
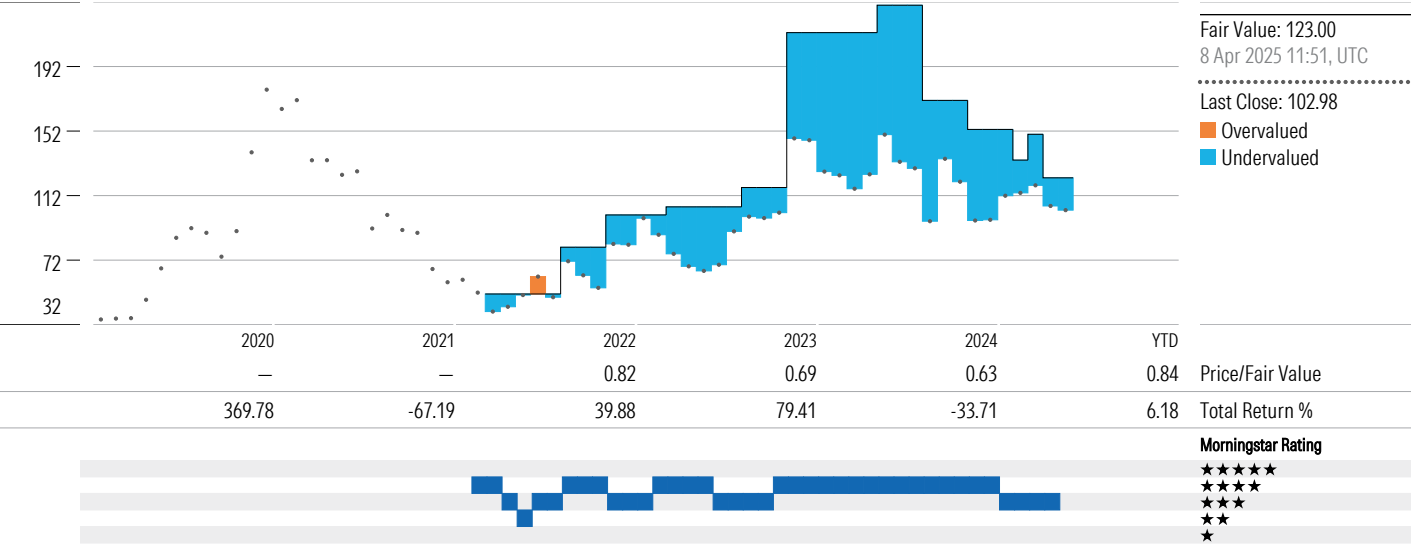


PDD Holdings Inc ADR PDD ★★★ 27 May 2025 21:39, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
102.98 USD 27 May 2025	123.00 USD 8 Apr 2025 11:51, UTC	0.84	141.47 USD Bil 28 May 2025	Narrow	—	Very High	Standard	 7 May 2025 05:00, UTC

Price vs. Fair Value



Total Return % as of 27 May 2025. Last Close as of 27 May 2025. Fair Value as of 8 Apr 2025 11:51, UTC.

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Important Disclosure

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

¹The ESG Risk Rating Assessment is a representation of Sustainalytics' ESG Risk Rating.

PDD Earnings: Long-Term Growth Remains Resilient Despite Near-Term Weakness; Valuation Intact

Analyst Note Chelsey Tam, Senior Equity Analyst, 28 May 2025

PDD Holdings, or PDD's, first-quarter EBIT fell 38% year on year mainly due to increased subsidies for electronics and home appliances products at Pinduoduo, heightened promotional activities, and supportive measures for merchants amid intense domestic competition and higher US tariffs.

Why it matters: Many Pinduoduo merchants don't qualify for the national trade-in subsidies, thus Pinduoduo has to subsidize to remain price competitive. We assume the national subsidy program will run for three years, meaning Pinduoduo's relative disadvantage could persist until 2027.

- We cut revenue estimates by 7%-8% during 2025-34 to reflect a faster shift to the half-assignment model at Temu (which books revenue on a net basis instead of the gross basis for full-assignment model) and Pinduoduo's CNY 100 billion support program for merchants.
- Consequently, we lowered EBIT forecasts by 22%-34% during 2025-27, mainly due to higher customer subsidies during the trade-in program and increased costs associated with initial business model adjustments at Temu.

The bottom line: We maintain narrow-moat PDD's valuation at USD 123, as the near-term earnings decline is offset by an earnings recovery after the trade-in program and stronger Temu growth. Shares are fairly valued, as the impact of domestic competition and overseas tariffs is already priced in.

- We assume EBIT to rise by 32% in 2028 as subsidies-related expenses decline after the end of the

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Sector	Industry
Consumer Cyclical	Internet Retail

Business Description

PDD Holdings operates commerce businesses in over 80 countries globally. Its main operations are Pinduoduo, a social commerce platform in China, and Temu, a global e-commerce marketplace. PDD also has a community group purchase business in China. PDD has built a network of sourcing, logistics, and fulfillment capabilities that support its underlying businesses.

trade-in program in 2027. During 2028-34, our EBIT forecasts are 5%-21% higher than our previous estimates mainly due to our more positive outlook on Temu.

- We believe Pinduoduo should be able to maintain its market share following the trade-in program, as it continues to uphold its value-for-money reputation among customers.

Business Strategy & Outlook Chelsey Tam, Senior Equity Analyst, 28 May 2025

PDD Holding is the second-largest e-commerce platform in China by gross merchandise volume in 2024, by our estimate. PDD is a social e-commerce platform that encourages users to enjoy lower prices by teaming up to make purchases. Easier sharing of PDD deals with social contacts through Tencent's social network leads to lower traffic acquisition costs versus peers. The firm focused on low-tier cities and white-label merchants, followed by the CNY 10 billion program launched in 2019 to subsidize consumers for higher-priced products such as Moutai, Apple iPhones, and agricultural products. PDD aims to offer good value across various categories and price points. To increase average revenue per user, PDD uses subsidies to induce consumers to make purchases in categories they haven't purchased in before.

Temu, PDD's overseas e-commerce platform, has expanded in over 80 countries. PDD employs various strategies to mitigate geopolitical risks. To address the termination of tax-free status in the US and Europe for low-value imported goods, Temu introduced a half-assignment model, which we estimate to contribute one-third of its GMV by the end of 2024. Under this model, merchants cover overseas delivery fees, substantially reducing logistics costs for Temu. We estimate that Temu's half-assignment model has already reached break-even in the US. Additionally, Temu is expanding its network of overseas sellers with local warehouses and increasing the sale of products exported from Southeast Asia and Latin America to reduce geopolitical risks tied to China. By the end of 2025, we estimate that products exported from outside China will account for 15% of GMV. To offset higher costs stemming from the removal of the tax-free status of low-value imports, Temu is shifting from air transport to shipping. In our view, inventory management and clearance in overseas markets will emerge as new challenges for PDD.

