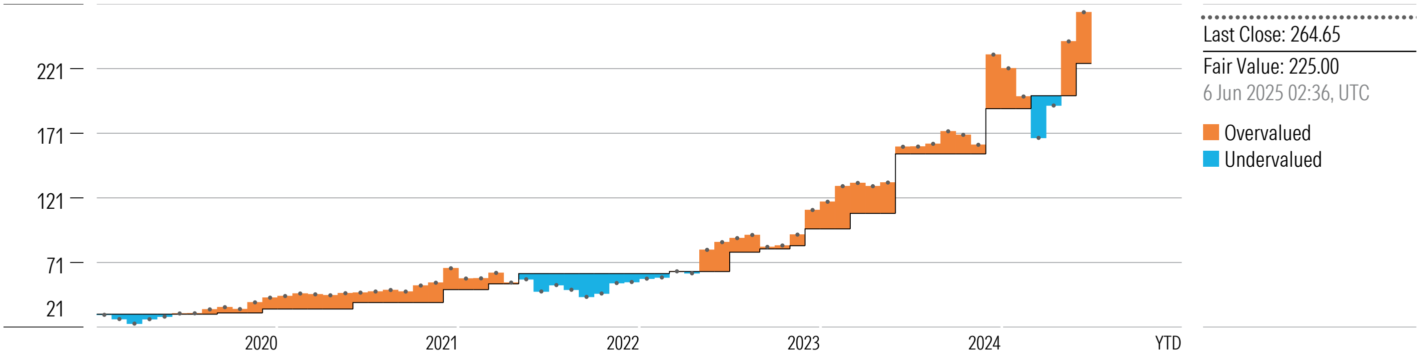
Morningstar Equity Analyst Report | Report as of 26 Jun 2025 22:21, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

Broadcom Inc AVGO ★★ 26 Jun 2025 21:16, UTC

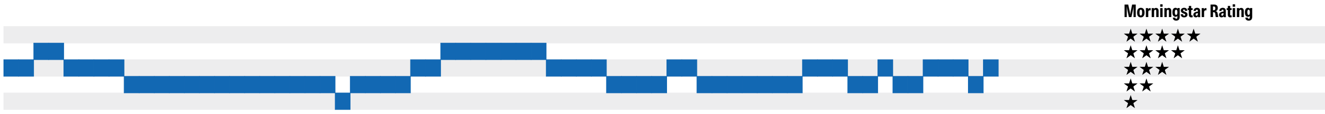
Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
264.65 USD 25 Jun 2025	225.00 USD 6 Jun 2025 02:36, UTC	1.18	1.27 USD Tril 26 Jun 2025	Wide	Large Growth	High	Exemplary	4 Jun 2025 05:00, UTC

Price vs. Fair Value



	2020	2021	2022	2023	2024	YTD	
	1.25	1.33	0.90	1.15	1.22	1.18	Price/Fair Value
	42.78	55.38	-13.43	103.05	109.64	14.66	Total Return %

Morningstar Rating



Total Return % as of 25 Jun 2025. Last Close as of 25 Jun 2025. Fair Value as of 6 Jun 2025 02:36, UTC.

Contents

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.

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

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

Broadcom Earnings: Strong AI Guidance Eclipses Our Model and Drives Our Valuation Higher

Analyst Note William Kerwin, CFA, Senior Equity Analyst, 6 Jun 2025

Broadcom's April-quarter revenue rose 20% year over year and 1% sequentially to $15.0 billion, while artificial intelligence chip revenue rose 46% year over year and 9% sequentially to $4.4 billion. July-quarter guidance includes close to 60% year-over-year AI chip revenue growth to $5.1 billion.

Why it matters: AI continues to drive impressive growth for Broadcom. Guidance surpassed our estimates, and management implied close to 60% growth for AI chip sales in fiscal 2026. We now expect Broadcom to hit $50 billion in AI revenue in fiscal 2027, up from $12 billion in fiscal 2024.

- We liked hearing that Broadcom is now seeing inference demand on the horizon for its accelerator customers, which could provide further upside to the firm's fiscal 2027 training-centric targets. We also remain impressed with the growth of networking chips into AI alongside custom accelerators.
- VMware remains the firm's second-largest growth driver, rising more than 60% year over year by our estimates. This impressive growth since the acquisition reflects the successful upselling of customers to the VMware Cloud Foundation full-stack solution, in our view.

The bottom line: We raise our fair value estimate for wide-moat Broadcom to $225 per share from $200, as we raise our medium-term AI chip revenue forecast. Shares dipped 5% in after-hours trading, in our view, reflecting optimism already priced into the stock and only a modest beat to consensus estimates.

Morningstar Equity Analyst Report | Report as of 26 Jun 2025 22:21, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS Page 2 of 23

Broadcom Inc AVGO ★★ 26 Jun 2025 21:16, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
264.65 USD 25 Jun 2025	225.00 USD 6 Jun 2025 02:36, UTC	1.18	1.27 USD Tril 26 Jun 2025	Wide	Large Growth	High	Exemplary	4 Jun 2025 05:00, UTC

Sector	Industry
Technology	Semiconductors

Business Description

Broadcom is the sixth-largest semiconductor company globally and has expanded into various software businesses, with over $30 billion in annual revenue. It sells 17 core semiconductor product lines across wireless, networking, broadband, storage, and industrial markets. It is primarily a fabless designer but holds some manufacturing in-house, like for its best-of-breed FBAR filters that sell into the Apple iPhone. In software, it sells virtualization, infrastructure, and security software to large enterprises, financial institutions, and governments.Broadcom is the product of consolidation. Its businesses are an amalgamation of former companies like legacy Broadcom and Avago Technologies in chips, as well as Brocade, CA Technologies, and Symantec in software.

- We now model Broadcom to hit the middle of its fiscal 2027 AI revenue target range, and growth has consistently beaten our model this year. There are upside and downside risks to this range, chiefly customer spending patterns and the potential onboarding of new custom accelerator customers.
- We continue to see shares as overvalued and implying Broadcom hitting the upper end of its fiscal 2027 target range. To us, this implies close to 75% AI chip growth in fiscal 2026 and 2027, compared with our own forecast for 60% growth.

Business Strategy & Outlook William Kerwin, CFA, Senior Equity Analyst, 13 Dec 2024

Broadcom is an amalgamation of high-value chip and software businesses that on the whole are differentiated and moaty, in our view. Broadcom is a terrific aggregator of firms, big and small. Its ability to acquire and streamline generates strong profits and cash flow, and fuels its robust dividend. We laud the firm for its execution and operating efficiency, which build upon its large organic investment and help it to outperform its end markets organically.

In our view, Broadcom's networking chip business is its strongest and contributes heavily to the firm's wide economic moat. We expect it to retain a dominant position in merchant silicon for switching and routing applications, where we see it as best-of-breed for high speeds. We also expect it to hold a formidable position in custom artificial intelligence accelerators as it benefits from hyperscale cloud vendors building chips to reduce their reliance on Nvidia. Outside of networking, we anticipate it maintaining a technological lead in thin-film bulk acoustic resonator, or FBAR, filters, which it sells exclusively into Apple's iPhone. Broadcom's software businesses sell virtualization software, mainframe software, and cybersecurity software, and we see its offerings as highly competitive. Broadcom's focus on strategic large software customers like financial institutions, governments, and large enterprises—where it is deeply embedded—elicits steep switching costs. We also see upselling opportunities with VMware under the firm's belt.

Going forward, we see Broadcom growing rapidly as a result of its skyrocketing AI chip business. We believe artificial intelligence is already the primary driver of Broadcom's chip sales, and is becoming the firm's overall leading growth driver. Outside of AI, we see more moderate growth led by VMware and wireless chip sales to Apple. We expect acquisitions to still be on Broadcom's radar but perhaps with larger, less frequent deals. After closing on VMware in 2023, we expect the firm to focus on deleveraging for a couple of years before tapping back into the acquisition market.

Bulls Say William Kerwin, CFA, Senior Equity Analyst, 6 Jun 2025

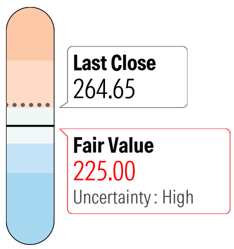
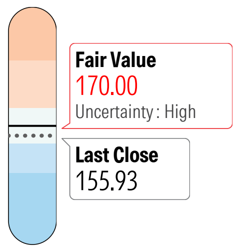
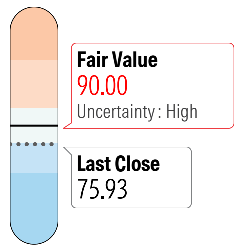
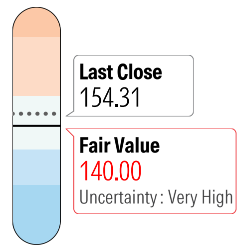
- Broadcom is a poster child for operating efficiency. It earns excellent operating margins and generates enormous cash flow. It is particularly strong at acquiring companies and trimming excess expenses.
- Broadcom's networking and wireless chip businesses boast best-of-breed technologies in our view, along with marquee customer relationships with Apple, Google, Cisco, Arista Networks, and others.

Morningstar Equity Analyst Report | Report as of 26 Jun 2025 22:21, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

Broadcom Inc AVGO ★★ 26 Jun 2025 21:16, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
264.65 USD 25 Jun 2025	225.00 USD 6 Jun 2025 02:36, UTC	1.18	1.27 USD Tril 26 Jun 2025	Wide	Large Growth	High	Exemplary	4 Jun 2025 05:00, UTC

Competitors

	Broadcom Inc AVGO	Qualcomm Inc QCOM	Marvell Technology Inc MRVL	NVIDIA Corp NVDA
				
Economic Moat	Wide	Narrow	Narrow	Wide
Currency	USD	USD	USD	USD
Fair Value	225.00 6 Jun 2025 02:36, UTC	170.00 1 May 2025 00:54, UTC	90.00 4 Dec 2024 05:20, UTC	140.00 29 May 2025 02:18, UTC
1-Star Price	348.75	263.50	139.50	245.00
5-Star Price	135.00	102.00	54.00	70.00
Assessment	Fairly Valued 26 Jun 2025	Fairly Valued 26 Jun 2025	Undervalued 26 Jun 2025	Fairly Valued 26 Jun 2025
Morningstar Rating	★★26 Jun 2025 21:16, UTC	★★★25 Jun 2025 21:20, UTC	★★★★25 Jun 2025 21:19, UTC	★★★25 Jun 2025 21:18, UTC
Analyst	William Kerwin, Senior Equity Analyst	Brian Colello, Strategist	William Kerwin, Senior Equity Analyst	Brian Colello, Strategist
Capital Allocation	Exemplary	Standard	Exemplary	Exemplary
Price/Fair Value	1.18	0.92	0.84	1.10
Price/Sales	22.40	4.15	10.14	25.70
Price/Book	17.88	6.19	4.93	44.88
Price/Earning	91.81	15.99	—	49.78
Dividend Yield	0.87%	2.21%	0.32%	—
Market Cap	1,270.74 Bil	173.69 Bil	68.95 Bil	3,780.56 Bil
52-Week Range	128.50—271.67	120.80—211.09	47.09—127.48	86.62—156.72
Investment Style	Large Growth	Large Value	Mid Growth	Large Growth

- We believe Broadcom will be a significant beneficiary of rising artificial intelligence spending, which we expect to spur significant growth for its networking semiconductor sales.

