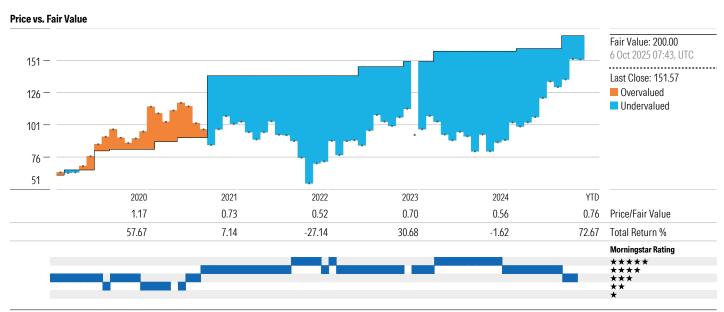
Last Price Fair Value Estimate Price/FVE **Equity Style Box Capital Allocation** ESG Risk Rating Assessment¹ Market Cap Economic Moat™ Uncertainty 95.97 USD Bil Narrow Large Blend High Standard **@@@@** 151.57 USD 200.00 USD 0.76 3 Sep 2025 05:00, UTC 3 Oct 2025 6 Oct 2025 07:43, UTC



Total Return % as of 03 Oct 2025. Last Close as of 03 Oct 2025. Fair Value as of 6 Oct 2025 07:43, UTC

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Analyst Notes Archive

Financials

ESG Risk

Appendix

Research Methodology for Valuing Companies

Important Disclosure

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

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

NetEase: Raising Fair Value Estimate by 18% Following Cost of Equity Reduction; Shares Undervalued

Analyst Note Ivan Su, Senior Equity Analyst, 6 Oct 2025

NetEase's expanding portfolio of games continues to demonstrate strong user stickiness and higher spending per user, even amid macroeconomic uncertainties.

Why it matters: We have lowered NetEase's cost of equity to 7.5% from 9.0%, reducing its weighted average cost of capital to 8.3% from 9.7%. This revision reflects the reduced revenue cyclicality of NetEase's gaming business.

- ► NetEase's game revenue has become more diversified; the top-five titles accounted for 54% of revenue in 2017 and declined to 36% by 2024. This reduced dependence on individual games and strengthened cash flow stability across content cycles and regulatory changes.
- NetEase has also transitioned from being heavily reliant on MMORPG titles that catered to older players, embracing more casual games like Eggy Party and Identity V. These titles generate revenue through low-ticket, habitual spending, which tends to be more resilient during economic downturns.

The bottom line: We have raised our fair value estimates for narrow-moat NetEase to \$200 (HKD 309) from \$170 (HKD 264). NetEase shares are now trading in undervalued 4-star territory, at 19 times 2025 earnings and 18 times 2026 earnings.

 Our valuation implies a 2026 price/earnings multiple of 24 times. This is justified by NetEase's rising game revenue, improved profitability from reduced reliance on third-party app store payments, and



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3 Sep 2025 05:00, UTC

Sector

Communication
Services

Industry

Electronic Gaming & Multimedia

Business Description

Founded in the late 1990s as an internet portal, NetEase has transformed into a leading force in the second-largest online game company gaming in China. While its initial success was built upon the massively multiplayer online role-playing game Fantasy Westward Journey, NetEase has expanded its portfolio with captivating franchises that resonate with both domestic and international players. Over the past decade, the company has created titles such as Justice, Identity V, Naraka: Bladepoint, and Eggy Party, all of which maintain significant player bases today. Beyond inhouse development, the company also collaborates with likes of Microsoft and Marvel to create and publish games based on renowned IPs, including World of Warcraft, Diablo Immortal, and Marvel Rivals.

rapid expansion of its music streaming business, NetEase Cloud Music.

Big picture: Investor sentiment toward the gaming sector is improving, driven by a more constructive regulatory environment. This is evident in the uptick in game license approvals.

▶ We believe there is still upside for NetEase's share prices as new titles begin to monetize and regulatory conditions continue to ease.

Business Strategy & Outlook Ivan Su, Senior Equity Analyst, 21 Feb 2025

NetEase holds a prominent position in the Chinese gaming market, owning some of the best-known online game titles. More importantly, most of these titles continue to generate substantial popularity. We expect NetEase's frequent content updates for its core titles to drive consistent revenue generation. This, combined with the promising returns from recent investments in new game development, positions the company for continued free cash flow growth.

While the gaming industry is becoming more competitive, a key trend is benefiting established developers like NetEase—the growing player engagement with established franchises. Gamers are focusing their playtime on a smaller number of games, resulting in a larger revenue share for successful, long-standing franchises, including several developed by NetEase. This trend reinforces the value of NetEase's portfolio of franchises and its ability to increase long-term player spending.

NetEase is also expanding its global reach, aiming to increase its overseas development exposure from 20% to 40%. Unlike Tencent's mergers and acquisitions-focused expansion, NetEase invests earlier in the game development cycle, building studios from scratch. Furthermore, NetEase empowers its international studios with ample funding and creative autonomy, a strategy we believe is crucial given NetEase's lack of experience in Western markets and the inherently creative nature of game development.

While gaming remains NetEase's primary cash flow driver, its investments in other sectors, including music and education, hold long-term promise. Cloud Village, its music streaming platform, boasts over 200 million monthly active users as of 2024, solidifying its position as the second-largest music streaming service in China. Similarly, Youdao, NetEase's online education platform, is capitalizing on the increasing demand for digital learning content in China.

