

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
78.74 USD	111.00 USD	0.71	198.04 USD Bil	🏰 Wide	🏠 Large Value	Medium	Standard	🌐🌐🌐🌐🌐
23 Apr 2025	4 Feb 2025 19:32 UTC		24 Apr 2025					2 Apr 2025 05:00 UTC

Fair Value: 111.00
4 Feb 2025 19:32, UTC

Last Close: 78.74

Overvalued
Undervalued

Year	Price/Fair Value	Total Return %
2020	0.82	-7.33
2021	0.82	-0.68
2022	1.14	48.42
2023	1.06	0.93
2024	0.83	-5.89
YTD	0.71	-20.03

Morningstar Rating

★★★★★
★★★★
★★★
★★
★

Merck & Co Inc MRK ★★★★★ 23 Apr 2025 21:26, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
78.74 USD 23 Apr 2025	111.00 USD 4 Feb 2025 19:32, UTC	0.71	198.04 USD Bil 24 Apr 2025	Wide	Large Value	Medium	Standard	2 Apr 2025 05:00, UTC

Sector	Industry	
Healthcare	Drug Manufacturers - General	investors, including an oral cholesterol-lowering program (2025 data) and several antibody-drug conjugates in oncology (2027).

Business Description

Merck makes pharmaceutical products to treat several conditions in a number of therapeutic areas, including cardiometabolic disease, cancer, and infections. Within cancer, the firm's immuno-oncology platform is growing as a major contributor to overall sales. The company also has a substantial vaccine business, with treatments to prevent pediatric diseases as well as human papillomavirus, or HPV. Additionally, Merck sells animal health-related drugs. From a geographical perspective, just under half of the company's sales are generated in the United States.

Business Strategy & Outlook Karen Andersen, CFA, Director, 27 Sep 2024

Merck's combination of a wide lineup of high-margin drugs and a pipeline of new drugs should ensure strong returns on invested capital over the long term. Further, following the divestment of the Organon business in June 2021, the remaining portfolio at Merck holds a higher percentage of drugs with strong patent protection. On the pipeline front, after several years of only moderate research and development productivity, Merck's drug development strategy is yielding important new drugs.

Merck's new products have mitigated the generic competition, offsetting the recent major patent losses. In particular, Keytruda for cancer represents a key blockbuster with multi-billion-dollar potential: It holds a first-mover advantage in one of the largest cancer indications of non-small cell lung cancer with excellent clinical data. Also, we expect new cancer drug combinations will further propel Merck's overall drug sales. However, we expect intense competition in the cancer market with several competitive drugs likely to report important clinical data over the next couple years in earlier stage cancer settings. Other headwinds include generic competition, notably to diabetes drug Januvia, but potentially not until 2026 in the US.

After several years of mixed results, Merck's R&D productivity is improving as the company shifts more toward areas of unmet medical need. Owing to side effects or lack of compelling efficacy, Merck experienced major setbacks several years ago with cardiovascular disease drugs anacetrapib, Tredaptive, Rolofylline, and TRA along with telcagepant for migraines. Safety questions ended the development of osteoporosis drug odanacatib. Despite these setbacks, Merck has some solid successes, including a successful launch for its PD-1 drug Keytruda in oncology. Following on this success, Merck is shifting its focus toward areas of unmet medical need in specialty-care areas, and Keytruda is leading this new direction. We expect Keytruda's leadership in non-small cell lung cancer and several other cancers will be a key driver of growth for the firm over the next several years, but the 2028 US patent loss on the drug will create eventual pressure.

Bulls Say Karen Andersen, CFA, Director, 4 Feb 2025

- Keytruda looks best positioned in the immuno-oncology landscape, buoyed by a first-mover advantage in the important indication of first-line non-small cell lung cancer.
- The growth in Merck's high margin cancer drugs should help expand the company's overall operating margin.
- Merck supports a strong dividend yield that looks secure based on a wide diversified portfolio of drugs.

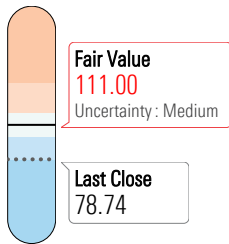
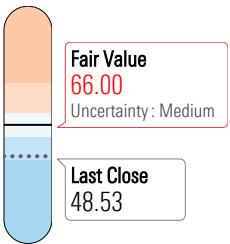
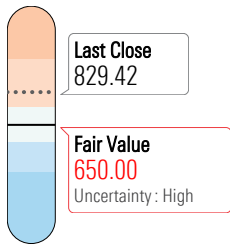
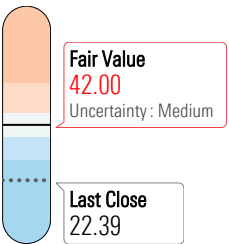
Bears Say Karen Andersen, CFA, Director, 4 Feb 2025

- Outside of immuno oncology, Merck needs to increase the number of late-stage pipeline drugs.

Merck & Co Inc MRK ★★★★★ 23 Apr 2025 21:26, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
78.74 USD 23 Apr 2025	111.00 USD 4 Feb 2025 19:32, UTC	0.71	198.04 USD Bil 24 Apr 2025	Wide	Large Value	Medium	Standard	2 Apr 2025 05:00, UTC

Competitors

	Merck & Co Inc MRK	Bristol-Myers Squibb Co BMY	Eli Lilly and Co LLY	Pfizer Inc PFE
				
Economic Moat	Wide	Wide	Wide	Wide
Currency	USD	USD	USD	USD
Fair Value	111.00 4 Feb 2025 19:32, UTC	66.00 11 Nov 2024 23:29, UTC	650.00 7 Apr 2025 20:58, UTC	42.00 13 Dec 2023 17:41, UTC
1-Star Price	149.85	89.10	1,007.50	56.70
5-Star Price	77.70	46.20	390.00	29.40
Assessment	Undervalued 23 Apr 2025	Undervalued 23 Apr 2025	Overvalued 23 Apr 2025	Undervalued 23 Apr 2025
Morningstar Rating	★★★★★ 23 Apr 2025 21:26, UTC	★★★★★ 23 Apr 2025 21:30, UTC	★★★ 23 Apr 2025 21:32, UTC	★★★★★ 23 Apr 2025 21:26, UTC
Analyst	Karen Andersen, Director	Karen Andersen, Director	Karen Andersen, Director	Karen Andersen, Director
Capital Allocation	Standard	Exemplary	Exemplary	Standard
Price/Fair Value	0.71	0.74	1.28	0.53
Price/Sales	3.12	2.04	16.65	2.01
Price/Book	4.30	6.03	52.45	1.44
Price/Earning	10.29	42.20	53.23	7.20
Dividend Yield	4.01%	5.03%	0.65%	7.55%
Market Cap	198.14 Bil	98.75 Bil	744.81 Bil	126.98 Bil
52-Week Range	75.93—134.63	39.35—63.33	677.09—972.53	20.92—31.54
Investment Style	Large Value	Large Value	Large Growth	Large Value

- The eventual US patent loss on Keytruda in 2028 is concerning given the high sales contribution of the drug.
- Advancements in oncology can happen quickly, which could cause disruption to Merck's leading growth driver, Keytruda.

Economic Moat Karen Andersen, CFA, Director, 6 Sep 2024

Patents, economies of scale, and a powerful intellectual base buoy Merck's business and keep it well shielded from the competition. As the bedrock of Merck's wide moat, patent protection should continue to keep competitors at bay while the company strives to introduce the next generation of drugs. Further, the company's enormous cash flows support a powerful salesforce that not only sells currently marketed drugs, but also serves as a deterrent for developing drug companies seeking to launch competing products. As a result, Merck offers a powerful partnership opportunity for externally developed drugs.

Merck & Co Inc MRK ★★★★★ 23 Apr 2025 21:26, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
78.74 USD 23 Apr 2025	111.00 USD 4 Feb 2025 19:32, UTC	0.71	198.04 USD Bil 24 Apr 2025	Wide	Large Value	Medium	Standard	 2 Apr 2025 05:00, UTC

The cash flows also put the company in the rare position of supporting the approximately \$800 million in R&D needed on average to bring each new drug to the market. While not as powerful as in the 1990s, Merck's research laboratories still hold a vast database of knowledge that should help the company to maintain its leadership positions in drug discovery and development. Also, the company's entrenchment in the emerging immuno-oncology area should strengthen Merck's competitive position with drugs that carry very strong pricing power in areas of unmet medical need. Merck's strong entrenchment in vaccines adds a layer of competitive protection from intellectual property and cost advantages, as the company's large-scale production enables a lower cost base, which can be more important in the vaccine market.

We think the company does face environmental, social, and governance risks, particularly related to potential US drug price-related policy reform (close to half of total sales are generated by prescription drugs sales in the US) to increase access by lowering drug prices. Ongoing product governance issues (including litigation related to side effects and patents) also weigh on the firm. While we have factored these threats into our analysis, we don't see them as a material threat to its moat rating.

Fair Value and Profit Drivers Karen Andersen, CFA, Director, 4 Feb 2025

We are lowering our fair value estimate to \$111 per share from \$120, as we expect sales of Gardasil to decline significantly in 2025 due to reduced sales in China. We see uncertainty surrounding the timing of economic recovery in China as well as US vaccine policy, and we now assume 2030 sales for Gardasil around \$7 billion globally.

