Cognizant Technology Solutions Corp CTSH (XNAS)

Morningstar Rating	Last Price	Fair Value Estimate	Price/Fair Value	Trailing Dividend Yield %	Forward Dividend Yield %	Market Cap (Bil)	Industry	Stewardship
★★★★	59.89 USD	79.00 USD	0.76	1.34	1.34	33.08	Information Technology Services	Standard
30 Oct 2019 21:59, UTC	30 Oct 2019	03 May 2019 02:04, UTC		30 Oct 2019	30 Oct 2019	30 Oct 2019		

Morningstar Pillars	Analyst	Quantitative
Economic Moat	Narrow	Narrow
Valuation	★★★★	Undervalued
Uncertainty	High	High
Financial Health	—	Strong

Source: Morningstar Equity Research

Quantitative Valuation

CTSH

Undervalued | Fairly Valued | Overvalued

	Current	5-Yr Avg	Sector	Country
Price/Quant Fair Value	0.89	0.98	0.77	0.83
Price/Earnings	16.6	24.7	21.4	20.1
Forward P/E	13.7	—	15.9	13.9
Price/Cash Flow	14.3	20.4	15.6	13.1
Price/Free Cash Flow	17.1	24.1	23.0	19.5
Trailing Dividend Yield%	1.34	—	1.89	2.35

Source: Morningstar

Bulls Say

- European companies are becoming more willing to adopt long-term outsourcing programs, given cost and staff pressures. This shift could provide a meaningful tailwind for Cognizant's expanding European operations.
- New virtualized business models and cloud and mobile technologies provide long-term growth opportunities for Cognizant's emerging mobile, cloud, analytics, and social capabilities.
- Cognizant's focus on relationship building and management has led it to foster close ties with market-leading companies. These very sticky relationships ensure significant recurring business.

Bears Say

- Although improving, Cognizant's brand cachet is not as strong as some of the longer established industry participants.
- Limitations on the number of H-1B visa holders that Cognizant is allowed to employ could starve the company of much-needed IT personnel.
- With approximately 76% of revenue generated in North America, Cognizant is highly exposed to macroeconomic conditions in the region.

Important Disclosure:

The conduct of Morningstar's analysts is governed by Code of Ethics/Code of Conduct Policy, Personal Security Trading Policy (or an equivalent of), and Investment Research Policy. For information regarding conflicts of interest, please visit http://global.morningstar.com/equitydisclosures

Cognizant Outperforms Guidance; Shares Undervalued to $79 FVE

Business Strategy and Outlook

Brian Colello, CPA, Sector Director, 27 September 2019

Cognizant is a U.S.-headquartered IT services firm that has exemplified industry-leading growth for many years. With revenue growing at a significant rate over the past five years, Cognizant has become a notable competitor to industry incumbents. While we expect revenue growth to moderate from the heady days of five to 10 years ago, we think the firm can significantly outperform the overall global IT services industry, for which we ballpark as a mid-single-digit growth rate. Further investments in key industries, new geographies, global delivery, and social, mobile, analytics, and cloud technologies are expected to underlie such growth. In addition, the company has been successful in establishing close client relationships and is strategically well positioned via its digital business initiatives, which leads to a narrow economic moat and supports Cognizant's long-term relevance in the market.

Cognizant's client-first attitude has been the primary reason for its success. A differentiated balance between the consulting-centric incumbent operating model and the offshore industrial model that relies on lower-cost delivery allows the company to appear as either a U.S. or Indian firm as circumstances dictate. Furthermore, a digital business framework, which aligns Cognizant's digital-related skills in business, operations, and systems & technology, provides clients with the appropriate tools and business partner to build out their long-term IT road map. We think this translates into significant customer switching costs.

We believe Cognizant will grow in excess of the overall IT services market given a number of opportunities and the company's peace of mind after much distraction from an activist investor. A focus on emerging digital technologies is expected to create opportunities as clients rethink how to interact with their customers. Geographic expansion is expected to provide Cognizant with the opportunity to enter underpenetrated markets. Finally, developing depth in existing industries and expanding into new industries such as the public sector will provide additional growth avenues.

