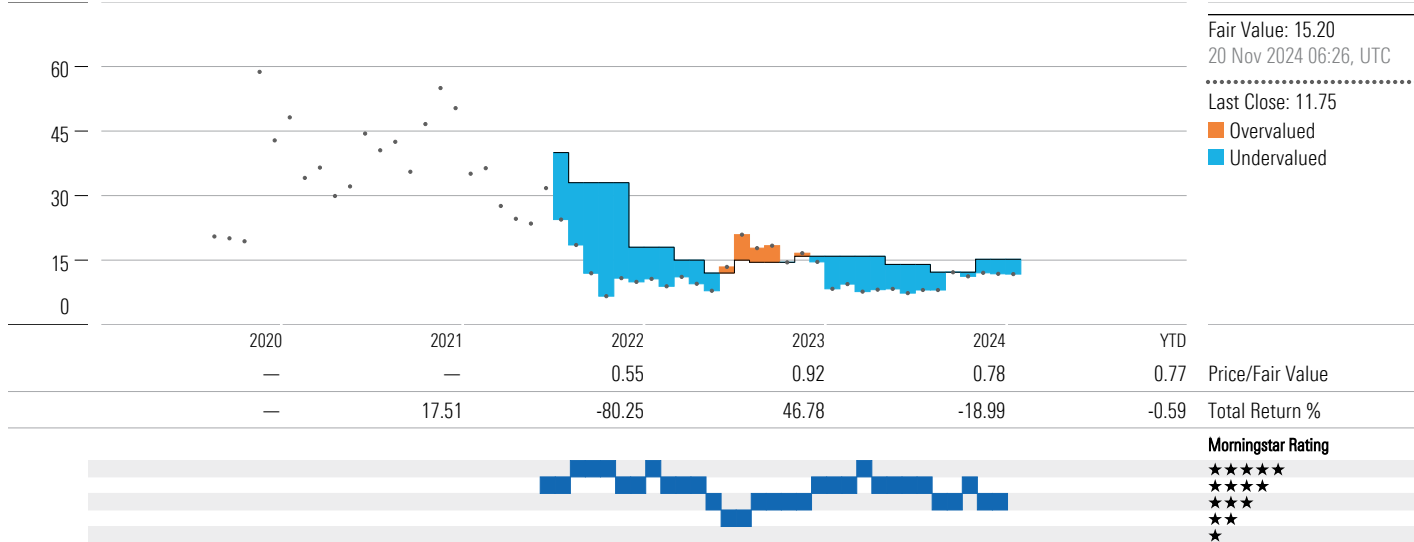


XPeng Inc ADR XPEV ★★★ 7 Jan 2025 22:54, UTC

Last Price 11.75 USD 6 Jan 2025	Fair Value Estimate 15.20 USD 20 Nov 2024 06:26, UTC	Price/FVE 0.77	Market Cap 12.19 USD Bil 7 Jan 2025	Economic Moat™ None	Equity Style Box Large Blend	Uncertainty Very High	Capital Allocation Standard	ESG Risk Rating Assessment¹ 1 Jan 2025 06:00, UTC
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Price vs. Fair Value



Total Return % as of 06 Jan 2025. Last Close as of 06 Jan 2025. Fair Value as of 20 Nov 2024 06:26, UTC.

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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.

Leading NEV Manufacturer With Advanced In-House Autonomous Driving Technology

Business Strategy & Outlook Vincent Sun, CFA, Senior Analyst, 22 May 2024

XPeng is a leading electric vehicle manufacturer in China, targeting the midrange to high-end segment and tech-savvy consumers. It is mass producing six pure electric models: the G3/G3i compact sport utility vehicle, or SUV; P7 midsize sedan; P5 compact sedan; G9 midsize SUV; G6 compact SUV, and X9 multipurpose vehicle. Retail prices of the current model portfolio range from CNY 150,000 to CNY 420,000 for popular trims, which offer a driving range of roughly 460-700 km. For its new model pipeline, XPeng plans to launch at least 10 new cars in the next three years.

XPeng has put a lot of effort into research and development for its in-house developed full-stack autonomous driving technology, which has become a key selling point for its models. The Xpilot software is China's first Level 3 autonomous driving system, featuring a navigation guided pilot for highway driving and advanced automated parking functions.

We see rapid new energy vehicle, or NEV adoption in China, being stimulated by regulatory push and improving charging infrastructure, among others. By 2025, we expect passenger NEVs to account for close to 50% of total passenger car sales, from 16% in 2021. Riding on the vehicle electrification tailwind, we forecast XPeng's vehicle delivery to reach over 205,000 units in 2025 from 141,600 units in 2023, taking about 2% share in China's passenger NEV market. XPeng is still loss-making, but we

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Sector	Industry
 Consumer Cyclical	Auto Manufacturers

Business Description

Founded in 2015, XPeng is a leading Chinese smart electric vehicle company that designs, develops, manufactures, and markets EVs in China. Its products primarily target the growing base of technology-savvy middle-class consumers in the midrange to high-end segment in China's passenger vehicle market. The company sold over 141,000 EVs in 2023, accounting for about 2% of China's passenger new energy vehicle market. It is also a leader in autonomous driving technology.

forecast improving vehicle sales profit driven mainly by increased vehicle deliveries and lower unit production cost. As such, we expect it to turn profitable in 2026.

Its contract manufacturing arrangement with Haima Auto expired in 2021, so production was relocated to XPeng's own Zhaoqing plant in Guangdong with annual designed capacity of 100,000 units. The firm targets to expand Zhaoqing capacity to 200,000 units this year and is also building two additional production plants in Guangzhou and Wuhan, each with annual designed capacity of 100,000 units. By 2024, XPeng would have total production capacity of 400,000 units, with a maximum of 600,000 by adding shifts.

Bulls Say Vincent Sun, CFA, Senior Analyst, 20 Nov 2024

- ▶ XPeng's leadership in autonomous driving technology will differentiate the company and help the company defend its market share in the mass market segment amid intensifying competition.
- ▶ Chinese consumers' soaring demand for EV cars will benefit NEV carmakers such as XPeng. Advancing battery technology and charging solutions will ease range anxiety on electric cars and enable EVs to achieve cost parity with gasoline cars in the midterm.
- ▶ The strategic collaboration and share purchase agreement from Volkswagen Group removes investors' concern around the company's near-term liquidity.

