


Baidu Inc ADR BIDU ★★★ 8 Dec 2025 22:38, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
130.06 USD 8 Dec 2025	146.00 USD 22 May 2025 10:36, UTC	0.89	44.71 USD Bil 8 Dec 2025	Wide	Large Blend	High	Standard	 3 Sep 2025 05:00, UTC

Sector	Industry
 Communication Services	Internet Content & Information

Business Description

Baidu is the largest internet search engine in China with over 50% share of the search engine market in 2024 per web analytics firm, Statcounter. The firm generated 70% of core revenue from online marketing services from its search engine in 2024. Outside its search engine, Baidu is a technology-driven company and its other major growth initiatives are artificial intelligence cloud, video streaming services, voice recognition technology, and autonomous driving.

bottomed this quarter. We're still not seeing signs of a sharp recovery and thus forecast low-single-digit year-on-year growth for the next quarter and 2026.

- We expect AI cloud revenue to increase over 20% year on year next quarter, reflecting strength in its cloud infra segment. Its hyperscaler capabilities are evident here, and we believe investors may be overlooking long-term growth potential.

Between the lines: Baidu mostly focused on AI and robotaxis during the earnings call, with little mention of its search advertising. We believe this shift reflects a deeper commitment to transforming and rebranding the firm into an AI-oriented one.

Business Strategy & Outlook Kai Wang, CFA, Senior Equity Analyst, 1 Sep 2025

Baidu's online advertising business accounted for 79% of Core revenue in 2024 and will be the main source of revenue in the medium term, given its dominant market share for search engines, but we believe that unless it can develop another industry-leading business, it could face long-term challenges for advertising dollars from growing competitors such as Tencent and ByteDance. Baidu is increasingly shifting its focus toward its cloud business and now also artificial intelligence, with its Ernie generative AI model becoming its flagship product. We believe that Baidu is an early mover and should benefit from China's AI development, but whether Ernie will be the long-term leader will depend on execution, as we believe other resource-heavy companies have the potential to catch up to Baidu if there are missteps in its generative AI development.

While Baidu is transforming its identity by investing in generative AI, cloud, and autonomous driving, commercialized success remains to be seen. There are encouraging signs after its AI cloud monetization grew to 18% of core revenue in 2023 from 12% in 2020. However, despite sharp growth, we expect Baidu to face competition in the cloud from industry leaders Alibaba, Huawei, and Tencent, which all have greater market share than Baidu. Despite a potential total addressable market for autonomous driving that is 9 times its online advertising per management, commercial success is highly uncertain as revenue remains immaterial, and mass scale adoption or time-to-market is unclear.

Its streaming video service, iQiyi, continues to be a margin drag on Baidu's business due to a high content cost. The business constantly needs to develop or acquire new content to prevent customer churn. We're less confident of its outlook than the Core product due to a low barrier to entry and numerous competitors. Membership has remained stagnant at 100 million subscribers for the last five quarters, and therefore, we believe long-term growth is limited.

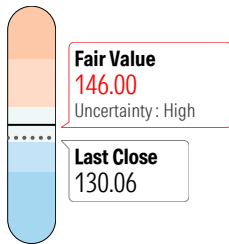
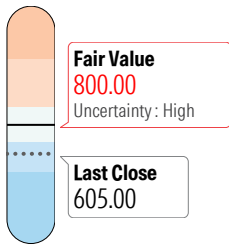
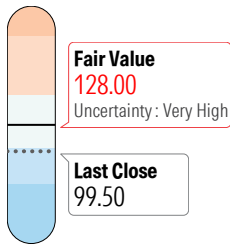
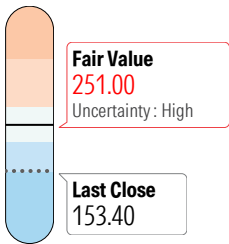
Bulls Say Kai Wang, CFA, Senior Equity Analyst, 1 Sep 2025

- Baidu is strengthening its mobile ecosystem with search, livestreaming, and mini programs, helping to create a closed-loop experience for users to acquire information and make transactions.
- Baidu is a leader in AI with autonomous driving in terms of the number of miles tested, and the number

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Competitors

	Baidu Inc ADR BIDU	Tencent Holdings Ltd 00700	Meituan Class B 03690	Alibaba Group ...rdinary Shares 09988
	 <p>Fair Value 146.00 Uncertainty: High</p> <p>Last Close 130.06</p>	 <p>Fair Value 800.00 Uncertainty: High</p> <p>Last Close 605.00</p>	 <p>Fair Value 128.00 Uncertainty: Very High</p> <p>Last Close 99.50</p>	 <p>Fair Value 251.00 Uncertainty: High</p> <p>Last Close 153.40</p>
Economic Moat	Wide	Wide	Narrow	Wide
Currency	USD	HKD	HKD	HKD
Fair Value	146.00 22 May 2025 10:36, UTC	800.00 14 Aug 2025 02:20, UTC	128.00 18 Nov 2025 13:17, UTC	251.00 18 Nov 2025 12:58, UTC
1-Star Price	226.30	1,240.00	224.00	389.05
5-Star Price	87.60	480.00	64.00	150.60
Assessment	Fairly Valued 8 Dec 2025	Undervalued 8 Dec 2025	Undervalued 8 Dec 2025	Undervalued 8 Dec 2025
Morningstar Rating	★★★ 8 Dec 2025 22:38, UTC	★★★★ 8 Dec 2025 17:21, UTC	★★★★ 8 Dec 2025 17:24, UTC	★★★★ 8 Dec 2025 17:20, UTC
Analyst	Kai Wang, Senior Equity Analyst	Ivan Su, Senior Equity Analyst	Chelsey Tam, Senior Equity Analyst	Chelsey Tam, Senior Equity Analyst
Capital Allocation	Standard	Exemplary	Standard	Standard
Price/Fair Value	0.89	0.76	0.78	0.61
Price/Sales	2.39	7.46	1.57	2.72
Price/Book	1.16	4.29	3.30	2.62
Price/Earning	11.31	21.62	22.14	20.71
Dividend Yield	0.00%	0.74%	0.00%	0.66%
Market Cap	44.70 Bil	5,473.67 Bil	607.63 Bil	2,928.09 Bil
52-Week Range	74.71—149.51	365.60—683.00	94.05—189.60	78.35—186.20
Investment Style	Large Blend	Large Blend	Large Blend	Large Blend

of driving licenses in China could become another growth catalyst.

