB+, stable) issued several green bonds. According to the International Capital Markets Association, "Green bonds enable capital-raising and investment for new and existing projects with environmental benefits." To be considered a green bond, the issuer commits to using the proceeds from the bond issue for projects that will enhance its climate or environmental profile. Currently, there are no governmental regulations that stipulate what a company must do to designate an issue as a green bond, but the ICMA has published Green Bond Principles 2018, which outlines its voluntary process guidelines. Typically, the issuer will solicit a second-party opinion to provide investors with its assessment of the company's adherence to the ICMA's four core components of the Green Bond Principles.

The note offering consisted of $200 million 5-year notes, $350 million 7-year bonds, and $300 million 30-year bonds (the 30-year bonds were not designated green bonds). There was significant demand for the offering, which was reportedly 7 times oversubscribed (meaning that there was $6 billion of orders for the $850 million offering). This is about double the average oversubscription level in 2018. Due to the high demand, the bonds were priced at spreads 25-28 basis points tighter than the original whisper talk in the market. The bonds were priced at spreads of +105, +132, and +187, respectively. Typically, new issue bonds are sold at a slight discount to where the firm's existing bonds are trading in order to develop investor interest; however, in this case, according to Bloomberg, the new green bonds were priced at spreads tighter than where existing bonds were trading, leading to a negative new issue concession of 8-10 basis points. For additional detail, please see our credit note, Alexandria Real Estate Equities (BBB+, Stable) Issues Multitranche Green Notes, published March 12.

Alexandria's green bond issue follows a $1 billion 10-year green bond issued by Verizon Communications (BBB, stable) in mid-February. Similar to the demand for Alexandria's green bond, demand for Verizon's new notes was off the charts, as Bloomberg reported that the note offering was 8 times oversubscribed. One bond trader said he thought that Verizon's bonds were priced about 5 basis points tighter than an equivalent non-green bond would have priced for the same maturity. In the case of this bond issuance from Verizon, a second-party opinion was provided by Sustainalytics, a leading independent provider of environmental, social, and corporate governance research, ratings, and analytics. That opinion can be found here.

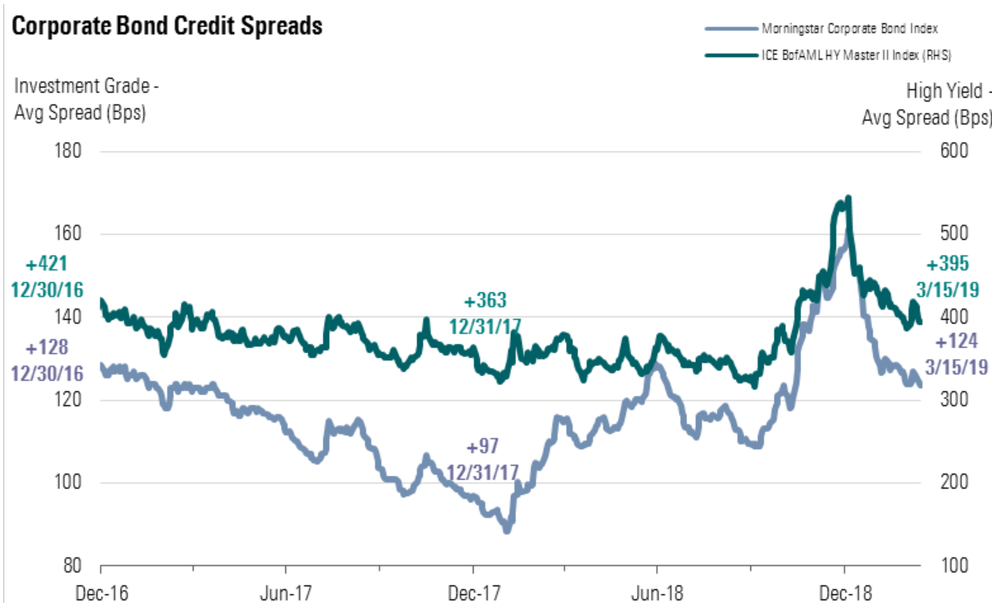
The global market for green bonds has been growing rapidly, with European markets leading the way. While the United States may be lagging, its market's demand for green bonds has been steadily growing in conjunction with investors' appetite to invest in companies that focus on improving environmental, sustainable, and governance risk factors in their business. As investor demand for ESG-dedicated funds grows and issuers recognize the benefits to their corporate image as well as some potential cost savings on their interest expense, we expect that the green bond market will grow significantly in the U.S. Other examples of companies that have issued green bonds denominated in U.S. dollars are Apple (AA-, negative), Boston Properties (A-, stable), and Kilroy Realty (BBB, stable).