Bulls Say Ivan Su, Senior Equity Analyst, 6 Oct 2025

- ▶ The initial success of Marvel Rivals could mark the beginning of broader international success.
- ▶ NetEase's expertise in asymmetric multiplayer, exemplified by Identity V, positions it well to capitalize on future opportunities within this genre.
- ► NetEase Cloud Music is experiencing rapid cost leverage, which could drive further profitability improvements for the parent company.



Last Price151.57 USD
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Uncertainty High **Capital Allocation** Standard ESG Risk Rating Assessment¹
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3 Sep 2025 05:00, UTC

Competitors



Bears Say Ivan Su, Senior Equity Analyst, 6 Oct 2025

- ➤ NetEase's traditional stronghold in MMORPGs could face long-term decline as player interests continue to shift.
- ▶ An escalation in geopolitical tensions could hinder NetEase's overseas expansion efforts.
- ➤ Video game pure-plays like NetEase remain highly vulnerable to shifts in the government's stance on gaming.

Economic Moat Ivan Su, Senior Equity Analyst, 15 Aug 2025

We assign NetEase a narrow moat rating, driven by the company's intangible assets stemming from its widely recognized game titles. Over the past 10 years, NetEase has generated an average ROIC of 60%. We expect the business to achieve ROICs significantly above its 8.5% weighted average cost of capital over the next decade.



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The success of a video game often hinges on factors that are difficult to quantify through traditional analytical methods, with there is no guaranteed formula for resonating with players. While a studio might achieve a hit title by luck, maintaining success over time is far more challenging. Past success raises expectations, leading to shorter development cycles, stricter design constraints, and increased efficiency demands. Publishers often push for firm release dates to meet financial goals, but game development is inherently unpredictable and frequently takes longer than planned. Rushing to meet these deadlines can ultimately compromise the quality of the final product.

However, NetEase has managed to avoid this pitfall by preserving creative freedom for its studios, despite being a publicly traded company with the obligation to report quarterly earnings. It achieves this by (1) operating over a dozen studios, which helps offset delays in individual projects, and (2) generating over 90% of its revenue from online games, ensuring a stable, recurring income stream. These factors, in our view, support NetEase's long-term creative success and, ultimately, its ability to develop hit games.

Over the past decade, China's gaming industry has transitioned from PC to mobile platforms, and NetEase has successfully adapted to this shift, becoming a multiplatform gaming leader with numerous hit titles. The company has published hundreds of games and diversified its revenue portfolio, with its top 10 games now contributing 40% of revenue, down from 80% a decade ago. Notable titles include Fantasy Westward Journey, Justice, Knives Out, Identity V, Eggy Party, and Naraka: Bladepoint.

NetEase's games span a variety of genres, but we believe its most valuable IPs lie in its massively multiplayer online role-playing game, or MMORPG, titles, which contribute to more than half of its game revenue and dominate the China market with over a 30% share. These MMORPGs feature complex systems that encourage long-term play, bolstered by regular updates that extend their lifespan. Additionally, MMORPGs foster strong player communities through shared experiences such as combat, guilds, and cooperative activities. These social networks create a sense of belonging and emotional attachment, forming another intangible asset that enhances the games' appeal and longevity.

NetEase's MMORPG titles also benefit from the significant time, effort, and financial resources players invest in their in-game characters, which discourages switching to competing games. A prime example of this is Fantasy Westward Journey, one of the highest-grossing games in China over the past two decades. Progression systems in this game require hundreds or even thousands of hours to level up characters, complete quests, grind dungeons, and gather rare resources necessary for upgrading abilities, gear, and pets. High-level progression slows significantly, meaning players must dedicate months of consistent daily play to remain competitive or achieve long-term goals. Additionally, the monetary investment can be substantial, as players often spend hundreds to thousands of dollars on



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crafting materials, cosmetics, and timecards. This combination of time and monetary investment makes switching to competing games highly unappealing, further strengthening NetEase's moat.

Furthermore, we think the company also enjoys a mild cost advantage as the second-largest gaming company in China. Its extensive development teams and capacity to produce dozens of games annually allow the company to spread its fixed costs across a higher number of projects, significantly reducing the cost of trial and error per game. This is especially critical in an industry where the success of a new game is notoriously difficult to predict. Even if only a few titles achieve significant success, the long-term returns from those hits more than compensate for the development costs of less successful projects. This ability to undertake multiple projects while maintaining consistent profitability underscores a mild cost advantage.

In addition to its in-house games, NetEase collaborates with leading global game developers, such as Blizzard (now owned by Microsoft), to publish their games in China. These partnerships contribute to approximately mid-single-digit percentages of NetEase's gaming revenue. While the intangible assets from these exclusive licenses are not particularly significant—since NetEase does not own the intellectual property—Chinese regulations on the operation of foreign games create notable switching costs for foreign gaming companies.

Given regulatory requirements, only Chinese firms can publish foreign games, and operating licenses are controlled by the publishers. If Microsoft were to switch its Chinese publishing partner, it would need to reapply for licenses for all its games, a process that could take years. Additionally, all licensed games are hosted on NetEase's servers, and transitioning to another local operator would require extensive server migration, causing significant disruption to players. This switching cost was illustrated during the temporary breakup between NetEase and Blizzard in 2023, with operations eventually resuming in 2024.

Lastly, we do not have strong confidence that NetEase's other businesses can generate excess returns on invested capital over the next decade. These businesses primarily consist of Cloud Music, China's second-largest music streaming platform (a no-moat-rated company we cover), and Youdao, an online education business. Furthermore, given their limited contribution to NetEase's overall earnings, the competitive positioning of these businesses does not materially influence NetEase's overall moat rating.