- Sitting on a cash pile of over CNY 100 billion, Baidu has ample dry powder to invest in technology, particularly in AI, as well as merger and acquisition opportunities.

Bears Say Kai Wang, CFA, Senior Equity Analyst, 1 Sep 2025

- Alibaba, Tencent, ByteDance, Kuaishou, and other social media platforms are competing in terms of advertising budgets, which will result in slow growth in revenue for Baidu search.
- Despite numerous growth initiatives, there is great uncertainty whether the new businesses can be monetized successfully on a mass scale. Failure to do so would result in heavy margin drag.
- Baidu's leadership and brand in search have been weakened by more competitors entering the market, such as Sogou, and could be affected by future regulatory risks.

Economic Moat Kai Wang, CFA, Senior Equity Analyst, 1 Sep 2025

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Baidu's wide economic moat is created by its network effect from a dominant share of the user base and intangible assets from years of AI development and research and development. As one of the earliest internet companies in China, Baidu has built an ecosystem around search and successfully shifted to mobile internet by releasing various well-received mobile apps, such as its flagship Baidu app, which had over 580 million monthly active users as of 2024, and Baidu Maps.

Its incumbent market share and network effect from its years of dominance are Baidu's moat sources for the search business. It has a large database of user behavior data in China, which Baidu's AI search engine has accumulated over the course of almost two decades. This is critical in generating the most relevant results for users, which leads to increased usage and more data, and higher advertising efficiency. Meanwhile, Baidu has built up a network effect and a positive feedback loop in its search business by leveraging its significant search traffic on both PC and mobile devices; this is difficult for its competitors to replicate, as it would take a long time to achieve a user database and marketing customer base of a similar size. The larger the user base, the more user data Baidu can collect and analyze, improving the search engine algorithm and relevancy of search results. Users receive better, more tailored recommendations, making it less likely for users to use another search engine. With the large amount of user data, Baidu can provide personalized advertising strategies so advertisers can better target customers. This results in advertisers becoming more willing to pay higher cost-per-click, or for promoted ads and priority positioning, given a higher click-through rate, or CTR.

In addition, Baidu commands higher cost-per-mille impressions and CPC rate relative to its competitors, which illustrates its wide moat. Despite higher fees, advertisers still prefer to use Baidu as an advertising platform, which is a good indicator of the strength of its network effect. According to marketing firm AdChina.io, Baidu Search ads have an average CPM and CPC of CNY 7-CNY 70 and CNY 2-CNY 9, which is higher than that of Douyin, Weibo, and Toutiao based on the midpoint. This is likely due to Baidu being a pull-based internet platform, meaning ad placements are largely dictated by the users' search queries, where they actively seek out content, compared with other platforms such as Douyin, Toutiao, and Weibo, where platforms are push-based, where ads are "pushed" or delivered to the consumer without much interaction on their part. Nevertheless, it still illustrates how Baidu is viewed as a more valuable platform for advertisers.

One factor that could impact Baidu's moat is whether it violates online advertising laws for the healthcare industry again. Following the Wei Zexi incident in early 2016, where a cancer patient mistook a promoted ad for cancer treatment, Chinese authorities launched new regulations for online search and advertising, which required defined paid search results as advertising and enforced stricter standards for online platforms. These regulations took effect Sept. 1, 2016. There is also a set of stricter regulations for the financial technology sector, which will be regulated like traditional financial institutions. Healthcare accounts for about 15% of Baidu Core's online marketing revenue, and Baidu is an industry leader for healthcare advertising. Should Baidu violate laws again, or if the local authorities

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release more policies regarding its advertising practices, Baidu's dominant position for healthcare advertising could be weakened.

Besides web search, Baidu provides other related content, such as Baidu Post Bar (a social media service), Baidu Knows (a query-based searchable community to share knowledge and experiences), Baidu Encyclopedia, and Baijiahao (a platform for content owners to publish content and manage their fans), which can improve the user experience as well as allocate more ad inventory. It also acquired YY Live in late 2020 (subject to close) to provide livestreaming as well. Along with its smart mini programs, the wide range of content and different services are combined to form an open platform ecosystem operating under its flagship Baidu app, and have also contributed to its moat.

We think iQiyi has no moat, given intense competition. iQiyi is Baidu's online video platform, having merged with PPS in 2013. According to Questmobile, iQiyi is one of the two leaders in the video streaming industry in China, with 570 million monthly active users (versus 540 million at Tencent Video) in March 2020. As with major online video platforms in other regions, iQiyi's monetization model has been shifting from advertising to a mix of advertising and subscription. As of second-quarter 2021, there were 106.2 million subscribers, but membership appears to have stalled since end-2019. Although iQiyi is one of the current top two leaders in online video, we believe it faces intense competition, a low barrier to entry, and uncertain long-term cash flow generation capability.

We see Baidu's AI development and emerging technologies as valuable intangible assets, but assess these businesses to have narrow moats. Again, there is high uncertainty over successful long-term monetization despite heavy investment and a head start in these early lifecycle businesses. Baidu faces an unfamiliar road map for its new businesses, and its history of operations outside its core search competency has not been great. Of its new businesses, Baidu Cloud currently generates the greatest revenue, but we estimate it is still loss-making. In addition, it faces competition from Alibaba, Huawei, and Tencent, which all have greater market share than Baidu, adding to the uncertainty of successful monetization.

Baidu's other major AI areas—autonomous vehicles and voice recognition (DuerOS)—are still loss-making, but given the amount of time and resources spent on R&D, we see a positive trend, given recent launches of AI-enabled products and large monetization potential. Part of its intangible asset moat is the large data set it has collected, which requires a massive amount of time and resources. According to Andrew Ng, the founder of Google Brain, former chief scientist of Baidu, and adjunct professor at Stanford University, 50,000 hours or five years of audio data and text transcripts are required for speech recognition training. In 2017, Baidu had 100,000 hours of such data.

Baidu is also a first-mover for autonomous driving and has the most autonomous driving licenses in China. Currently, Apollo robotaxis are open to the public in Beijing, Changsha, and Cangzhou, and are

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being tested in 27 additional cities in China. Baidu launched a mobility-as-a-service pilot program in Guangzhou in February 2021. Guangzhou residents can use integrated apps to access robotaxis, automated shuttles, self-driving buses, autonomous police robots, and driverless vending carts, all supported by Baidu's Apollo autonomous driving platform. Baidu was also given the green light to operate China's first self-driving bus in a specific area in Chongqing. In 2018, Baidu began mass production and operation of autonomous minibuses. Currently, DuerOS, a natural language-based platform, is building its presence in automotive software for vehicles in China. One million vehicles run DuerOS on 600 vehicle models across 70 manufacturers, per Forbes.