Bulls Say Chelsey Tam, Senior Equity Analyst, 28 May 2025

- Temu might break even faster than anticipated while maintaining an above-industry growth rate.
- Despite concerns such as higher import taxes in the US for Temu, PDD could deliver better-than-expected overseas sales due to its strong adaptability.
- If PDD successfully adopts generative AI in its platform, it could help customers buy products that meet their specific demands better than its peers, leading to market share gain.

Bears Say Chelsey Tam, Senior Equity Analyst, 28 May 2025

- If Temu loses its growth momentum faster than expected due to competition, it could lead to slow

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Competitors

	PDD Holdings Inc ADR PDD	Meituan Class B 03690	Alibaba Group ...rdinary Shares 09988	JD.com Inc Ord...ares - Class A 09618
Economic Moat	Narrow	Narrow	Wide	Wide
Currency	USD	HKD	HKD	HKD
Fair Value	123.00 8 Apr 2025 11:51, UTC	164.00 5 May 2025 14:09, UTC	146.00 5 May 2025 13:37, UTC	272.00 7 Mar 2025 12:07, UTC
1-Star Price	215.25	287.00	226.30	421.60
5-Star Price	61.50	82.00	87.60	163.20
Assessment	Fairly Valued 27 May 2025	Fairly Valued 28 May 2025	Undervalued 28 May 2025	Undervalued 28 May 2025
Morningstar Rating	★★★ 27 May 2025 21:39, UTC	★★★ 27 May 2025 16:44, UTC	★★★★ 27 May 2025 16:44, UTC	★★★★★ 27 May 2025 16:44, UTC
Analyst	Chelsey Tam, Senior Equity Analyst	Chelsey Tam, Senior Equity Analyst	Chelsey Tam, Senior Equity Analyst	Chelsey Tam, Senior Equity Analyst
Capital Allocation	Standard	Standard	Standard	Exemplary
Price/Fair Value	0.84	0.81	0.81	0.47
Price/Sales	2.73	2.24	2.12	0.30
Price/Book	3.22	4.09	2.07	1.47
Price/Earning	11.09	17.27	13.27	7.67
Dividend Yield	0.00%	0.00%	0.83%	3.02%
Market Cap	146.20 Bil	807.08 Bil	2,252.08 Bil	369.89 Bil
52-Week Range	87.11—164.69	100.10—217.00	69.80—145.90	94.65—192.30
Investment Style	—	Large Growth	Large Blend	Large Value

revenue growth for PDD.

- Peers can recruit and maintain a vast majority of the merchants offering price-competitive products from Pinduoduo, leading to falling market share for the firm.
- As the middle- and upper-income classes in China grow and the economy recovers, demand for rapid delivery becomes the dominant consumption trend. This benefits JD.com more than Pinduoduo, which focuses on value-for-money products.

Economic Moat Chelsey Tam, Senior Equity Analyst, 8 Apr 2025

Narrow-moat PDD Holdings' primary moat source is a network effect. PDD had the largest active buyer base of 882 million in the March quarter of 2022 in China's e-commerce sector, versus QuestMobile's reported 1.2 billion online population in China in the same period. PDD has not reported its active buyer number since then. It had 13 million active merchants in 2022, versus 11.5 million in 2021. We believe

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

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the number of buyers should be north of 900 million in 2024. In our view, the network effect is powerful enough to protect PDD from competition for the next 10 years. We believe PDD falls short of a wide moat rating, however, as we think wide-moat Alibaba will continue to monetize the network effect better than PDD in the long term. We forecast adjusted EBITDA/gross merchandise volume of PDD to reach 1.8 times at the end of this decade, lower than Alibaba's 2.4 times. This compares with 1.2 times in 2022 at PDD, lower than Alibaba's 2.5 times in the year ended March 2024. This is because Alibaba would continue to capture a substantially larger portion of the premium retail market compared with PDD in the long term, in our estimate. JD's cost advantage from its first-party business and intangible asset from its self-owned logistics are also something that PDD doesn't have.

PDD's active buyers surpassed Alibaba for the year ended December 2020. PDD's daily active users of 259 million passed Alibaba's Taobao (237 million) for the first time in February 2021, according to QuestMobile. With one of the largest buyer base among its e-commerce peers and large sales volume, PDD was able to attract over 13 million of merchants. As the number of merchants increases, competition for buyers increases, leading to products being offered across a broader variety of categories and at more competitive prices. We expect this will in turn increase the number of active buyers, as well as order volume per user and spending per user. From 2019 to 2021, the active buyer compound annual growth rate of 22% drove a 50% CAGR of active merchants. During the same period, as the number of merchants and products available increased, order volume was up at a 76% CAGR and gross merchandise volume, or GMV, rose at a 56% CAGR; annual spending per active buyer grew at a 28% CAGR, and order volume per active buyer increased at a 44% CAGR. PDD stopped reporting data on active buyers, order volume, and GMV since 2021.

We also see network effect with PDD's team purchase model. PDD leverages its preferred social network, Tencent's Weixin, to enable buyers to share product information and their purchase experiences with their contacts. These users are incentivized to do so as they can enjoy more attractive prices available under the "team purchase" option. Alternatively, consumers can make team purchases directly through PDD's app. As PDD's user base grows, it is easier for users to make a team purchase at a lower price with other PDD users without the need to wait for their personal contacts to join the team purchase. This reduces wait time for buyers and increases the probability of transaction completions, providing value to both existing or new users and merchants. With such volume, PDD could offer more data insights on consumer preferences and demand to merchants, further enhancing the stickiness of the merchants on the platforms. These lead to improved demand for its online marketing and other services by the merchants, which are the means to monetize the network. PDD's monetization rate (the percentage of revenue the company can monetize from its GMV—in PDD's case, the sum of online marketing service revenue and transaction service revenue divided by GMV) increased from 2.78% in 2018 to over 4% in 2024 on our estimate. The company has generated operating profit since 2021, and we expect profitability to continue.