Fair Value and Profit Drivers Ivan Su, Senior Equity Analyst, 6 Oct 2025

Our fair value estimate is \$200 per share. Over the next five years, we project the company to deliver a total revenue CAGR of 10% and an operating income CAGR of 14%, driven by its core gaming business and contributions from its other segments.

For the gaming segment, we forecast a five-year revenue CAGR of 11%, supported by NetEase's



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Uncertainty High **Capital Allocation** Standard ESG Risk Rating Assessment¹
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continued international expansion and its strong research and development capabilities in creating globally popular games. We expect gross margins in this segment to gradually rise to 70% over the next five years. Two key factors will drive this improvement—first, lower app store take rates due to the growing adoption of third-party payment systems, and second, the increasing popularity of cross-platform games. The latter trend means that a larger share of gamers will pay NetEase directly on their

Cloud Music, the company's music streaming business, is projected to achieve a five-year revenue CAGR of 8%, driven by consistent subscriber growth and gradual increases in subscription prices. However, this growth will be partially offset by declining revenue from livestreaming activities.

PCs, reducing the firm's reliance on mobile app stores and the associated revenue-sharing fees.

Our sum-of-the-parts analysis assigns a 25 times 2025 P/E multiple to NetEase's core game business—a valuation that is equivalent to close to 80% of total group valuation. Cloud Village contributes another 2%, Youdao makes up a negligible 0.3% of group valuation, while the rest comes from equity investments and net cash.

Risk and Uncertainty Ivan Su, Senior Equity Analyst, 21 Feb 2025

We assign a High Morningstar Uncertainty Rating to NetEase.

The unpredictable nature of China's regulatory environment was demonstrated by license approval suspensions in 2018 and 2021, which disrupted release schedules. The potential for further regulatory interventions poses a material threat to NetEase's financial performance. The December 2023 draft rules targeting in-game spending, though later retracted, underscore this unpredictability. This lack of long-term regulatory clarity remains a key driver of NetEase's High Uncertainty Rating.

Moreover, the online gaming market is characterized by its capricious user interests and fierce competitive landscape. The success or failure of new games, as well as the upkeep and enhancement of existing titles, can cause considerable volatility in NetEase's earnings.

Like many other listed Chinese internet firms, NetEase adopts the variable interest entity structure, which is specifically designed to bypass Chinese legal restrictions on foreign ownership in sectors like internet. NetEase's investors hold shares of the firm's VIEs domiciled in the Cayman Islands. We don't expect repudiation of VIEs by the Chinese government, but if VIEs are found to violate laws, authorities could take action against the VIEs.

In terms of environmental, social, and governance, or ESG, risks, a shift in public opinion toward viewing games as addictive could damage NetEase's brand reputation, making it harder to retain its current user base and attract new players. While other ESG risks, such as those related to human capital and data privacy, warrant monitoring, we do not anticipate them having a material impact on NetEase's free cash flows.



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Price/FVE 0.76 **Market Cap** 95.97 USD Bil 3 Oct 2025 Economic Moat™

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Uncertainty High Capital Allocation Standard ESG Risk Rating Assessment¹
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3 Sep 2025 05:00, UTC

Capital Allocation Ivan Su, Senior Equity Analyst, 6 Oct 2025

We assign NetEase a Standard Morningstar Capital Allocation Rating. This reflects our assessment of its sound balance sheet, fair investments, and appropriate shareholder distributions. We expect reinvestments into the business, prioritized over shareholder distributions, to drive future shareholder returns.

The company's balance sheet is sound, as demonstrated by its strong net cash position. NetEase consistently generates robust free cash flows, and we expect it to continue well into the foreseeable future.

NetEase's growth has been primarily organic rather than driven by mergers and acquisitions. The company's R&D investment, which has grown at a double-digit CAGR over the past five years, supports innovation and new game development. Founder and CEO Ding Lei shows a strong commitment to R&D investments, a strategy we view positively. Looking ahead, we expect NetEase to gradually shift its investments toward overseas markets to support its international growth ambitions.

Under Ding's leadership, NetEase has also expanded into various other internet services such as music, online dictionary, Cloudnote, education, and e-commerce. Some of these investments have done well, while others struggle on the path to profit. Overall, we believe management has a decent approach to capital allocation, which has been proved by strong earnings growth over the past couple of years.

NetEase returns capital to shareholders through dividends and share buybacks. The company has pledged to gradually increase total shareholder returns over time. In 2023, NetEase returned approximately 55% of its net profit to shareholders. Absent significant investments or acquisitions, we expect the company to steadily raise shareholder returns as its business matures.