Bears Say Vincent Sun, CFA, Senior Analyst, 20 Nov 2024

- ▶ Rising competition among mass-market NEV models will place heavy pricing pressure on XPeng. As a mass-market brand, the company will need to offer aggressive promotions and discounts to consumers, which will weigh on its vehicle margin outlook.
- ▶ The escalating battery cost in 2022-23 has pressured XPeng's vehicle margin. It has also derailed the industry projection of the cost parity of NEVs with ICEs, affecting NEV adoption in the long run.
- ▶ A higher level of vehicle autonomy still has a very long way to commercialize, considering regulations, infrastructure and technology development.

Economic Moat Vincent Sun, CFA, Senior Analyst, 21 May 2024

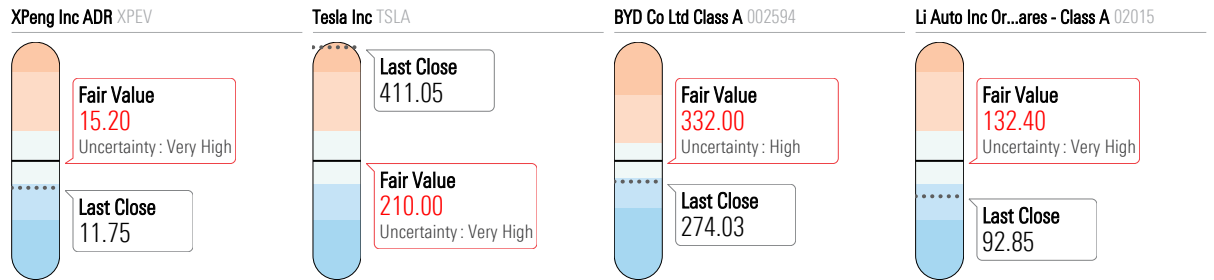
While we like XPeng's current technology leadership, we are not convinced yet that this will allow it to maintain premium pricing over its competitors' products over at least a 10-year period. As such, we think XPeng has no moat. Generally, we see two moat sources in the auto sector from intangible assets such as brand equity, best exemplified by Ferrari, and from cost advantage. At this stage we do not yet see either moat source to be retained by XPeng.

We expect technology to play an increasingly important role for NEV makers to attract consumers from internal combustion engine, or ICE, vehicles and to differentiate themselves in competition among NEV models. XPeng leads its domestic peers in developing full-stack technology. Capitalizing on in-house

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Competitors



	XPeng Inc ADR XPEV	Tesla Inc TSLA	BYD Co Ltd Class A 002594	Li Auto Inc Dr...ares - Class A 02015
Economic Moat	None	Narrow	None	None
Currency	USD	USD	CNY	HKD
Fair Value	15.20 20 Nov 2024 06:26, UTC	210.00 24 Oct 2024 06:35, UTC	332.00 31 Oct 2024 02:32, UTC	132.40 1 Nov 2024 05:45, UTC
1-Star Price	26.60	367.50	514.60	231.70
5-Star Price	7.60	105.00	199.20	66.20
Assessment	Fairly Valued 7 Jan 2025	Overvalued 7 Jan 2025	Undervalued 7 Jan 2025	Undervalued 7 Jan 2025
Morningstar Rating	★★★ 7 Jan 2025 22:54, UTC	★ 7 Jan 2025 22:45, UTC	★★★★★ 7 Jan 2025 17:41, UTC	★★★★★ 7 Jan 2025 17:23, UTC
Analyst	Vincent Sun, Senior Analyst	Seth Goldstein, Strategist	Vincent Sun, Senior Analyst	Vincent Sun, Senior Analyst
Capital Allocation	Standard	Exemplary	Standard	Standard
Price/Fair Value	0.77	1.88	0.83	0.70
Price/Sales	2.08	14.77	1.16	1.30
Price/Book	2.44	18.85	5.08	2.71
Price/Earning	—	108.08	20.84	18.46
Dividend Yield	0.00%	0.00%	1.14%	0.00%
Market Cap	12.19 Bil	1,265.92 Bil	797.23 Bil	197.03 Bil
52-Week Range	6.55 — 15.68	138.80 — 488.54	162.77 — 338.04	68.65 — 182.90
Investment Style	Large Blend	Large Growth	Large Growth	Large Blend

research and development capabilities, the company rolled out Xpilot 3.0 through over-the-air firmware updates in 2021. Xpilot 3.0 is China's first Level 3 autonomous driving system, featuring navigation guided pilot, or NGP, for highway driving and advanced automated parking functions.


We like XPeng's proprietary autonomous driving algorithm and data capability. Instead of relying on third-party software suppliers for autonomous driving algorithms like other original equipment manufacturers, or OEMs, XPeng had dedicated a great amount of resources and effort in related R&D since inception. It is currently the only Chinese NEV maker that has developed full-stack proprietary autonomous driving software. Leveraging its in-house development approach, Xpilot is tailored to specific road conditions in China, enabling better customer experience and higher adaptiveness to unique driving behavior, compared with solutions from global OEMs and autonomous driving suppliers.

The first-mover advantage also benefits XPeng in terms of road-testing data accumulation for algorithm

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Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment ¹
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iteration, which in turn will enhance its autonomous driving software capability. As a result, the improving technology experience would help XPeng sell more EVs for data and corner (unusual) case collection, which forms a closed loop for faster algorithm updates.

However, as the industry becomes increasingly competitive, it is still uncertain whether the technological lead that XPeng has will be retained over the long run to underpin a moat. Most of the elements of the technological advantages are likely to be replicated with time, given we are still in the early days of the industry. Legacy ICE manufacturing is highly competitive and capital-intensive. We expect the same in the NEV market over time. In addition, the company is still burning cash and we expect it is likely to do that for at least a couple more years, so the risk for the need to raise additional capital for capital-intensive investment is high, in our view.

