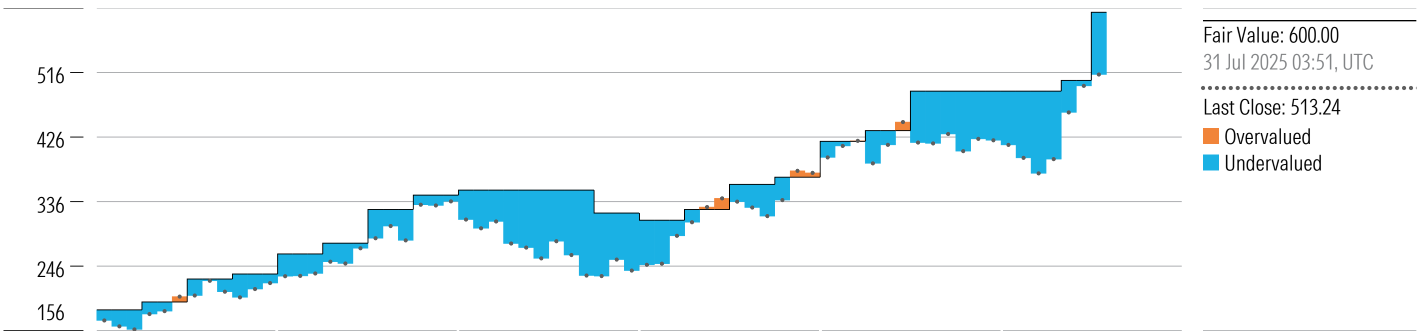
Morningstar Equity Analyst Report | Report as of 31 Jul 2025 04:03, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS Page 1 of 25

Microsoft Corp MSFT ★★★★ 31 Jul 2025 03:55, UTC

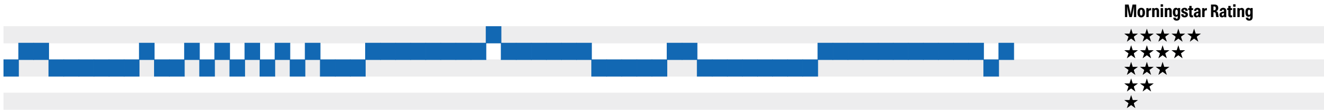
Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
513.24 USD 30 Jul 2025	600.00 USD 31 Jul 2025 03:51, UTC	0.86	3.81 USD Tril 30 Jul 2025	Wide	Large Blend	Medium	Exemplary	4 Jun 2025 05:00, UTC

Price vs. Fair Value



	2020	2021	2022	2023	2024	YTD	
	0.95	0.97	0.75	1.02	0.86	0.86	Price/Fair Value
	42.37	52.24	-27.94	57.96	12.91	22.16	Total Return %

Morningstar Rating



Total Return % as of 30 Jul 2025. Last Close as of 30 Jul 2025. Fair Value as of 31 Jul 2025 03:51, UTC.

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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.

Microsoft Earnings: We Were Wrong When We Thought Last Quarter Would Be Hard to Top

Analyst Note Dan Romanoff, CPA, Senior Equity Analyst, 31 Jul 2025

Microsoft's fourth-quarter results topped the high end of guidance. Revenue increased 18% year over year to $76.4 billion, compared with the high end of guidance of $74.3 billion, while operating margin was 44.9%, compared with the high end of guidance at 43.8%.

Why it matters: Results are strong from any angle, with meaningful upside to our estimates on both the top and bottom lines. Revenue for all segments checked in above the high end of guidance. Critically, we see very impressive performance within Azure, in both traditional and AI workloads.

- In our view, near-term demand indicators are robust. Commercial bookings grew a stout 30% year over year in constant currency based on surging Azure commitments from OpenAI and other large deals. Remaining performance obligations increased 37% year over year to $368 billion.
- Demand for Azure AI services is surging, which is clearly a long-term positive. While Azure remains capacity-constrained, both traditional and AI workloads were strong. Azure growth was 39% in constant currency for the quarter and easily topped guidance of 34%-35%.

The bottom line: We raise our fair value estimate for wide-moat Microsoft to $600 per share, from $505 previously, on strong results and a bullish outlook, moving our near-term growth estimates higher and profitability slightly higher throughout our forecast. The stock remains one of our top picks.

Coming up: First-quarter guidance is better than both our and FactSet consensus estimates, including

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Sector	Industry
Technology	Software - Infrastructure

Business Description

Microsoft develops and licenses consumer and enterprise software. It is known for its Windows operating systems and Office productivity suite. The company is organized into three equally sized broad segments: productivity and business processes (legacy Microsoft Office, cloud-based Office 365, Exchange, SharePoint, Skype, LinkedIn, Dynamics), intelligence cloud (infrastructure- and platform-as-a-service offerings Azure, Windows Server OS, SQL Server), and more personal computing (Windows Client, Xbox, Bing search, display advertising, and Surface laptops, tablets, and desktops).

$75.25 billion in revenue, 46.6% operating margin, and $3.65 in EPS at the midpoints. For fiscal 2026, the firm expects double-digit revenue growth and relatively flat operating margins versus 2025.

Big picture: We see results reinforcing our long-term thesis, which centers on the expansion of hybrid cloud environments, the proliferation of artificial intelligence, and Azure. We center our growth estimates around Azure, Microsoft 365 E5 migration, and traction with the Power Platform.

Business Strategy & Outlook Dan Romanoff, CPA, Senior Equity Analyst, 31 Jul 2025

Microsoft is one of three public cloud providers that can deliver a wide variety of PaaS/IaaS solutions at scale. Based on its investment in OpenAI, the company has also emerged as a leader in AI. Microsoft has also enjoyed great success in upselling users on higher priced Office 365 versions, notably to include advanced telephony features. These factors have combined to drive a more focused company that offers impressive revenue growth with high and expanding margins and deepening ties with customers.

We believe that Azure is the centerpiece of the new Microsoft. Even though we estimate it is already an approximately $75 billion business, it is still growing at approximately 30% annually. Azure has several distinct advantages, including that it offers customers a painless way to experiment and move select workloads to the cloud creating seamless hybrid cloud environments. Since existing customers remain in the same Microsoft environment, applications and data are easily moved from on-premises to the cloud. Microsoft can also leverage its massive installed base of all Microsoft solutions as a touch point for an Azure move. Azure also is an excellent launching point for secular trends in AI, business intelligence and Internet of Things, as it continues to launch new services centered around these broad themes.

Microsoft is also shifting its traditional on-premises products to become cloud-based SaaS solutions. Critical applications include LinkedIn, Office 365, Dynamics 365, and the Power platform, with these moves now beyond the halfway point and no longer a financial drag. Office 365 retains its virtual monopoly in office productivity software, which we do not expect to change in the foreseeable future. Lastly, the company is also pushing its gaming business increasingly toward recurring revenues and residing in the cloud. We believe that customers will continue to drive the transition from on-premises to cloud solutions, and revenue growth will remain robust with margins continuing to improve for the next several years.

