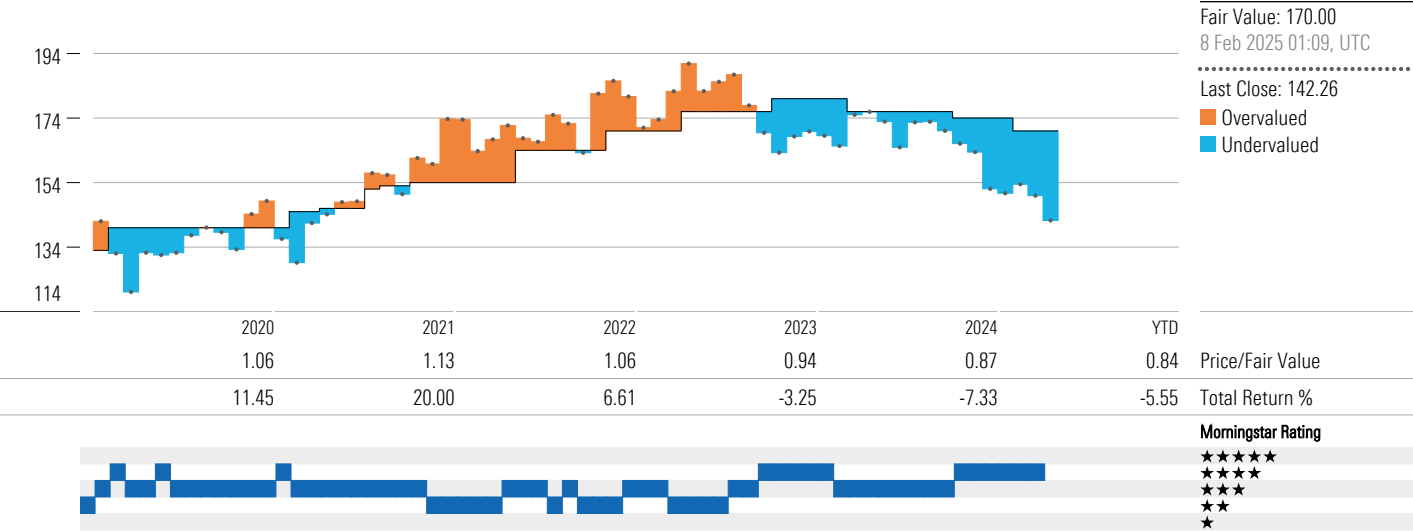


PepsiCo Inc PEP ★★★★★ 23 Apr 2025 21:25, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
142.26 USD 23 Apr 2025	170.00 USD 8 Feb 2025 01:09, UTC	0.84	184.94 USD Bil 24 Apr 2025	Wide	Large Value	Low	Exemplary	2 Apr 2025 05:00, UTC

Price vs. Fair Value



Total Return % as of 23 Apr 2025. Last Close as of 23 Apr 2025. Fair Value as of 8 Feb 2025 01:09, UTC.

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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.

PepsiCo Earnings: US Snack Still Weak; Soft Demand and Higher Costs Sending Earnings Outlook Lower

Analyst Note Dan Su, CFA, Equity Analyst, 24 Apr 2025

PepsiCo posted 1% organic sales growth in the first quarter of 2025 as a 5% lift in international revenue more than offset a 2% decline in US food sales. Core constant currency operating profit fell 1%.

Why it matters: Strong international performance enabled PepsiCo to reaffirm its low-single-digit organic sales growth outlook for 2025. However, the firm reduced full-year EPS outlook from low-single-digit growth to a 3% decline due to weaker US demand and higher supply chain costs.

- ▶ Internationally, growth prospects are particularly strong in Europe, India, and Brazil, where PepsiCo has the highest sales exposure. However, macro and tariff headwinds may continue to weigh on consumer demand in Mexico and China.
- ▶ In the US, beverage performance improved with a 14% rise in organic operating profits on favorable pricing and cost saving. But a 1% decline in snack volume suggests that the Frito Lay turnaround will likely take a longer time and more investments.

The bottom line: We plan to trim our \$170 per share fair value estimate for wide-moat PepsiCo by a low-single-digit percentage on lower 2025 earnings. Shares remain undervalued as the market prices in pessimistic assumptions for US food over the longer term.

- ▶ We maintain our 10-year forecast calling for 4% annual sales growth, fueled by low- to mid-single-digit US sales growth, and mid-single-digit expansion in international business.

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Sector	Industry
 Consumer Defensive	Beverages - Non-Alcoholic

Business Description

PepsiCo is a global leader in snacks and beverages, owning well-known household brands including Pepsi, Mountain Dew, Gatorade, Lay's, Cheetos, and Doritos, among others. The company dominates the global savory snacks market and also ranks as the second-largest beverage provider in the world (behind Coca-Cola) with diversified exposure to carbonated soft drinks, or CSD, as well as water, sports, and energy drink offerings. Convenience foods account for approximately 55% of its total revenue, with beverages making up the rest. Pepsi owns the bulk of its manufacturing and distribution capacity in the US and overseas. International markets made up 40% of both total sales and operating profits in 2024.

- We also forecast adjusted operating margins to expand by 220 basis points over the next 10 years to reach 16.3% by 2034, as efficiency gains and cost-saving initiatives bear fruit.

Coming up: Regarding the Food and Drug Administration plan to phase out certain artificial food coloring by 2026, we see PepsiCo as well-prepared for the transition.

- The firm confirmed over 60% of its food products in the US today contain no chemical dyes. The percentage will likely go up significantly, as Lay's and Tostitos aim to shift completely out of artificial colorings by the end of 2025.

Business Strategy & Outlook Dan Su, CFA, Equity Analyst, 8 Feb 2025

Following years of anemic growth due to operational missteps and underinvestments, management has worked to right PepsiCo's ship, driving steady top-line and profit expansion in past years. But we think there is more room to go, as the firm benefits from secular tailwinds in the snack business, growth initiatives in select attractive beverage subcategories (such as energy drinks) and various emerging markets (such as Latin America, Africa, and Asia-Pacific), and an integrated business model facilitating more effective commercialization.

Tight retail relationships on the back of strong beverage and snack brands, coupled with massive distribution scale and bargaining edge, underpin our wide moat rating, and we don't foresee this position as wavering. For one, we see Pepsi's convenient snack lineup as well placed to bolster its share by leveraging unrivalled brand awareness, operational scale, and retail relations. Within its beverage mix the firm is exploring a variety of options from nascent, in-house brands to brand licensing from third-party category leaders to expand its sales exposure in nonsparkling categories. This can add to the firm's distribution clout and augment its carbonated drinks that have struggled thus far to narrow the gap with wide-moat Coca-Cola.

