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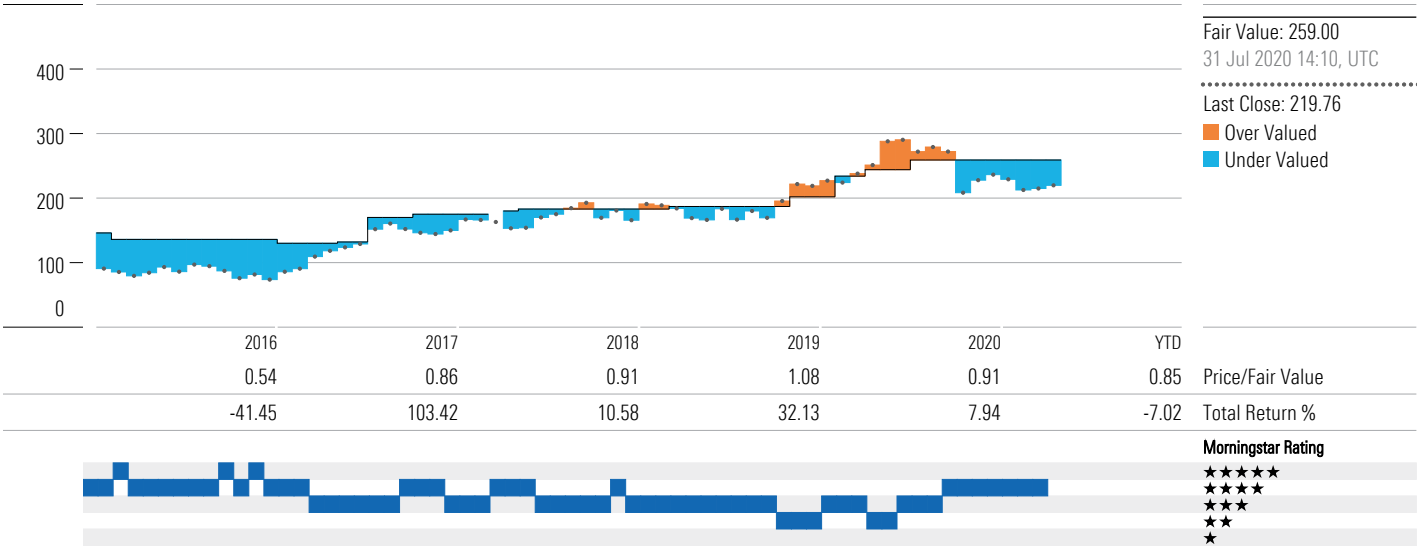
Vertex Pharmaceuticals Inc VRTX ★★★★ 21 Apr 2021 21:19, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation
219.76 USD 21 Apr 2021	259.00 USD 31 Jul 2020 14:10, UTC	0.85	56.88 USD Bil 21 Apr 2021	Narrow	Positive	Medium	Standard

Price vs. Fair Value



Total Return % as of 21 Apr 2021. Last Close as of 21 Apr 2021. Fair Value as of 31 Jul 2020 14:10, UTC.

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

Vertex's CF Franchise Supports a Narrow Moat; Maintaining Our $259 FVE

Business Strategy & Outlook Karen Andersen, CFA, Sector Strategist, 9 Feb 2021

Vertex was once known for discovering Incivek, a blockbuster hepatitis C drug now overshadowed by Vertex's robust cystic fibrosis franchise with megablockbuster potential. Approved treatments Kalydeco, Orkambi, Symdeko, and Trikafta will make Vertex eligible to treat about 90% of the CF population, assuming international and pediatric approvals. We expect Vertex to maintain its dominant position in CF, given the strong efficacy of its therapies, lengthy patents, and lack of competition, while developing pipeline candidates in other rare indications to spur growth.

Cystic fibrosis is a rare indication characterized by progressive and deadly decline in lung function, affecting approximately 75,000 people worldwide. Since its 2012 launch, Kalydeco has captured most of its target patient population (less than 10% of CF patients with specific genetic mutations) and has become the backbone of combination therapies, including Orkambi, Symdeko, and Trikafta. Orkambi's launch in 2015 expanded the eligible patient population by adding CF patients with homozygous F508del mutations, but its uptake was slower because of its safety profile. Symdeko's 2018 launch didn't come with any worries over safety and contributed over $700 million in revenue in its first year, targeting the same population as Orkambi plus some. Trikafta, a triple combination therapy, had a strong launch since its U.S. approval in October 2019, significantly expanding the company's addressable patient population to heterozygous patients.

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Sector
Healthcare

Industry
Biotechnology

Business Description

Vertex Pharmaceuticals Inc discovers and develops small-molecule drugs for the treatment of serious diseases. Its key drugs are Kalydeco, Orkambi, Symdeko, and Trikafta for cystic fibrosis, where Vertex therapies remain the standard of care globally. The company's pipeline also includes genetic therapies like CTX001 for beta-thalassemia and sickle-cell disease as well as small-molecule medicines targeting diseases associated with alpha-1 antitrypsin deficiency and APOL1-mediated kidney disease. In addition, Vertex is focusing on developing therapies for pain, type 1 diabetes, inflammatory diseases, influenza, and other rare diseases.

We think Vertex's comprehensive approach has already shaped the treatment of CF and earned the firm a dominant position in this market worldwide. The chronic nature of therapy and limited competition on the horizon heighten the market's attractiveness. Given these positive market dynamics, we think Vertex's CF program could grow to over $10 billion within our forecast period.

Vertex's pipeline spans several rare diseases, including CTX001 for beta-thalassemia and sickle-cell disease, VX-864 for alpha-1 antitrypsin deficiency, and VX-147 for APOL1-mediated kidney disease. We think the CF franchise will provide ample cash for future development of these assets and others.