Bulls Say Dan Romanoff, CPA, Senior Equity Analyst, 31 Jul 2025

- Public cloud is widely considered to be the future of enterprise computing, and Azure is a leading service that benefits the evolution to first to hybrid environments, and then ultimately to public cloud environments.
- Microsoft 365 continues to benefit from upselling into higher-priced stock-keeping units as customers

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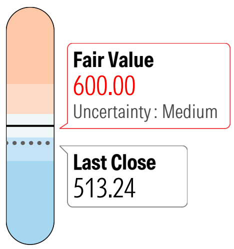
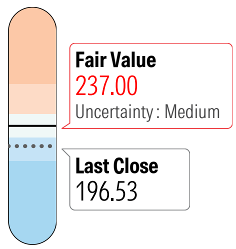
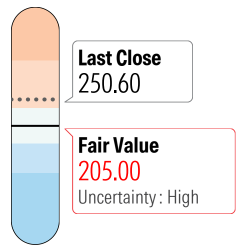
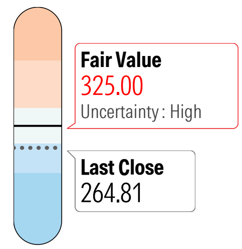
Competitors

	Microsoft Corp MSFT	Alphabet Inc Class A GOOGL	Oracle Corp ORCL	Salesforce Inc CRM
				
Economic Moat	Wide	Wide	Wide	Wide
Currency	USD	USD	USD	USD
Fair Value	600.00 31 Jul 2025 03:51, UTC	237.00 5 Feb 2025 04:14, UTC	205.00 12 Jun 2025 03:57, UTC	325.00 29 May 2025 01:49, UTC
1-Star Price	810.00	319.95	317.75	503.75
5-Star Price	420.00	165.90	123.00	195.00
Assessment	Undervalued 31 Jul 2025	Undervalued 30 Jul 2025	Overvalued 30 Jul 2025	Undervalued 30 Jul 2025
Morningstar Rating	★★★★31 Jul 2025 03:55, UTC	★★★★30 Jul 2025 21:34, UTC	★★30 Jul 2025 21:32, UTC	★★★★30 Jul 2025 21:39, UTC
Analyst	Dan Romanoff, Senior Equity Analyst	Malik Ahmed Khan, Equity Analyst	Luke Yang, Equity Analyst	Dan Romanoff, Senior Equity Analyst
Capital Allocation	Exemplary	Exemplary	Standard	Standard
Price/Fair Value	0.86	0.83	1.22	0.81
Price/Sales	14.18	6.49	12.48	6.72
Price/Book	11.84	6.53	34.31	4.22
Price/Earning	39.44	23.08	54.52	38.24
Dividend Yield	0.63%	0.41%	0.72%	0.62%
Market Cap	3,814.68 Bil	2,376.83 Bil	703.89 Bil	253.16 Bil
52-Week Range	344.79—518.29	140.53—207.05	118.86—253.07	230.00—369.00
Investment Style	Large Blend	Large Blend	Large Growth	Large Blend

are willing to pay up for better security and Teams Phone, which should continue over the next several years.

- Microsoft has monopoly like positions in various areas (OS, Office) that serve as cash cows to help drive Azure growth.

Bears Say Dan Romanoff, CPA, Senior Equity Analyst, 31 Jul 2025

- Momentum is slowing in the ongoing shift to subscriptions, particularly in Office, which is generally considered a mature product.
- Microsoft lacks a meaningful mobile presence.
- Microsoft is not the top player in its key sources of growth, notably Azure and Dynamics.

Economic Moat Dan Romanoff, CPA, Senior Equity Analyst, 31 Jul 2024

For Microsoft overall, we assign a wide economic moat, arising primarily from switching costs, with

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network effects and cost advantages as secondary moat sources. Based on the company's segments, we believe the productivity and business processes, or PBP, and intelligent cloud, or IC, segments have earned wide moats, and the more personal computing unit warrants a narrow moat. We believe Microsoft's moat will probably allow the company to earn returns in excess of its cost of capital over the next 20 years.

We believe customers value Microsoft's products as stand-alone solutions and for the company's immense product breath, and these applications are tightly integrated with one another. In our opinion, the strength of these products is crucial but should not overshadow the importance of all the solutions being offered under one umbrella by Microsoft as customers are usually looking to consolidate vendors. These factors combine to reinforce our wide moat. As Microsoft offers a wider set of related and compelling solutions, we believe it becomes more deeply entrenched in its customers as they adopt multiple products.

Switching costs for software are often driven by several factors, in our view. The more critical the function and the more touch points across an organization a software vendor has, the higher the switching costs. There is also the direct time and expense of implementing a new software package for the customer while maintaining the existing platform and retraining employees on a new system. Additionally, there is operational risk of changing software vendors, including business process re-engineering, loss of data during the changeover, and overall project execution. A major implementation is likely to involve a system integrator and can take in excess of a year in bad cases. Also, lost productivity is likely to be an issue as customers move up a learning curve on the new system along with the distraction of users involved in the function where the change is occurring.

Retention metrics typically help inform investors on both the presence and the durability of a moat. These come in two types: gross, which describes what percentage of the customer base remains customers after a given period; and net, which highlights what percentage of the customer spending is retained by the software provider after a given period. Microsoft does not provide retention metrics because the user base has a large percentage of small business and consumer users, and the expansive breadth of the product portfolio makes an overarching retention rate less relevant. Software firms regularly see lower retention rates for small business users than for enterprise customers, so retention is weighed down by a large proportion of small business customers. We believe Microsoft's customer retention for enterprise customers would be in the elite category if it was provided.

Productivity and Business Processes

We rate Microsoft's productivity and business processes segment as having a wide moat based on switching costs and network effects. PBP represents approximately 30%=35% of total revenue and consists of Office 365, Dynamics 365, and LinkedIn.

The business world rotates around a variety of Microsoft products. Chief among them is the Office productivity suite, which completely dominates the market as a quasi-monopoly. Countless third-party applications have Excel or Office 365 plugins to ensure their software works with the popular suite. Given how embedded Office is into business users, we think it would be very difficult to switch providers. Further, even if a customer decided it wanted to switch to a different vendor, there is effectively only one meaningful competitor, which is Google's Workplace. On this front, we think Workplace's mandates have been relegated to universities, public schools, and startups. Even on the startup area, many Workplace users graduate to Office as those companies mature.