Fair Value and Profit Drivers Kai Wang, CFA, Senior Equity Analyst, 1 Sep 2025

Our fair value estimate for Baidu is USD 146, or HKD 143, per share.

The main revenue drivers will come from Baidu Core's businesses, mainly online advertising and AI cloud segments. 73% of Core revenue still comes from online advertising, which will dictate near-term growth. However, growth has been decelerating, and long-term growth will likely hinge on its AI cloud and smart driving businesses. We forecast near-term (five-year) CAGR for its core online advertising business to be 6% for now, amid intensifying competition, and combined with its other businesses, including iQiyi and AI Cloud, should contribute to a 10% five-year CAGR overall.

Outside of online advertising, margins are a key value driver. There is a lack of scalability for iQiyi due to the constant need to incur high content costs, and this will create margin drag. We also believe AI Cloud and emerging technologies will see greater R&D spending given their early life cycles, and thus the fair value estimate will be dictated by when, if at all, these businesses can monetize with scale. Our gross margin is 49% and operating margin is 12% under the base-case scenario in 2022. Given the uncertainty now, we use conservative margins in our forecast until there is better visibility for these initiatives.

Growth initiatives include "other" revenue, which mainly consists of intelligent driving and DuerOS, accounting for 4% of Core revenue in 2020. We expect these businesses to account for a higher portion by 2025, but the level of monetization could vary greatly given the high uncertainty of commercialization due to the early life cycle of autonomous driving and other emerging products.

For iQiyi, we believe it will have less of an impact on revenue growth as subscribing members and online advertising plateaued in 2020-21, despite the impact of covid-19 forcing people to stay at home more. Subscription growth has stalled since end-2019 (104 million subscribers versus 104.8 million in third-quarter 2021), and we do not see any near-term catalysts for this to change.

Risk and Uncertainty Kai Wang, CFA, Senior Equity Analyst, 1 Sep 2025

We assign Baidu a High Morningstar Uncertainty Rating.

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We think Baidu faces intense competition and uncertainty over whether its AI business will generate satisfactory returns.

Though Baidu is the largest search engine in China, it is competing with other internet giants, Tencent and ByteDance. It also competes with other internet firms for advertising dollars. Baidu's margins have declined through aggressive spending in video content and mobile business.

Baidu also competes in AI, such as cloud computing, voice and image recognition, and autonomous cars. At the current stage, it's difficult to predict if Baidu will be the final winner in AI and whether the ROI will be adequate.

Capital Allocation Kai Wang, CFA, Senior Equity Analyst, 1 Sep 2025

We assign Baidu a Standard Morningstar Capital Allocation Rating.

Baidu's balance sheet risk is low as it is in a net cash position. It had CNY 74 billion net cash and cash equivalents at end-2023.

Baidu has lost its status as one of the top three internet firms, as information can be acquired by users through a lot more forms, such as feeds and apps, compared with previously, when the use of searches was more dominant. Baidu wasn't able to capture the mobile internet opportunities, compared with Tencent and Alibaba. Some of Baidu's acquisitions and business developments have proved unsuccessful. These include the acquisition of 59% of Nuomi, a group-buying service provider, for USD 160 million in 2013 and the remaining stake in 2014 for an undisclosed sum, and Raven Tech for USD 90 million in 2017. Baidu scaled back on Nuomi after it announced reducing subsidies for the business in the earnings call for the fourth quarter of 2016, and it eventually sold Nuomi to iQiyi in 2018. 36kr reported that the lifetime sales volume of Raven Tech's smart speaker was 10,000, versus the target of 200,000. The founder of Raven Tech left Baidu, and the Raven Tech team was reported to be marginalized. It was reported that Lu once commented that the acquisition of Raven Tech was hasty. Baidu's investments in online-to-offline businesses such as deliveries and Nuomi led to its operating margin declining from 26.1% in 2014 to 14.2% in 2016, but they did not gain as much scale as Meituan.

However, we refrain from giving a Poor capital allocation rating to Baidu for several reasons. Baidu made the right decision in moving away from the O2O businesses, which led to margin improvement to 18.5% in 2017, and investing in mobile and AI, which we believe is sensible given that they complement its strong core search business. Baidu is now focusing on its AI businesses, such as AI cloud and Internet of Things, such as smart speakers, and its autonomous driving businesses. Baidu's search business was built on AI; therefore, it has a competitive advantage in certain areas of AI, especially natural language processing. Its AI cloud, the current driver of growth, grew at the rate of 71% in the second quarter of 2021. We expect margins will increase as standardization gradually increases over time, as more customers in the same vertical adopt similar solutions and as renewals increase. While it

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is still early, we see Baidu is leading in many areas in L4 autonomous driving, such as test miles, number of cities with testing and operations, cost, size of car fleet, coverage of high definition map, and so on. Also, Baidu's return on invested capital has been way higher than its weighted average cost of capital of 9.8% over the past 10 years.

Analyst Notes Archive

Baidu: Reports of Chip Production Are Encouraging but Dated; Valuation Remains Unchanged Kai Wang, CFA, Senior Equity Analyst, 24 Sep 2025

According to third-party reports from The Information in September, Baidu has started producing a 30,000 cluster of its own artificial intelligence chips, Kunlun P800, to potentially replace Nvidia for training and inference of large language models. Why it matters: Shares have risen 15% since the report in September, but Baidu announced production back in April. We believe the report just repeats old news and doesn't provide new information that should add incremental material valuation for Baidu. As to valuation, Kunlun P800 is a 7-nanometer chip compared with the China-permitted Nvidia H20, which is 4nm. This suggests that Baidu's chips are one to two generations behind and value is 33%-50% compared with Nvidia. While Baidu initially announced the chips were produced for DeepSeek models, we don't believe the firm will sell its chips on a mass scale to customers given potential conflicts of interest and shortage risks. The bottom line: We maintain our fair value estimate of USD 146 (HKD 143) for Baidu despite the recent runup. While the news suggests Baidu can be self-sufficient and incur lower capital expenditure without having to buy Nvidia H20s, its performance and measure as a long-term solution remains unproven. While the stock now trades at 3 stars and is fairly valued, we believe a pullback could present an attractive buying opportunity. We like Baidu's long-term positioning as a hyperscaler as it is one of the few firms that can scale and develop AI infrastructure for other enterprises. We are not changing our growth assumptions from the chip business until there is evidence of additional developments. We don't expect a material contribution at this stage. Between the lines: Kunlun chips will provide compatibility with Nvidia's ecosystem to make the switching transition easier. However, Kunlun is an XPU processor, unlike an H20 GPU, meaning that its performance is still inferior to the H20 and will need to be combined to maximize computing efficiency.

