# Healthcare Industry: Quarterly Trends and Spread Chartbook
Hospitals in cross-hairs of recent regulatory reforms,
while Amazon adds uncertainty to the healthcare supply chain.

**Morningstar Credit Ratings, LLC**
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## Executive Summary

After failure to make major changes to the Affordable Care Act directly through healthcare-specific legislation, actions taken by the Trump administration and Congress during the fourth quarter look likely to cut into the insured patient population and increase the cost of obtaining insurance in the individual insurance markets. A lower insured patient population could have negative consequences for hospitals, as uncompensated care costs look set to rise. Uncertainty also surrounds the healthcare supply chain, as a new potential entry from Amazon threatens that sector. One planned acquisition—between CVS and Aetna—could insulate those two players from that threat and also reignite the lackluster new issue market in the healthcare industry in 2018. Since our last publication, spreads in the healthcare industry have underperformed our broad coverage universe, with particular weakness from bonds in the healthcare supply chain.

## Key Takeaways

- Our credit rating changes since the end of the third quarter were mostly negative, with two upgrades, three downgrades, and two companies placed Under Review Negative. Our downgrades and reviews for downgrades were primarily related to leverage-increasing acquisitions.
- New debt issuance from healthcare companies in the fourth quarter fell 53% year over year, following a trend of weak new issuance in 2017 that was down 44% relative to 2016. The CVS-Aetna merger plan boosts new debt issuance prospects in 2018. Also, as uncertainty fades on how healthcare- and tax-related reforms in the U.S. will affect corporations, healthcare issuers may return to more normalized debt-related activities in 2018.
- Since the end of the third quarter, healthcare sector bonds have underperformed our broad coverage universe, with particular weakness from the Amazon-threatened supply chain. During the past year, uncertainty related to regulatory reforms negatively influenced bond performance in the industry, but stalled debt issuance and leverage-increasing events appear to have offset that uncertainty somewhat in 2017.
- In the pharmaceutical sector, bonds from Celgene and Perrigo recently traded the widest relative to Morningstar Inc.'s Corporate Bond Index when adjusted for rating, while bonds from AbbVie, Allergan, Merck KGaA, Zoetis, and Shire traded the tightest relative to the index. In medical technology and services, Agilent's bonds continued to trade at the widest spreads relative to the index, while Fresenius, Thermo Fisher, and Boston Scientific's bonds continued to trade at the tightest spreads. In the supply chain, spreads on Express Scripts, Cardinal, and AmerisourceBergen traded at the widest levels relative to the index, while firms with a retail presence, CVS and Walgreens, remained the tightest relative to the index, despite merger plans at those firms.

## Healthcare Headlines

### Credit Rating Actions

Since the end of the third quarter, our rating actions in the healthcare industry were distributed as follows: three downgrades, two upgrades, two reviews with negative implications, and 12 affirmations.

**Exhibit 1** Credit Rating Actions

| Health Care Issuer | Ticker | Old Rating | Current Rating | Rating Action/ Review Status | Action Date |
|---|---|---|---|---|---|
| Gilead Sciences Inc | GILD | A+ | A | Downgraded | 10/3/2017 |
| Owens & Minor Inc | OMI | BBB | BB | Downgraded | 12/12/2017 |
| Zimmer Biomet Holdings Inc | ZBH | BBB+ | BBB | Downgraded | 1/9/2018 |
| Walgreens Boots Alliance Inc | WBA | BBB- | BBB | Upgraded | 11/30/2017 |
| Baxter International Inc | BAX | A- | A | Upgraded | 1/4/2018 |
| CVS Health Corp | CVS | BBB+ | BBB+ | UR- | 12/6/2017 |
| Teva Pharmaceutical Industries Ltd | TEVA | BBB- | BBB- | UR- | 12/19/2017 |
| Merck & Co Inc | MRK | AA | AA | Affirmed | 11/17/2017 |
| Pfizer Inc | PFE | AA- | AA- | Affirmed | 11/17/2017 |
| Roche Holding AG | RHHBY | AA- | AA- | Affirmed | 11/17/2017 |
| Sanofi SA | SNY | AA- | AA- | Affirmed | 11/17/2017 |
| CVS Health Corp | CVS | BBB+ | BBB+ | Affirmed | 11/30/2017 |
| Express Scripts Holding Co | ESRX | A- | A- | Affirmed | 11/30/2017 |
| Amgen Inc. | AMGN | A | A | Affirmed | 12/7/2017 |
| AmerisourceBergen Corp | ABC | A | A | Affirmed | 12/12/2017 |
| Grifols SA | GRFS | BB+ | BB+ | Affirmed | 12/13/2017 |
| McKesson Corp | MCK | A- | A- | Affirmed | 12/13/2017 |
| Zoetis Inc. | ZTS | BBB+ | BBB+ | Affirmed | 12/14/2017 |
| Hologic Inc | HOLX | BB+ | BB+ | Affirmed | 1/4/2018 |

Source: Morningstar Credit Ratings, LLC as of Jan. 9, 2018

### Credit Rating Changes and Reviews

Recent rating changes primarily related to leverage-changing acquisition activities. In October, we downgraded Gilead Sciences Inc (A, stable) one notch to reflect the firm’s heavy use of debt financing to fund its acquisition of Kite Pharma. In December, we downgraded Owens & Minor Inc (BB, stable) three notches on the leverage-increasing acquisitions of Byram Healthcare (completed) and Halyard Health's surgical and infection prevention business (expected in early 2018). In January, we downgraded Zimmer Biomet Holdings Inc (BBB, stable) by one notch on continued deleveraging delays after the mid-2015 merger of Zimmer and Biomet. In November, we upgraded Walgreens Boots Alliance Inc (BBB, stable) one notch on its plan to operate with less leverage than initially feared after updates to its original Rite Aid acquisition agreement. In January, we upgraded Baxter International Inc (A, stable) on rising profitability and free cash flows that have improved its Cash Flow Cushion and Solvency Score pillars.

We also placed two companies under review with negative implications, which related to rising or elevated leverage associated with acquisition activities. CVS Health Corp (BBB+/UR-) was placed under review based on its planned combination with managed-care organization Aetna (not rated), which is expected to close in late 2018 and increase leverage substantially. We placed Teva Pharmaceutical Industries Ltd (BBB-/UR-) under review on delayed deleveraging efforts after the 2016 acquisition of Actavis, which have been exacerbated by higher-than-normal generic pricing deflation and threats to its Copaxone franchise. While Teva has suspended its dividend and initiated a new, extensive two-year restructuring program, these efforts may not be enough to prevent a downgrade.

### Other Healthcare Events

- Fourth-quarter actions taken by the Trump administration and Congress could usher in significant changes to the health insurance marketplace. In October, Trump issued executive orders to expand access to association health plans with lower coverage standards than the ACA requires, extend the period that consumers can use short-term insurance policies that do not need to adhere to ACA requirements, and halt cost-sharing payments to health insurers that help low-income Americans afford coverage on the ACA's individual exchanges. Also, in December, Congress passed a tax reform bill that eliminates the financial penalty associated with the ACA’s individual mandate. With these actions, the U.S. insured patient population looks set to fall, and the cost of obtaining insurance on the individual exchanges looks set to rise, as that population skews toward a sicker patient set that cannot obtain adequate coverage elsewhere. As we have stated previously, any government action that significantly cuts into the insured patient population could have negative consequences throughout the healthcare industry, but particularly for service firms such as hospitals that must increasingly serve uninsured patients.
- Even prior to these actions, enrollment on the individual exchanges declined in 2017, as a result of rising costs of exchange plans and the view that the Trump administration would relax enforcement of the ACA. Those factors caused uncompensated care costs to rise in 2017 and negatively influenced the performance of hospitals we cover: HCA Healthcare Inc (BB, stable) and Tenet Healthcare Corp (B-, stable). We would expect that trend to accelerate, given the government actions outlined above. Positively, there may be some offsetting factors related to the lower corporate tax rate associated with recent legislation. However, highly leveraged Tenet now faces limits on interest deductibility due to tax reform, which could negatively influence its financial results somewhat.
- Beyond regulatory changes, the specter of Amazon.com Inc’s (A, stable) entry hangs over the healthcare supply chain. While it remains to be seen whether Amazon will become an online pharmaceutical retailer, pharmacy benefit manager, drug distributor, medical technology distributor, or some combination of the above, this potential competitive entry has created uncertainty in the sector. The Amazon threat may even have influenced CVS' plan to merge with Aetna.
- DaVita Inc (BB+, negative) announced plans to divest its DaVita Medical Group, or DMG, segment to UnitedHealth Group Inc (non-NRSRO rating: A-, negative) in December. This transaction is scheduled to close in 2018, and we do not expect the deal to significantly change our credit views on either firm. However, from DaVita's perspective, this divestiture appears strategically sound, given the continued struggles of the DMG division. Also, planned debt reduction with divestiture proceeds could help push leverage down a bit and strengthen DaVita's currently weak position in the BB+ rating category.
- The effort to control healthcare costs, specifically pharmaceutical spending, has been evident through prescription drug consortiums established over the past five years. These partnerships between the major drug wholesalers and retail outlets—Walgreens Boots Alliance Development (with

AmerisourceBergen), Red Oak Sourcing (CVS Health and Cardinal Health), Econdisc Contracting Solutions (Express Scripts and various retail chains), and OneStop (McKesson) together with ClarusOne (Walmart)—have come to represent the vast majority (around 90%) of generic drug volume in the U.S. marketplace. Express Scripts further concentrated this position as Econdisc agreed to partner with WBAD for its drug sourcing in May 2017. As such, these groups have leveraged their tremendous purchasing power to extract significant pricing concessions from producers in the generic drug industry. Traditionally, as older generic drugs became commoditized, prices dropped in the midsingle digits per year for the base businesses of generic drug developers. However, increased pressure stemming from these consortiums, along with a relief of a backlog of abbreviated drug approvals at the U.S. Food and Drug Administration over the past few years, have yielded near double-digit price decreases. As a result, operating results have been hurt at Teva, Perrigo Co. PLC (BBB-, stable), Mylan NV (BBB-, negative), Endo International PLC (B, negative) and Mallinckrodt PLC (BB-, stable) throughout 2017.