For additional detail on the Verizon green bond, please see our Feb. 11 Corporate Credit Research Highlights, Not Yet St. Patrick's Day, but Verizon Goes Green.

Corporate Bond Market Update

The corporate bond market rebounded last week and recovered most of the credit spread widening that had occurred the prior week. The average spread of the Morningstar Corporate Bond Index (our proxy for the investment-grade corporate bond market) tightened 3 basis points for the week to +124. In the high-yield market, the average spread of the ICE BofAML High Yield Master II Index tightened 23 basis points to +395. Year to date, the investment-grade and high-yield markets have recovered a significant amount of the widening that occurred late last year as the equity markets were dropping. Thus far this year, investment-grade corporate bond spreads have narrowed by 33 basis points, and high-yield spreads have tightened 138 basis points. Fixed-income indexes have performed well this year as credit spreads have tightened and interest rates have declined. Through March 15, the Morningstar Corporate Bond Index has risen 3.50%, and the ICE BofAML High Yield Master II Index has risen 6.68%.

Corporate Bond Credit Spreads



Source: Morningstar, Inc., ICE BofAML Global Indexes. Data as of 03/15/2019

Recent Morningstar Credit Ratings Research

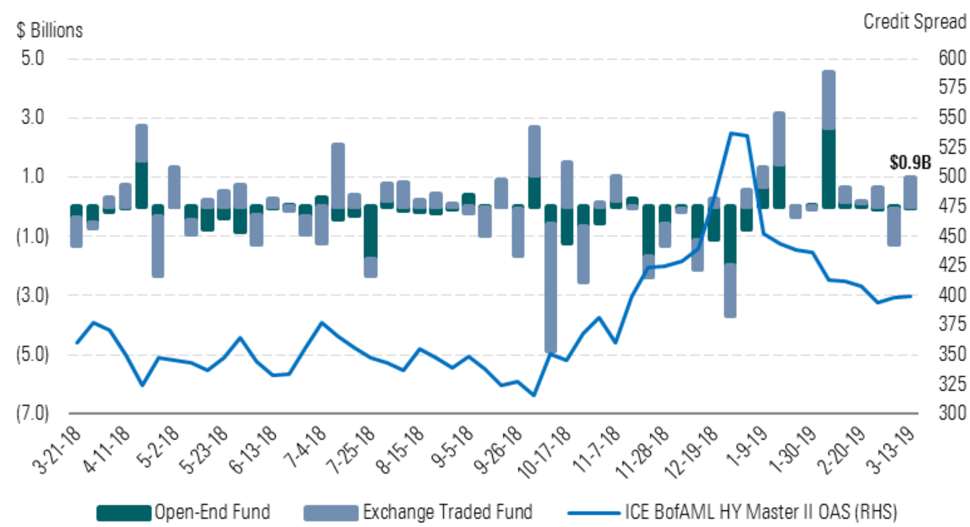
Following the announcement that the U.S. Federal Aviation Administration grounded all of Boeing's (A, stable) 737 MAX aircraft operated by U.S. airlines or flown in the U.S., Morningstar Credit Ratings, LLC noted that the action does not affect our credit rating on Boeing.

In our report, we noted that while only around 350 MAXs are operating globally, the aircraft represents the bulk of Boeing's massive backlog. At the end of February, Boeing reported 5,904 aircraft in its backlog, of which 4,636 are 737 MAXs; only 87 were the old version 737NG. Customers will not be able to easily walk away from their order, as Airbus has a similarly large backlog of its competing A320 line and an order placed today for that aircraft might not be filled for several years. In our view, once the safety of the aircraft has been ascertained, Boeing and its customers will come to an agreement on appropriate adjustments to their original agreements. While the ultimate financial impacts from the events are unknown and may be substantial, we forecast that Boeing will generate substantial free cash flow over our five-year forecast horizon and should have plenty of liquidity to operate and cover the cost of any required repairs or recalls. For the full credit note, please see Global Grounding of 737 MAX Does Not Affect Our Credit Rating on Boeing (A, Stable) published March 14.

Weekly High-Yield Fund Flows

Net unit creation for high-yield exchange-traded funds accounted for all of the $0.9 billion of fund inflows into the high-yield sector last week. In fact, for the fifth week in a row, almost all of the fund flows across high-yield mutual funds have occurred among ETFs as fund flows among open-end funds have been essentially unchanged. Year to date, total inflows into the high-yield asset class is $9.5 billion, consisting of $5.3 billion worth of net unit creation among high-yield ETFs and $4.2 billion of inflows across high-yield open-end mutual funds. However, over the past 52 weeks, fund flows in the high-yield asset class remain decidedly negative. Across both ETFs and open-end funds, total outflows over the past year are $8.9 billion. Yet the outflows are entirely due to $9.1 billion of redemptions among open-end funds, as net unit creation among high-yield exchange traded funds was slightly positive at $0.2 billion.

