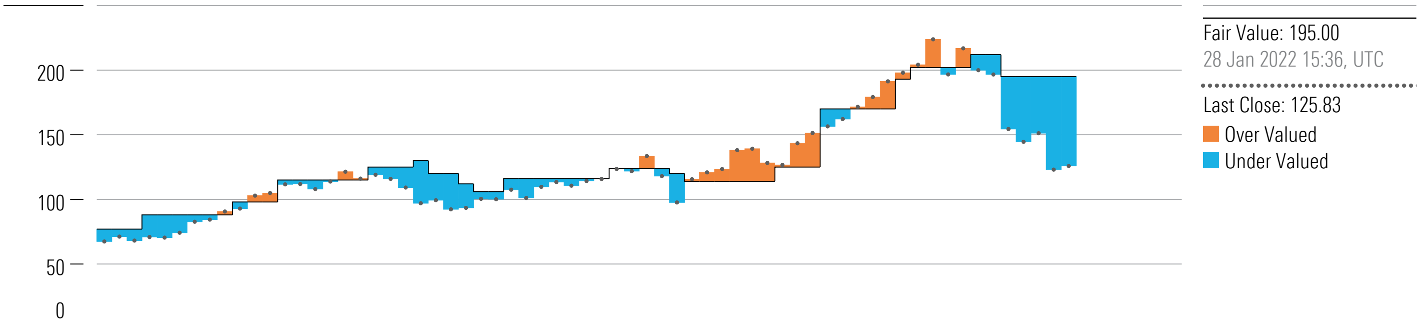
Morningstar Equity Analyst Report | Report as of 7 May 2022 14:48, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

T. Rowe Price Group Inc TROW ★★★★★ 6 May 2022 21:23, UTC

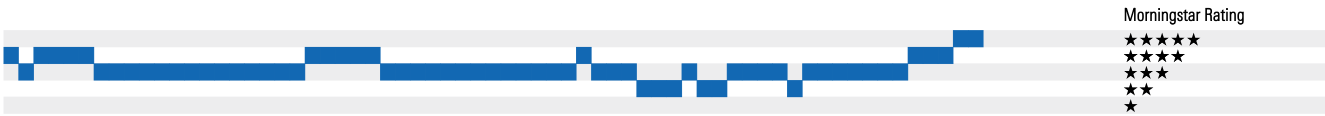
Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
125.83 USD	195.00 USD	0.65	28.60 USD Bil	Wide	Stable	Medium	Exemplary	
6 May 2022	28 Jan 2022 15:36, UTC		6 May 2022					4 May 2022 05:00, UTC

Price vs. Fair Value



	2017	2018	2019	2020	2021	YTD	
	1.07	0.77	0.98	1.21	0.93	0.65	Price/Fair Value
	42.45	-9.35	35.27	27.21	34.72	-35.40	Total Return %

Morningstar Rating



Total Return % as of 6 May 2022. Last Close as of 6 May 2022. Fair Value as of 28 Jan 2022 15:36, UTC.

Contents

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The primary analyst covering this company does not own its stock.

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

Outflows and Market Losses Have an Impact on T. Rowe Price's Q1 Results

Analyst Note Greggory Warren, CFA, Sector Strategist, 29 Apr 2022

While there was little in wide-moat T. Rowe Price's first-quarter results that would alter our long-term view of the firm, we expect to lower our fair value estimate to $175 per share from $195 to account for adjustments to our near-term forecast. T. Rowe Price closed out the March quarter with $1.552 trillion in managed assets, down 8.1% sequentially but up 2.2% on a year-over-year basis. Absent the acquisition of Oak Hill Advisors, which closed at the end of December 2021, the firm's AUM was down 0.6% year over year.

Net outflows of $5.3 billion, while disappointing, were significantly better than the $22.7 billion in outflows that the firm recorded in the December quarter. That said, with the S&P 500 Index suffering its worst quarterly loss since the start of the pandemic, and with the Bloomberg U.S. Aggregate Bond Index recording its steepest decline since late 1980, the firm reported market losses in all segments of its operations.

While average AUM was up 3.4% year over year during the March quarter, T. Rowe Price reported a 2.0% increase in net revenue when compared with the prior year's period due primarily to product mix shift. With the company facing another difficult quarter in the equity markets this quarter, we believe that top-line growth will drop into negative territory for the full year. This will likely take our forecast average annual revenue growth over the next five years to flat to down low-single-digits (from our

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Sector	Industry
Financial Services	Asset Management

Business Description

T. Rowe Price provides asset-management services for individual and institutional investors. It offers a broad range of no-load U.S. and international stock, hybrid, bond, and money market funds. At the end of 2021, the firm had $1.688 trillion in managed assets, composed of equity (61%), balanced (29%), and fixed-income (10%) offerings. Approximately two thirds of the company's managed assets are held in retirement-based accounts, which provides T. Rowe Price with a somewhat stickier client base than most of its peers. The firm also manages private accounts, provides retirement planning advice, and offers discount brokerage and trust services. The company is primarily a U.S.-based asset manager, deriving just under 10% of its AUM from overseas.

previous forecast of a positive 2.7% CAGR for revenue during 2022-26).

First-quarter adjusted operating margins of 44.4% were 450 basis points lower than the year-ago period. Management had warned that the firm was likely to see operating expenses grow 12%-16% this year as it folded Oak Hill Advisors into its operations, and it didn't disappoint with costs running 14.3% higher during the March quarter. That said, the company did update its full-year operating expense growth forecast to a range of 10%-14%.

Business Strategy & Outlook Greggory Warren, CFA, Sector Strategist, 28 Jan 2022

In an environment where active fund managers are under assault for poor relative performance and high fees, we believe wide-moat-rated T. Rowe Price is the best positioned of the U.S.-based active asset managers we cover. The biggest differentiators for the firm are the size and scale of its operations, the strength of its brands, its consistent record of active fund outperformance, and reasonable fees. T. Rowe Price has historically had a stickier set of clients than its peers as well, with two thirds of its assets under management derived from retirement-based accounts. At the end of 2021, 66%, 63%, and 65% of the company's fund AUM were beating their passive peer medians on a 3-, 5-, and 10-year basis, respectively, with 50% of fund assets closing out the year with an overall rating of 4 or 5 stars, better than just about every other U.S.-based asset manager we cover. T. Rowe Price also has a much stronger Morningstar Success Ratio--which evaluates whether a firm's open-end funds deliver consistent, peer-beating returns over longer periods--giving it an additional leg up.

While T. Rowe Price will face headwinds in the near to medium term as baby boomer rollovers continue to affect organic growth in the defined-contribution channel, we think the firm and defined-contribution plans in general have a compelling cost and service argument to make to pending retirees, which should mitigate some of the impact. We also believe T. Rowe Price is uniquely positioned among the firms we cover (as well as the broader universe of active asset managers) to pick up business in the retail-advised channel, given the solid long-term performance of its funds and reasonableness of its fees. That said, the company is not immune to the pressures caused by the growth of low-cost passively managed products. With the company likely to generate low- to mid-single-digit AUM growth on average going forward (aided by 0%-1% average annual organic growth), we see top-line growth expanding at a 2.7% CAGR, with operating margins of 44%-46% on average, during 2022-26.