Demand for snacks and beverages tends to remain resilient throughout economic cycles, and a large end-to-end supply chain gives Pepsi better control over execution, helping to shield its operations from exogenous shocks. Risks and uncertainties abound, nonetheless, including inroads from e-commerce and hard discounters that introduce more competition and disrupts the pricing structure; consumption pattern shifts driven by a more mobile lifestyle and higher health awareness; and cumbersome regulations and taxes that discourage the use of plastic packaging and the intake of sugar, sodium, and saturated fat. That said, a nimble and pragmatic approach, coupled with inherent brand prowess and manufacturing/distribution scale, should enable the firm to navigate the evolving competitive landscape while enhancing its returns.

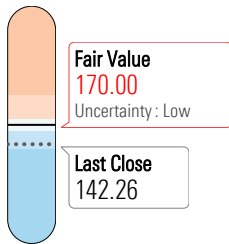
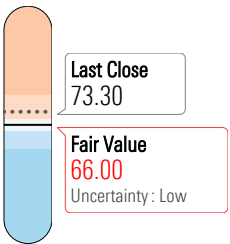
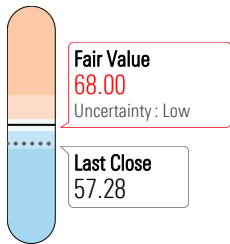
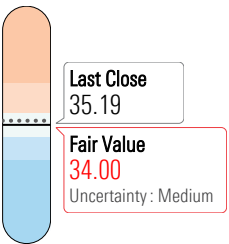
Bulls Say Dan Su, CFA, Equity Analyst, 8 Feb 2025

- Demographic and lifestyle shifts could further fuel snack consumption globally beyond our expectations.
- Even as CSD volumes wane in mature markets, the diversity of Pepsi's beverage portfolio should offer

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Competitors

	PepsiCo Inc PEP	Coca-Cola Co KO	General Mills Inc GIS	Keurig Dr Pepper Inc KDP
	 <p>Fair Value 170.00 Uncertainty: Low</p> <p>Last Close 142.26</p>	 <p>Last Close 73.30</p> <p>Fair Value 66.00 Uncertainty: Low</p>	 <p>Fair Value 68.00 Uncertainty: Low</p> <p>Last Close 57.28</p>	 <p>Last Close 35.19</p> <p>Fair Value 34.00 Uncertainty: Medium</p>
Economic Moat	Wide	Wide	Narrow	Narrow
Currency	USD	USD	USD	USD
Fair Value	170.00 8 Feb 2025 01:09, UTC	66.00 5 Mar 2025 02:00, UTC	68.00 31 Mar 2025 16:24, UTC	34.00 14 Mar 2025 17:38, UTC
1-Star Price	212.50	82.50	85.00	45.90
5-Star Price	136.00	52.80	54.40	23.80
Assessment	Undervalued 23 Apr 2025	Overvalued 23 Apr 2025	Undervalued 23 Apr 2025	Fairly Valued 23 Apr 2025
Morningstar Rating	★★★★★ 23 Apr 2025 21:25, UTC	★★★ 23 Apr 2025 21:26, UTC	★★★★★ 23 Apr 2025 21:26, UTC	★★★★ 23 Apr 2025 21:36, UTC
Analyst	Dan Su, Equity Analyst	Dan Su, Equity Analyst	Kristoffer Inton, Strategist	Dan Su, Equity Analyst
Capital Allocation	Exemplary	Exemplary	Exemplary	Standard
Price/Fair Value	0.84	1.11	0.84	1.04
Price/Sales	2.13	6.73	1.64	3.14
Price/Book	10.82	12.69	3.39	1.97
Price/Earning	17.43	25.86	12.79	24.33
Dividend Yield	3.81%	2.68%	4.19%	2.57%
Market Cap	195.08 Bil	315.45 Bil	31.37 Bil	47.74 Bil
52-Week Range	138.33 — 183.41	59.84 — 74.38	55.15 — 75.90	30.12 — 38.28
Investment Style	Large Value	Large Blend	Mid Value	Mid Blend

growth opportunities in both developed and emerging markets.

- Despite its close relationships with brick-and-mortar retailers, PepsiCo has invested in omnichannel capabilities and a digitally enhanced supply chain that positions the firm for growth even as consumer shopping patterns bifurcate further.

Bears Say Dan Su, CFA, Equity Analyst, 8 Feb 2025

- Shifting consumer preference to healthier snacks and beverages may impede the firm's ability to pass on higher costs in price increases thus weighing on margins and returns.
- Integration of acquisitions in regions that PepsiCo has less experience (such as Africa) may distract management attention from its long-term strategic course.
- The shortage of bottlers with sufficient scale and experience in international markets will continue to handicap PepsiCo's efforts to narrow the gap with rival Coca-Cola.

PepsiCo Inc PEP ★★★★★ 23 Apr 2025 21:25, UTC

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Economic Moat Dan Su, CFA, Equity Analyst, 8 Feb 2025

We surmise that PepsiCo has built a wide economic moat around its global snacks and beverage operations, thanks to an impressive ensemble of household brands underpinning consumer loyalty and close retailer relationships, as well as significant scale benefits (\$91 billion revenue base, global manufacturing and distribution capacity) that bring bargaining power and lower operational costs. We expect the strong intangible assets and cost advantage to enable the firm to deliver investment returns that exceed its cost of capital for more than 20 years. On our estimate, PepsiCo will generate returns on invested capital, or ROICs, including goodwill, averaging 21% over our explicit 10-year forecast period, compared with our weighted average cost of capital at 7%.

Evidencing its dominant standing, PepsiCo ranks as number one in the \$242 billion global savory snacks market, controlling 23% of the market in 2024 per Euromonitor through well-known brands such as Lay's, Cheetos, and Doritos. Consistent brand investments (\$5.9 billion in 2024, 6.5% of sales), similar to the level of spending by wide-moat peer Mondelez (around 5% of sales) have reinforced the image of these snacks as affordable treats in today's fast-paced life, thus allowing the snack provider to fetch pricing gains above inflation while maintaining healthy volume growth. As an example, over the past five years, the Frito-Lay North America business unit (about half of PepsiCo's snack sales) grew price/mix at an average annual rate of 7.4% while keeping volume growth at 0.3%. We believe trends are similar in major international markets. As Pepsi continues to focus on innovation in areas such as ingredients and packs to meet consumers' evolving snacking habits and preferences, we expect its snack brands will remain top of mind for a wide variety of consumer occasions and maintain pricing power.