Estimated Weekly High-Yield Bond Fund Flows and High Yield Credit Spreads



Source: Morningstar, Inc. and ICE BofAML Global Indexes.

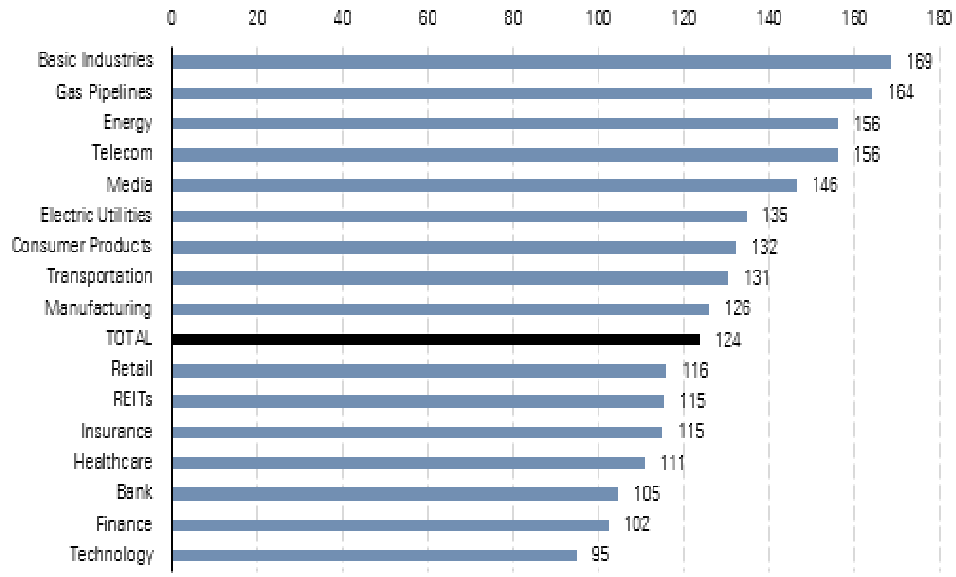
Exhibit 1 Morningstar Corporate Bond Index Sector Summary

Sector	Average Rating	Number of Issues	Modified Duration	Spread (bps)	MTD Spread Chg (bps)	YTD Spread Chg (bps)	MTD Total Return (%)	YTD Total Return (%)
TOTAL	**A-**	**5,161**	**6.9**	**124**	**(1)**	**(33)**	**0.91**	**3.50**
FINANCIAL	**A-**	**1,441**	**5.2**	**106**	**(2)**	**(35)**	**0.74**	**3.17**
Bank	A-	883	4.7	105	(2)	(38)	0.71	3.25
Finance	A	237	5.1	102	(4)	(33)	0.79	2.83
Insurance	A	221	8.3	115	2	(23)	0.84	3.05
REITs	BBB+	91	5.8	115	(3)	(33)	0.92	3.17
INDUSTRIAL	**A-**	**3,048**	**7.5**	**131**	**(0)**	**(32)**	**0.99**	**3.67**
Basic Industries	BBB	254	7.4	169	1	(29)	0.85	3.76
Consumer Products	BBB+	372	7.6	132	2	(27)	1.18	3.65
Energy	A-	398	7.3	156	(3)	(40)	1.12	4.59
Healthcare	A-	434	7.7	111	(1)	(25)	0.96	2.97
Manufacturing	A-	485	6.0	126	1	(35)	0.67	3.31
Media	BBB+	180	8.6	146	(2)	(32)	1.13	4.27
Retail	A-	169	7.6	116	(0)	(28)	0.82	2.99
Technology	A+	347	7.2	95	(2)	(32)	0.94	3.40
Telecom	BBB+	160	9.2	156	(3)	(35)	1.30	4.80
Transportation	BBB+	182	8.9	131	(0)	(26)	0.84	3.40
UTILITY	**BBB+**	**615**	**8.7**	**147**	**(1)**	**(38)**	**0.98**	**3.80**
Electric Utilities	A-	352	9.3	135	(1)	(35)	1.09	3.10
Gas Pipelines	BBB	246	7.9	164	0	(44)	0.82	4.81
Rating Bucket								
AAA Bucket		123	7.5	49	0	(10)	0.76	1.91
AA Bucket		495	5.8	62	(1)	(23)	0.72	2.34
A Bucket		1,879	6.8	92	(0)	(31)	0.81	3.06
BBB Bucket		2,664	7.1	163	(1)	(41)	1.02	4.15
Term Bucket								
1-4	A-	1,701	2.3	69	(2)	(32)	0.43	1.74
4-7	A-	1,154	4.7	111	(3)	(44)	0.88	3.52
7-10	A-	860	6.9	143	(1)	(37)	1.21	4.26
10PLUS	A-	1,446	13.5	182	1	(27)	1.28	5.02