Bulls Say Greggory Warren, CFA, Sector Strategist, 28 Jan 2022

- With $1.688 trillion in AUM at the end of 2021, T. Rowe Price is one of the larger U.S.-based asset managers. Retirement accounts and variable-annuity investment portfolios account for two thirds of assets.
- At the end of the fourth quarter of 2021, 76% and 74% of T. Rowe Price's multi-asset funds were beating their passive peer medians on a 3- and 5-year basis, respectively.

Morningstar Equity Analyst Report | Report as of 7 May 2022 14:48, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS Page 3 of 21

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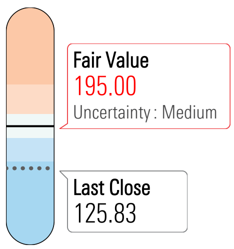
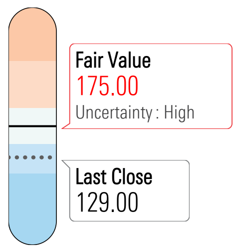
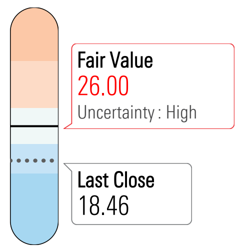
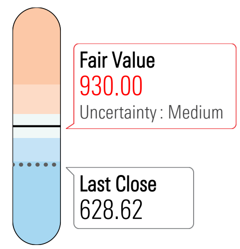
Competitors

	T. Rowe Price Group Inc TROW	Affiliated Managers Group Inc AMG	Invesco Ltd IVZ	BlackRock Inc BLK
				
Economic Moat	Wide	Narrow	Narrow	Wide
Moat Trend	Stable	Negative	Negative	Stable
Currency	USD	USD	USD	USD
Fair Value	195.00 28 Jan 2022 15:36, UTC	175.00 2 May 2022 21:17, UTC	26.00 13 Apr 2022 18:27, UTC	930.00 13 Apr 2022 18:01, UTC
1-Star Price	263.25	271.25	40.30	1,255.50
5-Star Price	136.50	105.00	15.60	651.00
Assessment	Significantly Undervalued 6 May 2022	Under Valued 6 May 2022	Under Valued 6 May 2022	Under Valued 6 May 2022
Morningstar Rating	★★★★★6 May 2022 21:23, UTC	★★★★6 May 2022 21:23, UTC	★★★★6 May 2022 21:23, UTC	★★★★6 May 2022 21:23, UTC
Analyst	Greggory Warren, Sector Strategist	Greggory Warren, Sector Strategist	Greggory Warren, Sector Strategist	Greggory Warren, Sector Strategist
Capital Allocation	Exemplary	Exemplary	Standard	Exemplary
Price/Fair Value	0.65	0.74	0.71	0.68
Price/Sales	3.73	2.37	1.25	4.93
Price/Book	3.16	1.88	0.74	2.53
Price/Earning	10.18	9.86	6.50	15.79
Dividend Yield	3.53%	0.03%	3.68%	2.75%
Market Cap	28.60 Bil	5.03 Bil	8.40 Bil	95.38 Bil
52-Week Range	122.22—224.56	121.33—191.62	18.14—29.71	610.00—973.16
Investment Style	Mid Value	Small Value	Mid Value	Large Core

- Target-date retirement portfolios have been a significant source of organic growth, generating just under $100 billion in net inflows (equivalent to an 8% rate of annual growth) for the firm the past 10 years.

Bears Say Greggory Warren, CFA, Sector Strategist, 28 Jan 2022

- The company's equity performance has weakened, with just 59% and 61% of funds beating their passive peer medians on a 3- and 5-year basis, respectively, at the end of 2021.
- Fixed-income performance has stumbled as well, with just 65% and 55% of bond funds beating their passive peer medians on a 3- and 5-year basis, respectively, at the end of last year.
- With a large portion of the firm's assets generating fees based on daily AUM levels rather than monthly or quarterly averages, revenue will be more heavily affected during periods of extreme market volatility.

Economic Moat Greggory Warren, CFA, Sector Strategist, 28 Jan 2022

In our view, the asset-management business can be conducive to economic moats, with switching costs

Morningstar Equity Analyst Report | Report as of 7 May 2022 14:48, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS Page 4 of 21

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and intangible assets the most durable sources of competitive advantage for firms operating in the industry. Although the switching costs might not be explicitly large, inertia and the uncertainty of achieving better results by moving from one asset manager to another tend to keep many investors invested with the same funds for extended periods of time. As a result, money that flows into asset-management firms tends to stay there. For the industry as a whole, the average narrow redemption (retention) rate, which does not include exchange redemptions, has been 25% or less (75% or greater) annually during the past 5-, 10-, 15-, 20-, 25-, and 30-year time frames. Including exchange redemptions, the rate has been less than 30% (greater than 70%). Because T. Rowe Price does not break out its net flows (which are gross sales less investor redemptions) we assume that, based on its historical record of positive organic growth, the company's average annual redemption rate has been at its worst no worse than the industrywide rate, especially given the tailwinds that have been provided at times by defined contribution plans the past couple of decades--noting that redemptions have outpaced inflows into 401(k) plans since the baby boomer retirement phase started in 2011. During the past 5 (10) calendar years, T. Rowe Price's organic growth rate has averaged positive 0.6% (0.4%) with a standard deviation of 1.5% (1.7%), which meant that the firm was in most years compensating for investor redemptions with new flows into its products. We expect T. Rowe Price will generate at least 0.8% average annual organic growth during 2022-26, with a standard deviation of 1.9%, and 2.6% on average during 2022-31, with a standard deviation of 2.6%, driven by recent large investments in retail distribution, enhanced product/vehicles and technology, as well as the company's move into alternative assets. As a result, T. Rowe Price should continue to have a slightly better-than-average switching cost profile relative to its active asset manager peers despite continuing to see redemption rates at or above the industry average due to the continuation of the baby boomer retirement cycle, as well as the growth of passively managed target date funds.

We believe traditional asset managers like T. Rowe Price can improve on the switching cost advantage inherent in their business models with organizational attributes (such as product mix, distribution channel concentration, and geographic reach) and intangible assets (such as strong and respected brands and manager reputations derived from successful track records of investment performance), which can provide them with a degree of differentiation from their peers. While the barriers to entry are not all that significant for the industry, the barriers to success are extremely high, as it not only takes time and skill to put together a long enough record of investment performance to gather assets but even more time to build the scale necessary to remain competitive in the industry. This has generally provided larger, more established asset managers with an advantage over smaller players in the industry, especially when it comes to gaining cost-effective access to distribution platforms. Competition for investor inflows can be stiff and has traditionally centered on investment performance, especially in the retail channel. Although institutional investors and retail gatekeepers are exerting pressure on pricing, competition based on price has been rare, aside from what we've seen in the U.S. market for exchange-traded funds. While compensation remains the single-largest expense for most asset managers, supplier

Morningstar Equity Analyst Report | Report as of 7 May 2022 14:48, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS Page 5 of 21

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power has been manageable as many firms have reduced their reliance on star managers and have tied manager and analyst pay to both portfolio and overall firm performance. Asset stickiness (the degree to which assets remain with a manager over time) tends to be a differentiator between wide- and narrow-moat firms, as those asset managers that have demonstrated an ability to gather and retain investor assets during different market cycles have tended to produce more stable levels of profitability, with returns exceeding their cost of capital for longer periods. While the more broadly diversified asset managers are structurally set up to hold on to assets regardless of market conditions, it has been firms with solid product sets across asset classes (built on repeatable investment processes), charging reasonable fees, and with singular corporate cultures dedicated to a common purpose that have done a better job of gathering and retaining assets. Firms offering niche products with significantly higher switching costs--such as retirement accounts, funds with lockup periods, and tax-managed strategies--have tended to hold on to assets longer.