Further, as the world's second-largest beverage provider behind Coca-Cola, PepsiCo owns a broad portfolio of strong brands in carbonated soft drink, or CSD, and nonsparkling categories and operates the bulk of bottling capacities in-house to better control the commercialization process. The company has kept a firm grip on its number two position in the CSD category—roughly half of total beverage volume sold by PepsiCo—which we believe still offers room to grow through higher penetration primarily in emerging markets. Beyond this global growth potential, we posit Pepsi has built strong brand loyalty on taste preferences and emotional connections, and when juxtaposed with the low 5% private-label penetration that categorizes the space, we think PepsiCo's well-known CSD brands are poised to continue to extract strong investment returns through its pricing power. Outside of the CSD category, the company has successfully diversified its reach by bringing strong brands into the fold, realizing volume share gains in structural growth areas such as sports and energy drinks. For one, the Gatorade brand dominates the sports category with a 30% plus volume share globally per Euromonitor and continues to broaden its brand appeal and reach with smart advertising and innovation in ingredients and flavoring. In energy drinks, while its current volume share at 10% globally per

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Euromonitor ranks the firm third after entrenched leaders Red Bull and narrow-moat Monster Beverage, PepsiCo is poised to narrow the gap utilizing a multi-brand approach with in-house brands Rockstar and Mountain

Dew at the core in addition to distribution partnership with Celsius to score some share gains in a market increasingly segmented by lifestyle needs. Top volume shares in the ready-to-drink coffee and tea categories, under the Lipton and Starbucks brands licensed from Unilever and Starbucks, also help fortify PepsiCo’s competitive edge by augmenting its beverage lineup, adding to its distribution scale, and further deepening its relationship with retailers with extra touchpoints during delivery and shelf planning.

A strong portfolio of top-selling brands that drives traffic and purchase in both the snack and beverage aisles makes PepsiCo an indispensable partner to most retailers from grocers to gas station stores. Equipped with a full suite of beverages in both CSD and nonsparkling categories, a variety of snack brands catering to different budget sizes and regional preferences, and a technology enhanced direct-to-store logistics system, PepsiCo provides an efficient, one-stop solution to retail chains for inventory planning, stocking, and replenishment that is hard to match. The reliability and flexibility of a proven distribution giant like PepsiCo should be deemed particularly valuable now, as many retailers are still reeling from logistics bottlenecks. In return for these benefits, PepsiCo earns favorable shelf allocation/ placement and some liberty in designing and implementing in-store promotions that reinforce brand awareness and pricing power. Close retailer collaboration also enables PepsiCo to derive valuable insights on consumers and retail dynamics from transaction and logistics data analytics, which should inform timely and precise commercial plans and execution to keep the firm at the top of its game.

We see cost advantage as a second pillar to our wide economic moat rating on PepsiCo. With a massive revenue base at \$92 billion in 2024, the firm commands significant bargaining power in a wide range of procurement negotiations ranging from raw materials to advertising services. Purchases for key ingredients such as sugar, sweeteners, seasoning, and cooking oil each take only a single-digit-percent of a dispersed basket for PepsiCo, allowing the firm to tightly manage procurement costs even during periods of high inflation. We also see a cost edge stemming from its massive distribution scale, allowing the firm to reach more retailers and consumers faster and at a lower cost. The scale benefit allows PepsiCo to not only accelerate its own product commercialization to maximize profitable share gains in new and existing categories, but also attract desirable partners to license their brands to the firm’s distribution platform, adding to its scale and distribution clout. We would point to PepsiCo’s 30-years long successful distribution partnerships with wide-moats Unilever and Starbucks (both topnotch operators in and of themselves) in the tea and coffee categories as strong examples of PepsiCo’s distribution scale and prowess.

Fair Value and Profit Drivers Dan Su, CFA, Equity Analyst, 8 Feb 2025

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We are trimming our fair value estimate for PepsiCo to \$170 per share (from \$174) to incorporate a more cautious management outlook for 2025. The firm is calling for low-single-digit increases in both organic sales and adjusted EPS for 2025, below our 5% preprint growth forecasts for both. We think the weak guidance was likely driven by continued sluggish demand in savory snacks and beverages in the US amid consumer belt-tightening while international expansion remains in place. We now expect 2025 sales and adjusted EPS to grow 1.9% and 2.1%, respectively. Our updated intrinsic valuation implies 18.0 times 2025 adjusted EPS and an EV/EBITDA multiple of 16.5 times.

Over the next 10 years, we forecast the top line to grow at midsingle digits annually. We see broad-based strength in its snack revenue growth, whereas trends are more mixed in the beverage business. We expect its strong brands, coupled with secular tailwinds in convenience food consumption, to drive mid-single-digit growth in snack revenue. A diverse beverage portfolio should also enable PepsiCo to garner an expanding share in the non-CSD categories such as sports, water, and ready-to-drink coffee, but its CSD business will likely remain flattish, with healthy emerging market growth offsetting soft demand in the US and Western Europe. We forecast overall beverage sales to grow at a low-single-digit clip over the next 10 years. Historically, PepsiCo has augmented organic growth with strategic acquisitions, and we expect the two-pronged growth strategy to continue. However, we have refrained from incorporating M&A into our explicit forecast until we gain better visibility surrounding its deal pipeline.

On the profitability front, we have modeled operating margins that widen by 220 basis points to 16.3% at the end of our 10-year forecast period, relative to 2024. In addition to gross margin expansion of roughly 90 basis points over the period thanks to manufacturing efficiency gains in the snack business and a slightly higher mix of international beverage business with an outsourced model, we forecast more efficient selling and distribution spending (32.9% of sales by 2034 versus 34.1% in 2024), and better leverage of marketing and advertising expense (6.1% of sales by 2034 versus 6.4% in 2024).

Risk and Uncertainty Dan Su, CFA, Equity Analyst, 10 Oct 2024

We award a Low Morningstar Uncertainty Rating to PepsiCo. Exposure to international markets with diverse economic and demographic trends put to the test PepsiCo's ability to adapt to a rapidly evolving operating environment and address issues ranging from currencies and cost inflation to labor relations and geopolitical tension. That said, with close to 60% of revenues from North America, PepsiCo is more insulated compared with beverage peer Coca-Cola.

Given growing health awareness among consumers, PepsiCo also faces the challenge of keeping a delicate balance between taste appeal and health considerations. Reformulation and recipe modification efforts notwithstanding, consumer concerns regarding the health impact from savory snack and beverage products may persist, or PepsiCo's efforts to assuage such concerns may become cost

PepsiCo Inc PEP ★★★★★

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inefficient and weigh on margins.

With the ubiquity of smartphones and social media, food and beverage brands are constantly under the scrutiny of consumers. Any messaging, consumer experience, social, or sustainability practice that is perceived to be inconsistent with the company's positioning could be brought under the limelight, and without timely and appropriate response, result in brand damage, and a temporary or long-term hit to volume demand and pricing power. That said, we don't expect any environmental, social and governance-related risks to have a material impact on the firm's operating results and returns prospects in the coming years.

Capital Allocation Dan Su, CFA, Equity Analyst, 8 Feb 2025

We assign an Exemplary Capital Allocation Rating to PepsiCo, based on our view that the company has a sound balance sheet, a good track record of investments for long-term value creation, and an appropriate shareholder distribution practice blending cash dividends and share repurchases.