Data as of 03/15/2019

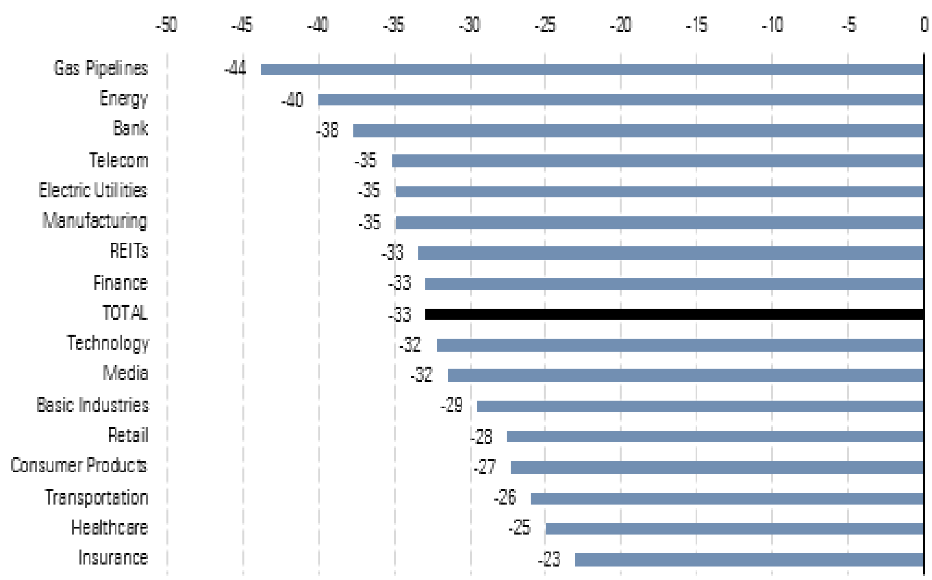
Source: Morningstar, Inc.

Exhibit 2 Morningstar Corporate Bond Index Spread by Sector



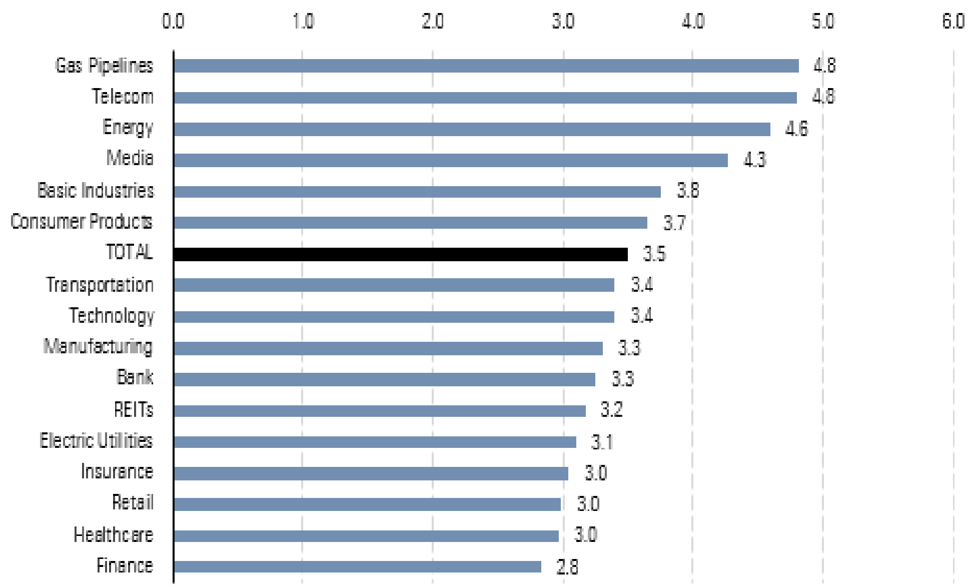
Source: Morningstar, Inc.

Exhibit 3 Morningstar Corporate Bond Index YTD Spread Change



Source: Morningstar, Inc.

Exhibit 4 Morningstar Corporate Bond Index YTD Return



Source: Morningstar, Inc.

Credit Rating Actions

► Rating Affirmation

Issuer/Ticker	Current Issuer Credit Rating	Previous Issuer Credit Rating
Allergan **AGN**	BBB	BBB
Bausch Health Companies **BHC**	B-	B-
Anixter International **AXE**	BB+	BB+

Morningstar Credit Ratings Releases Updated Ratings for Allergan (March 14)

Morningstar Credit Ratings, LLC is affirming Allergan's BBB rating to reflect the firm's significant progress in reducing high financial leverage left after a series of leveraging transactions in 2014-15. Simultaneously, we are revising the rating outlook to positive from stable, given our expectation for sustained operational growth following a trough in 2019.

