CoStar Group Inc CSGP (XNAS)

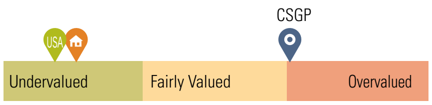
Morningstar Rating	Last Price	Fair Value Estimate	Price/Fair Value	Trailing Dividend Yield %	Forward Dividend Yield %	Market Cap (Bil)	Industry	Stewardship
★★★ 31 Mar 2020 21:47, UTC	587.21 USD 31 Mar 2020	612.00 USD 31 Mar 2020 22:55, UTC	0.96	— 31 Mar 2020	0.00 31 Mar 2020	21.52 31 Mar 2020	Real Estate Services	Exemplary

Morningstar Pillars

	Analyst	Quantitative
Economic Moat	Wide	Wide
Valuation	★★★	Overvalued
Uncertainty	High	High
Financial Health	—	Strong

Source: Morningstar Equity Research

Quantitative Valuation



	Current	5-Yr Avg	Sector	Country
Price/Quant Fair Value	1.05	1.12	0.85	0.83
Price/Earnings	69.8	163.3	11.0	20.1
Forward P/E	80.0	—	14.2	13.9
Price/Cash Flow	48.0	45.1	13.7	13.1
Price/Free Cash Flow	53.4	53.0	15.6	19.5
Trailing Dividend Yield%	—	—	4.08	2.35

Source: Morningstar

Bulls Say

- With homeownership rates declining in the U.S., the potential pool of renters who can use the Apartments.com and ForRent.com platforms is increasing.
- CoStar Suite's lack of genuine competition has allowed it to maintain high renewal rates and regular price increases provide it with a stable source of growing revenue.
- Much of CoStar's business model is easily scalable, which should allow operating margins to improve as revenue grows.

Bears Say

- The coronavirus outbreak will derail commercial real estate and with it CoStar's growth trajectory.
- Emerging threats such as crowdsourcing and data sharing arrangements will disrupt CoStar's core business model.
- The increasing institutionalization and growth of commercial real estate will draw a well-funded competitor such as Moody's or Bloomberg to compete with CoStar.

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CoStar Will See an Interruption to its Impressive Growth Trajectory During the Coronavirus Crisis

Business Strategy and Outlook

Yousuf Hafuda, Eq. Analyst, 27 February 2020

CoStar Group built its business by providing commercial real estate data to institutional clients. After achieving pre-eminence in this space, it acquired LoopNet in 2012 and Apartments.com in 2014. These two deals, among several smaller acquisitions, marked CoStar's entry to the fragmented online real estate listing marketplace business. Over the past several years, the company has continued to achieve impressive revenue and profitability growth. We think it is poised to continue this growth trajectory by taking share in the apartment search industry and upselling current LoopNet users to its CoStar Suite platform.

CoStar has four main business lines, CoStar Suite, Commercial Property and Land, Multifamily, and Information Services. Despite the company's slight shift in focus as it pursues additional growth opportunities, CoStar Suite remains the largest business line, contributing about half of revenue as of year-end 2017. This flagship product contains proprietary data that is sold to institutional players such as brokers via annual subscriptions. We expect future growth to derive from above inflation price increases, successful efforts to curb password sharing behavior, and the continued upselling of previous LoopNet users to the CoStar Suite offering.

CoStar's second largest business line is multifamily, contributing about 35% of revenue. This business contains apartment listing platforms such as Apartments.com, ForRent.com, and Apartmentfinder.com among several others. The LoopNet Premium Lister, BizBuySell, LandsofAmerica, and other related brands are contained within the commercial property and land business line, which is 15% of companywide revenue. Much like the multifamily platforms, CoStar derives its revenue by charging tiered yearly subscription packages in exchange for preferential advertising placement on its platforms. Information services, which contributes less than 10% of revenue, consists of the legacy LoopNet Premium Searcher, CoStar Real Estate Manager, and various other miscellaneous products.

Analyst Note

Yousuf Hafuda, Eq. Analyst, 27 February 2020

CoStar reported excellent fourth-quarter results, culminating in what has been a transformative decade for the wide-moat company. Despite the excellent performance, the company's management team indicated it plans to continue to invest significantly for future growth, with the ultimate aim of transforming how commercial real estate business is conducted. After incorporating the full-year 2019 results into our valuation model and updating our outlook, we are raising our fair value estimate to $631 per share from $570. Although we think CoStar is poised for significant growth, we currently view shares as just a touch overvalued given the recent run up in the stock price. However, we would encourage investors to consider purchasing shares of CoStar in the event of a pullback.

CoStar reported full-year 2019 revenue growth of 17% with net income growing by 32%. Meanwhile, revenue for the fourth quarter increased by 19% compared with a year earlier, with net income increasing by 5%. Growth was particularly strong in the company's multifamily business that contains Apartments.com, where the number of user page views reached 6.3 billion during 2019. Revenue growth for the multifamily business was likewise impressive, with revenues increasing by 21% as CoStar continues to invest in sales staff and advertising to pursue growth. Meanwhile, the commercial property and land business grew its revenue by 17%, with that growth expected to accelerate in 2020. Management is looking to elevate its LoopNet online marketplace and transform the way commercial real estate properties are found online.

Economic Moat

Yousuf Hafuda, Eq. Analyst, 31 March 2020

We assign CoStar Group a wide moat rating, with intangible assets, switching costs, and network effects all serving as moat sources. We view the CoStar Suite business as a borderline monopoly in that it has no true threats in terms of competition. When the company pursued its acquisition of LoopNet for $860 million in 2011, federal regulators scrutinized it due to antitrust concerns.