First, we view PepsiCo as in excellent financial health. It has a strong balance sheet, with net debt/EBITDA of 2.2 times in 2024 and projected to stay at or below that level in the next 10 years. As such, we don't foresee any problem for the firm to maintain its Tier 1 commercial paper access to short-term funding at competitive rates when necessary. In addition, the firm has a solid cash position and a projected strong free cash flow to the firm generation (\$12 billion on average per year, 11.3% of sales) over the next five years. All in, we believe the company is well-equipped financially to withstand external shocks and to fund its growth plans.

On the investment front, we give the company credit for heavy spending over the years behind its snack brand portfolio, distribution system, and research and development that has driven and should continue to result in solid organic growth, underpinning its global dominance in the structurally attractive snack business, where its market share is 9 times ahead of its closest competitor. While the beverage business underwent a period of underinvestment, the situation was rectified since current CEO Ramon Laguarta took the helm in 2018, as the company stepped up spending to refresh its core brands, while bringing to market versions of its classic recipes to cater to a growing health-conscious crowd. Mergers and acquisitions have always been a part of the firm's growth roadmap, with PepsiCo scoring successes with deals such as the Quaker Oats acquisition in 2001, which gave PepsiCo dominant sports drink brand Gatorade and a long runway of growth in the nonsparkling category. Its more recent acquisitions in food (Pioneer Foods, Be & Cheery) and beverage (Rockstar), though smaller in size, fit a similar strategic profile and offer the firm exposure to attractive categories (energy drinks, nuts and seeds) and attractive emerging markets (Africa and China). The transactions for Be & Cheery and Pioneer Foods deals valued the two businesses at price/sales multiples of roughly 1 times and 1.2 times, respectively, which strikes us as reasonable. However, we view the Rockstar acquisition as richly valued, with price/sales at over 20 times. We appreciate the strategic value of Rockstar (2% global volume share in energy

PepsiCo Inc

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drinks per Euromonitor, popular in the convenience store channel) to PepsiCo (roughly 4% global volume share prior to the Rockstar deal, according to Euromonitor). Still, we believe the company overpaid in its push to refresh its sleepy energy drink lineup. In the coming years, we expect strategic M&A to remain part of PepsiCo’s long-term growth strategy.

On shareholder distributions, PepsiCo has returned cash to shareholders consistently with a combination of cash dividends and share buybacks. It maintained a payout ratio averaging 66% over the past three years, with dividends per share growing at a high-single-digit rate annually. Over our 10-year explicit forecast period, we forecast the payout ratio to gradually rise to 72% by 2033, with the dividend payment growing at 6% annually. Share buybacks have fluctuated from year to year, which we believe has been prudent, as we believe management should consider buybacks only when the stock trades below its intrinsic value, without committing to a yearly target at a fixed amount.

Analyst Notes Archive

PepsiCo Earnings: Despite International Strength, 2025 Outlook Disappoints on US Weakness Dan Su, CFA,Equity Analyst,5 Feb 2025

Wide-moat PepsiCo posted 2024 results that met our expectations, but it issued a disappointing 2025 outlook calling for low-single-digit increases in both organic sales and adjusted EPS, below our 5% growth forecasts for both. We think the weak guidance was likely driven by continued sluggish demand in savory snacks and beverages in the US amid consumer belt-tightening and plan to lower our 2025 estimates, but we see no need to change our 10-year forecasts for 4% annual sales growth and a 16% average operating margin. Our \$174 per share fair value estimate will likely fall by a low-single-digit percentage, but the stock remains attractive. Performance in the international business (40% of sales) was the bright spot in 2024. Organic sales grew by a mid-single-digit percentage on a healthy blend of pricing and volume expansion across snacks and beverages. Operating profits rose 29% with material margin gains in Europe and the Asia-Pacific, despite geopolitical challenges and macroeconomic headwinds in both regions. We attribute this strength to localized innovation and tailored consumer engagement that has resonated with consumers across geographies, in addition to an expanding distribution network covering both modern and traditional trades in emerging markets with favorable demographics, such as India and Africa. We maintain our favorable view as to the international growth outlook. We attribute a frugal consumer as the major reason driving sluggish performance in the larger domestic business, with volume declines of 3% and 2.5% in beverages and Frito-Lay, respectively. On the snack side, management is prudent to focus on away-from-home channels, smaller packs, and healthier ingredients to activate more consumers. For beverages, we see growth opportunities in zero-sugar recipes and protein drinks, but expect the firm to also invest in promotional spending in value-oriented channels to revive volumes.

PepsiCo Earnings: Affordability and Brand Investments in Focus to Revive Food and Beverage

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Volume Dan Su, CFA,Equity Analyst,9 Oct 2024

We plan to trim our \$176 fair value estimate for wide-moat PepsiCo by a low-single-digit percentage after digesting its sluggish third-quarter results. The impact of US consumers tightening their belts and raging geopolitical tensions in the Middle East was evident on the top line with organic sales growth slowing to 1% on a low-single-digit volume decline. But the firm eked out a 5% increase in constant-currency core EPS on tight cost controls. Management is prudently defending its value proposition by investing in value offerings, elevating the brand profile with targeted marketing and sports partnerships, and expanding distribution in away-from-home channels and e-commerce. However, we don't see an immediate volume lift given persistent macro and geopolitical pressure. We plan to trim our 2024 sales growth estimate to 1% (down from 2% prior) to align with a tapered company outlook, but see no need to change our 7% growth forecast for 2024 EPS (excluding currencies) or our 10-year projection for 5% sales growth and 17% average operating margins. Shares look undervalued. International sales (40% of total sales) outperformed, posting 4% organic sales growth despite a 12% comparison in the year-ago quarter. We attribute the strength to product development and branding efforts that have been tailored to local consumer preferences across geographies and strong distribution in demographically favorable emerging markets such as India, Southeast Asia, and Africa. This supports our constructive view on the long-term outlook of the international segment. On the other hand, growth remained subdued in the larger domestic business with beverage sales flat and snack revenue down 1%. We acknowledge management efforts to expand value offerings and increase promotional spending in value-oriented channels, but expect more to be done in areas of price pack mix and healthier options to entice more consumers to PepsiCo products in the coming quarters.

PepsiCo: Siete Foods Acquisition Adds to Snack Giant's Better-for-You Offerings Dan Su, CFA,Equity Analyst,2 Oct 2024

Wide-moat PepsiCo announced plans to pay \$1.2 billion to buy Texas-based Siete Foods—known for its Mexican-style snacks made with quality ingredients and healthy recipes. Its products are widely distributed in the US via Walmart, Target, and Whole Foods, as well as through quick service chains such as Starbucks and Sweetgreen. Expected to close in 2025, the deal is the largest food acquisition for PepsiCo in recent years, following its \$1.2 billion purchase of Pioneer Foods in South Africa in 2020, and signals the snack giant's commitment to expanding healthier snack options to cater to rising consumer health awareness. In the past few years, PepsiCo scooped up other healthy snack brands, including Bare Foods, Health Warriors, and PopCorners, in smaller deals. With Siete generating roughly \$500 million in revenue, valuation looks reasonable at 2.4 times sales, similar to the 2.5 times at which PepsiCo trades. We think PepsiCo will have no problem financing the deal, given a strong balance sheet and free cash generation averaging \$10 billion each year. Siete's \$500 million yearly sales represents less than 1% of PepsiCo revenue. We don't think the deal will move the needle on our valuation for

PepsiCo Inc PEP ★★★★★ 23 Apr 2025 21:25, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
142.26 USD 23 Apr 2025	170.00 USD 8 Feb 2025 01:09, UTC	0.84	184.94 USD Bil 24 Apr 2025	Wide	Large Value	Low	Exemplary	 2 Apr 2025 05:00, UTC

PepsiCo, and our \$176 fair value estimate remains in place. Shares look fairly valued.