Beyond Gardasil, Merck's late-stage pipeline looks increasing well positioned to mitigate the eventual patent loss on Keytruda starting in 2028. Overall, following the divestment of Organon in 2021, we continue to expect steady long-term growth for the entire firm, partly driven by the solid outlook for cancer drug Keytruda. We expect Keytruda to gain the lion's share of the market for late-stage non-small cell lung cancer drugs, as well as a solid position in the adjuvant NSCLC market. Keytruda is key to Merck's valuation and we expect it will be a leader in the immuno-oncology market. We expect the drug to reach peak sales of over \$40 billion largely based on strong efficacy in several cancer types including lung, head and neck, melanoma, and several other cancer indications. In looking at the entire company, we expect that Merck will post close to 7% annual top-line growth between 2025-2028, with new drugs offsetting drugs lost to generic competition. Potential game changers to the growth rate include the company's pipeline immuno-oncology drugs that can move quickly through clinical development. On the headwind side, Merck faces generic competition to Januvia (diabetes) in 2026 in the US. Longer term, the 2028 patent loss on Keytruda will likely weigh on the long-term outlook for the firm. However, we believe pipeline drugs and growth from existing drugs will help mitigate the generic headwinds. Overall, we expect improving margins over the near term as overall sales are represented by more specialty-oriented drugs that carry strong pricing power and need less marketing support.

Merck & Co Inc MRK ★★★★★ 23 Apr 2025 21:26, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
78.74 USD 23 Apr 2025	111.00 USD 4 Feb 2025 19:32, UTC	0.71	198.04 USD Bil 24 Apr 2025	Wide	Large Value	Medium	Standard	 2 Apr 2025 05:00, UTC

Risk and Uncertainty Karen Andersen, CFA, Director, 6 Sep 2024

Merck's near-term risk largely centers on market acceptance of new drugs. Like all pharmaceutical companies, Merck faces regulatory risk from the FDA. Product delays or nonapprovals could hurt the stock. Also, the growing power of managed care and a more price-sensitive US government may reduce Merck's pricing power. Lastly, the growing success of Keytruda has increased the firm's dependence on the drug for growth, which could become problematic if any side effects show up or new therapies emerge quickly in treating cancer. However, overall, we view Merck's Morningstar Uncertainty Rating as Medium, given the wide diversity of largely inelastic drugs in the company's portfolio.

Our Uncertainty Rating for the company is not materially affected by environmental, social, and governance, or ESG, risks, although we see access to basic services (tied to drug pricing) as the biggest ESG risk that the firm needs to manage. Merck generates close to half of total sales from US prescription drug sales (largely in line relative to peers) so additional major pricing reforms could weigh on sales and margins.

Additionally, we assume a more than 50% probability of Merck seeing future costs related to product governance ESG risks (such as off-label marketing or litigation related to side effects), and model base case annual legal costs at 2% of non-GAAP net income (at the midrange relative to peers based on Merck's product portfolio having average exposure to future potential litigation).

Capital Allocation Karen Andersen, CFA, Director, 6 Sep 2024

Overall, we rate Merck's Morningstar Capital Allocation Rating as Standard. The rating reflects our belief that Merck possesses a sound balance sheet, a steady track record of investments, and largely fair shareholder distributions.

We believe Merck holds a sound balance sheet with low levels of risk regarding: 1) the size of the debt carried; 2) the business cyclicity facing the firm; and 3) the debt maturity outlook. While an argument could be made to increase the leverage of the balance sheet to be more active in investing, we believe the company along with the majority of firms in the large cap biopharma industry should hold ample balance sheet strength to support opportunistic acquisitions as dynamic scientific data emerges that might require relatively investment quick action. Also, a strong balance sheet helps biopharma companies through most product litigation challenges with minimal concern by the market.

Turning to investments, we believe Merck is operating at a reasonable level. The firm tends to spend on R&D at close to the high-teens level as a percentage of sales (in line with the industry average). The firm has shown high productivity with strong execution with the lead drug Keytruda, but less strong developments elsewhere. Nevertheless, the overall sound productivity in creating the next generation of drugs has yielded enough new drugs to help mitigate patent losses. The strong productivity with Keytruda is exceptional and helps offset less R&D gains with the remaining portfolio. We do expect

Merck & Co Inc MRK ★★★★★ 23 Apr 2025 21:26, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
78.74 USD 23 Apr 2025	111.00 USD 4 Feb 2025 19:32, UTC	0.71	198.04 USD Bil 24 Apr 2025	Wide	Large Value	Medium	Standard	 2 Apr 2025 05:00, UTC

more major gains in the early stage pipeline over the next several years.

On the acquisition and partnership side, Merck has executed reasonably well. While Merck hasn't made many major acquisitions over the recent past, the Acceleron deal in 2021 and the partnerships with AstraZeneca (Lynparza) and Eisai (Lenvima) look like good uses of capital. The Lynparza deal in particular looks like a solid move to gain access into the strongly developing PARP class at a good price point. While further back, the acquisition of Schering Plough for \$41 billion seems like a very strong use of capital as the deal brought in an early-stage Keytruda, but management has acknowledged that Keytruda was not the driver of the acquisition.

Regarding distributions, we view Merck's dividends and share repurchases as about right. Merck has generally targeted close to a 50% payout in dividends as a percentage of normalized earnings, which seems about right for a more mature industry. Further, Merck has shown a willingness to buy back shares at generally favorable time periods.

Turning to management specifically, in early 2021, Merck announced the appointment of Rob Davis as CEO, taking over the position from Ken Frazier. With Frazier at retirement age, we view the new leader as a continuation of Merck's past strategy and not a red flag or shift in the leadership approach, as Davis was part of a succession strategy guided by Frazier. Davis brings a strong background to the CEO role as he joined Merck as the CFO in 2014 following several leadership roles at Baxter and Eli Lilly.

Analyst Notes Archive

Biopharma Industry: We Anticipate Tariffs to Bring Short-Term Margin Pressure; No Valuation Changes Karen Andersen, CFA, Director, 9 Apr 2025

President Trump has announced that "major" pharmaceutical product tariffs are likely to be revealed soon, but at the same time, paused broader tariffs for most trade partners for 90 days to allow time for negotiations. Why it matters: The biopharma industry has largely been exempt from tariffs (except for 20% tariffs on imports to the US from China, implemented in March). The industry continues to brace for a potential pharma-specific announcement, which could have implications for global manufacturing strategies. The rumored 25% tariff could be applied to products manufactured in Europe and imported into the US. While there might be some flexibility to move toward a more domestic manufacturing strategy, avoiding tariffs completely would require new facilities that take several years to build. Both US and Europe-based firms have significant European manufacturing exposure due to tax advantages (US firms), home country manufacturing (Europe firms), and other reasons, including lower production costs and lower exposure to currency fluctuations. The bottom line: We are not changing our biopharma uncertainty ratings or fair value estimates, as we think the direct impact from tariffs on earnings is likely to be limited in scope. Moreover, the indirect impact from a potential recession should also be limited given the noncyclical nature of drug spending. We assume pharmaceutical tariffs are enacted but do

Merck & Co Inc ★★★★★ 23 Apr 2025 21:26, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
78.74 USD 23 Apr 2025	111.00 USD 4 Feb 2025 19:32, UTC	0.71	198.04 USD Bil 24 Apr 2025	 Wide	 Large Value	Medium	Standard	 2 Apr 2025 05:00, UTC

not last after 2026 due to political pressure from midterm elections. In this scenario, we think biopharma is unlikely to wholesale rethink its manufacturing footprint, apart from incremental US capacity additions. Using a non-GAAP industry average margin analysis of the short-run tariff impact, a 25% tariff would only amount to a 2-percentage-point operating margin headwind in the worst case, or a 6% headwind to operating profits, using an industry average 32% operating profit margin.

Biopharma Industry: Exempt From Global 10% Tariff, but We Still See Margin and Tax Rate Risks

Karen Andersen, CFA, Director, 3 Apr 2025

On April 2, President Donald Trump announced a 10% tariff on imports from all countries, effective on April 5. However, pharmaceuticals appear to be among the exemptions listed in the full executive order, as part of Annex II. Why it matters: The biopharma industry has been sheltered from tariffs for decades, including during the first Trump administration, but investors had been concerned about potential global tariffs, as the industry has significant manufacturing in European countries like Ireland, Germany, and Switzerland. With roughly \$200 billion in pharmaceutical imports in 2024, a 10% tariff could amount to a \$20 billion headwind across the industry, with the biggest firms seeing potential annual tariffs as high as \$1 billion. Previously implemented tariffs on pharmaceutical imports from China (raised from 10% in February to 20% in March) appear manageable for branded biopharma, due to limited manufacturing in China, and pharmaceuticals are generally exempt from Mexico and Canada tariffs (25%, March 2025). The bottom line: We think a future global pharmaceutical tariff is still a risk and could pressure gross margins and increase long-term tax rates. However, we expect firms to be able to adapt their manufacturing, and nearly all large-cap biopharma firms continue to hold wide economic moats. On margins, we could see near-term pressure from tariffs and long-term pressure from additional investment in US manufacturing facilities, which are not likely to receive approval for several years, even assuming US Food and Drug Administration inspections stay on track following staff reductions. With increased US manufacturing, we expect tax rates could begin to rise closer to the current 21% US corporate tax rate, a level we assume will be maintained as Trump aims to extend his tax cuts via the reconciliation process in the Republican-controlled Congress.