As part of its commitment to maintaining an investment-grade rating, Allergan substantially reduced its debt load following aggressive business development in 2014-15, which helped rebuild its equity cushion enough to maintain a moderate Distance to Default pillar while the firm's share price declined over the past few years. At the end of 2018, gross debt decreased to $23.8 billion in unsecured notes compared with $42.7 billion at the end of 2015, which included more than $6 billion of debt repayment in 2018 alone. This successful debt reduction also supports a strong Solvency Score pillar, which may improve in the next two years. Allergan maintains low Business Risk thanks to diversification provided by its broad product offering spanning medical devices and pharmaceuticals across aesthetics, ophthalmology, and gastroenterology as well as a wide economic moat assigned by Morningstar's Equity Research Group. Revenue is seemingly concentrated in the firm's bestseller neuromodulator Botox, which represents about 23% of global sales, though sales are spread among nine therapeutic indications and cosmetic use for three facial areas. Allergan faces the loss of market exclusivity in 2019 of its only other blockbuster treatment, dry-eye drops Restasis (8% of sales), which we see contributing to declining sales in 2019. However, we expect sales and EBITDA to increase in the low to mid-single digits compounded annually through 2025 as contributions from new pharmaceuticals and medical devices ramp up over time. Allergan hopes to introduce one or two treatments annually over the next several years, which may include migraine drug candidates ubrogepant (2020) and atogepant (2021) and potential age-related macular degeneration treatment abicipar (2020). Longer term, the firm may seek regulatory approval of nonalcoholic steatohepatitis drug cenicriviroc depending on top-line results from the ongoing Phase III Aurora study expected in 2020.

Allergan accelerated debt reduction using proceeds from the divestment of generic business Actavis and internal cash flows while it refrained from leveraging asset purchases over the past three years. After achieving its 2018 gross leverage target of 3.0-3.5 times at total debt leverage of 3.4 times, Allergan now looks to drop net debt leverage to 2.5 times by the end of 2020. Considering cash and cash equivalents totaling $1.9 billion on Dec. 31, 2018, net leverage stood at 3.1 times. We see this target as achievable, given our expectation that the firm may generate annual free cash flow averaging $5.5 billion through 2023, which more than satisfies $13.5 billion of long-term debt maturities through 2023 (more than 56%

of its debt burden). Allergan's debt maturity schedule is composed of $0.8 billion due in 2019, $4.7 billion due in 2020, $2.5 billion due in 2021, $4.7 billion in 2022, and $0.9 billion due in 2023. However, we expect debt reduction to be modest over the next two years as the firm directs investment to its research programs and rewards shareholders with share repurchases and dividends. Once the firm reaches its targeted net leverage range, we would not be surprised to see it return to its historical stance of aggressively buying assets while greatly rewarding shareholders via expanded share repurchases and dividend increases ($1.0 billion yearly). External liquidity is provided by a $1.5 billion five-year unsecured revolving credit agreement due in 2022 that can be expanded to $2 billion.

Under the positive outlook, we see Allergan recovering from an operational decline in 2019 linked to Restasis copycats, which helps drive net leverage to its goal of 2.5 times in 2020, in our estimation. If we expect this leverage improvement to be sustained, our strong Solvency Score and moderate Distance to Default pillars could increase enough for an upgrade to the current rating. On the other hand, if Allergan utilizes its cash balance and promising free cash flow generation to further ingratiate itself with shareholders through heavy share repurchasing and to consummate materially cash-draining acquisition activities, such that debt repayment is jeopardized, our Cash Flow Cushion and Solvency Score pillars would be impaired, which may warrant a downgrade.

Morningstar Credit Ratings Releases Updated Ratings for Bausch Health Companies (March 15)
Morningstar Credit Ratings, LLC is affirming Bausch Health's B- rating, reflecting the company's stubbornly elevated debt leverage, which we expect may remain over the next two years despite successful efforts over the past year to recover struggling operations and build a sustainable research program. The revision of the rating outlook to stable from negative recognizes potential stabilization of operational performance over the next two years.

We remain cautious on Bausch Health's ultimate repair of its operations, but stability would support steadying of three of the firm's four rating pillars in weak territory: Cash Flow Cushion, Solvency Score, and Distance to Default. Along these lines, given increased investment to foster growth of new dermatology and eyecare products and fuel its internal research engine, we see the firm producing EBITDA growth in the low single digits compounded annually through 2023, pacing behind a revenue increase in the low to mid-single digits. We expect Bausch Health to maintain high Business Risk over our five-year forecast horizon, given no moat assigned by Morningstar's Equity Research Group along with our view of extreme uncertainty of cash flow generation. Some uplift to this pillar is gained from the firm's broad corporate portfolio, with attractive businesses in ophthalmology, dermatology, and gastrointestinal medicines. We think modest profitability expansion following a possible bottoming in 2019 offers little support to debt leverage improvement in the coming years. Since divestments may be more limited over our rating horizon, we estimate gross leverage improving by 1 turn by 2023 via debt reduction accomplished mainly from free cash flow generation averaging more than $1.6 billion annually through 2023.