Analyst Notes Archive

China Issued 463 Game Licenses in the Third Quarter of 2025 Ivan Su, Senior Equity Analyst, 25 Sep 2025

China's National Press and Publication Administration issued 463 game licenses in the third quarter of 2025, representing a 34% year-over-year increase. Notably, 173 game licenses were issued in August alone, the highest monthly total in four years. Why it matters: The recent acceleration in game license approvals reinforces our positive outlook for China's online gaming sector. With regulators adopting a more supportive stance, we expect benefits not only for publishers but also for advertising platforms that promote these titles. NetEase secured major third-quarter approvals for Diablo IV and Tianxia: Wanxiang. Diablo IV, developed by Blizzard, is a globally successful franchise, while Tianxia: Wanxiang is a cross-platform sequel to the popular PC series Tianxia. Tencent also got its license to publish Rewinding Cadence, an open-world, cross-platform role-playing game. Meanwhile, Mihoyo—China's



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Uncertainty High Capital Allocation Standard ESG Risk Rating Assessment¹
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largest private gaming company— continues to draw attention with Honkai: Nexus Anima, the fifth installment in the Honkai series. The bottom line: We maintain our fair value estimates for wide-moat Tencent and narrow-moat NetEase, and continue to view both as undervalued, with Tencent trading at a 20% discount to our valuation and NetEase at a 10% discount. As our expectation for an improving regulatory environment continues to play out, we remain comfortable with our forecasts for the gaming sector and the companies under our coverage. Given the typical two-to-three-quarter lag between license issuance and game release, the 23% year-to-date growth in licenses through September suggests the Chinese gaming industry is on track for double-digit growth in the coming quarters.

NetEase Earnings: Solid Quarter; Al to Drive Further Efficiency; Fair Value Raised by 6% to \$170 Ivan Su,Senior Equity Analyst,15 Aug 2025

NetEase reported 9% year-over-year overall revenue growth for the second quarter of 2025, driven by a 15% increase in game revenue. Operating profit rose 30% compared with the same period last year. Why it matters: Although game revenue growth was below our expectations, we're reassured by a 25% rise in deferred revenue, the highest in three years, and a strong indicator for future growth. Operating profit for the quarter exceeded our forecast. Compared with Tencent, NetEase's pipeline for the rest of 2025 appears less robust. However, we expect the 2026 launches of Sea of Remnants and Ananta to significantly drive player engagement and revenue growth. The 5-percentage-point year-over-year increase in operating margin reflects more efficient resource allocation across research and development and marketing. As artificial intelligence accelerates game development and streamlines operations, we expect NetEase to maintain this favorable cost structure. The bottom line: We fine-tune our estimates and lift narrow-moat NetEase's fair value estimate by 6% to USD 170 (HKD 264) to factor in better margins. We continue to view the shares as undervalued, trading at just 17 times 2025 earnings. Between the lines: On shareholder returns, NetEase reiterated that buybacks remain opportunistic. With the share price near all-time highs, we expect the company to scale back repurchases in favor of increasing dividends. Long view: Al is poised to be a durable tailwind for NetEase's gaming business. Generative tools for art and code shorten game development cycles and enable more frequent updates, driving engagement, retention, and lifetime value. Al-powered nonplayer characters, or NPCs, can behave more like human players and communicate naturally, creating immersive, cooperative gameplay that boosts session length and monetization. Al-enhanced marketing also improves campaign efficiency and lowers player acquisition costs.

China Approved 429 Video Game Licenses in the Second Quarter of 2025 Ivan Su, Senior Equity Analyst, 6 Jul 2025

China's National Press and Publication Administration issued 429 video game licenses in the second quarter of 2025, representing a 32% year-over-year increase. Notably, new game licenses reached 158 in June 2025, the highest monthly issuance in three years. Why it matters: The increase in license



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Price/FVE 0.76 Market Cap 95.97 USD Bil 3 Oct 2025 Economic Moat™
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Uncertainty High Capital Allocation Standard ESG Risk Rating Assessment¹
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issuances signals a positive outlook for gaming companies in China. More importantly, it suggests that regulators are taking a more supportive stance toward the gaming sector, reducing the likelihood of further policy tightening in the near term. Among the approvals, we think Tencent's CrossFire: Rainbow and NetEase's Destiny: Rising have the highest earnings potential. CrossFire: Rainbow benefits from the enduring legacy of its predecessor, one of the most well-known and successful first-person shooter IPs in China. Destiny: Rising is a shooter game set in a sci-fi backdrop, a genre gaining popularity in China, but it remains underexplored. NetEase has been making strides in this space, and Destiny: Rising could be a breakout title that elevates the company's profile even further. The bottom line: We expect the regulatory environment to continue improving for the rest of 2025. Given the typical two-to-three-quarter lag between license approvals and revenue generation, the industry should comfortably achieve double-digit growth in the coming quarters. In light of favorable regulatory developments, we see potential upside to our 14% game revenue growth forecast for wide-moat Tencent and narrow-moat NetEase in 2025. However, individual company performance will still largely depend on new game

launches, updates, and overall execution. We keep our fair value estimates for both firms—it's too early to determine which new titles will emerge as blockbusters. Nonetheless, we continue to view shares of

NetEase Earnings: Profit Boosted by One-Off Expense Cuts; Eying Global Expansion With New Launches Ivan Su, Senior Equity Analyst, 16 May 2025

Tencent and NetEase as undervalued, trading at discounts of 30% and 15% to our valuations,

respectively. Correction (Sept. 25, 2025): June new licenses number corrected.

NetEase reported 15% year-over-year growth in game revenue for the first quarter. The company's operating profit grew by 34%, with its shares gaining 15% during US trading. Why it matters: While revenue was in line with our forecast, operating profit exceeded our estimate due to a one-time reduction in sales and marketing expenses. However, management expects these expenses will return to historical levels as the company begins releasing more games later this year. NetEase provided a reassuring update on Fantasy Westward Journey, noting that the legacy title continues to deliver stable revenue, alleviating prior investor concerns about a potential permanent decline. The firm plans to release at least two new mobile games globally this year: Destiny: Rising and Marvel Mystic Mayhem. These launches are already factored into our 2025 game revenue growth forecast of 14%. The bottom line: We maintain our fair value estimate for narrow-moat NetEase at USD 160 (HKD 248). Even after the recent rally, we view shares as undervalued, trading at just 16 times 2025 P/E, with a 24% upside potential from current levels. Long view: The recent success of Marvel Rivals demonstrates NetEase's capability to develop competitive global games using its China-based studios. Looking ahead, we expect the company to strengthen its position as a formidable player in the global multiplayer gaming market.

