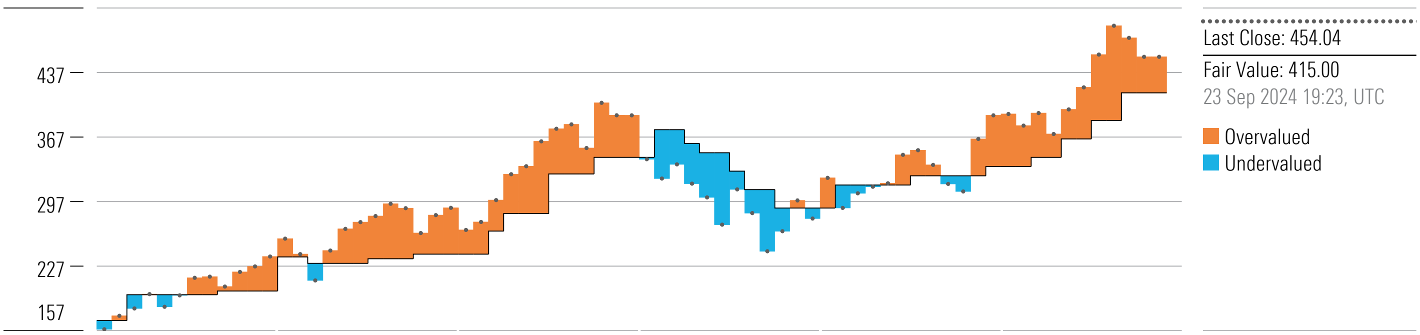
Morningstar Equity Analyst Report | Report as of 2 Nov 2024 04:09, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NEW YORK STOCK EXCHANGE, INC. Page 1 of 21

Moodys Corp MCO ★★ 1 Nov 2024 21:38, UTC

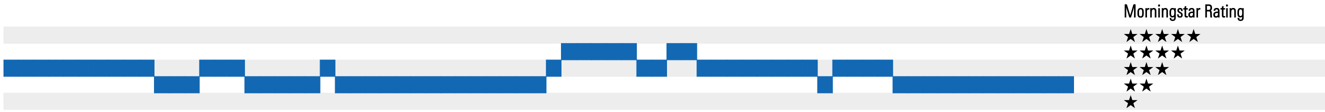
Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
454.04 USD 31 Oct 2024	415.00 USD 23 Sep 2024 19:23, UTC	1.09	83.10 USD Bil 1 Nov 2024	Wide	Large Blend	Medium	Exemplary	2 Oct 2024 05:00, UTC

Price vs. Fair Value



	2019	2020	2021	2022	2023	YTD	
	1.19	1.21	1.13	0.96	1.17	1.09	Price/Fair Value
	70.96	23.20	35.43	-27.95	41.28	16.91	Total Return %

Morningstar Rating



Total Return % as of 31 Oct 2024. Last Close as of 31 Oct 2024. Fair Value as of 23 Sep 2024 19:23, UTC.

Contents

[1]The ESG Risk Rating Assessment is a representation of Sustainalytics' ESG Risk Rating.

Moody's Earnings: Good Quarter and Raised Outlook, but Investors Mostly Expected This

Analyst Note Rajiv Bhatia, CFA, Equity Analyst, 22 Oct 2024

The ratings business continues to power Moody's profitability. In the third quarter, ratings revenue was up 41% from a year ago, with broad-based growth across revenue categories. The analytics business decelerated slightly, with recurring revenue up 8.2% on a constant-currency basis versus 9.3% in the second quarter. Moody's raised its outlook, but we had anticipated this in our September model update. We attribute the negative market reaction on Oct. 22 to lofty buy-side expectations that had resulted in the share price appreciating 25% year to date before the earnings report. As we incorporate third-quarter results, we do not expect a large change to our $415 fair value estimate. We regard the shares as modestly overvalued.

Corporate finance is about half of Moody's ratings revenue, and this grew 49%. Corporate finance transaction revenue grew 77%, driven by investment-grade revenue growth of 137%, leveraged loan revenue growth of 46%, and high-yield bond revenue growth of 111%. Financial institutions revenue grew 35%. Moody's is still seeing infrequent issuers in financial institutions issue bonds. Transaction-based revenue of $92 million in financial institutions was down from $115 million in the second quarter but well above the $58 million quarterly average of 2022 and 2023. Structured finance revenue grew 32%, and public, project, and infrastructure revenue grew 34%. While lower interest rates may spur future issuance, we note that credit spreads are low, and as a result, lower interest rates may not meaningfully lower borrowing costs for issuers. During the quarter, the ratings business constituted

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Sector	Industry
Financial Services	Financial Data & Stock Exchanges

Business Description

Moody's, along with S&P Ratings, is a leading provider of credit ratings on fixed-income securities. The ratings segment, Moody's Investors Service, includes corporates, structured finance, financial institutions, and public finance ratings. MIS represents a majority of the firm's profit and about half the firm's revenue. The other segment, Moody's Analytics, consists of decision solutions, research and insights, and data and information.

55% of overall revenue and 71% of adjusted operating income, making it by far Moody's largest profit driver.

Business Strategy & Outlook Rajiv Bhatia, CFA, Equity Analyst, 23 Sep 2024

Along with S&P Ratings, Moody's is a market leader in providing credit ratings on fixed-income securities. Given the embedded nature of credit ratings among investors, regulators, and index providers, Moody's enjoys a strong competitive position and strong operating margin.

Bond issuance volume is a key driver for Moody's ratings business, known as Moody's Investors Service, which makes up about two thirds of the firm's adjusted operating income. Over the long term, we believe that high-single-digit revenue growth, driven by GDP and pricing, is a reasonable expectation for MIS. Regulatory issues are part of the backdrop of the ratings business, but regulations can often benefit established players.

Through both organic investments and acquisitions, Moody's Analytics has been a key source of growth. It currently makes up about half the firm's revenue but about one third of the firm's adjusted operating income. The subscription revenue model and high retention rates help offset some of the volatility in the ratings business. Moody's Analytics offers a gamut of risk-related data and analytics content, including credit research, quantitative credit scores, economics research, business intelligence, know-your-customer tools, commercial real estate data, training services, ESG, and risk-management software to financial institutions. Notable acquisitions include Bureau van Dijk, a European provider of privately held company data, for $3.5 billion in 2017; RDC, a provider of anti-money-laundering and KYC tools, for $700 million in 2020; and RMS, a provider of climate analytics, for $1.9 billion in 2021. While these deals may not appear cheap, we believe they have strategic merit.