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Short-form video platforms Douyin and Kuaishou have entered the e-commerce space with quick GMV growth, but we don't think they will replace traditional e-commerce companies in the next 20 years. These two platforms monetize their network of users by content e-commerce (content such as short videos or livestreaming) or interest e-commerce (selling products by understanding and predicting users' interests). Douyin e-commerce business recorded a GMV of CNY 3.5 trillion in 2024 as per the tech media outlet 36Kr, and Kuaishou achieved CNY 1.4 trillion in GMV for the same year. This compares with an estimated over CNY 5 trillion of GMV at PDD in 2024. Douyin is trying to create a closed-loop e-commerce platform and we believe it will want to capture traffic within its own ecosystem, rather than allowing it to divert to external e-commerce companies. We also think PDD's e-commerce infrastructure and know-how is strong. Excellence in customer services, governance of e-commerce platforms to balance the interests of merchants and consumers (for example, management of issues such as false advertisements and promises, formulating return policies), supply chain, logistics, and merchant support are critical to the long-term success of e-commerce companies. Only if consumers develop a habit of not just watching livestreaming but also proactively searching for products on these short videos and livestreaming platforms, the latter could emerge as a more competitive channel. As per Douyin, search-based e-commerce accounted for 30%-40% of GMV in 2024. Bytedance's core competencies are feeds-based algorithms, rather than the retail know-how, and the supply chain and logistics required to scale an e-commerce company. Bytedance's successful products are all related to feeds-based algorithms. Revenue-generating conflicts between advertising and e-commerce businesses present additional challenges to the competitive threat of livestreaming platforms, in our opinion. The e-commerce business drives user time spent and advertising opportunities away from the bread-and-butter high-margin ad business, so Douyin has launched a separate e-commerce app to address this conflict. However, this app lacks the benefit of large existing user base of Douyin. We don't think Douyin will be able to overtake traditional e-commerce players in its pull-based e-commerce business for the foreseeable future.

In addition, we think livestreaming e-commerce of Kuaishou and Douyin supplements e-commerce offerings, rather than being a replacement of mainstream e-commerce platforms. Livestreaming e-commerce market size was CNY 4.9 trillion in 2023 as per iResearch, about 38% of China's e-commerce sales. iResearch expects livestreaming e-commerce GMV to grow to CNY 8.2 trillion by 2026. Key opinion leaders and livestreaming hosts in these short video platforms conduct livestreaming sessions to sell products online. Livestreaming e-commerce tends to satisfy impulsive purchases instead of planned purchases or urgent purchases. The return and refund ratio of livestreaming is high, which we think is inherent in its impulse purchase nature, which makes it difficult for brands to rely on this channel solely in the long term. As per Xiaohulu, a livestreaming e-commerce service provider, the livestreaming industry's return rate can be as high as 30%-40%, much higher than traditional online sales return ratio. The return rate of the leading livestreaming hosts is 10%-15%. We think livestreaming e-commerce platforms will take time to lower their return rate, and this will depend on improvements to

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its e-commerce operations (for example, customer protection), but the impulse purchase nature of livestreaming should maintain the return rate higher than traditional e-commerce. The uncertainty in sales volume makes it difficult for established brands to plan production volume, which, in turn, makes it difficult for manufacturers to achieve economies of scale.

Fair Value and Profit Drivers Chelsey Tam, Senior Equity Analyst, 28 May 2025

Our fair value estimate is USD 123 per ADS. Our valuation implies 11.5 times 2025 P/E.

We forecast PDD's China GMV to rise by a CAGR of 5% in the next decade, helped by increasing shopping frequencies and spending per buyer. We estimate its agricultural goods and groceries categories to attract traffic, leading to cross-selling to other categories. Its successful team purchase model and subsidies will help lift GMV and ARPU. Total revenue, online marketing revenue (54% of revenue in 2024), and transaction services revenue would increase at 5%, 5%, and 7% CAGRs, respectively, in the next decade.

We expect PDD's operating margin to reach 13.6% by the end of the decade from 28% in 2024 due to investment in Pinduoduo and the rising contribution of lower-margin Temu. To engage buyers, especially in the overseas markets, we expect PDD's sales and marketing expenses to rise by a 7% CAGR by the end of the decade. The research and development expenses/sales ratio will be flattish at 6% in the next decade to maintain its competitiveness, for example, in artificial intelligence, agricultural technology, and developing merchant tools in domestic and overseas businesses. The general and administrative costs/sales ratio would reach 1.9% by the end of the decade, the same as 2024.

Risk and Uncertainty Chelsey Tam, Senior Equity Analyst, 28 May 2025

We assign PDD a Morningstar Uncertainty Rating of Very High. The business is cyclical, and a weak macroeconomic environment can lead to reduced discretionary spending on PDD's platform.

New regulations could benefit or hurt PDD. For instance, the end of an exclusivity agreement between Alibaba and its merchants favors PDD, while more stringent data privacy requirements could hurt PDD.

China's e-commerce landscape is increasingly competitive. In addition to Alibaba and JD, short video platforms Douyin and Kuaishou have used e-commerce to monetize traffic. On the short video platforms, many key opinion leaders curate merchandise before recommending it to consumers. Consumers trust these leaders' recommendations and conduct transactions on these platforms.

PDD's GMV growth will depend on the company's ability to continuously increase its exposure to higher-price categories, premium products, and brand merchants while maintaining its base consumers who care for value-for-money products. Also, the impact on PDD's revenue growth of reducing sales and marketing expenses as a percentage of GMV is uncertain as competition increases and PDD ventures into foreign territories.

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The magnitude of loss and the timing of profitability of its overseas e-commerce business, Temu, is uncertain.

PDD's community group purchase Duo Duo Grocery business could see slower-than-expected break-even timing or GMV growth in the medium term.

Regarding material environmental, social, and governance issues, PDD faces the issue of counterfeit and infringing goods on its platform and marketing practices. These incidents can impair the company's brand image.

A ban on Temu in the US due to national security, coupled with the introduction of a customs tax on goods under USD 800 shipped directly to the US, would substantially reduce Temu's valuation.

Capital Allocation Chelsey Tam, Senior Equity Analyst, 28 May 2025

Our Morningstar Capital Allocation Rating for PDD is Standard. The balance sheet is sound, with a net cash position of CNY 165 billion in 2024. Although we acknowledge its excellent investment track record in China, the uncertainty of its success in its overseas businesses Temu and its reluctance to return capital to shareholders prevent us from assigning an Exemplary rating.