Analyst Note

Brian Colello, CPA, Sector Director, 30 October 2019

Cognizant reported good results in its third fiscal quarter, beating the high end of revenue guidance and increasing its forecast ranges for most metrics heading into the fourth quarter. Management announced several initiatives that will begin in earnest in 2020, as CEO Brian Humphries settles further into his tenure. While the firm felt slight weakness in some areas, notably the U.K. with Brexit concerns, digital growth continued to underpin strong performance across most verticals. Success in digital technologies and Humphries' focus on streamlining the business reinforce our belief in Cognizant's strong competitive positioning. We reiterate our narrow moat rating for Cognizant, as well as our $79 fair value estimate and we view shares as undervalued.

Third-quarter revenue grew 5.1% year over year in constant currency to $4.25 billion. Growth was broad-based across most verticals. Revenue in the financial services segment grew 3% year over year, as some softness in the firm's largest clients was offset by solid performance in insurance. Healthcare was the only vertical to decline in revenue, decreasing by 90 basis points, as a contract dispute and industry consolidation overcame double-digit growth in life sciences. Revenue from the firm's two smaller verticals, products & resources and communications, media & technology, grew by 13.4% and 10.6% year over year, respectively. Adjusted operating margin declined 120 basis points year over year to 17.3% as compensation outpaced revenue.

Now with two solid quarters under the company's belt following a dismal start to the year, management has revised guidance higher for most metrics. For the fiscal year, the guidance range for constant currency revenue growth has narrowed to 4.6%-4.9%, which would lead to reported fiscal year revenue of $16.70 billion-$16.74 billion. Management is now expecting full-year adjusted EPS to be $3.95-$3.98.

Economic Moat

Brian Colello, Sector Director, 27 September 2019

We believe Cognizant has a narrow economic moat

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Close Competitors	Currency (Mil)	Market Cap	TTM Sales	Operating Margin	TTM/PE
Wipro Ltd WIPRO	INR	1,448,766	599,075	17.60	15.41
Accenture PLC ACN	USD	118,658	43,215	14.59	25.38
Infosys Ltd INFY	USD	39,498	12,386	21.78	18.28
DXC Technology Co DXC	USD	7,254	20,361	8.19	6.62

because of customer switching costs. The firm's commitment to client satisfaction (through its two-in-a-box operating model) has led to the formation of critical long-term relationships and an intimate knowledge of customer business processes; we estimate the company's strategic client retention ratio to be in the mid- to high-90s. Notably, about 30% of a Cognizant project team resides at a client's site, which differentiates the company from other offshore outsourcers. The larger on-shore presence exemplifies Cognizant's dedication to building stronger client relationships and better local business understanding. Compared with competitors, Cognizant sacrifices some margin due to significant reinvestment into client-facing competencies such as onshore and offshore senior leaders, industry experts, MBAs, and flexible resource allocation. Such reinvestment is seen as a critical factor in building better client relationships, and to that end, Cognizant has been recognized as a market leader in client satisfaction studies from third parties. We think Cognizant's client engagement creates a deep understanding of critical business systems, which leads to client reluctance to switch service providers.