### Recent New Debt Issuance

As a lack of acquisition activities continued to constrain the healthcare industry's new issue market, new bond issuance from our coverage list fell 53% year over year to $14 billion in the fourth quarter, down from $30 billion in the prior-year period. Less than $2 billion of issuance in the fourth quarter was related to acquisition funding, while the balance was related to debt redemption and other general corporate purposes. In a year of relatively light acquisition activities, new debt issuance on our coverage list fell 44% to $87 billion in 2017, down from $157 billion in 2016.

**Exhibit 2** Fourth-Quarter Debt Issuance

| Announcement Date | Health-care Issuer | Ticker | M* rating | Size ($mm) | Projected use of proceeds |
|---|---|---|---|---|---|
| 12/4/2017 | Valeant Pharmaceuticals International Inc | VRX | B- | $1,500 | Fund tender offer for another $1 billion of senior notes due in 2020 |
| 11/29/2017 | AmerisourceBergen Corp | ABC | A | $1,250 | Fund H.D. Smith acquisition and redeem existing debt |
| 11/20/2017 | Express Scripts Holding Co | ESRX | A- | $1,400 | Fund part of eviCore acquisition and redeem existing debt |
| 11/8/2017 | Johnson & Johnson | JNJ | AAA | $4,500 | Repay outstanding commercial paper |
| 10/31/2017 | Celgene Corp | CELG | A- | $3,000 | Redeem debt maturing in 2018 |
| 10/31/2017 | Amgen Inc | AMGN | A | $1,000 | Repurchase shares |
| 10/4/2017 | Hologic Inc | HOLX | BB+ | $350 | Redeem existing debt |
| 10/2/2017 | Valeant Pharmaceuticals International Inc | VRX | B- | $1,000 | Fund tender offer for $1 billion of senior notes due in 2020 |
| Total | | | | $14,000 | |

Source: Morningstar Credit Ratings, LLC and company reports.

### Potential New Debt Issuance

New issuance could rise in 2018 primarily related to planned acquisitions, assuming regulators allow the transactions. Also, as uncertainty fades on how healthcare- and tax-related reforms in the U.S. will affect corporations, healthcare issuers may return to more normalized debt-related activities this year. Currently, we see the potential for $91 billion of new debt issuance on our coverage list in the near future. However, about 80% of that relates to two transactions that are facing or could face significant regulatory scrutiny: Bayer AG's (A-/UR-) merger with Monsanto Co (A/UR-) and CVS' merger with Aetna. If those transactions are blocked, new issuance in the healthcare industry may remain constrained in 2018.

**Exhibit 3** Potential New Debt Issuance

| Health Care Issuer | Ticker | M* Rating | Potential Size ($mm) | Use Of Proceeds |
|---|---|---|---|---|
| AbbVie Inc | ABBV | BBB+ | $6,000 | May refinance $6 billion in 2018 debt maturities |
| Baxter International Inc | BAX | A | $4,500 | Operating well below its 2.0 times leverage target. |
| Bayer AG | BAYRY | A-/UR- | $28,000 | Funding required for the acquisition of Monsanto to be completed in early 2018 |
| CVS Health Corp | CVS | BBB+/UR- | $45,000 | Plans to issue $45 billion in new debt for Aetna merger, which is scheduled for late 2018 |
| Fresenius Medical Care AG & Co KGaA | FMS | BBB- | $2,000 | Fund NxStage Medical acquisition |
| Merck & Co Inc | MRK | AA | $3,000 | May refinance $3 billion in debt coming due in first half of 2018 |
| Owens & Minor Inc | OMI | BB | $500 | Acquiring a Halyard Health division for $710 million in early 2018. |
| Walgreens Boots Alliance Inc | WBA | BBB | $2,000 | May finance some of pending $4.4 billion Rite Aid store purchases with new debt |
| Total | | | $91,000 | |

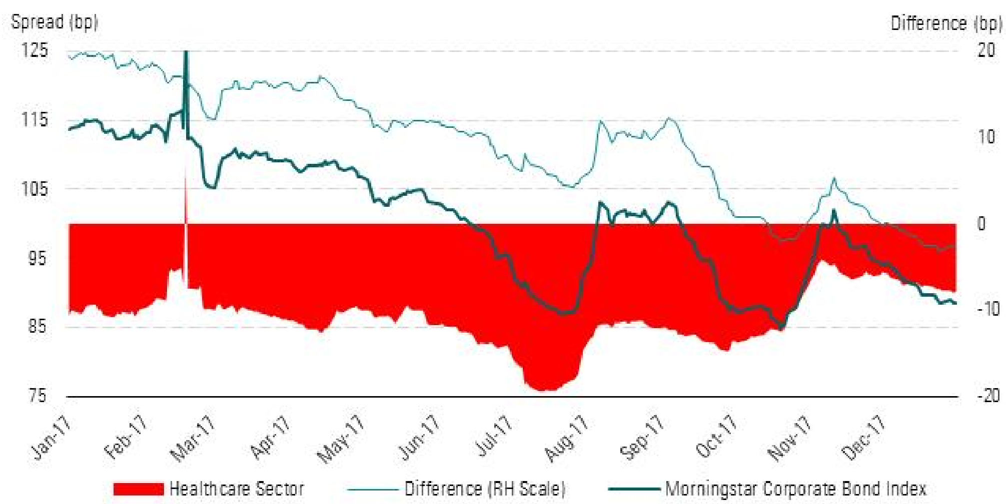
Source: Morningstar Credit Ratings, LLC

## Healthcare Industry Spreads

### Trailing 12 Months

The healthcare industry has underperformed our broad coverage universe slightly over the past 12 months. Spreads in the healthcare industry have tightened by 25 basis points, while Morningstar Inc's Corporate Bond Index has tightened by 28 basis points during that period. Since the U.S. election in November 2016, healthcare industry spreads have also modestly underperformed the index by about 5 basis points. The election results ushered in healthcare and tax reform uncertainty in 2017, although from a credit perspective, some of that uncertainty was offset by many healthcare issuers staying on the sidelines with significant leveraging events during the period.

**Exhibit 4** Healthcare Industry Spreads vs. Morningstar Inc's Corporate Bond Index (Trailing 12 Months)

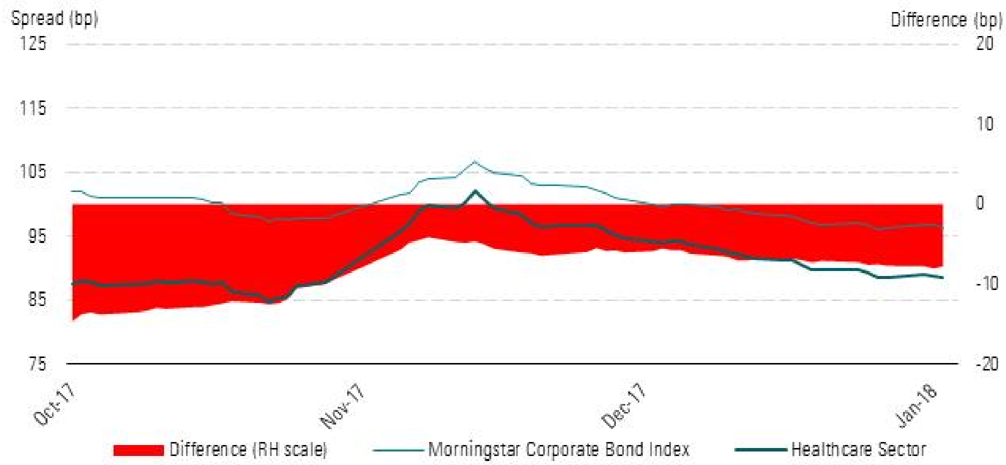



Source: Morningstar Credit Ratings, LLC and Morningstar, Inc as of Jan. 4, 2018

### Trailing Three Months

Spreads in the healthcare industry have widened 1 basis point since our last publication in early October. The industry underperformed Morningstar Inc's Corporate Bond Index, which tightened 6 basis points during the same period. Several negative factors may have weighed on the industry's performance. First, after Congress failed to change the Affordable Care Act through healthcare-specific legislation this summer, tax reform legislation and executive actions still appear likely to cut into the insured patient population in the U.S., which could have negative effects, particularly on the services sector. Also, company-specific events—such as Teva's falling prospects and CVS' planned merger with Aetna—probably influenced the industry's performance relative to the index this quarter. Finally, Amazon's potential entry into the healthcare supply chain may have also weighed on the industry's bond performance.