Bears Say William Kerwin, CFA, Senior Equity Analyst, 6 Jun 2025

- Broadcom's chip business is prone to cyclicality and customer concentration, with a small handful of wireless and AI customers becoming a rising portion of revenue.
- Broadcom's software portfolio holds legacy and mature businesses, like virtualization and mainframes, which we think will exhibit moderating growth.
- Broadcom relies heavily on acquisitions to expand its portfolio, and may struggle to find deals large enough to move the needle that can pass antitrust scrutiny.

Economic Moat William Kerwin, CFA, Senior Equity Analyst, 22 Nov 2023

We believe Broadcom holds a wide economic moat, stemming from intangible assets in chip design

Morningstar Equity Analyst Report | Report as of 26 Jun 2025 22:21, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS Page 4 of 23

Broadcom Inc AVGO ★★ 26 Jun 2025 21:16, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
264.65 USD 25 Jun 2025	225.00 USD 6 Jun 2025 02:36, UTC	1.18	1.27 USD Tril 26 Jun 2025	Wide	Large Growth	High	Exemplary	4 Jun 2025 05:00, UTC

and switching costs for its software products. Broadcom's strength in both chips and software allow it to earn terrific accounting and economic profits, and we believe its competitive positioning will allow it to do so, more likely than not, for the next 20 years. While we see most of Broadcom's businesses as moaty in isolation, we believe its ability to aggregate disparate businesses via acquisitions and run them with terrific efficiency reinforces its wide moat. We see this wide moat evidenced in starkly impressive operating and economic profit margins.

The majority of Broadcom's business is in semiconductors, with broad end market exposure across enterprise networking, wireless chips for smartphones, broadband access, and storage applications. We see the two largest exposures here, networking and wireless chips, as benefiting from wide-moat design expertise in chip design.

In wireless, Broadcom is the top supplier of thin-film bulk acoustic wave resonator, or FBAR, filters for high-end smartphones like the Apple iPhone, alongside Wi-Fi and Bluetooth chips. FBAR filters are a premium product, with better filtering, lower power consumption, and smaller size than other acoustic wave filters. FBARs are critical for new smartphones especially in the advent of 5G, allowing better reception of higher frequencies while extending battery life. In our view, FBARs require greater engineering complexity and are only successfully sold by a handful of firms, with Broadcom taking the lion's share of this slice of the market—resulting from 40 years of engineering and development. Broadcom boasts a strong relationship with Apple for placement into its iPhone models with these filters.

We don't foresee a new entrant encroaching on Broadcom's FBAR prowess and believe it would be difficult even for a rival smartphone chip supplier or for Apple itself. FBAR filters are built on non-silicon materials like aluminum nitride, which raises barriers to entry, in our view, as expertise for non-silicon materials is harder to find and develop. While mostly a fabless chipmaker, Broadcom keeps its FBAR manufacturing in-house to guard its design secrets. Though we hold concerns over customer concentration, and typically see high reliance on large smartphone makers like Apple as erosive to economic moats, we view Broadcom's focus on the premium end of the market and its large technological lead as moaty. For color, we estimate Broadcom's average dollar content sold into the iPhone close to $20 (with roughly $10 alone from modules including its FBAR filters), well above our estimates for peers like Skyworks ($12) and Qorvo ($5.)

In networking chips, Broadcom is the premier player with a commanding market share lead. To us, intangible assets in networking chip design come in the form of engineering expertise, both in terms of silicon design and integration with complementary hardware and customer networking topologies, which results from decades of development, R&D expense, and engraved customer relationships. Broadcom has the most breadth and depth of any networking chipmaker, offering a bevy of feature-rich chips tailored to specific applications in enterprises, high-speed chips that stay one step ahead of the development of the competition, and a growing custom silicon business for hyperscale cloud players like Google. It holds marquee customer relationships with the largest networking equipment vendors, like Cisco Systems and Arista Networks.

We see greater competition in newer corners of the networking chip landscape, including optical transceivers (where we see leadership for Marvell Technology) and offload data processors (a crowded field featuring heavyweights like Intel and Nvidia). Nevertheless, we foresee minimal eating of Broadcom's core lunch of switching and routing for enterprises and clouds. Simply put, Broadcom can outspend all its competitors on research and development to maintain its leadership. The firm estimates $50 million-$100 million in cumulative cost to build out a single new chip, and Broadcom has numerous networking chip lines on offer for a variety of tailored applications. We believe it can maintain the highest breadth and depth for switching and routing chips, while staying highly competitive in newer areas like optical and processing offload.

Broadcom has a significant exposure to enterprise software following its acquisition of VMware in 2023. Its primary exposures are virtualization software, mainframe software, development operations (DevOps) software, and cybersecurity primarily stemming from a string of acquisitions made following the initial Broadcom-Avago merger in 2016. We believe enterprise software is conducive to switching costs, including the tangible time, cost, and effort of finding a replacement, maintaining two systems concurrently during a transition, and managing any operational inefficiencies that result from the switch. Broadcom holds the market share leads in virtualization and mainframe software. In virtualization it dominates server virtualization for data centers and has expanded its offerings to storage virtualization, containerization, network management, and security to further embed itself in customers and make itself hard to rip out. In mainframe software, it focuses on security, monitoring, and analytics software to put primarily on IBM mainframes. IBM will often focus on the core data/ payment processing software that requires specialized mainframes and leave Broadcom to specialize in complementary software. In DevOps, Broadcom is a strong player in a market with many options, including moaty businesses like Atlassian, ServiceNow, and Microsoft. In cybersecurity, Broadcom's Symantec brand is a legacy player with existing penetration, but that has struggled to transition to cloud security. We see the Carbon Black brand as more cutting-edge and better in cloud environments.

In software, we view Broadcom's strategic focus on a small group of large enterprise accounts as key to its moat. The firm is embedded in many different touchpoints in its key software customers, with more than 80% using more than five solutions (including security, DevOps, and mainframe software) per management. By focusing on selling multiple offerings into a concentrated bucket of large customers, we see Broadcom making itself difficult to rip out. We foresee Broadcom capitalizing on cross-selling opportunities between its legacy software and new VMware customer bases, further enhancing its entrenchment. Replacing Broadcom may require finding three or more new vendors that may be unable to replicate its exact capabilities and may require updated workstreams and IT support. We also see the firm's mainframe and DevOps software as competitively strong, further defending Broadcom against aspiring disruptors. Finally, Broadcom's core software is almost entirely made up of recurring revenue and subscriptions, which increases stickiness, in our view.

In sum, we see Broadcom deriving the vast majority of its sales from moaty businesses in software, networking chips, and wireless chips. We expect it to fend off serious competitive threats and maintain its impressive profitability over the next 20 years, more likely than not.

Fair Value and Profit Drivers William Kerwin, CFA, Senior Equity Analyst, 6 Jun 2025

Our fair value estimate for Broadcom is $225 per share. Our valuation implies a fiscal 2025 adjusted price/ earnings multiple of 34 times and a fiscal 2025 enterprise value/sales multiple of 17 times.

In our view, Broadcom's primary valuation drivers are the growth of its AI chip business and its ability to extract growth and operating leverage from VMware. We also anticipate continued inorganic growth over the long term.

We model 20% revenue growth for Broadcom through fiscal 2029. We see high artificial intelligence sales driving supernormal growth in the next five years, but for longer-term durable growth to settle around 10% on an organic basis.

In semiconductors, we see the wireless and networking businesses driving growth, but for the AI portion to dominate Broadcom's chip revenue by fiscal 2029. Wireless should benefit from Apple iPhone sales and modestly rising 5G content, though we also model the firm losing some chip content as Apple develops its own Wi-Fi and Bluetooth chips. Networking should grow the fastest and benefit primarily from artificial intelligence-led data center buildouts. We model Broadcom's AI chip sales rising at more than a 40% compound annual growth rate through fiscal 2029. We believe in management's $60 billion to $90 billion serviceable addressable market estimate in fiscal 2027, and forecast the firm to earn more than two-thirds of that opportunity. We believe growth will be durable, with rising spending at existing customers and multiple new customers generating revenue toward the end of the decade.

In software, we believe growth will come primarily through upselling across Broadcom's base of around 3,000 large customers, between its virtualization (from VMware,) mainframe, DevOps, and security businesses. We see VMware as the firm's primary software growth driver, going forward.

We believe Broadcom will continue to exert operating leverage and grow operating expenses below sales growth. Broadcom did a terrific job cutting expenses after acquiring VMware. We expect the combined entity to spend more on sales and marketing than pre-VMware Broadcom, but significantly less than stand-alone VMware, as Broadcom focuses its sales and marketing on core customers. Along with higher gross margins incorporating VMware, we project non-GAAP operating margins rising to the mid-60% range in fiscal 2029, from 60% in fiscal 2024.

Risk and Uncertainty William Kerwin, CFA, Senior Equity Analyst, 7 Mar 2025

We assign a High Morningstar Uncertainty Rating to Broadcom. As a chipmaker, Broadcom is vulnerable to market supply and demand cycles. Though it has been able to offset cyclicality in recent years with its software exposure and networking strength as a buoy, future cycles may not look similar. It also operates with a high reliance on TSMC for its chip supply, and supply constraints could hamper its ability to ship to customers in the future. Nonetheless, we believe Broadcom is a preferred customer of TSMC and would earn high priority in such a scenario—both for its scale and lengthy relationship.

We also see risk arising from customer concentration and AI: Broadcom is increasingly reliant on its AI accelerator business, which is made up of a handful of high-spending customers, like Google. Changes in spending patterns from these customers and overall AI demand can create fluctuations in Broadcom's results and affect market sentiment on its stock. We also see medium-term displacement risk in Broadcom's wireless chip sales into Apple, and expect Broadcom to lose its Wi-Fi and Bluetooth chip sales into iPhones and other products as early as 2025. Nevertheless, sales to Apple are a minority of sales compared with the larger networking chip segment, going forward.

We believe there is key man risk with CEO Hock Tan, who is in his seventies. Tan has been integral to Broadcom's acquisition and operating strategy, and new management may fail to realize the impressive efficiencies of the current team. Even with Tan at the helm, Broadcom's reliance on acquisitions is risky. The firm is encountering greater regulatory pushback and seeing the size of targets inflate as the business grows. If Broadcom can't find sufficient targets, or overpays for a deal, it could destroy value.

Finally, on the environmental, social, and governance, or ESG, front, we see little risk for Broadcom, primarily resulting from hard-to-find engineering talent for wireless and networking chips.