The ratings segment is mature globally, and thus we only expect small investments and acquisitions in ratings such as Moody's minority stake in Malaysian Rating Corp. Berhad and its acquisition of Korea Investors Service. We expect acquisition activity to be concentrated in its analytics segment for the foreseeable future.

Bulls Say Rajiv Bhatia, CFA, Equity Analyst, 22 Oct 2024

- Even if issuance turns south, strong pricing power and GDP growth should cause a rebound in ratings revenue.
- Moody's Analytics can be an important driver with high recurring revenue growth and operating margin expansion.
- Moody's can be a beneficiary of higher regulations. Regulations have benefited incumbents in the ratings business, and regulations on banks can drive growth in Moody's Analytics' compliance, know-your-customer, and risk-management tools.

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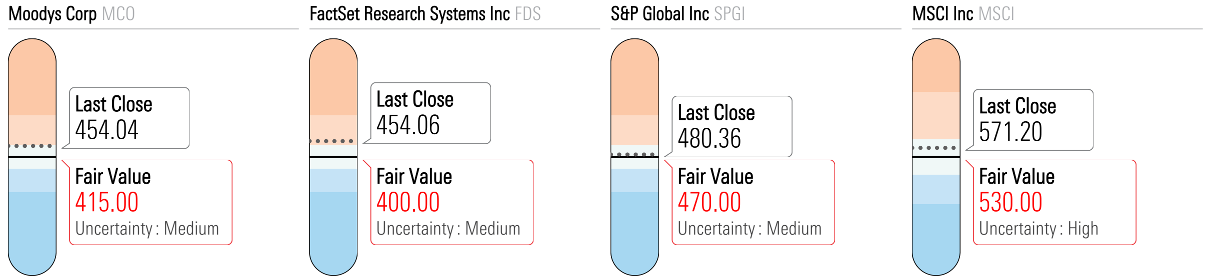
Competitors



	Moodys Corp MCO	FactSet Research Systems Inc FDS	S&P Global Inc SPGI	MSCI Inc MSCI
Economic Moat	Wide	Narrow	Wide	Wide
Currency	USD	USD	USD	USD
Fair Value	415.00 23 Sep 2024 19:23, UTC	400.00 1 Nov 2024 01:00, UTC	470.00 23 Sep 2024 20:03, UTC	530.00 28 Oct 2024 14:06, UTC
1-Star Price	560.25	540.00	634.50	821.50
5-Star Price	290.50	280.00	329.00	318.00
Assessment	Overvalued 1 Nov 2024	Overvalued 1 Nov 2024	Fairly Valued 1 Nov 2024	Fairly Valued 1 Nov 2024
Morningstar Rating	★★1 Nov 2024 21:38, UTC	★★1 Nov 2024 21:40, UTC	★★★1 Nov 2024 21:37, UTC	★★★1 Nov 2024 21:41, UTC
Analyst	Rajiv Bhatia, Equity Analyst	Rajiv Bhatia, Equity Analyst	Rajiv Bhatia, Equity Analyst	Rajiv Bhatia, Equity Analyst
Capital Allocation	Exemplary	Standard	Exemplary	Exemplary
Price/Fair Value	1.09	1.15	1.03	1.09
Price/Sales	12.12	8.04	11.01	16.34
Price/Book	21.18	9.10	4.48	—
Price/Earning	40.39	27.60	42.50	37.53
Dividend Yield	0.73%	0.88%	0.75%	1.07%
Market Cap	83.10 Bil	17.45 Bil	151.28 Bil	45.43 Bil
52-Week Range	307.23—495.10	391.84—488.64	365.00—533.29	439.95—631.70
Investment Style	Large Blend	Mid Growth	Large Blend	Mid Growth

Bears Say Rajiv Bhatia, CFA, Equity Analyst, 22 Oct 2024

- Higher interest rates, corporate deleveraging, and higher spreads could cause a decline in bond issuance that will weigh on ratings revenue. In addition, the rise of private credit poses a challenge for rating agencies.
- From time to time, Moody's faces headline or regulatory risk in its ratings segment.
- While low probability, regulators could seek to introduce alternatives to the issuer pay model.

Economic Moat Rajiv Bhatia, CFA, Equity Analyst, 23 Sep 2024

In our view, Moody's warrants a wide moat rating based on intangible assets and network effects in its ratings business.

Credit ratings provide value to bond issuers as well as bond investors; this creates a network effect.

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Bond issuers value credit ratings from Moody's and S&P because of their wide acceptance among asset owners and asset managers. This is particularly important in cross-border bond issuance deals. While a local country's domestic rating agency could have value for its domestic bonds, a rating from a Big Three firm is critical for a cross-border marketed security as global investors desire broad comparability across global bonds. For example, an investor wants to know that a B1 rating for a company in California is similar to a B1 rating for a company in Chile or a B1 rating for a company in India.

This broad acceptance makes it essential for corporate issuers to get a rating on any debt they issue. By getting a bond rating from a market leader such as Moody's, the bond issuer pays less in interest (often 30-65 basis points in savings per year). The cost of a vanilla corporate bond credit rating is around 8 basis points and is typically much less than the underwriting fees and legal fees (50-100 basis points combined).

Bond investors and bond issuers aren't the only ones who value credit ratings. In our view, acceptance among index providers and government regulators also supports the rating agencies' wide moat. For example, the Bloomberg US Aggregate Bond Index, which among other uses serves as the index for the $300 billion-plus Vanguard Total Bond Market exchange-traded fund, only considers ratings from either S&P, Moody's, or Fitch. Among banking regulators, rating agencies are used extensively to determine a bank's capital adequacy. Also, as the number of ratings increases, the value of ratings research subscriptions sold to buy-side investors increases as well.

In our view, the credit rating agencies such as Moody's have built a moat source through intangible assets. The incumbent players are advantaged by their multidecade record that allows investors to see how credit ratings performed. For example, it would be difficult for a new player to establish what the absolute and relative probabilities of a B1 versus Ba1 versus Baa1 defaulting are over the next 10 years without sufficient sample size and time. Another hurdle for a new entrant would be establishing management relationships with the thousands of companies that issue debt. Given the strong record of incumbents, corporate management teams are unlikely to find much value in investing time and resources with another ratings provider.