Fair Value and Profit Drivers Vincent Sun, CFA, Senior Analyst, 20 Nov 2024

Our fair value estimate is USD 15.20 per ADS, based on our expectation for XPeng to continue gaining share from legacy automakers. Riding on the industry electrification trend and increasing consumer adoption of NEVs, we anticipate rising demand for the company's NEV models and improving profitability on economies of scale over the next few years. Our fair value estimate implies a forward 2025 price/sales ratio of 1.9 times.

We expect the company's revenue to expand at a CAGR of 26% in 2023-28, mainly driven by an expansion in vehicle delivery volume. We estimate an increasing NEV penetration rate, coupled with a demand shift to Chinese local brands, should lead to total volume growth of 24% CAGR over the next five years. Despite international and local automakers continuing to aggressively bring new NEV models to market, we believe XPeng enjoys clear leadership in vehicle autonomy technology. In light of competition in the mass market segment and change in product mix, we anticipate an average 2% improvement in average selling price yearly over the next five years.

Increasing scale effect would improve the company's profitability, in our view. We project the group's operating margin to expand to 5.8% in 2028, from negative 37.1% in 2023. While vehicle margins are under pressure in the short term, the diffusion of NEV technology and battery energy density will result in higher profitability over the longer term, reaffirming our improving margin assumptions. As a result, we anticipate the company's net loss to narrow at 48% CAGR during 2023-25, reaching breakeven in 2026 with CNY 1.6 billion in net profit.

Risk and Uncertainty Vincent Sun, CFA, Senior Analyst, 21 May 2024

We have a Very High Morningstar Uncertainty Rating for XPeng because the company operates in a cyclical, capital-intense, and highly competitive auto manufacturing industry. These factors combined can drive huge swings in return on invested capital, even for pure-play NEV automakers. Heavy fixed

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costs induce fluctuating profitability from relatively small changes in demand, or from lost production due to supply shocks.

XPeng's key threats include escalating competition in China's mass-market NEV segment. Motivated by robust demand growth in electric vehicles, major automakers have accelerated their NEV product development in recent years. Legacy automakers, whether Chinese or global, continue to bring new electric models onto the market and compete on prices. We believe it will be increasingly challenging for XPeng to increase its market share if it fails to differentiate XPeng models from those of peers.

The automotive industry is capital-intensive. XPeng will need significant capital to ramp up production capacity, expand its sales and service network, and conduct research and development. Its future capital needs may require the company to obtain external financing through additional equity or debt issuances that may dilute existing shareholders' interests or introduce covenants that may restrict its operations. In addition, such financing might not be available in a timely manner or on acceptable terms, which would delay its expansion plans.

Autonomous driving is a key factor that differentiates XPeng's EVs from competing products. The development of autonomous driving technology may be affected by regulatory restrictions. Moreover, the technology is subject to risks and from time to time there have been accidents associated with it. To the extent accidents associated with autonomous driving systems occur, the company could be subject to liability, government scrutiny and further regulation.


Capital Allocation Vincent Sun, CFA, Senior Analyst, 20 Mar 2024

We have assigned a Standard Capital Allocation Rating to XPeng. The rating reflects our assessment of a sound balance sheet, fair investment and shareholder distributions. XPeng's balance sheet looks sound with a conservative level of debt in its book. The company has been in a net cash position since 2018 and we think the balance sheet will remain sound, as its access to capital is likely to remain solid amid automotive electrification tailwinds.

The company has not paid out dividends since it was founded in 2015. In addition, given the large capital expenditure required for NEV investments, it is unlikely for dividends to happen in the next five years. We believe it is an appropriate shareholder distribution strategy as management continues to expand its sales network and invest in related technologies.

He Xiaopeng, co-founder, chairman and chief executive officer of the company, built one of China's largest electric vehicle manufacturing enterprises from the ground up. He holds over 60% voting rights in XPeng, indicating his significant vested interest in the firm's long-term success. Unlike the case for many other Chinese automakers, the government does not have a direct stake in the listed entity. Such a shareholding structure enables the company to prioritize shareholder interests and be nimbler when it comes to staying on top of the competition.

XPeng Inc ADR XPEV ★★★ 7 Jan 2025 22:54, UTC

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Analyst Notes Archive**XPeng Earnings: Revenue in Line; Vehicle Margin Slightly Missed but Guided to Further Expand**

Vincent Sun, CFA, Senior Analyst, 20 Nov 2024

XPeng's third-quarter revenue was 7% above the midpoint of guidance but largely in line with our expectations. Thanks to larger vehicle deliveries and lower battery costs, vehicle margin recovered further to 8.6% from 6.4% last quarter.

Why it matters: The margin improvement was weaker than we expected, likely due to pressure from price promotions amid competition. However, management is confident the firm will continue to record margin recovery in the fourth quarter and next year benefiting from strong sales and cost-cutting. Looking beyond this quarter, we believe volume will stage a robust pickup given XPeng's new model pipeline. The Mona M03 sedan has ramped up to 10,000 units of monthly delivery only one month after launch. As well, the firm recently launched the P7+ midsize sedan with strong initial order intakes.

The bottom line: We raise our fair value estimate to USD 15.20 per ADS (HKD 59.00 per share), from USD 12.20 (HKD 47.50), implying a 1.9 times 2025 price/sales ratio. Despite concern about first-quarter vehicle demand after the national subsidy expiration at year-end, shares are undervalued for long-term investors. We raise our 2024-28 vehicle delivery forecast by about 30% to factor in the firm's strong new model cycle, such as M03, P7+, and plug-in hybrid G9, next year. Partly offset by lower vehicle price assumptions, we raise 2024-28 revenue estimates by 17%-19%. With a lower vehicle margin, we increase the 2024-25 net loss forecast by 5%-11% but lift 2026-28 net profit forecast by 4%-8% to reflect positive operating leverage on larger deliveries. We estimate the firm to record a net loss of CNY 6.6 billion in 2024 and break even in 2026 with a net profit of CNY 1.6 billion.

Between the lines: For the fourth quarter, management guided vehicle delivery to increase 45%-51% year over year to 87,000-91,000 units. The guidance implies monthly sales of over 32,000 units for November and December, which we believe is above market expectations.