Bulls Say Karen Andersen, CFA, Sector Strategist, 9 Feb 2021

- The firm's cystic fibrosis therapies are poised to dominate the lucrative market for the foreseeable future, based on the disease-modifying potential of the drugs, chronic use by patients, and limited competition.
- Vertex's leading drug candidates were mostly discovered in-house, lending credibility to its drug-discovery technology and potential to generate additional pipeline candidates.
- Vertex's combination therapies have lengthy patents, protecting the profitable cystic fibrosis portfolio from generics.

Bears Say Karen Andersen, CFA, Sector Strategist, 9 Feb 2021

- Cystic fibrosis is the main driver of Vertex's valuation, and the company could fail to diversify.
- Pricing pressure could erode returns given the high price tags of Vertex's therapies.
- Gene-editing programs could disrupt Vertex's hold in the cystic fibrosis market.

Economic Moat Karen Andersen, CFA, Sector Strategist, 9 Feb 2021

Vertex's portfolio of patent-protected cystic fibrosis therapies supports a narrow economic moat. With strong patent protection throughout our explicit forecast, first-mover status in the rare indication, and significant patient share, we believe it is more likely than not that Vertex will be able to earn excess returns over the next 10 years. Vertex's marketed drugs, Kalydeco, Orkambi, Symdeko, and Trikafta are the only disease-modifying drugs on the market. This portfolio makes up the backbone of cystic fibrosis therapy and supports strong pricing power.

Intangible assets are the key moat source for Vertex, as the company benefits from patent protection for each of its cystic fibrosis therapies. Vertex has been able to build upon its intellectual property, rolling out better medicines and combinations that increasingly capture more patients. Kalydeco, approved in 2012 for CF patients with one copy of the C551D mutation, quickly picked up label expansions in additional mutations and age groups and expanded the eligible patient population from about 1,000 patients in the U.S. when first approved to over 4,000 by 2015. Orkambi, approved in 2015 for patients with two copies of the common F508del mutation, expanded the eligible patient population

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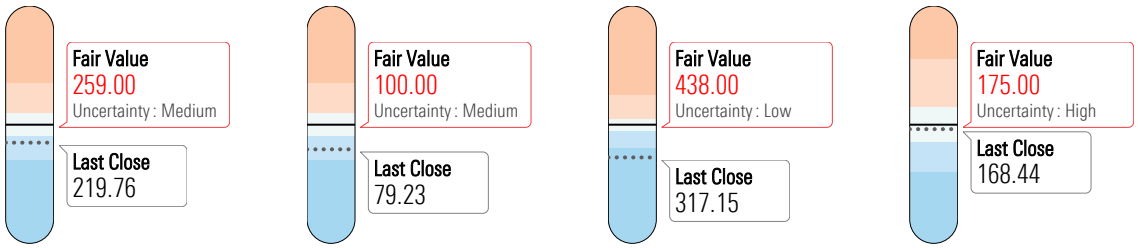
Competitors



	Vertex Pharmaceuticals Inc VRTX	Merck & Co Inc MRK	Roche Holding AG ROG	Alexion Pharmaceuticals Inc ALXN
Economic Moat	Narrow	Wide	Wide	Narrow
Moat Trend	Positive	Stable	Stable	Negative
Currency	USD	USD	CHF	USD
Fair Value	259.00 31 Jul 2020 14:10, UTC	100.00 14 May 2020 14:12, UTC	438.00 21 Apr 2021 23:07, UTC	175.00 13 Dec 2020 22:32, UTC
1-Star Price	349.65	135.00	547.50	271.25
5-Star Price	181.30	70.00	350.40	105.00
Assessment	Under Valued 21 Apr 2021	Under Valued 21 Apr 2021	Significantly Undervalued 21 Apr 2021	Fairly Valued 21 Apr 2021
Morningstar Rating	★★★★21 Apr 2021 21:19, UTC	★★★★21 Apr 2021 21:19, UTC	★★★★★21 Apr 2021 23:12, UTC	★★★21 Apr 2021 21:19, UTC
Analyst	Karen Andersen, Sector Strategist	Damien Conover, Sector Director	Karen Andersen, Sector Strategist	Karen Andersen, Sector Strategist
Capital Allocation	Standard	Standard	Standard	Standard
Price/Fair Value	0.85	0.79	0.72	0.96
Price/Sales	9.33	4.19	4.70	6.16
Price/Book	6.55	7.92	7.45	3.19
Price/Earning	21.36	28.50	19.20	61.93
Dividend Yield	—	3.18%	2.87%	—
Market Cap	56.88 Bil	200.55 Bil	273.78 Bil	37.21 Bil
52-Week Range	202.57—306.08	71.72—87.80	290.55—357.85	94.82—168.52
Investment Style	Large Growth	Large Value	Large Core	Large Core

significantly, up to over 30,000 globally by the end of 2016. Symdeko, approved in 2018, targets the same patient population as Orkambi but helps Vertex capture additional patient share due to its better efficacy. Finally Trikafta, approved in the U.S. in 2019, expands the population further. With Trikafta's potential approvals abroad and in pediatric patients, we think the eligible patient population reaches about 68,000, or roughly 90% of all CF patients.