Regulations provide other hurdles. In order to receive a nationally recognized statistical rating organization designation (which bestows many advantages) from the SEC, the agency must be nationally recognized, "meaning the rating agency is recognized in the United States as an issuer of credible and reliable ratings by the predominant users of securities markets." However, this creates a bit of a chicken-and-egg issue because in order for a rating agency to be credible in the eyes of capital markets participants and corporate issuers, it needs to be an NRSRO. Even though the number of firms with an NRSRO designation has increased to about 10 since the introduction of the Credit Rating Agency Reform Act of 2006, we believe the network effects have been strong enough to result in only limited traction of other rating agencies.

Moody's has leveraged its moat to obtain solid pricing power, typically around 3%-4% per year. Moody's doesn't disclose pricing specifics, but peer S&P's rack rate for corporate finance ratings (in 2024) is 7.90 basis points, which compares with 6.25 basis points in 2016 and 4.25 basis points in 2007 and implies a fee compound annual growth rate of 3% and 4%, respectively.

Overall, we believe Moody's Analytics is a narrow-moat business based on intangible assets and switching costs. Originally providing quantitative ratings and research reports for its credit ratings, Moody's has greatly expanded this segment over the last several years, expanding into private company data, know-your-customer tools, and commercial real estate analytics. Roughly speaking, we estimate that Moody's Analytics is split evenly among credit research subscriptions, Bureau van Dijk, enterprise risk solutions, and other products. Because credit research subscriptions are based on data from Moody's Investor Service, we believe the moat of this product should be reflected in MIS. In 2017, Moody's acquired Bureau van Dijk, a provider of private and public company data based in Europe. While BvD boasts strong EBITDA margins (50%-plus), we believe that little data is proprietary and that BvD's advantage is in its data breadth and quality; we would regard this as an intangible asset moat source. Enterprise risk solutions provides risk-management tools and loan origination solutions to the banking and insurance industry. Moody's competitors in ERS include various software providers such as Fidelity National Information Services, SS&C, Verisk Analytics, and in-house solutions. Given the complexity of changing software systems, we would view switching cost as a moat source. Moody's Analytics' other products include commercial real estate solutions with its acquisition of REIS, but it is significantly smaller than market leader CoStar.

Fair Value and Profit Drivers Rajiv Bhatia, CFA, Equity Analyst, 22 Oct 2024

After updating our model following third-quarter 2024 financial results, we are maintaining our fair value estimate of $415. Our fair value estimate equates to approximately 34 times our adjusted 2025 EPS estimate and assumes a top-line sales growth rate of about 9.8% per year for the next five years, which we think is reasonable based on pricing actions, GDP growth, and robust growth in Moody's Analytics. We use a 7.5% cost of equity assumption.

We forecast Moody's adjusted EBITDA margin to grow from 44% in 2023 to 50% in 2028. We note that Moody's saw 50% adjusted EBITDA margins in 2021 amid a very strong year for ratings. One headwind to margin growth is that the generally faster-growing Moody's Analytics segment is lower-margin than the ratings segment.

Given the size of the ratings segment, trends in issuance are the most salient profit driver, in our view. Nonetheless, investors should not forget Moody's Analytics. This segment should benefit from more regulation such as know your customer, anti-money-laundering, loan-loss accounting standards, and so on. In addition, the recurring nature of the revenue helps smooth out the more lumpy ratings segment.

Risk and Uncertainty Rajiv Bhatia, CFA, Equity Analyst, 23 Sep 2024

We assign a Medium Morningstar Uncertainty Rating to Moody's.

In 2023, the ratings business generated 48% of Moody's revenue and 64% of adjusted EBITDA. As a result, this segment is the largest profit driver for the firm. In the near term, Moody's ratings business is affected by the level of bond issuance. Issuance can be lumpy and influenced by macroeconomic variables such as credit spreads and interest rates. Following a decline in issuance, we expect Moody's ratings revenue to rebound, driven by pricing power and a rise in GDP.

In 2023, Moody's revenue was 31% transaction-based and 69% relationship-based. Ratings revenue was 57% transaction-based and 43% relationship-based. The primary driver of transaction-based revenue is new issuance; relationship-based revenue is derived from credit monitoring surveillance fees and frequent issuer plans. Moody's Analytics' revenue is 89% relationship-based, as its products primarily follow a subscription model.

In terms of geographic footprint, Moody's firmwide revenue in 2023 was 52% US and 31% Europe, the Middle East, and Africa, with the remainder split between Asia-Pacific and other Americas. By segment, Moody's ratings segment is 61% US while Moody's Analytics is 44% US

From an environmental, social, and governance perspective, Moody's has faced issues regarding ratings efficacy and practices. In January 2017, Moody's entered into an $864 million settlement with the US Department of Justice and attorneys general from various states relating to civil claims on structured finance ratings. While issues like this will crop up from time to time, in our view Moody's has been able to maintain its moat during these episodes. Regulation also presents headline risk, but we note that regulation often benefits incumbents. Moody's operates in many countries and is therefore exposed to cultural, economic, political, and currency risks. Thus far, we believe management has adequately managed ESG risks.

Capital Allocation Rajiv Bhatia, CFA, Equity Analyst, 23 Sep 2024

We believe Moody's merits an Exemplary Morningstar Capital Allocation Rating.

We view the company's balance sheet as sound. Moody's net leverage ratio of less than 2.0 times at the end of June 2024 is appropriate, in our view. We generally believe the firm's acquisitions and dispositions have made strategic sense. Moody's exited its lower-margin knowledge processing outsourcing business (Copal Amba), and it has been investing in private data, regulatory and know-your-customer solutions, and commercial real estate analytics. Though some of these acquisitions have not been cheap, we don't necessarily think this means Moody's overpaid. We believe that over time, these investments can create a valuable franchise. We view the company's capital return strategy as appropriate. The company targets a dividend payout ratio of 25%-30%, which we think is appropriate, and returns the rest through share repurchases and acquisitions. Moody's share repurchases have meaningfully benefited earnings per share. In 2023, Moody's had average diluted shares of 184.0 million, down 22% from 236.6 million in 2010.