Its investment scoring is standard. PDD's main investment in the past was in coupons, subsidies, and advertising to build user base and customers' mind share of PDD as the second largest e-commerce platforms in China by gross merchandise volume. Leveraging on the social network of Tencent, its investor, PDD's selling and marketing expenses per active buyer was lower than peers Alibaba and JD.com before December 2021, indicating higher efficiency in acquiring and maintaining its users. When PDD was building up its user scale, PDD's sales and marketing costs per annual active buyer was lower than that of JD's and Alibaba's. PDD stopped disclosing the number of active buyers in 2022. Its effective capital allocation helped PDD to surpass Alibaba in terms of active buyers for the year ended December 2020. Also, PDD' merchant base grew from 0.1 million in 2017 to over 13 million in 2022. We think PDD's sound investments allowed it to garner a large buyer and merchant base, which helped it to earn a narrow moat based on the network effect. PDD has also been profitable since 2021. Therefore, we think these losses and investments at the beginning of PDD's history are justified.

According to an article on marketplacepulse.com dated Sept. 11, 2024, PDD's Temu overtook eBay as the second-most visited e-commerce website. However, given the uncertainty surrounding global trade protectionism, it remains unclear at this stage whether Temu will be able to weather the storm and whether investing in Temu will pay off.

PDD has not returned capital to shareholders despite its large net cash position. Alibaba Group, JD.com and other Chinese internet peers have either paid dividend or conducted share buyback. We would like to see PDD to return more capital to shareholders.

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Analyst Notes Archive

PDD Holding: Cutting Valuation by 18% Due to Trade War and Expectation of a Global Slowdown

Chelsey Tam, Senior Equity Analyst, 8 Apr 2025

The US imposed 34% reciprocal tariffs on China. A potential 50% tariff looms if China doesn't withdraw its 34% retaliatory tariffs against the US, but China has declined to comply. The de minimis tax exemption for Chinese exports to the US will end on May 2. Why it matters: We assume the US will impose a 50% tariff. We think the worse-than-expected US tariff on China and a potential global slowdown will reduce Temu's revenue. Temu will likely raise prices in the US to mitigate the higher tariffs, leading to lower sales volume. We anticipate that Temu's profitability will decline as it absorbs some of the tariffs. Although Temu may benefit from downtrading in the US, the total net effect on its profit should be negative. We do not expect Temu to break even this year as planned. We forecast Temu will accelerate its sourcing from countries willing to comply with US demand, such as Vietnam, and from countries with no or low US reciprocal tariffs, such as Mexico. We estimate that 15% of Temu's gross merchandise volume will come from outside of China by the end of 2025. The bottom line: We cut narrow-moat PDD's valuation by 18% to USD 123, reflecting the hit from the 84% (50% plus 34%) US tariffs on China, the expedited assumption of the elimination of the de minimis exemption by two months, and lower GMV growth and margin expectations for Temu. PDD's shares are now undervalued. We assume that some of China's exports will be rerouted to countries with lower US import tariffs. Our valuation of PDD could rise by 3% if the European Union does not tax low-value imports from China to avoid an even wider trade war. We also lowered Temu's GMV growth assumptions by 10 percentage points for 2025 and 2026 amid an expected global economic slowdown caused by the trade war. These adjustments lead to a 6%-9% drop and 15%-36% decline in our revenue and EBIT forecasts, respectively, in the coming decade for PDD.

PDD Earnings: Raised Valuation by 11% on Lower Sales and Marketing Costs; Shares Cheap

Chelsey Tam, Senior Equity Analyst, 24 Mar 2025

PDD Holdings' fourth-quarter revenue grew 24% year on year, a deceleration from 44% in the third quarter. Online marketing revenue growth slowed to 17% from 24%, EBIT growth declined to 14% from 46%, and the sales and marketing expenses/revenue ratio declined to 28.3% from 30.7%. Why it matters: Revenue was 2% below our estimate as competition led to lower-than-expected marketing revenue in the domestic business. EBIT margin was 23.1%, higher than our expected margin of 22.7%, resulting from lower sales and marketing spending as a percentage of revenue. We estimate that lower-than-expected marketing revenue was due to a 7-basis-point decline in online marketing monetization compared with the same quarter last year and slower gross merchandise volume year-on-year growth of 20% this quarter, versus our estimate of 23%. We think the deceleration in transaction services revenue reflects a high comparison base, a mix shift to a half-consignment model that books revenue

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on a net basis, and lower commission at the domestic business to support merchants. The bottom line: We raised narrow-moat PDD's fair value estimate by 11% to USD 150. Our valuation implies 10.3 times 2025 price/earnings, and we think the shares are cheap as the market is overly concerned about the impact of US and EU trade protectionism, and domestic e-commerce competition. We reduced our 2025-27 revenue forecasts by 4%-7% mainly to factor in lower Temu revenue. We have now accounted for the second 10% US tariff hike, which follows the first 10% US tariff hike and cancellation of the de minimis exemption in the US in mid-2025. We increased our 2025-27 EBIT forecasts by 16%-40% to reflect lower sales and marketing costs, which offset the impact of lower revenue. The fourth quarter's sales and marketing expenses/revenue ratio was 28.3%, lower than our previous forecast of 31.7%.

PDD Holdings: Higher US and EU Tariffs and Stricter Compliance Reduce Temu's Growth Potential

Chelsey Tam, Senior Equity Analyst, 11 Feb 2025

The US imposed a new 10% tariff on Chinese imports and will remove the de minimis status for Chinese imports below USD 800. The European Commission intends to hold Temu liable on noncompliant goods and proposes the EU to charge fees for e-commerce imports and levy duties on parcels below EUR 150. Why it matters: Abolishing the de minimis status leads to another 15% tariff on average on Chinese imports to the US. If PDD Holdings' Temu can't avoid the two new US tariffs, we estimate its product costs would rise by 25% on average in the US, leveling the playing field with US retailers. In our view, Temu and/or its suppliers will bear higher compliance and custom clearance fees in the EU and US. Temu's revenue will decline in the US and EU as demand for its products decreases along with higher product costs and prices should these measures be introduced. While Chinese suppliers could circumvent these tariffs by shipping via third countries like Vietnam that benefit from de minimis treatment, the US could eventually increase taxes on imports from these third countries. Temu could also be fined if found liable for noncompliant products in the EU. The bottom line: We cut narrow-moat PDD's fair value estimate by 12% to USD 134 per ADS after lowering PDD's five-year revenue and net profit CAGRs forecasts by 2 and 4 percentage points to 25% and 20%, respectively. We think shares are fairly valued due to competition in China and regulatory risks overseas. We assume de minimis will be eliminated by the end of June and suppliers will bear half of the average total new tariffs of 25%, leading to an 8.75% decline in volume in the US. If low-value parcels are taxed in the EU, the new tariff could be 4.5% (the trade-weighted average most favored nation duty on Chinese exports to the EU), which would reduce Temu's volume immaterially. We assume a 15% decline in Temu EU revenue as prices will rise to meet the EU's product standard.