**Exhibit 5** Healthcare Industry Spreads vs. Morningstar Inc's Corporate Bond Index (since Oct. 3, 2017)

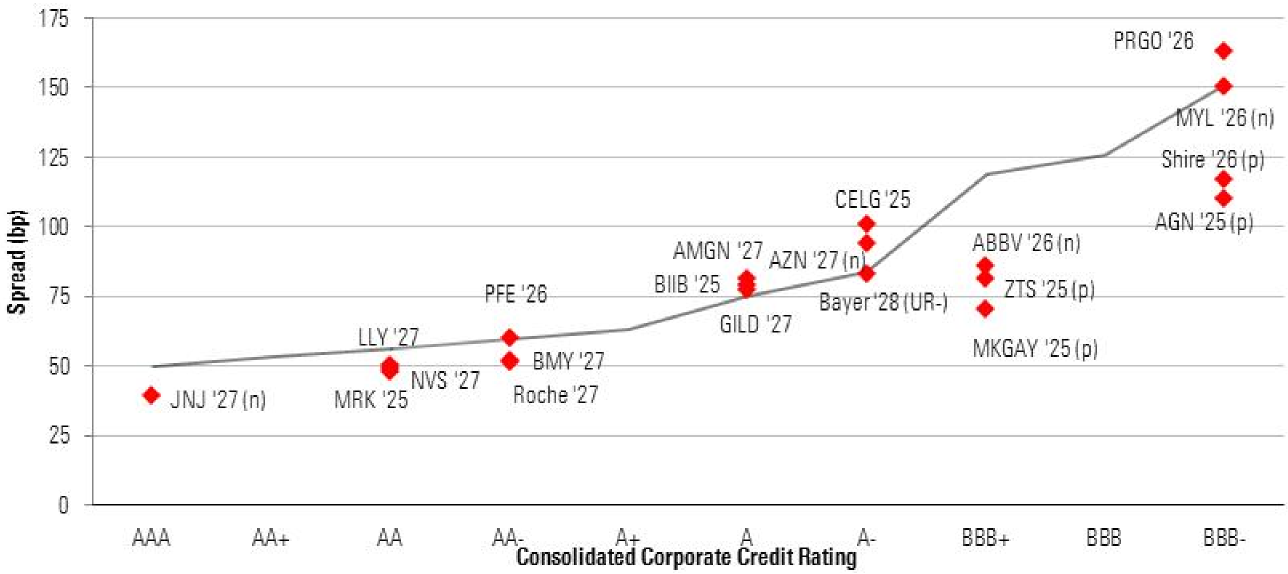



Source: Morningstar Credit Ratings, LLC and Morningstar Inc. as of Jan. 4, 2018

## Spread Charts by Healthcare Sector

### Pharmaceuticals

**Exhibit 6** Pharmaceuticals vs. Morningstar Corporate Bond Index




Source: Morningstar Credit Ratings, LLC, Morningstar Inc., and Interactive Data as of Jan. 4, 2018
(UR) = rating under review / (p) = positive outlook / (n) = negative outlook.

### Sector Trends

As a proxy for innovation in the pharmaceutical industry, we look to novel drug approvals by the U.S. Food and Drug Administration. In the fourth quarter alone, a total of 13 novel medicines and biologics were cleared by the FDA for commercialization in the U.S., including Gilead's newly acquired CAR-T cancer treatment Yescarta, which was approved by the FDA's Center for Biologics Evaluation and Research. These fourth-quarter approvals bring the total number of new pharmaceuticals authorized for sale in the U.S.by the FDA during 2017 to 47, compared with 22 approvals in 2016. Since our previous publication in October, average spreads in the pharmaceutical sector remained consistent, but excluding the 100-basis-point widening of Teva's 2026 bonds since our last report, average spreads in the sector tightened by 10 basis points. This change compares with a modest 1 basis point of widening for the healthcare sector and a 6-basis-point tightening of Morningstar Inc's Corporate Bond Index during the period. Bonds that recently traded more than 10 basis points wider than the index were those from biopharmaceutical developer Celgene Corp. (A-, stable), and private-label drug maker Perrigo. Conversely, bonds from AbbVie Inc. (BBB+, negative), Allergan PLC (BBB-, positive), Shire PLC (BBB-, positive), Zoetis Inc (rating: BBB+, positive), and Merck KGaA (BBB+, positive) recently traded more than 30 points tighter than the index when adjusting for rating category.

**Issuer Highlights**

- Our negative outlook on Johnson & Johnson (AAA) relates primarily to its weak profit growth prospects relative to peers. Financial flexibility afforded by the firm's historical net cash position is temporarily constrained after its second-quarter acquisition of rare-disease drugmaker Actelion Pharmaceuticals (not rated) for $30 billion, as well as its healthy dividend ($8.8 billion) and aggressive share repurchasing ($9.5 billion). The firm's ability to quickly return to its historical stance may influence our rating outlook in the future.
- Bayer's A- credit rating is under review with negative implications on its plan to merge with Monsanto. Bayer hopes to close the transaction in early 2018 and plans to fund the $66 billion transaction through a combination of equity ($19 billion) and debt that will push gross debt leverage to the low 4s, in our estimation.
- AstraZeneca's (A-) negative outlook reflects the fact that the fundamental factors pressuring the company’s credit profile remain in play, most notably its patent cliff, which is expected to last over the next few years, together with the firm’s commitment to a progressive dividend policy.
- We estimate that AbbVie may grow through Humira biosimilar competition, especially given the settlement in September with Amgen (A, stable), which fixes the timing of the launch of Amjevita (biosimilar Humira) in the U.S. on Jan. 31, 2023, and in Europe on Oct. 16, 2018. AbbVie's broadened oncology portfolio, including expanding clinical utility of Venclexta and Imbruvica, and potential commercialization of novel drug candidates in immunology, virology, and women’s health, supports our estimation of sustained top-line growth. However, regulatory and commercialization risk of the firm's promising late-stage pipeline helps inform our negative outlook, as we look for a more certain path to fully offset expected biosimilar erosion.
- Merck KGaA’s BBB+ rating and positive outlook reflect its success in deleveraging after the acquisition of Sigma-Aldrich and the diverse corporate portfolio that helps insulate the firm from headwinds arising in specific geographies or certain product categories. We see the firm having little trouble attaining its net leverage goal of 2.0 times by 2018 through a combination of solid operational performance and debt reduction, given few demands on its free cash flow, which we expect to average nearly EUR 3 billion annually over the next five years, other than a relatively modest dividend averaging EUR 700 million per year.
- In December, we revised Zoetis' rating outlook to positive from stable to reflect its top position in the animal health industry and our expectation of strong operational performance that drives solid cash flow generation over the next few years. We may upgrade Zoetis' BBB+ rating if gross leverage remains consistently within management’s range of 2.5-3.0 times, which would backstop good Solvency Score and Distance to Default pillars. We would expect deleveraging to mainly stem from earnings growth that paces our expectations, at minimum.
- In September, we changed our outlook on Mylan's BBB- rating to negative from stable as the firm tries to deleverage its balance sheet while it contends with significant operational challenges stemming from increased pricing pressure in the U.S. generics market and subdued expectations for its best-selling EpiPen brand (severe allergic reactions). Mylan originally planned to reduce net leverage to 3 times within 18 months after the Meda purchase (or around the end of 2017) but now expects net leverage of 3.7 times at the end of this year and the initial expectation as a longer-term goal. The main catalyst for a

rating downgrade over the next year or so is prolonged inflated leverage such that the Solvency Score pillar further deteriorates, whether through operational stresses or a continued heavy debt load.

- Allergan's BBB- credit rating accounts for the firm's diverse specialty therapeutics portfolio, built through extensive business development over the past few years, which has resulted in its present high debt burden and elevated financial leverage. However, we believe the company may make substantial headway in the next two years toward its gross leverage goal of 3.0-3.5 times, which informs our positive outlook.
- Shire's BBB- rating and positive outlook consider its broad portfolio of specialty and rare-disease treatments, strong operating performance while integrating Baxalta, successful capture of synergies, and meaningful progress in reducing acquisition debt to reach its leverage target of 2-3 times by 2017. We anticipate that the company is likely to reach its net leverage goal in 2018; along with sustained revenue and earnings strength, this may prompt an upgrade to the rating.
- Teva's underwhelming operational performance and delayed deleveraging since the firm's acquisition of Actavis in August 2016 led us to place its BBB- rating under review with negative implications in December. We expect to downgrade the rating a notch or two unless we see substantial progress over the coming months in the execution of Teva's two-year restructuring plan, efforts toward debt reduction, and reversal of underwhelming operational performance. Absent that, we expect at least one of our leverage-based pillars to deteriorate from its current level and push the rating into speculative-grade territory. We expect to glean further information from the firm's 2018 earnings outlook, to be released in February, and to resolve the under-review status around that time.

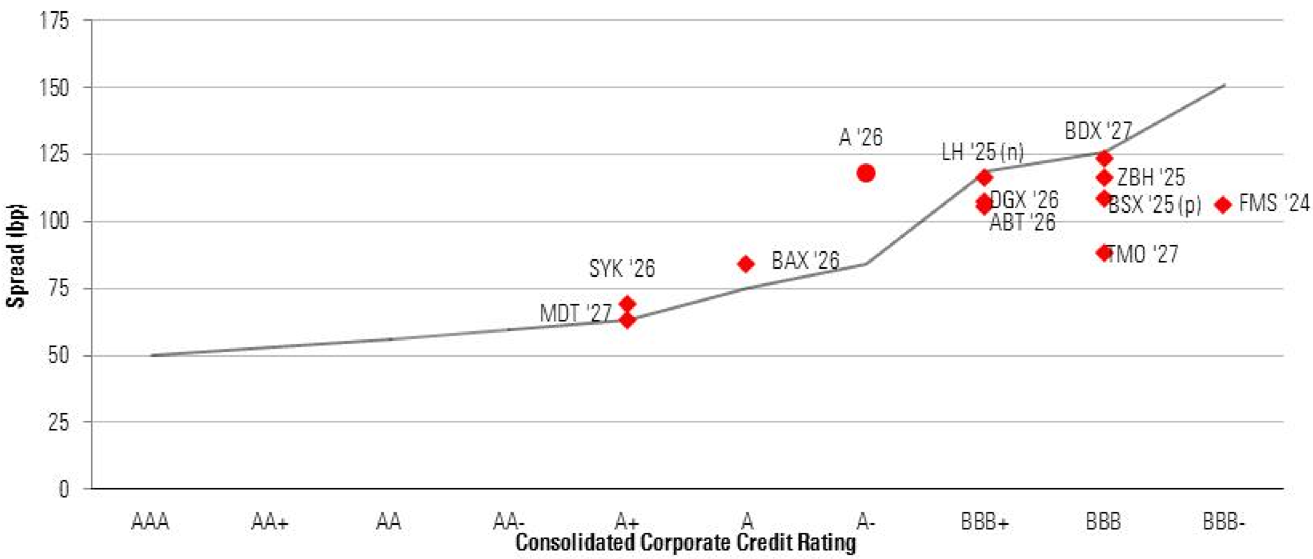
**Exhibit 7** Investment-Grade Pharmaceutical Spreads