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Close Competitors	Currency (Mil)	Market Cap	TTM Sales	Operating Margin	TTM/PE
Vonovia SE VNNVF	USD	27,142	2,688	-31.59	20.08
Vonovia SE VONOY	USD	27,142	2,688	-31.59	20.12
Sunac China Holdings Ltd SCCCF	USD	21,514	24,522	17.29	7.12
Henderson Land Development Co Ltd HLDCY	USD	16,777	2,165	39.29	5.96

The acquisition was eventually approved in 2012, but only after CoStar agreed to certain limitations regarding competitive behavior, including a requirement that LoopNet spin off Xceligent, which was CoStar's only notable competitor.

This dynamic was amplified following Xceligent's declaration of bankruptcy in December 2017. Following this development, the only remaining companies in the space are small startups focused on crowdsourcing data. In a survey of commercial real estate professionals in 2018, 98% stated that they rely on either CoStar or LoopNet for commercial real estate data. Indeed, just seven months after Xceligent filed for bankruptcy, CoStar raised its average monthly price from $255 to $466 for new brokers.

Given that the company's competitive position has evidently improved since the acquisition of LoopNet, we think there is a minor risk that antitrust concerns flare up again. However, absent a headline driving acquisition in the commercial real estate data space, we think the chance that the government will proactively address the issue is low. We also reckon that CoStar is unlikely to pursue such an acquisition in part due to these considerations and because there are not many potential companies left to acquire. Nevertheless, we remain sensitive to the deleterious effects that antitrust actions can have on the company's competitive position and would reconsider our assessment if news regarding tangible investigations by an entity such as the FTC were to emerge.

The primary moat source for data providers is intangible assets, a reflection of the significant cost and effort associated with collecting the data the company provides to its customer base. As the pre-eminent provider of commercial real estate data, we think CoStar benefits from intangible assets as a moat source. The company maintains a staff of over 1,800 researchers who keep the company's data accurate by calling and emailing brokers, physically inspecting properties, and even riding low-flying aircraft for aerial footage.

In this process researchers make about 50,000 calls each day, and management has invested over $1 billion over the years to build its proprietary database. Any potential competitor would have to spend years and potentially billions of dollars to replicate CoStar's data offering. We think the difficulty in replicating this offering is evidenced by the fact that CoStar's now bankrupt competitor Xceligent met its demise in large part because it resorted to stealing CoStar's data due to the prohibitive cost associated with building out its own offering.

The intangible asset moat source is strengthened by CoStar's increasing possession of real estate transaction data due to the growing scale of its multifamily platforms. The company then turns around and sells this same data to users of its CoStar Suite offering. CoStar can exert a greater level of control over this data, and a potential entrant would have to negotiate directly with it to access this information.

There have been recent efforts to establish back-end data feeds between CoStar's listing platforms and the CoStar Suite data offering. This process reduces the cost of data procurement as compared with a potential entrant, which would rely on a more manual process. This ultimately allows CoStar to access more data with less manual time and effort exerted by its army of researchers. Additionally, the establishment of an electronic feed to connect these services on the back end bolsters the quality and efficiency of its database. As these platforms continue to grow, the percentage of data that is procured through these methods increases. There has likewise been an increased effort to set up electronic feeds from larger scale outside providers, thus reducing friction and costs for both CoStar and its data providers. While in theory this process is replicable, a company would have to achieve a requisite level of breadth to convince the data owners that such a process is worthwhile. We think this dynamic is a potential boon to CoStar and allows it to benefit from traces of cost advantage. More importantly, it decreases the ease with which a competitor would be able to provide an offering of comparable quality.

CoStar has been achieving growth by upselling legacy LoopNet users to its CoStar Suite platform. Prior to the acquisition in 2012, many real estate professionals subscribed to LoopNet's low-cost data and advanced search offering for properties listed on its platform. Many

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of these users considered this service a substitute for CoStar's more comprehensive and far more expensive offering. With most competitors out of the way, CoStar has spent the last several years focused on converting LoopNet data users to its CoStar suite platform. To this end, the company recently made a change to only allow paid listings to be visible on its LoopNet data search. This precludes a significant portion of the market that is listed on the platform for free, thus reducing the informational value of search results.

Despite this having been a focus for CoStar for several years, we still reckon there remains significant potential for future cross-selling growth to be achieved. As of the middle of 2018, management estimated that it had only been able to approach 20% of its 100,000 LoopNet targets. As it works through the remainder of its targets, we expect a significant portion to eventually sign up for the CoStar Suite offering. We think this dynamic showcases CoStar's ability to continuously generate revenue growth by harvesting its moaty characteristics.

CoStar benefits from a switching cost moat source given the indispensable nature of its data. The company goes out of its way to meet with prospective clients to teach them about the platform, and its customer service and sales teams are encouraged to increase customer usage of its products. The company's clients range from commercial real estate brokers to property managers to larger financial institutions. These clients use CoStar's data to inform critical business decisions regarding commercial real estate transactions that affect profitability. As such, the company consistently posts renewal rates above 90%, with the figure typically exceeding 95% for clients who have been customers for five years or longer.

During the last business downturn, CoStar saw renewal rates drop to about 85% in 2009. However, it is important to note that these lower rates only lasted for a few quarters during the height of the global recession. We think these figures are impressive because the last business downturn was unusually severe and affected real estate more acutely than previous recessions.