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

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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.

PDD Earnings: Valuation Cut by 11% on Domestic Competition and Temu's Expansion Costs; Shares Cheap Chelsey Tam, Senior Equity Analyst, 22 Nov 2024

Narrow-moat PDD Holdings' third-quarter revenue and operating profit were below our estimates due to lower-than-expected gross merchandise volume and Temu's higher-than-expected fulfillment fees and domestic merchant support services expenses. Hence, we reduce our 10-year revenue and EBIT compound annual growth rate to 14% and 10%, respectively, versus 15% and 12% previously to factor in Temu's expansion costs and intensifying domestic competition. Despite cutting our fair value estimate by 11% to USD 153 per ADS, we maintain our view that PDD is cheap. We think PDD's 2025 price/earnings ratio of 10 times indicates that investors are only paying for the domestic platform Pinduoduo and getting overseas Temu for free. That said, we prefer JD.com over PDD as the former is a bigger beneficiary of the home appliance trade-in program and has implemented a share buyback (repurchased 8% of shares outstanding as of end-2023 in the first nine months) and dividend programs to reward shareholders. In contrast, considering Temu is still growing rapidly, we don't expect PDD to return capital to shareholders in the next three years. In our view, Alibaba is our least preferred China e-commerce stock and is fairly valued due to uncertainty of the profitability outlook amid heavy investment. We estimate PDD's GMV grew in the low 20s year on year in the quarter, versus JD.com's high-single-digit growth and Alibaba Group's low-single-digit growth. Year-on-year revenue growth

PDD Holdings Inc ADR PDD ★★★ 27 May 2025 21:39, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
102.98 USD 27 May 2025	123.00 USD 8 Apr 2025 11:51, UTC	0.84	141.47 USD Bil 28 May 2025	 Narrow	 —	Very High	Standard	 7 May 2025 05:00, UTC

decelerated to 44% in the quarter from 86% in the second quarter. In particular, we estimate that Temu's revenue growth slowed to 93% from 502% in the second quarter. On a sequential basis, Temu's revenue growth stabilized at 4% in the quarter from 6% in the prior quarter.

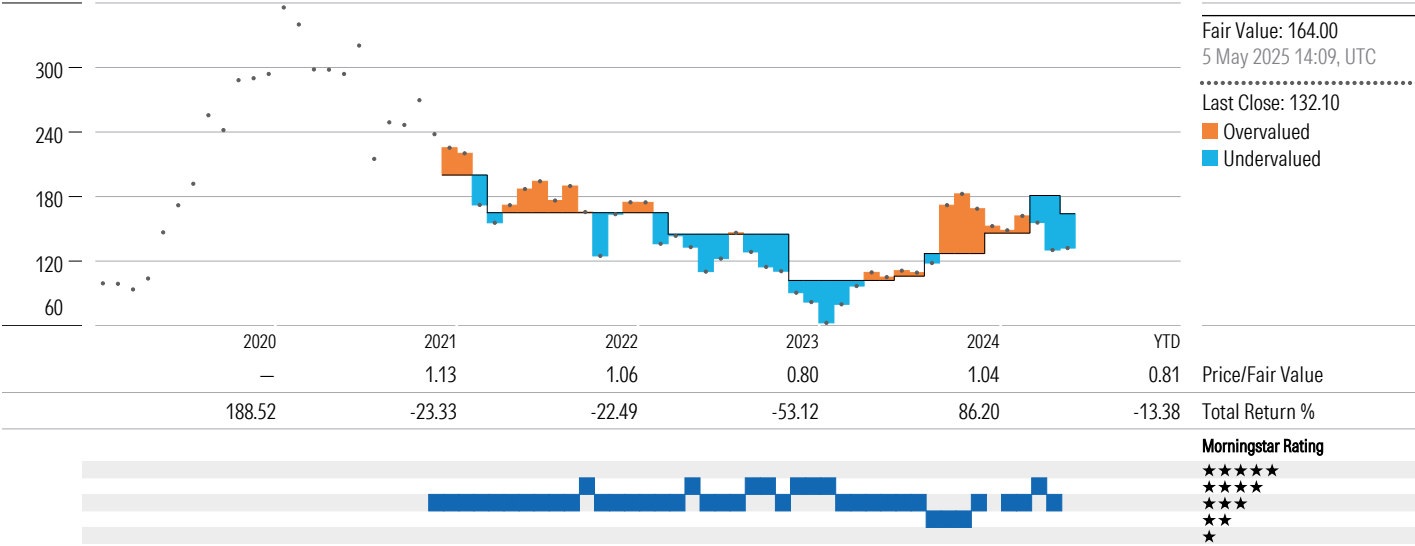
PDD Earnings: Fair Value Estimate Slashed by 26%, but Shares Still Cheap Chelsey Tam, Senior Equity Analyst, 27 Aug 2024

Narrow-moat PDD Holding, or PDD, missed the LSEG revenue forecast by 3% but beat consensus operating profit by 14% in the second quarter. However, share price declined 29% after the results release as management gave pessimistic guidance on future growth and margin and has no plans for dividends or share buybacks in the next few years. Management expects future revenue growth to slow down due to intensifying competition (increasing offerings of competitively priced products by peers) and external challenges (potential scrapping of the import tax exemption for low-value imports in the US and Europe). We think weaker consumption sentiment among lower-income groups and an insufficient increase in high-value products led to deaccelerated year-over-year gross merchandise volume, or GMV, growth in the quarter. More importantly, PDD thinks a long-term profitability decline is inevitable, while in the near term there will be fluctuation in margins. To fence off challenges, PDD will invest resolutely into the business. We believe this is a negative read-across for peers as this means more competition, and it will result in higher costs and lower margin for Alibaba Group and JD.com in order to maintain their GMV growth. Share prices of both Alibaba and JD.com were down 4% during the US trading session. We reduced our fair value estimate by 26% to USD 171 per ADS. We think the shares remain undervalued due to the earnings growth of the Temu business. We maintain our 10-year total revenue CAGR estimate of 15%, despite lowering our 10-year China GMV CAGR forecast by 2 percentage points and reducing the midcycle take rate by 15 basis points to reflect higher competition, as these were offset by higher revenue growth estimates for Temu. Nonetheless, we cut our 10-year operating profit CAGR forecast to 10% from 18%, given higher investments to maintain growth at Pinduoduo, which should reduce margins. ■■■

