

MORNINGSTAR

Apple IncAAPL★★★

6 Aug 2025 21:22, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
213.25 USD	210.00 USD	1.02	3.26 USD Tril	Wide	Large Blend	Medium	Exemplary	
6 Aug 2025	1 Aug 2025 02:00, UTC		7 Aug 2025					4 Jun 2025 05:00, UTC

Sector	Industry
Technology	Consumer Electronics

Business Description

Apple is among the largest companies in the world, with a broad portfolio of hardware and software products targeted at consumers and businesses. Apple's iPhone makes up a majority of the firm sales, and Apple's other products like Mac, iPad, and Watch are designed around the iPhone as the focal point of an expansive software ecosystem. Apple has progressively worked to add new applications, like streaming video, subscription bundles, and augmented reality. The firm designs its own software and semiconductors while working with subcontractors like Foxconn and TSMC to build its products and chips. Slightly less than half of Apple's sales come directly through its flagship stores, with a majority of sales coming indirectly through partnerships and distribution.

basis-point headwind to gross margin in the June quarter. This investment should help Apple avoid more significant tariffs on semiconductors and electronics.

► iPhone unit sales remain Apple's primary valuation driver, and we observe iPhone growth slowing versus historical levels. We believe Apple needs an improved AI software strategy to spur improved iPhone unit sales growth going forward.

Business Strategy & Outlook William Kerwin, CFA, Senior Equity Analyst, 29 May 2025

We believe Apple has solidified its long-term position at the forefront of the consumer electronics industry, focusing on a premium ecosystem of tightly integrated hardware, software, and services. We see the flagship iPhone as the linchpin of this ecosystem, from which Apple derives pricing power, switching costs, and a network effect. In our view, every other Apple device and service sees its greatest value from further locking in customers to this walled garden. This approach earns the firm a wide economic moat rating.

We are impressed with Apple's core design prowess, across both hardware and software, which we think is the product of immense cumulative research and development investments. We like Apple's push to bring most of its chip development in-house. To us, this gives the firm more opportunity for product customization and a better ability to differentiate. In our view, Apple reduces its own cyclicity compared with other consumer electronics players by melding its semiconductors, hardware, and software together.

Over the medium term, we expect Apple to focus on progressing its internal chip development, artificial intelligence capabilities, and further developing new form factors. Each one of these initiatives will hedge the firm against disruption risk, in our view. We also anticipate the company will continue returning tremendous amounts of cash back to shareholders, which is supported by its strong balance sheet.

We hold concerns over geopolitical and regulatory risk for Apple but don't see these threatening the firm's moat presently. Apple's supply chain is heavily concentrated in China and Taiwan, and disruptions in these regions, including tariffs, could limit its supply or profitability. Apple has thus far been adept at managing its complex supply chain and is actively diversifying into new regions, like India and the US. Apple has also been targeted by antitrust regulation, which threatens its profitability from services like the App Store. We don't anticipate severe rulings that would be detrimental to Apple's moat or core business, but we could see headwinds to its services profitability in the medium term.

Bulls Say William Kerwin, CFA, Senior Equity Analyst, 1 Aug 2025

- Apple offers an expansive ecosystem of tightly integrated hardware, software, and services, which locks in customers and generates strong profitability.
- We like Apple's move to in-house chip development, which we think has accelerated its product

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Competitors

	Apple Inc AAPL	Alphabet Inc Class A GOOGL	Microsoft Corp MSFT	Samsung Electronics Co Ltd 005930
Economic Moat	Wide	Wide	Wide	None
Currency	USD	USD	USD	KRW
Fair Value	210.00 1 Aug 2025 02:00, UTC	237.00 5 Feb 2025 04:14, UTC	600.00 31 Jul 2025 03:51, UTC	72,000.00 2 May 2025 04:13, UTC
1-Star Price	283.50	319.95	810.00	111,600.00
5-Star Price	147.00	165.90	420.00	43,200.00
Assessment	Fairly Valued 6 Aug 2025	Undervalued 6 Aug 2025	Undervalued 6 Aug 2025	Fairly Valued 7 Aug 2025
Morningstar Rating	★★★ 6 Aug 2025 21:22, UTC	★★★★ 6 Aug 2025 21:22, UTC	★★★★★ 6 Aug 2025 21:21, UTC	★★★ 7 Aug 2025 12:10, UTC
Analyst	William Kerwin, Senior Equity Analyst	Malik Ahmed Khan, Equity Analyst	Dan Romanoff, Senior Equity Analyst	Phelix Lee, Equity Analyst
Capital Allocation	Exemplary	Exemplary	Exemplary	Standard
Price/Fair Value	1.02	0.83	0.87	0.98
Price/Sales	7.88	6.50	13.91	1.32
Price/Book	48.13	6.54	11.36	1.20
Price/Earning	32.36	23.12	38.35	13.52
Dividend Yield	0.47%	0.41%	0.62%	2.12%
Market Cap	3,164.71 Bil	2,371.51 Bil	3,901.97 Bil	474,860.69 Bil
52-Week Range	169.21—260.10	140.53—207.05	344.79—555.45	49,900.00—80,200.00
Investment Style	Large Blend	Large Blend	Large Blend	Large Blend

development and increased its differentiation.

- Apple has a stellar balance sheet and sends great amounts of cash flow back to shareholders.

Bears Say William Kerwin, CFA, Senior Equity Analyst, 1 Aug 2025

- Apple is prone to consumer spending and preferences, which creates cyclicalities and opens the firm up to disruption.
- Apple's supply chain is highly concentrated in China and Taiwan, which opens up the firm to geopolitical risk. Attempts to diversify into other regions may pressure profitability or efficiency.
- Regulators have a keen eye on Apple, and recent regulations have chipped away at parts of Apple's sticky ecosystem.

Economic Moat William Kerwin, CFA, Senior Equity Analyst, 2 Feb 2024

We assign Apple a wide economic moat rating, stemming from customer switching costs, intangible

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assets, and a network effect. In our view, Apple's iOS ecosystem extends far-reaching, sticky tendrils into customers' wallets, entrenching customers with software capabilities and integration across disparate devices like the iPhone, Mac, iPad, Apple Watch, and more. We also see immense design prowess at Apple, most impressively from deep integration of hardware, software, and semiconductors to create best-of-breed products. Finally, we see a virtuous cycle between Apple's affluent customer base and vast ecosystem of developer partners. These moat sources elicit great profitability and returns on invested capital. In our view, Apple can leverage these moat sources into continued economic profits over the next 20 years, more likely than not.