Healthcare Policy: RFK Jr. Confirmed to Lead HHS, but Biopharma Uncertainty Captured in Our Ratings

Karen Andersen, CFA, Director, 13 Feb 2025

On Feb. 13, the Senate voted 52-48 to confirm Robert F. Kennedy Jr. as secretary of Health and Human Services. This follows a 14-13 party-line vote on Feb. 4 in the Senate Finance Committee, where Republican Sen. Bill Cassidy cast the deciding yes vote despite concerns about Kennedy's vaccine views. Why it matters: Kennedy injects uncertainty into future healthcare policy as the Trump administration, with the help of Elon Musk's Department of Government Efficiency, is already taking steps that could make the biopharma industry less innovative and efficient. A Feb. 11 reduction-in-force executive order as well as healthcare-specific actions, like a proposed (but currently blocked) Feb. 7

Merck & Co Inc

MRK★★★★★

23 Apr 2025 21:26, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
78.74 USD	111.00 USD	0.71	198.04 USD Bil	Wide	Large Value	Medium	Standard	
23 Apr 2025	4 Feb 2025 19:32, UTC		24 Apr 2025					2 Apr 2025 05:00, UTC

proposal for National Institutes of Health funding cuts, could slow research and Food and Drug Administration reviews. The bottom line: We're not making any biopharma valuation changes, as we think our uncertainty ratings—which already skew toward high (only global diversified firms Johnson & Johnson and Roche hold low uncertainty ratings)—capture the range of realistic outcomes. We view the most bearish vaccine scenarios as less likely, as Kennedy has support for reducing chronic disease and removing food additives, and aggressive antivaccine steps could mean pressure from Senate Republicans like Cassidy and Thom Tillis. FDA funding is partly driven by fees from the biopharma industry, offering some insulation from dramatic workforce reductions. Long view: We think investors should view the chaotic policy environment in the context of bullish biopharma themes like solid innovation, productivity improvements, new technologies, and ample room for collaborations and acquisitions in a more friendly Federal Trade Commission environment. We see the probability of international price benchmarking—arguably the biggest potential biopharma headwind—as below 10%, as anything beyond the scale of Trump's 2018 proposed Medicare Part B system would likely require congressional approval.

Merck Earnings: Gardasil Weighs on 2025 Growth, but Firm Still Undervalued

Karen Andersen, CFA, Director, 4 Feb 2025

Fourth-quarter revenue grew 7% to \$15.6 billion (including Keytruda growth of 21% to \$7.8 billion), in line with overall 7% growth for the year. Shares fell more than 10% as Merck paused Gardasil shipments to China, and 2025 sales guidance of \$64.1 billion-\$65.6 billion implies flat to 2% growth. Why it matters: HPV vaccine Gardasil has been hit by economic weakness in China and the cash-pay nature of Gardasil China sales. This has led management to withdraw guidance for \$11 billion in Gardasil annual global sales by 2030. Gardasil was 13% of Merck's sales in 2024, and roughly half of Gardasil sales tie to China. This increases reliance on Merck's oncology drug Keytruda (46% of sales), which could face biosimilar competition and Medicare negotiation in 2028. The bottom line: We're lowering our fair value estimate for wide-moat Merck to \$111 per share from \$120, after factoring in a steep 34% Gardasil decline in 2025. We now assume Merck will see 1% sales growth in 2025 before returning to mid- to high-single-digit growth in 2026 and 2027. We have lowered our 2030 Gardasil sales forecast from \$10 billion to \$7 billion given limited visibility on a China recovery and continuing uncertainty surrounding US vaccine policy. We expect Keytruda sales to fall from a peak of \$41 billion in 2028 to below \$10 billion annually by 2032, which we think factors in sufficient pressure from patent expiration and competition. Big picture: We continue to see Merck shares as undervalued, with the market's fears about Keytruda's long-term sales trajectory overshadowing potential from newer products and a promising pipeline. We anticipate peak sales for pulmonary hypertension drug Winrevair around \$4 billion, and we're bullish on the mRNA-based Keytruda combination that could launch in melanoma in 2027. Merck still plans to continue bolstering its pipeline with business development, and we think the market would look favorably on deals in cardiovascular disease or oncology.

Merck & Co Inc MRK ★★★★★ 23 Apr 2025 21:26, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
78.74 USD 23 Apr 2025	111.00 USD 4 Feb 2025 19:32, UTC	0.71	198.04 USD Bil 24 Apr 2025	Wide	Large Value	Medium	Standard	 2 Apr 2025 05:00, UTC

More Trump Healthcare Nominations Largely Aligned With Kennedy Karen Andersen, CFA, Director, 2 Dec 2024

Following President-elect Donald Trump's Nov. 14 announcement of the nomination of Robert F. Kennedy Jr. as secretary of the US Department of Health and Human Services, there have been several more nominations for leadership in the 13 HHS divisions, including Dr. Mehmet Oz (Centers for Medicare and Medicaid Services) on Nov. 19, Dr. Marty Makary (US Food and Drug Administration) and Dr. Dave Weldon (Centers for Disease Control and Prevention) on Nov. 22, and Dr. Jay Bhattacharya (National Institutes of Health) on Nov. 26. Overall, we think these selections show a consistent theme of introducing potential disruptive forces to US healthcare, although their lack of experience and the power of career staffers in these agencies could serve to blunt any significant proposed changes. We continue to see obesity drugs and vaccines as areas of potential scrutiny, although without any clarity on proposals, we're not making any changes to our fair value estimates following these announcements. As discussed in our Nov. 18 note, we think biopharma industry tailwinds under the new Trump administration could include repealing the Medicare negotiation provision in the Inflation Reduction Act, less Federal Trade Commission scrutiny of acquisitions, as well as continued lower corporate taxes. However, Kennedy's skepticism of vaccine and obesity drug benefits could erode public trust and we think his team could slow the approval of new drugs and vaccines and de-emphasize CDC vaccine guidelines. Views on obesity drugs will likely be front and center in 2025, given the proposed rule from the Biden administration to expand obesity drug coverage in Medicare and Medicaid and the upcoming announcement of the 2027 list of negotiated drugs (which is likely to include Novo Nordisk's semaglutide). The Trump administration would need to finalize the rule and we expect Kennedy will be conflicted over whether to discourage reliance on weight loss drugs or reduce obesity drug costs significantly.

Trump's Nomination of RFK Jr. to Lead HHS a Potential Industry Headwind Karen Andersen, CFA, Director, 18 Nov 2024

President-elect Donald Trump announced on Nov. 14 that he is nominating Robert F. Kennedy Jr. to be secretary of the Department of Health and Human Services under his new administration in 2025. RFK Jr. has strong views on public health and, if confirmed, could use his position to make changes at several of the 13 HHS divisions. In our Nov. 8 note, we discussed the potential tailwinds of a Trump administration, including possible repeal of the Medicare negotiation provision in the Inflation Reduction Act, less Federal Trade Commission scrutiny of acquisitions, and a likely continuation of lower corporate taxes. However, if RFK's nomination is confirmed, we expect more "wild card" headwinds to the industry will come to fruition. As the HHS covers the US Food and Drug Administration and the Centers for Disease Control and Prevention, an HHS secretary skeptical of vaccine and obesity drug benefits could work to erode public trust, put up roadblocks for approval of new vaccines, and prevent

Merck & Co Inc

MRK★★★★

23 Apr 2025 21:26, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
78.74 USD	111.00 USD	0.71	198.04 USD Bil	Wide	Large Value	Medium	Standard	
23 Apr 2025	4 Feb 2025 19:32, UTC		24 Apr 2025					2 Apr 2025 05:00, UTC

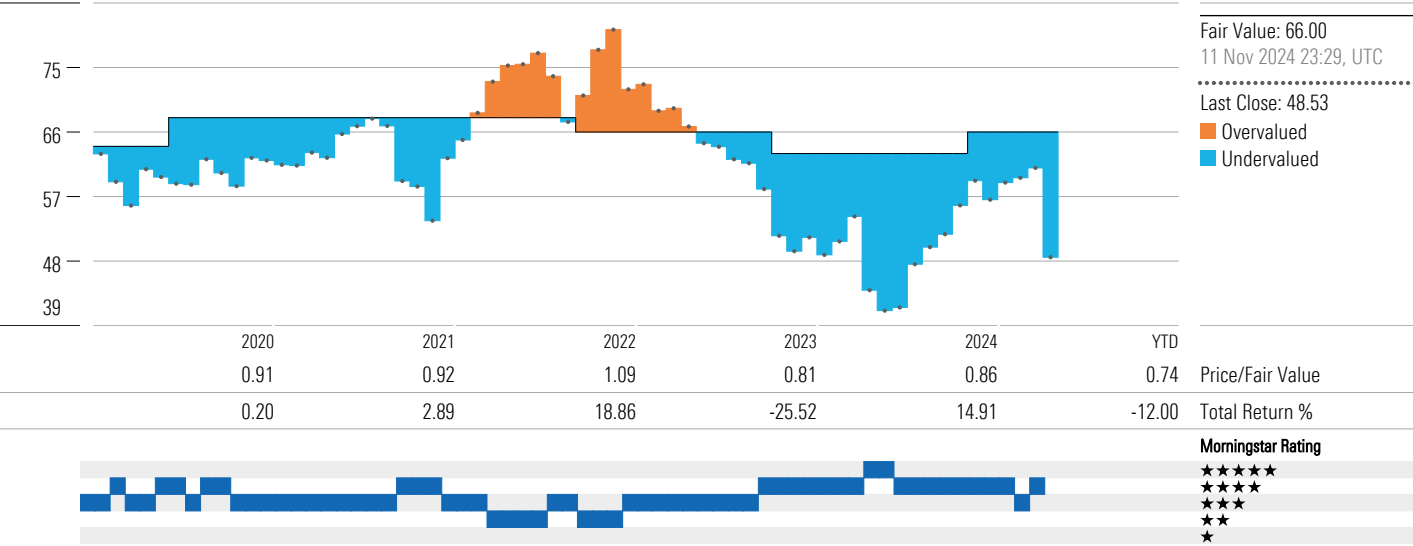
the CDC from recommending any vaccines that make it through the approval process. With less federal guidance, we think it is possible certain states could waver in support of broad mandates for childhood vaccines. All of these could weigh on sales of vaccines in the US, including covid vaccine makers Moderna and BioNTech and big biopharma vaccine makers like GSK (we model 14% of GSK revenue from US vaccine sales in 2024), Pfizer (12%), Merck (9%), and Sanofi (6%).If RFK Jr. is confirmed, we may lower our US vaccine sales estimates, although we don't think reductions would be long-lasting, and we don't yet see this as a significant hit to our valuations. Broad international price benchmarks could be a bear-case scenario under RFK Jr., which may increase our Morningstar Uncertainty Ratings. That said, any proposal would likely start with a smaller portion of the Medicare market and not extend to private markets, and we would be unlikely to include this in our fair value estimates. ■■■