NetEase Earnings: Marvel Rivals Could Be the Launchpad for NetEase's Overseas Ambitions Ivan



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Uncertainty High Capital Allocation Standard ESG Risk Rating Assessment¹
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3 Sep 2025 05:00, UTC

Su, Senior Equity Analyst, 21 Feb 2025

NetEase reported robust 2024 earnings, with operating profit growing 14% year over year, despite slightly lower-than-consensus revenue. The firm remains committed to shareholder returns, distributing 70% of its profit to shareholders in 2024. Why it matters: The earnings exceeded our expectations. The return of game revenue growth, after a brief dip in the previous quarter, is a clear sign that concerns regarding the legacy title Fantasy Westward Journey were overblown. With a strong focus on innovation, a mix of evergreen titles, and a robust pipeline heading into 2025, we are confident in the company's ability to deliver a double-digit earnings compound annual growth rate over the next five years. We expect game revenue growth to accelerate over the next few quarters as the recently launched Marvel Rivals begins to contribute meaningfully. The bottom line: We raise our fair value estimate for narrow-moat NetEase by 1% to \$160 (HKD 248) after fine-tuning our forecasts. The company's shares are trading at more than a 30% discount to our valuation, with a 2025 P/E multiple of just 14 times. Between the lines: Recent news regarding NetEase scaling back investments in a few overseas game studios should not be interpreted as a potential slowdown in the firm's overseas game revenue growth. The success of Marvel Rivals outside of China—despite being developed by a NetEase studio in China—underscores the company's ability to capture international opportunities using domestic innovation. Overseas revenue contributed roughly 10% of NetEase's gaming revenue in 2024, and we expect this to rise to 15% over the next two years. Coming up: On March 6, NetEase will launch FragPunk, an innovative tactical shooting game developed by NetEase's studio in China. If this game achieves even half the success of Marvel Rivals, it should not only drive long-term revenue growth but also establish NetEase as a formidable contender in the highly competitive global shooting genre.

China Issues 136 Game Licenses in January 2025 Ivan Su, Senior Equity Analyst, 22 Jan 2025

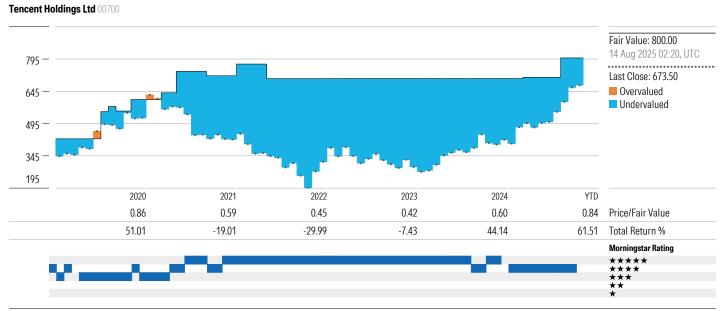
China's National Press and Publication Administration issued 136 game licenses in January, representing an 18% year-over-year increase to kick off the year. Notable approvals include Tencent's Honor of Kings: World and NetEase's Frostpunk: Beyond the Ice. Why it matters: The increase in game license issuance bodes well for the outlook of gaming companies in China. More importantly, it indicates that regulators are adopting a more supportive stance toward the gaming sector, reducing the risk of further tightening in the near term. The bottom line: We maintain our expectation of a moderately improving regulatory environment in 2025. This supports our double-digit gaming revenue growth forecasts for Tencent and NetEase in 2025. We continue to view shares of Tencent and NetEase as significantly undervalued. We maintain our fair value estimates of HKD 704 and HKD 246 for Tencent and NetEase, respectively, which are currently trading at a 45% and 36% discount to our valuations.



Competitors Price vs. Fair Value

Take-Two Interactive Software Inc TTWO Last Close: 257.68 Fair Value: 150.00 241 8 Aug 2025 10:54, UTC Overvalued 206 Undervalued 171 136 101 2020 2021 2022 2023 2024 YTD 1.40 0.89 0.63 0.98 1.19 1.72 Price/Fair Value 69.72 -14.47 -41.41 54.57 14.37 39.98 Total Return % **Morningstar Rating**

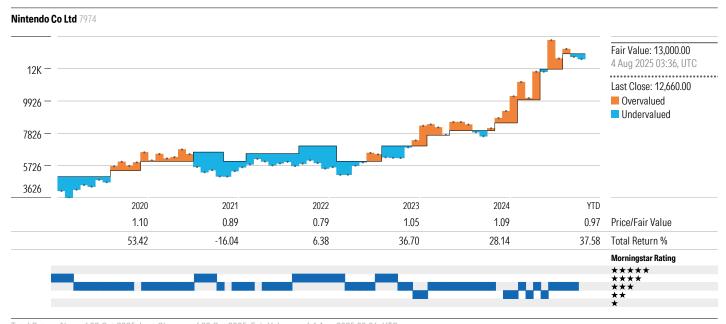
Total Return % as of 03 Oct 2025. Last Close as of 03 Oct 2025. Fair Value as of 8 Aug 2025 10:54, UTC.