PepsiCo Earnings: Sharper Focus on Value and Away-From-Home Channels to Buoy US Performance Dan Su, CFA,Equity Analyst,11 Jul 2024

We plan to maintain our \$176 fair value estimate for wide-moat PepsiCo after absorbing its second-quarter results. Organic sales rose 2% led by international expansion while EPS rose 13% benefiting from cost savings and a lower tax rate. Despite near-term headwinds from the Quaker recalls and consumer belt-tightening in the US, we think PepsiCo remains poised to bolster its competitive standing in beverages and snacks by leveraging marketing and product initiatives. We are maintaining our 2024 forecasts for sales and EPS to grow by 4% and 7%, respectively, as well as our 10-year projection for 5% sales CAGR and 17% average operating margins. Shares look undervalued. International performance remains a bright spot, with organic sales up 6% and operating profits up 10% led by Europe and Latin America. We attribute this strength to innovation that has delivered more flavor and texture combinations, enabling PepsiCo to better adapt to varying local consumer preferences across different markets. Investments in logistics and go-to-market capabilities in past years also started to bear fruit. Given PepsiCo's strong brand portfolio, agile product development and marketing, and widening distribution, we remain constructive on its international growth outlook. Growth was more subdued in the US, however, with beverage sales up only 1% organically while food revenue fell by less than 1%. While tough comparisons in the year-ago quarter were a factor, we believe PepsiCo also faced a tougher backdrop as consumers become more value-conscious toward brand, pack size, and channel. We expect efforts to preserve its value proposition to become a top priority, including consumer-centric innovations and targeted promotional spending to raise in-store visibility for top brands. The firm also looks to revive growth by expanding in the away-from-home channels, leveraging new distribution partnerships with Subway and sports entertainment provider Topgolf with about 100 US locations.

PepsiCo Earnings: Profit Expansion on International Growth and Cost Control, Despite Quaker Recalls Dan Su, CFA,Equity Analyst,23 Apr 2024

We plan to maintain our \$176 fair value estimate for wide-moat PepsiCo after absorbing its first-quarter results that matched our estimates. Organic sales were up 3%, led by international growth. EPS rose 6%, benefiting from expense control. Although we expect Quaker product recalls will continue to weigh on US sales in the next few quarters, we view the firm as remaining on track to increase 2024 sales and EPS by 4% and 7%, respectively. Our 10-year forecasts for 5% sales CAGR and 17% average operating margins remain in place, and we view shares as slightly undervalued. International beverages and snacks both scored high-single-digit organic sales growth, which we attribute to effective marketing and product innovation that better incorporates local ingredients and consumer habits. While we expect PepsiCo to remain highly selective in growing its beverage presence internationally, the firm is poised to accelerate snacks sales across emerging markets, leveraging its strong brands and manufacturing and

PepsiCo Inc PEP ★★★★★ 23 Apr 2025 21:25, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
142.26 USD 23 Apr 2025	170.00 USD 8 Feb 2025 01:09, UTC	0.84	184.94 USD Bil 24 Apr 2025	Wide	Large Value	Low	Exemplary	 2 Apr 2025 05:00, UTC

distribution infrastructure. US snacks and beverage sales were up only 2% and 1%, respectively, but this is attributable to tough comparison (of 15% and 8%) in the year-ago quarter driven by pricing. In the coming quarters, we forecast pricing to moderate to the 2%-3% range from high single digits as the firm prudently sharpens its value proposition focus amid consumer belt-tightening, but volumes should remain healthy in the low single digits on the rollout of better-for-you snacks and beverages and gains in the foodservice channel such as the newly forged 10-year partnership with Subway. Tighter marketing and selling expense control drove operating margins up 20 basis points to 14.9%, and we expect this metric to widen 40 basis points to 15% for the full year. In addition to cost discipline, we expect margin boosts to come from the pruning of low-margin beverage products and efficiency gains in manufacturing and distribution through automation and data analytics.

PepsiCo Earnings: Innovation and Marketing to Drive Volume Expansion, but Pricing Should Normalize