Merck & Co IncMRK★★★★

23 Apr 2025 21:26, UTC

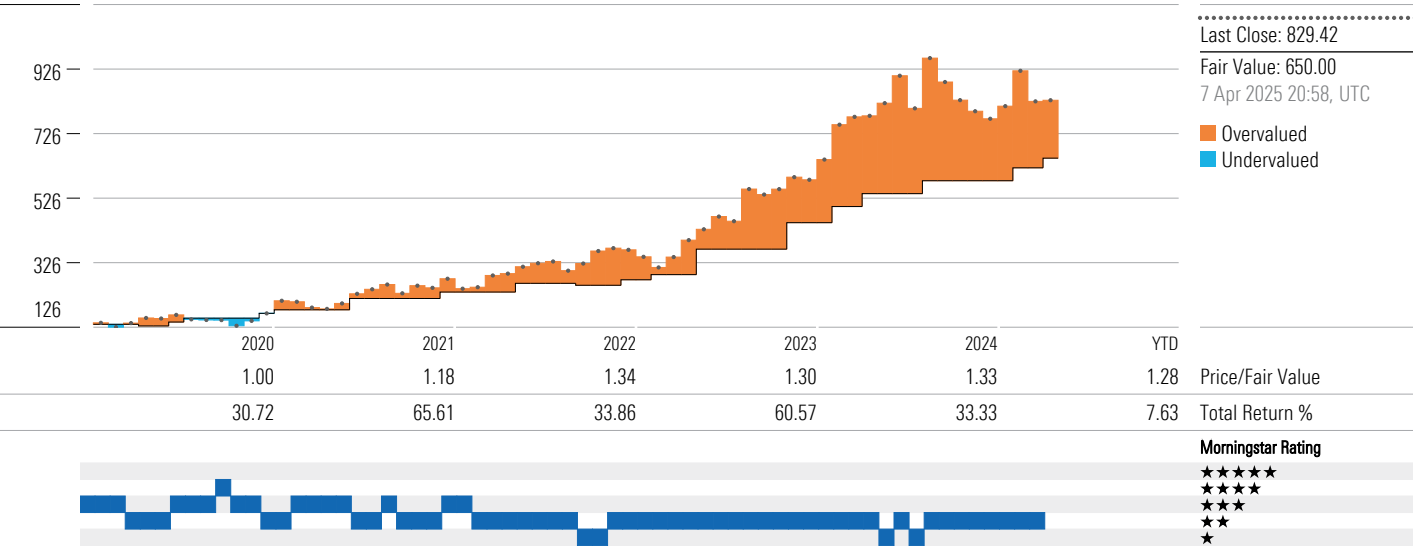
Competitors Price vs. Fair Value

Bristol-Myers Squibb CoBMY



Total Return % as of 23 Apr 2025. Last Close as of 23 Apr 2025. Fair Value as of 11 Nov 2024 23:29, UTC.

Eli Lilly and CoLLY



Total Return % as of 23 Apr 2025. Last Close as of 23 Apr 2025. Fair Value as of 7 Apr 2025 20:58, UTC.

Merck & Co Inc MRK ★★★★★

23 Apr 2025 21:26, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
78.74 USD 23 Apr 2025	111.00 USD 4 Feb 2025 19:32, UTC	0.71	198.04 USD Bil 24 Apr 2025	Wide	Large Value	Medium	Standard	 2 Apr 2025 05:00, UTC

Morningstar Valuation Model Summary

Financials as of 24 Apr 2025

Fiscal Year, ends 31 Dec	Actual			Forecast				
	2022	2023	2024	2025	2026	2027	2028	2029
Revenue (USD Mil)	59,283	60,115	64,168	65,289	69,363	75,225	81,069	78,907
Operating Income (USD Mil)	18,282	2,954	20,221	24,777	28,081	32,278	35,248	34,166
EBITDA (USD Mil)	21,158	6,542	25,291	30,466	33,894	38,147	40,668	39,191
Adjusted EBITDA (USD Mil)	21,158	6,542	25,291	30,466	33,894	38,147	40,668	39,191
Net Income (USD Mil)	14,519	365	17,117	16,898	22,702	26,115	28,555	27,706
Adjusted Net Income (USD Mil)	19,004	3,837	19,444	22,410	24,611	27,847	30,040	28,943
Free Cash Flow To The Firm (USD Mil)	18,183	792	19,679	18,237	23,750	26,593	29,425	28,684
Weighted Average Diluted Shares Outstanding (Mil)	2,542	2,547	2,541	2,510	2,460	2,411	2,362	2,315
Earnings Per Share (Diluted) (USD)	5.71	0.14	6.74	6.73	9.23	10.83	12.09	11.97
Adjusted Earnings Per Share (Diluted) (USD)	7.48	1.51	7.65	8.93	10.01	11.55	12.72	12.50
Dividends Per Share (USD)	2.80	2.96	3.12	3.24	3.43	3.64	3.86	4.09

Margins & Returns as of 24 Apr 2025

	3 Year Avg	Actual			Forecast					5 Year Avg
		2022	2023	2024	2025	2026	2027	2028	2029	
Operating Margin %	22.0	30.8	4.9	31.5	38.0	40.5	42.9	43.5	43.3	42.1
EBITDA Margin %	—	35.7	10.9	39.4	46.7	48.9	50.7	50.2	49.7	—
Adjusted EBITDA Margin %	—	35.7	10.9	39.4	46.7	48.9	50.7	50.2	49.7	49.2
Net Margin %	17.3	24.5	0.6	26.7	25.9	32.7	34.7	35.2	35.1	32.7
Adjusted Net Margin %	22.9	32.1	6.4	30.3	34.3	35.5	37.0	37.1	36.7	36.1
Free Cash Flow To The Firm Margin %	20.9	30.7	1.3	30.7	27.9	34.2	35.4	36.3	36.4	34.0

Growth & Ratios as of 24 Apr 2025

	3 Year CAGR	Actual			Forecast					2029 5 Year CAGR
		2022	2023	2024	2025	2026	2027	2028	2029	
Revenue Growth %	9.6	21.7	1.4	6.7	1.8	6.2	8.5	7.8	-2.7	4.2
Operating Income Growth %	15.3	38.5	-83.8	584.5	22.5	13.3	14.9	9.2	-3.1	11.1
EBITDA Growth %	78.7	18.5	-69.1	286.6	20.5	11.3	12.6	6.6	-3.6	9.5
Adjusted EBITDA Growth %	12.3	18.5	-69.1	286.6	20.5	11.3	12.6	6.6	-3.6	9.2
Earnings Per Share Growth %	9.4	11.1	-97.5	4600.7	-0.1	37.1	17.4	11.6	-1.0	12.2
Adjusted Earnings Per Share Growth %	9.4	24.2	-79.9	407.9	16.7	12.1	15.5	10.1	-1.7	12.2

Valuation as of 24 Apr 2025

	Actual			Forecast				
	2022	2023	2024	2025	2026	2027	2028	2029
Price/Earning	14.8	72.2	13.0	8.8	7.9	6.8	6.2	6.3
Price/Sales	4.7	4.6	3.9	3.0	2.9	2.6	2.4	2.5
Price/Book	6.1	7.4	5.5	3.8	3.3	2.7	2.2	1.9
Price/Cash Flow	—	—	—	—	—	—	—	—
EV/EBITDA	14.2	46.2	10.9	7.3	6.5	5.8	5.4	5.7
EV/EBIT	16.4	102.4	13.6	8.9	7.9	6.9	6.3	6.5
Dividend Yield %	2.5	2.7	3.1	4.1	4.4	4.6	4.9	5.2
Dividend Payout %	37.5	196.5	40.8	36.3	34.3	31.5	30.3	32.7
Free Cash Flow Yield %	—	—	—	—	—	—	—	—

Operating Performance / Profitability as of 24 Apr 2025

Fiscal Year, ends 31 Dec	Actual			Forecast				
	2022	2023	2024	2025	2026	2027	2028	2029
ROA %	13.3	0.3	14.6	—	17.7	19.0	19.1	17.5
ROE %	31.5	1.0	36.9	32.8	38.2	37.1	34.3	29.2
ROIC %	17.5	12.9	16.3	17.2	19.0	22.0	24.1	22.8

Merck & Co Inc MRK ★★★★★ 23 Apr 2025 21:26, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment ¹
78.74 USD 23 Apr 2025	111.00 USD 4 Feb 2025 19:32, UTC	0.71	198.04 USD Bil 24 Apr 2025	Wide	Large Value	Medium	Standard	 2 Apr 2025 05:00, UTC

Financial Leverage (Reporting Currency)

Fiscal Year, ends 31 Dec	Actual			Forecast				
	2022	2023	2024	2025	2026	2027	2028	2029
Debt/Capital %	9.8	11.3	12.9	10.6	9.9	9.1	8.4	7.7
Assets/Equity	2.4	2.8	2.5	2.4	2.2	1.9	1.8	1.7
Net Debt/EBITDA	0.8	4.3	0.9	0.6	0.3	-0.1	-0.4	-0.7
Total Debt/EBITDA	1.5	5.4	1.5	1.2	1.0	0.8	0.7	0.7
EBITDA/ Net Interest Expense	26.3	8.4	29.5	36.7	56.7	91.2	107.4	115.5