XPeng Earnings: Revenue in Line; Vehicle Margin Remains Under Pressure Despite Volume Recovery

Vincent Sun, CFA, Senior Analyst, 21 Aug 2024

XPeng's second-quarter revenue was 3% above the midpoint of its guidance. Thanks to a better product mix and lower battery cost, the vehicle margin further recovered to 6.4% from negative 8.6% in the second quarter of last year. But the margin improvement was weaker than we expected due likely to pressure from price promotions amid competition. Management is confident the company will continue to record margin recovery for the rest of the year. However, with lower volume, softer vehicle margin, and higher operating expense assumptions, we increase our net loss forecast for 2024-25 and cut net profit estimates for outer years. As a result, we reduce our fair value estimate to USD 12.20 per ADS (HKD 47.30 per share), from USD 14.00 per ADS (HKD 54.90 per share), which implies a forward 2025

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price/sales ratio of 1.8 times. XPeng is undervalued, but our preferred pick in the China auto space is Geely, based on valuation grounds and market share gains from its new energy vehicle product, Zeekr.

Looking beyond the second quarter, we believe volume will recover sequentially, and growth will be skewed toward the last few months, given the company's new model pipeline. The first sedan model under the Mona brand, M03, will start delivery in August. In addition, the firm will launch a midsize sedan, the P7 Plus, in the fourth quarter. Despite retail price discounts amid continued market competition, we believe vehicle margin will continue to record sequential recovery in the second half, benefiting from recovering sales and higher technical service income.

For the third quarter, management guided vehicle delivery to increase by 2%-12% year over year to 41,000-45,000 units and total revenue to increase by 7%-15% year over year to CNY 9.1 billion-CNY 9.8 billion. The midpoint of the delivery guidance implies a monthly sales volume of around 16,000 units for August and September, which we believe is slightly below market expectation, given Mona M03 delivery will start this month.

Tariffs of Up to 25% on Chinese EV Manufacturers Won't Change Our Growth Outlook Vincent Sun, CFA, Senior Analyst, 12 Jun 2024

Shares of Chinese electric vehicle manufacturers fell 4%-9% on June 12 in Hong Kong on news that the European Commission will provisionally apply additional tariffs of up to 25% on imported electric vehicles made in China starting next month, compared with the 10% standard import duties on EVs. The European Union launched an investigation in October 2023 into subsidies given to EV automakers in China. The EU accused Chinese automakers of unfairly benefiting from incentives and support from the Chinese government and such subsidies have raised overcapacity concerns. The commission alleged that subsidized car imports posed an economic threat to the healthy development of the EV industry in the EU.

The move is modest compared with the stiff 100% tariffs on Chinese EV imports into the US, hiked from 25% last month, by the Joe Biden administration and the 25% provisional duties are in line with market expectations of 20%-25%, in our view. Unlike the US market where imports of China-made EVs have been negligible, we believe the import levies imposed by the EU will put pressure on sales for Chinese EV manufacturers in the near term. However, we think Chinese producers are still competitive compared with their rivals. The commission estimates that prices of Chinese EVs are typically 20% lower than prices of EU-made equivalent models. With additional tariffs, Chinese cars are at similar prices, but with more attractive designs and vehicle technology. In addition, the tariffs will apply not only to Chinese carmakers including BYD and Geely, but also to global automakers such as Tesla and BMW, which export EVs from China to Europe.

In the medium term, we do not think the import levies will derail Chinese EV manufacturers' expansion

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plans to set up factories in Europe. The increase in local production in the EU could largely offset the impact of tariffs. For example, BYD announced last year it would build a new manufacturing plant in Hungary for localized production.

XPeng Earnings: Results Beat on Vehicle Margin and Technical Service Income; Growth Bottomed Out Vincent Sun, CFA, Senior Analyst, 22 May 2024

XPeng's first-quarter revenue was 6% above the high end of its guidance. Thanks to a better product mix and lower battery cost, the vehicle margin recovered to 5.5% from negative 2.5% in the first quarter of last year. The margin improvement was stronger than we expected, considering pressure from price promotions amid competition. Management is confident the company will continue to record margin recovery for the rest of the year. We trim our 2024-26 vehicle delivery forecast by 33%-36% to factor in year-to-date sales run-rate and expect XPeng to sell 160,000 vehicles in 2024. With lower volume, better margin, and higher operating expense assumptions, as the company accelerates overseas development, we reduced our net loss forecast for 2024-25. Still, we cut net profit estimates for outer years. As a result, we reduced our fair value estimate to USD 14.00 per ADS (HKD 54.90 per share) from USD 15.90 (HKD 61.70), which implies a forward 2024 price/sales ratio of 2.5 times.

For the second quarter, management guided vehicle delivery to increase by 25%-38% year over year to 29,000-32,000 units and for total revenue to grow 48%-64% year over year to CNY 7.5 billion-CNY 8.3 billion. The midpoint of the delivery guidance implies a monthly sales volume of around 10,500 units for May and June, which we believe is in line with the lukewarm market expectation.

We remain positive on the name as we believe growth momentum has bottomed out. In our view, investors focus on whether the company can resume delivery growth with new launches and improve profitability in a challenging pricing environment. Looking beyond the first quarter, we believe volume will recover sequentially, and growth will be skewed toward the second half, given the company's new model pipeline. The first sedan model under the Mona brand will be released in June, with delivery in the third quarter. In addition, the company will launch the P6 midsize sedan built on the Sepa platform in the fourth quarter.

XPeng Earnings: Revenue In Line; Vehicle Margin Beat but Should Stay Pressured in the Near Term Vincent Sun, CFA, Senior Analyst, 20 Mar 2024

XPeng reported fourth-quarter revenue at the midpoint of its guidance. Thanks to lower battery costs and larger volume, vehicle margin recovered to 4% from negative margins in the first three quarters last year. The improvement in margin was stronger than we expected, given the continued pressure from price promotions amid industry competition. Management guided that the company's cost reduction initiatives will continue to yield a positive margin impact in 2024. With higher operating expense assumptions, we slightly increase our net loss forecasts for 2024-25. However, we maintain our fair

XPeng Inc ADR XPEV ★★★ 7 Jan 2025 22:54, UTC

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value estimate at USD 15.90 per ADS (HKD 61.70 per share), which implies a forward 2024 price/sales ratio of 2 times. Shares are in Morningstar 4-star territory and undervalued, in our view.