Capital Allocation William Kerwin, CFA, Senior Equity Analyst, 13 Dec 2024

We rate Broadcom's capital allocation as Exemplary, based on our assessment of a sound balance sheet, appropriate shareholder distributions, and exceptional investments. In our view, Broadcom's investments are the biggest contributor to shareholder returns.

Broadcom's balance sheet is sound to us, with long-dated debt maturities and robust annual cash flow. Despite taking on a larger debt load following the VMware acquisition, we expect it to steadily deleverage. We also see its shareholder distributions as appropriate. The firm targets 50% of prior-year free cash flow toward dividend payouts and often repurchases shares on top of that. Its shareholder payouts do not hamper its organic or inorganic investment, in our view.

We believe Broadcom's investments, both organic and inorganic, have created shareholder value and reinforced its competitive advantages. Broadcom uses inorganic growth as a key tenet of its strategy.

Morningstar Equity Analyst Report | Report as of 26 Jun 2025 22:21, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS Page 8 of 23

Broadcom Inc AVGO ★★ 26 Jun 2025 21:16, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
264.65 USD 25 Jun 2025	225.00 USD 6 Jun 2025 02:36, UTC	1.18	1.27 USD Tril 26 Jun 2025	Wide	Large Growth	High	Exemplary	4 Jun 2025 05:00, UTC

CEO Hock Tan has been steering the ship since the days of stand-alone Avago Technologies and is a serial deal-maker. Recently, deals have been software-focused (Broacade, CA, Symantec, and VMware). We believe that up to this point, Broadcom has bought niche, but moaty software businesses that have augmented the company's profit profile and overall moatiness. VMware is a departure from that trend as the dominant virtualization software provider but should still augment profits and maintain the moat, in our view. Tan and team's ability to trim expenses and augment target profitability—quickly—is key to our rating. Furthermore, we don't see any lack of organic investment resulting from the firm's M&A record. In fact, Broadcom's $9 billion annual research and development budget helps it fortress its competitively advantaged existing businesses, in our view.

Analyst Notes Archive

Broadcom Earnings: Another AI Beat Brings Our Valuation Up, and Shares Look Fairly Valued William Kerwin, CFA,Senior Equity Analyst,7 Mar 2025

Broadcom's fiscal first quarter beat management guidance. Revenue rose 25% year over year and 6% sequentially to $14.9 billion, with artificial intelligence revenue rising roughly 15% sequentially to $4.1 billion. Guidance implies flat sequential revenue, with 7% sequential growth in AI revenue. Why it matters: AI chip sales and VMware continue to overwhelmingly drive Broadcom's results, and AI revenue and guidance once again surpassed our expectations. AI revenue is now more than a fourth of total revenue and roughly half of chip revenue. VMware is more than a fourth of revenue. Broadcom announced two new AI accelerator customers, on top of its five already at different stages of development. Management reiterated a $60 billion-$90 billion serviceable addressable market for its three first customers in 2027, of which we expect it to capture roughly 70% share. Broadcom's non-AI chip markets remain cyclically soft, and we have pushed out our rebound expectations. Still, these markets are a diminishing minority driver of results, and these cyclical downturns don't materially affect our valuation. The bottom line: We raise our fair value estimate for wide-moat Broadcom to $200 per share, from $190, behind a higher AI chip revenue forecast. We also raise our Morningstar Uncertainty Rating to High, stemming from the increasing concentration of AI as a driver of results. Shares rose about 15% after hours, due to higher AI guidance and optimistic accelerator customer commentary. We now see shares as fairly valued. We are conservative on the midpoint of management's SAM, given uncertainty regarding the cadence of chip customer spending. We model toward the lower end of the SAM but have raised our forecast for 2027 AI revenue, now implying roughly 55% growth over the next three years.

AI DeepSeek Coverage Summary: Maintaining Our Fair Values; Pullback Was Healthy Eric Compton, CFA,Director,28 Jan 2025

We have consolidated our recent DeepSeek-related coverage in this note. Artificial intelligence affects companies across much of our coverage, including semiconductors, cloud infrastructure, software, utilities, and energy.Many of the firms under our coverage with an “AI premium” were already trading in 1- to 2-star territory. Our valuations were already positioned for a pullback of this nature, as we were having a hard time justifying the increases in revenue implied by these valuations. We view the current pullback as healthy, even as we remain positive on the long-term potential of AI. We have maintained our fair value estimates across the affected companies.Our thesis, after the release of DeepSeek, is that we were going to see instances of sleeker, more-efficient AI models that would not rely on massive clusters of AI GPUs and related hardware. This was the only way the ecosystem was going to successfully address large numbers of use cases in the long term. We believe that lower costs—making AI cheaper, therefore more economical—increase the number of use cases it is viable for, and as a result, should increase demand. This is the same path the PC revolution followed, with computing power becoming cheap enough that millions of individuals could use it at an affordable cost. The same happened with the cloud and SaaS revolution thereafter, where the incremental cost of adding users was close to zero. We believe a future where AI was both prohibitively expensive and also “taking over the world” was not likely. As such, we view the advancements made by DeepSeek as promising and healthy for the overall ecosystem.For more in-depth coverage on specific industries, please refer to our notes on Nvidia, the hyperscalers, semiconductor equipment companies, TSMC, Apple and networking, utilities, European utilities, HVAC, and industrials.

DeepSeek R1 Model Doesn't Alter Our Valuations or Forecasts for Technology Hardware Stocks

William Kerwin, CFA,Senior Equity Analyst,27 Jan 2025

Many technology hardware stocks under our coverage plunged in Monday trading after reports of DeepSeek's R1 generative artificial intelligence model out of China offering performance parity to top US models at a much lower training cost. The iShares Semiconductor ETF was down 8% in midday trading.Why it matters: In our view, the market selloff implies fears of weaker future generative AI infrastructure investment resulting from cheaper models. We are less pessimistic and expect strong generative AI investment to continue. We've expected generative AI models to become slimmer and more efficient. We expect US model builders to develop more efficient models, but overall hardware spending will continue to rise, particularly with a serious competitive alternative out of China. In the longer term, we foresee a commoditization of AI models that shouldn't diminish investment in hardware infrastructure. Lower-cost models should accelerate the path to financial returns for model builders, but that they will continue to invest heavily in hardware to support them.The bottom line: We maintain our fair value estimates and moat ratings for our technology hardware coverage, including Apple, Broadcom, Marvell Technology, Arista Networks, and Micron Technology. The DeepSeek news and market selloff don't alter our long-term forecasts today. We don't expect a cut to infrastructure investment in the short term and believe US and European model builders will continue to invest heavily in developing larger and higher-performing models. Demand still exceeds chip supply, and we

Morningstar Equity Analyst Report | Report as of 26 Jun 2025 22:21, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS Page 10 of 23

Broadcom Inc AVGO ★★ 26 Jun 2025 21:16, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
264.65 USD 25 Jun 2025	225.00 USD 6 Jun 2025 02:36, UTC	1.18	1.27 USD Tril 26 Jun 2025	Wide	Large Growth	High	Exemplary	4 Jun 2025 05:00, UTC

don't expect that to change due to the DeepSeek news. We believe the selloff largely reflects more uncertainty being priced into AI-exposed stocks, which we believe to be reasonable. We believe AI investment will continue to rise rapidly, but that more bullish forecasts might have underestimated efficiency gains in new models.

Broadcom Earnings: We Raise Our Valuation to $190 on a Higher Medium-Term AI Revenue Forecast
William Kerwin, CFA,Senior Equity Analyst,13 Dec 2024

Broadcom reported October-quarter revenue of $14.1 billion, rising 8% sequentially. Longer-term, management also estimated its serviceable addressable market, or SAM, for artificial intelligence chips at its three largest customers to be between $60 billion and $90 billion in fiscal 2027.The bottom line: We raise our fair value estimate for wide-moat Broadcom to $190 per share, from $155, as we raise our AI revenue growth forecast for the firm. We now see shares as roughly fairly valued after a 15% jump after hours in response to strong results and guidance. We now forecast nearly 40% annual revenue growth for Broadcom's AI chips through fiscal 2029, inclusive of more than 50% annual growth through fiscal 2027. This puts us on the conservative end of management's SAM. We model $44.2 billion in AI chip revenue in fiscal 2027. To buy Broadcom shares today, we believe investors have to believe in the midpoint or upper end of management's SAM and expect Broadcom to retain a 70% share of this opportunity.Why it matters: Broadcom's SAM estimate for fiscal 2027 implies significantly higher AI revenue growth over the next three years than we expected, at a roughly 62% annual rate from fiscal 2024. We believe Broadcom has a path to a majority share of this future SAM. Management estimates its fiscal 2024 SAM to be between $15 billion and $20 billion, which implies Broadcom holding a roughly 70% share with $12.2 billion in fiscal 2024 AI chip revenue. We see potential upside to management's SAM, given Broadcom has just begun working with two more custom AI accelerator customers (who we believe to be Apple and OpenAI) and sells its merchant networking chips for AI to a wider customer base. Big picture: Broadcom's impressive outlook for AI revenue adheres to our long-term thesis that the firm possesses differentiated chip design capabilities for high-performance networking and computing that allow it to capitalize on significant cloud investment and take market share.

Broadcom: We Don't Foresee Immediate Risk From Apple's Modem Plans William Kerwin, CFA,Senior Equity Analyst,6 Dec 2024

We maintain our fair value estimates for Apple and Broadcom after Bloomberg reported that Apple would be rolling out its own cellular modem as early as 2025. We aren't surprised by Apple's modem ambitions, and they fit with our longer-term expectations for the firm to wrap more chip content under its design umbrella. Apple's vertical integration strategy is a key tenet of our gross margin expansion thesis on the firm, and helps it to reduce price inflation. We like the strategy, as reported, for a staged rollout beginning with the lower-value iPhone SE before eventually moving up to the premium iPhone

Morningstar Equity Analyst Report | Report as of 26 Jun 2025 22:21, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

Broadcom Inc AVGO ★★ 26 Jun 2025 21:16, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
264.65 USD 25 Jun 2025	225.00 USD 6 Jun 2025 02:36, UTC	1.18	1.27 USD Tril 26 Jun 2025	Wide	Large Growth	High	Exemplary	4 Jun 2025 05:00, UTC

models. We don't see immediate risk to chip supplier Broadcom from this report. We see Broadcom's FBAR chips as among the most differentiated pieces in Apple's products, and one of the hardest for Apple to displace. Moreover, we continue to see both Apple and Broadcom as overvalued today.Bloomberg reported on Dec. 6 that Apple would begin rolling out self-designed internal baseband chips, or modems, in 2025. These would begin to displace Qualcomm content in iPhones and other Apple products, starting with the lower-end iPhone SE. Bloomberg also reported that other radio-frequency, or RF, parts from the likes of Qorvo might also be displaced alongside a core modem chip. According to the report, Apple would seek to build confidence in its technology in the lower end SE models before establishing technology leadership and displacing Qualcomm in premium iPhone models around 2027.For Apple, we see this as a continuation of ongoing vertical integration of chip content, with the most notable recent example being the M-series chips for Macs and iPads to displace Intel chips in 2020. Vertical integration has been a key driver of 500 basis points of product gross margin expansion since 2019 for Apple, and we expect nearly 200 basis points of expansion over the next five years, driven in part by integrating Apple-designed modems.