Baidu Earnings: Advertising Still Struggling, but AI Cloud Becoming More Material to Long-Term Plans Kai Wang, CFA, Senior Equity Analyst, 21 Aug 2025

Baidu's second-quarter 2025 revenue declined 4% year over year due to continued weakness in advertising, but was offset by its enterprise artificial intelligence cloud and emerging generative AI businesses. Why it matters: Overall core revenue was in line with our estimates, but advertising revenue fell 15% year on year, which was 4% worse. However, AI cloud and generative AI revenue increased by 27% and 364% year over year, respectively, becoming a larger, transformative part of Baidu. Baidu

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guided to a 25% year-on-year decline for ads next quarter due to macroeconomic weakness and the inability to monetize AI search so far, which has cannibalized traditional search. While worse than expected, we see long-term stabilization as being more important to valuation, as we only assume 1% midcycle ad growth. We believe market share gains will slowly allow Baidu to diversify away from ads as its main valuation driver. The bottom line: We maintain our fair value estimate of USD 146 (HKD 143) for Baidu and believe shares are undervalued, given the ad business structure remains intact while AI cloud provides additional long-term upside. We expect ad revenue to recover along with the economy. While investor sentiment may be down due to concerns over ad revenue losses, we believe the market may be overlooking its generative AI business as it has grown to 13% of ad revenue, suggesting greater demand as clients are embracing and seeing better ad targeting despite macro softness. We also believe investors are overlooking Baidu's long-term positioning as a hyperscaler, as it is one of the few companies that can scale and develop AI infrastructure for other enterprises.

Baidu Earnings: Continued Advertising Weakness Overshadows AI Cloud Strength; Fair Value Lowered 7% Kai Wang, CFA, Senior Equity Analyst, 22 May 2025

Baidu's first-quarter 2025 revenue increased 3% year on year, driven by strength in its enterprise artificial intelligence cloud business. Why it matters: Overall revenue was better than our flat growth estimates due to a 42% revenue year-on-year increase in AI cloud. However, online marketing revenue was worse than our expectations and offset cloud strength as it fell 6% year on year. Operating margin also contracted by 350 basis points year on year due to the falling ad revenue and should see more pressure as we expect ad revenue to decline 10% year-on-year next quarter and remain soft until 2026. Given ad softness, we lower our five-year revenue compound annual growth rate assumption to 3% from 3.5% and operating margin by 300 basis points on average per year. The bottom line: We lower our fair value estimates to \$146 (HKD 143) from \$157 (HKD 154) for wide-moat Baidu and believe it remains undervalued as it is not fully reflecting a recovery in the ad business. We believe the current price is an attractive entry point, particularly given its positive AI scale potential. The market responded negatively to the soft guidance, falling 4% after initially gaining 3% in premarket trading. Given the reversal, we believe that ad performance will still dictate how investors view the stock near-term, despite continued robust growth and taking market share in AI cloud. However, we expect the AI cloud business to be a long-term driver for Baidu and for revenue to grow 20%-25% year on year for next quarter, which should offset weakness in ads. Generative AI revenue increased by "triple digits" year on year this quarter. Big picture: Management indicated that ad headwinds are transitory and related to macro weakness. While we agree with management, Baidu keeps pushing back its recovery timeline, leading us to believe that Baidu may be losing out on ads versus other internet platforms, which have seen growth.

Baidu Earnings: Robust AI Cloud Growth Offset by Continued Macro Weakness in Advertising Kai Wang, CFA, Senior Equity Analyst, 19 Feb 2025

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Baidu's December-quarter revenue declined 2% year on year to CNY 34.1 billion. AI cloud revenue grew 26% year on year while advertising revenue continued to fall. Why it matters: The AI cloud business remains a highlight for Baidu, and the results support our view for it to be a long-term growth driver that should offset more anticipated weakness from advertising. AI cloud revenue of CNY 7.1 billion accounted for 26% of overall Baidu core revenue in the quarter. The slide in advertising revenue is within expectations and reflects overall macroeconomic weakness in China. The bottom line: We maintain our USD 157/HKD 154 fair value estimate for wide-moat Baidu as the company's AI cloud revenue should see continued tailwinds despite muted demand for the advertising business. We believe the shares are undervalued. Baidu indicated that AI cloud will continue to see strength in 2025. We tweaked our earnings forecast to reflect double-digit AI cloud revenue growth for the year, which should offset advertising headwinds. Overall, we continue to expect 2025-26 earnings to remain sluggish before growth picks up in 2027. Coming up: Baidu did not provide guidance but expects advertising revenue to turn positive in the second half of 2025. This suggests more revenue declines in the first half of 2025. Baidu will no longer charge users for AI model Ernie, following the same strategy as competitors. We do not expect this to materially lower our forecasts. As for upcoming plans for Apollo Go, its robotaxi service, Baidu is starting to roll out operations in Hong Kong. We do not expect it to materially contribute to revenue in the near term, but a successful trial could mean greater monetization. Big picture: Given DeepSeek's success, Baidu is moving toward an open-source model for Ernie for other developers to adopt. Baidu believes that eventual success will be based on the adoption of its AI cloud platform, which it hopes that opening up Ernie can lead to.