T. Rowe Price, in our view, has a wide economic moat around its operations. We think the company's size and scale, the strength of its brands, and its consistent record of active fund outperformance provides the firm with a leg up over competitors. While T. Rowe Price's product mix is not overly diverse, with 90% of its $1.688 trillion in AUM at the end of 2021 dedicated to equity (61%) and multi-asset/balanced (29%) strategies, the company derives a significant portion (just over two thirds) of its AUM from defined contribution retirement assets and deferred annuity and direct retail retirement assets. With the switching costs for these tax-deferred products being significantly higher than those for most other accounts (the majority of which are non-tax-deferred), T. Rowe Price has traditionally had a stickier set of assets than its peers. Benefiting from a steady stream in investor inflows into defined contribution and other retirement plans, the firm has recorded net long-term outflows in only 18 calendar quarters the past two decades (half of which have occurred during the past five years as the company has felt the brunt of the baby boom retirement phase as well as an easing of restrictions on loans and distributions from the CARES act in response to the COVID-19 pandemic). Furthermore, the firm's cost-conscious culture and stable AUM and revenue levels have allowed it to consistently generate operating margins of 40% or more (the highest among the traditional U.S.-based asset managers we cover). T. Rowe Price's ability to generate more stable revenue, profitability, and cash flows than its peers has provided the company, in our view, with more than enough excess capital to continue building on the competitive advantages it already possesses. The firm has been fairly effective managing its scale, with adjusted operating margins (by our calculations) of 44.4% (45.0%) on average during 2017-21 (2012-21), allowing it to generate around $2.2 billion ($1.9 billion) in annual free cash flow (defined as cash flow from operations less capital expenditures) on average, with adjusted ROICs generally exceeding 60% (and ROICs with goodwill included exceeding 40%).

T. Rowe Price has withstood the headwinds facing active managers with its rigorous research process,

Morningstar Equity Analyst Report | Report as of 7 May 2022 14:48, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS Page 6 of 21

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strong performance across asset classes, and continued investment in its research team. At the end of 2021, the firm had close to 50% of its rated U.S. mutual funds (across primary share classes) rated 4 or 5 stars by Morningstar, with 70% receiving gold, silver, or bronze medal ratings. As most broker/dealer and advisory platforms tend to give deferential treatment to 4- and 5-star funds, T. Rowe Price is well positioned. With solid three- and five-year relative investment performance generated on a consistent basis also tending to be an important benchmark for the gatekeepers of retail-advised and institutional platforms, T. Rowe Price continues to hold its own, despite having 66%, 63%, and 65% of T. Rowe Price's sponsored U.S. mutual funds beating their passively managed peers on a 3-, 5-, and 10-year basis, respectively, at the end of 2021--uncharacteristic for a firm that has consistently been in the upper quartile on a performance basis with its fund offerings. One measure that highlights the strength of T. Rowe Price's investment acumen relative to its active manager peers is the Morningstar Success Ratio, which measures the potential for a firm's funds to generate peer-beating returns consistently over the long run. Morningstar calculates two different success ratios--the Morningstar Success Ratio and the Morningstar Risk-Adjusted Success Ratio--over 3-, 5-, and 10-year time frames, with the former considering each fund's category rank based on total return and the latter looking at a fund's category rank based on Morningstar Risk-Adjusted Return. The higher the Success Ratio, the greater chance that investors will see peer-beating returns generated on a more consistent basis. By this measure, T. Rowe Price is the only winner among the U.S.-based asset managers we cover, with a five-year Risk-Adjusted Success Ratio of 65.0 compared with a group average (median) of 40.3 (37.5). Compared with the broader universe of fund families, T. Rowe also scores well, with its five-year Risk-Adjusted Success Ratio beating the industry average (median) of 45.8 (46.0).

Much of the success T. Rowe Price has had historically has been built on the firm having a single corporate culture dedicated to a common purpose, which has been reflected in the level and consistency of its investment performance, the rate of organic growth the company has been able to generate, and the relatively small amount of employee turnover through the years. Morningstar views the management team at T. Rowe Price as being highly insular and very protective of the culture that the firm has built--one that has cultivated a disciplined, risk-conscious investment process that has consistently produced successful results across its fund lineup, often with less volatility than peers. As part of ongoing efforts to enhance the company's competitive positioning, management has been willing to evolve, though, focusing for much of the past several years on building additional scale through new investment products, expanding the reach of its investment advisory business by further penetrating domestic distribution channels (like the retail-advised channel) and moving into non-U.S. markets (especially emerging and developing economies in the Asia-Pacific region), and bolstering technology in an effort to improve performance outcomes, drive down incremental costs, and improve product distribution. The company maintains an investment focus while recognizing that the business must evolve to flourish in an industry that continues to gravitate toward passive investing. All of this

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explains why T. Rowe Price receives some of the highest marks for corporate culture among the U.S.-based asset managers we cover. Our manager research group has also consistently awarded it a Positive Parent rating, owing not only to its ability to produce repeatable investment strategies but to prudently adapt to the changing competitive landscape all while attracting and retaining quality investment talent. We continue to believe that T. Rowe Price is well positioned to navigate the headwinds that the U.S.-based asset managers will face during the next decade and expect it to be one of the rare organic growth generators in the group.

Fair Value and Profit Drivers Greggory Warren, CFA, Sector Strategist, 28 Jan 2022

We've lowered our fair value estimate for T. Rowe Price to $195 per share from $212 to account for adjustments to our near-term forecast (primarily related to organic AUM growth and expenses) based on commentary from management about near-term flows and an expected rise in costs following the closure of the Oak Hill Advisors deal. Our new fair value estimate implies a price/earnings multiple of 15.0 times our 2022 earnings estimate and 14.0 times our 2023 earnings estimate. For some perspective, during the past five (10) years, the company's shares have traded at an average of 15.5 (17.1) times trailing earnings. We assume a 21% U.S. statutory corporate tax rate and a 9% cost of equity in our valuation.

T. Rowe Price closed out 2021 with a record $1.688 trillion in managed assets, up 14.8% year over year. Absent the OHA acquisition, which closed at the end of December, the firm's AUM was up 11.6% during 2021. Net outflows of $28.5 billion ($2.5 billion of which came from T. Rowe Price redeeming investments in its own mutual funds during the quarter to finance the cash portion of the OHA deal) last year were the worst we can ever remember seeing from the company.