While Excel may be the export vehicle of choice for manipulation and analysis purposes, that financial data is exported from an ERP system, and Microsoft Dynamics is one such system. An ERP is the core system of record that mid-market businesses rely on to conduct business and monitor operations. Changing the workflow and business processes of any organization is difficult task, but changing an ERP system is more challenging still. In fact, we tend to view these foundational software packages as being the hardest to convert to another vendor, and therefore typically see the highest switching costs within software. We see the life of an ERP system as being a minimum of 10 years, often with a yearlong sales process and an implementation period that is likely to last months or even a full year at significant cost and disruption.

Office 365's moat is supported by a network effect. A large installed base attracts software developers to create products specifically for Office. These add-ins make the office suite more compelling and therefore draw in additional subscribers. For example, in the financial community, a wide variety of add-ins for Excel, designed to smoothly integrate popular platforms such as PitchBook (a subsidiary of Morningstar), FactSet, Bloomberg, and CapitalIQ, have been created. These solutions increase the utility of Office 365, which attracts more subscribers, which in-turn attract more developers in a classic fly wheel. Similarly, LinkedIn, being the largest professional networking platform, also benefits from a network effect, where the large member base attracts more users. Here again, the market lacks a second viable competitor to LinkedIn, further insulating the company.

Intelligent Cloud

Microsoft's Intelligent Cloud segment includes Azure, OpenAI, Nuance, GitHub, Visual Studio, Microsoft Intelligent Data Platform, Microsoft Fabric, and Windows Server, SQL Data Base Management System. We assign the segment a wide moat rating based on high switching costs, network effects, and cost advantages. IC represents approximately 40% to 45% of total company revenue, with Azure representing 25% to 30% of total company revenue, or two thirds of the IC segment.

Azure represents the core of the Microsoft at this point in our view and builds upon the company's overall Software as a Service model by offering Infrastructure as a Service and Platform as a Service. In an IaaS model, the provider offers the necessary hardware, virtualization, networking, and storage as a computing service delivered over the internet. Other basic software-level functionality can be layered in and still have the offering be considered IaaS. However, as software is added, IaaS quickly becomes PaaS. In PaaS model, the provider also offers and hosts operating systems, middleware, and core IT applications (notably database). We believe there are two public cloud leaders in Microsoft Azure and Amazon AWS, and a distant third but viable competitor in Google.

The secular trend for the past 15 years has been increasingly to outsource internal IT systems to the public cloud model, which is initially clearly cheaper than purchasing the equipment and software and paying staff to manage IT operations. Outsourcing of IT infrastructure is a strategic decision that is not undertaken with haste, and we think customer relationships will be long tailed with high retention. Indeed, enterprise customers often migrate one workload at a time, so even getting to a critical mass in the cloud is a yearslong process for them.

As with most software elements, we think customer retention will be higher for larger customers and lower for the smallest companies. However, once small businesses reach some level of scale, we think the retention rates increase meaningfully, because as these companies continue to grow, they benefit the most from outsourcing large portions of their IT infrastructure. It is simply cheaper and easier for small and medium-size companies to outsource.

Over the long term, especially for larger customers it is not likely to be cheaper to outsource all workloads to the cloud. In these cases, we expect larger customers to employ a hybrid model, with some workloads in the cloud while others reside in the corporate data center. Here again Microsoft shines, as they have been serving enterprise customers for decades already and it has an unrivaled structural advantage in its ability to move clients from an on-premises Microsoft environment to a Microsoft environment in the cloud via Azure.

Also, the early lead and substantial market share inherent in Azure and the underlying core services has led to a wide variety of developers joining the ecosystem bringing in applications, middleware, and development tools. The huge and increasing variety of supported software available then helps attract new users, which continues to draw in more developers in a classic flywheel. The sheer size of this ecosystem has helped Azure and Microsoft Server become the path of least resistance for CIOs and IT managers.

More Personal Computing

Microsoft's More Personal Computing" segment includes Windows, Gaming, Devices, and Search. We assign the segment a narrow moat rating based on switching costs and network effects. MPC represents approximately 25% of total revenue.

Microsoft Windows is the product that put Microsoft on the map and clearly has high switching costs and a network effect associated with it to this day. Entire businesses are built around the Windows environment, which itself was just a more usable version of Microsoft's text-based operating system, DOS. Microsoft basically has a 50-year history of powering the computer revolution with its usability, reliability, ecosystem, software support, and product roadmap. While changing a given application, painful as it might be, is possible, it is not feasible to change operating systems from a practical standpoint. Software applications are overwhelmingly created for Windows and its quasi monopoly in the personal computer operating system market. This could possibly be the largest network effect within software where the influx of new users, especially at the dawn of the computer age, ushered in a plethora of software developers, which in-turn made PCs more usable. Outside of Apple, there is no credible operating system for personal computers.

We think the acquisition of Activision finally establishes a narrow moat for Microsoft's gaming segment. High switching costs are explicit in the hardware platform, while acquisitions have built a game development empire, with strong intellectual property that underscores an intangible asset moat source. Activision bolsters Microsoft's already strong gaming division with an iconic library that includes traditional console game developer Activision, PC developer Blizzard, and mobile developer King. Microsoft had minimal exposure to mobile, the largest gaming platform, so we think King and its Candy Crush franchise instantly provided mobile chops. Activision has some of the most popular games of all time under its umbrella, including the Call of Duty franchise, Diablo, and World of Warcraft, which changed the gaming industry in 2004 with not only its multiplayer game, but also its monthly subscription model.

We expect Microsoft to rapidly add Activision content to Game Pass, which we estimate has about 25 million subscribers. Activision has approximately 360 million monthly active users. We tend to think the purpose of deals like this is to gather exclusive content. However, part of the value of Activision is that it develops games across platforms and consoles, so we expect a relatively light slate of exclusive Xbox content over the next several years.

We do not believe the Microsoft Surface enjoys a moat of any kind. We do not believe that there is much, if any, long-lived differentiation between a Microsoft Surface and generally competitive products such as a Windows or Mac laptop, an Apple iPad, or a Google ChromeBook. This is generally reflected in low or lower product gross margins. Other devices within this category include computer peripherals (keyboards, mice, and so on) and the HoloLens. On the HoloLens in particular, we remain skeptical on virtual and augmented reality within the next several years. Microsoft has not enjoyed much success in noncore devices in recent years, with the high-profile Zune and large acquisition of Nokia serving as reminders that hardware is a challenging business. Finally, we also do not believe there is a durable moat in Microsoft's Bing search engine.

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Fair Value and Profit Drivers Dan Romanoff, CPA, Senior Equity Analyst, 31 Jul 2025

Our fair value estimate for Microsoft is $600 per share, which implies a fiscal 2026 enterprise value/ sales multiple of 14 times and an adjusted price/earnings multiple of 39 times.