For the first quarter, management guided vehicle delivery to increase by 15%-23% year over year to 21,000-22,500 units and total revenue to grow 44%-54% year over year to CNY 5.8 billion-CNY 6.2 billion. The midpoint of the delivery guidance implies a monthly sales volume of around 9,000 units for March, which we believe is slightly under market expectations.

Looking beyond the first quarter of 2024, we believe vehicle delivery will recover sequentially and growth will be skewed toward the second half, given the company's new model pipeline. The first sedan model under the Mona brand will be released in April, with delivery in the third quarter. In addition, the company will launch two new models built on the SEPA platform in the second half. Given continued market competition and launch of a lower-priced Mona model, we expect profitability will remain under pressure in the near term. In our view, the focus of investors for this year is whether the company can resume delivery growth with new launches and improve profitability in a challenging pricing environment.


XPeng Earnings: Vehicle Margin Remains Depressed but Guided to Improve Vincent Sun, CFA, Senior Analyst, 16 Nov 2023

XPeng reported third-quarter revenue at the low end of its guidance. Excluding inventory write-off, vehicle margin of negative 3% indicates continued pressure from price promotions amid industry competition. But management guided a margin turnaround in the fourth quarter and meaningful improvement next year on larger volume, lower battery cost, and cost reduction initiatives that have been taken.

With enlarged losses on soft vehicle margin in the quarter, we increase our 2023-25 net loss forecasts. However, as we maintain our profitability forecast for the outer years on a higher volume expectation, we raise our fair value estimates to USD 15.90 per ADS (HKD 61.70 per share) from USD 14.50 (HKD 56.00), which implies a forward 2024 price/sales ratio of 1.8 times. Shares are in Morningstar 3-star territory and fairly valued, in our view. We suggest investors wait for a better entry point to accumulate the stocks.

For the fourth quarter, management guided vehicle delivery to recover 168%-186% year over year to 59,500-63,500 units and total revenue to grow 147%-165% year over year to CNY 12.7 billion-CNY 13.6 billion. The midpoint of the delivery guidance implies a monthly sales volume of around 21,000 units for November and December, which we believe is in line with market expectation. For new models, the company is to launch the X9 soon and two new models built on the SEPA platform in second-half 2024. In addition, the first sedan model under the Mona brand is also to be delivered in the third quarter of next year.

XPeng Inc ADR XPEV ★★★ 7 Jan 2025 22:54, UTC

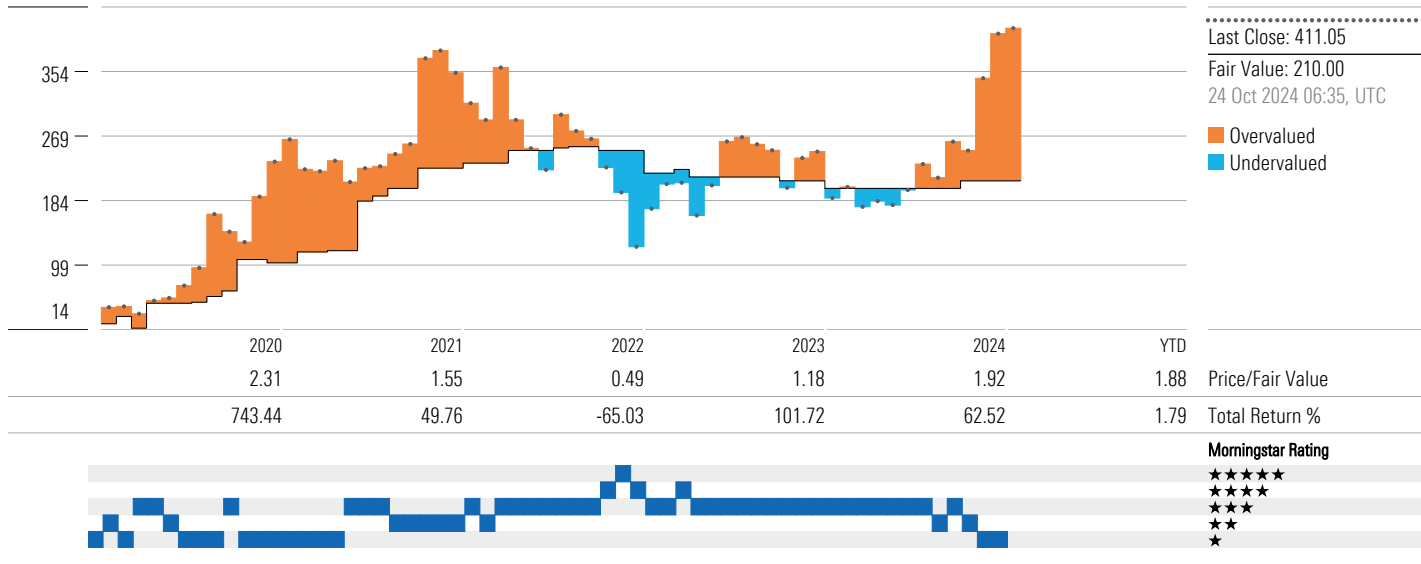
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We expect the disappointing third-quarter margin and noncash fair value losses to trigger consensus earnings downgrades. However, with October delivery reaching the 20,000-unit mark, the company's growth trend has bottomed out as we anticipated, and the focus of investors for next year is whether the company can maintain decent delivery momentum with new launches and improve profitability in a challenging pricing environment, in our view. **■**