Ray McDaniel served as CEO from 2005 to 2020. Though he was a participant in the company's missteps leading up to the financial crisis, we believe Moody's has done a good job cleaning itself up since then and has emerged stronger. McDaniel stepped down as CEO in December 2020 but led the board until April 2023, when lead independent director and former Becton Dickinson CEO Victor Forlenza took over as chair. Former COO Robert Fauber became president and CEO in January 2021. He was president of Moody's Investors Service from 2016 to 2019. We've been pleased with Fauber's performance thus far.

Analyst Notes Archive

Moody's Earnings: Ratings Segment Outshines and Guidance Raised but Growth Likely to Slow Rajiv Bhatia, CFA, Equity Analyst, 23 Jul 2024

Wide-moat Moody's reported a strong quarter, with the ratings segment driving outsize profit growth. Moody's revenue grew 22%, with 36% growth in ratings and 8% constant currency growth in the more stable Analytics segment. Ratings growth was broad-based across different categories. As we tweak our model, we are increasing our fair value estimate by 5% to $385 to account for better near-term revenue expectations in ratings and time value of money.

Ratings revenue grew 36%. Corporate finance, the largest ratings sub-segment, grew 44%, with leveraged loan and high-yield issuance growing faster. Issuers are taking advantage of lower credit spreads. The interesting beat in the quarter relative to our expectations was the 34% ratings revenue growth for financial institutions group, which includes insurers. Transaction-based financial institution ratings revenue grew 58% to $115 million. Financial institution ratings revenue tends to skew toward frequent issuer programs and other recurring revenue contracts, such as entity ratings. However, Moody's is benefiting from coming to market infrequently, resulting in higher transaction-based revenue. Structured finance revenue grew 28% and public, project, and infrastructure finance revenue grew 21%. Moody's now expects 2024 ratings revenue to grow in the high-teens percentage (up from a previous expectation range of high single digits-low double digits). Year-to-date ratings revenue growth was 35%, which implies a slowdown from current levels. Moody's believes it is seeing pull forward issuance both from this year and next, in part as issuers want to get ahead of US election uncertainty. Moody's also notes that, historically, its ratings revenue has been weighted toward the first half of the year. While we expect ratings revenue to decline in the second half versus the first half, we believe Moody's tends to err on the side of being conservative with respect to its guidance and our updated model is above Moody's range.

Moody’s Earnings: Ratings Segment Shines in Quarter but Only Small Tweaks to Full-Year Outlook

Rajiv Bhatia, CFA, Equity Analyst, 2 May 2024

Moody’s reported a very good start to 2024 with first-quarter revenue growing 21% and rating revenue growing 35%. EBITDA margins also showed strong expansion with firmwide EBITDA margins expanding to 50.7% from 44.6% and ratings EBITDA margins expanding to 64.6% from 56.8%. However, similar to S&P Global, Moody’s believes there is significant pull-forward bond issuance, that is issuance occurring in the first quarter rather than later in the year. As a result, Moody’s did not adjust its full-year outlook much. As we tweak our model, we expect to raise our fair value estimate of $345 by a single-digit percentage to reflect slightly stronger bond issuance than our previous model.

Ratings revenue grew 35% driven by a 49% increase in corporate finance revenue. High-yield and leveraged loans each more than doubled against depressed comparisons in the year-ago period. Investment-grade was also healthy with 28% growth. Other revenue, which is mostly credit monitoring revenue, grew 7%. Beyond corporates, financial institutions revenue was very strong and grew 37%. Financial institutions revenue tends to skew recurring, but this quarter saw greater transaction revenue due to infrequent issuers coming to market. Structured finance and public finance also contributed to revenue growth with 15% and 9% growth, respectively.

Moody’s believes 37% of full-year 2024 issuance occurred in the first quarter and cited tight spreads as well as issuers wanting to get ahead of election uncertainty. As a result, Moody’s still expects ratings revenue to grow in the high-single-digit to low-double-digit percentage range for 2024, though it did increase its rating operating margin outlook by 50 basis points. We believe Moody’s has generally erred on the side of conservativism with its outlook and note that the firm has seldom changed its full-year outlook after the first quarter.

Moody’s Earnings: OK Earnings, Mediocre Outlook Plus Healthy Valuation Equals Negative Reaction

Rajiv Bhatia, CFA, Equity Analyst, 13 Feb 2024

Moody's reported an OK finish to 2023. Reported revenues grew 15% to $1.48 billion against easy comparisons in ratings, and this was in line with the FactSet consensus expectation. Adjusted EBITDA of $631 million was $40 million below consensus and as a result adjusted EPS of $2.19 missed consensus of $2.33, which we attribute to some margin softness in the ratings business as well as revenue mix toward lower-margin Moody's Analytics. As is customary, Moody's gave its initial 2024 outlook on its fourth-quarter release. Moody's 2024 revenue outlook is roughly in line, but margins and earnings came in disappointing. Overall, Moody's results and outlook were not horrible in our view; we attribute the negative market reaction to Moody's health valuation (about 36 times forward earnings before they reported) leaving little room for error. As we update our model, we will maintain our wide moat rating and fair value estimate of $335. Even with the stock down 7%, we don't view the risk-reward profile of Moody's as compelling at this stage.

Ratings revenue grew 19% against easy comparisons, particularly in the high-yield and leveraged loan market, in the year-ago period. Corporate finance ratings revenue of $337 million compares with $346 million in the third quarter and $253 million in the year-ago period. Structured finance, financial institutions, and public finance revenue grew at 9%, 7%, and 12%, respectively. We expect growth in structured finance growth to be modest in 2024 particularly as commercial mortgage-backed issuance faces headwinds. Financial institutions and public finance revenue growth tends to be less volatile, and we expect mid-single-digit growth there in 2024.

Moody's Analytics continues to perform well, with annualized recurring revenue growing 10%, the same pace as in the third quarter. Growth was broad-based, with the strongest growth in know-your-customer, or KYC, solutions. Moody's expects this trajectory to continue, which we view as reasonable.

S&P Global: Ratings Regulatory Disclosures Continue to Indicate Solid Pricing Power Rajiv Bhatia, CFA, Equity Analyst, 8 Jan 2024

S&P Ratings typically updates its regulatory pricing disclosures in January, and our perusal of its disclosures shows continued healthy pricing power that we believe reflects the ratings segment's network effect and resulting Morningstar wide moat rating. S&P raised its list price 2.6% year over year on corporate bond ratings to 7.90 basis points from 7.70 basis points last year. While this year’s increase was smaller than the 3.4% increase seen in 2023, we note that it is consistent with the 2.6% per year increase since 2019, when the rack rate was 6.95 basis points. In addition, S&P Global also increased the minimum fee on most corporate transactions to $140,000 versus $125,000 in 2023.