Forecast Revisions as of 24 Apr 2025

Prior data as of 28 Feb 2025	2025		2026		2027	
	Current	Prior	Current	Prior	Current	Prior
Fair Value Estimate Change (Trading Currency)	111.00	111.89	—	—	—	—
Revenue (USD Mil)	65,289	65,495	69,363	69,718	75,225	75,681
Operating Income (USD Mil)	24,777	25,444	28,081	28,236	32,278	32,486
EBITDA (USD Mil)	30,466	31,241	33,894	34,115	38,147	38,424
Net Income (USD Mil)	22,410	22,785	24,611	24,789	27,847	28,069
Earnings Per Share (Diluted) (USD)	6.73	6.46	9.23	9.23	10.83	10.84
Adjusted Earnings Per Share (Diluted) (USD)	8.93	9.01	10.01	10.00	11.55	11.55
Dividends Per Share (USD)	3.24	3.24	3.43	3.43	3.64	3.64

Key Valuation Drivers as of 24 Apr 2025

Cost of Equity %	7.5
Pre-Tax Cost of Debt %	5.8
Weighted Average Cost of Capital %	7.2
Long-Run Tax Rate %	17.0
Stage II EBI Growth Rate %	3.5
Stage II Investment Rate %	25.0
Perpetuity Year	20

Additional estimates and scenarios available for download at <https://pitchbook.com/>.

Discounted Cash Flow Valuation as of 24 Apr 2025

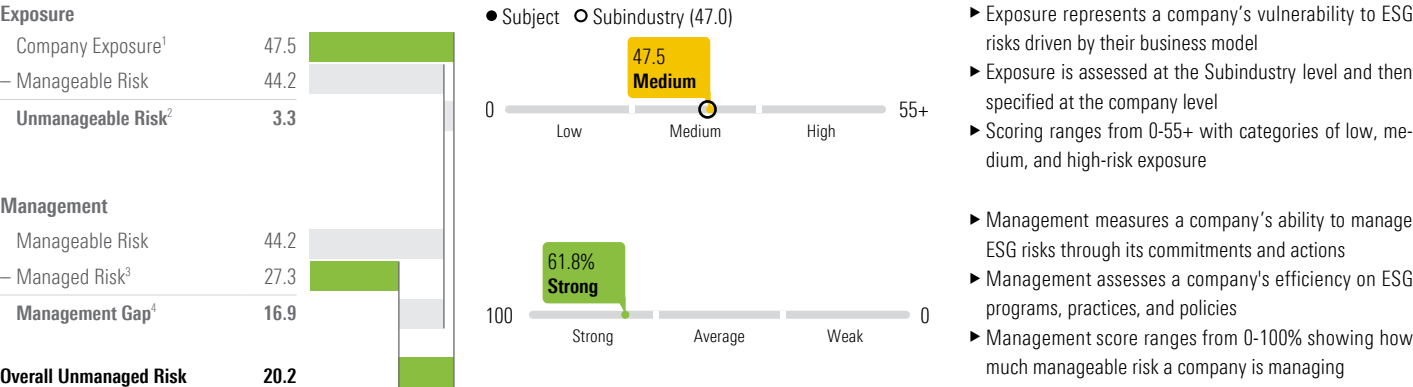
	USD Mil
Present Value Stage I	154,036
Present Value Stage II	58,082
Present Value Stage III	94,024
Total Firm Value	306,142
Cash and Equivalents	13,689
Debt	37,111
Other Adjustments	1,253
Equity Value	282,287
Projected Diluted Shares	2,510
Fair Value per Share (USD)	111.00

Merck & Co IncMRK★★★★★

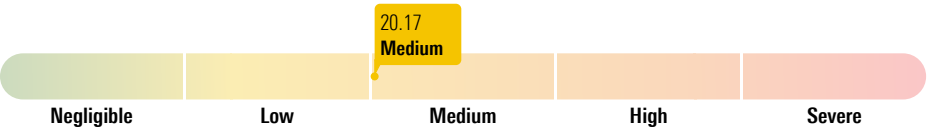
23 Apr 2025 21:26, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
78.74 USD	111.00 USD	0.71	198.04 USD Bil	Wide	Large Value	Medium	Standard	
23 Apr 2025	4 Feb 2025 19:32, UTC		24 Apr 2025					2 Apr 2025 05:00, UTC

ESG Risk Rating Breakdown



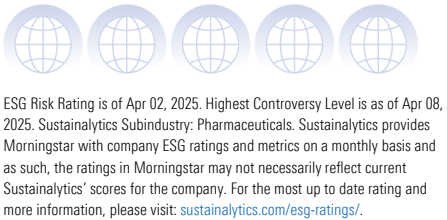
ESG Risk Rating



ESG Risk Ratings measure the degree to which a company’s value is impacted by environmental, social, and governance risks, by evaluating the company’s ability to manage the ESG risks it faces.

1. A company’s Exposure to material ESG issues 2. Unmanageable Risk refers to risks that are inherent to a particular business model that cannot be managed by programs or initiatives 3. Managed Risk = Manageable Risk multiplied by a Management score of 61.8% 4. Management Gap assesses risks that are not managed, but are considered manageable 5. ESG Risk Rating Assessment = Overall Unmanaged Risk = Management Gap plus Unmanageable Risk

ESG Risk Rating Assessment⁵



Peer Analysis 02 Apr 2025	Peers are selected from the company's Sustainalytics-defined Subindustry and are displayed based on the closest market cap values							
Company Name	Exposure			Management			ESG Risk Rating	
Merck & Co Inc	47.5 Medium	0	55+	61.8 Strong	100	0	20.2 Medium	40+
Bristol-Myers Squibb Co	39.5 Medium	0	55+	48.4 Average	100	0	21.2 Medium	40+
Eli Lilly and Co	45.8 Medium	0	55+	51.8 Strong	100	0	23.6 Medium	40+
Pfizer Inc	44.3 Medium	0	55+	63.4 Strong	100	0	18.3 Low	40+
—	— —	0	55+	— —	100	0	— —	40+

Appendix

Historical Morningstar Rating

Merck & Co Inc MRK 23 Apr 2025 21:26, UTC

Dec 2025	Nov 2025	Oct 2025	Sep 2025	Aug 2025	Jul 2025	Jun 2025	May 2025	Apr 2025	Mar 2025	Feb 2025	Jan 2025
—	—	—	—	—	—	—	—	★★★★	★★★★	★★★★	★★★★
Dec 2024	Nov 2024	Oct 2024	Sep 2024	Aug 2024	Jul 2024	Jun 2024	May 2024	Apr 2024	Mar 2024	Feb 2024	Jan 2024
★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★	★★	★★
Dec 2023	Nov 2023	Oct 2023	Sep 2023	Aug 2023	Jul 2023	Jun 2023	May 2023	Apr 2023	Mar 2023	Feb 2023	Jan 2023
★★★★	★★★★	★★★★	★★★★	★★	★★	★★	★★	★★	★★	★★	★★
Dec 2022	Nov 2022	Oct 2022	Sep 2022	Aug 2022	Jul 2022	Jun 2022	May 2022	Apr 2022	Mar 2022	Feb 2022	Jan 2022
★★	★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★
Dec 2021	Nov 2021	Oct 2021	Sep 2021	Aug 2021	Jul 2021	Jun 2021	May 2021	Apr 2021	Mar 2021	Feb 2021	Jan 2021
★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★
Dec 2020	Nov 2020	Oct 2020	Sep 2020	Aug 2020	Jul 2020	Jun 2020	May 2020	Apr 2020	Mar 2020	Feb 2020	Jan 2020
★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★

Bristol-Myers Squibb Co BMY 23 Apr 2025 21:30, UTC

Dec 2025	Nov 2025	Oct 2025	Sep 2025	Aug 2025	Jul 2025	Jun 2025	May 2025	Apr 2025	Mar 2025	Feb 2025	Jan 2025
—	—	—	—	—	—	—	—	★★★★	★★★	★★★★	★★★★
Dec 2024	Nov 2024	Oct 2024	Sep 2024	Aug 2024	Jul 2024	Jun 2024	May 2024	Apr 2024	Mar 2024	Feb 2024	Jan 2024
★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★
Dec 2023	Nov 2023	Oct 2023	Sep 2023	Aug 2023	Jul 2023	Jun 2023	May 2023	Apr 2023	Mar 2023	Feb 2023	Jan 2023
★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★
Dec 2022	Nov 2022	Oct 2022	Sep 2022	Aug 2022	Jul 2022	Jun 2022	May 2022	Apr 2022	Mar 2022	Feb 2022	Jan 2022
★★	★★	★★	★★★★	★★★★	★★	★★	★★	★★	★★★★	★★★★	★★★★
Dec 2021	Nov 2021	Oct 2021	Sep 2021	Aug 2021	Jul 2021	Jun 2021	May 2021	Apr 2021	Mar 2021	Feb 2021	Jan 2021
★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★
Dec 2020	Nov 2020	Oct 2020	Sep 2020	Aug 2020	Jul 2020	Jun 2020	May 2020	Apr 2020	Mar 2020	Feb 2020	Jan 2020
★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★