Vertex's strategy has been to build upon Kalydeco: Symdeko and Orkambi are doublet combinations that add a CFTR corrector to Kalydeco, a CFTR potentiator. Further, Trikafta, the triple combination, builds on molecules in Symdeko and Kalydeco and layers in a new CFTR corrector, elexacaftor. Trikafta delivered promising data and rapidly achieved regulatory approval in October 2019 (U.S.). The unique mechanism of these therapies, where additional molecules can result in a new, more efficacious therapy, serves as a competitive advantage for Vertex because it entrenches the therapies in cystic fibrosis treatment and lengthens the period of patent protection. Many pipeline competitors study their own candidates in

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combination with one or more of Vertex's molecules, illustrating Vertex's position as the backbone of treatment options.

Because cystic fibrosis is a rare, chronic condition without alternative disease-modifying treatment options, Vertex commands strong pricing power. Many patients will start treatment in early childhood and continue for a lifetime. We estimate that Kalydeco, Vertex's first CF therapy, has a U.S. list price over $300,000 and as a monotherapy can target about 10% of all CF patients. Orkambi and Symdeko, the doublets that treat a much larger portion of CF patients, are not far behind, with their own six-figure price tags. Trikafta's list price at launch reached $311,000, further exhibiting the company's strong pricing power. With strong efficacy and pricing power, Vertex's cystic fibrosis portfolio has the potential to contribute over $10 billion in 2028 sales compared with about $3 billion in 2018.

Vertex does not face significant competition in the cystic fibrosis market, in our opinion. Galapagos (in partnership with AbbVie) was previously its closest competitor, but it reported lackluster phase 2 results for its lead candidates, illustrating the high bar of efficacy from Vertex's portfolio. This led partner AbbVie to initially step away from further trials but then acquire most of Galapagos' CF pipeline in October 2018. It is still unclear what AbbVie's intentions are with the candidates, but we don't see this as a viable threat. Competitor Proteostasis Therapeutics has its own doublets and triplets as well as one candidate in combination with Vertex's therapies, but it reported disappointing data in the first quarter of 2019 and is several years behind Vertex.

We don't think Vertex's pipeline outside of CF contributes to its narrow moat, as many of its assets are in early stages of development. However, with substantial cash flow, we think the company is well positioned to target several rare diseases over the next decade. Further, we like the pipeline's focus on rare indications with few or no approved treatment options as we think clinical success in these diseases could solidify Vertex's moat down the line.

Fair Value and Profit Drivers Karen Andersen, CFA, Sector Strategist, 9 Feb 2021

We are maintaining our fair value estimate of $259 per share. Our valuation remains heavily dependent on the cystic fibrosis portfolio, including Trikafta. The triple combination is poised to continue with solid growth throughout our explicit forecast period.

We model about $7.2 billion in cystic fibrosis sales in 2021, driven by Trikafta (in both F508del homozygous and heterozygous patients). Vertex's complete portfolio of cystic fibrosis therapies allows it to target over 90% of cystic fibrosis patients globally. We expect peak sales in cystic fibrosis of over $10 billion.

While we give the company's pipeline assets fairly low probabilities of approval due to their early stages in development, Vertex is targeting several blockbuster opportunities, which amount to over $1 billion in

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2026 pipeline sales. Key opportunities include CTX001 (gene editing) for beta-thalassemia and sickle-cell disease as well as VX-864 for alpha-1 antitrypsin deficiency. We also expect the company to continue funding research in cystic fibrosis to develop next-generation therapies for CF, from small-molecule correctors to gene editing.

We assume that operating expenses grow in the midsingle digits throughout our forecast as Vertex continues its cystic fibrosis commercialization strategy and pushes its pipeline through clinical trials. Robust product sales expand the 2029 operating margin to nearly 60%, compared with about 29% in 2019.

Risk and Uncertainty Karen Andersen, CFA, Sector Strategist, 9 Feb 2021

We believe that Vertex merits a medium uncertainty rating, with its concentration in cystic fibrosis offset by its dominant market position and the lack of competition. The company's valuation is driven by its cystic fibrosis franchise, and growth will largely depend on Trikafta's commercial success. We think that the lack of close competition and the strong cash generation in the medium term provide a solid cushion from the risk of reliance on cystic fibrosis.

Historically, the firm experienced reimbursement challenges in Europe, including the United Kingdom and France. We think these conflicts have largely been mitigated, with Vertex finally receiving reimbursement in England for Orkambi and Symkevi in 2019 (four years after Orkambi's approval in 2015). We assume solid pricing power throughout our forecast for Vertex's efficacious therapies, but there is a risk that pricing pressure from payers or regulators depress returns despite Vertex's strong position competitively.

Other risks include potential competition in cystic fibrosis. While competition in CF is still fairly sparse, the lucrative market opportunity could attract rivals. While Vertex's therapies are disease-modifying, they do not correct the underlying genetic mutation, leaving room for improvement. While Vertex has its own next-generation pipeline in CF correctors and gene editing, competing gene editing could disrupt the company's successful franchise.

Capital Allocation Karen Andersen, CFA, Sector Strategist, 9 Feb 2021

We assess the stewardship of Vertex as Standard. This assessment was conducted using our prior stewardship metholodogy. We will be transitioning our assessment mechanism for our stock coverage to the capital allocation metholodogy by the end of September.

Dr. Jeffrey Leiden became CEO and chairman in 2012. His experience includes a role as managing director at Clarus Ventures, which specializes in life sciences capital, as well as president and chief operating officer at Abbott. His experience in Big Pharma shone through as he brought Vertex from the cash-burning stage of an emerging biotech to a large, leading biotech firm with an expansive franchise

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in cystic fibrosis therapies. He has since stepped down from the CEO role and serves as executive chairman of the board.

Former chief medical officer Dr. Reshma Kewalramani took on the CEO role in April 2020. Before joining Vertex in 2017, Kewalramani spent over a decade at Amgen. We believe she is well suited to lead Vertex as it expands outside CF.