Fair Value & Profit Drivers

Brian Colello, Sector Director, 27 September 2019

With the firm signaling ongoing weakness in both of financial services and healthcare in fiscal 2019, we think there will be a consequential impact on margins, too, leading to a fair value estimate of $79 for Cognizant. Our fair value estimate implies forward fiscal-year price/earnings of 20 times, enterprise value/EBITDA of 14 times, and free cash flow yield of 5%. The long-term demand environment looks strong despite some near-term weakness, and pricing is expected to be stable (balanced between newer digital growth and legacy workload exposure). We believe the firm's competitive position remains attractive and think the company has a number of growth drivers. We expect it to generate a top-line CAGR in the mid-single-digits over the next five years. However, we expect revenue growth to moderate from lofty historical levels as Cognizant becomes more mature and the law of larger numbers becomes apparent. Growing demand from clients for cost rationalization, regulation, and compliance (particularly in the healthcare and financial services segments), and digital-related services will underlie solid long-term growth. Additionally, Cognizant will push further into markets such as Latin America, continental Europe, and the public sector through both organic and acquisition-led endeavors. The company is looking to be more aggressive in terms of its M&A to build out its capabilities. We expect adjusted operating margins to improve into the 19%-20% range over the next five years as the firm targets ongoing initiatives around its employee pyramid, employee utilization, and corporate spending.

We expect the firm to reinvest all excess profits in capabilities such as onshore and offshore senior leaders, industry experts, MBAs, platforms, digital initiatives, and flexible resource allocation. We use an 8.9% cost of capital to discount our projected future cash flows.

Risk & Uncertainty

Brian Colello, Sector Director, 27 September 2019

The number-one risk for Cognizant is the highly competitive marketplace. To maintain its position and fend off marketplace irrelevancy, the company must continue to develop innovative solutions that keep it one step ahead of the competition, execute on contracts to maintain its reputation, and be able to attract (and retain) the right IT professionals to the organization. Additionally, with approximately 76% of revenue generated in North America, Cognizant is highly exposed to the economic well-being of the region. The firm also faces earnings volatility due to foreign exchange movements such as the Indian rupee versus the U.S. dollar. Finally, immigration reform remains a concern, although the exact terms of the reform and financial impact is an ongoing unknown. Detrimental immigration reform could affect the firm's revenue growth and margins.

Stewardship

Brian Colello, Sector Director, 27 September 2019

We view Cognizant's stewardship of capital as Standard. Former Vodafone Business CEO Brian Humphries replaced Francisco D'Souza effective April 1, 2019, as D'Souza, who had been CEO for 12 years, remains on the board as vice chairman. Humphries is the first outsider to lead the firm. Before Vodafone, Humphries held leadership roles at Dell and Hewlett-Packard. While we think Humphries has big

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shoes to fill given how wildly successful Cognizant has been over D'Souza's tenure, we think he's a solid choice. Despite the managerial change, we don't expect any drastic transformational approach at Cognizant and believe the firm's competitive position and strategy are well-placed versus other large IT services peers.

Collectively, all key insiders own approximately 1% of Cognizant's outstanding shares, which isn't particularly high. However, we think management has worked in shareholders' best interests by generating excess economic returns. Recent calls to return greater cash back to shareholders has been heard from management and the company instigated a capital return plan in fiscal 2017, helping to alleviate growth-at-any-cost concerns from some high-profile investors. The company initiated a quarterly cash dividend in the second quarter of fiscal 2017 due to activist pressure from Elliot Management, which rewarded long-term shareholders. However, the firm is expected to see adjusted operating margin contraction from 18%to 17.% in fiscal 2019 as the company returns to its growth-first strategy now that activist pressure has ceased with Elliot Management selling their stake in Cognizant. Over the medium term, we think investors will benefit from meaningful earnings per share appreciation.

The company's accelerated reinvestment strategy has been critical in growing its footprint and building a high-quality client experience. Management's paranoia over complacency has been vital to its success and has fueled the firm's high-growth trajectory. Cognizant is well aware that if it does not continue to innovate, it will become irrelevant. We think this shrewd approach will maintain the firm's competitive advantage in the market and highlight the firm's leading position in digital and cloud-related workloads as an example of its ability to shift to higher-value services in a timely way.

Over the past 10 years Cognizant has proved its ability to build depth in key industries, business consulting, global delivery, and digital transformation services. We expect Cognizant to become more aggressive in terms of M&A and assume the firm will look to build out its geographic capabilities, industry depth, intellectual property, and software-as-a-service platforms.