Baidu: DeepSeek Has Implications for Chinese Companies Kai Wang, CFA, Senior Equity Analyst, 28 Jan 2025

Based on DeepSeek's initial claims about lowering computing costs to less than 5% of ChatGPT's costs while keeping similar performance, we believe this could be a wake-up call for Chinese artificial intelligence firms such as Baidu and not just US-based hyperscalers. While DeepSeek doesn't make Baidu's AI model Ernie irrelevant—its freely distributed format makes monetization of Baidu's AI business harder in the personal cloud segment. Our fair value estimate is unchanged at USD 157 (HKD 154). We haven't factored in much growth from the personal AI cloud business and DeepSeek shouldn't affect our valuation. While we still have questions about the specific costs of DeepSeek, we believe that the open-source format for its R1 model is driving innovation and will force companies to rethink how best to monetize AI or capital expenditure. Baidu's Ernie is a closed-source model like ChatGPT and requires time to train and build out. Currently, Baidu hasn't monetized personal AI materially as most of its AI revenue still comes from the enterprise cloud or advertising. Therefore, we don't believe DeepSeek will hit near-term revenue, but its introduction to the industry could lower Baidu's total addressable market should DeepSeek's claims about its costs be true. While Baidu's share price has risen 8% in the past five days, DeepSeek's success may not mean the same for Baidu. Baidu's CEO Robin Li said in April

Baidu Inc ADR BIDU ★★★

8 Dec 2025 22:38, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
130.06 USD	146.00 USD	0.89	44.71 USD Bil	Wide	Large Blend	High	Standard	
8 Dec 2025	22 May 2025 10:36, UTC		8 Dec 2025					3 Sep 2025 05:00, UTC

2024 that closed-source models have better reasoning power and cost advantages. We're not trying to make a technical case for either, but we believe Ernie may be behind given that other models are either making headlines or are in partnership talks. While we're uncertain who the eventual winners will be, we believe that large language models are becoming commoditized given that ByteDance, Tencent, and Alibaba have their own models, not to mention other open-source models such as Zhipu, which is also built off Llama and is the same language that DeepSeek uses.

China Vows to Be Looser in Monetary Policy and 'More Proactive' in Its Fiscal Policy; Shares Jump

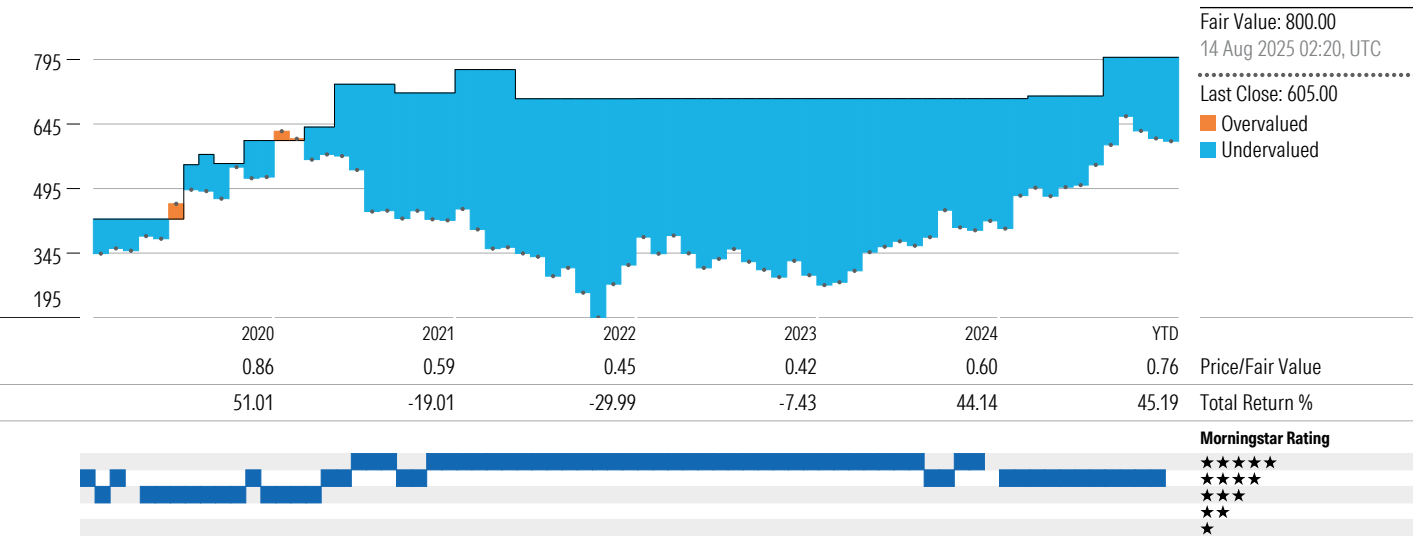
Kai Wang, CFA, Senior Equity Analyst, 10 Dec 2024

China's leaders announced greater measures to loosen monetary policy and for more proactive fiscal policy in its Politburo meeting on Dec. 9. The Hang Seng Index jumped 3% toward the end of the trading day on the announcement. Large-cap ADRs that are indicative of China's consumer confidence such as Alibaba and Pinduoduo saw their shares increase 7% and 10%, respectively. However, we are still waiting for specific policy details before assessing whether the policies will be effective in lifting consumption and ensuring economic growth doesn't slow further. We think the announcement highlights that China stocks are underweight, given there were no quantitative details on the policy yet many ADRs increased sharply in their US trading sessions. Our fair value estimates for most names in China remain unchanged without knowing the details of the policies, and without seeing signs of consumer confidence first, as macrodata remains soft. We note that Trump's potential incremental tariffs remain a risk for China and could derail a 2025 rally. Thus, we recommend investors lean toward names with lesser exposure to US exports. The announcement also comes after Consumer Price Index and Producer Price Index data was released earlier in the day, which showed an increase of 0.2% and a decline of 2.5% year on year, respectively. We believe the announcement helps to ease worries about the weak data. The 2.5% PPI decrease is the 26th straight month of declines. When combined with flat CPI data, this suggests that consumer demand is still low, and China remains in a deflationary environment. The PBOC's stimulus push this year has yet to lead to a persistent boost to consumer confidence. Despite muted consumer demand, we believe there are still undervalued companies as many names in the consumer sector still trade at 20-plus% discounts to our fair value estimates. We still favor domestic-focused companies with wide moats, such as Tencent, Yum China, and Luzhou Laojiao. ■■