In 2019, management smartly allocated capital toward diversifying the pipeline, which included two acquisitions of private biotechnology companies, each presenting a unique market opportunity. Vertex bought Exonics (gene editing in Duchenne muscular dystrophy) for $266 million up front (plus milestones) and Semma Therapeutics (human-derived stem cell islets to cure type 1 diabetes) for $937 million. While these assets remain in early stages of development, we like the management team's focus on filling out Vertex's pipeline to ensure future growth, well before any patent expirations or serious competition related to its CF drugs.

The rest of the management team is composed of other Big Pharma veterans, with adequate levels of experience, in our view. Previous CFO Ian Smith was abruptly terminated in early 2019 because of personal behavior. While no details were disclosed, we have no reason to believe that this significantly weighs on the company's stewardship.

Historical controversies related to compensation and other practices don't affect our stewardship rating for the current team. We think management compensation has been historically high, although recent measures spurred by a shareholder vote have curtailed the amounts going forward. In 2014, Leiden's total compensation was $36.6 million, and several senior managers had compensation packages above $10 million. In 2015, Leiden's total compensation dropped to $28 million in response to shareholder disapproval, and in 2017, it dropped to $17 million. The company has also been probed by the Securities and Exchange Commission for a series of large insider stock sales on positive clinical news in past years.

Analyst Notes Archive

Narrow-Moat Vertex Pharmaceuticals Reports Mixed Q4 Results; Reiterating $259 Fair Value Estimate Karen Andersen, CFA, Sector Strategist, 2 Feb 2021

Narrow-moat Vertex Pharmaceuticals reported mixed fourth-quarter and full-year results that outperformed our revenue expectation but fell short of our EPS estimate. Product revenue exceeded our expectation, mainly due to the continued strong launch of Trikafta, the triple combination therapy for cystic fibrosis, also known as Kaftrio in the EU. We are maintaining our narrow moat rating, as the company remains a clear leader in cystic fibrosis therapies, and do not expect to make significant changes to our $259 per share fair value estimate.

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For the full year, Vertex generated about $3.5 billion in adjusted operating income, nearly up about 48% from 2019, and total product revenue of about $6.2 billion, representing more than 50% growth from the previous year. This notable strength derived from the exceptionally strong first-year launch of Trikafta, which in the fourth quarter exceeded $1 billion in sales for the first time. We expect this triple combination therapy to continue to drive solid growth for Vertex in the long run, as strong uptake among patients in the EU persists along with additional reimbursements. Its older CF therapies--Symdeko, Orkambi, and Kalydeco--all experienced year-over-year declines ranging from about 20% to 56% compared with 2019.

For full-year 2021, management expects product revenue to fall between $6.7 billion to $6.9 billion, which we view as achievable, as our own estimate stands above $7 billion. We look forward to multiple updates on Vertex's programs outside of CF. In December 2020, data for CTX001 (gene editing) in beta thalassemia and sickle cell disease demonstrated proof of concept, and we think that if approved, the drug could exceed $2 billion in sales. In addition, we anticipate potential proof of concept data for both small molecule VX-864 in alpha-1 antitrypsin deficiency and VX-147 in APOL1-mediated kidney disease in 2021.

Vertex's CF Portfolio Sees Strong Q3; Gene Editing Data Expected in Fourth-Quarter 2020 Anna Baran, Equity Analyst, 30 Oct 2020

Vertex's third-quarter results outperformed our expectations, with revenue of $1.5 billion representing 62% growth from last year, driven by the incredibly strong launch of Trikafta, the triple combination therapy for cystic fibrosis. The triple combo has launched in Europe as Kaftrio, with reimbursement agreements trickling in. We expect the triple combination therapy to continue driving robust growth for Vertex as reimbursement expands. We are maintaining our $259 per share fair value estimate and our narrow moat rating.

With the recent failure of VX-814 in alpha-1 antitrypsin deficiency, all eyes are on Vertex's CTX001 (gene editing) in beta thalassemia and sickle cell disease. We expect new clinical data in beta thalassemia by the end of the year, and we'll be looking for efficacy and safety data in more patients than the previous solid results from two patients. If approved, we think the drug could reach $2 billion in sales in beta thalassemia, but we currently only weigh the opportunity with a 30% probability of approval given its early stage. Sickle cell disease presents an equally lucrative opportunity, and we expect proof-of-concept data to be released within the next six months.

Reiterating $259 FVE for Narrow-Moat Vertex After Phase 2 Clinical Trial Failure in AATD Anna Baran, Equity Analyst, 15 Oct 2020

We are maintaining our fair value estimate of $259 per share for narrow-moat Vertex following the news that the company is discontinuing development of VX-814 for the treatment of alpha-1 antitrypsin

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deficiency after elevated liver enzymes were observed in several patients. We think the market was pricing in undue success for the asset, which was in a phase 2 study, and Oct. 15's 20% drop in share price is overcorrection in the market's expectations for Vertex's pipeline. We've revised our estimates for Vertex's potential in AATD by removing VX-814 from our model. VX-864, another corrector molecule in development, is in an ongoing phase 2 proof-of-concept study, and while we assign the asset a low probability of success given its early stage, investors should note that the company still has at least one more shot for the rare indication.

While Vertex's cystic fibrosis franchise is well positioned, the company's long-term growth potential hinges on Vertex's ability to pivot and land a blockbuster outside of CF. The sharp decline in share price on Oct. 15 implies investors are questioning Vertex's capabilities to identify drug candidates that will allow the company to expand outside of CF. We don't see significant read-through from this failure to the rest of the company's pipeline. The other key pipeline asset, CTX-001, is a gene therapy developed with CRISPR Therapeutics for beta thalassemia and sickle cell disease that saw positive safety and efficacy results from the first two beta thalassemia patients dosed last year. We weight this high-risk, high-reward pipeline asset with a 30% probability of success, and it contributes $1.4 billion in risk-adjusted sales in 2029.