Total Return % as of 03 Oct 2025. Last Close as of 03 Oct 2025. Fair Value as of 14 Aug 2025 02:20, UTC.



Competitors Price vs. Fair Value



Total Return % as of 03 Oct 2025. Last Close as of 03 Oct 2025. Fair Value as of 4 Aug 2025 03:36, UTC.



Last Price 151.57 USD 3 Oct 2025

ROIC %

Fair Value Estimate 200.00 USD 6 Oct 2025 07:43, UTC Price/FVE Market Cap 0.76 95.97 USD Bil Economic Moat™ Narrow

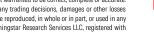
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Morningstar Valuation Model Summary										
Financials as of 02 Oct 2025		Actual			Forecast					
Fiscal Year, ends 31 Dec		2022	2023	2024	2025	2026	2027	2028	2029	
Revenue (CNY Mil)		96,496	103,468	105,295	115,416	128,496	141,538	154,926	168,123	
Operating Income (CNY Mil)		19,629	27,709	29,584	36,109	39,759	45,448	51,187	57,347	
EBITDA (CNY Mil)		24,959	32,992	33,215	40,944	43,857	49,846	55,892	62,855	
Adjusted EBITDA (CNY Mil)		24,959	32,992	33,215	40,944	43,857	49,846	55,892	62,855	
Net Income (CNY Mil)		19,713	29,417	29,698	35,637	37,792	42,638	47,436	52,883	
Adjusted Net Income (CNY Mil)		22,870	32,622	33,511	39,488	41,903	47,167	52,394	58,262	
Free Cash Flow To The Firm (CNY Mil)		16,792	20,680	25,245	28,964	31,790	35,843	39,836	43,922	
Weighted Average Diluted Shares Outstanding (Mil)		659	650	646	641	633	625	615	605	
Earnings Per Share (Diluted) (CNY)		29.90	45.23	45.96	55.60	59.68	68.25	77.07	87.38	
Adjusted Earnings Per Share (Diluted) (CNY)		34.69	50.16	51.86	61.61	66.17	75.49	85.13	96.27	
Dividends Per Share (CNY)		1.87	3.63	3.72	3.92	5.97	7.51	8.48	9.61	
Margins & Returns as of 02 Oct 2025		Actual			Forecast					
•	3 Year Avg	2022	2023	2024	2025	2026	2027	2028	2029	5 Year Av
Operating Margin %	27.0	20.3	26.8	28.1	31.3	30.9	32.1	33.0	34.1	33.4
EBITDA Margin % Adjusted EBITDA Margin %	_ _	25.9 25.9	31.9 31.9	31.5 31.5	35.5 35.5	34.1 34.1	35.2 35.2	36.1 36.1	37.4 37.4	35.
Net Margin %	25.7	20.4	28.4	28.2	30.9	29.4	30.1	30.6	31.5	30.
Adjusted Net Margin %	29.0	23.7	31.5	31.8	34.2	32.6	33.3	33.8	34.7	33.
Free Cash Flow To The Firm Margin %	20.5	17.4	20.0	24.0	25.1	24.7	25.3	25.7	26.1	25.
Growth & Ratios as of 02 Oct 2025		Actual			Forecast					
D	3 Year CAGR	2022	2023	2024	2025	2026	2027	2028		5 Year CAG
Revenue Growth %	6.3 21.7	10.2	7.2	1.8	9.6	11.3	10.2	9.5	8.5	9.1
Operating Income Growth % EBITDA Growth %	14.0	19.6 9.2	41.2 32.2	6.8	22.1	10.1 7.1	14.3 13.7	12.6 12.1	12.0 12.5	14.
Adjusted EBITDA Growth %	13.3	9.2	32.2	0.7	23.3	7.1	13.7	12.1	12.5	13.
Earnings Per Share Growth %	22.5	19.5	51.2	1.6	21.0	7.3	14.4	12.9	13.4	13.
Adjusted Earnings Per Share Growth %	22.5	18.2	44.6	3.4	18.8	7.4	14.1	12.8	13.1	13.
Valuation as of 02 Oct 2025		Actual			Forecast					
		2022	2023	2024	2025	2026	2027	2028	2029	
Price/Earning		2.9	2.6	2.5	3.5	3.3	2.9	2.5	2.2	
Price/Sales Price/Book		3.5	4.0 0.7	3.9	5.9	5.3	4.8	4.4	4.1 0.4	
Price/Cash Flow		0.6	0.7	0.6	0.8	0.7	0.6	0.5	0.4	
EV/EBITDA		9.9	9.5	9.1	13.4	12.5	11.0	9.8	8.7	
EV/EBIT		12.6	11.3	10.2	15.2	13.8	12.1	10.7	9.6	
Dividend Yield %		1.8	2.8	2.9	1.8	2.8	3.5	3.9	4.5	
Dividend Payout % Free Cash Flow Yield %		5.4	7.2	7.2	6.4	9.0	9.9	10.0	10.0	
Operating Performance / Profitability as of 02 Oct 2025		Actual			Forecast		·			
Fiscal Year, ends 31 Dec		2022	2023	2024	2025	2026	2027	2028	2029	
ROA %		11.4	15.8	15.2	15.6	14.5	14.4	14.1	13.9	
ROE %		18.1	23.0	20.8	20.8	19.1	18.6	18.0	17.5	
		10.1	23.0	20.0	20.0	17.1	10.0	10.0	11.5	