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Analyst Notes Archive

Cognizant 2Q In line With Expectations; CEO Humphries Outlines Strategic Focuses; Shares Undervalued

Andrew Lange, Eq. Analyst, 01 August 2019

After a shocking start to the fiscal year, Cognizant's second quarter was a more mundane affair as the company's performance was in line with its revised expectations from the first quarter. The firm reiterated the midpoint of its full-year revenue target while it slightly raised its adjusted diluted EPS midpoint to $3.95 from $3.91. With our view on the company remaining unchanged after the quarter, we reiterate our $79 fair value estimate and narrow economic moat rating. With shares trading in 4-star territory, we think the firm is an attractive investment opportunity for those seeking exposure to a world-leading IT services provider.

The second-quarter story remained the same with prior quarters where financial services and healthcare performed poorly, but products & resources and communications, media & technology posted healthy low-to-mid-teens constant currency growth. New CEO Brian Humphries noted that leaders at both the banking and healthcare businesses had been replaced in the last three months and that both verticals now have a fresh perspective and will be greatly focused on customer success. With 18 weeks under his belt, Humphries also outlined his key strategic focuses which includes: refining the firm's strategic posture to be more relevant to clients; developing greater thought leadership by industry vertical; accelerating investment in growth drivers such as sales and marketing, targeted innovation, and partnerships; significantly lowering the firm's cost structure; and better operational discipline and a more performance-based culture. Taken altogether, we think these endeavors will rightly align the firm with the potential growth of the IT services market, but it will take time to implement and build momentum in the pipeline.

Cognizant Outperforms Guidance; Shares Undervalued to $79 FVE

Brian Colello, Sector Director, 30 October 2019

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Quantitative Equity Report | Release: 30 Oct 2019, 23:15 UTC | Reporting Currency: USD | Trading Currency: USD | Exchange:XNAS

Cognizant Technology Solutions Corp A CTSH ★★★★Q 30 Oct 2019 02:00 UTC

Last Close	Fair Value^Q	Market Cap	Sector	Industry	Country of Domicile
30 Oct 2019 59.89	30 Oct 2019 02:00 UTC 67.52	30 Oct 2019 33,076.7 Mil	Technology	Information Technology Services	USA United States

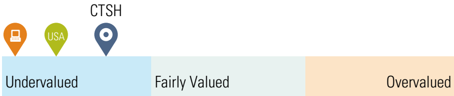
There is no one analyst in which a Quantitative Fair Value Estimate and Quantitative Star Rating are attributed to; however, Mr. Lee Davidson, Head of Quantitative Research for Morningstar, Inc., is responsible for overseeing the methodology that supports the quantitative fair value. As an employee of 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

Cognizant is an IT services provider with headquarters in Teaneck, New Jersey. The company was founded in 1994, employs nearly 300,000 people, and provides such services as technology consulting, application outsourcing, systems integration, business process services, and cloud services. The firm generates approximately 76% of group revenue from the North American market and roughly 86% of group revenue from its three main industries: financial services, healthcare and manufacturing, retail and logistics.

Quantitative Scores

		Scores All	Rel Sector	Rel Country
Quantitative Moat	Narrow	98	98	96
Valuation	Undervalued	36	36	36
Quantitative Uncertainty	High	95	94	92
Financial Health	Strong	95	86	95



Source: Morningstar Equity Research

Valuation

	Current	5-Yr Avg	Sector Median	Country Median
Price/Quant Fair Value	0.89	0.98	0.77	0.83
Price/Earnings	16.6	24.7	21.4	20.1
Forward P/E	13.7	—	15.9	13.9
Price/Cash Flow	14.3	20.4	15.6	13.1
Price/Free Cash Flow	17.1	24.1	23.0	19.5
Trailing Dividend Yield %	1.34	—	1.89	2.35
Price/Book	3.1	4.1	2.3	2.4
Price/Sales	2.1	3.1	1.7	2.4