Eli Lilly and Co LLY 23 Apr 2025 21:32, UTC

Dec 2025	Nov 2025	Oct 2025	Sep 2025	Aug 2025	Jul 2025	Jun 2025	May 2025	Apr 2025	Mar 2025	Feb 2025	Jan 2025
—	—	—	—	—	—	—	—	★★	★★	★★	★★
Dec 2024	Nov 2024	Oct 2024	Sep 2024	Aug 2024	Jul 2024	Jun 2024	May 2024	Apr 2024	Mar 2024	Feb 2024	Jan 2024
★★	★★	★★	★★	★	★★	★	★★	★★	★★	★★	★★
Dec 2023	Nov 2023	Oct 2023	Sep 2023	Aug 2023	Jul 2023	Jun 2023	May 2023	Apr 2023	Mar 2023	Feb 2023	Jan 2023
★★	★★	★★	★★	★★	★★	★★	★★	★★	★★	★★	★★
Dec 2022	Nov 2022	Oct 2022	Sep 2022	Aug 2022	Jul 2022	Jun 2022	May 2022	Apr 2022	Mar 2022	Feb 2022	Jan 2022
★★	★	★	★★	★★	★★	★★	★★	★★	★★	★★★★	★★★★
Dec 2021	Nov 2021	Oct 2021	Sep 2021	Aug 2021	Jul 2021	Jun 2021	May 2021	Apr 2021	Mar 2021	Feb 2021	Jan 2021
★★	★★	★★	★★★★	★★	★★	★★★★	★★★★	★★★★	★★★★	★★	★★
Dec 2020	Nov 2020	Oct 2020	Sep 2020	Aug 2020	Jul 2020	Jun 2020	May 2020	Apr 2020	Mar 2020	Feb 2020	Jan 2020
★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★	★★	★★	★★★★	★★★★	★★★★

Pfizer Inc PFE 23 Apr 2025 21:26, UTC

Dec 2025	Nov 2025	Oct 2025	Sep 2025	Aug 2025	Jul 2025	Jun 2025	May 2025	Apr 2025	Mar 2025	Feb 2025	Jan 2025
—	—	—	—	—	—	—	—	★★★★★	★★★★★	★★★★★	★★★★★
Dec 2024	Nov 2024	Oct 2024	Sep 2024	Aug 2024	Jul 2024	Jun 2024	May 2024	Apr 2024	Mar 2024	Feb 2024	Jan 2024
★★★★★	★★★★★	★★★★	★★★★	★★★★	★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Dec 2023	Nov 2023	Oct 2023	Sep 2023	Aug 2023	Jul 2023	Jun 2023	May 2023	Apr 2023	Mar 2023	Feb 2023	Jan 2023
★★★★★	★★★★★	★★★★★	★★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★
Dec 2022	Nov 2022	Oct 2022	Sep 2022	Aug 2022	Jul 2022	Jun 2022	May 2022	Apr 2022	Mar 2022	Feb 2022	Jan 2022
★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★	★★★	★★
Dec 2021	Nov 2021	Oct 2021	Sep 2021	Aug 2021	Jul 2021	Jun 2021	May 2021	Apr 2021	Mar 2021	Feb 2021	Jan 2021
★	★★	★★★	★★	★★	★★★	★★★	★★★	★★★	★★★★	★★★★	★★★★
Dec 2020	Nov 2020	Oct 2020	Sep 2020	Aug 2020	Jul 2020	Jun 2020	May 2020	Apr 2020	Mar 2020	Feb 2020	Jan 2020
★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★★	★★★★	★★★★	★★★★★	★★★★★	★★★★

Research Methodology for Valuing Companies

Overview

At the heart of our valuation system is a detailed projection of a company's future cash flows, resulting from our analysts' research. Analysts create custom industry and company assumptions to feed income statement, balance sheet, and capital investment assumptions into our globally standardized, proprietary discounted cash flow, or DCF, modeling templates. We use scenario analysis, in-depth competitive advantage analysis, and a variety of other analytical tools to augment this process. Moreover, we think analyzing valuation through discounted cash flows presents a better lens for viewing cyclical companies, high-growth firms, businesses with finite lives (e.g., mines), or companies expected to generate negative earnings over the next few years. That said, we don't dismiss multiples altogether but rather use them as supporting cross-checks for our DCF-based fair value estimates. We also acknowledge that DCF models offer their own challenges (including a potential proliferation of estimated inputs and the possibility that the method may miss short-term market-price movements), but we believe these negatives are mitigated by deep analysis and our long-term approach.

Morningstar's equity research group ("we," "our") believes that a company's intrinsic worth results from the future cash flows it can generate. The Morningstar Rating for stocks identifies stocks trading at a discount or premium to their intrinsic worth—or fair value estimate, in Morningstar terminology. Five-star stocks sell for the biggest risk adjusted discount to their fair values, whereas 1-star stocks trade at premiums to their intrinsic worth.

Four key components drive the Morningstar rating: (1) our assessment of the firm's economic moat, (2) our estimate of the stock's fair value, (3) our uncertainty around that fair value estimate and (4) the current market price. This process ultimately culminates in our single-point star rating.

1. Economic Moat

The concept of an economic moat plays a vital role not only in our qualitative assessment of a firm's long-term investment potential, but also in the actual calculation of our fair value estimates. An economic moat is a structural feature that allows a firm to sustain excess profits over a long period of time. We define economic profits as re-

turns on invested capital (or ROIC) over and above our estimate of a firm's cost of capital, or weighted average cost of capital (or WACC). Without a moat, profits are more susceptible to competition. We have identified five sources of economic moats: intangible assets, switching costs, network effect, cost advantage, and efficient scale.

Companies with a narrow moat are those we believe are more likely than not to achieve normalized excess returns for at least the next 10 years. Wide-moat companies are those in which we have very high confidence that excess returns will remain for 10 years, with excess returns more likely than not to remain for at least 20 years. The longer a firm generates economic profits, the higher its intrinsic value. We believe low-quality, no-moat companies will see their normalized returns gravitate toward the firm's cost of capital more quickly than companies with moats.

When considering a company's moat, we also assess whether there is a substantial threat of value destruction, stemming from risks related to ESG, industry disruption, financial health, or other idiosyncratic issues. In this context, a risk is considered potentially value destructive if its occurrence would eliminate a firm's economic profit on a cumulative or midcycle basis. If we deem the probability of occurrence sufficiently high, we would not characterize the company as possessing an economic moat.

2. Estimated Fair Value

Combining our analysts' financial forecasts with the firm's economic moat helps us assess how long returns on invested capital are likely to exceed the firm's cost of capital. Returns of firms with a wide economic moat rating are assumed to fade to the perpetuity period over a longer period of time than the returns of narrow-moat firms, and both will fade slower than no-moat firms, increasing our estimate of their intrinsic value.

Our model is divided into three distinct stages:

Stage I: Explicit Forecast

In this stage, which can last five to 10 years, analysts make full financial statement forecasts, including items such as revenue, profit margins, tax rates, changes in working capital accounts, and capital spending. Based on these projections, we calculate earnings before interest, after taxes (EBIT) and the net new investment (NNI) to de-

rive our annual free cash flow forecast.

Stage II: Fade

The second stage of our model is the period it will take the company's return on new invested capital—the return on capital of the next dollar invested ("RONIC")—to decline (or rise) to its cost of capital. During the Stage II period, we use a formula to approximate cash flows in lieu of explicitly modeling the income statement, balance sheet, and cash flow statement as we do in Stage I. The length of the second stage depends on the strength of the company's economic moat. We forecast this period to last anywhere from one year (for companies with no economic moat) to 10–15 years or more (for wide-moat companies). During this period, cash flows are forecast using four assumptions: an average growth rate for EBIT over the period, a normalized investment rate, average return on new invested capital (RONIC), and the number of years until perpetuity, when excess returns cease. The investment rate and return on new invested capital decline until a perpetuity value is calculated. In the case of firms that do not earn their cost of capital, we assume marginal ROICs rise to the firm's cost of capital (usually attributable to less reinvestment), and we may truncate the second stage.

Stage III: Perpetuity

Once a company's marginal ROIC hits its cost of capital, we calculate a continuing value, using a standard perpetuity formula. At perpetuity, we assume that any growth or decline or investment in the business neither creates nor destroys value and that any new investment provides a return in line with estimated WACC.

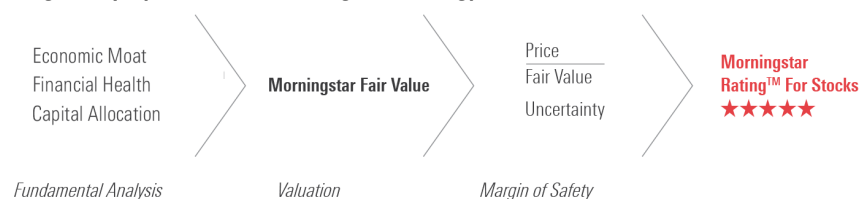
Because a dollar earned today is worth more than a dollar earned tomorrow, we discount our projections of cash flows in stages I, II, and III to arrive at a total present value of expected future cash flows. Because we are modeling free cash flow to the firm—representing cash available to provide a return to all capital providers—we discount future cash flows using the WACC, which is a weighted average of the costs of equity, debt, and preferred stock (and any other funding sources), using expected future proportionate long-term, market-value weights.

3. Uncertainty Around That Fair Value Estimate

Morningstar's Uncertainty Rating is designed to capture the range of potential outcomes for a company's intrinsic value. This rating is used to assign the margin of safety required before investing, which in turn explicitly drives our stock star rating system. The Uncertainty Rating is aimed at identifying the confidence we should have in assigning a fair value estimate for a given stock.

Our Uncertainty Rating is meant to take into account anything that can increase the potential dispersion of future outcomes for the intrinsic value of a company, and any-

Morningstar Equity Research Star Rating Methodology



Research Methodology for Valuing Companies

thing that can affect our ability to accurately predict these outcomes. The rating begins with a suggested rating produced by a quantitative process based on the trailing 12-month standard deviation of daily stock returns. An analyst overlay is then applied, with analysts using the suggested rating, historical rating data, and their own knowledge of the company to inform them as they make the final Uncertainty Rating decision. Ultimately, the rating decision rests with the analyst. Analysts take into account many characteristics when making their final decision, including cyclical factors, operational and financial factors such as leverage, company-specific events, ESG risks, and anything else that might increase the potential dispersion of future outcomes and our ability to estimate those outcomes.