We model a 5-year compound annual growth rate, or CAGR, for revenue of approximately 13% inclusive of the Activision acquisition. We envision stronger revenue growth ahead as Microsoft's prior decade was bogged down by the downturn in 2008, the complete evaporation of mobile handset revenue from the disposal of the Nokia handset business, as well as the onset of the model transition to subscriptions (which initially results in slower revenue growth). However, we believe macro and currency factors will pressure revenue in the near-term. We believe revenue growth will be driven by Azure, Office 365, Dynamics 365, LinkedIn, and emerging AI adoption. Azure, in particular, is the single most critical revenue driver over the next 10 years, in our view, as hybrid environments (where Microsoft excels) drive mass cloud adoption. We believe the combination of Azure, DBMS, Dynamics 365, and Office 365 will drive above-market growth as CIOs continue to consolidate vendors. We believe More Personal Computing will grow modestly above GDP over the next 10 years.

We also model operating margins increasing modestly from 45% in fiscal 2024 (actual) to 46% in fiscal 2029 driven by improvements in gross margin as Azure continues to scale as well as some operating leverage. We expect some interim pressure on both gross margin and operating margin in fiscal 2025 from an accounting change, Activision pressure, and investment in Azure capacity.

Risk and Uncertainty Dan Romanoff, CPA, Senior Equity Analyst, 31 Jul 2024

We assign Microsoft a Morningstar Rating of Medium.

Microsoft faces risks that vary among the products and segments. High market share in the client-server architecture over the last 30 years means significant high margin revenue is at risk, particularly in OS, Office, and Server. Microsoft has thus far been successful in growing revenues in a constantly evolving technology landscape, and is enjoying success in both moving existing workloads to the cloud for current customers and attracting new clients directly to Azure. However, it must continue to drive revenue growth of cloud-based products faster than revenue declines in on-premises products.

Microsoft is acquisitive, and while many small acquisitions are completed that fly under the radar, the company has had several high-profile flops, including Nokia and aQuantive. The LinkedIn acquisition was expensive but served a purpose and seems to be working out well in our view. It is not clear how much Microsoft bought in the Permira-led Informatica LBO, and it may have been an important strategic investment, but Informatica was certainly not a growth catalyst. GitHub was expensive but strategic and seems to be shaping up as a success, while the ZeniMax deal should boost the company’s first party video game publishing efforts. The October 2023 acquisition of Activision for $69 billion has been seamless.

The public cloud build-out remains in its early phases. AWS has taken the market by storm, with Azure trailing, but the two are seen as clear leaders. This is a rapidly evolving market and Microsoft must continually adjust its offerings, add solutions to the stack, and compete with a company that has built a business around aggressive pricing.

While we do not see significant ESG risks, we note Microsoft faces strong competition for software engineers on the hiring front, and also faces risks arising from a potential data breach within its data centers.

Capital Allocation Dan Romanoff, CPA, Senior Equity Analyst, 31 Jul 2025

We assign Microsoft an Exemplary Capital Allocation Rating. The rating reflects our assessments of a sound balance sheet, exceptional investments, and appropriate shareholder distributions. We think investments back into the business are most likely to be the key driver of total shareholder returns and are therefore appropriately prioritized over other capital returns such as dividends and buybacks, although given the firm's prodigious free cash flow generation, we see share dividends, buybacks and acquisitions continuing.

The balance sheet is sound with a net cash position, including $95 billion in cash and $43 billion in debt. Gross leverage is under one times trailing EBITDA. We expect the balance sheet to remain sound as the company has typically maintained a conservative balance sheet and generates more than enough free cash flow to fund growth, pay dividends, buy back shares, and execute its acquisition strategy.

Microsoft's capital deployment strategy centers around re-investing in the business, paying dividends, buying back shares, and making generally small tuck-in acquisitions. Deal sizes picked up in the last few years with both Nuance and Activision now closed. Still, we expect deals to return to smaller absolute sizes as a normal course of business. We expect the share count to continue to decline over time and see dividends growing generally in line with earnings.

Satya Nadella took over as CEO of Microsoft in February 2014, after Steve Ballmer resigned in August 2013. Nadella joined Microsoft in 1992 and worked his way up to a variety of business unit leadership roles, mainly involving Cloud, Business, and Server & Tools groups. He was the President of the Server & Tools Division for the three years prior to becoming CEO. The company he took over is very different than the company we see today, and the transformation has been nothing short of dramatic. We are confident in Nadella's strategic vision to carry Microsoft forward.

Analyst Notes Archive

Microsoft: Shares Look Attractive Heading Into Azure Acceleration in the Second Half of This Year

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Dan Romanoff, CPA,Senior Equity Analyst,31 Jan 2025

We are highlighting wide-moat Microsoft as one of our top technology stocks, as shares look attractive relative to our fair value estimate of $490 per share. We think the stock is set up well for 2025, with relatively stagnant performance over the last 12 months. Our long-term thesis centers on the expansion of hybrid cloud environments, the proliferation of artificial intelligence, and Azure. The firm continues to use its on-premises dominance to allow clients to move to the cloud at their own pace. We center our growth assumptions around Azure, Microsoft 365 E5 migration, and traction with the Power Platform for long-term value creation.With its leadership in public cloud with Azure, partnership with OpenAI, and unmatched distribution, we believe Microsoft is currently a leader in AI and will remain so in the coming years. We see a looming catalyst in accelerating Azure revenues in the second half of fiscal 2025 that we think investors will welcome after capacity constraints limited growth, impressive as it actually was, over the last several quarters. Given early demand signals, good AI revenue traction, and the massive success of similar Azure investments more than a decade ago, we believe the current wave of investments into capital expenditures will pay off for the company and investors.Microsoft's ability to deliver on margins despite ballooning Azure investments, headwinds from the Activision acquisition, and accounting changes for server depreciation, is impressive. We think this bodes well for margins as Azure capacity starts coming online, which should help ease these pressures and drive a multiyear margin expansion.

Microsoft Earnings: Solid Quarter as AI Growth Shines; Currency Hurts Otherwise Reasonable Guidance Dan Romanoff, CPA,Senior Equity Analyst,30 Jan 2025

We are maintaining our fair value estimate for wide-moat Microsoft at $490 per share after the firm reported good results with guidance that was somewhere between our expectations and slightly light. The outlook generally offsets quarterly performance, which holds our fair value steady. Results look solid across the board, with good artificial intelligence demand and monetization. With shares down after-hours we continue to view the stock as attractive, and we think accelerating Azure revenue in the fourth quarter will help drive propel it higher over the next year. We see results reinforcing our long-term thesis, which centers on the expansion of hybrid cloud environments, the proliferation of artificial intelligence, and Azure. The firm continues to use its on-premises dominance to allow clients to move to the cloud at their own pace. We center our growth assumptions around Azure, Microsoft 365 E5 migration, and traction with the Power Platform for long-term value creation.For the December quarter, revenue increased 12% year over year to $69.6 billion, compared with the high end of guidance of $69.1 billion. Relative to the year-ago period, productivity and business processes rose 13% in constant currency, intelligent cloud grew 19%, and more personal computing was flat. Compared with guidance, both PBP and MPC came in above the high end, while IC was at the low end, indicating solid performance relative to our model. Good sales execution and sales mix toward software, away from hardware, supported margins.In our view, near-term demand indicators are positive. Commercial bookings accelerated sharply from 23% year-over-year growth in constant currency last quarter to 75% growth this quarter based on surging Azure commitments from OpenAI and other large deals. Remaining performance obligations increased 36% year over year to $298 billion. Renewals also remain strong, which we think is partly driven by high interest in AI and consistently good execution.