We expect stronger renewal rates in future downturns because of a few reasons. CoStar Suite's data offering has become more comprehensive, and its increased usage throughout the industry is making it a necessary cost of doing business. Users have little to no alternatives, with a fragmented competition that cannot provide a product of comparable quality. Finally, we note that the last recession was an exception regarding the extent to which real estate suffered as an industry.

CoStar Suite also benefits from a network effect moat source. Buyers, sellers, and researchers benefit when they each share information with CoStar, since they can access the aggregated data on CoStar Suite to inform broader decision-making. The company also benefits from strengthening network effects on its real estate listing marketplaces, which include LoopNet, Apartments.com, Apartmentfinder.com, and LandsofAmerica among others. Following its acquisition of these platforms, CoStar has been able to significantly increase monthly visitors, listings and time spent on its websites. In 2017 CoStar Group's websites received an average of 40 million unique monthly visitors in aggregate. As these platforms begin to capture a larger percentage of marketplace activity, a positive feedback loop will allow CoStar to more effectively monetize them.

Based on our calculations, CoStar has consistently outearned its 9.0% weighted average cost of capital. We expect return on invested capital to continue to increase and exceed the cost of capital over the next 20 years, a reflection of the company's dominant position in the commercial real estate industry.

Fair Value & Profit Drivers

Yousuf Hafuda, Eq. Analyst, 31 March 2020

We are lowering our fair value estimate to $612 per share from $631 to account for a slowdown in growth in 2020 due to impacts from the coronavirus outbreak. We estimate CoStar's long-term weighted average cost of capital is 9.0%. Our base-case forecasts assume that CoStar continues to achieve double-digit growth through 2029. The company's main drivers of earnings growth will be cross-selling to LoopNet users, the ability to take share in the apartment rental space, and margin improvements deriving from the inherent scalability of its business model.

We expect CoStar Suite to remain critical to the company's financial success and consequently expect double-digit revenue growth of each year through 2029. This forecast is predicated on two favorable dynamics. First, we expect CoStar to embed more aggressive price increases over

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time as its data becomes more comprehensive and indispensable to its users. Second, we expect CoStar to become more aggressive about pursuing perennial password sharers, further monetizing an already captive user base. Finally, we expect cross-selling to continue at breakneck pace.

We think the multifamily business line is poised to achieve high-double-digit revenue growth through 2028 with some moderation in growth rates over time. Platforms like Apartments.com will be able to take share from a fragmented and poorly capitalized industry. As its network expands in scope, we think CoStar will more effectively monetize it.

In the commercial property and land space, we forecast double-digit revenue growth through 2029. Platforms such as LoopNet and LandsofAmerica are becoming crucial tools to market and sell commercial real estate assets. Although CoStar's acquisition of LoopNet and its related platforms closed in 2012, we think it will continue to effectively push price increases to its existing user base and compel listers to utilize its advertising services more heavily over time. Finally, we expect information services to grow at around 10% through 2029, as CoStar Real Estate manager continues its impressive growth trajectory.

We forecast improved margins for CoStar as it leverages its increasing scale. We expect selling and marketing costs to decrease from 29% of sales to 21% in 2029 due to the one-time nature of its multifamily advertising campaigns. Additionally, we expect cost of revenue and general and administrative costs to decrease as a percentage of revenue over the coming years.

Risk & Uncertainty

Yousuf Hafuda, Eq. Analyst, 31 March 2020

CoStar is indisputably the leader in commercial real estate data, but there are a few risks that we think investors should consider. The first of these is the potential threat that is posed by data sharing arrangements. This could come in the form of smaller crowdsourcing startups such as CompStak or an agreement between major brokers such as CBRE, JLL, and Cushman and Wakefield to share data. Such a data sharing arrangement was reportedly explored back in 2011, although the talks ultimately fell through. In addition to data sharing, we think there is a slight risk that brokers and property owners stem the supply of information.

Another possibility is for a well-capitalized player such as Moody's or Bloomberg to enter the commercial real estate data space. We don't view CoStar's business model as impossible to replicate. Given enough time, staff, and money, such a player could be able to eventually replicate its offerings. However, we think CoStar has such a head start that such an undertaking would prove too costly and time consuming to pursue. CoStar has a demonstrated history of litigious behavior toward competitors that provides an additional source of hesitation. We think it is more likely that one of these players enters an ancillary space in the industry rather than take CoStar head on.

Given CoStar's dominance in its space, we think antitrust action against it remains a lingering risk. Since the Federal Trade Commission investigated CoStar for antitrust concerns following its announced acquisition of LoopNet, and the company has further strengthened its competitive position since. However, we remain skeptical that any action by the FTC is imminent so long as CoStar avoids additional acquisitions in the commercial real estate data space. Ultimately, this is an industry that maintains a lower profile than some of the dominant Internet players such as Google and Facebook that have themselves skirted antitrust accusations thus far.

Stewardship

Yousuf Hafuda, Eq. Analyst, 27 February 2020

We assign CoStar Group an Exemplary stewardship rating. Founder and CEO Andrew Florance has successfully navigated the company from its founding in 1987 to a major commercial real estate company with over $1 billion in annual revenue. During this period, CoStar has benefited from a combination of impressive organic growth and shrewd transformative acquisitions.

The CoStar Suite platform has continued to improve in terms of quality over the years and has allowed the company to consistently pass above inflation price increases to its customers. The acquisitions of LoopNet and Apartments.com have proved particularly transformative. The revenue and cost synergy target set by management for the LoopNet acquisition was exceeded, and we think there are more benefits that have yet to be received over the coming years. The Apartments.com acquisition was likewise impressive, with management significantly boosting unique monthly visitors and time spent on the

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site due to a redesign and a sprawling advertisement campaign.