Apple's most important moat source to us arises from the switching costs for its ecosystem of software, driven by iOS on the iPhone. Apple enjoys terrific customer retention and satisfaction, even despite pricing its products at a significant premium to its competition. First, Apple offers software capabilities that are only available to iPhone users: iMessage messaging and FaceTime calling, AirDrop sharing, Apple Pay digital wallet, and location sharing are among the most used. Apple's products become even more entrenched when a customer adopts two or more. Users that combine the iPhone with a Mac, an iPad, and/or an Apple Watch are offered more features that in turn create a higher cost to switching. Among these, we highlight iMessages shared across devices, health data shared securely between the Watch and iPhone, seamless transfer of media, copy and paste between devices, and complementary app interfaces across multiple devices.

In our view, Apple's ability to widen its portfolio of user devices helps augment its existing switching costs. The Apple Watch and AirPods are good recent examples of new products we see raising stickiness of customers. A Watch user can answer calls, read and respond to messages, and keep a tab on notifications, but must have an iPhone to use these capabilities. AirPods connect with marked ease to Apple devices but have to be manually re-paired each use if joined to a non-Apple device. As customers use more point devices, we believe they are less likely to leave Apple's ecosystem. We view Apple's nascent push into augmented and virtual reality (AR and VR) as the next step in this strategy. The firm's Vision Pro headset offers yet another auxiliary form factor that relies on the iPhone as the focal computing point.

Furthermore, we see Apple's adept ability to introduce and succeed with new form factors (like smartwatches and VR headsets) as defending the firm from disruption risk. After Apple itself disrupted the mobile phone market by creating the modern smartphone, we believe it is critical for the firm to stay on the cutting edge and stave off disruptive threats to its own portfolio. We believe developing auxiliary products integrated with the iPhone is doing just that.

Beyond locking customers into a software ecosystem, we believe Apple's design expertise represents significant intangible assets that allow the firm to deliver top tier performance for its devices across hardware, software, and semiconductors. We see an enormous research and development budget

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totaling in the tens of billions of dollars enabling and maintaining this design prowess.

Apple boasts impressive semiconductor design capabilities with which it augments the performance of its iPhone, Mac, iPad, and Watch offerings. We see chips as the highest-value component of consumer electronics. In designing its own chips, Apple is able to customize its specific devices for performance, power efficiency, and available features. Its A-series chips for the iPhone integrate neural engines for artificial intelligence, or AI, capabilities like facial recognition and are optimized for power efficiency to deliver best-in-class battery life. Its M-series chips for the Mac offer more memory than standardized PC chips from Intel or AMD, helping enable quicker compute and graphics performance. Owning its chip design also allows Apple to prioritize security. It embeds Secure Enclave in every Mac chip, which is a totally encrypted and physically separated part of the chip that protects biometric data and encryption keys.

By owning its chip design, Apple tightens the integration between its hardware devices and its sticky software ecosystem. Apple's custom chip families allow for common platforms across devices and new software features that further rope in customers. For example, Apple's focus on featuring significant neural engines on its chips allow for AI applications on devices, including facial recognition, voice assistance (Siri), live transcription, autocorrect, and highly adaptable software suggestions based on user preferences and history. We believe the common platform across chips for iPhone, Mac, iPad, and Watch also aid third-party app developers to create more integrated experiences for customers. Offering a better platform for developers leads to more apps designed for Apple devices, more features on third-party apps across devices, and a stickier proposition to customers, in our view.

Apple's chip capabilities are bolstered by a robust relationship with Taiwan Semiconductor, or TSMC, the largest foundry in the world. In our view, this relationship enables Apple to pursue more powerful and more efficient chips ahead of its competitors. Apple's iPhone is typically the first product to feature the newest process technology from TSMC, like the iPhone 15 Pro in 2023 being the first to feature 3-nanometer chips. Additionally, Apple pays TSMC for dedicated capacity, enabling Apple to be guaranteed a certain level of supply to meet demand for new iPhones, Macs, and the like.

We see Apple's chip design and software design prowess as impressive when taken separately but even more valuable in tandem. We believe the firm stands to benefit from quicker time-to-market for new features across both hardware and software by developing the two together and specified for its own devices. This compares with taking more general chips from the likes of Intel and being reliant on another firm's development for your own software ambitions (as Apple used to be for its Mac lineup before introducing the M-series chips). This integrated approach also stands out against Apple's primary smartphone competitor, Samsung, which owns its hardware assembly but outsources its chips and software to Qualcomm and Google (Android), respectively.

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Apple focuses on the premium ends of its markets with best-of-breed devices that it sells at significant premiums. Customers have shown a consistent desire to pay up for this performance, generating unit market share gains for Apple even as its prices rise compared with competitors. Apple's share gains have been broad-based, across both developed and emerging markets (like China and India), consumers and enterprises, and every major product line, including iPhone, Mac, and iPad. We believe further share gains are in Apple's future, particularly as it sees the strongest preference among younger users.

Apple's moat is reinforced with a network effect between its large, committed user base and expansive ecosystem of application developers. We believe that more developers and more talented developers are drawn to Apple's large install base, while consumers are drawn to the wide selection of applications to which they gain access by purchasing an Apple device. In our view, this is accentuated by a richer base of Apple users, compared with those of competing PC or mobile vendors that spend more on apps and generate more developer profits. We also think that Apple's unified software ecosystem across iPhone, Mac, iPad, Watch, and more is an attractive proposition for developers. A developer can more easily gain multiple footholds in a user with tight integration and overlap between Apple's products and OSes, compared with designing disparate interfaces for an Android phone and Windows PC, for example. We think this network effect can be enhanced with more touchpoints in the Apple ecosystem, like the Vision Pro, that plug right into the existing development frameworks. We don't believe Apple's network precludes the existence of a network effect for a competing app store, like Google Play, but see Apple's rich network augmenting its user experience and supplementing its switching costs.

Apple's ability to deliver cutting-edge products with tightly integrated hardware and software, along with its software ecosystem's ability to lock in customers, results in impressive profit margins. On top of 45% gross margins, which are impressive for a consumer hardware provider, Apple's asset-light model with outsourced manufacturing generates robust returns on invested capital, to the tune of roughly 50%. In our view, Apple's sticky ecosystem and phenomenal engineering capabilities will enable it to continue earning strong economic profits over the next 20 years.