Management noted that net flows during 2022 are likely to fall below their long-term guidance for 1%-3% organic AUM growth. As such, we have revised our near-term forecast to include flat to slightly negative organic AUM growth in 2022, followed by flat to slightly positive organic AUM growth next year. Our five-year forecast for organic AUM growth now stands at 0%-1% on average annually during 2022-26 (compared with 0%-2% previously). Flows should pick up more after 2025 when fewer baby boomers retiring and millennials starting to hit their peak earnings years, with net redemptions from retirement plans putting less of a drag on annual flows.

Despite management fees continuing to be pressured by industry dynamics, we expect T. Rowe Price, which is somewhat insulated due to its channel mix and already low-cost offerings, to generate a 2.7% CAGR for revenue during 2022-26, aided somewhat by the addition of Oak Hill Advisors to the mix. As for profitability, we expect to see adjusted operating margins for the firm in a 44%-46% range (down from 47%-49% previously as OHA looks to be less profitable to the firm than we had been imagining given management's current guidance on costs). We also expect to see T. Rowe Price invest more

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heavily in key regions and channels to drive additional organic growth.

Risk and Uncertainty Greggory Warren, CFA, Sector Strategist, 28 Jan 2022

Our uncertainty rating for T. Rowe Price is Medium. At this time, we don't consider any environmental, social, or governance issues to be material enough to affect our uncertainty rating or fair value estimate. With more than 80% of annual revenue derived from management fees levied on AUM, dramatic market movements, shifts in product mix, and/or changes in fund flows can have a significant impact on operating income and cash flows. T. Rowe Price's investment offerings are overwhelmingly tied to U.S. equity markets, with 90% of its AUM invested in equity (61%) and balanced (29%) strategies. Additionally, 10 T. Rowe Price funds--Blue-Chip Growth, Growth Stock, Capital Appreciation, Mid-Cap Growth, New Horizons, Value, Emerging Markets Stock, Overseas Stock, Equity Income, and Institutional Large-Cap Growth--accounted for just over 20% of the firm's AUM at the end of 2020, as well as 30% of the company's investment advisory revenue during that year. As T. Rowe Price increases its investment in overseas asset managers, especially in emerging and developing economies like China and India, it is exposing itself to myriad cultural, economic, political, and currency risks that exist in the markets these managers serve. The company is, however, at a lower risk of experiencing material financial impacts from ESG factors, due to its low exposure to risks that are inherent to the industry, as well as its own operations, offset by the firm's strong management of its material ESG issues (considered to be an industry leader in the area of corporate governance).

Capital Allocation Greggory Warren, CFA, Sector Strategist, 28 Jan 2022

T. Rowe Price is unique among the publicly traded U.S.-based asset managers in that it has traditionally been run by a group of top officers (the management committee) who consult one another before making major decisions. Rob Sharps has been president and CEO of T. Rowe Price since the end of 2021. Former chairman and CEO Bill Stromberg remains on as non-executive chairman of the company's board of directors, following his retirement from his role as chief executive role at the end of last year. Stromberg has been with the firm for 35 years (rising from an initial role as an analyst to chairman and CEO) and has stuck to a fairly typical retirement time frame for the firm's executives. Sharps has followed a similar career track, having started with T. Rowe Price as an analyst some 24 years ago before going on to become a well-regarded portfolio manager and eventually president and CIO. His responsibilities and influence have broadened significantly in recent years as he has taken a more active role in corporate strategy, product development, and other enterprise initiatives, basically prepping him for the top job at the firm.

Our capital allocation rating for T. Rowe Price is exemplary. This rating focuses on the three key areas we look at to assess management efficacy: balance sheet health, investment efficacy, and shareholder distributions. Given that a firm's financial health directly affects its ability to invest in future growth opportunities, return cash to shareholders, or even remain a going concern, it is important to pay attention to its balance sheet strength. Asset managers, in particular, have a high degree of revenue cyclicality and operating leverage (with results tending to be impacted by the vagaries of the equity and credit markets) and are generally asset light. As such, they should not maintain more than low to moderate levels of financial leverage. T. Rowe Price, in our view, has maintained a very sound balance sheet, exemplified by $1.5 billion in cash and equivalents, $3.0 billion in investments, and no debt on its books at the end of 2021. The firm has historically maintained extremely low debt to total capital and debt to EBITDA levels (due primarily to the fact that it has had no debt on its books since 2002). Going forward, we expect net debt to adjusted EBITDA (as well as to enterprise value) to remain extremely low.

We feel that the company's management committee, which is responsible for guiding, implementing, and reviewing major policy and operating initiatives, has done an exemplary job over the years. Capital allocation has been prudent, with the company carrying little to no debt on its books, engaging in very little acquisition activity, and tending to return cash to shareholders as share repurchases and dividends. As part of ongoing efforts to enhance the company's competitive positioning, management has been focused on building additional scale through new investment products, expanding the reach of its investment advisory business by further penetrating domestic distribution channels and moving into non-U.S. markets (especially in emerging and developing economies), and investing in technology and business transformation aimed at improving client experiences and delivering operating efficiencies across the enterprise.

While the more recent pursuit of Oak Hill Advisors might run contrary to the firm's past history of preferring to grow organically, the flow headwinds that T. Rowe Price will continue to face over the next decade, as baby boomer rollovers continue to affect organic growth in the retirement channel, and the need to diversify the existing portfolio to includes products that are less at risk of fee compression from low-cost index-based products, makes the move into alternatives (where we expect to see above average levels of organic growth relative to traditional asset classes over the next decade) a logical move. Overall, it looks like management is paying a decent premium (mid-teens EV/EBITDA multiple) for an alternative asset manager that is contributing $47 billion in primarily alternative credit AUM earning fees of around 100 basis points on average (when performance fees are included).

On the distribution front, T. Rowe Price has generally returned excess capital to shareholders as share repurchases and dividends. During the past 10 years, the firm repurchased (net of share issuances) $4.2 billion of common stock and paid out $7.0 billion as dividends. Management remains committed to repurchasing shares opportunistically when they are trading at a significant discount to intrinsic value (as well as on a more regular basis to offset dilution from stock-based compensation). The company remains comfortable with the 35%-40% payout ratio we've seen for the dividend over the past five years.

Morningstar Equity Analyst Report | Report as of 7 May 2022 14:48, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS Page 10 of 21

T. Rowe Price Group Inc TROW ★★★★★ 6 May 2022 21:23, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
125.83 USD 6 May 2022	195.00 USD 28 Jan 2022 15:36, UTC	0.65	28.60 USD Bil 6 May 2022	Wide	Stable	Medium	Exemplary	4 May 2022 05:00, UTC

Analyst Notes Archive

Poor Flows and Higher Expense Projections Weigh on T. Rowe Price; Lowering FVE to $195 Per Share Greggory Warren, CFA, Sector Strategist, 28 Jan 2022

While there was little in wide-moat rated T. Rowe Price's fourth-quarter results that would alter our long-term view of the firm, we are lowering our fair value estimate to $195 per share from $212 to account for adjustments to our near-term forecast (primarily related to organic AUM growth and expenses) based on commentary from management about near-term flows and an expected rise in costs following the closure of the Oak Hill Advisors deal.