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's R1 Launch Shows There Are No Moats in Large Language Model Space Malik Ahmed Khan, CFA,Equity Analyst,27 Jan 2025

DeepSeek, a Chinese artificial intelligence company, released its open-source reasoning model, R1, earlier this month. The model's capabilities roughly match those of advanced models by OpenAI, Anthropic, and Google while having materially lower training costs. Why it matters: R1's impressive performance/cost dynamics have raised investor concerns about the necessity of the billions of dollars of capital expenditures by large US tech companies so far and the billions more they are planning to spend on generative AI in the coming years. R1's launch and the dramatically lower pricing, which is more than 90% below OpenAI's latest reasoning model, go hand-in-hand with our broader "commodification of complements" view of the large language model space. We believe that as the price of LLMs (the complementary good) goes down, the value and usage of the public cloud vendors' primary good, cloud infrastructure, actually increases. To that end, we believe Amazon, Microsoft, and Google actually benefit from reduced LLM pricing in the long run. The bottom line: We maintain our fair value estimates for Microsoft ($490), Amazon ($200), and Alphabet ($220) and see these wide-moat firms benefiting from a commodified LLM layer, with increased spending on AI creating tailwinds for their public cloud businesses.   While we expect capital expenditures by the public cloud vendors to remain elevated in the near term, we see these expenditures as primarily geared toward serving generative AI demand, which should flourish with lower pricing of LLMs, as opposed to training leading-edge models. At the same time, we expect these large US tech companies to replicate some of the AI techniques that DeepSeek leveraged to drive the cost of R1 down, as a means of reducing their own model training and inference costs, potentially lowering medium- to long-term capital expenditures.

Microsoft Earnings: We Think Investors Should Be on Board When Azure Accelerates in the Third Quarter Dan Romanoff, CPA,Senior Equity Analyst,31 Oct 2024

We are maintaining our fair value estimate for wide-moat Microsoft at $490 per share after the firm reported good results but offered guidance that is mixed versus our expectations. The outlook generally offsets quarterly strength, which holds our fair value in check. Performance looks good from any angle, with impressive artificial intelligence demand and monetization. With shares down slightly after hours following a recent pullback, we see the stock as attractive, and we think accelerating Azure revenue will propel the stock upward over the next year.We see results reinforcing our long-term thesis, which centers on the proliferation of hybrid cloud environments and Azure. The firm continues to use its on-premises dominance to allow clients to move to the cloud at their own pace. We center our growth assumptions around Azure, Microsoft 365 E5 migration, and traction with the Power Platform for long-term value creation. AI is also quickly supplementing growth, which we see as another secular driver.For the September quarter, revenue increased 16% year over year to $65.59 billion, compared with the high end of guidance of $64.80 billion. Relative to the year-ago period, productivity and business processes rose 13% in constant currency, intelligent cloud grew 21%, and more personal computing expanded 17%. Activision added $1.69 billion, or 3 points of growth, to revenue. Compared with guidance, both PBP and MPC came in above the high end, while IC was at the high end, indicating performance relative to our model. Good sales execution and sales mix toward software, away from hardware, supported margins.

Microsoft Earnings: Strap In. Azure Growth Is Set to Accelerate in the Second Half of Fiscal 2025 Dan Romanoff, CPA,Senior Equity Analyst,31 Jul 2024

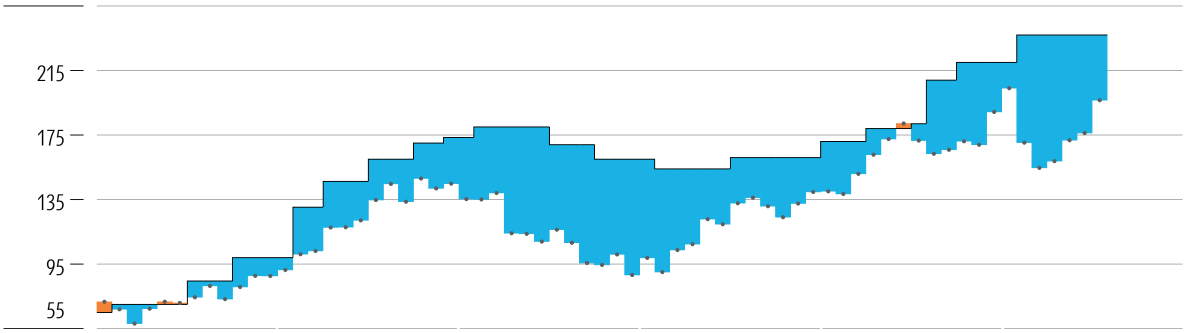
We raise our fair value estimate for wide-moat Microsoft to $490 per share, from $435 after the company delivered another good quarter overall, even if it was in line with our expectations on headline numbers. In an earnings call packed with new data points around artificial intelligence-related demand, which were impressive, in our view, the single most important item was guidance that calls for Azure revenue to accelerate in the second half of the year as the current surging investment in data center capacity comes online. Therefore, we raised our revenue growth estimates for the medium term, and we also tweaked our profitability assumptions higher based on consistently good performance and a solid outlook. Revenue was again governed by data center capacity constraints and several pockets of slight weakness arising in Europe. With shares down slightly afterhours following a recent pullback, we see the stock as attractive.We see results reinforcing our long-term thesis, which centers on the proliferation of hybrid cloud environments and Azure. The firm continues to use its on-premises dominance to allow clients to move to the cloud at their own pace. We center our growth assumptions around Azure, Microsoft 365 E5 migration, and traction with the Power Platform for long-term value creation. AI is also quickly supplementing growth, which we see as another secular driver.For the June quarter, revenue increased 15% year over year to $64.73 billion, compared with the midpoint of guidance of $64.00 billion. Activision added about $1.68 billion, or 3 points of growth, to revenue. Relative to the year-ago period, productivity and business processes rose 11%, intelligent cloud increased 19%, and more personal computing expanded 14%. Compared with guidance, both PBP and MPC came in above the high end, while IC was just below the midpoint. Good sales execution and sales mix toward software, away from hardware, supported margins.