XPeng Inc ADR XPEV ★★★ 7 Jan 2025 22:54, UTC

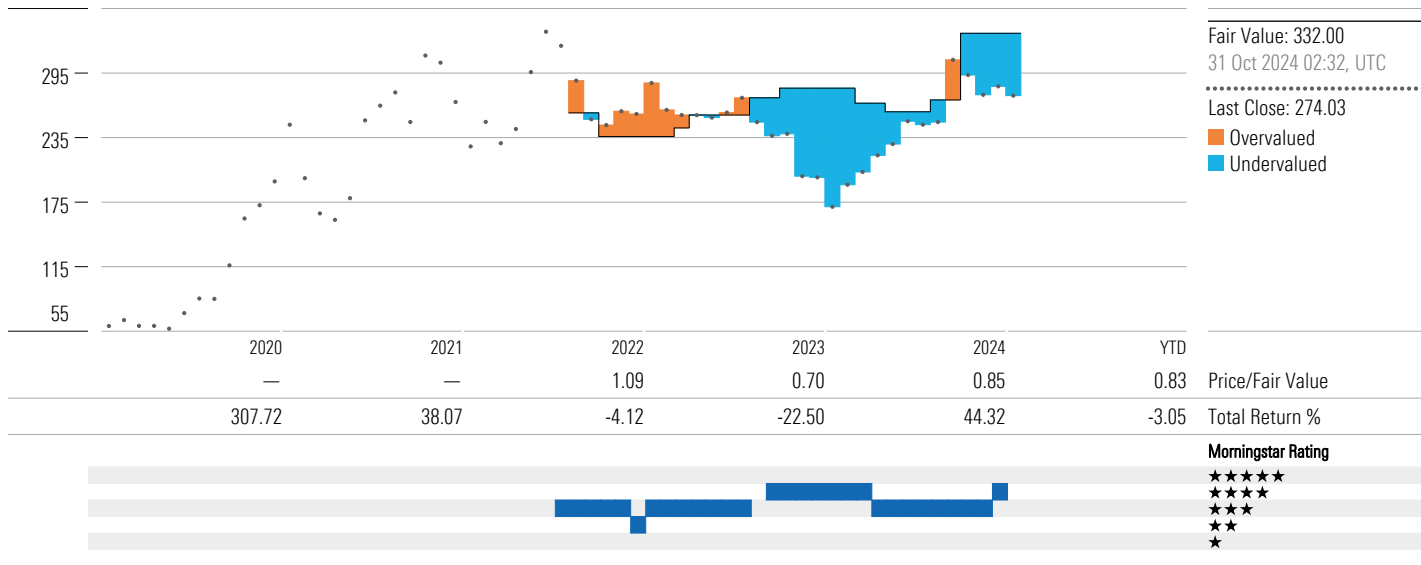
Competitors Price vs. Fair Value

Tesla Inc TSLA



Total Return % as of 06 Jan 2025. Last Close as of 06 Jan 2025. Fair Value as of 24 Oct 2024 06:35, UTC.

BYD Co Ltd Class A 002594

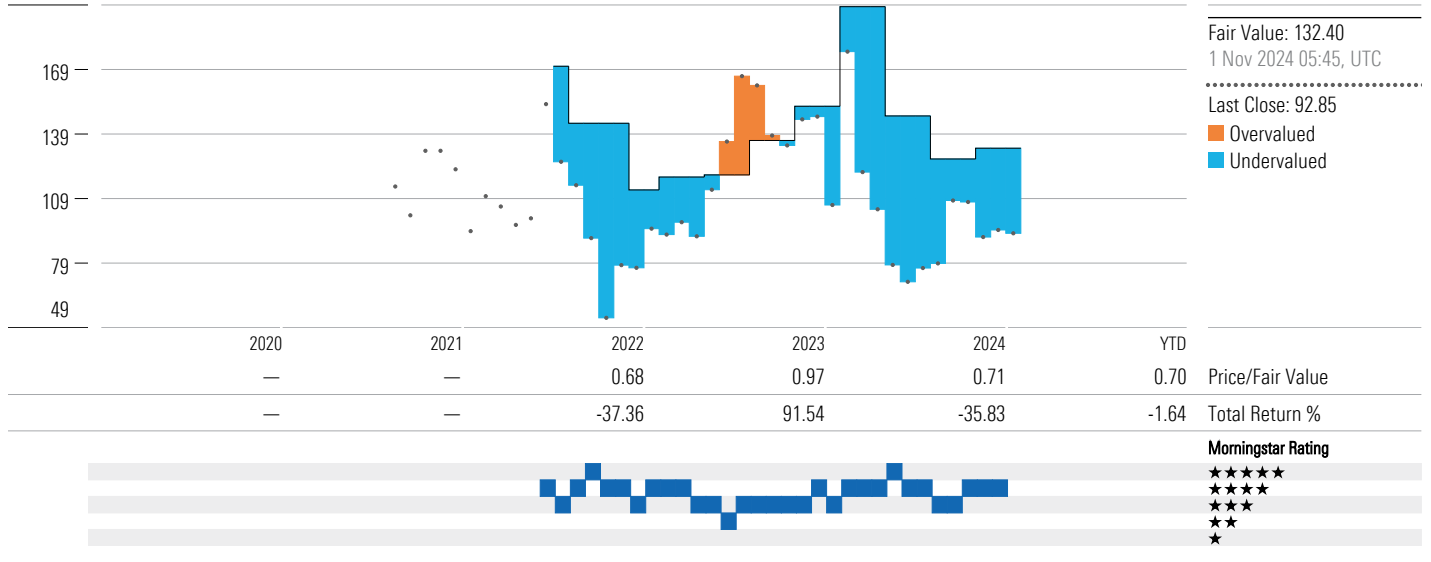


Total Return % as of 07 Jan 2025. Last Close as of 07 Jan 2025. Fair Value as of 31 Oct 2024 02:32, UTC.

XPeng Inc ADR XPEV ★★★ 7 Jan 2025 22:54, UTC

Competitors Price vs. Fair Value

Li Auto Inc Ordinary Shares - Class A 02015



Total Return % as of 07 Jan 2025. Last Close as of 07 Jan 2025. Fair Value as of 1 Nov 2024 05:45, UTC.