| Health Care Issuer | Rating | Rating Outlook/ Review Status | Coupon | Maturity | Yield | Spread | Difference From Index | Average Difference |
|---|---|---|---|---|---|---|---|---|
| Celgene Corp | A- | Stable | 3.88% | 8/15/2025 | 3.40% | +101 | 17 | |
| Perrigo Co PLC | BBB- | Stable | 4.38% | 3/15/2026 | 4.03% | +163 | 12 | |
| Bayer AG | A- | UR- | 6.65% | 2/15/2028 | 3.39% | +94 | 10 | |
| Amgen Inc | A | Stable | 3.20% | 11/2/2027 | 3.28% | +81 | 6 | |
| Biogen Inc | A | Stable | 4.05% | 9/15/2025 | 3.18% | +79 | 4 | |
| Gilead Sciences Inc | A | Stable | 2.95% | 3/1/2027 | 3.20% | +77 | 2 | |
| Roche Holding AG | AA- | Stable | 2.38% | 1/28/2027 | 3.03% | +60 | 1 | |
| AstraZeneca PLC | A- | Negative | 3.13% | 6/12/2027 | 3.27% | +83 | -1 | |
| Mylan NV | BBB- | Negative | 3.95% | 6/15/2026 | 3.91% | +150 | -1 | |
| Eli Lilly and Co | AA | Stable | 3.10% | 5/15/2027 | 2.94% | +50 | -6 | |
| Novartis AG | AA | Stable | 3.10% | 5/17/2027 | 2.92% | +49 | -7 | |
| Merck & Co Inc | AA | Stable | 2.75% | 2/10/2025 | 2.86% | +48 | -8 | |
| Pfizer Inc | AA- | Stable | 3.00% | 12/15/2026 | 2.94% | +52 | -8 | |
| Bristol-Myers Squibb Company | AA- | Stable | 3.25% | 2/27/2027 | 2.95% | +51 | -9 | -10 |
| Johnson & Johnson | AAA | Negative | 2.95% | 3/3/2027 | 2.82% | +39 | -11 | |
| AbbVie Inc | BBB+ | Negative | 3.20% | 5/14/2026 | 3.28% | +86 | -33 | |
| Allergan PLC | BBB- | Positive | 3.80% | 3/15/2025 | 3.55% | +117 | -34 | |
| Zoetis Inc | BBB+ | Positive | 4.50% | 11/13/2025 | 3.20% | +81 | -38 | |
| Shire PLC | BBB- | Positive | 3.20% | 9/23/2026 | 3.52% | +110 | -41 | |
| Merck KGaA | BBB+ | Positive | 3.25% | 3/19/2025 | 3.08% | +70 | -49 | |

Source: Morningstar Credit Ratings, LLC, Morningstar, Inc., and Interactive Data as of Jan. 4, 2018

## Medical Technology and Services

**Exhibit 8** Medical Technology and Services vs. Morningstar Corporate Bond Index




Source: Morningstar Credit Ratings, LLC, Morningstar Inc., and Interactive Data as of Jan. 4, 2018.
(UR) = rating under review / (p) = positive outlook / (n) = negative outlook.

### Sector Trends

During the quarter, the average spread in medical technology and services tightened about 8 basis points, outperforming the broad healthcare sector (1 basis point of widening) and Morningstar's Corporate Bond Index (6 basis points of tightening). During the period, five issuers' bonds tightened at least 10 basis points, including Baxter, Stryker Corp (A+, stable), Laboratory Corp of America Holdings (BBB+, negative), Thermo Fisher Scientific Inc (BBB, stable), and Fresenius Medical Care AG & Co KGaA (BBB-, stable). Currently, only one issuer—Agilent Technologies Inc (A-, stable)—has bonds in this maturity bucket that traded more than 10 basis points wider than the index. On average, this sector trades about 8 basis points tighter than the index, but Fresenius and Thermo Fisher recently traded more than 30 basis points tighter than the index.

### Issuer Highlights

- In January, we upgraded our credit rating for Baxter International Inc one notch to A, as rising profitability and free cash flows have improved the firm’s Cash Flow Cushion and Solvency Score pillars in the past year. As of September 2017, the firm owed $3.5 billion in debt, or just 1.5 times EBITDA, and enjoyed a net neutral financial position when considering its $3.5 billion of cash. Ongoing free cash flow ($1.4 billion as of the last 12 months ended in September, which management expects to grow to around $2 billion by 2020) should give Baxter plenty of financial flexibility, too. While management has discussed boosting net leverage to pursue tuck-in acquisitions and returns to shareholders, we think net leverage would have to rise well above its 2.0 times target on a sustainable basis to negatively influence our A rating, given its strong cash flows and easily manageable maturity schedule.

- We currently view Laboratory Corp of America Holdings (BBB+, negative) as operating on the weak end of its rating, and a continued delay in deleveraging to pursue another acquisition caused us to cut our outlook to negative in August from stable previously. Specifically, the company did not deleverage to its target after the 2015 Covance acquisition, and the recent acquisition of Chiltern may keep pro forma gross leverage above its 2.5-3.0 times sustainable range for the next year or so. If the firm continues to delay deleveraging beyond 2018, we would consider a downgrade.
- In January, we downgraded our rating of Zimmer Biomet Holdings Inc by one notch to BBB on continued deleveraging delays. The company's elevated leverage has been exacerbated by Zimmer’s own capital-allocation activities and operational missteps since the merger of Zimmer and Biomet in mid-2015. As of September, gross leverage still stood in the mid-3s because profits and cash flow have been constrained by internal supply chain problems. Last year, we opined that Zimmer needed to make significant deleveraging progress during 2017 to retain its previous rating. Since significant deleveraging has not materialized in a timely manner, we believe our new rating reflects the credit risks at Zimmer more accurately than our previous rating. Also, management previously stated a goal of reaching gross leverage of 2.5 times by the end of 2018, but if current trends continue, we think Zimmer is unlikely to reach that goal within the stated time frame. This projection is also reflected in our new lower rating.
- In July, we increased our outlook on Boston Scientific Corp's (BBB, positive) rating to positive from stable previously. As the firm works through its large legal and tax-related obligations during the next year or so, we see the potential for a rating upgrade, as its Cash Flow Cushion may improve. For example, in 2017, the company is shooting for adjusted free cash flow of $1.75 billion, and strong near-term cash flows are needed to help cover roughly $2 billion of legal and tax outflows expected by the end of 2018. Once it pays off those obligations, Boston should enjoy more financial flexibility, which informs our positive outlook.

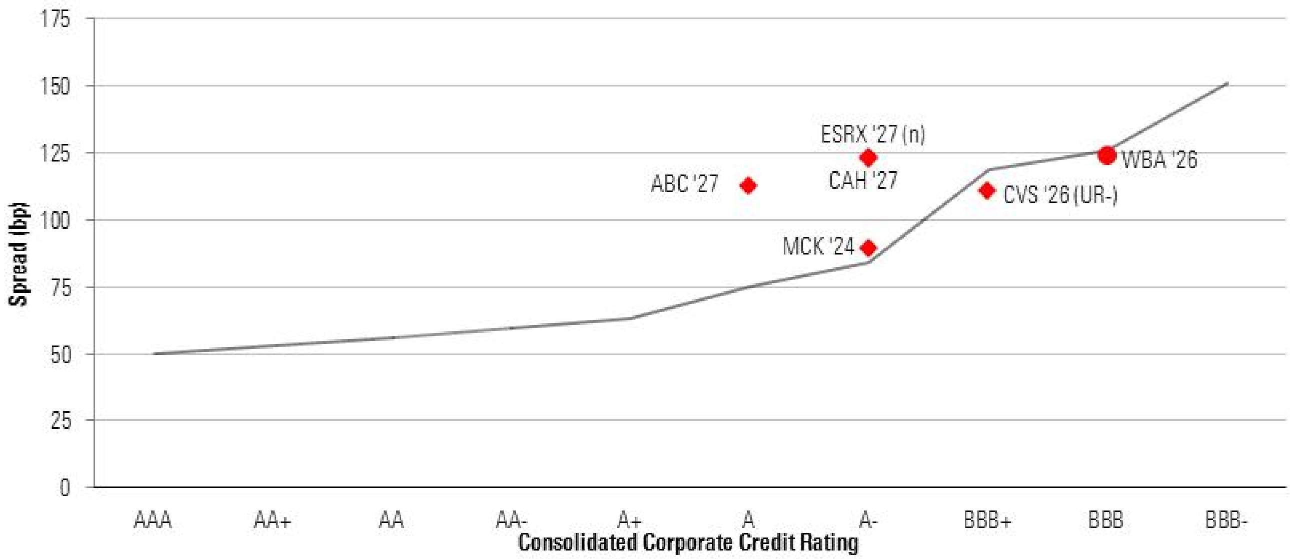
**Exhibit 9** Investment-Grade Medical Technology and Services Spreads