Broadcom Earnings: AI Growth and VMware Integration Align With Our Thesis and $155 Valuation

William Kerwin, CFA,Senior Equity Analyst,6 Sep 2024

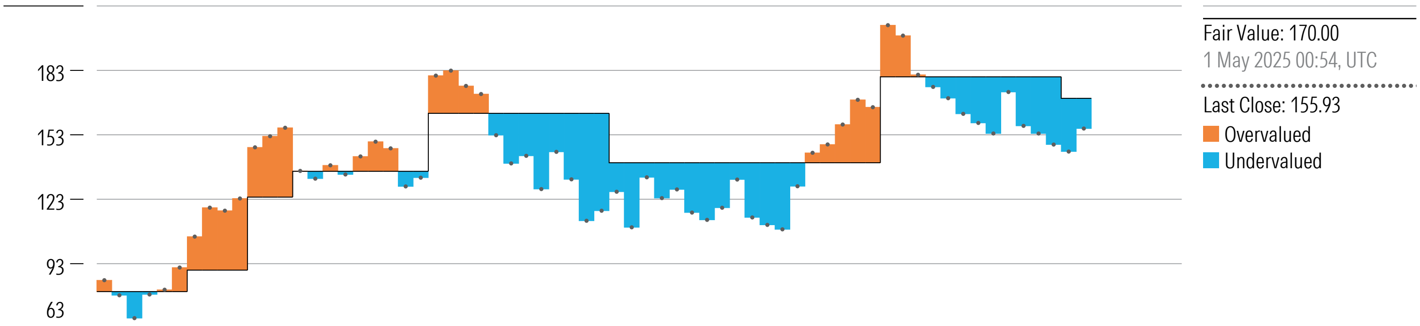
We maintain our $155 fair value estimate for shares of wide-moat Broadcom, and our long-term growth thesis is intact. Artificial intelligence continues to drive the firm's organic growth in fiscal 2024, supplemented by the continuing inorganic addition of VMware. Non-AI semiconductor revenue remains weak, but we have increasing confidence that these non-AI chip markets will rebound over the coming quarters. Broadcom's fiscal third-quarter results and fiscal fourth-quarter guidance were in line with our expectations. We continue to expect strong growth over the next five years, driven by AI chip demand, VMware, and rebounding non-AI chip markets. Shares dipped about 6% after-hours on guidance, lightly missing Factset consensus expectations, leaving them fairly valued.July quarter revenue rose 5% sequentially to $13.1 billion. As reported, that implies 47% growth year over year, including VMware's inorganic contribution. Organically, revenue rose 4% year over year. AI chip revenue again drove the organic growth, and we continue to see strong adoption of Broadcom's custom accelerators and merchant networking chips. Weaker demand and inventory reductions in the storage, broadband, and industrial chip end markets have partially offset strong organic AI chip growth, but management positively guided for sequential growth in the October quarter, and we project multiyear rebounds to start meaningfully in fiscal 2025.October quarter guidance was in line with our expectations. Broadcom is guiding for $14 billion in sales, implying a sequential growth acceleration to 7%. We expect another step up for AI revenue, along with recoveries in cyclically depressed chip markets, to drive growth. We are pleased Broadcom is on track with its integration of VMware and cost reductions, with guidance calling for a 64% non-GAAP EBITDA margin in the October quarter, in line with levels prior to the acquisition.

Morningstar Equity Analyst Report | Report as of 26 Jun 2025 22:21, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

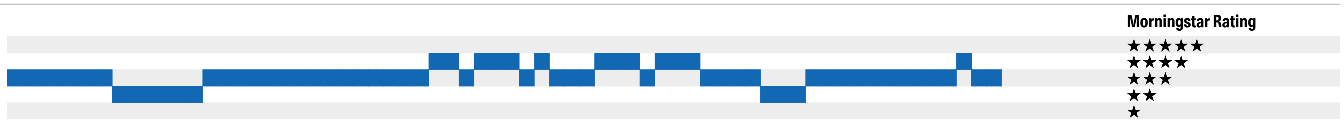
Broadcom Inc AVGO ★★ 26 Jun 2025 21:16, UTC

Competitors Price vs. Fair Value

Qualcomm Inc QCOM

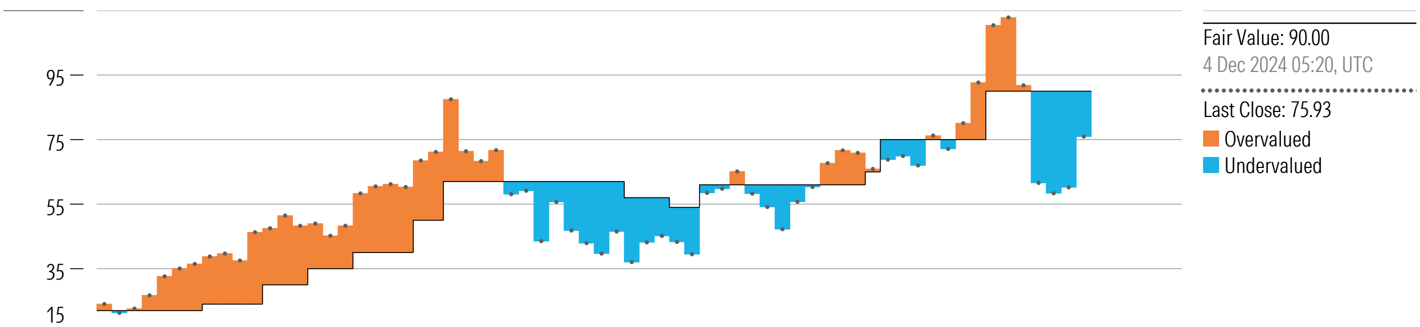


	2020	2021	2022	2023	2024	YTD
Price/Fair Value	1.23	1.12	0.79	1.03	0.85	0.92
Total Return %	75.58	21.81	-38.28	34.42	8.53	2.64

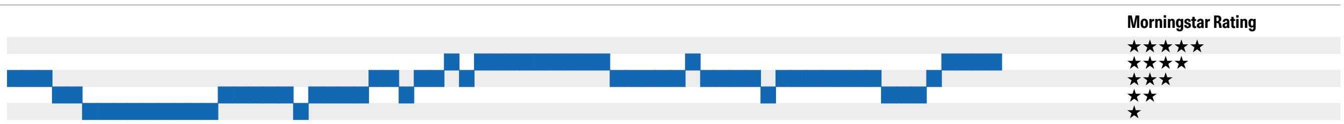


Total Return % as of 25 Jun 2025. Last Close as of 25 Jun 2025. Fair Value as of 1 May 2025 00:54, UTC.

Marvell Technology Inc MRVL



	2020	2021	2022	2023	2024	YTD
Price/Fair Value	1.58	1.41	0.65	0.99	1.23	0.84
Total Return %	79.89	84.41	-57.39	63.47	83.54	-31.15



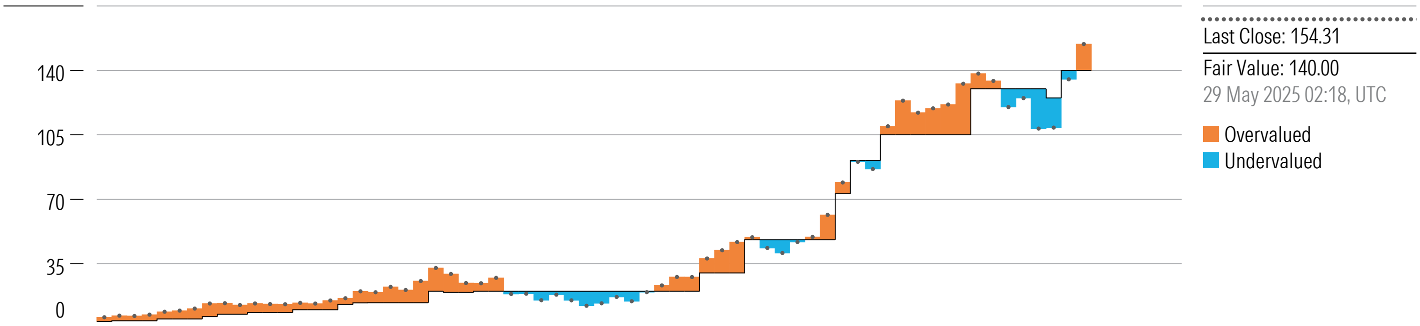
Total Return % as of 25 Jun 2025. Last Close as of 25 Jun 2025. Fair Value as of 4 Dec 2024 05:20, UTC.

Morningstar Equity Analyst Report | Report as of 26 Jun 2025 22:21, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

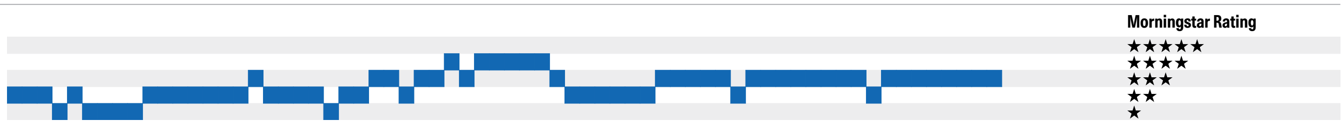
Broadcom Inc AVGO ★★ 26 Jun 2025 21:16, UTC

Competitors Price vs. Fair Value

NVIDIA Corp NVDA



	2020	2021	2022	2023	2024	YTD
Price/Fair Value	1.54	1.52	0.73	1.03	1.03	1.10
Total Return %	122.20	125.41	-50.26	238.98	171.24	14.92



Total Return % as of 25 Jun 2025. Last Close as of 25 Jun 2025. Fair Value as of 29 May 2025 02:18, UTC.