68.2



70.1

69.5

58.8

63.5

60.5

66.4

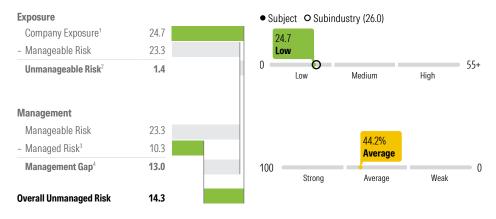
65.8

Last Price 151.57 USD 3 Oct 2025	Fair Value Estimate 200.00 USD 6 Oct 2025 07:43, UTC	Price/FVE 0.76	Market Cap 95.97 USD 3 Oct 2025	_	nic Moat[™] arrow	Equity Style Box Uncertaint Large Blend High		•	Capital Allocation Standard	ESG Risk Rating Assessment ¹ (D (D (D (D (D))) 3 Sep 2025 05:00, UTC	
Financial Leverag	ge (Reporting Currency)			Actual		F	orecast				
Fiscal Year, ends 31	Dec			2022	2023	2024	2025	2026	2027	2028	2029
Debt/Capital %				24.3	37.1	26.1	1.3	1.2	1.1	1.1	1.0
Assets/Equity				1.6	1.5	1.4	1.3	1.3	1.3	1.3	1.3
Net Debt/EBITDA				-3.0	-2.7	-3.2	-3.9	-4.4	-4.5	-4.7	-4.8
Total Debt/EBITDA				0.9	0.9	0.6	0.3	0.3	0.2	0.2	0.2
EBITDA/ Net Intere				-11.6	-8.0	-6.7	-8.3	-7.3	-7.1	-6.8	-6.6
Forecast Revision	ns as of 6 Oct 2025			2025		202	26		2027		
Prior data as of 15 A	•			Current		Prior	Curre	nt	Prior	Current	Prior
	e Change (Trading Curre	ncy)		200.00		170.36	-	_			_
Revenue (CNY Mil))			115,416		115,416	128,49	6	128,496	141,538	141,538
Operating Income	(CNY Mil)			36,109)	36,109	39,75	9	39,759	45,448	45,448
EBITDA (CNY Mil)				40,944	ļ	40,944	43,85	57	43,857	49,846	49,846
Net Income (CNY N	Mil)			39,488	}	39,488	41,90	13	41,903	47,167	47,167
Earnings Per Share	e (Diluted) (CNY)			55.60)	55.60	59.6	8	59.68	68.25	68.25
Adjusted Earnings	Per Share (Diluted) (CNY	")		61.61		61.61	66.1	7	66.17	75.49	75.49
Dividends Per Sha	re (CNY)			3.92	<u>)</u>	3.92	5.9	7	5.97	7.51	7.51
Key Valuation Dri	ivers as of 02 Oct 2025			Discounted Cash	Flow Val	uation as of 0	2 Oct 2025				
Cost of Equity %			7.5								CNY Mil
Pre-Tax Cost of De			5.3	Present Value Stag	,						281,187
Weighted Average			8.3	Present Value Stag							123,713
Long-Run Tax Rate			25.0	Present Value Stag	je III						298,962
Stage II EBI Growth Stage II Investmen			3.7 5.0	Total Firm Value							703,863
Perpetuity Year	it nate /0		3.0 15	Cash and Equivale	inte						143,697
<u> </u>				Debt Equivale	61116						12,233
Additional estimates and s	scenarios available for download at h	ttps://pitchbook.com/.		Other Adjustments	3						20,206
				Equity Value							855,533
				Projected Diluted S	Shares						639
				Fair Value per Share	(USD)						200.00



Last Price Fair Value Estimate Price/FVE Market Cap **Economic Moat**™ **Equity Style Box** Uncertainty **Capital Allocation** ESG Risk Rating Assessment¹ 95.97 USD Bil 跑 Narrow Large Blend High Standard **0000** 151.57 USD 200.00 USD 0.76 3 Sep 2025 05:00, UTC 3 Oct 2025 6 Oct 2025 07:43, UTC

ESG Risk Rating Breakdown



- ► 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 Assessment⁵













ESG Risk Rating is of Sep 03, 2025. Highest Controversy Level is as of Sep 08, 2025. Sustainalytics Subindustry: Entertainment 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/



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.

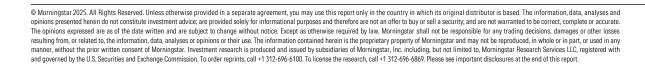
1. A company's Exposure to material ESG issues 2. Unmanageable Risk refers to risks that are inherent to a particular business model that cannot be managed by programs or initiatives 3. Managed Risk = Manageable Risk multiplied by a Management score of 44.2% 4. Management Gap assesses risks that are not managed, but are considered manageable 5. ESG Risk Rating Assessment = Overall Unmanaged Risk = Management Gap plus Unmanageable Risk

Peer Analysis 03 Sep 2025	Peers are selected f	rom the company's Sustainalyt	cs-defined Subindustr	Subindustry and are displayed based on the closest market cap values						
Company Name	Exposure		Management		ESG Risk Rating					
NetEase Inc	24.7 Low	0 55+	44.2 Average	100 0	14.3 Low	0				
Nintendo Co Ltd	25.1 Low	0 — 55+	37.4 Average	100 0	16.3 Low	0 — 40+				
Take-Two Interactive Software Inc	27.7 Low	0 55+	49.2 Average	100 0	14.9 Low	0 —• 40+				
Tencent Holdings Ltd	39.3 Medium	0 55+	51.4 Strong	100 0	20.5 Medium	0 — 40+				
NEXON Co Ltd	24.5 Low	0 55+	32.6 Average	100 — 0	16.9 Low	0 — 40+				