The firm’s list price is just one element to rating agency pricing. In addition to the published rate, there are other ways ratings agencies such as S&P and Moody’s can adjust their pricing yield such as adjusting credit monitoring or surveillance fees and modifying their frequent issuer programs. We are maintaining our fair value estimate of $395 on S&P Global’s shares.

Moody’s Earnings: Analytics Solid, Ratings Grows Against Easy Comps but Ratings Outlook Lowered Rajiv Bhatia, CFA, Equity Analyst, 25 Oct 2023

Moody’s reported a decent third quarter. Revenue of $1.47 billion was a touch higher than the FactSet consensus estimate of $1.46 billion while adjusted EBITDA of $657 million came in below the consensus estimate of $676 million. We attribute this and the positive market reaction to strong results in the firm’s lower margin but heavily subscription-based analytics segment. Constant currency Moody’s Analytics revenue grew 11% in the quarter, an uptick from 10% in the second quarter. We will maintain our wide moat rating and $325 fair value estimate on Moody’s shares. We regard shares as being roughly fairly valued.

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Ratings revenue increased 18% against easy comparisons to $696 million. High-yield and leveraged loan ratings revenue was a combined $120 million, up from a very slow $67 million in the year-ago quarter. Investment-grade revenue was down sequentially but relatively steady from the year-ago quarter. Structured finance revenue continues to be soft. Financial institutions and public finance revenue were both down sequentially but up from the year-ago period. Moody's lowered its expectation for fourth-quarter investment-grade and structured finance issuance and as a result now expects full-year ratings revenue to grow in a mid- to high-single-digit percentage range versus its previous high-single-digit percentage expectation.

Management expressed some optimism that refinancing walls have increased and that private equity dry powder could lead to deal activity thus resulting in debt issuance. In addition, management noted debt issuance as a percentage of debt outstanding, what it termed "debt velocity," is well below historical averages. That said, we believe investors should also consider that firms might deleverage, private equity firms may use greater equity to fund deals in a high-rate environment, and that low debt velocity is what you'd expect in a period of rising rates as there is little incentive to refinance.

Moody's Earnings: Better Issuance Outlook; Moody's Analytics Resilient Rajiv Bhatia, CFA, Equity Analyst, 25 Jul 2023

Amid improving bond issuance, wide-moat Moody's posted a decent second quarter. Revenue of $1.49 billion and adjusted EPS of $2.30 topped FactSet consensus estimates by 3% and 2%, respectively. We attribute the beat to better ratings revenue. As we increase our near-term ratings revenue projections, we are modestly increasing our fair value estimate on Moody's shares to $325 from $315.

Ratings revenue increased 6%, and we note the last time ratings revenue increased was the fourth quarter of 2021. Corporate bond volumes which were down sharply in 2022 are showing signs of life. Corporate finance revenues were up 13% with investment grade revenues up 38% and high-yield bond revenues up 48% against an easy comparison. Moody's noted that the duration of bonds issued is declining by a few years with investment grade having average duration of around 12 years and high-yield about 6 years which compares to 15 years and 8 years respectively in prior years. If this trend were to continue, we would view this as a modest positive as more frequent refinancing transactions could result in higher revenue for Moody's. Financial institutions and public, project, and infrastructure finance revenues which tend to be less volatile than other categories performed well with 13% and 4% respectively. Structured finance was the one weak point, with weakness in commercial mortgage-backed securities as the commercial real estate sector sees headwinds. We expect headwinds in structured finance to continue. Given the strong quarter and strength in the financial sector, Moody's raised its overall ratings revenue guidance to high-single-digit revenue growth from a low-to-mid single-digit percentage range.

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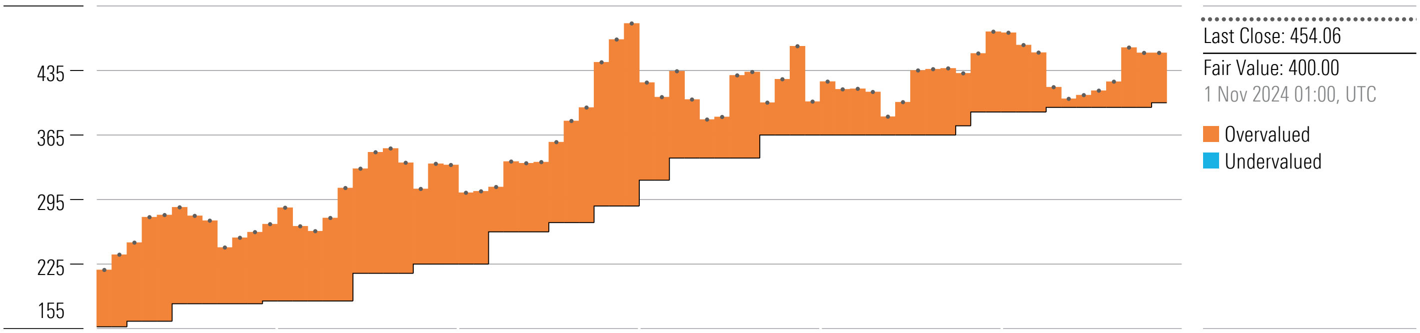
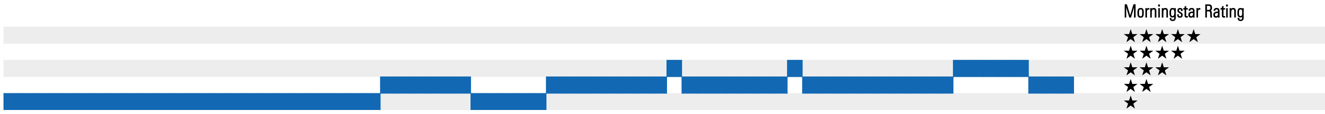
Competitors Price vs. Fair Value