| Health Care Issuer | Rating | Rating Outlook/ Review Status | Coupon | Maturity | Yield | Spread | Difference From Index | Average Difference |
|---|---|---|---|---|---|---|---|---|
| Agilent Technologies | A- | Stable | 3.05% | 9/22/2026 | 3.60% | +118 | 34 | |
| Baxter International Inc | A | Stable | 2.60% | 8/15/2026 | 3.26% | +84 | 9 | |
| Stryker Corp | A+ | Stable | 3.50% | 3/15/2026 | 3.09% | +69 | 6 | |
| Medtronic PLC | A+ | Stable | 3.35% | 4/1/2027 | 3.06% | +63 | 0 | |
| Laboratory Corp of America Holdings | BBB+ | Negative | 3.60% | 9/9/2027 | 3.61% | +116 | -3 | |
| Becton, Dickinson and Co | BBB | Stable | 3.70% | 6/6/2027 | 3.67% | +123 | -3 | -8 |
| Zimmer Biomet Holdings Inc | BBB | Stable | 3.55% | 4/1/2025 | 3.54% | +116 | -10 | |
| Quest Diagnostics Inc | BBB+ | Stable | 3.45% | 6/1/2026 | 3.48% | +107 | -12 | |
| Abbott Laboratories | BBB+ | Stable | 3.75% | 11/30/2026 | 3.47% | +105 | -14 | |
| Boston Scientific Corp | BBB | Positive | 3.85% | 5/15/2025 | 3.47% | +108 | -18 | |
| Thermo Fisher Scientific Inc | BBB | Stable | 3.20% | 8/15/2027 | 3.33% | +88 | -38 | |
| Fresenius Medical Care AG & Co. | BBB- | Stable | 4.75% | 10/15/2024 | 3.41% | +106 | -45 | |

Source: Morningstar Credit Ratings, LLC, Morningstar, Inc., and Interactive Data as of Jan. 4, 2018

## Pharmaceutical and Medical Supply Chain

**Exhibit 10** Supply Chain vs. Morningstar Corporate Bond Index




Source: Morningstar Credit Ratings, LLC, Morningstar Inc., and Interactive Data as of Jan. 4, 2018
(UR) = rating under review / (p) = positive outlook / (n) = negative outlook.

### Sector Trends

Since our previous publication, average spreads in this sector widened 8 basis points on average, underperforming the healthcare sector (1 basis point of widening) and Morningstar's Corporate Bond Index (6 basis points of tightening). This sector appears to have been negatively affected by Amazon's interest in entering the healthcare supply chain in the near future. Amazon could become an online pharmaceutical retailer, pharmacy benefit manager, drug distributor, medical technology distributor, or some combination of the above, and this potential competitive entry has created uncertainty for the sector’s players, negatively influencing spreads. The Amazon threat may have even influenced CVS' plans to merge with Aetna, which could create a healthcare behemoth with top-tier retail pharmacy, PBM, and managed-care capabilities. In the long run, we believe the CVS-Aetna merger has the potential to change the way healthcare treatments are dispensed in the U.S., if the combined entity increasingly drives patients to lower-cost options, including CVS' own physical locations, for care.

### Issuer Highlights

- We currently maintain a negative outlook on Express Scripts (A-, negative). To maintain its A- credit rating, Express Scripts needs to retain its substantial competitive advantages in the PBM sector, reduce its debt obligations significantly, and win its ongoing legal dispute with Anthem Inc (non-NRSRO rating: BBB, stable). While Morningstar's Equity Group has reiterated Express Scripts' wide-moat assessment even after Anthem’s decision not to renew its contract with Express Scripts when it ends in late 2019, uncertainty may surround the width of the PBM's moat for the next few years, given its shrinking scale and emerging competitive threats. Express Scripts also needs to redeem nearly all of its obligations coming due through 2020 to keep gross debt/EBITDA near its 2.0 times target and to refrain from capital-allocation decisions that substantially increase its leverage on a sustainable basis. Notably, Express Scripts recently acquired privately held eviCore, a medical benefit management provider, for $3.6 billion. Its recent new debt issuance to fund that transaction appears manageable, and we do not expect this acquisition to substantially change the firm's ability to meet its gross leverage target in the long run. However, ongoing litigation with Anthem could also negatively affect our rating, if Express Scripts is forced to give up significant savings from current contract terms. Should Express Scripts fail to meet all of these challenges, we would consider downgrading our rating.

- In December, we placed our BBB+ credit rating on CVS Health Corp under review with negative implications based on its planned combination with managed-care organization Aetna. This acquisition is expected to close in late 2018 and increase pro forma gross leverage to the mid-4s. Management aims to reduce gross leverage to the mid-3s in the next couple years and low 3s in the long term. However, that projected leverage is higher than the firm's previous goal, and the company's willingness to boost and keep leverage well above its previous target suggests a downgrade may be warranted in the merger scenario. Assuming the merger closes as expected, rising leverage could cut into the company's Cash Flow Cushion and Distance to Default pillar enough to cause a one-notch downgrade, based on our current understanding of the deal.
- In November, we upgraded our corporate credit rating of Walgreens Boots Alliance Inc one notch to BBB on its plan to operate with less leverage than initially feared after updates to its original agreement to acquire Rite Aid. Specifically, we estimate Walgreens' pro forma lease-adjusted leverage will stand in the mid- to high 3s initially after purchasing those stores, down from a previous pro forma lease-adjusted leverage projection in the low to mid-4s. While the Solvency Score and Distance to Default pillars have not changed substantially because of this updated Rite Aid deal, our Cash Flow Cushion has improved to moderate levels because of the lower expected outflows, which was the primary cause of our upgrade.

**Exhibit 11** Pharmaceutical/Medical Supply Chain Spreads

| Health Care Issuer | Rating | Rating Outlook/ Review Status | Coupon | Maturity | Yield | Spread | Difference From Index | Average Difference |
|---|---|---|---|---|---|---|---|---|
| Express Scripts Holding Co | A- | Negative | 3.40% | 3/1/2027 | 3.67% | +124 | 40 | |
| Cardinal Health Inc | A- | Stable | 3.41% | 6/15/2027 | 3.67% | +123 | 39 | |
| AmerisourceBergen Corp | A | Stable | 3.45% | 12/15/2027 | 3.58% | +113 | 38 | 15 |
| McKesson Corp | A- | Stable | 3.80% | 3/15/2024 | 3.22% | +90 | 6 | |
| CVS Health Corp | BBB+ | UR- | 2.88% | 6/1/2026 | 3.53% | +111 | -8 | |
| Walgreen Boots Alliance Inc | BBB | Stable | 3.45% | 6/1/2026 | 3.65% | +124 | -27 | |

Source: Morningstar Credit Ratings, LLC, Morningstar, Inc., and Interactive Data as of Jan. 4, 2018

## High-Yield Healthcare

### Sector Trends

Congress recently passed a tax reform bill that eliminates the financial penalty associated with the ACA's individual mandate. The lack of financial penalty associated with the individual mandate will probably result in a lower insured patient population as more patients will likely opt out of coverage through the exchanges or other sources. In 2017, uncompensated care costs have already been rising and negatively influencing the performance of covered hospitals, and we would expect that trend to accelerate, given the change to the individual mandate. While there may be some offsetting factors for covered companies related to the lower corporate tax rate in the bill, limits on interest deductibility with this tax reform look likely to modestly constrain Tenet's financial results. Also, the effort to control healthcare costs, specifically pharmaceutical spending, has been evident through prescription drug consortiums established over the past five years. These partnerships between major drug wholesalers and retail outlets have come to represent the vast majority (around 90%) of generic drug volume in the U.S. marketplace. As such, these groups have leveraged their tremendous purchasing power to extract significant pricing concessions from producers in the generic drug industry. Increased pressure stemming from these consortiums, along with a relief of a backlog of abbreviated drug approvals at the U.S. Food and Drug Administration over the past few years, has yielded near double-digit price decreases, compared with traditional price drops in the midsingle digits per year. This change in generic pricing dynamics has pressured manufacturers' operational performance, including the generic drug businesses at Endo and Mallinckrodt.

### Issuer Highlights

- We recently affirmed our credit rating on Hologic Inc (BB+, stable) and revised our outlook to stable from positive. Our previous positive outlook assumed that Hologic may maintain the lower credit metrics that were achieved after its blood-screening divestiture. However, after the subsequent Cynosure acquisition and recent borrowing activities, Hologic appears satisfied with operating at metrics that keep the firm's rating below investment-grade. Therefore, we no longer view an upgrade as likely in the near future, and our outlook is stable.
- While we affirmed its rating in early April 2017, we cut our outlook on DaVita to negative from stable on its weak operating outlook and ongoing use of cash for shareholder returns. However, DaVita recently announced plans to divest its medical group to UnitedHealth. With the divestiture proceeds, DaVita plans to redeem some debt, which could push down leverage enough to strengthen its currently weak position in its BB+ rating category.
- In December, we downgraded Owens & Minor Inc's corporate credit rating three notches to BB on the company's increasing leverage, related to the acquisitions of Byram Healthcare (completed) and Halyard Health's surgical and infection prevention business (expected in early 2018). While strategically we think these acquisitions make sense, the deals have elevated leverage on Owens & Minor's balance sheet. Before the acquisitions, Owens & Minor owed $579 million in debt as of June, or gross leverage in the mid-2s by our estimates. We expect gross debt will rise to roughly $1.6 billion in early 2018 to finance both acquisitions, or pro forma gross leverage in the mid-4s by our estimates. This rising leverage has cut into all of the firm's leverage-sensitive pillars—Cash Flow Cushion, Solvency Score, and Distance to Default—and has even cut into its Business Risk pillar related to its stewardship for creditors and

dependence on capital markets. With these leverage-increasing transactions, we believe Owens & Minor has abandoned its commitment to investment-grade credit metrics for the foreseeable future.