Bausch Health has improved its once-precarious financial position through significant debt repayment and extending maturing debt towers through a series of refinancing activities over the past few years.

With this commitment to debt reduction, gross debt dropped to $24.6 billion at the end of 2018 from $30.2 billion in 2016 as the firm repaid outstanding debt using internal cash flows and asset sale proceeds. However, total debt leverage of 7.4 times in 2018 has been relatively unchanged over the past few years due to EBITDA compression from asset divestment along with investment needed to advance its research pipeline. Net debt leverage of 7.1 times, considering about $720 million cash and cash equivalents at the end of 2018, was steady compared with 7.0 times at the end of 2016. Bausch Health's capital structure includes $11.0 billion of secured debt (or 44% of total debt) that translated to secured leverage of 3.3 times in 2018. Since March 2017, the firm refinanced its capital structure through a series of transactions, including an amendment to its secured credit facilities in June 2018 to establish a new term loan B due in 2025, which replaced a term loan set to mature in 2022. Most recently, Bausch Health offered new 5.75% secured notes due 2027 and added to its 8.5% unsecured notes due 2027 to repay unsecured notes due 2021 and 2023. Adjusting for these refinancing actions, debt maturities through 2023 now total $7.9 billion with $5.2 billion of unsecured debt coming due in 2023. This tower of debt maturities in 2023 could drag on the firm's Solvency Score if not addressed through refinancing efforts before maturity. The current bank agreement, including a $1.23 billion revolver that matures in June 2023, contains one maintenance covenant: maximum first-lien net leverage of 4.0 times. Incremental capacity is subject to a secured leverage ratio not more than 3.5 times for secured debt and total leverage ratio not more than 6.5 times or an interest coverage ratio of not less than 2 times for unsecured debt (2.0 times in 2018), plus an additional incremental basket of $1 billion (which is not subject to these incurrence ratios).

Our stable outlook on Bausch Health's rating recognizes our expectation of stabilizing operational performance over the next year or so. Should our forecast materialize, there is potential for positive rating momentum including an upgrade if the firm's leverage-sensitive rating pillars—Cash Flow Cushion, Solvency Score, and Distance to Default—demonstrate sustained improvement in the next year. Helping to steady these pillars would be recovery and expansion of profitability that could accelerate lowering of elevated debt leverage that we currently see, driven mainly by continued debt reduction over our five-year forecast. On the other hand, any delay in the firm's operational recovery—likely from lack of uptake of new medicines while it commits to heavier investment for commercial support and its research build—could pressure the firm's leverage-sensitive pillars enough for a downgrade. In addition, a downgrade may follow any significant leveraging transactions, most likely asset purchases, which jeopardizes debt repayment and strains the Cash Flow Cushion and degrades the Business Risk from an increased dependence on capital markets.

Morningstar Credit Ratings Releases Updated Ratings for Anixter International (Mar. 15)
Morningstar Credit Ratings, LLC is affirming its BB+ corporate credit rating on Anixter International Inc. and its stable outlook. Anixter transformed its business with an acquisition in each of 2014 and 2015 and a divestiture in 2015, resulting in the current segment mix of network and security solutions (approximately 52% of sales), utility power solutions (20%), and electrical and electronic solutions (28%). We expect the company to remain focused on these segments with only modest bolt-on acquisitions. The scale advantages and bargaining power the company enjoys over its suppliers contribute to the narrow economic moat assigned by Morningstar's Equity Research Group, which is factored into our

moderate Business Risk score. Further, Anixter's countercyclical cash flow allows debt to potentially be reduced during down markets. Thus, credit metrics are effectively more stable than they might otherwise appear.

Anixter's weak Solvency Score is caused by relatively high balance sheet leverage and low rent-adjusted interest coverage. After incorporating acquisitions and divestitures, Anixter's debt/EBITDA ratio spiked to over 4 times at the end of 2015, well above its targeted range. However, strong free cash flow and debt reduction through year-end 2018 have cut gross leverage to about 3 times. We expect leverage to stay in the company's targeted range of 2.5-3 times for the foreseeable future. Historically, Anixter has used excess cash flow for acquisitions, share repurchases, and special dividends, and we expect this posture to continue while maintaining its leverage target. The weak Cash Flow Cushion results from large debt maturities that occur in the five-year forecast period, including $400 million due in 2021. The recent refinancing of a $350 million 2019 maturity with a $250 million note due 2025 was a modest credit positive.