Baidu Inc ADR **BIDU** ★★★ 8 Dec 2025 22:38, UTC

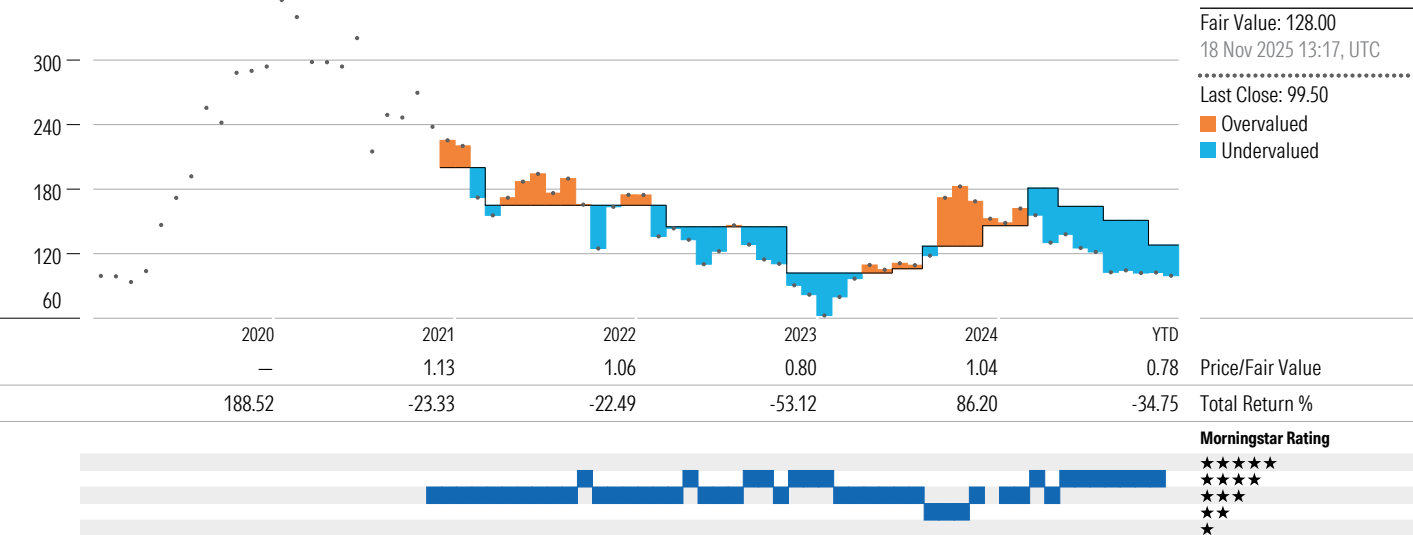
Competitors Price vs. Fair Value

Tencent Holdings Ltd 00700



Total Return % as of 08 Dec 2025. Last Close as of 08 Dec 2025. Fair Value as of 14 Aug 2025 02:20, UTC.

Meituan Class B 03690

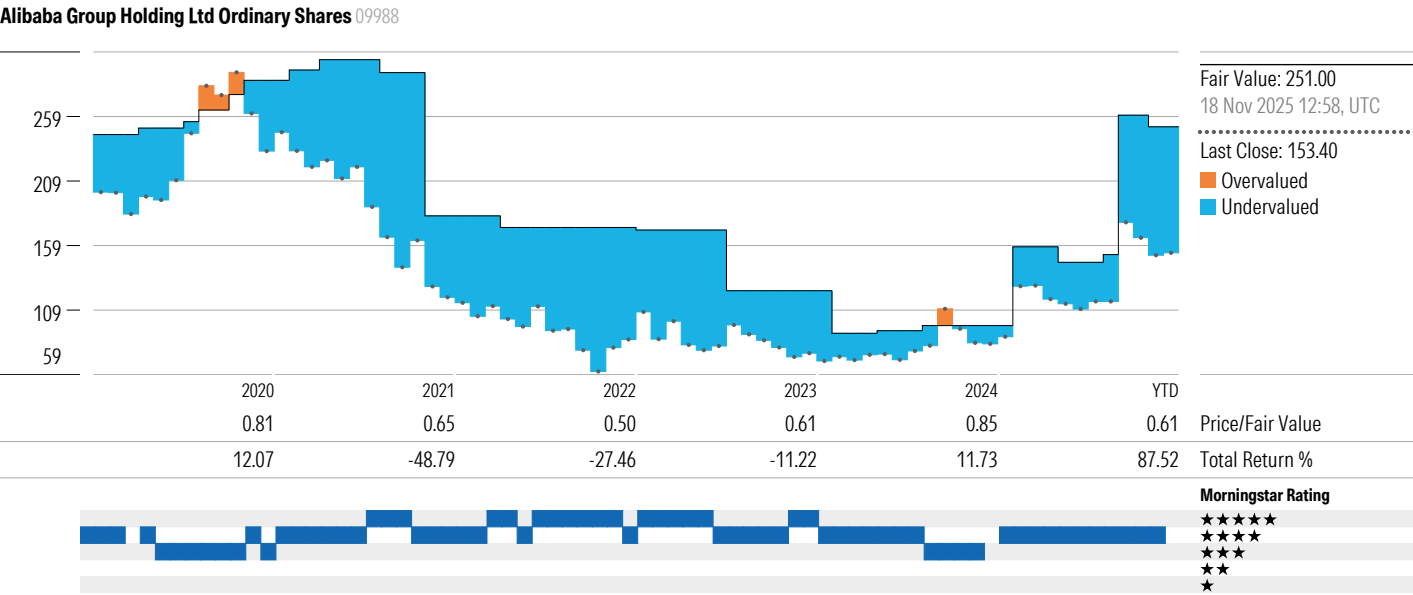


Total Return % as of 08 Dec 2025. Last Close as of 08 Dec 2025. Fair Value as of 18 Nov 2025 13:17, UTC.

Baidu Inc ADR BIDU ★★★

8 Dec 2025 22:38, UTC

Competitors Price vs. Fair Value



Total Return % as of 08 Dec 2025. Last Close as of 08 Dec 2025. Fair Value as of 18 Nov 2025 12:58, UTC.

Baidu Inc ADR BIDU ★★★

8 Dec 2025 22:38, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
130.06 USD 8 Dec 2025	146.00 USD 22 May 2025 10:36, UTC	0.89	44.71 USD Bil 8 Dec 2025	Wide	Large Blend	High	Standard	 3 Sep 2025 05:00, UTC

Morningstar Valuation Model Summary

Financials as of 19 Nov 2025

Fiscal Year, ends 31 Dec	Actual			Forecast				
	2022	2023	2024	2025	2026	2027	2028	2029
Revenue (CNY Mil)	123,675	134,598	133,125	128,692	136,991	145,052	152,413	158,942
Operating Income (CNY Mil)	16,184	22,088	21,535	10,157	12,632	14,808	17,068	19,376
EBITDA (CNY Mil)	13,257	27,827	30,874	7,932	19,179	21,758	24,386	27,020
Adjusted EBITDA (CNY Mil)	20,045	34,172	35,658	9,387	23,509	26,827	29,753	27,020
Net Income (CNY Mil)	7,559	20,315	23,760	4,984	11,936	14,232	16,648	19,154
Adjusted Net Income (CNY Mil)	7,559	20,315	23,760	4,984	11,936	14,232	16,648	19,154
Free Cash Flow To The Firm (CNY Mil)	41,026	-4,102	25,459	17,284	20,882	21,897	22,842	25,060
Weighted Average Diluted Shares Outstanding (Mil)	2,792	2,837	2,798	2,751	2,751	2,751	2,751	2,751
Earnings Per Share (Diluted) (CNY)	2.71	7.16	8.49	1.81	4.34	5.17	6.05	6.96
Adjusted Earnings Per Share (Diluted) (CNY)	2.71	7.16	8.49	1.81	4.34	5.17	6.05	6.96
Dividends Per Share (CNY)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Margins & Returns as of 19 Nov 2025