- Endo International PLC's B rating and negative outlook reflect the instability of the firm's credit profile in light of greater-than-historical generic-drug price erosion, significant corporate portfolio restructuring, the withdrawal of Opana ER from the U.S. market, and heightened litigation risk associated with increasing vaginal mesh product liability claims.
- We maintain a negative outlook on Valeant Pharmaceuticals International Inc's B- rating, given the high debt burden left from its prior roll-up strategy employed from 2010 to 2015. While our negative outlook reflects our view that the firm may have trouble further reducing total debt, we are much less skeptical that Valeant can achieve its original debt-reduction goal of $5 billion by February 2018. Starting from August 2016, the firm lowered its elevated debt load by approximately $4.78 billion, net of new debt issuances and additional secured term loans, by our estimation. This debt reduction total includes a nearly $600 million reduction in outstanding secured term loans ($1.35 billion of repayment, net of $750 million add-on secured term loans in November) in the fourth quarter and into the first quarter of 2018 using proceeds from the divestment of iNova and cash flows.

**Exhibit 12** High-Yield Healthcare Senior Unsecured Bonds

| Health Care Issuer | Rating | Rating Outlook | Coupon | Maturity | Worst Date | Price | YTW | STW |
|---|---|---|---|---|---|---|---|---|
| Hologic Inc | BB+ | Stable | 4.38% | 10/15/2025 | 10/15/2022 | 101.75 | 3.97% | +172 |
| DaVita Inc | BB+ | Negative | 5.00% | 5/1/2025 | 5/1/2023 | 100.36 | 4.92% | +264 |
| HCA Healthcare Inc | BB | Stable | 5.88% | 2/15/2026 | 8/15/2025 | 106.88 | 4.78% | +239 |
| Owens & Minor | BB | Stable | 4.38% | 12/15/2024 | 9/15/2024 | 100.91 | 4.22% | +185 |
| Mallinckrodt PLC | BB- | Stable | 5.50% | 4/15/2025 | 4/15/2025 | 81.50 | 9.02% | +664 |
| Endo International PLC | B | Negative | 6.00% | 2/1/2025 | 2/1/2025 | 81.75 | 9.62% | +724 |
| Tenet Healthcare Corp | B- | Stable | 5.13% | 5/1/2025 | 5/1/2025 | 98.78 | 5.33% | +294 |
| Valeant Pharmaceuticals International Inc | B- | Negative | 6.13% | 4/15/2025 | 4/15/2025 | 93.63 | 7.27% | +488 |

Source: Morningstar Credit Ratings, LLC, Morningstar, Inc., and Interactive Data as of Jan. 4, 2018

# Appendix

| **IG Pharmaceutical Tickers** | **JNJ** | **MRK** | **NVS** | **LLY** | **BMY** | **PFE** | **Roche** | **SNY** | **GILD** | **GSK** | **AMGN** | **BIIB** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Morningstar LLC Rating | AAA | AA | AA | AA | AA- | AA- | AA- | AA- | A | A | A | A |
| Outlook | Negative | Stable | Stable | Stable | Stable | Stable | Stable | Stable | Stable | Stable | Stable | Stable |
| Information from Morningstar's Equity Research Group: | | | | | | | | | | | | |
| Moat | Wide | Wide | Wide | Wide | Wide | Wide | Wide | Wide | Wide | Wide | Wide | Wide |
| Moat Trend | Stable | Stable | Stable | Stable | Stable | Stable | Stable | Stable | Stable | Stable | Stable | Stable |
| Uncertainty | Low | Low | Low | Medium | Medium | Low | Low | Medium | Medium | Medium | Medium | Medium |
| TTM as of Date ($s in millions) | 10/1/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 |
| Revenues | $74,361 | $39,804 | $49,014 | $22,471 | $20,570 | $52,470 | CHF 52,505 | € 35,881 | $27,478 | £30,133 | $23,012 | $11,839 |
| Adj'd EBITDA | $25,281 | $14,626 | $14,475 | $6,203 | $5,162 | $20,309 | CHF 19,144 | € 10,307 | $17,221 | £8,646 | $12,637 | $6,671 |
| Adj'd EBITDA % | 34% | 37% | 30% | 28% | 25% | 39% | 36% | 29% | 63% | 29% | 55% | 56% |
| Total Debt | $35,166 | $26,995 | $30,160 | $13,465 | $8,443 | $43,951 | CHF 21,115 | € 16,848 | $29,262 | £19,034 | $35,776 | $6,512 |
| Cash & Investments | $16,231 | $23,401 | $23,725 | $13,092 | $9,648 | $24,236 | CHF 6,935 | € 9,887 | $28,387 | £4,743 | $41,351 | $6,570 |
| Net Total Debt/(Cash) | $18,935 | $3,594 | $6,435 | $373 | ($1,205) | $19,715 | CHF 14,180 | € 6,961 | $875 | £14,291 | ($5,575) | ($59) |
| Market Capitalization | $356,680 | $176,187 | $199,615 | $91,050 | $106,170 | $213,867 | $215,030 | $122,503 | $107,630 | $94,580 | $138,609 | $58,010 |
| Enterprise Value | $375,615 | $179,781 | $206,050 | $91,423 | $104,965 | $233,582 | $229,723 | $130,344 | $108,505 | $114,878 | $133,034 | $57,951 |
| Debt % of EV | 9% | 15% | 15% | 15% | 8% | 19% | 10% | 15% | 27% | 24% | 27% | 11% |
| TD/EBITDA | 1.4x | 1.8x | 2.1x | 2.2x | 1.6x | 2.2x | 1.1x | 1.6x | 1.7x | 2.2x | 2.8x | 1.0x |
| Net TD/EBITDA | 0.7x | 0.2x | 0.4x | 0.1x | -0.2x | 1.0x | 0.7x | 0.7x | 0.1x | 1.7x | -0.4x | 0.0x |
| Adj TD/EBITDAR* | 1.7x | 2.0x | 2.2x | 2.7x | 1.9x | 2.4x | 1.6x | 2.2x | 1.7x | 2.6x | 2.9x | 1.0x |
| Interest Expense | $844 | $744 | $732 | $213 | $185 | $1,238 | CHF 633 | € 582 | $1,086 | £753 | $1,300 | $254 |
| EBITDA/Interest | 30.0x | 19.7x | 19.8x | 29.1x | 27.9x | 16.4x | 30.3x | 17.7x | 15.9x | 11.5x | 9.7x | 26.3x |
| (EBITDA-CapX)/Int | 26.2x | 17.3x | 19.3x | 24.2x | 21.6x | 14.8x | 24.8x | 15.3x | 15.4x | 9.3x | 9.2x | 23.1x |
| OCF | $21,604 | $7,664 | $9,278 | $5,989 | $5,586 | $15,700 | CHF 15,223 | € 9,068 | $12,631 | £7,040 | $11,265 | $4,609 |
| CapX | ($3,132) | ($1,724) | ($362) | ($1,043) | ($1,172) | ($1,936) | (CHF 3,459) | (€ 1,423) | ($539) | -£1,611 | ($738) | ($819) |
| FCF | $18,472 | $5,940 | $8,916 | $4,946 | $4,414 | $13,764 | CHF 11,765 | € 7,645 | $12,092 | £5,429 | $10,527 | $3,790 |
| FCF/Debt | 53% | 22% | 30% | 37% | 52% | 31% | 56% | 45% | 41% | 29% | 29% | 58% |
| Share Repurchases | ($7,568) | ($3,328) | ($4,536) | ($500) | ($2,210) | ($5,000) | (CHF 402) | (€ 3,663) | ($1,848) | -£65 | ($3,354) | ($2,017) |
| Dividends | ($8,857) | ($5,155) | ($6,495) | ($2,186) | ($2,573) | ($7,571) | (CHF 7,070) | (€ 3,710) | ($2,668) | -£3,902 | ($3,278) | $0 |
| Net FCF | $2,047 | ($2,543) | ($2,115) | $2,260 | ($369) | $1,193 | CHF 4,293 | € 272 | $7,576 | £1,462 | $3,895 | $1,774 |

Source: Company Filings and Morningstar Credit Ratings, LLC as of Jan. 4, 2018

*Adj TD includes total debt plus underfunded pension liabilities plus 8 times rents