PDD Holdings Inc ADR PDD ★★★ 27 May 2025 21:39, UTC

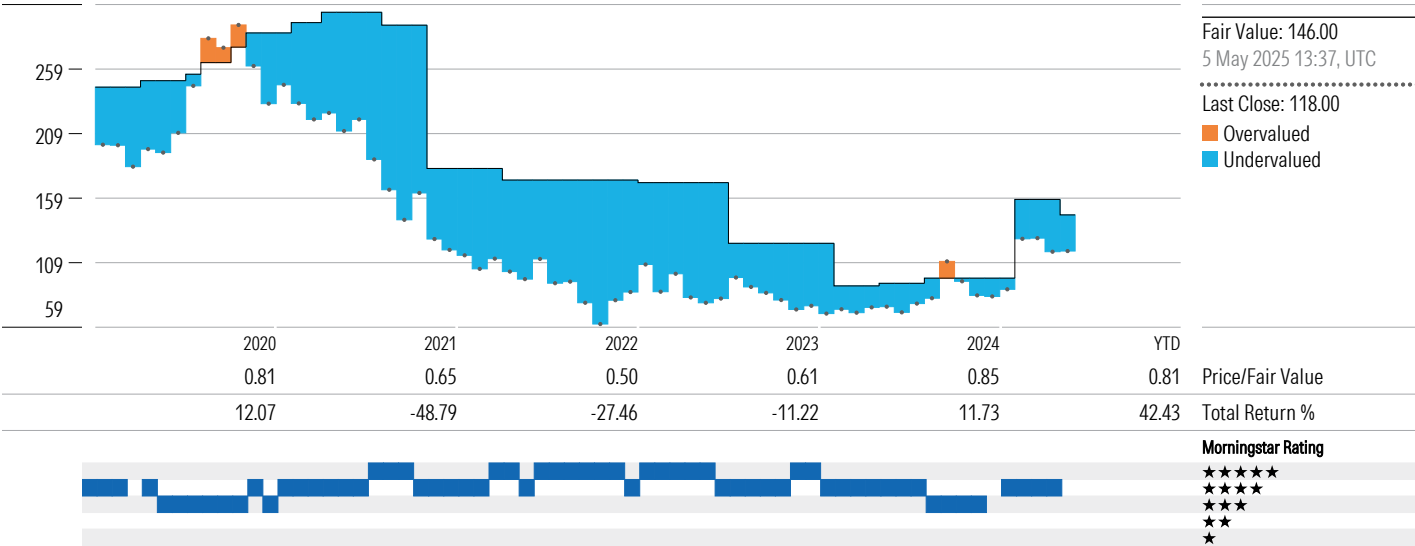
Competitors Price vs. Fair Value

Meituan Class B 03690



Total Return % as of 27 May 2025. Last Close as of 27 May 2025. Fair Value as of 5 May 2025 14:09, UTC.

Alibaba Group Holding Ltd Ordinary Shares 09988



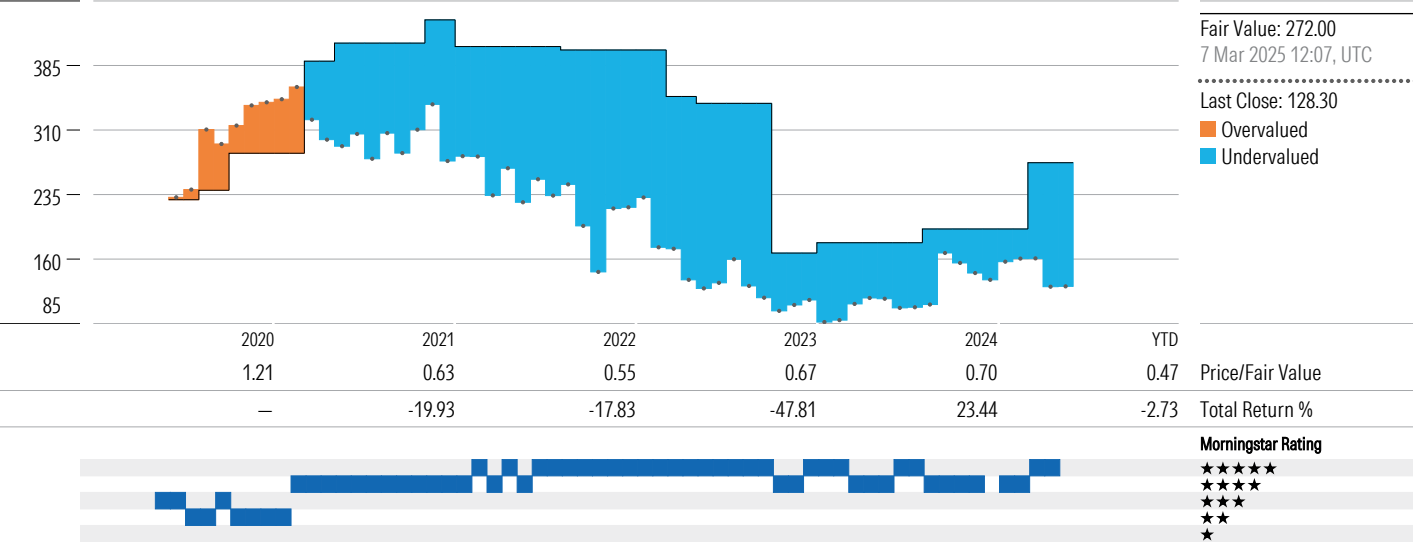
Total Return % as of 27 May 2025. Last Close as of 27 May 2025. Fair Value as of 5 May 2025 13:37, UTC.

PDD Holdings Inc ADR PDD ★★★

27 May 2025 21:39, UTC

Competitors Price vs. Fair Value

JD.com Inc Ordinary Shares - Class A 09618



Total Return % as of 27 May 2025. Last Close as of 27 May 2025. Fair Value as of 7 Mar 2025 12:07, UTC.