Fair Value and Profit Drivers William Kerwin, CFA, Senior Equity Analyst, 1 Aug 2025

Our fair value estimate for Apple is \$210 per share. Our valuation implies a fiscal 2025 price/earnings multiple of 28 times, a fiscal 2025 enterprise value/revenue multiple of 7 times, and a fiscal 2025 free cash flow yield of 4%. Against our estimate of fiscal 2026 earnings, our valuation implies a price/earnings multiple of 25 times.

We project 6% compound annual revenue growth for Apple through fiscal 2029. The iPhone will be the most significant contributor to revenue over our forecast, and we project 5% growth for iPhone revenue over the next five years. We expect this to be driven primarily by unit sales growth, with modest pricing

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increases. We think pricing increases will be driven primarily by a mix shift toward the more premium Pro models.

Services are Apple's next biggest revenue contributor over our forecast, and we forecast more than 10% services revenue growth over the next five years. Services are driven in large part by revenue from Google for its status as the default search engine on the Safari browser, as well as Apple's cut of App Store revenues. We expect solid growth in Google revenue but see a more mixed outlook for App Store results, where we forecast growth in overall app revenue but progressively lower cuts going toward Apple later in the decade as a result of regulatory pressures. Elsewhere, we see mostly double-digit growth across revenue from Apple Music, Apple TV+, Apple Pay, AppleCare, and Apple's other services.

We see 5% growth for Apple's wearables business through fiscal 2029. We see mid-single-digit growth for Apple Watch and AirPods revenue, with both products continuing to gain share. We expect double-digit growth for Apple's nascent Vision Pro, but expect this to remain a small minority of total revenue. We project roughly \$2 billion in Vision Pro revenue in fiscal 2029.

Across Apple's other primary hardware products, Mac and iPad, we see midcycle growth in the low-single digits. We expect Mac to see stronger short-term revenue from a cyclical rebound in consumer PC spending as well as existing Mac customers refreshing Intel-based notebooks to the new M-series lineup.

We forecast gross margins to rise toward 50% in fiscal 2029, up from 46% in fiscal 2024. We believe Apple can see margin expansion from a higher mix of higher-margin hardware, like iPhone Pro models, and services. We also expect Apple to continue using R&D to both maintain pricing power and trim costs. R&D helps Apple develop new features, especially by creating more cost-efficient semiconductors and bringing more chip development in-house.

Operating margins rise almost exclusively due to gross margin expansion in our forecast, reaching 35% in fiscal 2029 from 32% in fiscal 2024. We anticipate strong growth in research and development expenditures, which are key to Apple's value and moat. We think the firm can eke out modest leverage on other operating expenses.

Risk and Uncertainty William Kerwin, CFA, Senior Equity Analyst, 1 Aug 2025

We assign Apple with a Medium Morningstar Uncertainty Rating. We see the firm's greatest risk as its reliance on consumer spending, for which there is great competition and cyclical. Apple is at constant risk of disruption, just as the iPhone disrupted BlackBerry in the budding smartphone market. The iPhone could be unseated by a new device or "superapp." We view the firm defending against this risk, however, by introducing new form factors (like a watch and an augmented reality headset) and selling an ecosystem of software and services on top of hardware.

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We also see geopolitical risk arising from Apple's supply chain. It is heavily dependent on Foxconn and Taiwan Semiconductor, or TSMC, for its assembly and chip production, respectively. The majority of iPhones are produced at a megafactory in China by Foxconn, and the majority of Apple chips are produced in Taiwan by TSMC. If there were a souring of relations between the US and China, or if China threatened Taiwan, Apple could see a severe hit to its supply. Additionally, the Chinese government has recommended government officials not conduct business on iPhones, which presents a current and potential future risk to Apple's revenue in China.

Apple also faces regulatory scrutiny. The European Union has enacted regulations forcing Apple to offer third-party app stores, adopt open messaging standards, and restricting Apple from gatekeeping its repair materials to third parties. Similarly, there are ongoing antitrust cases in the US that could affect Apple's walled garden ecosystem. All these help to chip away at the firm's differentiation, but we believe the firm is offsetting these by adding new stick points in customers, like new services and devices.

Finally, we see low environmental, social, and governance risk for Apple. The firm has committed to full carbon neutrality by 2030, and we believe it will achieve its goal. The potential future loss of talented human capital could be another risk on this front.

Capital Allocation William Kerwin, CFA, Senior Equity Analyst, 1 Aug 2025

We assign Apple an Exemplary Capital Allocation Rating, with Apple's investments as the primary driver to our rating. We see Apple's ability to develop updated and brand new technology internally as exceptional. Beyond iterations of products like the iPhone and Mac, Apple's internal chip and software development are particularly impressive to us. We believe Apple's semiconductors are strong, and the firm's ability to tailor chips to specific devices creates compelling value to customers. Apple's chips allow the firm to prioritize artificial intelligence applications and other proprietary software and features that generic chips from the likes of Intel may not.

We also believe Apple has invested in new products at the right time, seemingly perfecting the strategy of being a fast and premium follower. The Apple Watch is a prime example, and one where Apple now holds the largest share of its market. New products also create another touch point by which Apple can lock in customers and raise its switching costs, reinforcing its wide moat. In our view, these also hedge against disruption risk by expanding Apple's ecosystem and creating prowess in new form factors that may eventually succeed the smartphone. We see the Vision Pro as the newest example of this strategy and one that will also leverage Apple's silicon expertise.

On top of strong investments, Apple boasts a robust balance sheet and uses it to reward shareholders. Apple's cash generation is fantastic, and we like its goal of becoming net cash-neutral, which should help avoid the opportunity cost of holding significant amounts of cash. We also like the firm's dividend and buyback program, a combination that routinely sends all of Apple's free cash flow back to

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shareholders.

Underpinning Apple's capital allocation strategy, we are pleased with the firm's board of directors and Tim Cook as a chief executive. We believe Cook has been instrumental in pivoting Apple into an ecosystem company and has made savvy bets on new form factors, semiconductor design, and services. We like his compensation structure that offers a relatively low, flat salary with the majority of his pay coming from incentive-based compensation. Apple's board is made up of blue-chip current and former executives across industries. The board has good expertise across finance, biotechnology, and consumer products, which likely informs Apple's strategy in existing and new markets.