FactSet Research Systems Inc FDS



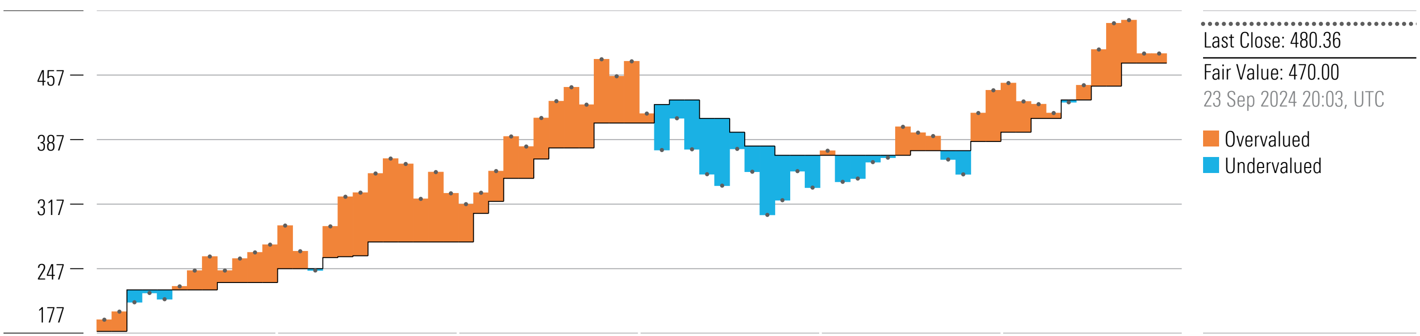
	2019	2020	2021	2022	2023	YTD	
	1.45	1.48	1.69	1.10	1.22	1.15	Price/Fair Value
	35.46	25.06	47.14	-16.73	19.86	-4.18	Total Return %

Morningstar Rating



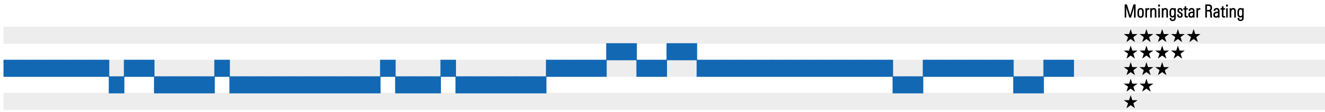
Total Return % as of 31 Oct 2024. Last Close as of 31 Oct 2024. Fair Value as of 1 Nov 2024 01:00, UTC.

S&P Global Inc SPGI



	2019	2020	2021	2022	2023	YTD	
	1.18	1.19	1.17	0.91	1.14	1.03	Price/Fair Value
	62.02	21.37	44.50	-28.32	32.60	9.66	Total Return %

Morningstar Rating



Total Return % as of 31 Oct 2024. Last Close as of 31 Oct 2024. Fair Value as of 23 Sep 2024 20:03, UTC.

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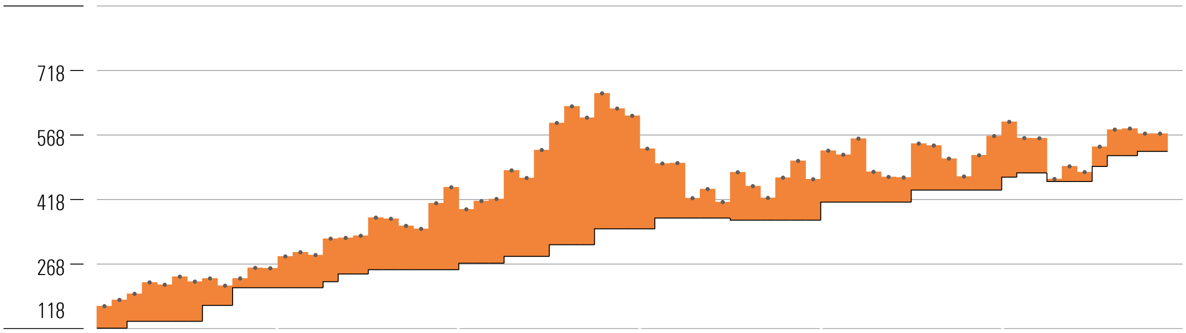
Moodys Corp MCO ★★ 1 Nov 2024 21:38, UTC

Competitors Price vs. Fair Value

MSCI Inc MSCI



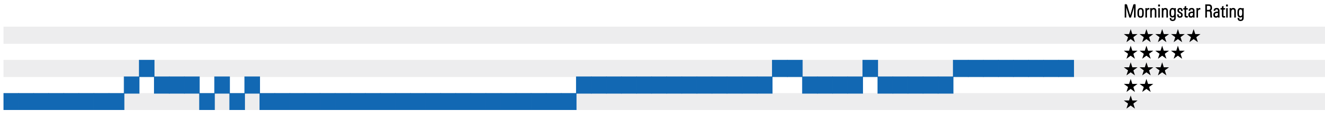
Last Close: 571.20

Fair Value: 530.00
28 Oct 2024 14:06, UTC

Overvalued
Undervalued

	2019	2020	2021	2022	2023	YTD
Price/Fair Value	1.21	1.75	1.75	1.26	1.29	1.09
Total Return %	76.83	74.08	38.03	-23.33	22.79	1.83

Morningstar Rating



Total Return % as of 31 Oct 2024. Last Close as of 31 Oct 2024. Fair Value as of 28 Oct 2024 14:06, UTC.

Morningstar Equity Analyst Report | Report as of 2 Nov 2024 04:09, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NEW YORK STOCK EXCHANGE, INC. Page 13 of 21

Moodys Corp MCO ★★ 1 Nov 2024 21:38, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
454.04 USD 31 Oct 2024	415.00 USD 23 Sep 2024 19:23, UTC	1.09	83.10 USD Bil 1 Nov 2024	Wide	Large Blend	Medium	Exemplary	2 Oct 2024 05:00, UTC