PDD Holdings Inc ADR PDD ★★★

27 May 2025 21:39, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
102.98 USD 27 May 2025	123.00 USD 8 Apr 2025 11:51, UTC	0.84	141.47 USD Bil 28 May 2025	Narrow	—	Very High	Standard	7 May 2025 05:00, UTC

Morningstar Valuation Model Summary

Financials as of 28 May 2025

Fiscal Year, ends 31 Dec	Actual			Forecast				
	2022	2023	2024	2025	2026	2027	2028	2029
Revenue (CNY Mil)	130,558	247,639	393,836	425,987	480,674	519,858	556,266	579,828
Operating Income (CNY Mil)	30,402	58,699	108,423	73,284	79,653	88,128	116,156	115,753
EBITDA (CNY Mil)	35,053	63,570	114,789	76,294	81,706	90,226	118,304	117,950
Adjusted EBITDA (CNY Mil)	35,053	63,570	114,789	76,294	81,706	90,226	118,304	117,950
Net Income (CNY Mil)	31,538	60,026	112,435	93,502	109,322	127,622	160,310	171,021
Adjusted Net Income (CNY Mil)	39,530	67,899	122,344	106,801	120,808	140,045	173,602	184,877
Free Cash Flow To The Firm (CNY Mil)	17,028	39,667	9,330	72,724	77,837	79,315	102,105	98,931
Weighted Average Diluted Shares Outstanding (Mil)	1,440	1,460	1,479	1,479	1,479	1,479	1,479	1,479
Earnings Per Share (Diluted) (CNY)	21.92	41.16	76.01	63.21	73.91	86.28	108.38	115.62
Adjusted Earnings Per Share (Diluted) (CNY)	27.45	46.51	82.71	72.20	81.67	94.68	117.37	124.99
Dividends Per Share (CNY)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Margins & Returns as of 28 May 2025

	3 Year Avg	Actual			Forecast					5 Year Avg
		2022	2023	2024	2025	2026	2027	2028	2029	
Operating Margin %	26.1	23.3	23.7	27.5	17.2	16.6	17.0	20.9	20.0	18.3
EBITDA Margin %	—	26.9	25.7	29.2	17.9	17.0	17.4	21.3	20.3	—
Adjusted EBITDA Margin %	—	26.9	25.7	29.2	17.9	17.0	17.4	21.3	20.3	18.8
Net Margin %	25.6	24.2	24.2	28.5	22.0	22.7	24.6	28.8	29.5	25.5
Adjusted Net Margin %	29.6	30.3	27.4	31.1	25.1	25.1	26.9	31.2	31.9	28.1
Free Cash Flow To The Firm Margin %	10.5	13.0	16.0	2.4	17.1	16.2	15.3	18.4	17.1	16.8

Growth & Ratios as of 28 May 2025

	3 Year CAGR	Actual			Forecast					5 Year CAGR
		2022	2023	2024	2025	2026	2027	2028	2029	
Revenue Growth %	61.2	39.0	89.7	59.0	8.2	12.8	8.2	7.0	4.2	8.0
Operating Income Growth %	150.5	340.8	93.1	84.7	-32.4	8.7	10.6	31.8	-0.4	1.3
EBITDA Growth %	140.9	260.8	81.4	80.6	-33.5	7.1	10.4	31.1	-0.3	3.0
Adjusted EBITDA Growth %	127.8	260.8	81.4	80.6	-33.5	7.1	10.4	31.1	-0.3	0.5
Earnings Per Share Growth %	140.9	302.9	87.8	84.7	-16.8	16.9	16.7	25.6	6.7	8.8
Adjusted Earnings Per Share Growth %	140.9	187.0	69.5	77.8	-12.7	13.1	15.9	24.0	6.5	8.8

Valuation as of 28 May 2025

	Actual			Forecast				
	2022	2023	2024	2025	2026	2027	2028	2029
Price/Earning	5.2	5.6	2.1	2.6	2.3	2.0	1.6	1.5
Price/Sales	5.5	5.6	2.5	2.5	2.2	2.0	1.9	1.8
Price/Book	1.7	2.0	0.8	0.7	0.5	0.4	0.3	0.3
Price/Cash Flow	—	—	—	—	—	—	—	—
EV/EBITDA	17.0	18.8	6.0	9.6	9.0	8.1	6.2	6.2
EV/EBIT	19.6	20.4	6.3	10.0	9.2	8.3	6.3	6.3
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 28 May 2025

Fiscal Year, ends 31 Dec	Actual			Forecast				
	2022	2023	2024	2025	2026	2027	2028	2029
ROA %	13.3	17.3	22.3	15.2	14.8	14.6	15.4	14.1
ROE %	26.8	32.1	35.9	23.0	21.2	19.8	19.9	17.5
ROIC %	-32.3	-47.8	-66.8	-39.3	-40.0	-42.4	-54.4	-53.0

PDD Holdings Inc ADR PDD ★★★

27 May 2025 21:39, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
102.98 USD 27 May 2025	123.00 USD 8 Apr 2025 11:51, UTC	0.84	141.47 USD Bil 28 May 2025	Narrow	—	Very High	Standard	7 May 2025 05:00, UTC

Financial Leverage (Reporting Currency)

Fiscal Year, ends 31 Dec	Actual			Forecast				
	2022	2023	2024	2025	2026	2027	2028	2029
Debt/Capital %	14.1	5.0	7.3	0.8	0.7	0.7	0.6	0.5
Assets/Equity	2.0	1.9	1.6	1.5	1.4	1.4	1.3	1.2
Net Debt/EBITDA	-3.8	-3.3	-2.8	-6.5	-8.6	-9.2	-8.4	-9.9
Total Debt/EBITDA	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.1
EBITDA/ Net Interest Expense	-8.9	-6.2	-5.6	-1.9	-1.5	-1.3	-1.5	-1.2

Forecast Revisions as of 28 May 2025

Prior data as of 8 Apr 2025	2025		2026		2027	
	Current	Prior	Current	Prior	Current	Prior
Fair Value Estimate Change (Trading Currency)	123.00	122.85	—	—	—	—
Revenue (CNY Mil)	425,987	457,182	480,674	522,117	519,858	564,951
Operating Income (CNY Mil)	73,284	111,265	79,653	113,576	88,128	112,599
EBITDA (CNY Mil)	76,294	113,840	81,706	115,374	90,226	114,445
Net Income (CNY Mil)	106,801	130,230	120,808	132,589	140,045	144,594
Earnings Per Share (Diluted) (CNY)	63.21	78.55	73.91	81.20	86.28	88.63
Adjusted Earnings Per Share (Diluted) (CNY)	72.20	88.04	81.67	89.64	94.68	97.76
Dividends Per Share (CNY)	0.00	0.00	0.00	0.00	0.00	0.00