Raising Narrow-Moat Vertex's FVE to $259 on Trikafta and Pipeline Potential in Rare Diseases Anna Baran, Equity Analyst, 31 Jul 2020

Vertex reported second-quarter results slightly ahead of our expectations, with Trikafta, the triple combination therapy for cystic fibrosis, continuing to perform well and add new patients. Management raised guidance for 2020 on the stronger-than-expected growth in the first half, with the guided midpoint for revenue representing 45% growth from last year. A European approval is expected by the end of the year for the triple combination, and we think the drug can drive double-digit growth for Vertex's cystic fibrosis portfolio for the next few years. With the strong results since its October 2019 approval, we've accelerated the drug's growth rate in our model, with the expectation that the firm reaches $10 billion in cystic fibrosis sales in 2024. With this adjustment and our increased expectation for the company's pipeline, we're raising our fair value estimate to $259 per share.

Additionally, we've slightly increased our probability of success for Vertex's gene editing program, CTX-001 for beta thalassemia and sickle cell disease. Gene editing could be a cure for these rare conditions, which presents a substantial market opportunity that has attracted several pipeline programs. Notably, last month, Vertex and partner CRISPR Therapeutics announced positive clinical results in two patients with beta thalassemia and one patient with SCD, and in total, seven patients have successfully been treated and engrafted, a positive early sign for gene editing therapies. Management reported continued momentum in enrollment, with new data expected by the end of the year. With the program still in early days, we weight the potential blockbuster opportunity with a 30% chance of success.

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Trikafta Sales Continue to Impress in CF; Raising Narrow-Moat Vertex's Fair Value Estimate to $244

Anna Baran, Equity Analyst, 30 Apr 2020

Narrow-moat Vertex reported a strong quarter for its cystic fibrosis franchise and raised guidance. Vertex's recently launched Trikafta blew through our and Visible Alpha analyst expectations in the first quarter, contributing $895 million in revenue. For perspective, in the first quarter of last year, Vertex's cystic fibrosis franchise earned just over $850 million. The launch of the triple combination has substantially expanded the company's addressable patient population in cystic fibrosis, and the U.S. launch has been successful with wide adoption. The majority of eligible patients in the U.S. are already on treatment, after just five months on the market. We've revised our 2020 estimates for the faster-than-expected uptake, and we're increasing our fair value estimate to $244 per share for narrow-moat Vertex.

Total revenue was $1.5 billion, up 77% from last year, and relatively modest research and development spending resulted in operating income of $659 million (44% margin). Management both increased and widened guidance, with COVID-19 presenting several uncertainties related to new patient starts (given the extra precautions by physicians interacting with high-risk patients) and reimbursement for drugs (as unemployment rates climb and governments experience financial strain). The guided midpoint of $5.45 billion feels conservative in our view in light of the strong first-quarter results, but management cited both a pull-forward of revenue (as patients stocked up on medication) and declining compliance over time (adherence is highest when patients first start on a medication) to explain the seemingly low revenue guidance.

Increasing Vertex's FVE After Strong 2019 and Promising 2020 Outlook in Cystic Fibrosis and Beyond Anna Baran, Equity Analyst, 31 Jan 2020

We expect a mid- to high single-digit increase to our $202 fair value estimate for narrow-moat Vertex following the biotech's strong fourth-quarter results and management's 2020 guidance. The company's leading position in cystic fibrosis therapies (the basis for our narrow economic moat rating) was cemented in 2019 with the ahead-of-schedule approval of Trikafta in October. The Trikafta launch surpassed our expectations in the fourth quarter, partially helped by launch-related inventory build of roughly $100 million, and contributed $420 million in sales. Vertex has seen strong interest in Trikafta from all patient groups, including patients already on an existing Vertex therapy.

Full-year adjusted operating income was nearly $1.8 billion, up 61% from last year, and total 2019 revenue was $4.1 billion, up about 37% from last year, with CF drugs Trikafta and Symdeko driving top-line growth. In the fourth quarter, we were surprised to see the rapid rate of conversion from older Vertex CF therapies (Kalydeco, Orkambi, and Symdeko) to Trikafta. We plan to adjust our model to account for the faster-than-expected conversion to Trikafta, which will lift sales estimates substantially because of Trikafta's price point relative to some of Vertex's other therapies. The switching to Trikafta

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illustrates the drug's attractive profile and demonstrates the high bar for any future competitors (including, eventually, generics). We expect Vertex to be able to defend its dominant position in CF against branded and generic competition thanks to the long patent lives of its portfolio, its expertise in the indication, and continued investment in searching out next-generation therapies.