We forecast low-single-digit revenue growth after 2018 and stable 5% EBITDA margins the next few years, which could allow for mild EBITDA growth and deleveraging. Anixter's new innovation and business transformation plan, including a new enterprise resource planning system, is a near-term risk and expected to restrain operating margin growth over the next couple of years. Management has guided to improving gross margins in 2019 that will effectively fund the technology costs, while operating leverage could push EBITDA margins modestly higher. Management expects to realize net benefits from the technology investments beginning in the second half of 2021, and we have modeled in modest margin expansion in 2022 and 2023 as a result. Still, there are risks to the implementation, and we expect the company to remain somewhat conservative with use of free cash flow to provide some additional cushion to the leverage targets. Anixter built in some potential debt repayment flexibility by utilizing bank debt to partially refinance its 2019 maturity bond and had $260 million drawn on its receivables facility outstanding at year-end 2018. We expect free cash flow to grow steadily higher from our forecast of about $100 million in 2019. Solid liquidity, including $455 million of availability under the receivables and inventory bank lines at year-end, is enhanced by modest cash balances of $81 million at fiscal year-end 2018.

Our stable outlook reflects the view that Anixter will continue to generate positive free cash flow throughout the cycle, maintain its leverage targets, and continue to grow modestly with minimal margin expansion. A rating upgrade is possible if the firm can drive margins higher and reduce leverage below our expectation, both of which could drive an improvement in the Solvency Score. A downgrade could occur if the firm engages in a large, debt-financed acquisition or reverts to making meaningful returns of capital to shareholders. A meaningful shift in the competitive dynamics of the business that compromises the moat could also lead to a downgrade.

Recent Notes Published by Credit Analysts

Alexandria Real Estate Equities (BBB+, Stable) Issues Multitranche Green Notes

Alexandria Real Estate Equities, Inc. (BBB+, Stable) is reportedly in the market with a total of $850 million of 5-year, 7-year, and 10-year senior unsecured note offerings, the sizes of which have not been indicated as of this publication. The issuer is Alexandria Real Estate Equities, L.P. Proceeds are expected to fund defined green projects, repay a secured note that financed the construction of a new property that was awarded LEED Gold certification, go toward general corporate purposes, and pay down outstanding borrowings on the firm's unsecured line of credit, according to the preliminary supplement to the prospectus dated Dec. 18, 2017, filed by Alexandria on March 12.

Alexandria's rated office peers are Boston Properties, Inc. (A-, stable), Highwoods Properties, Inc. (BBB, stable), and Kilroy Realty Corporation (BBB, stable). The following data is from Interactive Data as of March 11.

In the 10-year area, spreads over the nearest Treasury from these issuers were:

- Alexandria's $425 million 3.95% bonds due 2028 at +156 basis points.
- Boston's $1.00 billion 4.5% bonds due 2028 at +133 basis points.
- Highwoods' $350 million 4.2% bonds due 2029 at +158 basis points.
- Kilroy's $400 million 4.25% bonds due 2029 at +164 basis points.

The BBB+ Morningstar Corporate Bond Index is currently priced at +142 basis points.

MCR Credit Risk Assessment

Driven by continuing property development operations and a growing portfolio, Alexandria reported solid increases in revenue and funds from operations in the fourth quarter, with year-over-year gains of 13.9% and 21.1%, respectively. For full-year 2018, the increases were 17.7% and 23.0%, respectively. Same-property net operating income was higher by 3.8% compared with last year's fourth quarter. In our view, Alexandria is the real estate investment trust industry's dominant player in life science properties, with its tenants predominantly in the fields of medicine, pharmaceutical research, biotechnology, and medical technology. Its properties are concentrated in "clusters," which are common in the life sciences industries, developed around university campuses and government agencies associated with research and development.

The operating portfolio was 97.3% occupied as of Dec. 31, with overall occupancy at 95.1%, up 50 basis points from three months earlier and 40 basis points from one year earlier. The REIT benefits from a high-quality and relatively diverse tenant roll, in our opinion. The 20 largest tenants provide 43.9% of annual in-place rent, and no one accounts for more than 3.6% of rent. Morningstar Credit Ratings has investment-grade ratings on eight of these tenants, which together contribute 18.5% of in-place rent. Moreover, the top 20 tenants have an average remaining lease term of 12.3 years, providing considerable stability to the tenant base.

We project revenue growth of 9.7% in 2019 because of the combination of strong rent increases and the large volume of new properties placed into service since the beginning of 2018. EBITDA is projected to decline about 5.0% in 2019, but only because of the effect of a large amount of investment income reported in 2018. We expect total debt/gross assets to be 35% by year-end and 2019 interest coverage around 5.5 times, lower than 2018 because of new debt issuance since the end of 2017.