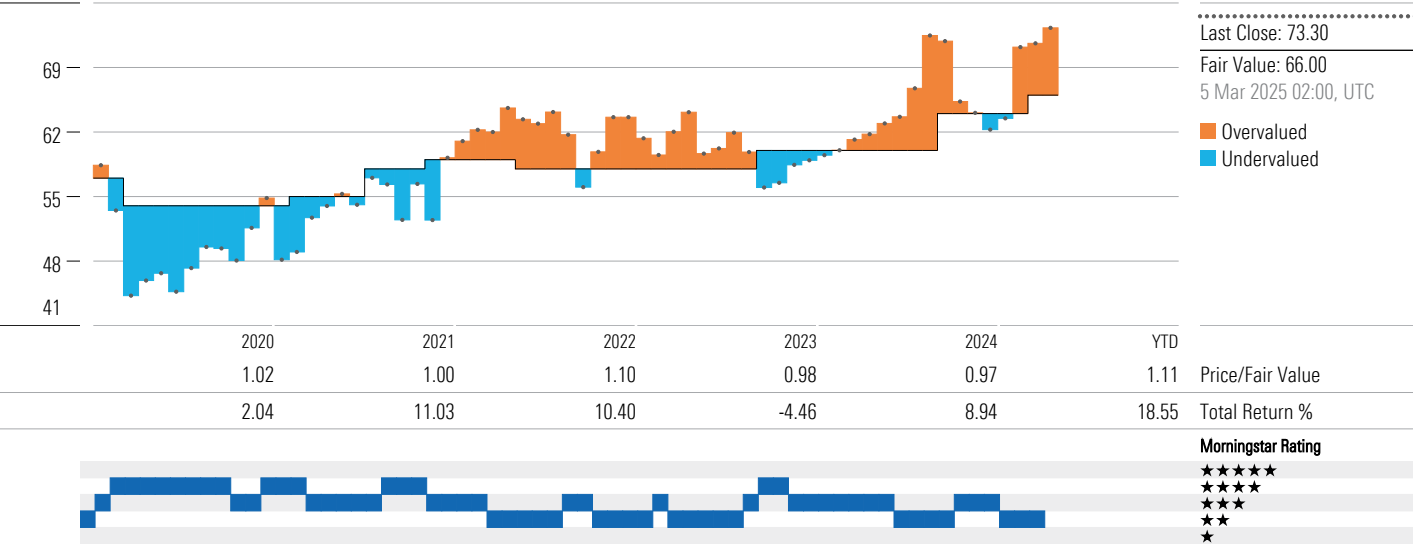
Dan Su, CFA, Equity Analyst, 9 Feb 2024

We plan to trim our \$180 fair value estimate for wide-moat PepsiCo by a low-single-digit percentage after absorbing its mixed 2023 results and a cautious 2024 outlook. Sales were up 6%, missing our 8% estimate on Quaker recalls and currency headwinds in the fourth quarter, but adjusted EPS expansion (12%) was head of our assumption (11%) on higher-than-expected productivity savings of \$1 billion. For 2024, we now expect a lower growth trajectory as we factor in a normalized price increases of 2%-3% in beverages and snacks, modest volume expansion on product launches and refreshes, and ongoing high investment needs in marketing and innovation to assert Pepsi's value-proposition amid a softening consumer backdrop. Our 10-year forecasts for 5% sales CAGR and 16% average operating margins remain in place, and we view shares as slightly undervalued. PepsiCo's 2023 sales growth was entirely driven by pricing, while beverage and snack volumes fell by 1% and 2%, respectively, which we don't view as a healthy mix as consumers become more price sensitive. Management is prudent to target for a better balance, and vows to invest more in innovation and marketing, which we view as essential to reinforce Pepsi's positioning, especially in zero-sugar colas and sports and energy drinks, where competition has intensified from wide-moat Coca-Cola and new entrants. To boost beverage margins, the firm plans to prune products in bottled water and bulk packaging, but has ruled out refranchising of its bottling assets, citing speed of execution advantages. In snacks, we are encouraged by Frito-Lay's focus on health and nutritional benefits, as well as portable packaging. For now, we are less concerned about a mild snack volume decline, likely driven by consumer preference for smaller packs and away-from-home consumption, as unit growth remains strong. That said, management still needs to watch its pricing algorithms closely to maintain product appeal for the long term. ■■■

PepsiCo Inc PEP ★★★★★ 23 Apr 2025 21:25, UTC

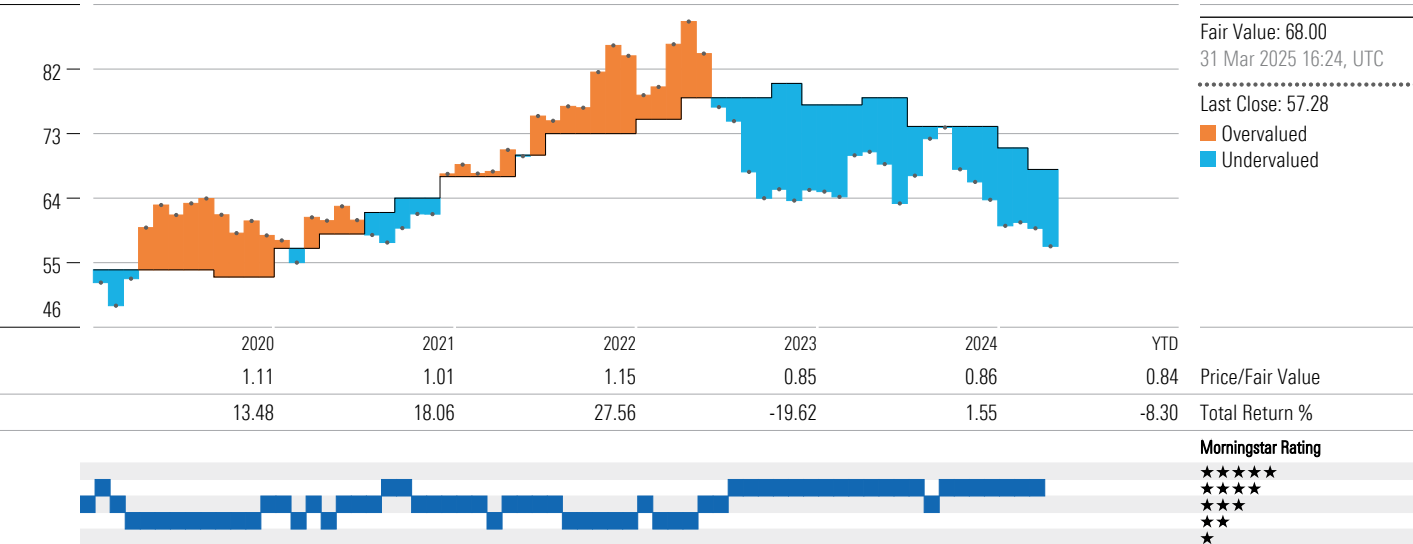
Competitors Price vs. Fair Value

Coca-Cola Co KO



Total Return % as of 23 Apr 2025. Last Close as of 23 Apr 2025. Fair Value as of 5 Mar 2025 02:00, UTC.

General Mills Inc GIS

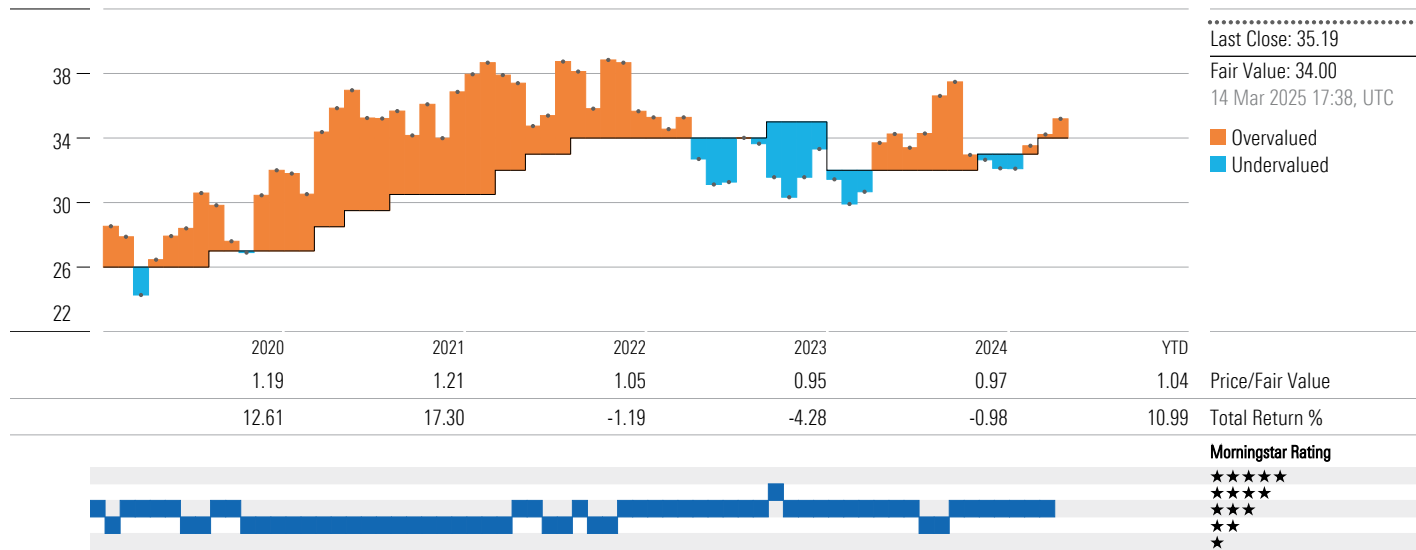


Total Return % as of 23 Apr 2025. Last Close as of 23 Apr 2025. Fair Value as of 31 Mar 2025 16:24, UTC.