Analyst Notes Archive

Apple: Glassy Redesign and More Generative AI Features Headline an Incremental but Positive WWDC William Kerwin, CFA,Senior Equity Analyst,9 Jun 2025

Apple unveiled updates to all of its major operating systems at its Worldwide Developers' Conference, or WWDC, keynote. Highlighted by iOS 26 (reflecting a release date ahead of calendar 2026), updates focused on a visual redesign dubbed Liquid Glass and wider AI capabilities across applications. Why it matters: We saw Apple's software updates mostly as incremental but positive. We continue to see the firm's moat exemplified in tight integration between its hardware and software that enables strong design and compelling features that lock in customers. We noted a proliferation of small, but useful, generative AI features across apps. Apple's artificial intelligence rollout has been protracted and still lacks better Siri integration, but we believe AI is helping Apple develop new and convenient features more quickly. We also observed a heightened focus on developers, most notably by allowing them to access Apple's on-device AI models for better integration with Apple Intelligence. We believe this could build on Apple's app ecosystem network effect with more third-party AI features. The bottom line: We maintain our \$200 fair value estimate for shares of wide-moat Apple, with our long-term thesis intact. Software updates fit with our positive expectations for Apple to continue developing a compelling consumer software ecosystem. Shares look fairly valued to us. We continue to see geopolitical supply chain and tariff risk adequately priced into Apple stock, along with more moderated growth expectations, particularly for the iPhone. These fit with our own thesis on healthy, but slowing, iPhone unit sales growth. Coming up: Apple's software updates will be available to consumers in July as a beta release and will fully launch in the fall when we expect Apple to unveil new iPhone models. We expect potential new form factors (like an ultrathin iPhone) to complement the Liquid Glass software update.

Apple: Latest Tariff Threat Creates Uncertainty, but We See It Primarily as a Negotiating Tactic William Kerwin, CFA,Senior Equity Analyst,23 May 2025

President Donald Trump continued tariff threats on Apple on May 23. Via his Truth Social platform, Trump indicated his desire for iPhone production to shift to the US and that Apple would face a blanket

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25% tariff for iPhones imported to the US from India and other countries. Why it matters: We don't view US iPhone production as feasible in the medium term. To us, this is a negotiating tactic aimed at driving greater US investment from Apple, likely in the form of domestic chip investment and potentially production of lower-volume devices than the flagship iPhone. We had viewed China production at the highest tariff risk for Apple, but Trump is now targeting India, where more than half of US-bound iPhones are produced. Still, we believe paying the blanket 25% tariff would be more economical than mass producing iPhones domestically. Apple has already announced \$500 billion in US investment, aiming to placate the Trump administration and earn an exemption to tariffs, in our view. We believe the administration knows it has leverage on Apple via tariffs and is using this to gain greater commitments from Apple. The bottom line: We maintain our \$200 per share fair value estimate for wide-moat Apple. We continue to model a tariff exemption in our base case. Despite short-term bluster from the administration, we expect an investment deal to be reached that avoids blanket iPhone tariffs. If Apple were to face a blanket 25% tariff on US iPhones, we'd expect anywhere between a 5% and 15% impact to earnings and the firm's intrinsic valuation, depending on Apple's decision to offset the cost via pricing (which could negatively impact unit sales). Shares look fairly valued to us, even after trading down 3% intraday on May 23 on the news. We believe tariff concerns are being adequately valued into the stock, along with concerns over Apple's ability to use artificial intelligence to improve future growth, which we factor into our valuation.

Apple Earnings: Tariffs Loom Large, but We Continue to Expect a Long-Term Exemption William Kerwin, CFA,Senior Equity Analyst,2 May 2025

Apple's March-quarter revenue rose 5% year over year to \$95.4 billion, with iPhone revenue rising 2% to \$46.8 billion. March-quarter gross margin rose 50 basis points year over year to 47.1%. June-quarter guidance calls for modest year-over-year revenue growth and sequential margin contraction. Why it matters: Results and revenue guidance were positive to us, but margin guidance was weak, resulting from an estimated \$900 million impact from US tariffs. As primarily a hardware company, we see material risk for Apple from tariffs, both on profitability and longer-term demand. Apple's core devices are currently exempt from US tariffs, and the June quarter impact is primarily from accessories. Nonetheless, Apple remains at risk of a policy change. Positively, most US iPhone units are imported from India, which faces a lower current tariff rate than China (10% vs 145%). Management noted no signs of customers accelerating purchases in advance of potentially higher costs from tariffs. We still surmise this is happening, but mostly on the margin. We also like that Apple is building up its own inventory to bring in lower-cost products as a precautionary measure. The bottom line: We maintain our \$200 fair value estimate for wide-moat Apple. We lowered our short-term profit forecast to reflect direct tariff costs, but maintain our base-case expectation for Apple to earn an exemption from US tariffs in the long term. We see shares as fairly valued. We estimate a 25% gross downside risk to earnings and Apple's intrinsic valuation if it were to lose its exemption and face the full brunt of tariffs. This gross

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estimate assumes no mitigation actions from Apple, and a 145% rate for imports from China. We wouldn't expect Apple to swallow this entire downside risk, as we would expect the firm to raise prices in the US and accelerate moving US import production into other countries like India.

Apple: \$500 Billion US Investment Is a Tariff-Avoiding Ploy That We Expect to Succeed William Kerwin, CFA,Senior Equity Analyst,24 Feb 2025

Apple announced \$500 billion in cumulative investment in the US over the next four years, its largest-ever commitment. This includes a new artificial intelligence server manufacturing facility in Texas and increased spending on Apple's semiconductor development and manufacturing in the US. Why it matters: We believe Apple's spending plan is a direct strategy to earn an exemption from tariffs on imports from China. Close to 70% of iPhones are manufactured in China, leading to a potentially large impact on the firm's financials from tariffs. Apple was able to earn exemptions from tariffs under the first Trump administration, and we believe it is on a path to do so again. This could also help the firm avoid potential tariffs on countries besides China. Apple's \$500 billion commitment shows a focus on generative AI and proprietary semiconductor design expertise. We see Apple's silicon design as highly moaty, most recently exemplified by the new C1 cellular modem, which displaced Qualcomm in the iPhone 16e. The bottom line: We maintain our \$200 fair value estimate for wide-moat Apple, as we maintain our base-case assumption for minimal impacts from tariffs. We see the shares as overvalued. We believe investors need rosy iPhone growth assumptions to justify Apple's valuation. In our view, long-term iPhone revenue growth is slowing, with headwinds from a mature smartphone market and higher competition out of China. We believe the current stock price implies close to double-digit medium-term growth, compared with our own forecast in the midsingle digits.