Management has been willing to protect its data and business interests through litigation. We think this bolsters CoStar's competitive edge and has helped protect the value of its proprietary data.

We are also impressed by management's purchase of its D.C. headquarters in 2010 for $41 million and the subsequent sale of that same facility one later for $100 million. The relocation of the company's research headquarters to Richmond, Virginia, was similarly prudent because of its lower cost of living. While these are one-off decisions, we think they highlight how management has a penchant for thinking creatively to increase shareholder value.

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Analyst Notes Archive

CoStar's Management Doubles Down on Investments for Future Growth; We Raise Our FVE to $570

Yousuf Hafuda, Eq. Analyst, 23 October 2019

Wide-moat rated CoStar reported solid earnings results in the third quarter, with revenue growing 15% and net income increasing 34% compared with a year earlier. Management also reiterated its intention to invest in future growth on its Apartments.com and LoopNet platforms. Despite these encouraging indications, investors reacted unfavorably, with shares down significantly immediately following the earnings result, although they have recovered since. Management also gave more detail about its acquisition of STR, a hotel data provider. Despite various moving parts, we remain confident in our long-term thesis in wide-moat rated CoStar and raise our fair value estimate to $570 from $560 mainly due to the time value of money. We view shares as fairly valued but would encourage investors to consider purchasing shares in the event of a pullback given the tremendous growth opportunity that CoStar represents.

During the third quarter, Apartments.com continued its ascent as the preeminent multifamily listings platform. Revenue grew 20%, with online traffic increasing significantly even as the traffic of competitors such as RentPath and Apartment List falter. Management indicated that it intends to increase its marketing spend for Apartments.com by $100 million in order to cement its position as the most popular online apartment search platform. We think this space represents a tremendous opportunity and fully expect CoStar to emerge victorious compared with its smaller rivals.

In addition to investments in Apartments.com, management indicated its intent to pursue growth in LoopNet. CoStar is looking to shift its business model from one that focuses on selling ads to brokers to a business model focused on selling to property owners. We think this move makes sense and will allow the platform to continue its streak of growth in the long term.

RentPath Acquisition Bolsters CoStar's Pre-Eminence in Online Apartment Search

Yousuf Hafuda, Eq. Analyst, 12 February 2020

On Feb. 11, CoStar's management team announced its intent to acquire competitor RentPath for $588 million as it undergoes a Chapter 11 bankruptcy filing. The firm, which had managed prominent domains such as Rent.com and ApartmentGuide.com, ran into financial difficulty as it struggled to adjust to emerging competition in the digital apartment search world. Investors took a favorable view of the acquisition, with the company's shares up by around 11% in reaction to the news. We are somewhat more circumspect. Although we think the acquisition is strategically sound, we think it is difficult to disentangle what CoStar's market share gain would have been without the acquisition given that its position in the industry is already ascendant. Accordingly, we expect to maintain our $570 per share fair value estimate, which assumes significant growth in the company's online multifamily search business.

Although we firmly believe CoStar is poised for significant growth, the current valuation seems exceedingly rich, and we view shares as slightly overvalued. Amid an already frothy market environment, the company's shares have run up to levels that assume outrageous growth rates that are rather difficult to justify. Nevertheless, we await additional information regarding the acquisition before adjusting our valuation model.

Before the acquisition, RentPath was clearly in decline. Revenue and EBITDA growth figures had been decreasing year over year between 2018 and 2019, and profitability margins were deteriorating materially. The decision by CoStar to pursue the acquisition was likely driven by a desire to capture the URLs and sales capabilities possessed by the legacy operation.

CoStar Enters a New Decade With Ambitions to Transform Commercial Real Estate

Yousuf Hafuda, Eq. Analyst, 27 February 2020

CoStar reported excellent fourth-quarter results, culminating in what has been a transformative decade for the wide-moat company. Despite the excellent performance, the company's management team indicated it plans to continue to invest significantly for future growth, with the ultimate aim of transforming how commercial real estate business is conducted. After incorporating the full-year 2019 results into our valuation model and updating our outlook, we are raising our fair value estimate to $631 per share from $570. Although we think CoStar is poised for significant growth, we currently view shares as just a touch overvalued given the recent run up in the stock price. However, we would encourage

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Quantitative Equity Report | Release: 31 Mar 2020, 18:02 UTC | Reporting Currency: USD | Trading Currency: USD | Exchange:XNAS Page 8 of 15

CoStar Group Inc CSGP ★★★Q 31 Mar 2020 02:00 UTC

Last Close	Fair Value Q	Market Cap	Sector	Industry	Country of Domicile
31 Mar 2020 587.21	31 Mar 2020 02:00 UTC 557.13	31 Mar 2020 21,986.5 Mil	Real Estate	Real Estate Services	United States

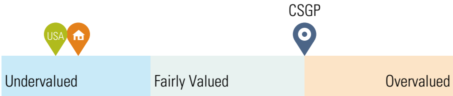
There is no one analyst in which a Quantitative Fair Value Estimate and Quantitative Star Rating are attributed to; however, Mr. Lee Davidson, Head of Quantitative Research for Morningstar, Inc., is responsible for overseeing the methodology that supports the quantitative fair value. As an employee of Morningstar, Inc., Mr. Davidson is guided by Morningstar, Inc.'s Code of Ethics and Personal Securities Trading Policy in carrying out his responsibilities. For information regarding Conflicts of Interests, visit http://global.morningstar.com/equitydisclosures