XPeng Inc ADR XPEV ★★★ 7 Jan 2025 22:54, UTC

Last Price 11.75 USD 6 Jan 2025	Fair Value Estimate 15.20 USD 20 Nov 2024 06:26, UTC	Price/FVE 0.77	Market Cap 12.19 USD Bil 7 Jan 2025	Economic Moat™ None	Equity Style Box Large Blend	Uncertainty Very High	Capital Allocation Standard	ESG Risk Rating Assessment¹ 1 Jan 2025 06:00, UTC
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Morningstar Historical Summary

Financials as of 30 Jun 2024

Fiscal Year, ends 31 Dec	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	YTD	TTM
Revenue (CNY K)	—	—	—	9,706	2,321,219	5,844,321	20,988,131	26,855,119	30,676,067	—	10,101,710	36,239,454
Revenue Growth %	—	—	—	—	—	151	259	28.0	14.2	—	18.4	72.1
EBITDA (CNY K)	—	—	—	-1,297,370	-3,432,990	-2,270,372	-3,943,975	-7,575,462	-8,017,755	—	-1,691,834	-5,070,889
EBITDA Margin %	—	—	—	-13366	-147	-38.9	-18.8	-28.2	-26.1	—	-16.8	-14.0
Operating Income (CNY K)	—	—	—	-1,694,634	-3,780,574	-4,293,736	-6,579,405	-8,705,523	-10,918,773	—	-1,684,911	-8,690,035
Operating Margin %	—	—	—	-17459	-162	-73.5	-31.4	-32.4	-35.6	—	-16.7	-24.0
Net Income (CNY K)	—	—	—	-1,398,823	-3,691,673	-2,731,985	-4,863,096	-9,138,972	-10,375,775	—	-1,807,720	-7,886,736
Net Margin %	—	—	—	-23231	-200	-83.7	-23.2	-34.0	-33.8	—	-17.9	-21.8
Diluted Shares Outstanding (K)	—	—	—	794,784	794,784	377,135	821,453	856,267	870,461	—	946,929	911,456
Diluted Earnings Per Share (CNY)	—	—	—	-2.84	-5.84	-12.96	-5.92	-10.68	-11.92	—	-1.90	-8.78
Dividends Per Share (CNY)	—	—	—	—	—	—	—	—	—	—	—	—

Valuation as of 31 Dec 2024

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Recent Qtr	TTM
Price/Sales	—	—	—	—	—	94.3	22.3	2.0	4.2	2.2	2.2	2.2
Price/Earnings	—	—	—	—	—	-69.9	-53.8	-8.1	-9.0	-9.8	-9.8	-9.8
Price/Cash Flow	—	—	—	—	—	-61.7	-172.4	-71.9	-7.3	-370.4	-370.4	-370.4
Dividend Yield %	—	—	—	—	—	—	—	—	—	—	—	—
Price/Book	—	—	—	—	—	11.2	6.2	1.5	3.4	2.6	2.6	2.6
EV/EBITDA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Operating Performance / Profitability as of 30 Jun 2024

Fiscal Year, ends 31 Dec	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	YTD	TTM
ROA %	—	—	—	-29.4	-54.9	-18.1	-8.8	-13.3	-13.3	—	-2.4	-11.1
ROE %	—	—	—	—	—	-35.4	-12.7	-23.1	-28.3	—	-5.5	-23.7
ROIC %	—	—	—	—	—	-30.6	-12.8	-20.3	-21.9	—	-4.1	-18.9
Asset Turnover	—	—	—	0.0	0.3	0.2	0.4	0.4	0.4	—	0.1	0.5

Financial Leverage

Fiscal Year, ends 31 Dec	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Recent Qtr	TTM
Debt/Capital %	—	—	—	—	—	5.5	9.8	19.7	20.2	—	20.9	—
Equity/Assets %	—	—	—	—	—	77.0	64.2	51.6	43.2	—	41.9	—
Total Debt/EBITDA	—	—	—	—	—	-1.0	-1.3	-1.7	-1.9	—	-9.1	—
EBITDA/Interest Expense	Infinite	Infinite	Infinite	-222.8	-107.2	-101.1	-71.3	-57.3	-29.8	Infinite	-20.3	-16.6

Morningstar Analyst Historical/Forecast Summary as of 20 Nov 2024

Financials	Estimates					Forward Valuation	Estimates					
	2022	2023	2024	2025	2026		2022	2023	2024	2025	2026	
Fiscal Year, ends 31 Dec 2023												
Revenue (CNY Mil)	26,855	30,676	40,954	53,136	67,845	Price/Sales	2.2	3.2	2.1	1.6	1.3	
Revenue Growth %	28.0	14.2	33.5	29.8	27.7	Price/Earnings	-7.5	-8.6	-12.2	-30.0	63.7	
EBITDA (CNY Mil)	-9,094	-8,800	-6,148	-1,959	3,002	Price/Cash Flow	—	—	—	—	—	
EBITDA Margin %	-33.9	-28.7	-15.0	-3.7	4.4	Dividend Yield %	—	—	—	—	—	
Operating Income (CNY Mil)	-8,815	-11,384	-8,500	-4,262	371	Price/Book	1.6	2.5	3.0	3.3	3.1	
Operating Margin %	-32.8	-37.1	-20.8	-8.0	0.5	EV/EBITDA	-3.9	-9.9	-12.4	-38.8	25.3	
Net Income (CNY Mil)	-7,910	-10,430	-7,271	-2,955	1,396							
Net Margin %	-29.5	-34.0	-17.8	-5.6	2.1							
Diluted Shares Outstanding (Mil)	1,713	1,741	1,884	1,884	1,884							
Diluted Earnings Per Share (CNY)	-4.62	-5.99	-3.86	-1.57	0.74							
Dividends Per Share (CNY)	0.00	0.00	0.00	0.00	0.00							

XPeng Inc ADR XPEV ★★★ 7 Jan 2025 22:54, UTC

Last Price 11.75 USD 6 Jan 2025	Fair Value Estimate 15.20 USD 20 Nov 2024 06:26, UTC	Price/FVE 0.77	Market Cap 12.19 USD Bil 7 Jan 2025	Economic Moat™ None	Equity Style Box Large Blend	Uncertainty Very High	Capital Allocation Standard	ESG Risk Rating Assessment¹ 1 Jan 2025 06:00, UTC
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ESG Risk Rating Breakdown