Morningstar Equity Analyst Report | Report as of 31 Jul 2025 04:03, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

Microsoft Corp MSFT ★★★★ 31 Jul 2025 03:55, UTC

Competitors Price vs. Fair Value

Alphabet Inc Class A GOOGL



Fair Value: 237.00
5 Feb 2025 04:14, UTC

Last Close: 196.53

Overvalued

Undervalued

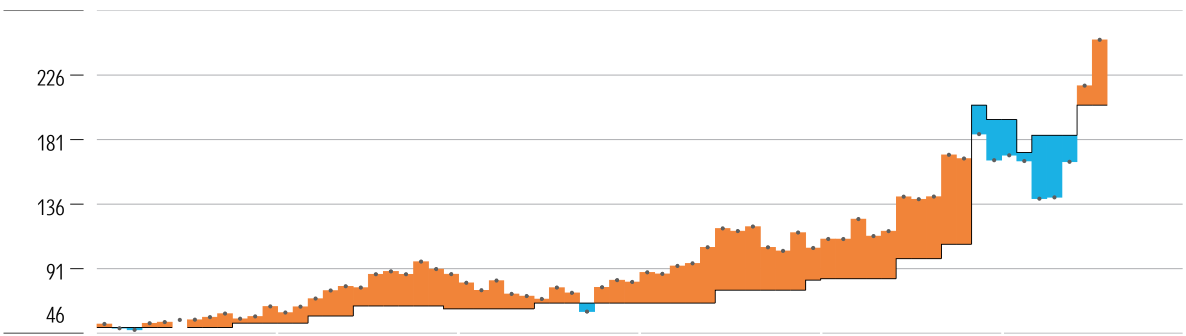
	2020	2021	2022	2023	2024	YTD
Price/Fair Value	0.89	0.83	0.55	0.87	0.86	0.83
Total Return %	30.85	65.30	-39.09	58.32	35.94	4.04

Morningstar Rating

★★★★★
★★★★
★★★
★★
★

Total Return % as of 30 Jul 2025. Last Close as of 30 Jul 2025. Fair Value as of 5 Feb 2025 04:14, UTC.

Oracle Corp ORCL



Last Close: 250.60

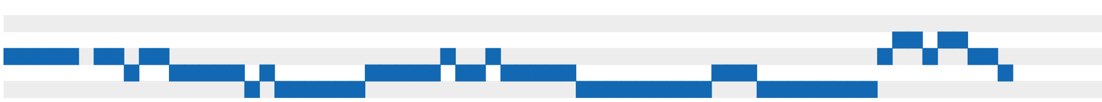
Fair Value: 205.00
12 Jun 2025 03:57, UTC

Overvalued

Undervalued

	2020	2021	2022	2023	2024	YTD
Price/Fair Value	1.22	1.38	1.22	1.27	0.85	1.22
Total Return %	23.91	36.67	-4.80	30.84	59.58	51.22

Morningstar Rating



★★★★★
★★★★
★★★
★★
★

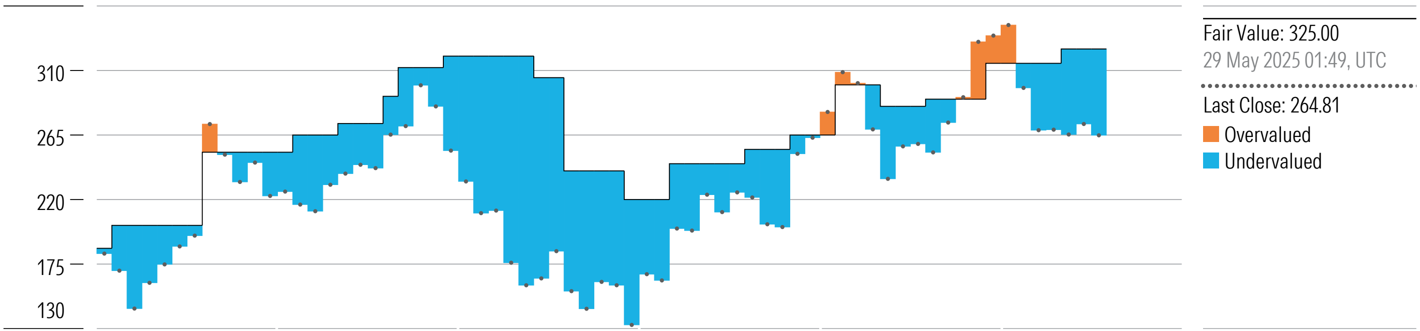
Total Return % as of 30 Jul 2025. Last Close as of 30 Jul 2025. Fair Value as of 12 Jun 2025 03:57, UTC.

Morningstar Equity Analyst Report | Report as of 31 Jul 2025 04:03, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

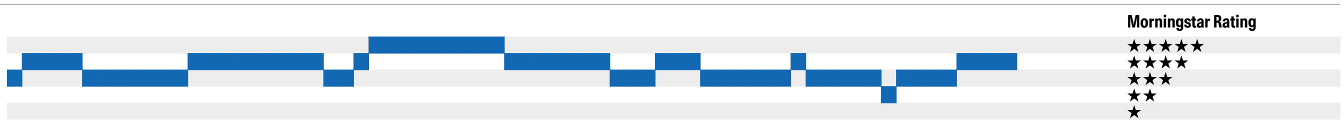
Microsoft Corp MSFT ★★★★ 31 Jul 2025 03:55, UTC

Competitors Price vs. Fair Value

Salesforce Inc CRM



	2020	2021	2022	2023	2024	YTD
Price/Fair Value	0.88	0.79	0.60	0.99	1.06	0.81
Total Return %	36.82	14.20	-47.83	98.46	27.66	-20.54



Total Return % as of 30 Jul 2025. Last Close as of 30 Jul 2025. Fair Value as of 29 May 2025 01:49, UTC.

Morningstar Equity Analyst Report | Report as of 31 Jul 2025 04:03, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

Microsoft Corp MSFT ★★★★ 31 Jul 2025 03:55, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
513.24 USD 30 Jul 2025	600.00 USD 31 Jul 2025 03:51, UTC	0.86	3.81 USD Tril 30 Jul 2025	Wide	Large Blend	Medium	Exemplary	4 Jun 2025 05:00, UTC