Company Profile

CoStar Group is a leading provider of commercial real estate data and marketplace listing platforms. Its data offering contains in-depth analytical information on over 5 million commercial real estate properties related to various subsectors including office, retail, multifamily, healthcare, industrial, self-storage, and data centers. It operates five flagship brands: CoStar Suite, LoopNet, Apartments.com, BizBuySell, and LandsofAmerica with approximately three quarters of its revenue classified as subscription based. The

Quantitative Scores

		Scores All	Rel Sector	Rel Country
Quantitative Moat	Wide	100	100	99
Valuation	Overvalued	2	1	2
Quantitative Uncertainty	High	97	97	96
Financial Health	Strong	94	84	94



Source: Morningstar Equity Research

Valuation

	Current	5-Yr Avg	Sector Median	Country Median
Price/Quant Fair Value	1.05	1.12	0.85	0.83
Price/Earnings	69.8	163.3	11.0	20.1
Forward P/E	80.0	—	14.2	13.9
Price/Cash Flow	48.0	45.1	13.7	13.1
Price/Free Cash Flow	53.4	53.0	15.6	19.5
Trailing Dividend Yield %	—	—	4.08	2.35
Price/Book	6.5	4.9	1.0	2.4
Price/Sales	15.7	11.2	4.6	2.4

Profitability

	Current	5-Yr Avg	Sector Median	Country Median
Return on Equity %	9.8	5.8	9.7	12.9
Return on Assets %	8.8	5.0	4.1	5.2
Revenue/Employee (K)	322.7	289.7	2,015.0	325.9

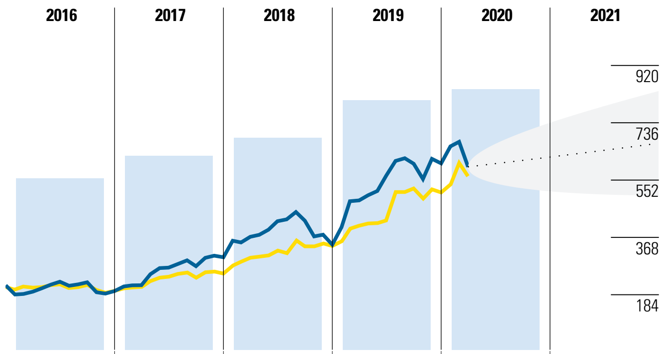
Financial Health

	Current	5-Yr Avg	Sector Median	Country Median
Distance to Default	0.7	0.8	0.6	0.5
Solvency Score	216.7	—	529.7	552.4
Assets/Equity	1.1	1.2	2.0	1.7
Long-Term Debt/Equity	—	—	0.6	0.4

Growth Per Share

	1-Year	3-Year	5-Year	10-Year
Revenue %	17.4	18.7	19.4	20.9
Operating Income %	32.9	35.9	35.1	27.6
Earnings %	31.5	48.6	42.6	24.8
Dividends %	—	—	—	—
Book Value %	12.0	22.3	14.7	18.2
Stock Total Return %	25.9	41.5	24.3	30.3

Price vs. Quantitative Fair Value



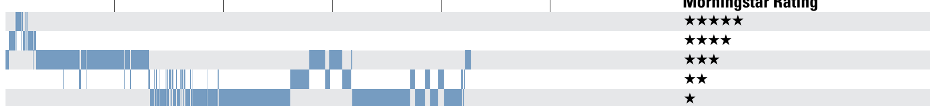
Momentum: Neutral
Standard Deviation: 25.51
Liquidity: Medium

473.91 52-Wk 746.70

146.53 5-Yr 746.70

2016	2017	2018	2019	2020	
-8.8	57.5	13.6	77.4	-1.9	Total Return %
-21.2	36.1	18.7	46.1	17.5	+/– Market (Morningstar US Index)
—	—	—	—	—	Trailing Dividend Yield %
—	—	—	—	—	Forward Dividend Yield %
77.5	90.1	61.3	70.4	69.9	Price/Earnings
7.5	10.4	10.9	16.3	15.7	Price/Revenue

Morningstar Rating Q



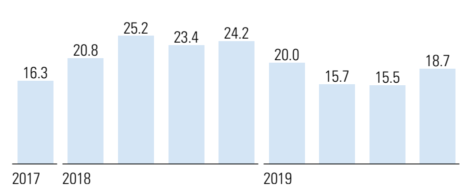
2015	2016	2017	2018	2019	TTM	Financials (Fiscal Year in Mil)
712	838	965	1,192	1,400	1,400	Revenue
23.6	17.7	15.2	23.5	17.4	0.0	% Change
39	145	174	274	364	364	Operating Income
-64.0	267.9	20.0	57.4	32.9	0.0	% Change
-3	85	123	238	315	315	Net Income
131	196	235	335	458	458	Operating Cash Flow
-35	-19	-24	-30	-46	-46	Capital Spending
96	177	210	306	412	412	Free Cash Flow
13.5	21.2	21.8	25.7	29.4	29.4	% Sales
-0.11	2.62	3.66	6.54	8.60	8.60	EPS
-107.5	—	39.7	78.7	31.5	0.0	% Change
2.60	5.77	5.63	7.30	11.28	11.24	Free Cash Flow/Share
—	—	—	—	—	—	Dividends/Share
46.45	49.64	48.81	80.35	89.97	92.94	Book Value/Share
32,509	32,606	36,107	36,446	36,668	36,645	Shares Outstanding (K)