Apple: iPhone 16e Meets Our Expectations, and We See C1 Modem as Impressive William Kerwin, CFA,Senior Equity Analyst,19 Feb 2025

Apple announced the iPhone 16e, which is an updated budget-friendly model. The 16e features Apple's suite of AI features, Apple Intelligence, and Apple's first-ever self-designed cellular modem, dubbed C1. It includes better battery life, display, camera, and processing versus the last iPhone SE. Why it matters: We see the 16e as a natural iteration of the iPhone lineup, and we'd been expecting Apple to update its budget-friendly iPhone model. We believe it presents strong value versus the higher-priced flagship iPhone 16 and 16 Pro lineups. The introduction of the C1 modem is the biggest news to us. An Apple modem is the latest example of the firm's ability to vertically integrate, particularly with silicon, which is a key tenet of our margin expansion thesis. We expect Apple modems to penetrate flagship iPhones in a few years. The incorporation of Apple Intelligence shows Apple's strategy to get artificial intelligence into as many consumers' hands as possible. AI requires more advanced chip content, and including it in a budget model shows Apple's focus on unit sales and a sticky software ecosystem, in our view. The bottom line: We maintain our \$200 valuation for Apple shares and make no changes to our long-term

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iPhone and overall Apple forecasts. We continue to see shares as overvalued and reflecting overly optimistic expectations for the impact of generative AI software on device sales. We expect 5% compound annual growth for iPhone revenue through fiscal 2029, including higher growth in fiscal 2026 with more AI features. We believe investors would have to assume closer to double-digit iPhone revenue growth over the same period to justify Apple's Feb. 19 valuation.

Apple Earnings: Soft Start to Fiscal 2025 Aligns With Our Thesis for Slowing iPhone Growth

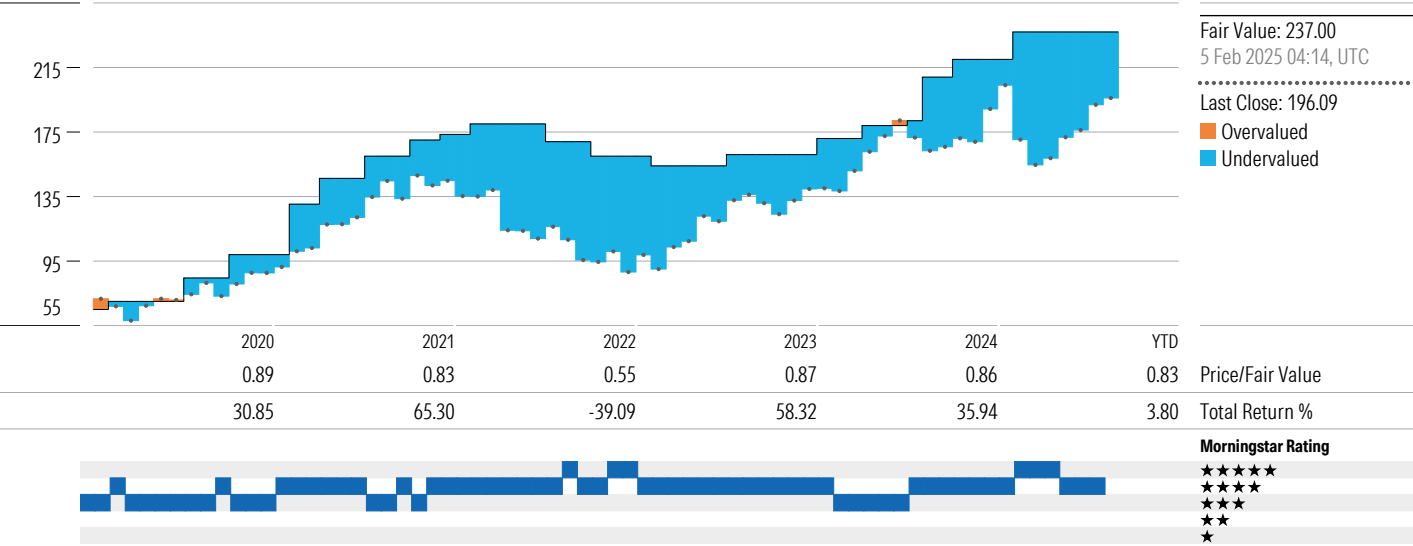
William Kerwin, CFA, Senior Equity Analyst, 31 Jan 2025

Apple's December-quarter revenue rose by 4% year over year to \$124.3 billion. iPhone revenue declined 1% year over year to \$69.1 billion, and services revenue rose 14% year over year to \$26.3 billion. March-quarter revenue guidance calls for low to mid-single-digit year-over-year growth. Why it matters: The firm's tepid results and guidance align with our expectations for a soft iPhone growth cycle over the next two years, with the integration of generative artificial intelligence features only modestly increasing device sales. Apple Intelligence doesn't appear to be lifting iPhone 16 unit sales in a material way. We point to a delayed and protracted rollout of features as reasons for a mild initial impact. In our view, the most attractive feature set of Apple Intelligence is still not released. China remained a growth headwind, with revenue declining for the sixth straight quarter. China is a key piece of our thesis for slowing long-term iPhone growth, with Apple losing share to revitalized domestic competitors. The bottom line: We maintain our \$200 fair value estimate for wide-moat Apple. We believe our long-term thesis for slowing iPhone growth is bearing out. Despite our favorable view of the company and its fundamentals, we see Apple's valuation implying overly rosy expectations for long-term growth. iPhone revenue has grown at a 7% average annual rate in the past 10 years, but we believe through-cycle iPhone revenue growth is slowing and forecast 5% average annual growth through fiscal 2029. Core to our thesis are China headwinds and a mature smartphone market. Shares rose 3% after-hours, which we see as an overreaction to March-quarter revenue guidance. In our view, low to mid-single-digit year-over-year growth represents a mild iPhone cycle and fails to justify the current valuation Apple holds today. 