Morningstar Historical Summary

Financials as of 30 Sep 2024

Fiscal Year, ends 31 Dec	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	YTD	TTM
Revenue (USD Mil)	3,334	3,485	3,604	4,204	4,443	4,829	5,371	6,218	5,468	5,916	5,416	6,896
Revenue Growth %	12.2	4.5	3.4	16.6	5.7	8.7	11.2	15.8	-12.1	8.2	22.1	20.4
EBITDA (USD Mil)	1,680	1,618	853	2,170	2,094	2,235	2,654	3,213	2,337	2,630	2,750	3,380
EBITDA Margin %	50.4	46.4	23.7	51.6	47.1	46.3	49.4	51.7	42.7	44.5	50.8	49.0
Operating Income (USD Mil)	1,446	1,480	1,528	1,844	1,925	2,075	2,447	2,844	1,997	2,224	2,357	2,891
Operating Margin %	43.4	42.5	42.4	43.9	43.3	43.0	45.6	45.7	36.5	37.6	43.5	41.9
Net Income (USD Mil)	989	941	267	1,001	1,310	1,422	1,778	2,214	1,374	1,607	1,663	2,003
Net Margin %	29.7	27.0	7.4	23.8	29.5	29.5	33.1	35.6	25.1	27.2	30.7	29.0
Diluted Shares Outstanding (Mil)	215	203	195	194	194	192	189	188	185	184	183	183
Diluted Earnings Per Share (USD)	4.61	4.63	1.36	5.15	6.74	7.42	9.39	11.78	7.44	8.73	9.09	10.94
Dividends Per Share (USD)	1.12	1.36	1.48	1.52	1.76	2.00	2.24	2.48	2.80	3.08	2.55	3.32

Valuation as of 31 Oct 2024

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Recent Qtr	TTM
Price/Sales	6.4	5.9	5.3	7.2	6.0	9.8	10.4	12.3	9.0	12.6	13.3	12.1
Price/Earnings	21.7	21.5	20.3	52.1	25.1	34.7	30.2	35.0	33.3	47.6	46.9	41.5
Price/Cash Flow	21.1	17.2	16.6	42.2	18.4	29.1	28.0	31.2	37.0	35.1	36.2	31.4
Dividend Yield %	1.17	1.36	1.57	1.03	1.26	0.84	0.77	0.63	1.0	0.79	0.7	0.73
Price/Book	78.1	-41.8	-31.8	-76.3	67.1	94.3	36.2	29.9	22.6	22.3	22.9	21.1
EV/EBITDA	11.9	12.9	22.7	15.1	14.6	22.0	22.1	24.3	24.5	29.2	0.0	0.0

Operating Performance / Profitability as of 30 Sep 2024

Fiscal Year, ends 31 Dec	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	YTD	TTM
ROA %	21.8	19.3	5.1	14.4	14.5	14.4	15.7	16.4	9.5	11.1	—	13.4
ROE %	1325	—	—	—	1995	265	163	103	52.4	55.1	—	56.5
ROIC %	44.6	—	—	—	26.1	24.6	25.4	24.5	14.8	17.2	—	19.7
Asset Turnover	0.7	0.7	0.7	0.6	0.5	0.5	0.5	0.5	0.4	0.4	—	0.5

Financial Leverage

Fiscal Year, ends 31 Dec	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Recent Qtr	TTM
Debt/Capital %	—	—	—	—	91.9	90.8	81.4	74.3	75.5	68.8	64.6	—
Equity/Assets %	—	—	—	—	4.8	6.0	12.6	18.6	17.6	22.7	24.8	—
Total Debt/EBITDA	—	—	—	—	2.7	2.8	2.6	2.5	3.4	2.8	2.9	—
EBITDA/Interest Expense	13.6	13.0	5.1	9.6	9.1	9.9	12.9	16.0	9.5	8.2	10.7	9.9

Morningstar Analyst Historical/Forecast Summary as of 22 Oct 2024

Financials

			Estimates		
Fiscal Year, ends 31 Dec 2023	2022	2023	2024	2025	2026
Revenue (USD Mil)	5,468	5,916	7,006	7,236	7,944
Revenue Growth %	-12.1	8.2	18.4	3.3	9.8
EBITDA (USD Mil)	2,329	2,597	3,336	3,315	3,812
EBITDA Margin %	42.6	43.9	47.6	45.8	48.0
Operating Income (USD Mil)	3,520	2,137	2,868	2,892	3,399
Operating Margin %	64.4	36.1	40.9	40.0	42.8
Net Income (USD Mil)	3,219	1,822	2,227	2,227	2,625
Net Margin %	58.9	30.8	31.8	30.8	33.0
Diluted Shares Outstanding (Mil)	185	184	185	184	180
Diluted Earnings Per Share(USD)	17.43	9.90	12.02	12.08	14.59
Dividends Per Share(USD)	2.80	3.08	3.40	3.74	4.11

Forward Valuation

			Estimates		
	2022	2023	2024	2025	2026
Price/Sales	9.3	12.1	11.8	11.4	10.4
Price/Earnings	16.0	39.5	38.0	37.8	31.3
Price/Cash Flow	—	—	—	—	—
Dividend Yield %	1.0	0.8	0.8	0.8	0.9
Price/Book	20.4	21.7	14.0	15.5	14.5
EV/EBITDA	24.6	29.5	26.2	26.4	22.9

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Moodys Corp MCO ★★ 1 Nov 2024 21:38, UTC

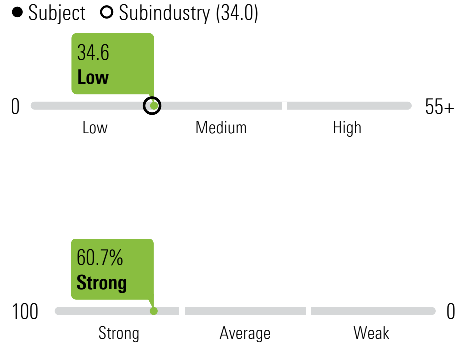
Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
454.04 USD 31 Oct 2024	415.00 USD 23 Sep 2024 19:23, UTC	1.09	83.10 USD Bil 1 Nov 2024	Wide	Large Blend	Medium	Exemplary	2 Oct 2024 05:00, UTC

ESG Risk Rating Breakdown

Exposure	
Company Exposure[1]	34.6
– Manageable Risk	32.9
Unmanageable Risk[2]	**1.7**

Management	
Manageable Risk	32.9
– Managed Risk[3]	20.0
Management Gap[4]	**13.0**

Overall Unmanaged Risk	**14.6**



- Exposure represents a company's vulnerability to ESG risks driven by their business model
- Exposure is assessed at the Subindustry level and then specified at the company level
- Scoring ranges from 0-55+ with categories of low, medium, and high-risk exposure

- Management measures a company's ability to manage ESG risks through its commitments and actions
- Management assesses a company's efficiency on ESG programs, practices, and policies
- Management score ranges from 0-100% showing how much manageable risk a company is managing

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 60.7% 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 Assessment[5]

ESG Risk Rating is of Oct 02, 2024. Highest Controversy Level is as of Oct 08, 2024. Sustainalytics Subindustry: Financial Exchanges and Data Services. Sustainalytics provides Morningstar with company ESG ratings and metrics on a monthly basis and as such, the ratings in Morningstar may not necessarily reflect current Sustainalytics' scores for the company. For the most up to date rating and more information, please visit: sustainalytics.com/esg-ratings/.