T. Rowe Price closed out 2021 with a record $1.688 trillion in managed assets, up 4.7% sequentially and 14.8% on a year-over-year basis. Absent the OHA acquisition, which closed at the end of December, the firm's AUM was up 1.8% sequentially and 11.6% year over year. Net outflows of $22.7 billion ($2.5 billion of which came from T. Rowe Price redeeming investments in its own mutual funds during the quarter to finance the cash portion of the OHA deal) were the worst we can ever remember seeing from the company.

While average AUM was up 18.6% year over year during the fourth quarter, T. Rowe Price reported a 13.0% increase in net revenue when compared with the prior year's period due to product mix shift and target date fund fee reductions that took effect in the back half of the year. Full-year top-line growth of 23.6% was in line with our forecast calling for 23.4% revenue growth during 2021.

As for profitability, full-year adjusted operating margins of 50.0% were 370 basis points higher than the year-ago period and in line with our projections. Management tried to get out in front of its expense issues this year (with expenses like marketing and distribution likely returning to more normal levels as the operating environment moves toward a post-COVID-19 world) by noting that the firm is likely to see expenses grow 12%-16% this year, which is inclusive of a full-years' worth of OHA's operating expenses. This led to a lower profitability contribution from OHA than we had forecast previously, impacting our valuation.

Asset Manager Industry Consolidation Gathering Steam in a What's Likely to be a Decadeslong Process Greggory Warren, CFA, Sector Strategist, 1 Dec 2021

For much of the past five years, we've believed that industry consolidation was inevitable for the traditional U.S.-based asset managers as they faced a new world order where organic growth and fees would be pressured, participants were expected to spend more on their investment operations and distribution capabilities, and profit margins were pressured. As we move forward, we expect to see a combination of capability-based transactions (aimed at filling product holes or diversifying a firm's operations by asset class/product, distribution channel or geography), transformative-scale acquisitions (which would be a hybrid of capability-based and pure-consolidation transaction) and deals that are purely aimed at the consolidation of existing fund infrastructure.

We expect most of the firms in our coverage to consolidate internally where it makes sense, with many also pursuing an external consolidation strategy aimed at increasing and/or diversifying their product scale, as well as improving their asset class/product, distribution channel, or geographic positioning. We expect most of the U.S.-based asset managers we cover to be buyers rather than sellers. Much like past consolidation phases, we envision the earliest deals being exemplified by asset managers looking to fill product sets or expanding their distribution reach, with enhanced scale being a bonus. These deals are likely to be more expensive than the purely scale-driven transactions that we expect to be more prevalent in the later innings of the consolidation phase we see occurring over the next decade or so.

When evaluating the prices that asset managers are willing to pay for other asset managers it pays to look at both current valuation metrics and historical take-out multiples for mergers and acquisitions in the asset management industry. Overall, we think that 9–10 times EBITDA is generally a good place to start for any acquired firm, working up or down from there based on the dynamics of the business.

T. Rowe Price's Purchase of Alternative Asset Manager Helps Diversify Organic Growth Greggory Warren, CFA, Sector Strategist, 1 Nov 2021

Having taken a deeper look at our long-term projections for wide-moat-rated T. Rowe Price following the company's release of third-quarter earnings, as well as news that it has acquired alternative credit manager Oak Hill Advisors, we've raised our fair value estimate for the firm to $212 per share from $202. Most of the improvement came from the addition of the alternative asset platform (which we see diversifying the company's portfolio into less exposed areas of the market from a fee compression perspective) to our longer-term forecasts for the company's AUM, revenue and profitability.

Our new outlook has the company overseeing close to $1.9 trillion ($2.7 trillion) in AUM by the end of 2025 (2030), period(s) that include equity market corrections midway through the five-year cycle. We expect to see improvements in T. Rowe Price's annual organic growth profile, which we envision in a 0% to positive 1% range over the next five years, with flows picking up after 2025 when fewer baby boomers retiring and millennials starting to hit their peak earnings years puts less of a drag on flows. Our five-year CAGR for overall AUM growth is in a range of 5%-8% annually during 2021-25 (up from 5%-7% previously).

Despite management fees continuing to be pressured by industry dynamics, we expect T. Rowe Price, which is somewhat insulated due to its channel mix and already low-cost offerings, to generate a 8.4% CAGR for revenue over our five-year forecast period (up from 7.7% previously), aided by the addition of Oak Hill Advisors to the mix. As for profitability, we expect to see adjusted operating margins of 47%-49%, even as the firm invests in key regions and channels to drive additional growth. As such, T. Rowe

Morningstar Equity Analyst Report | Report as of 7 May 2022 14:48, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS Page 12 of 21

T. Rowe Price Group Inc TROW ★★★★★ 6 May 2022 21:23, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
125.83 USD 6 May 2022	195.00 USD 28 Jan 2022 15:36, UTC	0.65	28.60 USD Bil 6 May 2022	Wide	Stable	Medium	Exemplary	4 May 2022 05:00, UTC

Price should be able to generate around $3.6 billion in free cash flow annually on average, with about one third of that amount returned to shareholders as dividends and 25%-30% devoted to share repurchases.

Oak Hill Acquisition Overshadows Weaker Q3 From T. Rowe Price; Increasing FVE to $211 Greggory Warren, CFA, Sector Strategist, 28 Oct 2021

While there was little in wide-moat-rated T. Rowe Price's third-quarter results that would alter our long-term view of the firm, we expect to increase our fair value estimate to $211 per share from $202 to account for adjustments to our near- to medium-term forecasts, including the company's announced purchase of alternative credit manager Oak Hill Advisors.

T. Rowe Price closed the September quarter with $1.612 trillion in managed assets, down 0.7% sequentially but up 23.0% year over year. Net outflows of $6.4 billion were on par with the $5.8 billion in outflows in the prior-year period and marked only the 17th time that T. Rowe Price has reported quarterly outflows in the past two decades (half of which have occurred during the past five years as the company feels the brunt of the baby boom retirement phase).

With average assets under management up 27.5% year over year during the third quarter, T. Rowe Price reported a 22.5% increase in net revenue from the prior-year period, owing to product mix shift and a slight decline in the effective fee rate. Year-to-date top-line growth of 27.6% was slightly above our full-year forecast, but we expect things to moderate some in the fourth quarter. Adjusted operating margins of 49.9% during the first nine months of 2021 were 540 basis points higher than the year-ago period and in line with our projections.

With regard to the Oak Hill Advisors acquisition, it looks as if T. Rowe Price is paying a decent premium (midteens enterprise value/EBITDA multiple) for a firm that will contribute $53 billion in primarily alternative credit AUM earning fees (including performance fees) of around 100 basis points on average. The deal will not only offer some diversification away from the fee pressures from low-cost passive funds but also expand T. Rowe Price's global reach. Management expects it to be slightly accretive to 2022 earnings, which we expect to reflect in our modeling of the deal.