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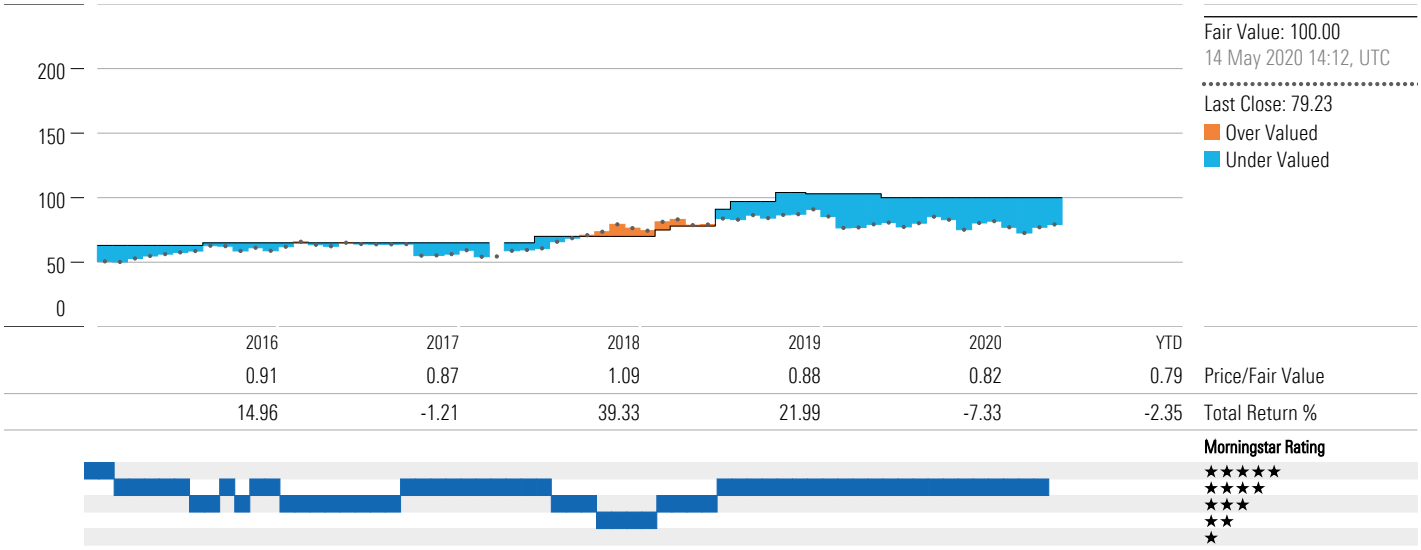
Competitors Price vs. Fair Value

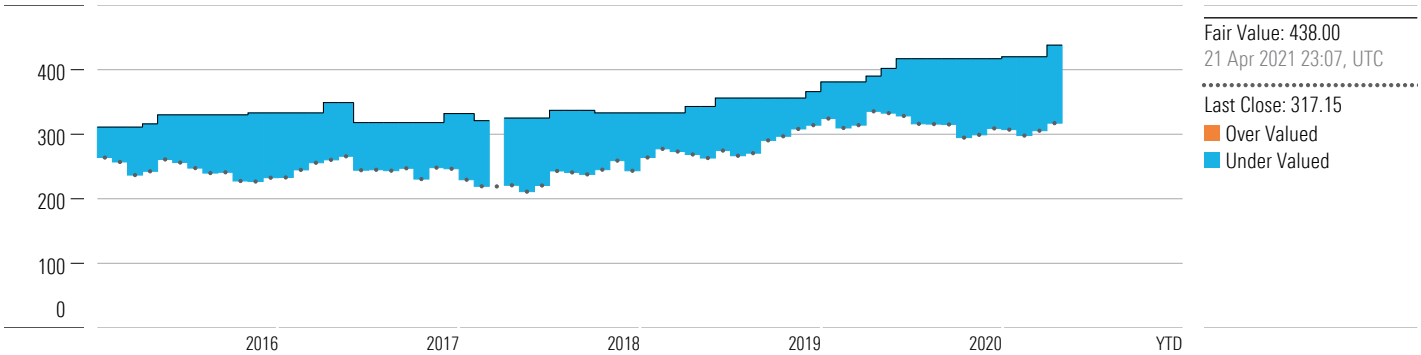
Merck & Co Inc MRK



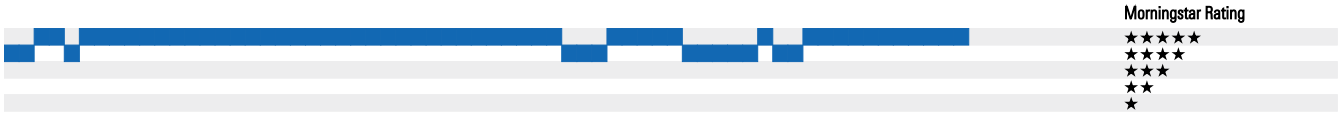
	2016	2017	2018	2019	2020	YTD	
	0.91	0.87	1.09	0.88	0.82	0.79	Price/Fair Value
	14.96	-1.21	39.33	21.99	-7.33	-2.35	Total Return %

Total Return % as of 21 Apr 2021. Last Close as of 21 Apr 2021. Fair Value as of 14 May 2020 14:12, UTC.

Roche Holding AG ROG



	2016	2017	2018	2019	2020	YTD	
	0.70	0.74	0.73	0.86	—	0.72	Price/Fair Value
	-12.92	9.50	2.11	32.58	1.27	4.55	Total Return %