2015	2016	2017	2018	2019	TTM	Profitability
-0.2	5.3	5.7	8.4	9.8	9.8	Return on Equity %
-0.2	4.0	4.9	7.7	8.8	8.8	Return on Assets %
-0.5	10.2	12.7	20.0	22.5	22.5	Net Margin %
0.34	0.39	0.38	0.39	0.39	0.39	Asset Turnover
1.3	1.3	1.1	1.1	1.1	1.1	Financial Leverage
73.5	79.3	77.2	77.4	79.3	79.3	Gross Margin %
5.5	17.3	18.0	23.0	26.0	26.0	Operating Margin %
338	306	—	—	—	—	Long-Term Debt
1,544	1,654	2,651	3,022	3,406	3,406	Total Equity
8.8	9.5	11.2	14.2	9.2	9.2	Fixed Asset Turns

Quarterly Revenue & EPS

Revenue (Mil)	Mar	Jun	Sep	Dec	Total
2019	328.4	343.8	352.8	374.7	1,399.7
2018	273.7	297.0	305.5	315.6	1,191.8
2017	226.6	237.2	247.5	254.0	965.2
2016	199.7	206.9	212.7	218.3	837.6
Earnings Per Share ()					
2019	2.33	1.73	2.15	2.39	8.60
2018	1.44	1.20	1.61	2.29	6.54
2017	0.68	0.68	1.04	1.22	3.66
2016	0.52	0.48	0.72	0.91	2.62

Revenue Growth Year On Year %



Research Methodology for Valuing Companies

Qualitative Equity Research Overview

At the heart of our valuation system is a detailed projection of a company's future cash flows, resulting from our analysts' research. Analysts create custom industry and company assumptions to feed income statement, balance sheet, and capital investment assumptions into our globally standardized, proprietary discounted cash flow, or DCF, modeling templates. We use scenario analysis, in-depth competitive advantage analysis, and a variety of other analytical tools to augment this process. We believe this bottom-up, long-term, fundamentally based approach allows our analysts to focus on long-term business drivers, which have the greatest valuation impact, rather than short-term market noise.

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 an uncertainty-adjusted discount or premium to their intrinsic worth—or fair value estimate, in Morningstar terminology. Five-star stocks sell for the biggest risk-adjusted discount to their fair values whereas 1-star stocks trade at premiums to their intrinsic worth.

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

1. Economic Moat

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

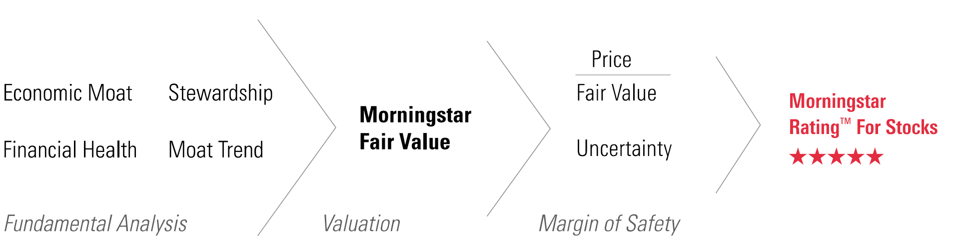
To assess the direction of the underlying competitive advantages, analysts perform ongoing assessments of the moat trend. A firm's moat trend is positive in cases where we think its sources of competitive advantage are growing stronger; stable where we don't anticipate changes to competitive advantages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

All the moat and moat trend ratings undergo periodic review and any changes must be approved by the Morningstar Economic Moat Committee, comprised of senior members of Morningstar's equity research department.

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.

Morningstar Research Methodology for Valuing Companies



Our model is divided into three distinct stages:

Stage I: Explicit Forecast

In this stage, which can last five to 10 years, analysts make full financial statement forecasts, including items such as revenue, profit margins, tax rates, changes in working-capital accounts, and capital spending. Based on these projections, we calculate earnings before interest, after taxes, or EBI, and the net new investment, or 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, or RONIC, and the number of years until perpetuity, when excess returns cease. The investment rate and return on new invested capital decline until the perpetuity stage is reached. 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.

Research Methodology for Valuing Companies

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 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, 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.

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.

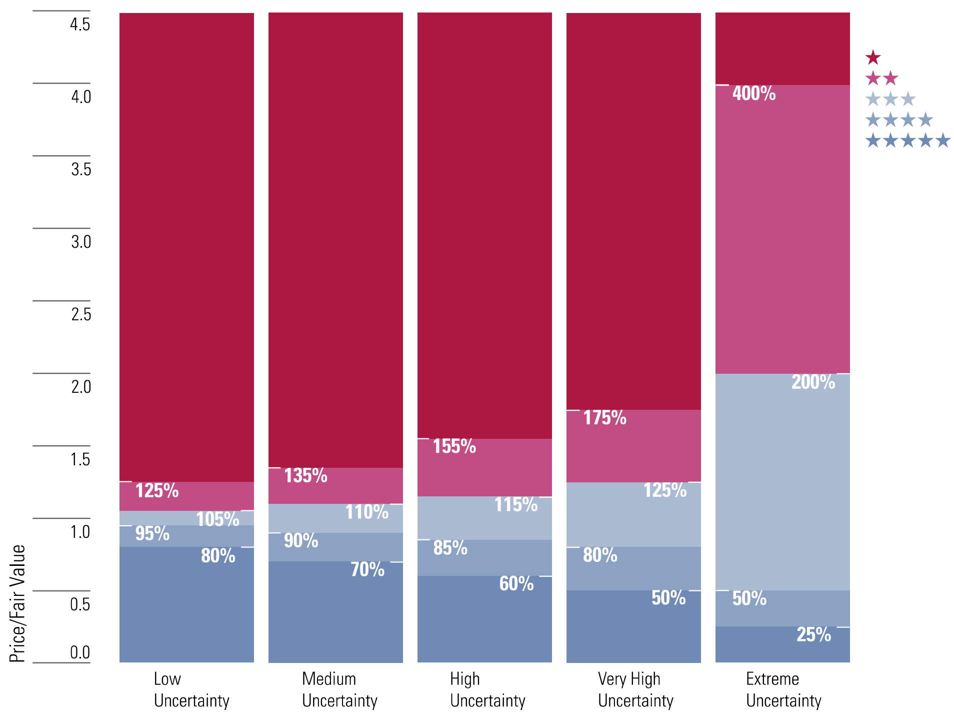
- Low–margin of safety for 5-star rating is a 20% discount and for 1-star rating is 25% premium.
- Medium–margin of safety for 5-star rating is a 30% discount and for 1-star rating is 35% premium.
- High–margin of safety for 5-star rating is a 40% discount and for 1-star rating is 55% premium.
- Very High–margin of safety for 5-star rating is a 50% discount and for 1-star rating is 75% premium.
- Extreme–margin of safety for 5-star rating is a 75% discount and for 1-star rating is 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 Equity Research Star Rating Methodology