	3 Year Avg	Actual			Forecast					5 Year Avg
		2022	2023	2024	2025	2026	2027	2028	2029	
Operating Margin %	12.8	13.1	16.4	16.2	7.9	9.2	10.2	11.2	12.2	8.5
EBITDA Margin %	—	10.7	20.7	23.2	6.2	14.0	15.0	16.0	17.0	—
Adjusted EBITDA Margin %	—	16.2	25.4	26.8	7.3	17.2	18.5	19.5	17.0	15.9
Net Margin %	13.0	6.1	15.1	17.8	3.9	8.7	9.8	10.9	12.0	9.1
Adjusted Net Margin %	13.0	6.1	15.1	17.8	3.9	8.7	9.8	10.9	12.0	9.1
Free Cash Flow To The Firm Margin %	16.4	33.2	-3.1	19.1	13.4	15.2	15.1	15.0	15.8	14.9

Growth & Ratios as of 19 Nov 2025

	3 Year CAGR	Actual			Forecast					5 Year CAGR
		2022	2023	2024	2025	2026	2027	2028	2029	
Revenue Growth %	2.3	-0.7	8.8	-1.1	-3.3	6.5	5.9	5.1	4.3	3.6
Operating Income Growth %	21.6	35.2	36.5	-2.5	-52.8	24.4	17.2	15.3	13.5	-2.1
EBITDA Growth %	37.4	-8.8	109.9	11.0	-74.3	141.8	13.5	12.1	10.8	20.8
Adjusted EBITDA Growth %	18.2	-7.1	70.5	4.4	-73.7	150.4	14.1	10.9	-9.2	-5.4
Earnings Per Share Growth %	32.7	-25.5	164.5	18.6	-78.7	139.5	19.2	17.0	15.0	-3.9
Adjusted Earnings Per Share Growth %	32.7	-25.5	164.5	18.6	-78.7	139.5	19.2	17.0	15.0	-3.9

Valuation as of 19 Nov 2025

	Actual			Forecast				
	2022	2023	2024	2025	2026	2027	2028	2029
Price/Earning	36.7	14.7	9.1	63.5	26.5	22.2	19.0	16.5
Price/Sales	2.2	2.2	1.6	2.4	2.3	2.2	2.1	2.0
Price/Book	1.2	1.2	0.8	1.2	1.1	1.1	1.0	1.0
Price/Cash Flow	—	—	—	—	—	—	—	—
EV/EBITDA	9.9	5.6	4.5	30.4	12.1	10.6	9.6	10.6
EV/EBIT	12.2	8.7	7.4	28.1	22.6	19.3	16.7	14.7
Dividend Yield %	—	—	—	—	—	—	—	—
Dividend Payout %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Free Cash Flow Yield %	—	—	—	—	—	—	—	—

Operating Performance / Profitability as of 19 Nov 2025

Fiscal Year, ends 31 Dec	Actual			Forecast				
	2022	2023	2024	2025	2026	2027	2028	2029
ROA %	1.9	5.0	5.6	1.2	2.7	3.1	3.5	3.8
ROE %	3.2	7.7	8.4	1.7	4.0	4.5	5.0	5.5
ROIC %	20.7	17.5	4.3	-3.8	-0.9	2.8	7.8	14.7

Baidu Inc ADR BIDU ★★★

8 Dec 2025 22:38, UTC

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Financial Leverage (Reporting Currency)	Actual			Forecast				
Fiscal Year, ends 31 Dec	2022	2023	2024	2025	2026	2027	2028	2029
Debt/Capital %	69.8	67.1	72.6	16.8	15.5	14.2	13.0	11.9
Assets/Equity	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.4
Net Debt/EBITDA	-6.2	-3.9	-1.6	-7.2	-3.9	-4.3	-4.7	-5.0
Total Debt/EBITDA	4.6	2.5	2.2	7.9	3.2	2.8	2.5	2.8
EBITDA/ Net Interest Expense	-6.0	-7.2	-6.9	-1.8	-10.7	-9.8	-9.0	-6.8

Forecast Revisions as of 19 Nov 2025	2025		2026		2027	
Prior data as of 21 Aug 2025	Current	Prior	Current	Prior	Current	Prior
Fair Value Estimate Change (Trading Currency)	146.00	146.16	—	—	—	—
Revenue (CNY Mil)	128,692	127,548	136,991	132,340	145,052	138,555
Operating Income (CNY Mil)	10,157	12,078	12,632	15,540	14,808	18,333
EBITDA (CNY Mil)	9,387	26,685	23,509	25,703	26,827	29,770
Net Income (CNY Mil)	4,984	19,119	11,936	13,912	14,232	16,728
Earnings Per Share (Diluted) (CNY)	1.81	6.90	4.34	5.02	5.17	6.03
Adjusted Earnings Per Share (Diluted) (CNY)	1.81	6.90	4.34	5.02	5.17	6.03
Dividends Per Share (CNY)	0.00	0.00	0.00	0.00	0.00	0.00

Key Valuation Drivers as of 19 Nov 2025

Cost of Equity %	9.0
Pre-Tax Cost of Debt %	6.5
Weighted Average Cost of Capital %	10.5
Long-Run Tax Rate %	15.0
Stage II EBI Growth Rate %	6.0
Stage II Investment Rate %	30.0
Perpetuity Year	15

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

Discounted Cash Flow Valuation as of 19 Nov 2025

	CNY Mil
Present Value Stage I	79,506
Present Value Stage II	94,265
Present Value Stage III	111,949
Total Firm Value	285,720
Cash and Equivalents	127,440
Debt	74,351
Other Adjustments	0
Equity Value	338,809
Projected Diluted Shares	2,798
Fair Value per Share (USD)	146.00