Key Valuation Drivers as of 28 May 2025

Cost of Equity %	9.0
Pre-Tax Cost of Debt %	5.3
Weighted Average Cost of Capital %	10.3
Long-Run Tax Rate %	19.0
Stage II EBI Growth Rate %	3.0
Stage II Investment Rate %	25.0
Perpetuity Year	15

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

Discounted Cash Flow Valuation as of 28 May 2025

	CNY Mil
Present Value Stage I	523,527
Present Value Stage II	83,489
Present Value Stage III	193,041
Total Firm Value	800,057
Cash and Equivalents	399,986
Debt	10,607
Other Adjustments	0
Equity Value	1,189,436
Projected Diluted Shares	1,479
Fair Value per Share (USD)	123.00

PDD Holdings Inc ADR PDD ★★★ 27 May 2025 21:39, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
102.98 USD 27 May 2025	123.00 USD 8 Apr 2025 11:51, UTC	0.84	141.47 USD Bil 28 May 2025	Narrow	—	Very High	Standard	7 May 2025 05:00, UTC

ESG Risk Rating Breakdown

Exposure

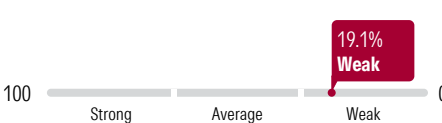
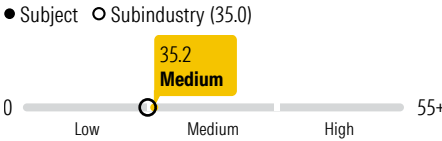
Company Exposure¹	35.2
- Manageable Risk	32.6
Unmanageable Risk²	2.6

Management

Manageable Risk	32.6
- Managed Risk³	6.2
Management Gap⁴	26.4

Overall Unmanaged Risk

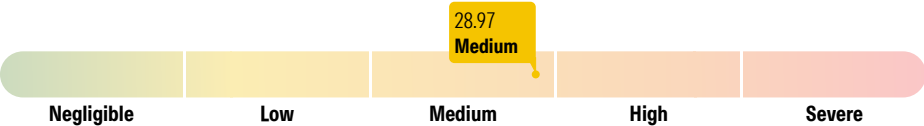
29.0



- 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 19.1% 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 May 07, 2025. Highest Controversy Level is as of May 08, 2025. Sustainalytics Subindustry: Online and Direct Marketing Retail. 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/](https://www.sustainalytics.com/esg-ratings/).

Peer Analysis 07 May 2025

Company Name	Exposure	Management	ESG Risk Rating
PDD Holdings Inc	35.2 Medium 0 — 55+	19.1 Weak 100 — 0	29.0 Medium 0 — 40+
Alibaba Group Holding Ltd	38.7 Medium 0 — 55+	57.9 Strong 100 — 0	18.0 Low 0 — 40+
JD.com Inc	35.4 Medium 0 — 55+	29.0 Average 100 — 0	25.8 Medium 0 — 40+
Meituan	35.8 Medium 0 — 55+	41.6 Average 100 — 0	21.8 Medium 0 — 40+
—	— — 0 — 55+	— — 100 — 0	— — 0 — 40+

Appendix

Historical Morningstar Rating

PDD Holdings Inc ADR PDD 27 May 2025 21:39, UTC

Dec 2025	Nov 2025	Oct 2025	Sep 2025	Aug 2025	Jul 2025	Jun 2025	May 2025	Apr 2025	Mar 2025	Feb 2025	Jan 2025
—	—	—	—	—	—	—	★★★★	★★★★	★★★★	★★★★	★★★★★
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 27 May 2025 16:44, 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 27 May 2025 16:44, 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
★★★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★★★	—	★★★★★	★★★★★	★★★★★

JD.com Inc Ordinary Shares - Class A 09618 27 May 2025 16:44, 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
★★	★★	★★★	★★	★★	★★★	★★★	—	—	—	—	—

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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.

Margin of Safety		
Qualitative Analysis	★★★★★ Rating	★ Rating
Uncertainty Ratings		
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

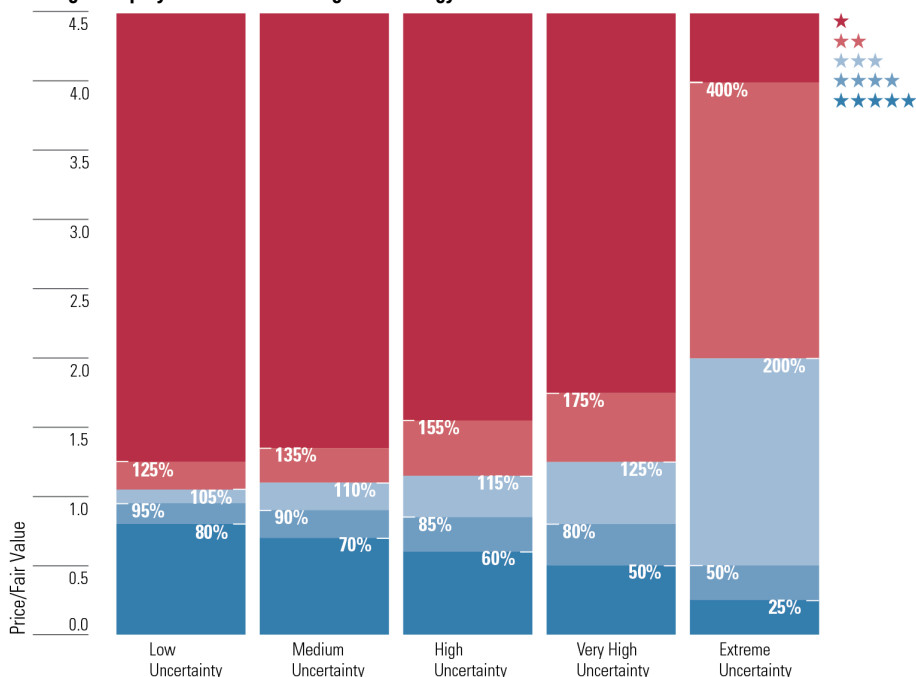
Our uncertainty rating is based on the interquartile range, or the middle 50% of potential outcomes, covering the 25th percentile–75th percentile. This means that when a stock hits 5 stars, we expect there is a 75% chance that the intrinsic value of that stock lies above the current market price. Similarly,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

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.

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

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

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

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

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

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

Ratings should not be used as the sole basis in evaluating a company or security. Ratings involve unknown risks and uncertainties which may cause our expectations not to occur or to differ significantly from what was expected and should not be considered an offer or solicitation to buy or sell a security.

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