Our rating assumes that Alexandria will maintain leverage around 6.0 times in the near term with a flexible and efficient capital structure. While we do not expect rating improvement in the foreseeable future, we may consider an upgrade if Alexandria can make a meaningful reduction in leverage toward 5.5 times and improve its interest coverage while continuing to increase rents. These developments would help to improve our Cash Flow Cushion and Solvency Score pillar assessments. Meaningful growth that brings further diversification, especially the addition of new market locales, would help support positive rating momentum. On the other hand, we may consider a downgrade of the rating if market forces change the landscape such that Alexandria can no longer command the high quality of tenants and solid occupancy in its properties and interest coverage suffer as a result. That would have a negative impact on our Cash Flow Cushion and Solvency Score.

Global Grounding of 737 MAX Does Not Affect Our Credit Rating on Boeing (A, Stable)

MCR Credit Risk Assessment

On March 13, the U.S. Federal Aviation Administration grounded all of Boeing Co's (A, stable) 737 MAX aircraft operated by U.S. airlines or flown in the U.S. The FAA largely followed most of the rest of the world, which had already done the same. This decision follows the March 10 crash of a 737 MAX 8 operated by Ethiopian Airlines in Ethiopia that killed all 157 on board. We are not changing our credit rating or outlook at this time, as there are minimal details on what brought the plane down, although it is clearly a credit negative event. The accident follows a similar crash of a 737 MAX 8 flown by Lion Air in Indonesia in October that killed 187.

The MAX is the latest, fuel-efficient version of the iconic 737 narrow-body aircraft that Boeing has produced for decades. This version sports bigger engines that need to be mounted closer to the fuselage in order to minimize the risk of touching the ground upon takeoff and landing. However, the consequences of this change results in the potential stalling of the aircraft shortly after takeoff. Boeing countered this risk with its Maneuvering Characteristics Augmentation System. After the Indonesian crash, Boeing began finalizing a software fix for the flight control system that is expected to be rolled out in April.

While only around 350 MAXs are operating globally, the aircraft represents the bulk of Boeing's massive backlog. At the end of February, Boeing reported 5,904 aircraft in its backlog, of which 4,636 are 737 MAXs. In comparison, only 87 were the old version 737NG. As such, this is a critical aircraft for Boeing. Additionally, Airbus has a similarly large backlog of its competing A320 line, and an order placed today for that aircraft might not be filled for several years. Thus, airline customers have limited ability to completely walk away from the aircraft. More likely, they would claim compensation and would eventually accept the aircraft after the appropriate fix is consummated. Thus, we expect Boeing to have to compensate certain airline customers and fix whatever is wrong with the plane.

Our A rating on Boeing was affirmed with a stable outlook in November 2018. Our rating is lower than the financial model would suggest, as it takes into consideration various nuances in the aerospace industry. These factors could negatively affect the Cash Flow Cushion or Solvency Scores and potentially bring the model in line with the rating. The rating thus factors in things like the risks related to production ramp-ups, like the sharp increase in 737 production that Boeing is currently in the middle of (moving to 57 per month later this year from 52, which was up from 47 a year ago). The rating also incorporates the cost and risk of new aircraft, like the midsize 797 being contemplated. A cyclical downturn is factored in as well. Finally, the rating captures a certain amount of event risk, such as the recent tragedies.

While the ultimate financial impacts from the events may be substantial, our forecast from November entailed free cash generation well in excess of $10 billion annually over our five-year forecast horizon. This supports a strong Cash Flow Cushion score. This projection could be meaningfully affected by a sharp increase in working capital in the near term, should all deliveries be postponed, let alone the costs for remediating the problem and compensating customers. However, as long as Boeing offsets these factors by reducing or eliminating share repurchases, liquidity looks more than adequate to address the issues. Boeing had manufacturing cash of $7.8 billion at year-end compared with $11.4 billion of manufacturing debt. It produced $13.6 billion of free cash flow in 2018 and bought back $9 billion of shares while paying out $4 billion of dividends.

Market Data
Boeing issued $400 million 3.20% senior notes due March 1, 2029, in February at a spread of +67 basis points over Treasuries. These were indicated at a spread of +71 basis points on March 8, before the crash. They widened +10 basis points to +81 basis points at the close on March 13. In comparison, Lockheed Martin Corp's (A-, positive) 3.55% senior notes due Jan. 15, 2026, were recently indicated at +72 basis points over interpolated Treasuries, which is a few basis points wide of Boeing when adjusting for maturity. Meanwhile, the A tranche of the Morningstar Corporate Bond Industrials Index is at +85 basis points.

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