PepsiCo Inc PEP ★★★★★ 23 Apr 2025 21:25, UTC

Competitors Price vs. Fair Value

Keurig Dr Pepper Inc KDP



Total Return % as of 23 Apr 2025. Last Close as of 23 Apr 2025. Fair Value as of 14 Mar 2025 17:38, UTC.

PepsiCo Inc PEP ★★★★★ 23 Apr 2025 21:25, UTC

Last Price 142.26 USD 23 Apr 2025	Fair Value Estimate 170.00 USD 8 Feb 2025 01:09, UTC	Price/FVE 0.84	Market Cap 184.94 USD Bil 24 Apr 2025	Economic Moat™ Wide	Equity Style Box Large Value	Uncertainty Low	Capital Allocation Exemplary	ESG Risk Rating Assessment¹ 2 Apr 2025 05:00, UTC
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Morningstar Valuation Model Summary

Financials as of 06 Feb 2025

Fiscal Year, ends 31 Dec	Actual			Forecast				
	2022	2023	2024	2025	2026	2027	2028	2029
Revenue (USD Mil)	86,392	91,471	91,854	93,594	98,080	102,618	108,460	112,094
Operating Income (USD Mil)	11,357	13,347	12,920	13,586	14,678	15,614	16,828	17,616
EBITDA (USD Mil)	14,275	14,934	16,047	16,556	17,770	18,829	20,205	21,089
Adjusted EBITDA (USD Mil)	14,924	15,754	17,007	17,318	18,613	19,636	21,044	21,931
Net Income (USD Mil)	8,910	9,074	9,578	10,058	10,922	11,660	12,621	13,241
Adjusted Net Income (USD Mil)	9,420	10,533	11,248	11,458	12,212	12,760	13,721	14,341
Free Cash Flow To The Firm (USD Mil)	13,567	10,814	10,628	9,890	11,021	11,661	12,534	13,019
Weighted Average Diluted Shares Outstanding (Mil)	1,387	1,383	1,378	1,375	1,369	1,364	1,359	1,354
Earnings Per Share (Diluted) (USD)	6.42	6.56	6.95	7.31	7.98	8.55	9.29	9.78
Adjusted Earnings Per Share (Diluted) (USD)	6.79	7.62	8.16	8.33	8.92	9.35	10.10	10.59
Dividends Per Share (USD)	4.53	5.06	5.42	5.69	5.94	6.24	6.77	7.20

Margins & Returns as of 06 Feb 2025

	3 Year Avg	Actual			Forecast					5 Year Avg
		2022	2023	2024	2025	2026	2027	2028	2029	
Operating Margin %	13.5	13.2	14.6	14.1	14.5	15.0	15.2	15.5	15.7	15.2
EBITDA Margin %	—	16.5	16.3	17.5	17.7	18.1	18.4	18.6	18.8	—
Adjusted EBITDA Margin %	—	17.3	17.2	18.5	18.5	19.0	19.1	19.4	19.6	19.1
Net Margin %	10.2	10.3	9.9	10.4	10.8	11.1	11.4	11.6	11.8	11.3
Adjusted Net Margin %	11.6	10.9	11.5	12.3	12.2	12.5	12.4	12.7	12.8	12.5
Free Cash Flow To The Firm Margin %	13.0	15.7	11.8	11.6	10.6	11.2	11.4	11.6	11.6	11.3

Growth & Ratios as of 06 Feb 2025

	3 Year CAGR	Actual			Forecast					2029 5 Year CAGR
		2022	2023	2024	2025	2026	2027	2028	2029	
Revenue Growth %	4.9	8.7	5.9	0.4	1.9	4.8	4.6	5.7	3.4	4.1
Operating Income Growth %	5.0	1.8	17.5	-3.2	5.1	8.0	6.4	7.8	4.7	6.4
EBITDA Growth %	5.0	2.9	4.6	7.4	3.2	7.3	6.0	7.3	4.4	5.6
Adjusted EBITDA Growth %	4.5	0.2	5.6	8.0	1.8	7.5	5.5	7.2	4.2	5.2
Earnings Per Share Growth %	8.2	17.1	2.1	5.9	5.2	9.0	7.2	8.6	5.3	7.1
Adjusted Earnings Per Share Growth %	8.2	8.6	12.1	7.2	2.1	7.0	4.9	7.9	4.9	7.1

Valuation as of 06 Feb 2025

	Actual			Forecast				
	2022	2023	2024	2025	2026	2027	2028	2029
Price/Earning	26.6	22.3	18.6	17.1	15.9	15.2	14.1	13.4
Price/Sales	2.9	2.6	2.3	2.1	2.0	1.9	1.8	1.7
Price/Book	14.6	12.7	11.6	10.1	9.2	8.4	7.6	6.9
Price/Cash Flow	—	—	—	—	—	—	—	—
EV/EBITDA	18.9	17.0	14.4	13.3	12.4	11.8	11.0	10.5
EV/EBIT	24.8	20.1	19.0	17.0	15.7	14.8	13.7	13.1
Dividend Yield %	2.5	3.0	3.6	4.0	4.2	4.4	4.8	5.1
Dividend Payout %	66.6	66.4	66.4	68.3	66.6	66.7	67.0	68.0
Free Cash Flow Yield %	—	—	—	—	—	—	—	—

Operating Performance / Profitability as of 06 Feb 2025

Fiscal Year, ends 31 Dec	Actual			Forecast				
	2022	2023	2024	2025	2026	2027	2028	2029
ROA %	9.7	9.0	9.6	10.0	10.6	11.0	11.5	11.7
ROE %	51.6	48.7	52.7	51.8	51.5	49.9	49.1	47.2
ROIC %	17.0	19.8	18.8	19.1	19.9	20.3	21.1	21.2