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.

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. 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. The market is pricing in an excessively optimistic outlook, limiting upside potential and leaving the investor exposed to Capital loss.

Research Methodology for Valuing Companies

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.

Stewardship Rating: Represents our assessment of management's stewardship of shareholder capital, with particular emphasis on capital allocation decisions. Analysts consider companies' investment strategy and valuation, financial leverage, dividend and share buyback policies, execution, compensation, related party transactions, and accounting practices. Corporate governance practices are only considered if they've had a demonstrated impact on shareholder value. Analysts assign one of three ratings: "Exemplary," "Standard," and "Poor." Analysts judge stewardship from an equity holder's perspective. Ratings are determined on an absolute basis. Most companies will receive a Standard rating, and this is the default rating in the absence of evidence that managers have made exceptionally strong or poor capital allocation decisions.

Quantitative Valuation: Using the below terms, intended to denote the relationship between the security's Last Price and Morningstar's quantitative fair value estimate for that security.

- Undervalued: Last Price is below Morningstar's quantitative fair value estimate.
- Fairly Valued: Last Price is in line with Morningstar's quantitative fair value estimate.
- Overvalued: Last Price is above Morningstar's quantitative fair value estimate.

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.

Quantitative Equity Reports Overview
The quantitative report on equities consists of data, statistics and quantitative equity ratings on equity securities. Morningstar, Inc.'s quantitative equity ratings are forward looking and are generated by a statistical model that is based on Morningstar Inc.'s analyst-driven equity ratings and quantitative statistics. Given the nature of the quantitative report and the quantitative ratings, there is no one analyst in which a given report is attributed to; however, Mr. Lee Davidson, Head of Quantitative Research for Morningstar, Inc., is responsible for overseeing the methodology that supports the quantitative equity ratings used in this report. As an employee of Morningstar, Inc., Mr. Davidson is guided by Morningstar, Inc.'s Code of Ethics and Personal Securities Trading Policy in carrying out his responsibilities.

Quantitative Equity Ratings
Morningstar's quantitative equity ratings consist of:
(i) Quantitative Fair Value Estimate
(ii) Quantitative Star Rating
(iii) Quantitative Uncertainty
(iv) Quantitative Economic Moat
(v) Quantitative Financial Health
(collectively the "Quantitative Ratings").

The Quantitative Ratings are calculated daily and derived from the analyst-driven ratings of a company's peers as determined by statistical algorithms. Morningstar, Inc. (""Morningstar," "we," "our") calculates Quantitative Ratings for companies whether it already provides analyst ratings and qualitative coverage. In some cases, the Quantitative Ratings may differ from the analyst ratings because a company's analyst-driven ratings can significantly differ from other companies in its peer group.

Quantitative Fair Value Estimate: Intended to represent Morningstar's estimate of the per share dollar amount that a company's equity is worth today. Morningstar calculates the quantitative fair value estimate using a statistical model derived from the fair value estimate Morningstar's equity analysts assign to companies. Please go to https://shareholders.morningstar.com for information about fair value estimates Morningstar's equity analysts assign to companies.

Quantitative Economic Moat: Intended to describe the strength of a firm's competitive position. It is calculated using an algorithm designed to predict the Economic Moat rating a Morningstar analyst would assign to the stock. The rating is expressed as Narrow, Wide, or None.

- Narrow: assigned when the probability of a stock receiving a "Wide Moat" rating by an analyst is greater than 70% but less than 99%.
- Wide: assigned when the probability of a stock receiving a "Wide Moat" rating by an analyst is greater than 99%.
- None: assigned when the probability of an analyst receiving a "Wide Moat" rating by an analyst is less than 70%.

Quantitative Star Rating: Intended to be the summary rating based on the combination of our Quantitative Fair Value Estimate, current market price, and the Quantitative Uncertainty Rating. The rating is expressed as 1-Star, 2-Star, 3-Star, 4-Star, and 5-Star.