Market Gains Offset Outflows to Lift T. Rowe Price's AUM to Record $1.623 Trillion in June Quarter Greggory Warren, CFA, Sector Strategist, 29 Jul 2021

While there was little in wide-moat-rated T. Rowe Price's second-quarter results that would alter our long-term view of the firm, we expect to raise our fair value estimate to $202 per share from $193 to account for continued improvements in the company's assets under management, as well as adjustments to our own near- to medium-term forecasts since our last update.

T. Rowe Price closed the June quarter with a record $1.623 trillion in managed assets, up 6.9%

Morningstar Equity Analyst Report | Report as of 7 May 2022 14:48, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

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sequentially and 33.0% year over year. Net outflows of $600 million during the quarter were slightly worse than our expectations of being more on par with the $1.9 billion quarterly run rate for inflows we've seen from the firm the past five years. It also marks only the 16th time that T. Rowe Price has reported quarterly outflows in the past two decades. Even so, we still see the firm generating flattish organic AUM growth this year as it moves closer to the period when retiring baby boomers are less of a drag on flows.

With average AUM up 39.0% year over year during the June quarter, T. Rowe Price reported a 36.3% increase in net revenue when compared with the prior-year period (owing to product mix shift and a slight decline in the firm's effective fee rate). First-half top-line growth of 30.5% was stronger than our full-year forecast, and while we do expect revenue growth to come down to more normal levels in the back half of the year, we have revised our full-year forecast to around 25% (from 22.5%).

Adjusted operating margins of 49.3% during the first half of 2021 were 560 basis points higher than the year-ago period. Much as with revenue, we see operating profits normalizing more in the back half of the year, with full-year profitability looking to be 47%-48% (compared with the 44.2% that the firm put up in 2020), which represents a slight increase in our operating margin projection for 2021.

Solid Flows and Market Gains Continue to Lift T. Rowe Price's AUM; Raising FVE to $193 Per Share

Greggory Warren, CFA, Sector Strategist, 28 Jun 2021

We've increased our fair value estimate for wide-moat rated T. Rowe Price to $193 per share from $170 to account for ongoing improvements in the company's AUM, as well as our own near-to-medium term forecasts for the firm, since our last update. T. Rowe Price closed out May 2021 with a record $1.593 trillion in managed assets and will likely close out the June quarter with an equivalent amount of AUM, which would be reflective of a 6% sequential (and 31% year over year) increase in the company's total AUM.

Estimated net inflows of more than $10 billion during the June quarter were driven primarily by the firm's multi-asset and fixed-income offerings, with equities seeing modest flows during the period. We expect to see continued stability in T. Rowe Price's annual organic growth profile, which we envision in a 0% to positive 3% range over the next five years (compared with 0% to positive 2% during fiscal 2016-20), with flows likely picking up after 2025, when millennials start to hit their peak earnings years.

Our five-year CAGR for overall AUM growth is 5%-7% annually during 2021-25 (compared with 4%-6% previously). Despite management fees being pressured by industry dynamics, we expect T. Rowe Price, which is somewhat insulated due to its channel mix and already low-cost offerings, to generate a 7.3% CAGR for revenue over our five-year forecast period (up from 5.1% previously). As for profitability, we expect adjusted operating margins of 46%-48% (up from 44%-46% previously), even as the firm invests

Morningstar Equity Analyst Report | Report as of 7 May 2022 14:48, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

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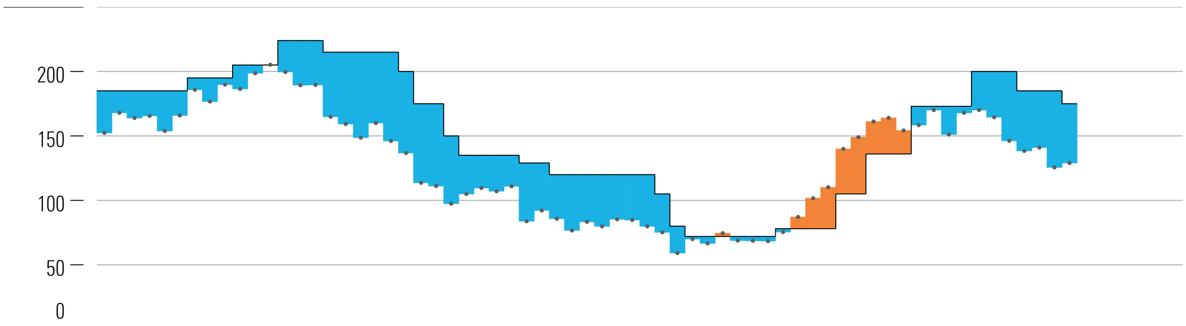
in key regions and channels to help drive growth. As such, T. Rowe Price should be able to generate around $3.2 billion in free cash flow annually on average, with about one third of that amount returned to shareholders as dividends and 25%-30% devoted to share repurchases.

Morningstar Equity Analyst Report | Report as of 7 May 2022 14:48, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

T. Rowe Price Group Inc TROW ★★★★★ 6 May 2022 21:23, UTC

Competitors Price vs. Fair Value

Affiliated Managers Group Inc AMG

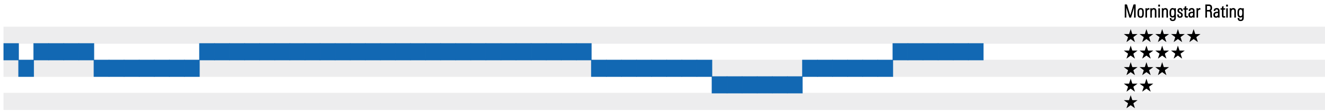


Fair Value: 175.00
2 May 2022 21:17, UTC

Last Close: 129.00
Over Valued
Under Valued

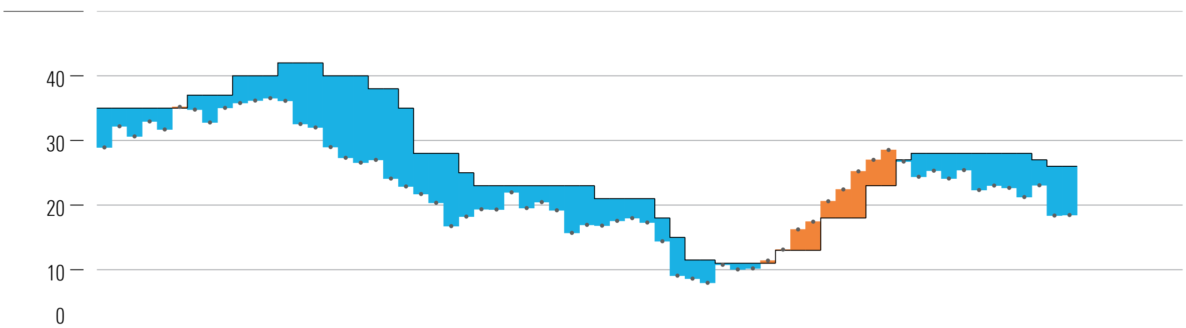
	2017	2018	2019	2020	2021	YTD	
	1.00	0.65	0.71	1.30	0.82	0.74	Price/Fair Value
	41.81	-51.94	-11.72	20.43	61.80	-21.58	Total Return %

Morningstar Rating



Total Return % as of 6 May 2022. Last Close as of 6 May 2022. Fair Value as of 2 May 2022 21:17, UTC.