Morningstar Valuation Model Summary

Financials as of 30 Apr 2025	Actual			Forecast				
Fiscal Year, ends 30 Jun	2022	2023	2024	2025	2026	2027	2028	2029
Revenue (USD Mil)	198,270	211,915	245,122	279,266	316,161	356,841	401,074	448,782
Operating Income (USD Mil)	83,383	88,523	109,433	126,425	142,070	162,541	184,294	207,786
EBITDA (USD Mil)	97,983	102,023	129,433	168,315	198,347	228,914	256,086	282,598
Adjusted EBITDA (USD Mil)	97,983	102,023	129,433	168,315	198,347	228,914	256,086	282,598
Net Income (USD Mil)	72,738	72,361	88,135	99,725	111,875	132,617	150,363	169,528
Adjusted Net Income (USD Mil)	72,738	72,361	88,135	99,725	111,875	132,617	150,363	169,528
Free Cash Flow To The Firm (USD Mil)	41,878	54,308	4,405	88,207	111,128	132,831	151,818	169,763
Weighted Average Diluted Shares Outstanding (Mil)	7,540	7,472	7,469	7,465	7,448	7,408	7,370	7,334
Earnings Per Share (Diluted) (USD)	9.65	9.68	11.80	13.36	15.02	17.90	20.40	23.12
Adjusted Earnings Per Share (Diluted) (USD)	9.65	9.68	11.80	13.36	15.02	17.90	20.40	23.12
Dividends Per Share (USD)	2.48	2.66	2.93	3.24	3.48	3.72	3.96	4.20

Margins & Returns as of 30 Apr 2025		Actual			Forecast					
	3 Year Avg	2022	2023	2024	2025	2026	2027	2028	2029	5 Year Avg
Operating Margin %	42.8	42.1	41.8	44.6	45.3	44.9	45.6	46.0	46.3	45.6
EBITDA Margin %	—	49.4	48.1	52.8	60.3	62.7	64.1	63.8	63.0	—
Adjusted EBITDA Margin %	—	49.4	48.1	52.8	60.3	62.7	64.1	63.8	63.0	62.8
Net Margin %	35.6	36.7	34.2	36.0	35.7	35.4	37.2	37.5	37.8	44.3
Adjusted Net Margin %	35.6	36.7	34.2	36.0	35.7	35.4	37.2	37.5	37.8	36.7
Free Cash Flow To The Firm Margin %	16.2	21.1	25.6	1.8	31.6	35.2	37.2	37.9	37.8	35.9

Growth & Ratios as of 30 Apr 2025		Actual			Forecast					
	3 Year CAGR	2022	2023	2024	2025	2026	2027	2028	2029	5 Year CAGR
Revenue Growth %	13.4	18.0	6.9	15.7	13.9	13.2	12.9	12.4	11.9	12.9
Operating Income Growth %	16.1	19.3	6.2	23.6	15.5	12.4	14.4	13.4	12.8	13.7
EBITDA Growth %	20.3	21.2	4.1	26.9	30.0	17.8	15.4	11.9	10.4	13.3
Adjusted EBITDA Growth %	17.0	21.2	4.1	26.9	30.0	17.8	15.4	11.9	10.4	16.9
Earnings Per Share Growth %	13.6	19.8	0.4	21.9	13.2	12.4	19.2	14.0	13.3	14.4
Adjusted Earnings Per Share Growth %	13.6	19.8	0.4	21.9	13.2	12.4	19.2	14.0	13.3	14.4

Valuation as of 30 Apr 2025	Actual			Forecast				
	2022	2023	2024	2025	2026	2027	2028	2029
Price/Earning	—	35.2	37.9	38.4	34.2	28.7	25.2	22.2
Price/Sales	—	11.9	13.6	13.7	12.1	10.7	9.5	8.5
Price/Book	—	12.3	12.4	11.2	9.1	7.5	6.2	5.2
Price/Cash Flow	—	—	—	—	—	—	—	—
EV/EBITDA	—	24.4	25.7	22.6	19.1	16.6	14.8	13.4
EV/EBIT	—	28.1	30.4	30.0	26.7	23.4	20.6	18.3
Dividend Yield %	—	0.8	0.7	0.6	0.7	0.7	0.8	0.8
Dividend Payout %	25.7	27.5	24.8	24.3	23.2	20.8	19.4	18.2
Free Cash Flow Yield %	—	—	—	—	—	—	—	—

Operating Performance / Profitability as of 30 Apr 2025	Actual			Forecast				
Fiscal Year, ends 30 Jun	2022	2023	2024	2025	2026	2027	2028	2029
ROA %	17.6	17.2	20.5	19.5	20.0	19.4	18.8	18.2
ROE %	35.1	32.8	29.1	26.6	26.2	24.7	23.3	22.1
ROIC %	36.2	33.4	31.1	33.4	37.0	40.8	44.4	47.9

Morningstar Equity Analyst Report | Report as of 31 Jul 2025 04:03, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS Page 17 of 25

Microsoft Corp MSFT ★★★★ 31 Jul 2025 03:55, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
513.24 USD 30 Jul 2025	600.00 USD 31 Jul 2025 03:51, UTC	0.86	3.81 USD Tril 30 Jul 2025	Wide	Large Blend	Medium	Exemplary	4 Jun 2025 05:00, UTC

Financial Leverage (Reporting Currency)	Actual			Forecast				
Fiscal Year, ends 30 Jun	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**
Debt/Capital %	3.1	2.3	2.0	0.9	0.8	0.5	0.5	0.4
Assets/Equity	2.2	2.0	1.9	1.4	1.4	1.3	1.3	1.2
Net Debt/EBITDA	-0.4	-0.5	-0.1	0.0	-0.3	-0.6	-0.9	-1.2
Total Debt/EBITDA	0.6	0.6	0.5	0.2	0.2	0.1	0.1	0.1
EBITDA/ Net Interest Expense	-294.2	-129.5	78.6	38.3	41.3	-1,283.0	-1,277.0	-1,259.4

Forecast Revisions as of 30 Apr 2025	2025		2026		2027	
Prior data as of 29 Jan 2025	**Current**	**Prior**	**Current**	**Prior**	**Current**	**Prior**
Fair Value Estimate Change (Trading Currency)	600.00	490.11	—	—	—	—
Revenue (USD Mil)	279,266	275,913	316,161	312,447	356,841	352,651
Operating Income (USD Mil)	126,425	123,910	142,070	140,937	162,541	160,633
EBITDA (USD Mil)	168,315	165,297	198,347	196,552	228,914	226,226
Net Income (USD Mil)	99,725	97,379	111,875	112,581	132,617	131,059
Earnings Per Share (Diluted) (USD)	13.36	13.04	15.02	15.12	17.90	17.69
Adjusted Earnings Per Share (Diluted) (USD)	13.36	13.04	15.02	15.12	17.90	17.69
Dividends Per Share (USD)	3.24	3.24	3.48	3.48	3.72	3.72

Key Valuation Drivers as of 30 Apr 2025	
Cost of Equity %	9.0
Pre-Tax Cost of Debt %	5.3
Weighted Average Cost of Capital %	8.8
Long-Run Tax Rate %	18.0
Stage II EBI Growth Rate %	9.4
Stage II Investment Rate %	43.2
Perpetuity Year	20