| **IG Pharmaceutical Tickers** | **AZN** | **CELG** | **Bayer** | **ABBV** | **MKKGY** | **ZTS** | **SHPG** | **AGN** | **MYL** | **PRGO** | **TEVA** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Morningstar LLC Rating | A- | A- | A-/UR- | BBB+ | BBB+ | BBB+ | BBB- | BBB- | BBB- | BBB- | BBB-/UR- |
| Outlook | Negative | Stable | NA | Negative | Positive | Positive | Positive | Positive | Negative | Stable | NA |
| Information from Morningstar's Equity Research Group: | | | | | | | | | | | |
| Moat | Wide | Narrow | Narrow | Narrow | Narrow | Wide | Narrow | Wide | None | None | None |
| Moat Trend | Negative | Positive | Stable | Negative | Stable | Stable | Positive | Stable | Negative | Negative | Negative |
| Uncertainty | Medium | Medium | Medium | Medium | Medium | Medium | Medium | Medium | Very High | High | Extreme |
| TTM as of Date ($s in millions) | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 |
| Revenues | $22,273 | $12,496 | € 45,453 | $27,273 | € 15,309 | $5,124 | $14,822 | $15,082 | $11,937 | $4,994 | $23,418 |
| Adj'd EBITDA | $7,200 | $5,076 | € 10,957 | $11,671 | € 4,233 | $1,777 | $5,362 | $6,952 | $3,481 | $1,202 | $6,398 |
| Adj'd EBITDA % | 32% | 41% | 24% | 43% | 28% | 35% | 36% | 46% | 29% | 24% | 27% |
| Total Debt | $17,852 | $14,274 | € 16,117 | $37,795 | € 11,430 | $5,702 | $20,585 | $30,336 | $14,785 | $3,693 | $34,702 |
| Cash & Investments | $5,291 | $11,759 | € 5,555 | $11,525 | € 852 | $1,981 | $209 | $5,442 | $615 | $776 | $680 |
| Net Total Debt/(Cash) | $12,561 | $2,515 | € 10,562 | $26,270 | € 10,578 | $3,721 | $20,376 | $24,894 | $14,171 | $2,917 | $34,022 |
| Market Capitalization | $82,816 | $114,630 | $113,867 | $143,309 | $49,184 | $31,093 | $44,817 | $69,666 | $20,271 | $12,363 | $16,325 |
| Enterprise Value | $95,377 | $117,145 | $125,765 | $169,579 | $169,579 | $34,814 | $65,193 | $94,560 | $34,442 | $15,280 | $50,347 |
| Debt % of EV | 19% | 12% | 14% | 22% | 7% | 16% | 32% | 32% | 43% | 24% | 69% |
| TD/EBITDA | 2.5x | 2.8x | 1.5x | 3.2x | 2.7x | 3.2x | 3.8x | 4.4x | 4.2x | 3.1x | 5.4x |
| Net TD/EBITDA | 1.7x | 0.5x | 1.0x | 2.3x | 2.5x | 2.1x | 3.8x | 3.6x | 4.1x | 2.4x | 5.3x |
| Adj TD/EBITDAR* | 2.9x | 2.9x | 2.4x | 3.4x | 2.9x | 3.3x | 3.9x | 4.4x | 4.3x | 3.3x | 5.5x |
| Interest Expense | $729 | $507 | € 1,610 | $1,125 | € 281 | $166 | $576 | $1,125 | $556 | $197 | $943 |
| EBITDA/Interest | 9.9x | 10.0x | 6.8x | 10.4x | 15.0x | 10.7x | 9.3x | 6.2x | 6.3x | 6.1x | 6.8x |
| (EBITDA-CapX)/Int | 8.0x | 9.5x | 5.3x | 10.0x | 12.1x | 9.5x | 7.9x | 5.9x | 5.7x | 5.7x | 5.8x |
| OCF | $3,527 | $4,900 | € 7,767 | $8,917 | € 2,842 | $1,024 | $3,890 | $3,742 | $1,918 | $535 | $3,753 |
| CapX | ($1,383) | ($242) | (€ 2,418) | ($461) | (€ 829) | ($201) | ($811) | ($315) | ($308) | ($77) | ($921) |
| FCF | $2,144 | $4,658 | € 5,349 | $8,456 | € 2,013 | $823 | $3,079 | $3,427 | $1,611 | $458 | $2,832 |
| FCF/Debt | 12% | 33% | 33% | 22% | 18% | 14% | 15% | 11% | 11% | 12% | 8% |
| Share Repurchases | $0 | ($1,059) | € 0 | ($912) | € 0 | ($450) | $0 | ($12,354) | $0 | ($192) | $0 |
| Dividends to Shareholders | ($3,519) | $0 | (€ 2,368) | ($4,010) | (€ 429) | ($202) | ($276) | ($987) | $0 | ($90) | ($1,382) |
| Net FCF | ($1,375) | $3,599 | € 2,981 | $3,534 | € 1,584 | $171 | $2,803 | ($9,914) | $1,611 | $177 | $1,450 |

Source: Company Filings and Morningstar Credit Ratings, LLC as of Jan. 4, 2018

*Adj TD includes total debt plus underfunded pension liabilities plus 8 times rents

| **HY Pharmaceutical Tickers** | **PF GRFS** | **MNK** | **ENDP** | **VRX** |
|---|---|---|---|---|
| Morningstar LLC Rating | BB+ | BB- | B | B- |
| Outlook | Stable | Stable | Negative | Negative |
| | | | | |
| Information from Morningstar's Equity Research Group: | | | | |
| Moat | Narrow | None | None | None |
| Moat Trend | Stable | Negative | Negative | Negative |
| Uncertainty | Medium | Extreme | Extreme | Extreme |
| | | | | |
| TTM as of Date ($s in millions) | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 |
| Revenues | € 4,348 | $3,259 | $3,942 | $8,964 |
| Adj'd EBITDA | € 1,310 | $1,350 | $1,621 | $3,808 |
| Adj'd EBITDA % | 30% | 41% | 41% | 42% |
| | | | | |
| Total Debt | € 6,216 | $5,836 | $8,281 | $27,426 |
| Cash & Investments | € 815 | $372 | $739 | $1,969 |
| Net Total Debt/(Cash) | € 5,401 | $5,464 | $7,541 | $25,457 |
| Market Capitalization | $17,441 | $3,631 | $1,969 | $5,012 |
| Enterprise Value | $22,842 | $9,095 | $9,510 | $30,469 |
| Debt % of EV | 27% | 64% | 87% | 90% |
| | | | | |
| TD/EBITDA | 4.7x | 4.3x | 5.1x | 7.2x |
| Net TD/EBITDA | 4.1x | 4.0x | 4.7x | 6.7x |
| Adj TD/EBITDAR* | 4.9x | 4.4x | 5.1x | 7.2x |
| | | | | |
| Interest Expense | € 314 | $370 | $473 | $1,854 |
| EBITDA/Interest | 4.2x | 3.6x | 3.4x | 2.1x |
| (EBITDA-CapX)/Int | 3.3x | 3.1x | 3.1x | 2.0x |
| | | | | |
| OCF | € 751 | $644 | $606 | $2,224 |
| CapX | (€ 287) | ($217) | ($145) | ($173) |
| FCF | € 464 | $428 | $460 | $2,051 |
| FCF/Debt | 7% | 7% | 6% | 7% |
| | | | | |
| Share Repurchases | € 0 | ($597) | $0 | $0 |
| Dividends | (€ 218) | $0 | $0 | $0 |
| Net FCF | € 246 | ($169) | $460 | $2,051 |

Source: Company Filings and Morningstar Credit Ratings, LLC as of Jan. 4, 2018

*Adj TD includes total debt plus underfunded pension liabilities plus 8 times rents

| **Medical Technology Tickers** | **MDT** | **SYK** | **BAX** | **A** | **EW** | **LH** | **DGX** | **ABT** | **BSX** | **TMO** | **ZBH** | **BDX/BCR** | **HOLX** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Morningstar LLC Rating | A+ | A+ | A | A- | A- | BBB+ | BBB+ | BBB+ | BBB | BBB | BBB | BBB | BB+ |
| Outlook | Stable | Stable | Stable | Stable | Negative | Negative | Stable | Stable | Positive | Stable | Stable | Stable | Stable |
| Information from Morningstar's Equity Research Group: | | | | | | | | | | | | | |
| Economic Moat | Wide | Wide | Narrow | Narrow | Narrow | Narrow | Narrow | Narrow | Narrow | Narrow | Wide | Narrow | Narrow |
| Moat Trend | Stable | Stable | Stable | Stable | Stable | Positive | Stable | Stable | Stable | Positive | Stable | Stable | Stable |
| Uncertainty | Medium | Medium | Medium | Medium | High | High | Medium | Medium | High | Medium | Medium | Medium | Medium |
| Pro Forma Credit Metrics ($s in millions) | | | | | | | | | | | | | |
| TTM as of Date ($s in millions) | 10/27/2017 | 9/30/2017 | 9/30/2017 | 10/31/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 | 10/1/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 |
| Revenues | $27,839 | $12,130 | $10,432 | $4,472 | $3,315 | $10,624 | $7,634 | $28,954 | $9,230 | $20,765 | $7,763 | $15,968 | $3,107 |
| Adj'd EBITDA | $8,471 | $3,128 | $2,285 | $1,053 | $1,069 | $2,079 | $1,471 | $6,331 | $2,322 | $5,199 | $2,900 | $4,542 | $1,145 |
| Adj'd EBITDA % | 30% | 26% | 22% | 24% | 32% | 20% | 19% | 22% | 25% | 25% | 37% | 28% | 37% |
| Total Debt | $28,622 | $7,225 | $3,498 | $2,011 | $1,034 | $7,218 | $3,764 | $26,932 | $5,682 | $21,993 | $10,425 | $20,870 | $3,323 |
| Cash and Investments | $13,526 | $2,689 | $3,517 | $2,678 | $1,970 | $409 | $350 | $6,446 | $210 | $741 | $481 | $501 | $541 |
| Net Total Debt/(Cash) | $15,096 | $4,536 | ($19) | ($667) | ($936) | $6,809 | $3,414 | $20,487 | $5,472 | $21,252 | $9,944 | $20,370 | $2,782 |
| Market Capitalization | $113,860 | $59,410 | $37,270 | $22,220 | $24,420 | $16,540 | $13,500 | $102,380 | $34,770 | $79,790 | $25,260 | $50,700 | $12,070 |
| Enterprise Value | $128,956 | $63,946 | $37,251 | $21,553 | $23,484 | $23,349 | $16,914 | $122,867 | $40,242 | $101,042 | $19,350 | $71,070 | $14,852 |
| Debt % of EV | 22% | 11% | 9% | 9% | 4% | 31% | 22% | 22% | 14% | 22% | 32% | 29% | 22% |
| TD/EBITDA | 3.4x | 2.3x | 1.5x | 1.9x | 1.0x | 3.5x | 2.6x | 4.3x | 2.4x | 4.2x | 3.6x | 4.6x | 2.9x |
| Net TD/EBITDA | 1.8x | 1.5x | 0.0x | -0.6x | -0.9x | 3.3x | 2.3x | 3.2x | 2.4x | 4.1x | 3.4x | 4.5x | 2.4x |
| Adj TD/EBITDAR* | 3.6x | 2.6x | 2.4x | 2.3x | 1.0x | 3.9x | 3.1x | 4.4x | 2.6x | 4.4x | 3.7x | 4.8x | 3.0x |
| Interest Expense | $982 | $228 | $83 | $79 | $25 | $240 | $150 | $984 | $230 | $627 | $338 | $674 | $153 |
| EBITDA/Interest | 8.6x | 13.7x | 27.5x | 13.3x | 43.4x | 8.7x | 9.8x | 6.4x | 10.1x | 8.3x | 8.6x | 6.7x | 7.5x |
| (EBITDA-CapX)/Int | 7.5x | 11.3x | 20.2x | 11.1x | 36.1x | 7.5x | 7.8x | 5.2x | 8.3x | 7.5x | 7.1x | 5.5x | 6.8x |
| OCF | $4,902 | $1,528 | $2,036 | $889 | $838 | $1,344 | $1,156 | $5,453 | $1,020 | $3,365 | $1,807 | $3,279 | $8 |
| CapX | ($1,074) | ($555) | ($610) | ($176) | ($179) | ($292) | ($298) | ($1,244) | ($407) | ($526) | ($514) | ($833) | ($108) |
| FCF | $3,828 | $973 | $1,426 | $713 | $659 | $1,052 | $858 | $4,209 | $613 | $2,840 | $1,292 | $2,446 | ($99) |
| FCF/Debt | 13% | 13% | 41% | 35% | 64% | 15% | 23% | 16% | 11% | 13% | 12% | 12% | -3% |
| Share Repurchases | ($2,638) | ($230) | ($522) | ($194) | ($793) | ($342) | ($500) | ($106) | $0 | ($1,000) | $0 | ($627) | ($200) |
| Dividends | ($2,431) | ($619) | ($300) | ($170) | $0 | $0 | ($241) | ($1,771) | $0 | ($236) | ($193) | ($754) | $0 |
| Net FCF | ($1,241) | $124 | $604 | $349 | ($135) | $710 | $117 | $2,332 | $613 | $1,604 | $1,099 | $1,064 | ($299) |