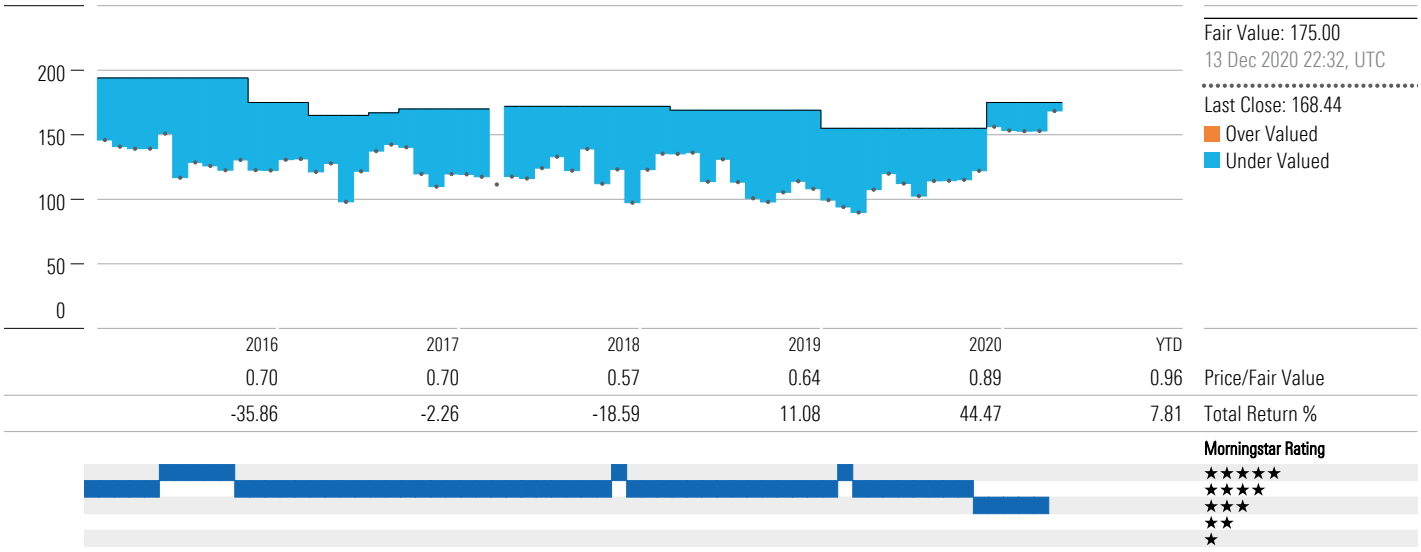


Total Return % as of 21 Apr 2021. Last Close as of 21 Apr 2021. Fair Value as of 21 Apr 2021 23:07, UTC.

Morningstar Equity Analyst Report | Report as of 22 Apr 2021 12:06, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ

Vertex Pharmaceuticals Inc VRTX ★★★★ 21 Apr 2021 21:19, UTC

Alexion Pharmaceuticals Inc ALXN



	2016	2017	2018	2019	2020	YTD	
	0.70	0.70	0.57	0.64	0.89	0.96	Price/Fair Value
	-35.86	-2.26	-18.59	11.08	44.47	7.81	Total Return %

Total Return % as of 21 Apr 2021. Last Close as of 21 Apr 2021. Fair Value as of 13 Dec 2020 22:32, UTC.

Vertex Pharmaceuticals Inc VRTX ★★★★ 21 Apr 2021 21:19, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation
219.76 USD	259.00 USD	0.85	56.88 USD Bil	Narrow	Positive	Medium	Standard
21 Apr 2021	31 Jul 2020 14:10, UTC		21 Apr 2021				

Morningstar Historical Summary

Financials as of 31 Dec 2020

Fiscal Year, ends 31 Dec	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	YTD	TTM
Revenue (USD Mil)	1,411	1,527	1,212	580	1,032	1,702	2,489	3,048	4,163	6,206	6,206	6,206
Revenue Growth %	883	8.3	-20.6	-52.1	77.9	64.9	46.2	22.5	36.6	49.1	49.1	49.1
EBITDA (USD K)	133,167	85,227	-554,753	-598,755	-411,251	75,464	115,006	745,132	1,560,362	3,284,464	3,284,464	3,284,464
EBITDA Margin %	9.4	5.6	-45.8	-103	-39.8	4.4	4.6	24.5	37.5	52.9	52.9	52.9
Operating Income (USD K)	221,694	48,571	-156,587	-641,487	-464,673	11,198	392,829	663,966	1,202,025	2,869,390	2,869,390	2,869,390
Operating Margin %	15.7	3.2	-12.9	-110	-45.0	0.7	15.8	21.8	28.9	46.2	46.2	46.2
Net Income (USD K)	29,574	-107,032	-445,028	-738,555	-556,334	-112,052	263,484	2,096,896	1,176,810	2,711,647	2,711,647	2,711,647
Net Margin %	2.1	-7.0	-36.7	-127	-53.9	-6.6	10.6	68.8	28.3	43.7	43.7	43.7
Diluted Shares Outstanding (Mil)	209	215	225	235	241	245	253	259	261	263	263	263
Diluted Earnings Per Share (USD)	0.14	-0.50	-1.98	-3.14	-2.31	-0.46	1.04	8.09	4.51	10.29	10.29	10.29
Dividends Per Share (USD)	—	—	—	—	—	—	—	—	—	—	—	—

Valuation as of 31 Mar 2021

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Recent Qtr	TTM
Price/Sales	7.4	5.8	13.7	35.2	39.8	10.8	16.3	15.1	15.7	10.4	9.1	9.1
Price/Earnings	-21.7	-84.0	-29.2	-53.8	-45.9	-82.0	196.1	66.2	26.5	23.1	20.9	20.9
Price/Cash Flow	-12.9	33.1	-416.7	-76.3	-64.1	149.3	49.3	36.2	39.7	19.4	17.4	17.4
Dividend Yield %	—	—	—	—	—	—	—	—	—	—	—	—
Price/Book	12.0	9.1	13.7	24.9	33.6	17.9	21.2	14.6	10.8	7.6	6.4	6.4
EV/EBITDA	0.1	0.1	0.0	0.0	-0.1	0.2	0.3	0.1	0.0	0.0	0.0	0.0