Invesco Ltd IVZ

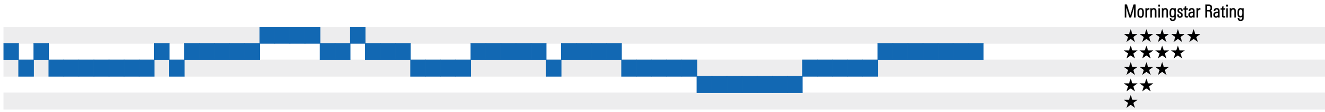


Fair Value: 26.00
13 Apr 2022 18:27, UTC

Last Close: 18.46
Over Valued
Under Valued

	2017	2018	2019	2020	2021	YTD	
	0.91	0.60	0.86	1.34	0.82	0.71	Price/Fair Value
	24.23	-50.93	14.76	1.25	35.89	-19.07	Total Return %

Morningstar Rating

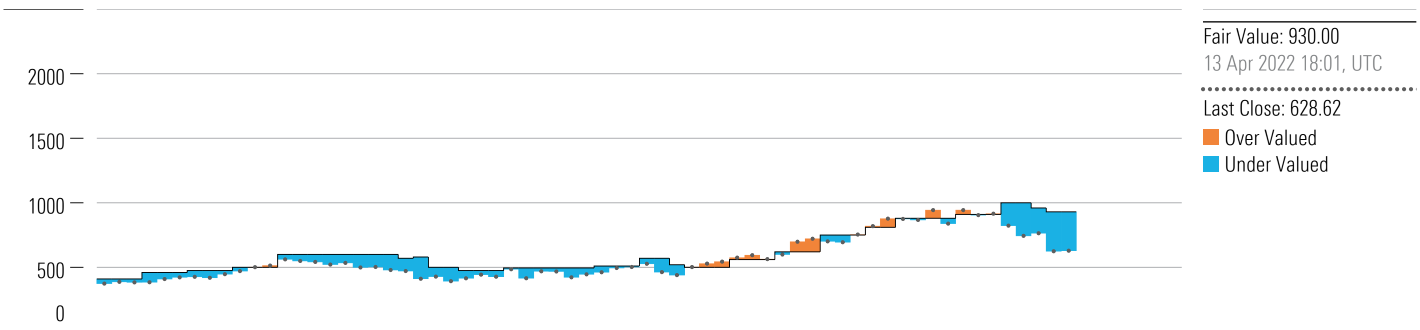


Total Return % as of 6 May 2022. Last Close as of 6 May 2022. Fair Value as of 13 Apr 2022 18:27, UTC.

Morningstar Equity Analyst Report | Report as of 7 May 2022 14:48, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

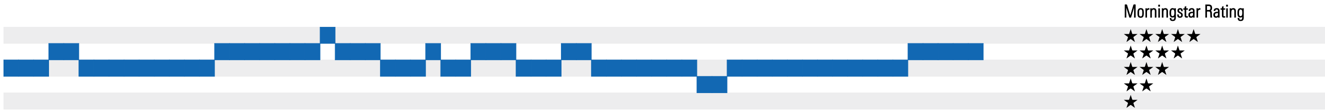
T. Rowe Price Group Inc TROW ★★★★★ 6 May 2022 21:23, UTC

BlackRock Inc BLK



	2017	2018	2019	2020	2021	YTD
Price/Fair Value	1.03	0.79	0.99	1.16	1.01	0.68
Total Return %	37.62	-21.19	31.33	46.42	29.18	-30.81

Morningstar Rating



Total Return % as of 6 May 2022. Last Close as of 6 May 2022. Fair Value as of 13 Apr 2022 18:01, UTC.

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Morningstar Historical Summary

Financials as of 31 Mar 2022

Fiscal Year, ends 31 Dec	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	YTD	TTM
Revenue (USD Mil)	3,023	3,484	3,982	4,201	4,285	4,855	5,373	5,618	6,207	7,672	1,863	7,708
Revenue Growth %	10.0	15.3	14.3	5.5	2.0	13.3	10.7	4.6	10.5	23.6	2.0	17.3
EBITDA (USD Mil)	1,445	1,728	2,003	2,025	1,933	2,202	2,506	2,578	2,935	3,915	932	3,905
EBITDA Margin %	47.8	49.6	50.3	48.2	45.1	45.4	46.6	45.9	47.3	51.0	50.0	50.6
Operating Income (USD Mil)	1,364	1,637	1,891	1,899	1,800	2,059	2,346	2,387	2,746	3,710	877	3,694
Operating Margin %	45.1	47.0	47.5	45.2	42.0	42.4	43.7	42.5	44.2	48.4	47.1	47.9
Net Income (USD Mil)	884	1,048	1,230	1,223	1,215	1,498	1,838	2,131	2,373	3,083	568	2,901
Net Margin %	29.2	30.1	30.9	29.1	28.4	30.2	33.4	37.0	37.2	39.1	29.8	36.7
Diluted Shares Outstanding (Mil)	261	266	267	261	250	245	247	239	231	229	230	229
Diluted Earnings Per Share (USD)	3.36	3.90	4.55	4.63	4.75	5.97	7.27	8.70	9.98	13.12	2.41	12.36
Dividends Per Share (USD)	1.36	1.52	1.76	2.08	2.16	2.28	2.80	3.04	3.60	4.32	1.20	4.44

Valuation as of 29 Apr 2022

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Recent Qtr	TTM
Price/Sales	5.6	6.6	5.9	4.5	4.5	5.6	4.3	5.4	5.9	6.1	4.5	3.7
Price/Earnings	19.4	22.6	19.3	15.4	17.0	17.2	12.8	15.4	17.0	14.8	11.5	10.0
Price/Cash Flow	18.8	18.5	17.8	13.0	49.8	101.0	16.8	17.9	18.2	14.6	10.0	7.9
Dividend Yield %	2.09	1.81	2.05	2.91	2.87	2.17	3.03	2.5	2.38	2.2	2.94	3.61
Price/Book	4.4	4.8	4.3	3.8	3.8	4.7	3.4	4.2	4.8	5.5	3.8	3.1
EV/EBITDA	11.0	11.7	10.4	8.3	8.8	10.7	7.9	10.3	11.1	10.7	0.0	0.0

Operating Performance / Profitability as of 31 Mar 2022

Fiscal Year, ends 31 Dec	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	YTD	TTM
ROA %	22.2	22.7	23.0	22.8	21.4	21.3	23.6	24.4	23.1	25.9	4.5	24.5
ROE %	24.3	24.2	24.1	24.1	24.9	27.0	30.0	31.4	31.2	35.9	6.1	33.2
ROIC %	24.3	24.2	24.1	24.1	24.9	27.0	30.0	31.1	30.5	35.1	6.0	32.5
Asset Turnover	0.8	0.8	0.7	0.8	0.8	0.7	0.7	0.7	0.6	0.7	0.1	0.7