Profitability

	Current	5-Yr Avg	Sector Median	Country Median
Return on Equity %	19.6	17.7	12.5	12.9
Return on Assets %	13.7	12.6	6.4	5.2
Revenue/Employee (K)	57.1	54.1	442.6	325.9

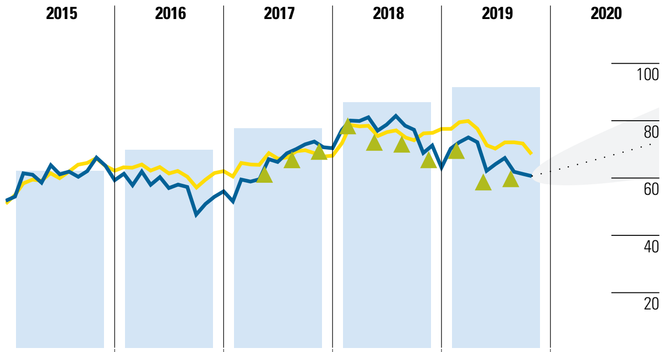
Financial Health

	Current	5-Yr Avg	Sector Median	Country Median
Distance to Default	0.8	0.8	0.6	0.5
Solvency Score	200.0	—	449.9	552.4
Assets/Equity	1.4	1.4	1.6	1.7
Long-Term Debt/Equity	0.1	0.1	0.1	0.4

Growth Per Share

	1-Year	3-Year	5-Year	10-Year
Revenue %	8.9	9.1	12.8	19.1
Operating Income %	12.9	9.4	10.8	18.4
Earnings %	42.3	10.8	12.3	17.5
Dividends %	77.8	—	—	—
Book Value %	9.1	9.1	14.4	19.4
Stock Total Return %	-8.8	6.2	5.2	12.3

Price vs. Quantitative Fair Value



- Quantitative Fair Value Estimate
- Total Return
- Sales/Share
- Forecast Range
- Forcasted Price
- Dividend
- Split

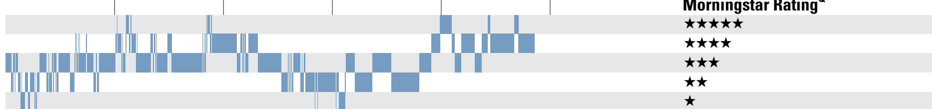
Momentum:	Negative
Standard Deviation:	21.40
Liquidity:	High

56.73 52-Wk 74.85

45.44 5-Yr 85.10

2015	2016	2017	2018	2019	2020	
14.0	-6.6	27.6	-9.5	-4.7		Total Return %
13.3	-19.1	6.1	-4.4	-28.1		+/– Market (Morningstar US Index)
—	—	0.63	1.26	1.34		Trailing Dividend Yield %
—	—	0.84	1.26	1.34		Forward Dividend Yield %
23.5	21.9	22.0	25.8	16.6		Price/Earnings
3.1	2.6	2.9	2.4	2.1		Price/Revenue