Morningstar Equity Analyst Report | Report as of 26 Jun 2025 22:21, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

Broadcom Inc AVGO ★★ 26 Jun 2025 21:16, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
264.65 USD 25 Jun 2025	225.00 USD 6 Jun 2025 02:36, UTC	1.18	1.27 USD Tril 26 Jun 2025	Wide	Large Growth	High	Exemplary	4 Jun 2025 05:00, UTC

Morningstar Valuation Model Summary

Financials as of 05 Jun 2025	Actual			Forecast				
Fiscal Year, ends 31 Oct	2022	2023	2024	2025	2026	2027	2028	2029
Revenue (USD Mil)	33,203	35,819	51,574	63,023	77,892	99,192	115,055	127,336
Operating Income (USD Mil)	14,282	16,451	14,996	26,016	35,516	49,319	59,278	66,629
EBITDA (USD Mil)	19,209	20,042	23,473	34,384	43,769	56,820	66,009	72,511
Adjusted EBITDA (USD Mil)	21,029	23,213	31,897	41,931	51,965	67,530	78,795	87,066
Net Income (USD Mil)	11,223	14,082	5,895	21,001	27,864	40,276	49,194	56,294
Adjusted Net Income (USD Mil)	15,924	18,040	23,251	32,147	40,074	53,588	63,090	70,502
Free Cash Flow To The Firm (USD Mil)	16,206	17,306	2,643	33,195	37,756	49,249	56,370	61,379
Weighted Average Diluted Shares Outstanding (Mil)	4,230	4,270	4,778	4,809	4,764	4,709	4,643	4,567
Earnings Per Share (Diluted) (USD)	2.65	3.30	1.23	4.37	5.85	8.55	10.60	12.33
Adjusted Earnings Per Share (Diluted) (USD)	3.76	4.22	4.87	6.68	8.41	11.38	13.59	15.44
Dividends Per Share (USD)	1.64	1.84	2.10	2.36	3.36	4.36	5.56	6.76

Margins & Returns as of 05 Jun 2025		Actual			Forecast					
	3 Year Avg	2022	2023	2024	2025	2026	2027	2028	2029	5 Year Avg
Operating Margin %	38.1	43.0	45.9	29.1	41.3	45.6	49.7	51.5	52.3	47.8
EBITDA Margin %	—	57.9	56.0	45.5	54.6	56.2	57.3	57.4	56.9	—
Adjusted EBITDA Margin %	—	63.3	64.8	61.9	66.5	66.7	68.1	68.5	68.4	67.6
Net Margin %	28.2	33.8	39.3	11.4	33.3	35.8	40.6	42.8	44.2	39.3
Adjusted Net Margin %	47.8	48.0	50.4	45.1	51.0	51.4	54.0	54.8	55.4	53.3
Free Cash Flow To The Firm Margin %	34.1	48.8	48.3	5.1	52.7	48.5	49.7	49.0	48.2	49.6

Growth & Ratios as of 05 Jun 2025		Actual			Forecast					
	3 Year CAGR	2022	2023	2024	2025	2026	2027	2028	2029	5 Year CAGR
Revenue Growth %	23.4	21.0	7.9	44.0	22.2	23.6	27.4	16.0	10.7	19.8
Operating Income Growth %	20.1	64.8	15.2	-8.8	73.5	36.5	38.9	20.2	12.4	34.8
EBITDA Growth %	17.8	31.9	4.3	17.1	46.5	27.3	29.8	16.2	9.9	25.9
Adjusted EBITDA Growth %	24.4	26.9	10.4	37.4	31.5	23.9	30.0	16.7	10.5	22.2
Earnings Per Share Growth %	-6.3	76.8	24.3	-62.6	254.0	33.9	46.2	23.9	16.3	58.5
Adjusted Earnings Per Share Growth %	-6.3	34.4	12.2	15.2	37.4	25.8	35.3	19.4	13.6	58.5

Valuation as of 05 Jun 2025	Actual			Forecast				
	2022	2023	2024	2025	2026	2027	2028	2029
Price/Earning	12.5	19.9	34.9	40.4	32.1	23.7	19.9	17.5
Price/Sales	5.9	9.7	15.4	20.2	16.3	12.8	11.0	10.0
Price/Book	8.8	15.0	12.0	19.0	19.1	17.8	17.0	16.3
Price/Cash Flow	—	—	—	—	—	—	—	—
EV/EBITDA	10.7	16.2	26.7	31.7	25.6	19.7	16.9	15.3
EV/EBIT	15.8	22.8	56.9	51.1	37.4	26.9	22.4	19.9
Dividend Yield %	3.5	2.2	1.2	0.9	1.2	1.6	2.1	2.5
Dividend Payout %	43.6	43.6	43.2	35.3	40.0	38.3	40.9	43.8
Free Cash Flow Yield %	—	—	—	—	—	—	—	—

Operating Performance / Profitability as of 05 Jun 2025	Actual			Forecast				
Fiscal Year, ends 31 Oct	2022	2023	2024	2025	2026	2027	2028	2029
ROA %	15.3	19.3	3.6	13.0	17.4	25.1	29.2	32.2
ROE %	49.4	58.7	8.7	30.7	41.3	56.4	66.7	74.6
ROIC %	19.5	23.9	19.3	20.2	26.2	35.8	42.1	45.3

Morningstar Equity Analyst Report | Report as of 26 Jun 2025 22:21, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

Broadcom Inc AVGO ★★ 26 Jun 2025 21:16, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
264.65 USD 25 Jun 2025	225.00 USD 6 Jun 2025 02:36, UTC	1.18	1.27 USD Tril 26 Jun 2025	Wide	Large Growth	High	Exemplary	4 Jun 2025 05:00, UTC

Financial Leverage (Reporting Currency)

Fiscal Year, ends 31 Oct	Actual 2022	Actual 2023	Actual 2024	Forecast 2025	Forecast 2026	Forecast 2027	Forecast 2028	Forecast 2029
Debt/Capital %	17.2	10.2	7.9	4.8	3.8	2.4	2.0	1.8
Assets/Equity	3.2	3.0	2.4	2.4	2.4	2.2	2.3	2.3
Net Debt/EBITDA	1.4	1.2	2.5	1.3	0.9	0.4	0.2	0.1
Total Debt/EBITDA	1.9	1.7	2.1	1.3	0.9	0.5	0.3	0.3
EBITDA/ Net Interest Expense	11.7	20.9	9.0	13.5	15.8	23.9	31.1	50.5

Forecast Revisions as of 5 Jun 2025

Prior data as of 6 Mar 2025	2025 Current	2025 Prior	2026 Current	2026 Prior	2027 Current	2027 Prior
Fair Value Estimate Change (Trading Currency)	225.00	200.11	—	—	—	—
Revenue (USD Mil)	63,023	62,567	77,892	76,531	99,192	96,538
Operating Income (USD Mil)	26,016	26,744	35,516	35,630	49,319	48,690
EBITDA (USD Mil)	41,931	41,108	51,965	50,277	67,530	64,502
Net Income (USD Mil)	32,147	30,758	40,074	38,403	53,588	50,715
Earnings Per Share (Diluted) (USD)	4.37	4.28	5.85	5.86	8.55	8.44
Adjusted Earnings Per Share (Diluted) (USD)	6.68	6.39	8.41	8.05	11.38	10.77
Dividends Per Share (USD)	2.36	2.36	3.36	2.86	4.36	4.06

Key Valuation Drivers as of 05 Jun 2025

Cost of Equity %	9.0
Pre-Tax Cost of Debt %	5.8
Weighted Average Cost of Capital %	8.8
Long-Run Tax Rate %	13.0
Stage II EBI Growth Rate %	8.0
Stage II Investment Rate %	20.0
Perpetuity Year	20

Additional estimates and scenarios available for download at https://pitchbook.com/.

Discounted Cash Flow Valuation as of 05 Jun 2025

	USD Mil
Present Value Stage I	172,536
Present Value Stage II	463,728
Present Value Stage III	453,650
Total Firm Value	**1,089,915**
Cash and Equivalents	9,348
Debt	67,566
Other Adjustments	0
Equity Value	**1,031,697**
Projected Diluted Shares	4,790
Fair Value per Share (USD)	**225.00**

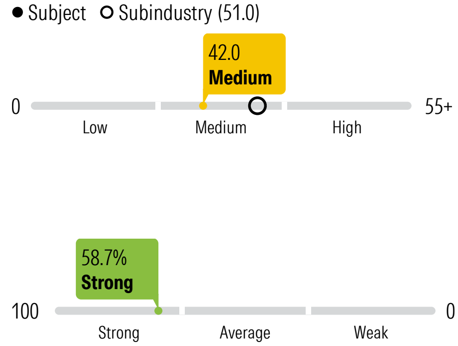
Morningstar Equity Analyst Report | Report as of 26 Jun 2025 22:21, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

Broadcom Inc AVGO ★★ 26 Jun 2025 21:16, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
264.65 USD 25 Jun 2025	225.00 USD 6 Jun 2025 02:36, UTC	1.18	1.27 USD Tril 26 Jun 2025	Wide	Large Growth	High	Exemplary	4 Jun 2025 05:00, UTC

ESG Risk Rating Breakdown

Exposure		
Company Exposure[1]	42.0	
– Manageable Risk	38.8	
Unmanageable Risk[2]	**3.2**	
Management		
Manageable Risk	38.8	
– Managed Risk[3]	22.8	
Management Gap[4]	**16.0**	
Overall Unmanaged Risk	**19.2**	



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

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

ESG Risk Rating

ESG Risk Ratings measure the degree to which a company's value is impacted by environmental, social, and governance risks, by evaluating the company's ability to manage the ESG risks it faces.

1. A company's Exposure to material ESG issues 2. Unmanageable Risk refers to risks that are inherent to a particular business model that cannot be managed by programs or initiatives 3. Managed Risk = Manageable Risk multiplied by a Management score of 58.7% 4. Management Gap assesses risks that are not managed, but are considered manageable 5. ESG Risk Rating Assessment = Overall Unmanaged Risk = Management Gap plus Unmanageable Risk

ESG Risk Rating Assessment[5]

ESG Risk Rating is of Jun 04, 2025. Highest Controversy Level is as of Jun 08, 2025. Sustainalytics Subindustry: Semiconductor Design and Manufacturing. Sustainalytics provides Morningstar with company ESG ratings and metrics on a monthly basis and as such, the ratings in Morningstar may not necessarily reflect current Sustainalytics' scores for the company. For the most up to date rating and more information, please visit: sustainalytics.com/esg-ratings/.