Source: Company Filings and Morningstar Credit Ratings, LLC as of Jan 5, 2017

*Adj TD includes total debt plus underfunded pension liabilities plus 8 times rents

| **Supply Chain Tickers** | **ABC** | **MCK** | **CAH** | **ESRX** | **CVS** | **CVS/AET** | **WBA** | **OMI** |
|---|---|---|---|---|---|---|---|---|
| Morningstar LLC Rating | A | A- | A- | A- | BBB+/UR- | BBB+/UR- | BBB | BB |
| Outlook | Stable | Stable | Stable | Negative | | | Stable | Stable |
| Information from Morningstar's Equity Research Group: | | | | | | | | |
| Economic Moat | Wide | Wide | Wide | Wide | Wide | Wide | None | None |
| Moat Trend | Stable | Stable | Stable | Stable | Stable | Stable | Stable | Stable |
| Uncertainty | Medium | Medium | Medium | Medium | Medium | Medium | Medium | Medium |
| Pro Forma Credit Metrics ($s in millions) | | | | | | | | |
| TTM as of Date ($s in millions) | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 | 11/30/2017 | 9/30/2017 |
| Revenues | $159,270 | $201,955 | $132,878 | $99,549 | $182,351 | $221,360 | $133,625 | $10,407 |
| Adj'd EBITDA | $2,388 | $4,695 | $3,718 | $7,622 | $12,040 | $18,214 | $8,410 | $336 |
| Adj'd EBITDA % | 1% | 2% | 3% | 8% | 7% | 8% | 6% | 3% |
| Total Debt | $4,292 | $8,321 | $10,003 | $16,308 | $25,789 | $80,748 | $15,005 | $1,567 |
| Cash | $2,435 | $2,563 | $2,381 | $1,196 | $2,560 | $460 | $1,593 | $38 |
| Net Total Debt/(Cash) | $1,857 | $5,758 | $7,622 | $15,112 | $23,229 | $80,288 | $13,412 | $1,529 |
| Market Capitalization | $20,540 | $32,330 | $20,030 | $43,090 | $76,110 | $97,421 | $70,930 | $1,180 |
| Enterprise Value | $22,397 | $38,088 | $27,652 | $58,202 | $99,339 | $177,709 | $84,342 | $2,709 |
| Debt % of EV | 19% | 22% | 36% | 28% | 26% | 45% | 18% | 58% |
| TD/EBITDA | 1.8x | 1.8x | 2.7x | 2.1x | 2.1x | 4.4x | 1.8x | 4.7x |
| Net TD/EBITDA | 0.8x | 1.2x | 2.1x | 2.0x | 1.9x | 4.4x | 1.6x | 4.6x |
| Adj TD/EBITDAR* | 2.0x | 2.5x | 2.8x | 2.2x | 3.2x | 4.9x | 3.7x | 5.4x |
| Interest Expense | $175 | $288 | $324 | $623 | $1,006 | $3,158 | $756 | $64 |
| EBITDA/Interest | 13.6x | 16.3x | 11.5x | 12.2x | 12.0x | 5.8x | 11.1x | 5.2x |
| (EBITDA-CapX)/Int | 11.0x | 14.3x | 10.4x | 11.8x | 10.0x | 5.0x | 9.1x | 4.5x |
| EBITDAR/(Interest+Rent) | 10.3x | 7.8x | 9.0x | 11.1x | 4.3x | 3.6x | 2.8x | 3.1x |
| OCF | $1,504 | $3,155 | $2,261 | $6,230 | $10,264 | $11,586 | $7,777 | $49 |
| CapX | ($466) | ($577) | ($354) | ($270) | ($2,029) | ($2,403) | ($1,521) | ($47) |
| FCF | $1,038 | $2,578 | $1,907 | $5,960 | $8,235 | $9,183 | $6,256 | $1 |
| FCF/Debt | 24% | 31% | 19% | 37% | 32% | 11% | 42% | 0% |
| Share Repurchases | ($330) | ($2,954) | ($500) | ($3,590) | ($4,822) | ($4,822) | ($7,288) | ($27) |
| Dividends | ($320) | ($245) | ($578) | $0 | ($1,995) | ($2,554) | ($1,730) | ($63) |
| Net FCF | $388 | ($621) | $829 | $2,370 | $1,418 | $1,807 | ($2,762) | ($89) |

Source: Company Filings and Morningstar Credit Ratings, LLC as of Jan 5, 2017

*Adj TD includes total debt plus underfunded pension liabilities plus 8 times rents

| **Healthcare Services Tickers** | **FMS** | **DVA** | **HCA** | **THC** |
|---|---|---|---|---|
| Morningstar LLC Rating | BBB- | BB+ | BB | B- |
| Outlook | Stable | Negative | Stable | Stable |
| Information from Morningstar's Equity Research Group: | | | | |
| Economic Moat | Narrow | Narrow | None | None |
| Moat Trend | Stable | Stable | Stable | Stable |
| Uncertainty | Medium | Medium | Very High | Very High |
| Pro Forma Credit Metrics ($s in millions) | | | | |
| TTM as of Date ($s in millions) | 9/30/2017 | 9/30/2017 | 9/30/2017 | 9/30/2017 |
| Revenues | EUR 17,657 | $15,213 | $42,693 | $19,061 |
| Adj'd EBITDA | EUR 3,304 | $2,422 | $8,077 | $2,217 |
| Adj'd EBITDA % | 19% | 16% | 19% | 12% |
| EBITDAR | EUR 4,196 | $2,854 | $8,365 | $2,432 |
| EBITDAR % | 24% | 19% | 20% | 13% |
| Total Debt | EUR 9,386 | $9,099 | $32,953 | $14,881 |
| Cash | EUR 729 | $983 | $718 | $429 |
| Net Total Debt/(Cash) | EUR 8,657 | $8,115 | $32,235 | $14,452 |
| Market Capitalization | $32,910 | $13,720 | $30,430 | $1,550 |
| Enterprise Value | EUR 35,976 | $21,835 | $62,665 | $16,002 |
| Debt % of EV | 26% | 42% | 53% | 93% |
| TD/EBITDA | 2.8x | 3.8x | 4.1x | 6.7x |
| Net TD/EBITDA | 2.6x | 3.4x | 4.0x | 6.5x |
| Adj TD/EBITDAR* | 3.8x | 4.4x | 4.2x | 7.1x |
| Interest Expense | EUR 406 | $391 | $1,689 | $1,034 |
| EBITDA/Interest | 8.1x | 6.2x | 4.8x | 2.1x |
| (EBITDA-CapX)/Int | 5.9x | 3.9x | 3.1x | 1.4x |
| EBITDAR/(Interest+Rent) | 3.8x | 3.5x | 4.2x | 1.9x |
| OCF | EUR 2,438 | $2,047 | $5,391 | $416 |
| CapX | (EUR 891) | ($894) | ($2,909) | ($753) |
| FCF | EUR 1,547 | $1,153 | $2,482 | ($337) |
| FCF/Debt | 16% | 13% | 8% | -2% |
| Share Repurchases | EUR 0 | ($798) | ($2,013) | $0 |
| Dividends | (EUR 294) | $0 | $0 | $0 |
| Distributions to non-controlling interests | (EUR 395) | ($213) | ($455) | ($245) |
| Net FCF | EUR 857 | $142 | $14 | ($582) |

Source: Company Filings and Morningstar Credit Ratings, LLC as of Jan 5, 2017

*Adj TD includes total debt plus underfunded pension liabilities plus 8 times rents

**Morningstar® Credit Research**

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