Morningstar Rating^Q

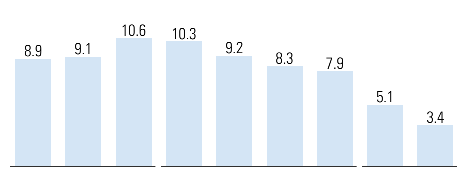


2014	2015	2016	2017	2018	TTM	Financials (Fiscal Year in Mil)
10,263	12,416	13,487	14,810	16,125	16,458	Revenue
16.1	21.0	8.6	9.8	8.9	2.1	% Change
1,885	2,142	2,289	2,481	2,801	2,596	Operating Income
12.3	13.6	6.9	8.4	12.9	-7.3	% Change
1,439	1,624	1,553	1,504	2,101	2,075	Net Income
1,473	2,153	1,621	2,407	2,592	2,408	Operating Cash Flow
-212	-273	-300	-284	-377	-392	Capital Spending
1,261	1,881	1,321	2,123	2,215	2,016	Free Cash Flow
12.3	15.1	9.8	14.3	13.7	12.2	% Sales
2.35	2.65	2.55	2.53	3.60	3.61	EPS
16.6	12.8	-3.8	-0.8	42.3	0.3	% Change
2.30	2.47	2.34	3.10	4.03	3.50	Free Cash Flow/Share
—	—	—	0.45	0.80	0.80	Dividends/Share
12.11	14.49	16.93	18.67	19.03	19.11	Book Value/Share
609,398	609,000	608,000	588,000	577,000	552,291	Shares Outstanding (K)
						Profitability
20.7	19.1	15.5	14.1	19.0	19.6	Return on Equity %
14.4	13.1	11.4	10.2	13.5	13.7	Return on Assets %
14.0	13.1	11.5	10.2	13.0	12.6	Net Margin %
1.03	1.00	0.99	1.00	1.04	1.09	Asset Turnover
1.5	1.4	1.3	1.4	1.4	1.5	Financial Leverage
40.2	40.1	39.9	38.2	39.0	37.9	Gross Margin %
18.4	17.3	17.0	16.8	17.4	15.8	Operating Margin %
938	881	797	698	736	718	Long-Term Debt
7,740	9,278	10,728	10,669	11,424	10,557	Total Equity
8.8	9.9	10.4	11.2	11.9	9.3	Fixed Asset Turns

Quarterly Revenue & EPS

Revenue (Mil)	Mar	Jun	Sep	Dec	Total
2019	4,110.0	4,141.0	—	—	—
2018	3,912.0	4,006.0	4,078.0	4,129.0	16,125.0
2017	3,546.0	3,670.0	3,766.0	3,828.0	14,810.0
2016	3,202.0	3,369.9	3,453.2	3,461.9	13,487.0
Earnings Per Share ()					
2019	0.77	0.90	—	—	—
2018	0.88	0.78	0.82	1.12	3.60
2017	0.92	0.80	0.84	-0.03	2.53
2016	0.72	0.41	0.73	0.68	2.55

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.

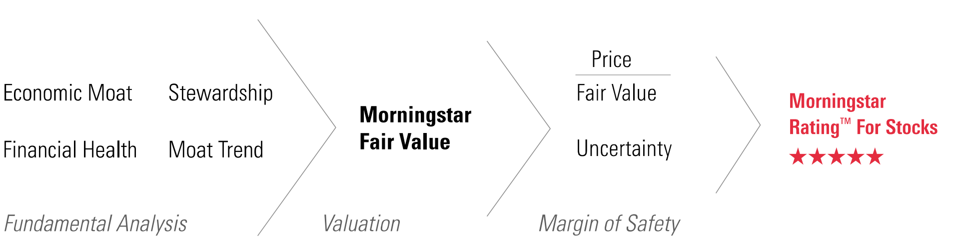
To assess the direction of the underlying competitive advantages, analysts perform ongoing assessments of the moat trend. A firm's moat trend is positive in cases where we think its sources of competitive advantage are growing stronger; stable where we don't anticipate changes to competitive advantages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