Our recommended margin of safety—the discount to fair value demanded before we'd recommend buying or selling the stock—widens as our uncertainty of the estimated value of the equity increases. The more uncertain we are about the potential dispersion of outcomes, the greater the discount we require relative to our estimate of the value of the firm before we would recommend the purchase of the shares. In addition, the Uncertainty Rating provides guidance in portfolio construction based on risk tolerance.

Our Uncertainty Ratings are: Low, Medium, High, Very High, and Extreme.

Margin of Safety		
Qualitative Analysis	★★★★★ Rating	★ Rating
Uncertainty Ratings		
Low	20% Discount	25% Premium
Medium	30% Discount	35% Premium
High	40% Discount	55% Premium
Very High	50% Discount	75% Premium
Extreme	75% Discount	300% Premium

Our uncertainty rating is based on the interquartile range, or the middle 50% of potential outcomes, covering the 25th percentile–75th percentile. This means that when a stock hits 5 stars, we expect there is a 75% chance that the intrinsic value of that stock lies above the current market price. Similarly, when a stock hits 1 star, we expect there is a 75% chance that the intrinsic value of that stock lies below the current market price.

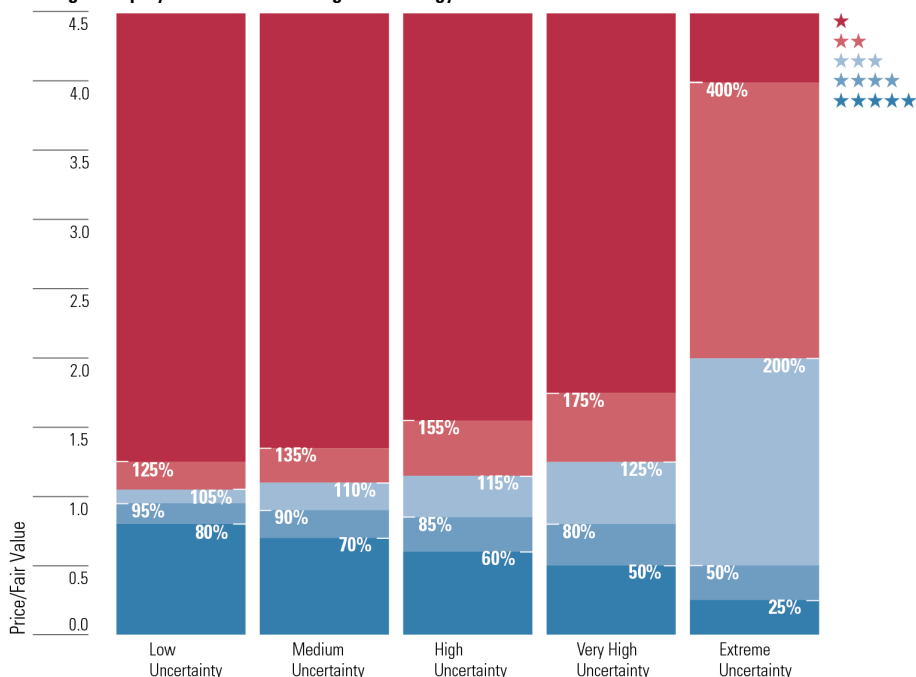
4. Market Price

The market prices used in this analysis and noted in the report come from exchange on which the stock is listed which we believe is a reliable source.

For more details about our methodology, please go to <https://shareholders.morningstar.com>

Morningstar Star Rating for Stocks

Morningstar Equity Research Star Rating Methodology



Once we determine the fair value estimate of a stock, we compare it with the stock's current market price on a daily basis, and the star rating is automatically re-calculated at the market close on every day the market on which the stock is listed is open. Our analysts keep close tabs on the companies they follow, and, based on thorough and ongoing analysis, raise or lower their fair value estimates as warranted.

Please note, there is no predefined distribution of stars. That is, the percentage of stocks that earn 5 stars can fluctuate daily, so the star ratings, in the aggregate, can serve as a gauge of the broader market's valuation. When there are many 5-star stocks, the stock market as a whole is more undervalued, in our opinion, than when very few companies garner our highest rating.

We expect that if our base-case assumptions are true the market price will converge on our fair value estimate over time generally within three years (although it is impossible to predict the exact time frame in which market prices may adjust).

Our star ratings are guideposts to a broad audience and individuals must consider their own specific investment goals, risk tolerance, tax situation, time horizon, income needs, and complete investment portfolio, among other factors.

The Morningstar Star Ratings for stocks are defined below:

★★★★★ We believe appreciation beyond a fair risk ad-

justed return is highly likely over a multiyear time frame. Scenario analysis developed by our analysts indicates that the current market price represents an excessively pessimistic outlook, limiting downside risk and maximizing upside potential.

★★★★ We believe appreciation beyond a fair risk-adjusted return is likely.

★★★ Indicates our belief that investors are likely to receive a fair risk-adjusted return (approximately cost of equity).

★★ We believe investors are likely to receive a less than fair risk-adjusted return.

★ Indicates a high probability of undesirable risk-adjusted returns from the current market price over a multiyear time frame, based on our analysis. Scenario analysis by our analysts indicates that the market is pricing in an excessively optimistic outlook, limiting upside potential and leaving the investor exposed to Capital loss.

Other Definitions

Last Price: Price of the stock as of the close of the market of the last trading day before date of the report.

Capital Allocation Rating: Our Capital Allocation (or Stewardship) Rating represents our assessment of the quality of management's capital allocation, with particular emphasis on the firm's balance sheet, investments, and shareholder distributions. Analysts consider compan-

Research Methodology for Valuing Companies

ies' investment strategy and valuation, balance sheet management, and dividend and share buyback policies. Corporate governance factors are only considered if they are likely to materially impact shareholder value, though either the balance sheet, investment, or shareholder distributions. Analysts assign one of three ratings: "Exemplary", "Standard", or "Poor". Analysts judge Capital Allocation from an equity holder's perspective. Ratings are determined on a forward looking and absolute basis. The Standard rating is most common as most managers will exhibit neither exceptionally strong nor poor capital allocation.

Capital Allocation (or Stewardship) analysis published prior to Dec. 9, 2020, was determined using a different process. Beyond investment strategy, financial leverage, and dividend and share buyback policies, analysts also considered execution, compensation, related party transactions, and accounting practices in the rating.

Capital Allocation Rating: Our Capital Allocation (or Stewardship) Rating represents our assessment of the quality of management's capital allocation, with particular emphasis on the firm's balance sheet, investments, and shareholder distributions. Analysts consider companies' investment strategy and valuation, balance sheet management, and dividend and share buyback policies. Corporate governance factors are only considered if they are likely to materially impact shareholder value, though either the balance sheet, investment, or shareholder distributions. Analysts assign one of three ratings: "Exemplary", "Standard", or "Poor". Analysts judge Capital Allocation from an equity holder's perspective. Ratings are determined on a forward looking and absolute basis. The Standard rating is most common as most managers will exhibit neither exceptionally strong nor poor capital allocation.

Capital Allocation (or Stewardship) analysis published prior to Dec. 9, 2020, was determined using a different process. Beyond investment strategy, financial leverage, and dividend and share buyback policies, analysts also considered execution, compensation, related party transactions, and accounting practices in the rating.

Sustainalytics ESG Risk Rating Assessment: The ESG Risk Rating Assessment is provided by Sustainalytics; a Morningstar company.

Sustainalytics' ESG Risk Ratings measure the degree to which company's economic value at risk is driven by environment, social and governance (ESG) factors.

Sustainalytics analyzes over 1,300 data points to assess a company's exposure to and management of ESG risks. In other words, ESG Risk Ratings measures a company's unmanaged ESG Risks represented as a quantitative score. Unmanaged Risk is measured on an open-ended scale

starting at zero (no risk) with lower scores representing less unmanaged risk and, for 95% of cases, the unmanaged ESG Risk score is below 50.

Based on their quantitative scores, companies are grouped into one of five Risk Categories (negligible, low, medium, high, severe). These risk categories are absolute, meaning that a 'high risk' assessment reflects a comparable degree of unmanaged ESG risk across all subindustries covered.

The ESG Risk Rating Assessment is a visual representation of Sustainalytics ESG Risk Categories on a 1 to 5 scale. Companies with Negligible Risk = 5 Globes, Low Risk = 4, Medium Risk = 3 Globes, High Risk = 2 Globes, Severe Risk = 1 Globe. For more information, please visit sustainalytics.com/esg-ratings/

Ratings should not be used as the sole basis in evaluating a company or security. Ratings involve unknown risks and uncertainties which may cause our expectations not to occur or to differ significantly from what was expected and should not be considered an offer or solicitation to buy or sell a security.

Risk Warning

Please note that investments in securities are subject to market and other risks and there is no assurance or guarantee that the intended investment objectives will be achieved. Past performance of a security may or may not be sustained in future and is no indication of future performance. A security investment return and an investor's principal value will fluctuate so that, when redeemed, an investor's shares may be worth more or less than their original cost. A security's current investment performance may be lower or higher than the investment performance noted within the report. Morningstar's Uncertainty Rating serves as a useful data point with respect to sensitivity analysis of the assumptions used in our determining a fair value price.