Peer Analysis 04 Jun 2025

Peers are selected from the company's Sustainalytics-defined Subindustry and are displayed based on the closest market cap values

Company Name	Exposure		Management		ESG Risk Rating	
Broadcom Inc	42.0 | Medium	0 – 55+	58.7 | Strong	100 – 0	19.2 | Low	0 – 40+
Marvell Technology Inc	31.7 | Low	0 – 55+	59.6 | Strong	100 – 0	14.1 | Low	0 – 40+
Qualcomm Inc	38.1 | Medium	0 – 55+	69.3 | Strong	100 – 0	13.6 | Low	0 – 40+
NVIDIA Corp	30.2 | Low	0 – 55+	62.9 | Strong	100 – 0	12.5 | Low	0 – 40+
Shanghai Anlogic Infotech Co Ltd	51.0 | Medium	0 – 55+	25.4 | Average	100 – 0	39.1 | High	0 – 40+

Morningstar Equity Analyst Report | Report as of 26 Jun 2025 22:21, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

Appendix
Historical Morningstar Rating

Broadcom Inc AVGO 25 Jun 2025 21:36, UTC

Dec 2025 —	Nov 2025 —	Oct 2025 —	Sep 2025 —	Aug 2025 —	Jul 2025 —	Jun 2025 ★★★	May 2025 ★★	Apr 2025 ★★★	Mar 2025 ★★★	Feb 2025 ★★★	Jan 2025 ★★
Dec 2024 ★★	Nov 2024 ★★★	Oct 2024 ★★	Sep 2024 ★★	Aug 2024 ★★★	Jul 2024 ★★★	Jun 2024 ★★★	May 2024 ★★	Apr 2024 ★★	Mar 2024 ★★	Feb 2024 ★★	Jan 2024 ★★
Dec 2023 ★★	Nov 2023 ★★	Oct 2023 ★★★	Sep 2023 ★★★	Aug 2023 ★★	Jul 2023 ★★	Jun 2023 ★★	May 2023 ★★	Apr 2023 ★★★	Mar 2023 ★★★	Feb 2023 ★★★	Jan 2023 ★★★
Dec 2022 ★★★★	Nov 2022 ★★★★	Oct 2022 ★★★★	Sep 2022 ★★★★	Aug 2022 ★★★★	Jul 2022 ★★★★	Jun 2022 ★★★★	May 2022 ★★★	Apr 2022 ★★★	Mar 2022 ★★	Feb 2022 ★★	Jan 2022 ★★
Dec 2021 ★★	Nov 2021 ★	Oct 2021 ★★	Sep 2021 ★★	Aug 2021 ★★	Jul 2021 ★★	Jun 2021 ★★	May 2021 ★★	Apr 2021 ★★	Mar 2021 ★★	Feb 2021 ★★	Jan 2021 ★★
Dec 2020 ★★	Nov 2020 ★★	Oct 2020 ★★	Sep 2020 ★★	Aug 2020 ★★★	Jul 2020 ★★★	Jun 2020 ★★★	May 2020 ★★★	Apr 2020 ★★★★	Mar 2020 ★★★★	Feb 2020 ★★★	Jan 2020 ★★★

Qualcomm Inc QCOM 25 Jun 2025 21:20, UTC

Dec 2025 —	Nov 2025 —	Oct 2025 —	Sep 2025 —	Aug 2025 —	Jul 2025 —	Jun 2025 ★★★	May 2025 ★★★	Apr 2025 ★★★★	Mar 2025 ★★★	Feb 2025 ★★★	Jan 2025 ★★★
Dec 2024 ★★★	Nov 2024 ★★★	Oct 2024 ★★★	Sep 2024 ★★★	Aug 2024 ★★★	Jul 2024 ★★★	Jun 2024 ★★★	May 2024 ★★	Apr 2024 ★★	Mar 2024 ★★	Feb 2024 ★★★	Jan 2024 ★★★
Dec 2023 ★★★	Nov 2023 ★★★	Oct 2023 ★★★★	Sep 2023 ★★★★	Aug 2023 ★★★★	Jul 2023 ★★★	Jun 2023 ★★★★	May 2023 ★★★★	Apr 2023 ★★★★	Mar 2023 ★★★	Feb 2023 ★★★	Jan 2023 ★★★
Dec 2022 ★★★★	Nov 2022 ★★★	Oct 2022 ★★★★	Sep 2022 ★★★★	Aug 2022 ★★★★	Jul 2022 ★★★	Jun 2022 ★★★★	May 2022 ★★★★	Apr 2022 ★★★	Mar 2022 ★★★	Feb 2022 ★★★	Jan 2022 ★★★
Dec 2021 ★★★	Nov 2021 ★★★	Oct 2021 ★★★	Sep 2021 ★★★	Aug 2021 ★★★	Jul 2021 ★★★	Jun 2021 ★★★	May 2021 ★★★	Apr 2021 ★★★	Mar 2021 ★★★	Feb 2021 ★★★	Jan 2021 ★★
Dec 2020 ★★	Nov 2020 ★★	Oct 2020 ★★	Sep 2020 ★★	Aug 2020 ★★	Jul 2020 ★★★	Jun 2020 ★★★	May 2020 ★★★	Apr 2020 ★★★	Mar 2020 ★★★	Feb 2020 ★★★	Jan 2020 ★★★

Marvell Technology Inc MRVL 25 Jun 2025 21:19, UTC

Dec 2025 —	Nov 2025 —	Oct 2025 —	Sep 2025 —	Aug 2025 —	Jul 2025 —	Jun 2025 ★★★★	May 2025 ★★★★	Apr 2025 ★★★★	Mar 2025 ★★★★	Feb 2025 ★★★	Jan 2025 ★★
Dec 2024 ★★	Nov 2024 ★★	Oct 2024 ★★★	Sep 2024 ★★★	Aug 2024 ★★★	Jul 2024 ★★★	Jun 2024 ★★★	May 2024 ★★★	Apr 2024 ★★★	Mar 2024 ★★	Feb 2024 ★★★	Jan 2024 ★★★
Dec 2023 ★★★	Nov 2023 ★★★	Oct 2023 ★★★★	Sep 2023 ★★★	Aug 2023 ★★★	Jul 2023 ★★★	Jun 2023 ★★★	May 2023 ★★★	Apr 2023 ★★★★	Mar 2023 ★★★★	Feb 2023 ★★★★	Jan 2023 ★★★★
Dec 2022 ★★★★	Nov 2022 ★★★★	Oct 2022 ★★★★	Sep 2022 ★★★★	Aug 2022 ★★★★	Jul 2022 ★★★	Jun 2022 ★★★★	May 2022 ★★★	Apr 2022 ★★★	Mar 2022 ★★	Feb 2022 ★★★	Jan 2022 ★★★
Dec 2021 ★★	Nov 2021 ★★	Oct 2021 ★★	Sep 2021 ★★	Aug 2021 ★	Jul 2021 ★★	Jun 2021 ★★	May 2021 ★★	Apr 2021 ★★	Mar 2021 ★★	Feb 2021 ★	Jan 2021 ★
Dec 2020 ★	Nov 2020 ★	Oct 2020 ★	Sep 2020 ★	Aug 2020 ★	Jul 2020 ★	Jun 2020 ★	May 2020 ★★	Apr 2020 ★★	Mar 2020 ★★★	Feb 2020 ★★★	Jan 2020 ★★★

Morningstar Equity Analyst Report | Report as of 26 Jun 2025 22:21, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS Page 18 of 23

NVIDIA Corp NVDA 25 Jun 2025 21:18, UTC

Dec 2025 —	Nov 2025 —	Oct 2025 —	Sep 2025 —	Aug 2025 —	Jul 2025 —	Jun 2025 ★★★	May 2025 ★★★	Apr 2025 ★★★	Mar 2025 ★★★	Feb 2025 ★★★	Jan 2025 ★★★
Dec 2024 ★★★	Nov 2024 ★★★	Oct 2024 ★★	Sep 2024 ★★★	Aug 2024 ★★★	Jul 2024 ★★★	Jun 2024 ★★★	May 2024 ★★★	Apr 2024 ★★★	Mar 2024 ★★★	Feb 2024 ★★★	Jan 2024 ★★
Dec 2023 ★★★	Nov 2023 ★★★	Oct 2023 ★★★	Sep 2023 ★★★	Aug 2023 ★★★	Jul 2023 ★★	Jun 2023 ★★	May 2023 ★★	Apr 2023 ★★	Mar 2023 ★★	Feb 2023 ★★	Jan 2023 ★★★
Dec 2022 ★★★★	Nov 2022 ★★★★	Oct 2022 ★★★★	Sep 2022 ★★★★	Aug 2022 ★★★★	Jul 2022 ★★★	Jun 2022 ★★★★	May 2022 ★★★	Apr 2022 ★★★	Mar 2022 ★★	Feb 2022 ★★★	Jan 2022 ★★★
Dec 2021 ★★	Nov 2021 ★★	Oct 2021 ★	Sep 2021 ★★	Aug 2021 ★★	Jul 2021 ★★	Jun 2021 ★★	May 2021 ★★★	Apr 2021 ★★	Mar 2021 ★★	Feb 2021 ★★	Jan 2021 ★★
Dec 2020 ★★	Nov 2020 ★★	Oct 2020 ★★	Sep 2020 ★	Aug 2020 ★	Jul 2020 ★	Jun 2020 ★	May 2020 ★★	Apr 2020 ★	Mar 2020 ★★	Feb 2020 ★★	Jan 2020 ★★

Research Methodology for Valuing Companies

Overview

At the heart of our valuation system is a detailed projection of a company's future cash flows, resulting from our analysts' research. Analysts create custom industry and company assumptions to feed income statement, balance sheet, and capital investment assumptions into our globally standardized, proprietary discounted cash flow, or DCF, modeling templates. We use scenario analysis, indepth competitive advantage analysis, and a variety of other analytical tools to augment this process. Moreover, we think analyzing valuation through discounted cash flows presents a better lens for viewing cyclical companies, high-growth firms, businesses with finite lives (e.g., mines), or companies expected to generate negative earnings over the next few years. That said, we don't dismiss multiples altogether but rather use them as supporting cross-checks for our DCF-based fair value estimates. We also acknowledge that DCF models offer their own challenges (including a potential proliferation of estimated inputs and the possibility that the method may miss shortterm market-price movements), but we believe these negatives are mitigated by deep analysis and our longterm approach.

Morningstar's equity research group (”we,” “our”) believes that a company's intrinsic worth results from the future cash flows it can generate. The Morningstar Rating for stocks identifies stocks trading at a discount or premium to their intrinsic worth—or fair value estimate, in Morningstar terminology. Five-star stocks sell for the biggest risk adjusted discount to their fair values, whereas 1-star stocks trade at premiums to their intrinsic worth.

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

1. Economic Moat

The concept of an economic moat plays a vital role not only in our qualitative assessment of a firm's long-term investment potential, but also in the actual calculation of our fair value estimates. An economic moat is a structural feature that allows a firm to sustain excess profits over a long period of time. We define economic profits as returns on invested capital (or ROIC) over and above our estimate of a firm's cost of capital, or weighted average cost of capital (or WACC). Without a moat, profits are more susceptible to competition. We have identified five sources of economic moats: intangible assets, switching costs, network effect, cost advantage, and efficient scale.

Companies with a narrow moat are those we believe are more likely than not to achieve normalized excess returns for at least the next 10 years. Wide-moat companies are those in which we have very high confidence that excess returns will remain for 10 years, with excess returns more likely than not to remain for at least 20 years. The longer a firm generates economic profits, the higher its intrinsic value. We believe low-quality, no-moat companies will see their normalized returns gravitate toward the firm's cost of capital more quickly than companies with moats.

When considering a company's moat, we also assess whether there is a substantial threat of value destruction, stemming from risks related to ESG, industry disruption, financial health, or other idiosyncratic issues. In this context, a risk is considered potentially value destructive if its occurrence would eliminate a firm's economic profit on a cumulative or midcycle basis. If we deem the probability of occurrence sufficiently high, we would not characterize the company as possessing an economic moat.