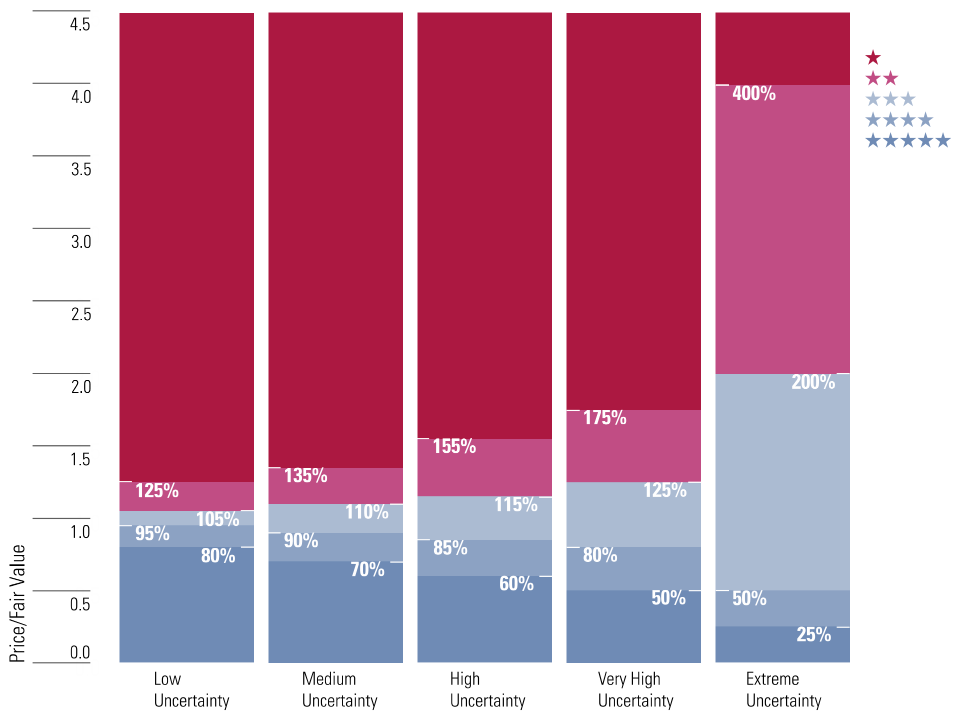
- Low–margin of safety for 5-star rating is a 20% discount and for 1-star rating is 25% premium.
- Medium–margin of safety for 5-star rating is a 30% discount and for 1-star rating is 35% premium.
- High–margin of safety for 5-star rating is a 40% discount and for 1-star rating is 55% premium.
- Very 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.

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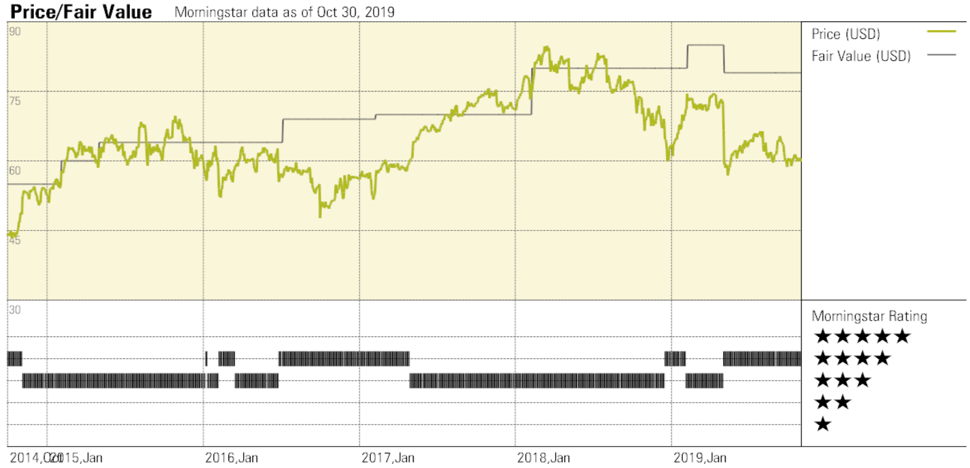
A change in the fundamental factors underlying the quantitative equity ratings can mean that the valuation is subsequently no longer accurate.

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

Cognizant Technology Solutions Corp CTSH (XNAS)

Morningstar Rating	Last Price	Fair Value Estimate	Price/Fair Value	Trailing Dividend Yield %	Forward Dividend Yield %	Market Cap (Bil)	Industry	Stewardship
★★★★ 30 Oct 2019 21:59, UTC	59.89 USD 30 Oct 2019	79.00 USD 03 May 2019 02:04, UTC	0.76	1.34 30 Oct 2019	1.34 30 Oct 2019	33.08 30 Oct 2019	Information Technology Services	Standard

Price/Fair Value Morningstar data as of Oct 30, 2019



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Cognizant Technology Solutions Corp CTSH (XNAS)

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