Operating Performance / Profitability as of 31 Dec 2020

Fiscal Year, ends 31 Dec	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	YTD	TTM
ROA %	1.5	-4.3	-17.5	-31.7	-23.0	-4.2	8.2	42.8	16.2	27.0	27.0	27.0
ROE %	4.5	-12.0	-37.8	-60.8	-55.2	-10.7	16.5	64.9	22.4	36.7	36.7	36.7
ROIC %	5.1	-6.6	-24.0	-36.7	-27.6	-3.4	12.9	55.4	19.9	33.5	33.5	33.5
Asset Turnover	0.7	0.6	0.5	0.2	0.4	0.6	0.8	0.6	0.6	0.6	0.6	0.6

Financial Leverage

Fiscal Year, ends 31 Dec	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Recent Qtr	TTM
Debt/Capital %	36.7	40.6	26.5	42.4	44.0	31.1	22.4	11.6	9.3	9.3	9.3	—
Equity/Assets %	35.7	36.2	58.5	46.0	37.6	39.9	57.2	71.0	73.2	73.9	73.9	—
Total Debt/EBITDA	3.4	8.2	-0.9	-1.4	-2.0	11.1	5.3	0.8	0.4	0.3	0.3	—
EBITDA/Interest Expense	3.5	5.7	-24.2	-8.2	-4.9	0.9	1.7	10.3	26.7	56.5	56.5	56.5

Morningstar Analyst Historical/Forecast Summary as of 10 Mar 2021

Financials

Fiscal Year, ends 31 Dec	2019	2020	Estimates 2021	2022	2023
Revenue (USD Mil)	4,163	6,206	7,313	8,601	9,929
Revenue Growth %	36.6	49.1	17.8	17.6	15.4
EBITDA (USD Mil)	1,305	2,966	3,736	5,093	6,195
EBITDA Margin %	31.3	47.8	51.1	59.2	62.4
Operating Income (USD Mil)	1,198	2,856	3,553	4,878	5,947
Operating Margin %	28.8	46.0	48.6	56.7	59.9
Net Income (USD Mil)	1,389	2,855	3,165	4,199	5,079
Net Margin %	33.4	46.0	43.3	48.8	51.2
Diluted Shares Outstanding (Mil)	261	263	263	262	261
Diluted Earnings Per Share(USD)	5.33	10.84	12.05	16.03	19.46
Dividends Per Share(USD)	0.00	0.00	0.00	0.00	0.00

Forward Valuation

	2019	2020	Estimates 2021	2022	2023
Price/Sales	13.6	9.9	7.8	6.6	5.7
Price/Earnings	41.1	21.8	18.2	13.7	11.3
Price/Cash Flow	38.0	20.5	19.3	14.5	12.0
Dividend Yield %	—	—	—	—	—
Price/Book	—	—	—	—	—
EV/EBITDA	40.9	18.8	13.7	10.0	8.3

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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

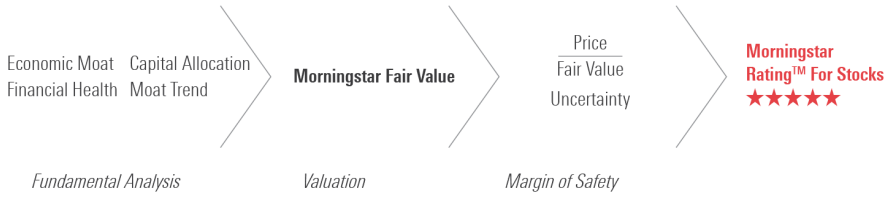
Once a company's marginal ROIC hits its cost of capital, we calculate a continuing value, using a standard perpetuity formula. At perpetuity, we assume that any growth or decline or investment in the business neither creates nor destroys value and that any new investment provides a return in line with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



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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

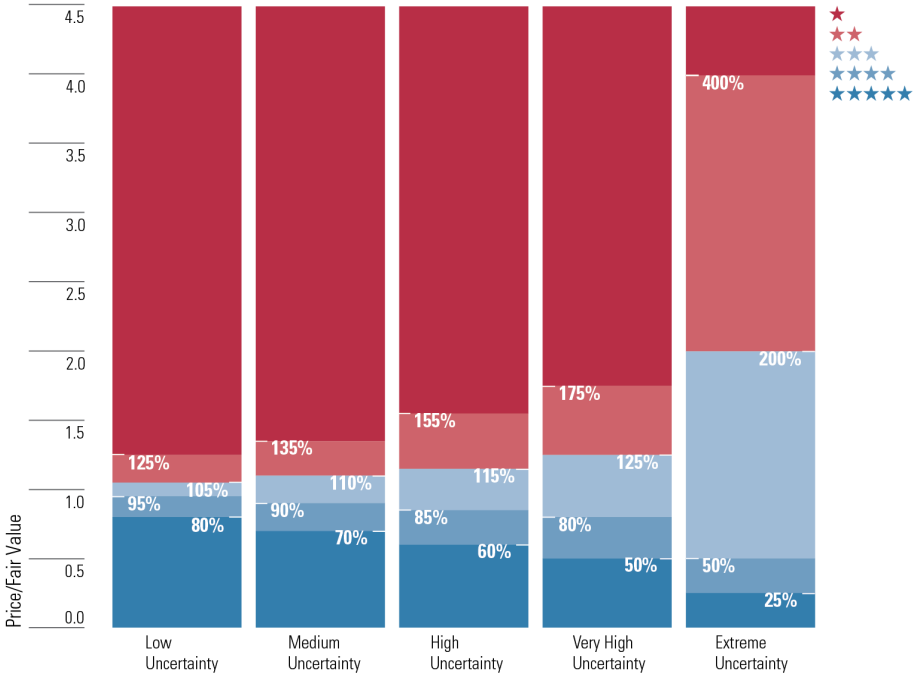
The market prices used in this analysis and noted in the report come from exchange on which the stock is listed which we believe is a reliable source.

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-

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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.

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