Apple Inc AAPL ★★★ 6 Aug 2025 21:22, UTC

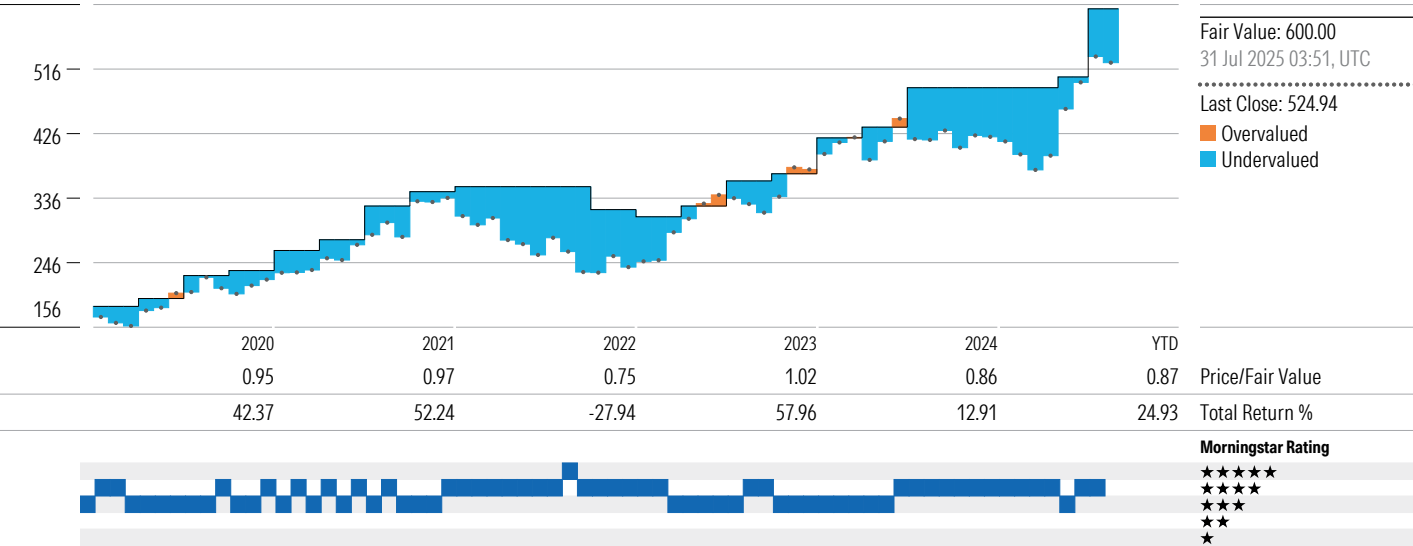
Competitors Price vs. Fair Value

Alphabet Inc Class A GOOGL



Total Return % as of 06 Aug 2025. Last Close as of 06 Aug 2025. Fair Value as of 5 Feb 2025 04:14, UTC.

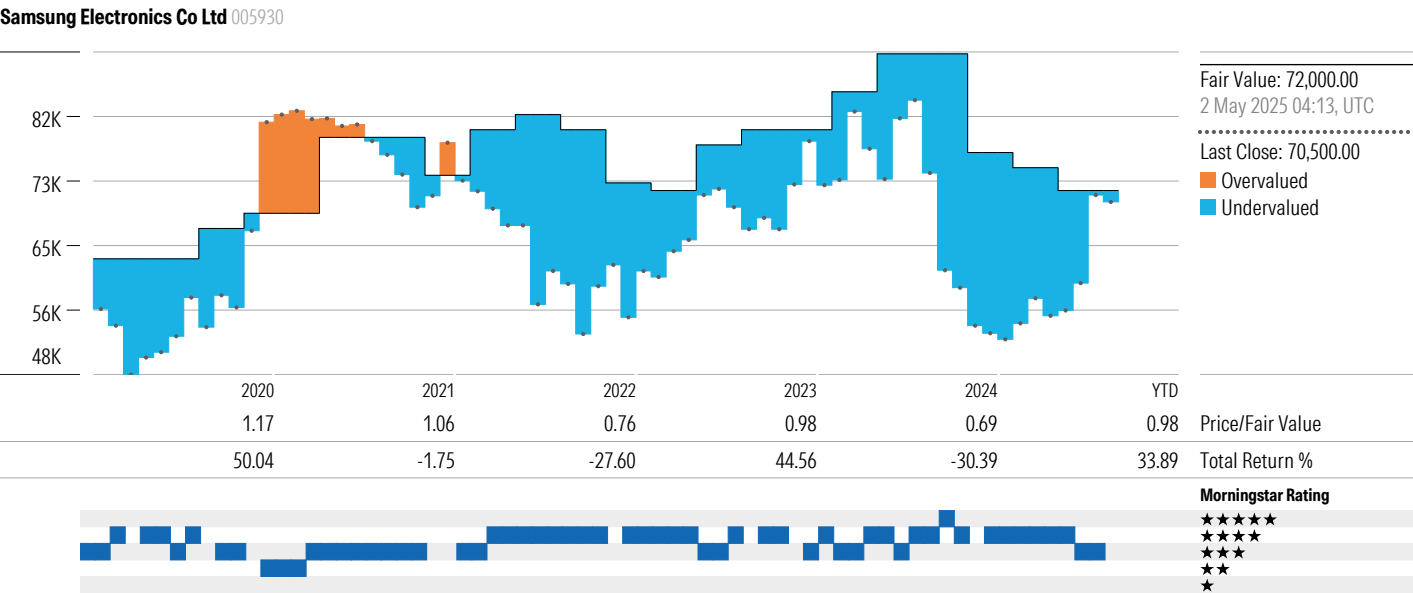
Microsoft Corp MSFT



Total Return % as of 06 Aug 2025. Last Close as of 06 Aug 2025. Fair Value as of 31 Jul 2025 03:51, UTC.

Apple IncAAPL★★★6 Aug 2025 21:22, UTC

Competitors Price vs. Fair Value



Total Return % as of 07 Aug 2025. Last Close as of 07 Aug 2025. Fair Value as of 2 May 2025 04:13, UTC.