Peer Analysis 02 Oct 2024

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	
Moodys Corp	34.6 | Low	0 – 55+	60.7 | Strong	100 – 0	14.6 | Low	0 – 40+
FactSet Research Systems Inc	36.1 | Medium	0 – 55+	58.3 | Strong	100 – 0	16.5 | Low	0 – 40+
S&P Global Inc	33.7 | Low	0 – 55+	69.3 | Strong	100 – 0	11.5 | Low	0 – 40+
Broadridge Financial Solutions Inc	35.6 | Medium	0 – 55+	60.9 | Strong	100 – 0	15.5 | Low	0 – 40+
MSCI Inc	33.1 | Low	0 – 55+	59.4 | Strong	100 – 0	14.4 | Low	0 – 40+

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Appendix
Historical Morningstar Rating

Moodys Corp MCO 1 Nov 2024 21:38, UTC

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
★★	★★	★★★	★★	★★	★★	★★	★★	★★★	★★★	★★★	★★
Dec 2019	Nov 2019	Oct 2019	Sep 2019	Aug 2019	Jul 2019	Jun 2019	May 2019	Apr 2019	Mar 2019	Feb 2019	Jan 2019
★★	★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★

FactSet Research Systems Inc FDS 1 Nov 2024 21:40, UTC

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
★	★	★	★	★	★	★	★	★	★	★	★
Dec 2019	Nov 2019	Oct 2019	Sep 2019	Aug 2019	Jul 2019	Jun 2019	May 2019	Apr 2019	Mar 2019	Feb 2019	Jan 2019
★	★	★	★	★	★	★	★	★	★	★	★

S&P Global Inc SPGI 1 Nov 2024 21:37, UTC

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
★★	★★	★★	★★	★★	★★	★★	★★	★★	★★★	★★	★★
Dec 2019	Nov 2019	Oct 2019	Sep 2019	Aug 2019	Jul 2019	Jun 2019	May 2019	Apr 2019	Mar 2019	Feb 2019	Jan 2019
★★	★★	★★★	★★★	★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★

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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 ★★
Dec 2019 ★★	Nov 2019 ★★	Oct 2019 ★★★	Sep 2019 ★★	Aug 2019 ★	Jul 2019 ★	Jun 2019 ★	May 2019 ★	Apr 2019 ★	Mar 2019 ★	Feb 2019 ★	Jan 2019 ★

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, indepth 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 shortterm market-price movements), but we believe these negatives are mitigated by deep analysis and our longterm 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 singlepoint 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 returns 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 workingcapital accounts, and capital spending. Based on these projections, we calculate earnings before interest, after taxes (EBI) and the net new investment (NNI) to derive 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 EBI 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.

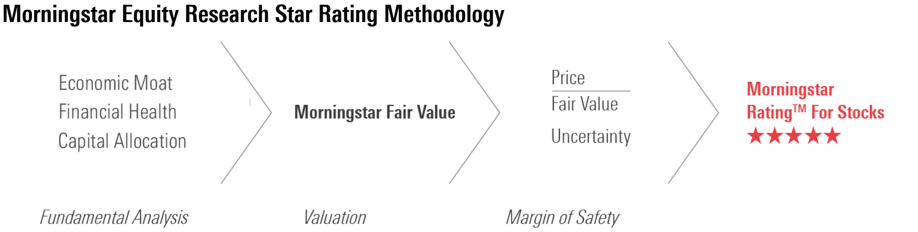
Because a dollar earned today is worth more than a dollar earned tomorrow, we discount our projections of cash flows in stages I, II, and III to arrive at a total present value of expected future cash flows. Because we are modeling free cash flow to the firm—representing cash available to provide a return 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



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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 Uncertainty Ratings	★★★★★Rating	★Rating
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.

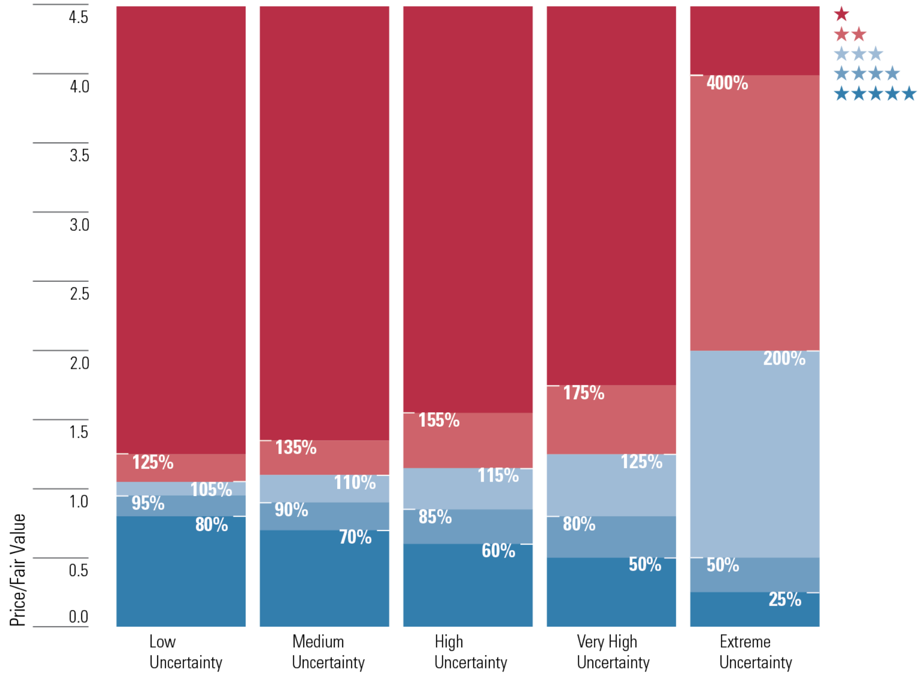
4. Market Price

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 adjusted 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-

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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.

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