2. Estimated Fair Value

Combining our analysts' financial forecasts with the firm's economic moat helps us assess how long returns on invested capital are likely to exceed the firm's cost of capital. Returns of firms with a wide economic moat rating are assumed to fade to the perpetuity period over a longer period of time than the returns of narrow-moat firms, and both will fade slower than no-moat firms, increasing our estimate of their intrinsic value.

Our model is divided into three distinct stages:

Stage I: Explicit Forecast

In this stage, which can last five to 10 years, analysts make full financial statement forecasts, including items such as revenue, profit margins, tax rates, changes in workingcapital accounts, and capital spending. Based on these projections, we calculate earnings before interest, after taxes (EBI) and the net new investment (NNI) to derive our annual free cash flow forecast.

Stage II: Fade

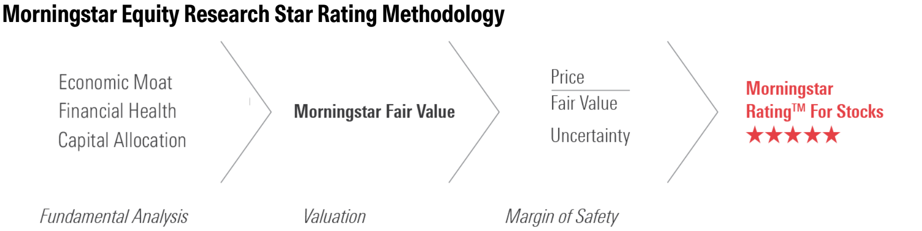
The second stage of our model is the period it will take the company's return on new invested capital—the return on capital of the next dollar invested (“RONIC”)—to decline (or rise) to its cost of capital. During the Stage II period, we use a formula to approximate cash flows in lieu of explicitly modeling the income statement, balance sheet, and cash flow statement as we do in Stage I. The length of the second stage depends on the strength of the company's economic moat. We forecast this period to last anywhere from one year (for companies with no economic moat) to 10–15 years or more (for wide-moat companies). During this period, cash flows are forecast using four assumptions: an average growth rate for EBI over the period, a normalized investment rate, average return on new invested capital (RONIC), and the number of years until perpetuity, when excess returns cease. The investment rate and return on new invested capital decline until a perpetuity value is calculated. In the case of firms that do not earn their cost of capital, we assume marginal ROICs rise to the firm's cost of capital (usually attributable to less reinvestment), and we may truncate the second stage.

Stage III: Perpetuity

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

Because a dollar earned today is worth more than a dollar earned tomorrow, we discount our projections of cash flows in stages I, II, and III to arrive at a total present value of expected future cash flows. Because we are modeling free cash flow to the firm—representing cash available to provide a return to all capital providers—we discount future cash flows using the WACC, which is a weighted average of the costs of equity, debt, and preferred stock (and any other funding sources), using expected future proportionate long-term, market-value weights.

Morningstar Equity Research Star Rating Methodology



3. Uncertainty Around That Fair Value Estimate

Morningstar's Uncertainty Rating is designed to capture the range of potential outcomes for a company's intrinsic value. This rating is used to assign the margin of safety required before investing, which in turn explicitly drives our stock star rating system. The Uncertainty Rating is aimed at identifying the confidence we should have in assigning a fair value estimate for a given stock.

Our Uncertainty Rating is meant to take into account anything that can increase the potential dispersion of future

Morningstar Equity Analyst Report | Report as of 26 Jun 2025 22:21, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS Page 20 of 23

Research Methodology for Valuing Companies

outcomes for the intrinsic value of a company, and anything that can affect our ability to accurately predict these outcomes. The rating begins with a suggested rating produced by a quantitative process based on the trailing 12-month standard deviation of daily stock returns. An analyst overlay is then applied, with analysts using the suggested rating, historical rating data, and their own knowledge of the company to inform them as they make the final Uncertainty Rating decision. Ultimately, the rating decision rests with the analyst. Analysts take into account many characteristics when making their final decision, including cyclical factors, operational and financial factors such as leverage, company-specific events, ESG risks, and anything else that might increase the potential dispersion of future outcomes and our ability to estimate those outcomes.

Our recommended margin of safety—the discount to fair value demanded before we'd recommend buying or selling the stock—widens as our uncertainty of the estimated value of the equity increases. The more uncertain we are about the potential dispersion of outcomes, the greater the discount we require relative to our estimate of the value of the firm before we would recommend the purchase of the shares. In addition, the Uncertainty Rating provides guidance in portfolio construction based on risk tolerance.

Our Uncertainty Ratings are: Low, Medium, High, Very High, and Extreme.

Qualitative Analysis Uncertainty Ratings	Margin of Safety ★★★★★Rating	★Rating
Low	20% Discount	25% Premium
Medium	30% Discount	35% Premium
High	40% Discount	55% Premium
Very High	50% Discount	75% Premium
Extreme	75% Discount	300% Premium

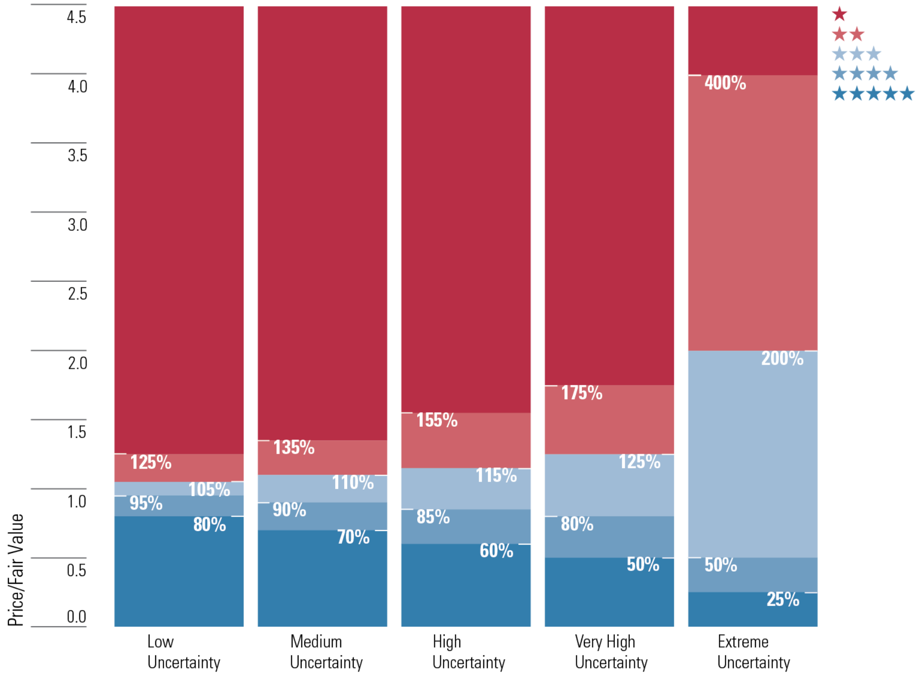
Our uncertainty rating is based on the interquartile range, or the middle 50% of potential outcomes, covering the 25th percentile–75th percentile. This means that when a stock hits 5 stars, we expect there is a 75% chance that the intrinsic value of that stock lies above the current market price. Similarly, when a stock hits 1 star, we expect there is a 75% chance that the intrinsic value of that stock lies below the current market price.

4. Market Price

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

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

Morningstar 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. Our analysts keep close tabs on the companies they follow, and, based on thorough and ongoing analysis, raise or lower their fair value estimates as warranted.

Please note, there is no predefined distribution of stars. That is, the percentage of stocks that earn 5 stars can fluctuate daily, so the star ratings, in the aggregate, can serve as a gauge of the broader market's valuation. When there are many 5-star stocks, the stock market as a whole is more undervalued, in our opinion, than when very few companies garner our highest rating.

We expect that if our base-case assumptions are true the market price will converge on our fair value estimate over time generally within three years (although it is impossible to predict the exact time frame in which market prices may adjust).

Our star ratings are guideposts to a broad audience and individuals must consider their own specific investment goals, risk tolerance, tax situation, time horizon, income needs, and complete investment portfolio, among other factors.

The Morningstar Star Ratings for stocks are defined below:

★★★★★ We believe appreciation beyond a fair risk adjusted return is highly likely over a multiyear time frame. Scenario analysis developed by our analysts indicates that the current market price represents an excessively pessimistic outlook, limiting downside risk and maximizing upside potential.

★★★★ We believe appreciation beyond a fair risk-adjusted return is likely.

★★★ Indicates our belief that investors are likely to receive a fair risk-adjusted return (approximately cost of equity).

★★ We believe investors are likely to receive a less than fair risk-adjusted return.

★ Indicates a high probability of undesirable risk-adjusted returns from the current market price over a multi-year time frame, based on our analysis. Scenario analysis by our analysts indicates that the market is pricing in an excessively optimistic outlook, limiting upside potential and leaving the investor exposed to Capital loss.

Other Definitions

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

Capital Allocation Rating: Our Capital Allocation (or Stewardship) Rating represents our assessment of the quality of management's capital allocation, with particular emphasis on the firm's balance sheet, investments,

Research Methodology for Valuing Companies

and shareholder distributions. Analysts consider companies' investment strategy and valuation, balance sheet management, and dividend and share buyback policies. Corporate governance factors are only considered if they are likely to materially impact shareholder value, though either the balance sheet, investment, or shareholder distributions. Analysts assign one of three ratings: "Exemplary", "Standard", or "Poor". Analysts judge Capital Allocation from an equity holder's perspective. Ratings are determined on a forward looking and absolute basis. The Standard rating is most common as most managers will exhibit neither exceptionally strong nor poor capital allocation.

Capital Allocation (or Stewardship) analysis published prior to Dec. 9, 2020, was determined using a different process. Beyond investment strategy, financial leverage, and dividend and share buyback policies, analysts also considered execution, compensation, related party transactions, and accounting practices in the rating.

Capital Allocation Rating: Our Capital Allocation (or Stewardship) Rating represents our assessment of the quality of management's capital allocation, with particular emphasis on the firm's balance sheet, investments, and shareholder distributions. Analysts consider companies' investment strategy and valuation, balance sheet management, and dividend and share buyback policies. Corporate governance factors are only considered if they are likely to materially impact shareholder value, though either the balance sheet, investment, or shareholder distributions. Analysts assign one of three ratings: "Exemplary", "Standard", or "Poor". Analysts judge Capital Allocation from an equity holder's perspective. Ratings are determined on a forward looking and absolute basis. The Standard rating is most common as most managers will exhibit neither exceptionally strong nor poor capital allocation.

Capital Allocation (or Stewardship) analysis published prior to Dec. 9, 2020, was determined using a different process. Beyond investment strategy, financial leverage, and dividend and share buyback policies, analysts also considered execution, compensation, related party transactions, and accounting practices in the rating.