Apple Inc AAPL ★★★

6 Aug 2025 21:22, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
213.25 USD 6 Aug 2025	210.00 USD 1 Aug 2025 02:00, UTC	1.02	3.26 USD Tril 7 Aug 2025	Wide	Large Blend	Medium	Exemplary	 4 Jun 2025 05:00, UTC

Morningstar Valuation Model Summary

Financials as of 31 Jul 2025

Fiscal Year, ends 30 Sep	Actual			Forecast				
	2022	2023	2024	2025	2026	2027	2028	2029
Revenue (USD Mil)	394,328	383,285	391,035	415,563	440,298	471,288	500,865	531,317
Operating Income (USD Mil)	119,437	114,301	123,216	132,806	143,890	159,321	171,494	184,110
EBITDA (USD Mil)	130,541	125,820	134,661	144,038	154,884	170,170	182,138	194,527
Adjusted EBITDA (USD Mil)	130,541	125,820	134,661	144,038	154,884	170,170	182,138	194,527
Net Income (USD Mil)	99,803	96,995	93,736	111,235	120,868	133,830	144,055	154,653
Adjusted Net Income (USD Mil)	99,803	96,995	103,982	111,235	120,868	133,830	144,055	154,653
Free Cash Flow To The Firm (USD Mil)	112,255	95,760	119,719	113,371	120,110	132,817	142,086	151,485
Weighted Average Diluted Shares Outstanding (Bil)	16	16	15	15	14	14	13	13
Earnings Per Share (Diluted) (USD)	6.11	6.13	6.08	7.41	8.35	9.62	10.81	12.13
Adjusted Earnings Per Share (Diluted) (USD)	6.11	6.13	6.75	7.41	8.35	9.62	10.81	12.13
Dividends Per Share (USD)	0.90	0.94	0.98	1.02	1.04	1.12	1.20	1.28

Margins & Returns as of 31 Jul 2025

	3 Year Avg	Actual			Forecast					5 Year Avg
		2022	2023	2024	2025	2026	2027	2028	2029	
Operating Margin %	30.5	30.3	29.8	31.5	32.0	32.7	33.8	34.2	34.7	33.5
EBITDA Margin %	—	33.1	32.8	34.4	34.7	35.2	36.1	36.4	36.6	—
Adjusted EBITDA Margin %	—	33.1	32.8	34.4	34.7	35.2	36.1	36.4	36.6	35.8
Net Margin %	24.9	25.3	25.3	24.0	26.8	27.5	28.4	28.8	29.1	28.1
Adjusted Net Margin %	25.7	25.3	25.3	26.6	26.8	27.5	28.4	28.8	29.1	28.1
Free Cash Flow To The Firm Margin %	28.0	28.5	25.0	30.6	27.3	27.3	28.2	28.4	28.5	27.9

Growth & Ratios as of 31 Jul 2025

	3 Year CAGR	Actual			Forecast					5 Year CAGR
		2022	2023	2024	2025	2026	2027	2028	2029	
Revenue Growth %	2.3	7.8	-2.8	2.0	6.3	5.9	7.0	6.3	6.1	6.3
Operating Income Growth %	4.2	9.6	-4.3	7.8	7.8	8.4	10.7	7.6	7.4	8.4
EBITDA Growth %	4.0	8.6	-3.6	7.0	7.0	7.5	9.9	7.0	6.8	7.6
Adjusted EBITDA Growth %	3.9	8.6	-3.6	7.0	7.0	7.5	9.9	7.0	6.8	7.6
Earnings Per Share Growth %	2.7	8.9	0.3	-0.8	21.9	12.6	15.3	12.3	12.2	14.8
Adjusted Earnings Per Share Growth %	2.7	8.9	0.3	10.0	9.9	12.6	15.3	12.3	12.2	14.8

Valuation as of 31 Jul 2025

	Actual			Forecast				
	2022	2023	2024	2025	2026	2027	2028	2029
Price/Earning	22.6	27.9	34.5	28.8	25.5	22.2	19.7	17.6
Price/Sales	5.6	7.0	9.0	7.6	7.2	6.7	6.3	6.0
Price/Book	44.6	43.6	63.0	61.8	121.2	-3,046.4	-89.6	-44.2
Price/Cash Flow	—	—	—	—	—	—	—	—
EV/EBITDA	17.4	21.6	26.4	22.3	20.7	18.9	17.6	16.5
EV/EBIT	19.0	23.8	28.9	24.2	22.3	20.2	18.7	17.4
Dividend Yield %	0.7	0.5	0.4	0.5	0.5	0.5	0.6	0.6
Dividend Payout %	14.7	15.3	14.5	13.8	12.5	11.6	11.1	10.5
Free Cash Flow Yield %	—	—	—	—	—	—	—	—

Operating Performance / Profitability as of 31 Jul 2025

Fiscal Year, ends 30 Sep	Actual			Forecast				
	2022	2023	2024	2025	2026	2027	2028	2029
ROA %	28.3	27.5	25.7	30.7	35.3	40.7	46.0	51.2
ROE %	197.0	156.1	164.6	215.1	475.2	-14795.1	-454.1	-251.0
ROIC %	100.4	89.8	86.6	88.2	88.9	96.4	101.3	105.3

Apple Inc AAPL ★★★

6 Aug 2025 21:22, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
213.25 USD 6 Aug 2025	210.00 USD 1 Aug 2025 02:00, UTC	1.02	3.26 USD Tril 7 Aug 2025	Wide	Large Blend	Medium	Exemplary	 4 Jun 2025 05:00, UTC

Financial Leverage (Reporting Currency)

Fiscal Year, ends 30 Sep	Actual			Forecast				
	2022	2023	2024	2025	2026	2027	2028	2029
Debt/Capital %	5.6	4.0	2.9	2.8	2.4	2.2	2.1	2.0
Assets/Equity	7.0	5.7	6.4	7.0	13.5	-363.4	-9.9	-4.9
Net Debt/EBITDA	0.6	0.4	0.3	0.4	0.3	0.3	0.3	0.3
Total Debt/EBITDA	1.0	0.9	0.8	0.6	0.5	0.5	0.4	0.4
EBITDA/ Net Interest Expense	390.8	222.7	-500.6	199.2	—	—	—	—

Forecast Revisions as of 31 Jul 2025

Prior data as of 23 May 2025	2025		2026		2027	
	Current	Prior	Current	Prior	Current	Prior
Fair Value Estimate Change (Trading Currency)	210.00	200.41	—	—	—	—
Revenue (USD Mil)	415,563	406,647	440,298	433,866	471,288	464,470
Operating Income (USD Mil)	132,806	127,768	143,890	141,774	159,321	155,129
EBITDA (USD Mil)	144,038	138,821	154,884	152,646	170,170	165,855
Net Income (USD Mil)	111,235	107,097	120,868	119,090	133,830	130,308
Earnings Per Share (Diluted) (USD)	7.41	7.14	8.35	8.23	9.62	9.39
Adjusted Earnings Per Share (Diluted) (USD)	7.41	7.14	8.35	8.23	9.62	9.39
Dividends Per Share (USD)	1.02	1.02	1.04	1.10	1.12	1.18