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

Discounted Cash Flow Valuation as of 30 Apr 2025	**USD Mil**
Present Value Stage I	1,094,062
Present Value Stage II	737,764
Present Value Stage III	1,658,321
Total Firm Value	**3,490,147**
Cash and Equivalents	75,543
Debt	38,244
Other Adjustments	0
Equity Value	**3,527,446**
Projected Diluted Shares	7,465
Fair Value per Share (USD)	**600.00**

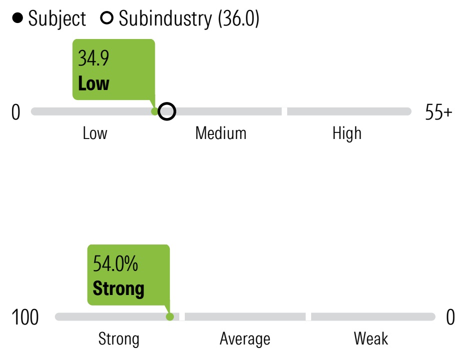
Morningstar Equity Analyst Report | Report as of 31 Jul 2025 04:03, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

Microsoft Corp MSFT ★★★★ 31 Jul 2025 03:55, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
513.24 USD 30 Jul 2025	600.00 USD 31 Jul 2025 03:51, UTC	0.86	3.81 USD Tril 30 Jul 2025	Wide	Large Blend	Medium	Exemplary	4 Jun 2025 05:00, UTC

ESG Risk Rating Breakdown

Exposure	
Company Exposure[1]	34.9
– Manageable Risk	32.3
Unmanageable Risk[2]	**2.5**
Management	
Manageable Risk	32.3
– Managed Risk[3]	17.5
Management Gap[4]	**14.9**
Overall Unmanaged Risk	**17.4**



- 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 54.0% 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 Assessment[5]

ESG Risk Rating is of Jun 04, 2025. Highest Controversy Level is as of Jul 08, 2025. Sustainalytics Subindustry: Enterprise and Infrastructure Software. 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	Range	Management	Range	ESG Risk Rating	Range
Microsoft Corp	34.9 | Low	0 – 55+	54.0 | Strong	100 – 0	17.4 | Low	0 – 40+
Alphabet Inc	44.1 | Medium	0 – 55+	46.8 | Average	100 – 0	24.9 | Medium	0 – 40+
Salesforce Inc	35.6 | Medium	0 – 55+	51.8 | Strong	100 – 0	18.5 | Low	0 – 40+
Oracle Corp	33.8 | Low	0 – 55+	61.4 | Strong	100 – 0	14.4 | Low	0 – 40+
Fortinet Inc	33.4 | Low	0 – 55+	56.2 | Strong	100 – 0	16.0 | Low	0 – 40+

Morningstar Equity Analyst Report | Report as of 31 Jul 2025 04:03, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

Appendix

Historical Morningstar Rating

Microsoft Corp MSFT 31 Jul 2025 03:55, 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 30 Jul 2025 21:34, 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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Oracle Corp ORCL 30 Jul 2025 21:32, UTC

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Salesforce Inc CRM 30 Jul 2025 21:39, 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 2020	Nov 2020	Oct 2020	Sep 2020	Aug 2020	Jul 2020	Jun 2020	May 2020	Apr 2020	Mar 2020	Feb 2020	Jan 2020
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Research Methodology for Valuing Companies

Overview

At the heart of our valuation system is a detailed projection of a company's future cash flows, resulting from our analysts' research. Analysts create custom industry and company assumptions to feed income statement, balance sheet, and capital investment assumptions into our globally standardized, proprietary discounted cash flow, or DCF, modeling templates. We use scenario analysis, 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 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

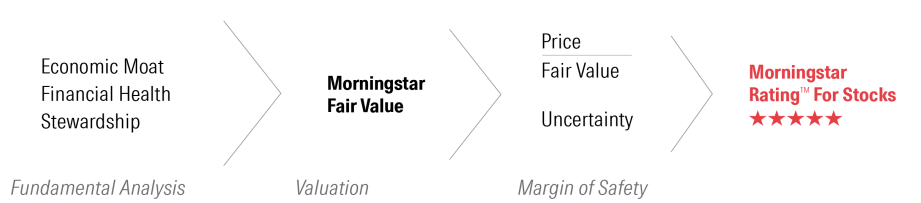
Combining our analysts' financial forecasts with the firm's economic moat helps us assess how long returns on invested capital are likely to exceed the firm's cost of capital. Returns of firms with a wide economic moat rating are assumed to fade to the perpetuity period over a longer period of time than 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.

Morningstar Equity Research Star Rating Methodology



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

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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

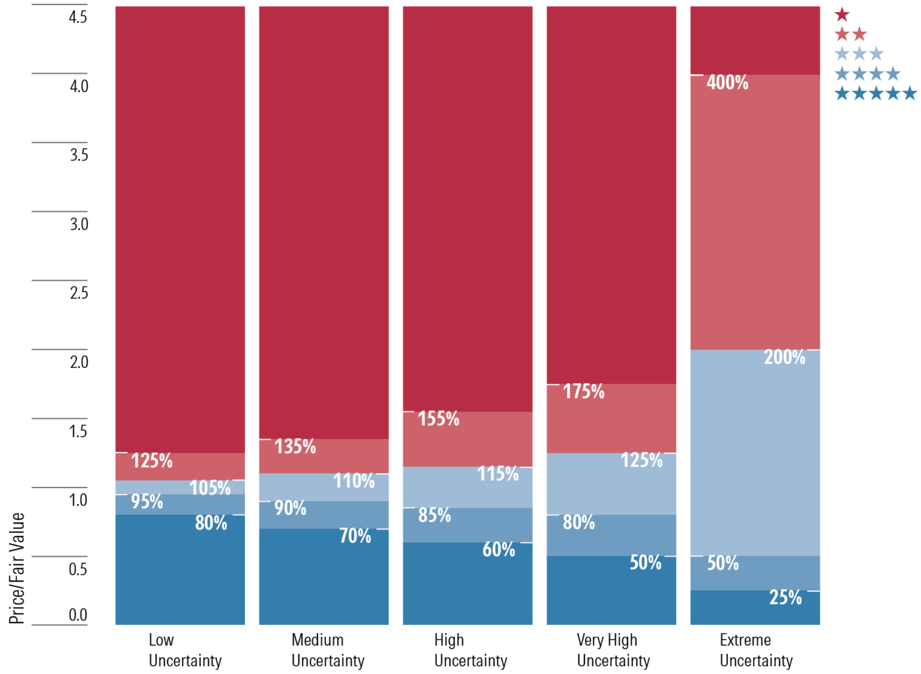
Our uncertainty rating is based on the interquartile range, or the middle 50% of potential outcomes, covering the 25th percentile–75th percentile. This means that when a stock hits 5 stars, we expect there is a 75% chance that the intrinsic value of that stock lies above the current market price. Similarly,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

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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/

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.

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