Appendix

Historical Morningstar Rating

Dec 2025	Nov 2025	Oct 2025	Sep 2025	Aug 2025	Jul 2025	Jun 2025	May 2025	Apr 2025	Mar 2025	Feb 2025	Jan 2025
-	_	***	***	****	****	****	***	***	***	***	***
ec 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		Jul 2022	Jun 2022			Mar 2022	Feb 2022	Jan 2022
* ★★★★	****	****	★★★★★	Aug 2022 ★★★★	★★★★	* ★ ★★	May 2022 ★★★★	Apr 2022 ★★★★	* ★ ★★	* ★ ★★	★★★★
ec 2021 ★★★★	Nov 2021 ★★★	Oct 2021 ★★★	Sep 2021 ★★★	Aug 2021 ★★★	Jul 2021 ★★★	Jun 2021 ★★	May 2021 —	Apr 2021 ★★	Mar 2021 ★★	Feb 2021 ★★	Jan 2021 ★★
ec 2020	Nov 2020	Oct 2020	Sep 2020	Aug 2020	Jul 2020	Jun 2020	May 2020	Apr 2020	Mar 2020	Feb 2020	Jan 2020
***	***	***	***	**	***	***	***	***	***	***	***
ake-Two In	teractive Soft	ware Inc TTWO	4 Oct 2025 04:4	19, UTC							
Dec 2025	Nov 2025	Oct 2025	Sep 2025	Aug 2025	Jul 2025	Jun 2025	May 2025	Apr 2025	Mar 2025	Feb 2025	Jan 2025
_	_	*	*	**	*	*	*	*	*	*	**
0ec 2024 ★★	Nov 2024 ★★	Oct 2024 ★★★	Sep 2024 ★★★	Aug 2024 ★★★	Jul 2024 ★★★	Jun 2024 ★★★	May 2024 ★★★	Apr 2024 ★★★	Mar 2024 ★★★	Feb 2024 ★★★	Jan 2024 ★★★
0ec 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
★★	**	***	***	★★	★★	***	***	***	***	***	★★★
Tencent Hol	dings Ltd 0070	0 3 Oct 2025 16	:33, 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 —
0ec 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
****	****	****	****	****	****	****	****	****	****	****	****
0ec 2022 ★★★★★	Nov 2022 ★★★★	Oct 2022 ★★★★	Sep 2022 ★★★★	Aug 2022 ★★★★	Jul 2022 ★★★★	Jun 2022 ★★★★	May 2022 ★★★★	Apr 2022 ★★★★	Mar 2022 ★★★★	Feb 2022 ★★★★	Jan 2022 ★★★★
ec 2021	Nov 2021	Oct 2021	Sep 2021	Aug 2021	Jul 2021	Jun 2021	May 2021	Apr 2021	Mar 2021	Feb 2021	Jan 2021
****	****	****	****	****	****	****	****	***	***	***	***
ec 2020	Nov 2020	Oct 2020	Sep 2020	Aug 2020	Jul 2020	Jun 2020	May 2020	Apr 2020	Mar 2020	Feb 2020	Jan 2020





Nintendo Co Ltd 7974 3 Oct 2025 17:09, 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
—	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★★	★★★★	★★★



Overview

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

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

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

1. Economic Moat

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

long period of time. We define economic profits as returns on invested capital (or ROIC) over and above our estimate of a firm's cost of capital, or weighted average cost of capital (or WACC). Without a moat, profits are more susceptible to competition. We have identified five sources of economic moats: intangible assets, switching costs, network effect, cost advantage, and efficient scale.

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

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

2. Estimated Fair Value

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

Our model is divided into three distinct stages:

Stage I: Explicit Forecast

In this stage, which can last five to 10 years, analysts make full financial statement forecasts, including items such as revenue, profit margins, tax rates, changes in workingcapital accounts, and capital spending. Based on these projections, we calculate earnings before interest,

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

Stage II: Fade

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

Stage III: Perpetuity

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

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

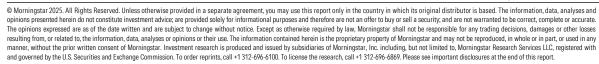
3. Uncertainty Around That Fair Value Estimate

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







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, companyspecific 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.

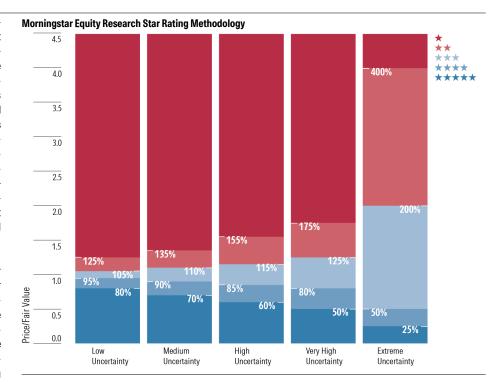
	Margin of Safety	
Qualitative Analysis Uncertainty Ratings	★★★★ Rating	★ Rating
Low	20% Discount	25% Premium
Medium	30% Discount	35% Premium
High	40% Discount	55% Premium
Very High	50% Discount	75% Premium
Extreme	75% Discount	300% Premium

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 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.

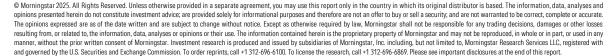
The Morningstar Star Ratings for stocks are defined below:

- ****
 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 multiyear 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,





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.

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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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