Key Valuation Drivers as of 31 Jul 2025

Cost of Equity %	9.0
Pre-Tax Cost of Debt %	5.5
Weighted Average Cost of Capital %	8.9
Long-Run Tax Rate %	16.0
Stage II EBI Growth Rate %	8.1
Stage II Investment Rate %	2.0
Perpetuity Year	20

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

Discounted Cash Flow Valuation as of 31 Jul 2025

	USD Mil
Present Value Stage I	407,585
Present Value Stage II	1,426,925
Present Value Stage III	1,129,546
Total Firm Value	2,964,056
Cash and Equivalents	29,943
Debt	96,662
Other Adjustments	0
Equity Value	2,897,337
Projected Diluted Shares	15
Fair Value per Share (USD)	210.00

Apple Inc AAPL ★★★ 6 Aug 2025 21:22, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
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ESG Risk Rating Breakdown

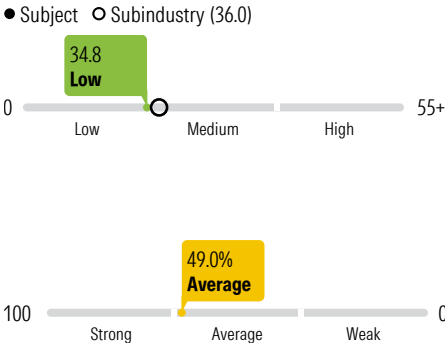
Exposure

Company Exposure¹	34.8
- Manageable Risk	32.3
Unmanageable Risk²	2.5

Management

Manageable Risk	32.3
- Managed Risk³	15.8
Management Gap⁴	16.5

Overall Unmanaged Risk 19.0



- ▶ 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 49.0% 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 Assessment⁵



ESG Risk Rating is of Jun 04, 2025. Highest Controversy Level is as of Jul 08, 2025. Sustainalytics Subindustry: Technology Hardware. 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

Company Name	Exposure	Management	ESG Risk Rating
Apple Inc	34.8 Low 0 —●— 55+	49.0 Average 100 —●— 0	19.0 Low 0 —●— 40+
Alphabet Inc	44.1 Medium 0 —●— 55+	46.8 Average 100 —●— 0	24.9 Medium 0 —●— 40+
Microsoft Corp	34.9 Low 0 —●— 55+	54.0 Strong 100 —●— 0	17.4 Low 0 —●— 40+
Samsung Electronics Co Ltd	38.0 Medium 0 —●— 55+	64.8 Strong 100 —●— 0	15.1 Low 0 —●— 40+
Broadcom Inc	42.0 Medium 0 —●— 55+	58.7 Strong 100 —●— 0	19.2 Low 0 —●— 40+

Appendix

Historical Morningstar Rating

Apple Inc AAPL 6 Aug 2025 21:22, 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 ★★

Alphabet Inc Class A GOOGL 6 Aug 2025 21:22, 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 ★★★★★
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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 ★★★★

Microsoft Corp MSFT 6 Aug 2025 21:21, 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 ★★★★★
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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 ★★★★

Samsung Electronics Co Ltd 005930 7 Aug 2025 12:10, 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, in-depth 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 short-term market-price movements), but we believe these negatives are mitigated by deep analysis and our long-term 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 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 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 working capital accounts, and capital spending. Based on these projections, we calculate earnings before interest,

after taxes (EBI) and the net new investment (NNI) to derive our annual free cash flow forecast.

Stage II: Fade

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

Stage III: Perpetuity

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

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

3. Uncertainty Around That Fair Value Estimate

Morningstar's Uncertainty Rating 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 Research Star Rating Methodology



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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

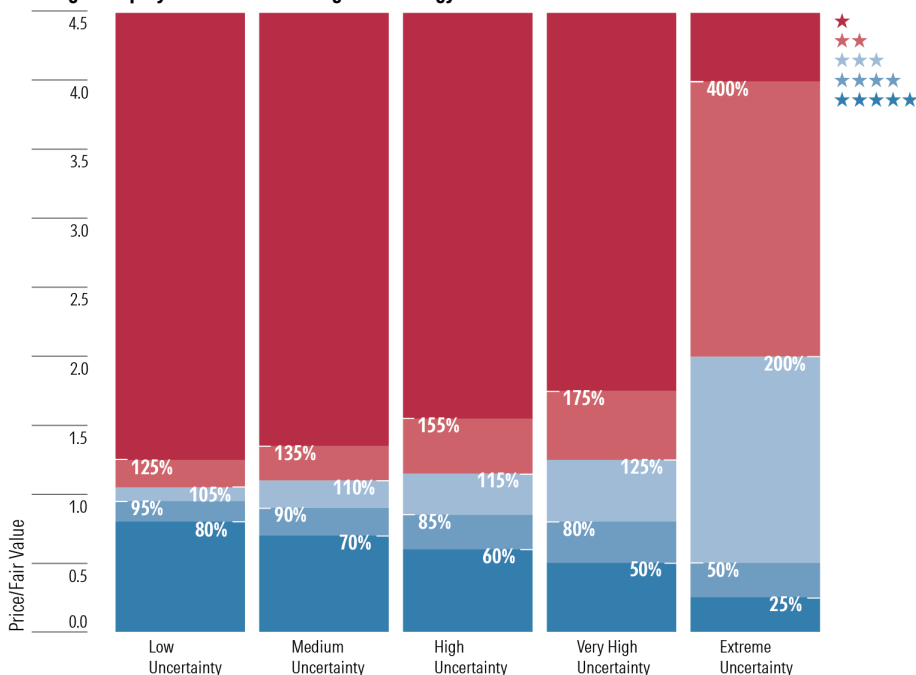
Our uncertainty rating is based on the interquartile range, or the middle 50% of potential outcomes, covering the 25th percentile–75th percentile. This means that when a stock hits 5 stars, we expect there is a 75% chance that the intrinsic value of that stock lies above the current market price. Similarly,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

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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.

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

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

Sustainalytics analyzes over 1,300 data points to assess a company's exposure to and management of ESG risks. In other words, ESG Risk Ratings measures a company's unmanaged ESG Risks represented as a quantitative score.

Unmanaged Risk is measured on an open-ended scale starting at zero (no risk) with lower scores representing less unmanaged risk and, for 95% of cases, the unmanaged ESG Risk score is below 50.

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

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

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