General Disclosure

Unless otherwise provided in a separate agreement, recipients accessing this report may only use it in the country in which the Morningstar distributor is based. Unless stated otherwise, the original distributor of the report is Morningstar Research Services LLC, a U.S.A. domiciled financial institution.

This Report is for informational purposes, should not be the sole piece of information used in making an investment decision, and has no regard to the specific investment objectives, financial situation or particular needs of any specific recipient. This publication is intended to provide information to assist investors in making their own investment decisions, not to provide investment ad-

vice to any specific investor. Therefore, investments discussed herein may not be suitable for all investors; investors must exercise their own independent judgment as to the suitability of such investments and recommendations in the light of their own investment objectives, experience, taxation status and financial position. Morningstar encourages Report recipients to read all relevant issue documents (e.g., prospectus) pertaining to the security concerned, including without limitation, information relevant to its investment objectives, risks, and costs before making an investment decision and when deemed necessary, to seek the advice of a financial, legal, tax, and/or accounting professional. The information, data, analyses and opinions presented herein are not warranted to be accurate, correct, complete or timely. Unless otherwise provided in a separate agreement, neither Morningstar, Inc. or the Equity Research Group represents that the report contents meet all of the presentation and/or disclosure standards applicable in the jurisdiction the recipient is located.

Except as otherwise required by law or provided for in a separate agreement, the analyst, Morningstar, Inc. and the Equity Research Group and their officers, directors and employees shall not be responsible or liable for any trading decisions, damages or other losses resulting from, or related to, the information, data, analyses or opinions within the report.

The Report and its contents are not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation or which would subject Morningstar, Inc. or its affiliates to any registration or licensing requirements in such jurisdiction.

Where this report is made available in a language other than English and in the case of inconsistencies between the English and translated versions of the report, the English version will control and supersede any ambiguities associated with any part or section of a report that has been issued in a foreign language. Neither the analyst, Morningstar, Inc., or the Equity Research Group guarantees the accuracy of the translations.

This report may be distributed in certain localities, countries and/or jurisdictions ("Territories") by independent third parties or independent intermediaries and/or distributors ("Distributors"). Such Distributors are not acting as agents or representatives of the analyst, Morningstar, Inc. or the Equity Research Group. In Territories where a Distributor distributes our report, the Distributor is solely responsible for complying with all applicable regulations, laws, rules, circulars, codes and guidelines established by local and/or regional regulatory bodies, including laws in

Research Methodology for Valuing Companies

connection with the distribution third-party research reports.

Conflicts of Interest

- ▶ No interests are held by the analyst with respect to the security subject of this investment research report.
- ▶ Morningstar, Inc. may hold a long position in the security subject of this investment research report that exceeds 0.5% of the total issued share capital of the security. To determine if such is the case, please click <http://msi.morningstar.com> and <http://mdi.morningstar.com>
- ▶ Analysts' compensation is derived from Morningstar, Inc.'s overall earnings and consists of salary, bonus and in some cases restricted stock.
- ▶ Neither Morningstar, Inc. or the Equity Research Group receives commissions for providing research nor do they charge companies to be rated.
- ▶ Morningstar's overall earnings are generated in part by the activities of the Investment Management and Research groups, and other affiliates, who provide services to product issuers.
- ▶ Morningstar employees may not pursue business and employment opportunities outside Morningstar within the investment industry (including but not limited to, working as a financial planner, an investment professional or investment professional representative, a broker-dealer or broker-dealer agent, a financial writer, reporter, or analyst) without the approval of Morningstar's Legal and if applicable, Compliance teams.
- ▶ Neither Morningstar, Inc. or the Equity Research Group is a market maker or a liquidity provider of the security noted within this report.
- ▶ Neither Morningstar, Inc. or the Equity Research Group has been a lead manager or co-lead manager over the previous 12-months of any publicly disclosed offer of financial instruments of the issuer.
- ▶ Morningstar, Inc.'s investment management group does have arrangements with financial institutions to provide portfolio management/investment advice some of which an analyst may issue investment research reports on. However, analysts do not have authority over Morningstar's investment management group's business arrangements nor allow employees from the investment management group to participate or influence the analysis or opinion prepared by them.
- ▶ Morningstar, Inc. is a publicly traded company (Ticker Symbol: MORN) and thus a financial institution the security of which is the subject of this report may own more than 5% of Morningstar, Inc.'s total outstanding shares. Please access Morningstar, Inc.'s proxy statement, "Security Ownership of Certain Beneficial Owners and Management" section <https://shareholders.morningstar.com/investor-relations/financials/sec-filings/default.aspx>
- ▶ Morningstar, Inc. may provide the product issuer or its related entities with services or products for a fee and

on an arms' length basis including software products and licenses, research and consulting services, data services, licenses to republish our ratings and research in their promotional material, event sponsorship and website advertising.

Further information on Morningstar, Inc.'s conflict of interest policies is available from <http://global.morningstar.com/equitydisclosures>. Also, please note analysts are subject to the CFA Institute's Code of Ethics and Standards of Professional Conduct.

Risk Warning Please note that investments in securities are subject to market and other risks and there is no assurance or guarantee that the intended investment objectives will be achieved. Past performance of a security may or may not be sustained in future and is no indication of future performance. A security's investment return and an investor's principal value will fluctuate so that, when redeemed, an investor's shares may be worth more or less than their original cost. A security's current investment performance may be lower or higher than the investment performance noted within the report. For investments in foreign markets there are further risks, generally based on exchange rate changes or changes in political and social conditions.

For more information about Morningstar's methodologies, please visit global.morningstar.com/equitydisclosures

For a list of securities which the Equity Research Group currently covers and provides written analysis on please contact your local Morningstar office. In addition, for historical analysis of securities covered, including their fair value estimate, please contact your local office.

For recipients in Australia: This Report has been issued and distributed in Australia by Morningstar Australasia Pty Ltd (ABN: 95 090 665 544; ASFL: 240892). Morningstar Australasia Pty Ltd is the provider of the general advice ('the Service') and takes responsibility for the production of this report. The Service is provided through the research of investment products.

To the extent the Report contains general advice it has been prepared without reference to an investor's objectives, financial situation or needs. Investors should consider the advice in light of these matters and, if applicable, the relevant Product Disclosure Statement before making any decision to invest. Refer to our Financial Services Guide (FSG) for more information at <http://www.morningstar.com.au/fsg.pdf>

For recipients in New Zealand: This report has been issued and distributed by Morningstar Australasia Pty Ltd and/or Morningstar Research Ltd (together 'Morningstar'). This report has been prepared and is intended for

distribution in New Zealand to wholesale clients only and has not been prepared for use by New Zealand retail clients (as those terms are defined in the Financial Markets Conduct Act 2013). The information, views and any recommendations in this material are provided for general information purposes only, and solely relate to the companies and investment opportunities specified within. Our reports do not take into account any particular investor's financial situation, objectives or appetite for risk, meaning no representation may be implied as to the suitability of any financial product mentioned for any particular investor. We recommend seeking financial advice before making any investment decision.

For recipients in Hong Kong: The Report is distributed by Morningstar Investment Management Asia Limited, which is regulated by the Hong Kong Securities and Futures Commission to provide services to professional investors only. Neither Morningstar Investment Management Asia Limited, nor its representatives, are acting or will be deemed to be acting as an investment professional to any recipients of this information unless expressly agreed to by Morningstar Investment Management Asia Limited.

For recipients in India: This investment research is issued by Morningstar Investment Adviser India Private Limited. Morningstar Investment Adviser India Private Limited is registered with SEBI as a Portfolio Manager (registration number INP000006156) and as a Research Entity (registration number INH000008686). Morningstar Investment Adviser India Private Limited has not been the subject of any disciplinary action by SEBI or any other legal/regulatory body. Morningstar Investment Adviser India Private Limited is a wholly owned subsidiary of Morningstar Investment Management LLC. In India, Morningstar Investment Adviser India Private Limited has one associate, Morningstar India Private Limited, which provides data-related services, financial data analysis, and software development. The research analyst has not served as an officer, director, or employee of the fund company within the last 12 months, nor have they or their associates engaged in market-making activity for the fund company. The ESG-related information, methodologies, tool, ratings, data and opinions contained or reflected herein are not directed to or intended for use or distribution to India-based clients or users and their distribution to Indian resident individuals or entities is not permitted, and Morningstar/Sustainalytics accepts no responsibility or liability whatsoever for the actions of third parties in this respect.

*The Conflicts of Interest disclosure above also applies to relatives and associates of Manager Research Analysts in India # The Conflicts of Interest disclosure above also applies to associates of Manager Research Analysts in India. The terms and conditions on which Morningstar In-

Research Methodology for Valuing Companies

vestment Adviser India Private Limited offers Investment Research to clients, varies from client to client, and are detailed in the respective client agreement.

For recipients in Japan: The Report is distributed by Ibbotson Associates Japan, Inc., which is regulated by Financial Services Agency, for informational purposes only. Neither Ibbotson Associates Japan, Inc., nor its representatives, are acting or will be deemed to be acting as an investment professional to any recipients of this information.

For recipients in Singapore: For Institutional Investor audiences only. The Report is distributed by Morningstar Investment Adviser Singapore Pte. Limited, which is licensed by the Monetary Authority of Singapore to provide financial advisory services in Singapore. Morningstar Investment Adviser Singapore Pte. Limited is the entity responsible for the creation and distribution of the research services described in this presentation. Investors should consult a financial adviser regarding the suitability of any investment product, taking into account their specific investment objectives, financial situation or particular needs, before making any investment decisions.

For recipients in Korea: The report is distributed by Morningstar Korea Ltd., which has filed to the Financial Services Committee, for informational purposes only. Neither Morningstar Korea Ltd. nor its representatives are acting or will be deemed to be acting as an investment advisor to any recipients of this information.