★: the stock is overvalued with a reasonable margin of safety.
Log (Quant FVE/Price)<–1*Quantitative Uncertainty

★★: the stock is somewhat overvalued.
Log (Quant FVE/Price) between (–1*Quantitative Uncertainty, –0.5*Quantitative Uncertainty)

★★★: the stock is approximately fairly valued.
Log (Quant FVE/Price) between (–0.5*Quantitative Uncertainty, 0.5*Quantitative Uncertainty)

★★★★: the stock is somewhat undervalued.
Log (Quant FVE/Price) between (0.5*Quantitative Uncertainty, 1*Quantitative Uncertainty)

★★★★★: the stock is undervalued with a reasonable margin of safety. Log (Quant FVE/Price) >1*Quantitative Uncertainty

Quantitative Uncertainty: Intended to represent Morningstar's level of uncertainty about the accuracy of the quantitative fair value estimate. Generally, the lower the quantitative Uncertainty, the narrower the potential range of outcomes for that particular company. The rating is expressed as Low, Medium, High, Very High, and Extreme.

- Low: the interquartile range for possible fair values is less than 10%.
- Medium: the interquartile range for possible fair values is less than 15% but greater than 10%.
- High: the interquartile range for possible fair values is less than 35% but greater than 15%.
- Very High: the interquartile range for possible fair values is less than 80% but greater than 35%.
- Extreme: the interquartile range for possible fair values is greater than 80%.

Quantitative Financial Health: Intended to reflect the probability that a firm will face financial distress in the near future. The calculation uses a predictive model designed to anticipate when a company may default on its financial obligations. The rating is expressed as Weak, Moderate, and Strong.

- Weak: assigned when Quantitative Financial Health <0.2
- Moderate: assigned when Quantitative Financial Health is between 0.2 and 0.7
- Strong: assigned when Quantitative Financial Health >0.7

Research Methodology for Valuing Companies

Other Definitions

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

Quantitative Valuation: Using the below terms, intended to denote the relationship between the security's Last Price and Morningstar's quantitative fair value estimate for that security.

- ► Undervalued: Last Price is below Morningstar's quantitative fair value estimate.
- ► Fairly Valued: Last Price is in line with Morningstar's quantitative fair value estimate.
- ► Overvalued: Last Price is above Morningstar's quantitative fair value estimate.

This Report has not been made available to the issuer of the security prior to publication.

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.

The quantitative equity ratings are not statements of fact. Morningstar does not guarantee the completeness or accuracy of the assumptions or models used in determining the quantitative equity ratings. In addition, there is the risk that the price target will not be met due to such things as unforeseen changes in demand for the company's products, changes in management, technology, economic development, interest rate development, operating and/or material costs, competitive pressure, supervisory law, exchange rate, and tax rate. For investments in foreign markets there are further risks, generally based on exchange rate changes or changes in political and social conditions.

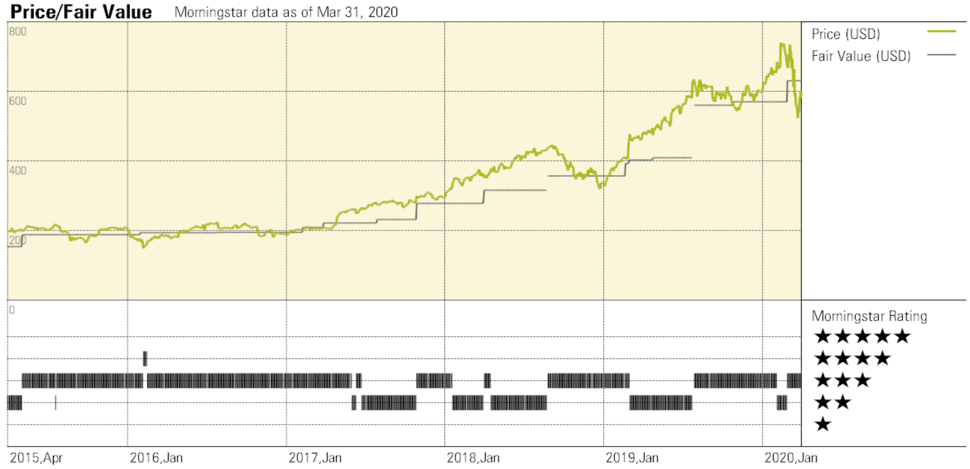
A change in the fundamental factors underlying the quantitative equity ratings can mean that the valuation is subsequently no longer accurate.

For more information about Morningstar's quantitative methodology, please visit http://global.morningstar.com/equitydisclosures.

CoStar Group Inc CSGP (XNAS)

Morningstar Rating	Last Price	Fair Value Estimate	Price/Fair Value	Trailing Dividend Yield %	Forward Dividend Yield %	Market Cap (Bil)	Industry	Stewardship
★★★	587.21 USD	612.00 USD	0.96	—	0.00	21.52	Real Estate Services	Exemplary
31 Mar 2020 21:47, UTC	31 Mar 2020	31 Mar 2020 22:55, UTC		31 Mar 2020	31 Mar 2020	31 Mar 2020		

Price/Fair Value Morningstar data as of Mar 31, 2020



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investment decision and when deemed necessary, to seek the advice of a legal, tax, and/or accounting professional.

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– Morningstar, Inc. may hold a long position in the security subject of this investment research report that exceeds 0.5% of the total issued share capital of the security. To determine if such is the case, please click http://msi.morningstar.com and http://mdi.morningstar.com.

• Analysts' compensation is derived from Morningstar, Inc.'s overall earnings and consists of salary, bonus and in some cases restricted stock.

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Morningstar Rating	Last Price	Fair Value Estimate	Price/Fair Value	Trailing Dividend Yield %	Forward Dividend Yield %	Market Cap (Bil)	Industry	Stewardship
★★★	587.21 USD	612.00 USD	0.96	—	0.00	21.52	Real Estate Services	Exemplary
31 Mar 2020 21:47, UTC	31 Mar 2020	31 Mar 2020 22:55, UTC		31 Mar 2020	31 Mar 2020	31 Mar 2020		

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