Baidu Inc ADR **BIDU** ★★★ 8 Dec 2025 22:38, UTC

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130.06 USD 8 Dec 2025	146.00 USD 22 May 2025 10:36, UTC	0.89	44.71 USD Bil 8 Dec 2025	Wide	Large Blend	High	Standard	 3 Sep 2025 05:00, UTC

ESG Risk Rating Breakdown

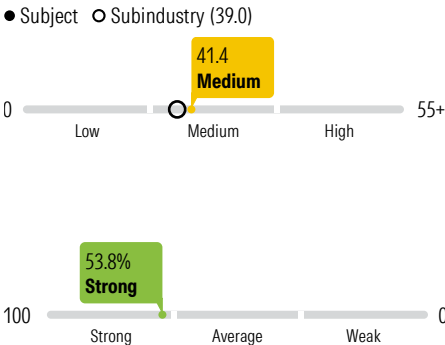
Exposure

Company Exposure¹	41.4
- Manageable Risk	38.2
Unmanageable Risk²	3.1

Management

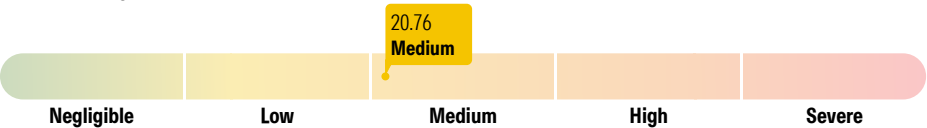
Manageable Risk	38.2
- Managed Risk³	20.6
Management Gap⁴	17.7

Overall Unmanaged Risk 20.8



- ▶ 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 53.8% 4. Management Gap assesses risks that are not managed, but are considered manageable 5. ESG Risk Rating Assessment = Overall Unmanaged Risk = Management Gap plus Unmanageable Risk

ESG Risk Rating Assessment⁵



ESG Risk Rating is of Sep 03, 2025. Highest Controversy Level is as of Dec 08, 2025. Sustainalytics Subindustry: Internet Software and Services. 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 03 Sep 2025

Company Name	Exposure	Management	ESG Risk Rating
Baidu Inc	41.4 Medium 0 —●— 55+	53.8 Strong 100 —●— 0	20.8 Medium 0 —●— 40+
Tencent Holdings Ltd	39.3 Medium 0 —●— 55+	51.4 Strong 100 —●— 0	20.5 Medium 0 —●— 40+
Alibaba Group Holding Ltd	38.9 Medium 0 —●— 55+	57.5 Strong 100 —●— 0	18.2 Low 0 —●— 40+
JD.com Inc	35.4 Medium 0 —●— 55+	28.8 Average 100 —●— 0	25.9 Medium 0 —●— 40+
Meituan	36.1 Medium 0 —●— 55+	41.0 Average 100 —●— 0	22.2 Medium 0 —●— 40+

Appendix

Historical Morningstar Rating

Baidu Inc ADR BIDU 8 Dec 2025 22:38, 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 ★★★★

Tencent Holdings Ltd 00700 8 Dec 2025 17:21, UTC

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

Meituan Class B 03690 8 Dec 2025 17:24, 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 —

Alibaba Group Holding Ltd Ordinary Shares 09988 8 Dec 2025 17:20, UTC

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

Research Methodology for Valuing Companies

Overview

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

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

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

1. Economic Moat

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

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

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

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

2. Estimated Fair Value

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

Our model is divided into three distinct stages:

Stage I: Explicit Forecast

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

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

Stage II: Fade

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

Stage III: Perpetuity

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

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

3. Uncertainty Around That Fair Value Estimate

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

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

Morningstar Equity Research Star Rating Methodology



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

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

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

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

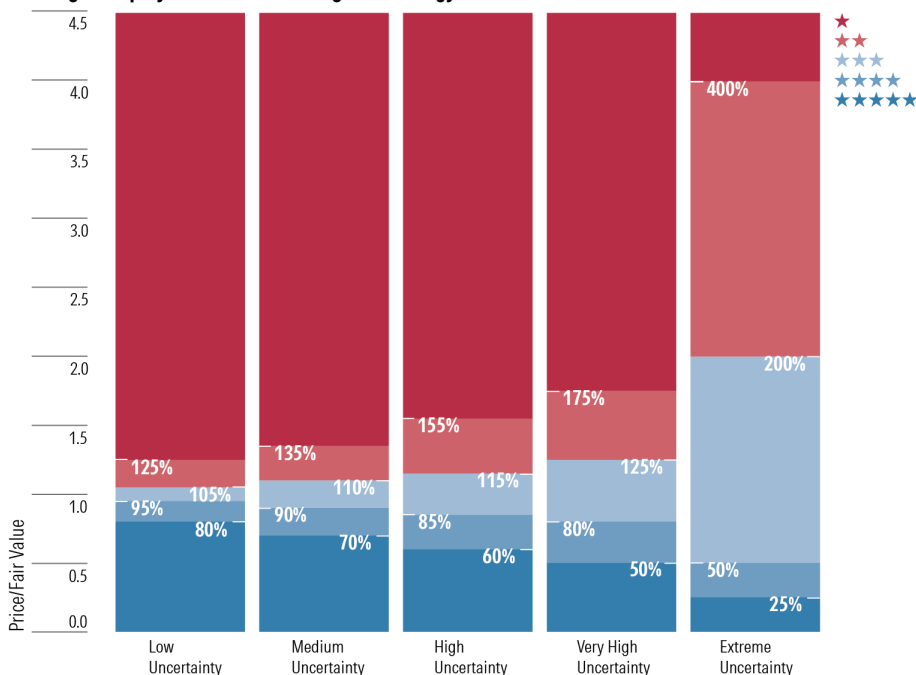
Our uncertainty rating is based on the interquartile range, or the middle 50% of potential outcomes, covering the 25th percentile–75th percentile. This means that when a stock hits 5 stars, we expect there is a 75% chance that the intrinsic value of that stock lies above the current market price. Similarly,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

4. Market Price

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

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

Morningstar Equity Research Star Rating Methodology



Morningstar Star Rating for Stocks

Once we determine the fair value estimate of a stock, we compare it with the stock's current market price on a daily basis, and the star rating is automatically re-calculated at the market close on every day the market on which the stock is listed is open. Our analysts keep close tabs on the companies they follow, and, based on thorough and ongoing analysis, raise or lower their fair value estimates as warranted.

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

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

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

The Morningstar Star Ratings for stocks are defined below:

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

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

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

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

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

Other Definitions

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

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

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

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

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

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

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

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

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

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

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

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