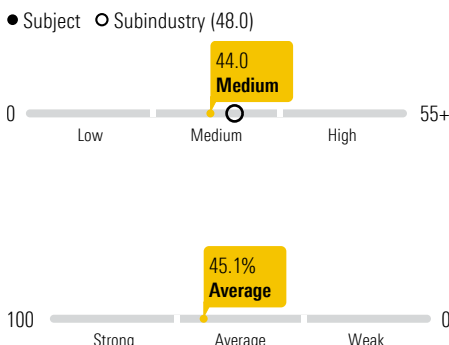
Exposure

Company Exposure ¹	44.0	
– Manageable Risk	42.1	
Unmanageable Risk²	1.9	

Management

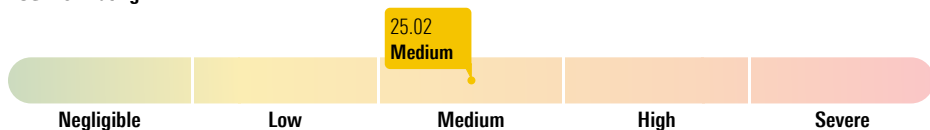
Manageable Risk	42.1	
– Managed Risk ³	19.0	
Management Gap⁴	23.1	

Overall Unmanaged Risk 25.0



- ▶ Exposure represents a company’s vulnerability to ESG risks driven by their business model
- ▶ Exposure is assessed at the Subindustry level and then specified at the company level
- ▶ Scoring ranges from 0-55+ with categories of low, medium, and high-risk exposure
- ▶ Management measures a company’s ability to manage ESG risks through its commitments and actions
- ▶ Management assesses a company’s efficiency on ESG programs, practices, and policies
- ▶ Management score ranges from 0-100% showing how much manageable risk a company is managing

ESG Risk Rating



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

1. A company’s Exposure to material ESG issues 2. Unmanageable Risk refers to risks that are inherent to a particular business model that cannot be managed by programs or initiatives 3. Managed Risk = Manageable Risk multiplied by a Management score of 45.1% 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 Jan 01, 2025. Highest Controversy Level is as of Dec 08, 2024. Sustainalytics Subindustry: Automobiles. 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 01 Jan 2025

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

Company Name	Exposure	Management	ESG Risk Rating
XPeng Inc	44.0 Medium 0 — ● — 55+	45.1 Average 100 — ● — 0	25.0 Medium 0 — ● — 40+
BYD Co Ltd	46.8 Medium 0 — ● — 55+	46.7 Average 100 — ● — 0	25.8 Medium 0 — ● — 40+
Tesla Inc	41.7 Medium 0 — ● — 55+	42.5 Average 100 — ● — 0	24.7 Medium 0 — ● — 40+
NIO Inc	44.8 Medium 0 — ● — 55+	41.1 Average 100 — ● — 0	27.2 Medium 0 — ● — 40+
Li Auto Inc	47.0 Medium 0 — ● — 55+	52.0 Strong 100 — ● — 0	23.8 Medium 0 — ● — 40+

Appendix

Historical Morningstar Rating

XPeng Inc ADR XPEV 7 Jan 2025 22:54, 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
—	—	—	—	—	—	—	—	—	—	—	—

Tesla Inc TSLA 7 Jan 2025 22:45, 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
★	★	★★★★	★	★	★	★★	★★★★	★★★★	★	★★	★

BYD Co Ltd Class A 002594 7 Jan 2025 17:41, 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
—	—	—	—	—	—	—	—	—	—	—	—

Li Auto Inc Ordinary Shares - Class A 02015 7 Jan 2025 17:23, 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 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 re-

turns 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 de-

rive 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 outcomes for the intrinsic value of a company, and any-

Morningstar Equity Research Star Rating Methodology



Research Methodology for Valuing Companies

thing 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.

Margin of Safety		
Qualitative Analysis	★★★★★ Rating	★ Rating
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.

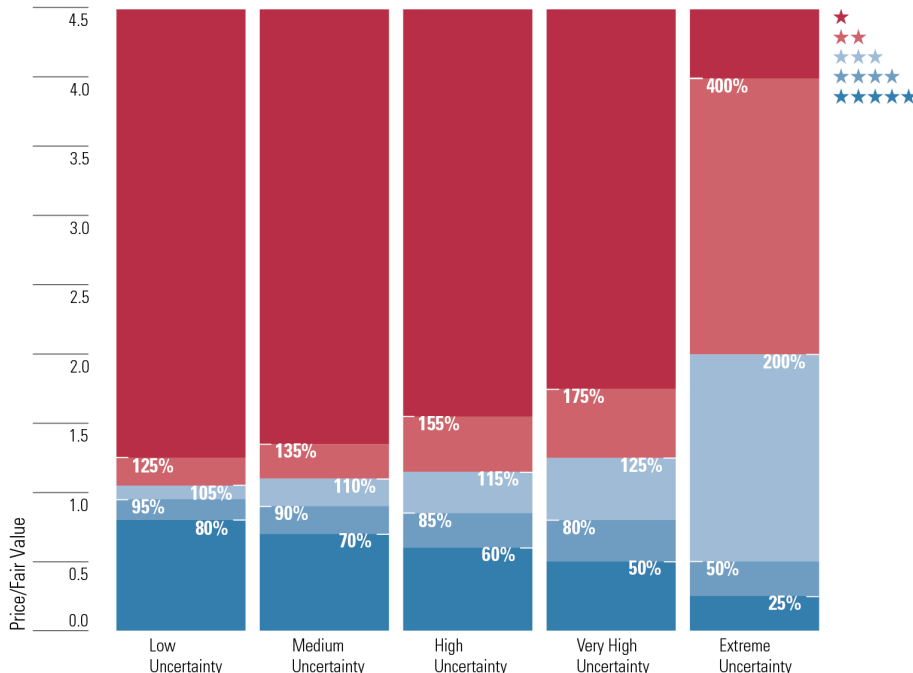
4. Market Price

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

Morningstar Equity Research Star Rating Methodology



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 ad-

justed 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 compan-

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ies' 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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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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