Financial Leverage

Fiscal Year, ends 31 Dec	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Recent Qtr	TTM
Debt/Capital %	—	—	—	—	—	—	—	2.0	2.0	2.7	2.3	—
Equity/Assets %	91.5	95.7	95.6	93.2	80.5	77.3	79.6	76.1	72.3	72.1	73.3	—
Total Debt/EBITDA	—	—	—	—	—	—	0.0	0.1	0.1	0.1	0.2	—
EBITDA/Interest Expense	—	—	—	—	—	—	—	—	—	—	—	—

Morningstar Analyst Historical/Forecast Summary as of 28 Jan 2022

Financials

			Estimates		
Fiscal Year, ends 31 Dec	2020	2021	2022	2023	2024
Revenue (USD Mil)	6,207	7,672	8,050	8,420	7,692
Revenue Growth %	10.5	23.6	4.9	4.6	-8.6
EBITDA (USD Mil)	2,935	4,026	3,858	3,995	3,729
EBITDA Margin %	47.3	52.5	47.9	47.4	48.5
Operating Income (USD Mil)	2,746	3,782	3,616	3,722	3,498
Operating Margin %	44.2	49.3	44.9	44.2	45.5
Net Income (USD Mil)	2,216	2,918	2,965	3,138	2,733
Net Margin %	35.7	38.0	36.8	37.3	35.5
Diluted Shares Outstanding (Mil)	231	229	228	226	223
Diluted Earnings Per Share(USD)	9.58	12.75	13.00	13.89	12.24
Dividends Per Share(USD)	3.60	7.32	4.64	4.99	5.12

Forward Valuation

			Estimates		
	2020	2021	2022	2023	2024
Price/Sales	5.6	5.9	3.6	3.4	3.7
Price/Earnings	15.8	15.4	9.7	9.1	10.3
Price/Cash Flow	13.8	14.7	8.9	9.0	9.9
Dividend Yield %	2.38	3.72	3.69	3.97	4.07
Price/Book	—	—	—	—	—
EV/EBITDA	11.1	10.4	7.0	6.7	7.2

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.

To assess the sustainability of excess profits, analysts perform ongoing assessments of the moat trend. A firm's moat trend is positive in cases where we think its sources of competitive advantage are growing stronger; stable where we don't anticipate changes to competitive advantages over the next several years; or negative when we see signs of deterioration.

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

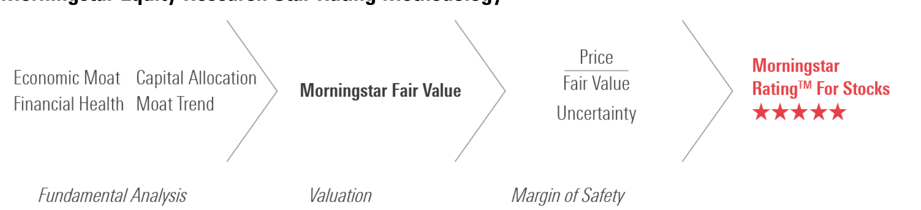
Once a company's marginal ROIC hits its cost of capital, we calculate a continuing value, using a standard perpetuity formula. At perpetuity, we assume that any growth or decline or investment in the business neither creates nor destroys value and that any new investment provides a return in line with 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 captures a range of likely potential intrinsic values for a company and uses it to assign the margin of safety required before investing, which in turn explicitly drives our stock star rating system. The Uncertainty Rating represents the analysts' ability to

Morningstar Equity Research Star Rating Methodology



Morningstar Equity Analyst Report | Report as of 7 May 2022 14:48, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS Page 19 of 21

Research Methodology for Valuing Companies

bound the estimated value of the shares in a company around the Fair Value Estimate, based on the characteristics of the business underlying the stock, including operating and financial leverage, sales sensitivity to the overall economy, product concentration, pricing power, exposure to material ESG risks, and other company-specific factors.

Analysts consider at least two scenarios in addition to their base case: a bull case and a bear case. Assumptions are chosen such that the analyst believes there is a 25% probability that the company will perform better than the bull case, and a 25% probability that the company will perform worse than the bear case. The distance between the bull and bear cases is an important indicator of the uncertainty underlying the fair value estimate. In cases where there is less than a 25% probability of an event, but where the event could result in a material decline in value, analysts may adjust the uncertainty rating to reflect the increased risk. Analysts may also make a fair value adjustment to reflect the impact of this event.

Our recommended margin of safety widens as our uncertainty of the estimated value of the equity increases. The more uncertain we are about the estimated value of the equity, 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 for our qualitative analysis 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

4. Market Price

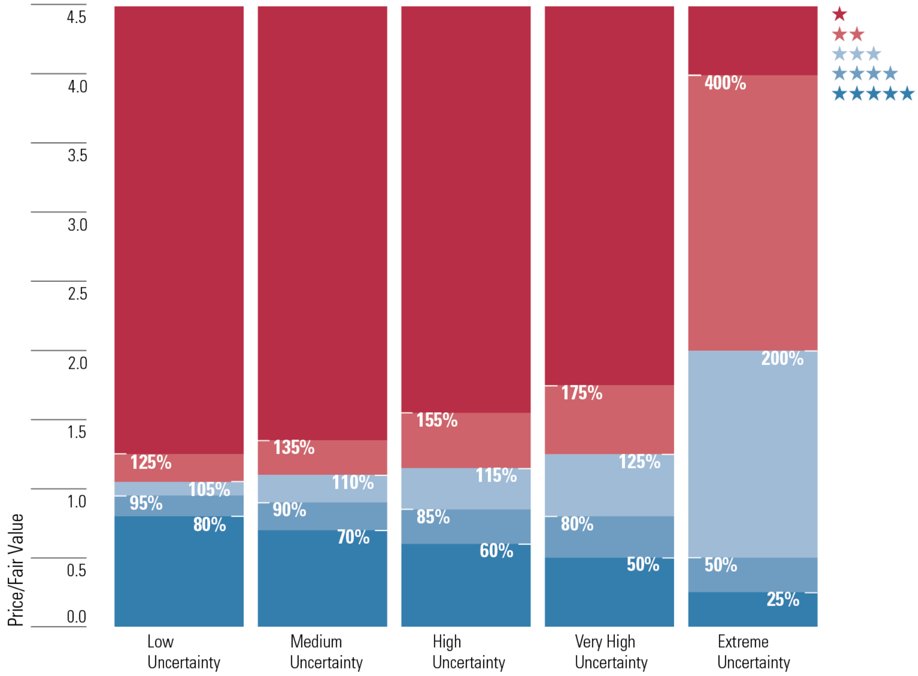
The market prices used in this analysis and noted in the report come from exchange on which the stock is listed which we believe is a reliable source.

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

Morningstar Star Rating for Stocks

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

Morningstar Equity Research Star Rating Methodology



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 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: "Exem-

Research Methodology for Valuing Companies

plary", "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.

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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.

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