Sustainalytics ESG Risk Rating Assessment: The ESG Risk Rating Assessment is provided by Sustainalytics; a Morningstar company.

Sustainalytics' ESG Risk Ratings measure the degree to which company's economic value at risk is driven by environment, social and governance (ESG) factors.

Sustainalytics analyzes over 1,300 data points to assess a company's exposure to and management of ESG risks. In other words, ESG Risk Ratings measures a company's unmanaged ESG Risks represented as a quantitative score. Unmanaged Risk is measured on an open-ended scale starting at zero (no risk) with lower scores representing less unmanaged risk and, for 95% of cases, the unmanaged ESG Risk score is below 50.

Based on their quantitative scores, companies are grouped into one of five Risk Categories (negligible, low, medium, high, severe). These risk categories are absolute, meaning that a 'high risk' assessment reflects a comparable degree of unmanaged ESG risk across all subindustries covered.

The ESG Risk Rating Assessment is a visual representation of Sustainalytics ESG Risk Categories on a 1 to 5 scale. Companies with Negligible Risk = 5 Globes, Low Risk = 4, Medium Risk = 3 Globes, High Risk = 2 Globes, Severe Risk = 1 Globe. For more information, please visit sustainalytics.com/esg-ratings/

Ratings should not be used as the sole basis in evaluating a company or security. Ratings involve unknown risks and uncertainties which may cause our expectations not to occur or to differ significantly from what was expected and should not be considered an offer or solicitation to buy or sell a security.

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.

General Disclosure

Unless otherwise provided in a separate agreement, recipients accessing this report may only use it in the country in which the Morningstar distributor is based. Unless stated otherwise, the original distributor of the report is Morningstar Research Services LLC, a U.S.A. domiciled financial institution.

This Report is for informational purposes, should not be the sole piece of information used in making an investment decision, and has no regard to the specific investment objectives, financial situation or particular needs of any specific recipient. This publication is intended to provide information to assist investors in making their own investment decisions, not to provide investment advice to any specific investor. Therefore, investments discussed herein may not be suitable for all investors; investors must exercise their own independent judgment as to the suitability of such investments and recommendations in the light of their own investment objectives, experience, taxation status and financial position. Morningstar encourages Report recipients to read all relevant issue documents (e.g., prospectus) pertaining to the security concerned, including without limitation, information relevant to its investment objectives, risks, and costs before making an investment decision and when deemed necessary, to seek the advice of a financial, legal, tax, and/or accounting professional. The information, data, analyses and opinions presented herein are not warranted to be accurate, correct, complete or timely. Unless otherwise provided in a separate agreement, neither Morningstar, Inc. or the Equity Research Group represents that the report contents meet all of the presentation and/or disclosure standards applicable in the jurisdiction the recipient is located.

Except as otherwise required by law or provided for in a separate agreement, the analyst, Morningstar, Inc. and the Equity Research Group and their officers, directors and employees shall not be responsible or liable for any trading decisions, damages or other losses resulting from, or related to, the information, data, analyses or opinions within the report.

The Report and its contents are not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation or which would subject Morningstar, Inc. or its affiliates to any registration or licensing requirements in such jurisdiction.

Where this report is made available in a language other than English and in the case of inconsistencies between the English and translated versions of the report, the English version will control and supersede any ambiguities associated with any part or section of a report that has been issued in a foreign language. Neither the analyst, Morningstar, Inc., or the Equity Research Group guarantees the accuracy of the translations.

This report may be distributed in certain localities, countries and/or jurisdictions ("Territories") by independent third parties or independent intermediaries and/or distributors ("Distributors"). Such Distributors are not acting as agents or representatives of the analyst, Morningstar, Inc. or the Equity Research Group. In Territories where a Distributor distributes our report, the Distributor is solely responsible for complying with all applicable regulations, laws, rules, circulars, codes and guidelines established

Research Methodology for Valuing Companies

by local and/or regional regulatory bodies, including laws in connection with the distribution third-party research reports.

Conflicts of Interest

- No interests are held by the analyst with respect to the security subject of this investment research report.
- 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.
- Neither Morningstar, Inc. or the Equity Research Group receives commissions for providing research nor do they charge companies to be rated.
- Morningstar's overall earnings are generated in part by the activities of the Investment Management and Research groups, and other affiliates, who provide services to product issuers.
- Morningstar employees may not pursue business and employment opportunities outside Morningstar within the investment industry (including but not limited to, working as a financial planner, an investment professional or investment professional representative, a broker-dealer or broker-dealer agent, a financial writer, reporter, or analyst) without the approval of Morningstar's Legal and if applicable, Compliance teams.
- Neither Morningstar, Inc. or the Equity Research Group is a market maker or a liquidity provider of the security noted within this report.
- Neither Morningstar, Inc. or the Equity Research Group has been a lead manager or co-lead manager over the previous 12-months of any publicly disclosed offer of financial instruments of the issuer.
- Morningstar, Inc.'s investment management group does have arrangements with financial institutions to provide portfolio management/investment advice some of which an analyst may issue investment research reports on. However, analysts do not have authority over Morningstar's investment management group's business arrangements nor allow employees from the investment management group to participate or influence the analysis or opinion prepared by them.
- Morningstar, Inc. is a publicly traded company (Ticker Symbol: MORN) and thus a financial institution the security of which is the subject of this report may own more than 5% of Morningstar, Inc.'s total outstanding shares. Please access Morningstar, Inc.'s proxy statement, "Security Ownership of Certain Beneficial Owners and Management" section https://shareholders.morningstar.com/investor-relations/financials/sec-filings/default.aspx
- Morningstar, Inc. may provide the product issuer or its related entities with services or products for a fee and on an arms' length basis including software products and licenses, research and consulting services, data services, licenses to republish our ratings and research in their promotional material, event sponsorship and website advertising.

Further information on Morningstar, Inc.'s conflict of interest policies is available from http://global.morningstar.com/equitydisclosures. Also, please note analysts are subject to the CFA Institute's Code of Ethics and Standards of Professional Conduct.

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's 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. For investments in foreign markets there are further risks, generally based on exchange rate changes or changes in political and social conditions.

For more information about Morningstar's methodologies, please visit global.morningstar.com/equitydisclosures

For a list of securities which the Equity Research Group currently covers and provides written analysis on please contact your local Morningstar office. In addition, for historical analysis of securities covered, including their fair value estimate, please contact your local office.

For recipients in Australia: This Report has been issued and distributed in Australia by Morningstar Australasia Pty Ltd (ABN: 95 090 665 544; ASFL: 240892). Morningstar Australasia Pty Ltd is the provider of the general advice ('the Service') and takes responsibility for the production of this report. The Service is provided through the research of investment products.

To the extent the Report contains general advice it has been prepared without reference to an investor's objectives, financial situation or needs. Investors should consider the advice in light of these matters and, if applicable, the relevant Product Disclosure Statement before making any decision to invest. Refer to our Financial Services Guide (FSG) for more information at http://www.morningstar.com.au/fsg.pdf

For recipients in New Zealand: This report has been issued and distributed by Morningstar Australasia Pty Ltd and/or Morningstar Research Ltd (together 'Morningstar'). This report has been prepared and is intended for distribution in New Zealand to wholesale clients only and has not been prepared for use by New Zealand retail clients (as those terms are defined in the Financial Markets Conduct Act 2013).The information, views and any recommendations in this material are provided for general information purposes only, and solely relate to the companies and investment opportunities specified within. Our reports do not take into account any particular investor's financial situation, objectives or appetite for risk, meaning no representation may be implied as to the suitability of any financial product mentioned for any particular investor. We recommend seeking financial advice before making any investment decision.

For recipients in Hong Kong: The Report is distributed by Morningstar Investment Management Asia Limited, which is regulated by the Hong Kong Securities and Futures Commission to provide services to professional investors only. Neither Morningstar Investment Management Asia Limited, nor its representatives, are acting or will be deemed to be acting as an investment professional to any recipients of this information unless expressly agreed to by Morningstar Investment Management Asia Limited.

For recipients in India: This investment research is issued by Morningstar Investment Adviser India Private Limited. Morningstar Investment Adviser India Private Limited is registered with SEBI as a Portfolio Manager (registration number INP000006156) and as a Research Entity (registration number INH000008686). Morningstar Investment Adviser India Private Limited has not been the subject of any disciplinary action by SEBI or any other legal/regulatory body. Morningstar Investment Adviser India Private Limited is a wholly owned subsidiary of Morningstar Investment Management LLC. In India, Morningstar Investment Adviser India Private Limited has one associate, Morningstar India Private Limited, which provides data-related services, financial data analysis, and software development. The research analyst has not served as an officer, director, or employee of the fund company within the last 12 months, nor have they or their associates engaged in market-making activity for the fund company.The ESG-related information, methodologies, tool, ratings, data and opinions contained or reflected herein are not directed to or intended for use or distribution to India-based clients or users and their distribution to Indian resident individuals or entities is not permitted, and Morningstar/Sustainalytics accepts no responsibility or liability whatsoever for the actions of third parties in this respect.

*The Conflicts of Interest disclosure above also applies to relatives and associates of Manager Research Analysts in

Research Methodology for Valuing Companies

India # The Conflicts of Interest disclosure above also applies to associates of Manager Research Analysts in India. The terms and conditions on which Morningstar Investment Adviser India Private Limited offers Investment Research to clients, varies from client to client, and are detailed in the respective client agreement.

For recipients in Japan: The Report is distributed by Ibbotson Associates Japan, Inc., which is regulated by Financial Services Agency, for informational purposes only. Neither Ibbotson Associates Japan, Inc., nor its representatives, are acting or will be deemed to be acting as an investment professional to any recipients of this information.

For recipients in Singapore: The Report is intended for Institutional Investor audiences and is distributed by Morningstar Investment Adviser Singapore Pte. Limited, which is licensed by the Monetary Authority of Singapore to provide financial advisory services in Singapore. Morningstar Investment Adviser Singapore Pte. Limited is the entity responsible for the creation and distribution of the research services described in this Report.

This content is provided for informational purposes only and may be shared or redistributed by Institutional Investors to their clients or other permitted persons, subject to obtaining the appropriate licence from Morningstar. Redistribution of this content is subject to any applicable conditions or limitations, including those agreed commercially or contractually with Morningstar. The person who shares or redistributes this content shall be solely responsible for compliance with all relevant legal and regulatory obligations in the jurisdictions in which the material is made available.

Investors should consult a financial adviser regarding the suitability of any investment product, taking into account their specific investment objectives, financial situation or particular needs, before making any investment decision.

Morningstar, Inc., and its affiliates rely on certain exemptions (Financial Advisers Regulations, Section 27(1)(e), Section 32B and 32C) to provide its investment research to recipients in Singapore.

For recipients in Korea: The report is distributed by Morningstar Korea Ltd., which has filed to the Financial Services Committee, for informational purposes only. Neither Morningstar Korea Ltd. nor its representatives are acting or will be deemed to be acting as an investment advisor to any recipients of this information.