PepsiCo Inc PEP ★★★★★ 23 Apr 2025 21:25, UTC

Last Price 142.26 USD 23 Apr 2025	Fair Value Estimate 170.00 USD 8 Feb 2025 01:09, UTC	Price/FVE 0.84	Market Cap 184.94 USD Bil 24 Apr 2025	Economic Moat™ Wide	Equity Style Box Large Value	Uncertainty Low	Capital Allocation Exemplary	ESG Risk Rating Assessment¹ 2 Apr 2025 05:00, UTC
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Financial Leverage (Reporting Currency)	Actual			Forecast				
	2022	2023	2024	2025	2026	2027	2028	2029
Fiscal Year, ends 31 Dec								
Debt/Capital %	14.5	13.7	16.1	15.3	14.7	14.2	13.8	13.4
Assets/Equity	5.3	5.4	5.5	5.2	4.9	4.5	4.3	4.0
Net Debt/EBITDA	2.4	2.3	2.2	2.2	2.1	2.0	1.9	1.8
Total Debt/EBITDA	2.7	2.5	2.6	2.5	2.3	2.2	2.1	2.0
EBITDA/ Net Interest Expense	18.5	27.7	18.1	18.2	19.4	20.3	21.5	22.2

Forecast Revisions as of 7 Feb 2025	2025		2026		2027	
Prior data as of 10 Oct 2024	Current	Prior	Current	Prior	Current	Prior
Fair Value Estimate Change (Trading Currency)	170.00	174.46	—	—	—	—
Revenue (USD Mil)	93,594	92,475	98,080	96,978	102,618	101,649
Operating Income (USD Mil)	13,586	13,817	14,678	14,926	15,614	16,103
EBITDA (USD Mil)	17,318	17,761	18,613	18,953	19,636	20,096
Net Income (USD Mil)	11,458	11,269	12,212	11,786	12,760	12,708
Earnings Per Share (Diluted) (USD)	7.31	7.61	7.98	8.28	8.55	9.00
Adjusted Earnings Per Share (Diluted) (USD)	8.33	8.16	8.92	8.58	9.35	9.29
Dividends Per Share (USD)	5.69	5.32	5.94	5.65	6.24	6.04

Key Valuation Drivers as of 06 Feb 2025

Cost of Equity %	7.5
Pre-Tax Cost of Debt %	5.5
Weighted Average Cost of Capital %	6.9
Long-Run Tax Rate %	20.0
Stage II EBI Growth Rate %	4.0
Stage II Investment Rate %	26.0
Perpetuity Year	20

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

Discounted Cash Flow Valuation as of 06 Feb 2025

	USD Mil
Present Value Stage I	90,327
Present Value Stage II	63,745
Present Value Stage III	113,538
Total Firm Value	267,611
Cash and Equivalents	9,266
Debt	44,306
Other Adjustments	-39
Equity Value	232,532
Projected Diluted Shares	1,372
Fair Value per Share (USD)	170.00

PepsiCo Inc PEP ★★★★★ 23 Apr 2025 21:25, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
142.26 USD 23 Apr 2025	170.00 USD 8 Feb 2025 01:09, UTC	0.84	184.94 USD Bil 24 Apr 2025	Wide	Large Value	Low	Exemplary	 2 Apr 2025 05:00, UTC

ESG Risk Rating Breakdown

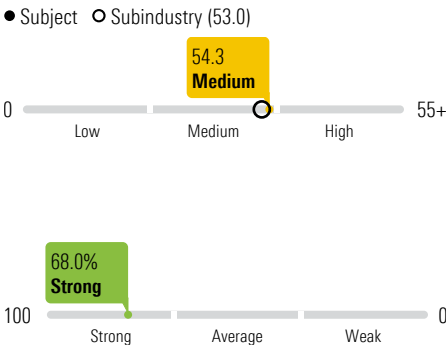
Exposure

Company Exposure¹	54.3
– Manageable Risk	50.0
Unmanageable Risk²	4.3

Management

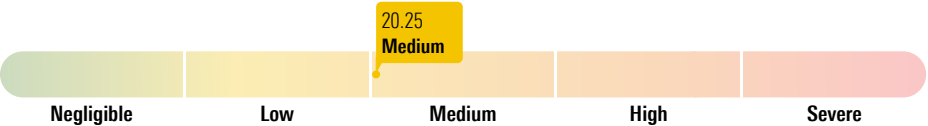
Manageable Risk	50.0
– Managed Risk³	34.0
Management Gap⁴	16.0

Overall Unmanaged Risk 20.2



- ▶ 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 68.0% 4. Management Gap assesses risks that are not managed, but are considered manageable 5. ESG Risk Rating Assessment = Overall Unmanaged Risk = Management Gap plus Unmanageable Risk

ESG Risk Rating Assessment⁵



ESG Risk Rating is of Apr 02, 2025. Highest Controversy Level is as of —. Sustainability Subindustry: —. Sustainability provides Morningstar with company ESG ratings and metrics on a monthly basis and as such, the ratings in Morningstar may not necessarily reflect current Sustainability scores for the company. For the most up to date rating and more information, please visit: sustainalytics.com/esg-ratings/.

Peer Analysis 02 Apr 2025

Company Name	Exposure	Management	ESG Risk Rating
PepsiCo Inc	54.3 Medium 0 — 55+	68.0 Strong 100 — 0	20.2 Medium 0 — 40+
General Mills Inc	52.8 Medium 0 — 55+	54.6 Strong 100 — 0	26.0 Medium 0 — 40+
Coca-Cola Co	46.7 Medium 0 — 55+	54.4 Strong 100 — 0	23.9 Medium 0 — 40+
Monster Beverage Corp	45.0 Medium 0 — 55+	29.9 Average 100 — 0	32.9 High 0 — 40+
Keurig Dr Pepper Inc	48.5 Medium 0 — 55+	56.4 Strong 100 — 0	23.9 Medium 0 — 40+

Appendix

Historical Morningstar Rating

PepsiCo Inc PEP 23 Apr 2025 21:25, 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
★★★	★★★	★★★	★★★	★★★	★★★★	★★★★	★★★	★★★	★★★★	★★★	★★

Coca-Cola Co KO 23 Apr 2025 21:26, 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
★★★	★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★	★★

General Mills Inc GIS 23 Apr 2025 21:26, 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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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 ★★★
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Research Methodology for Valuing Companies

Overview

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

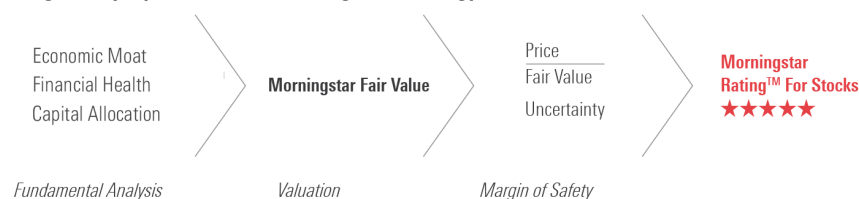
Because a dollar earned today is worth more than a dollar earned tomorrow, we discount our projections of cash flows in stages I, II, and III to arrive at a total present value of expected future cash flows. Because we are modeling free cash flow to the firm—representing cash available to provide a return 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



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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		
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.

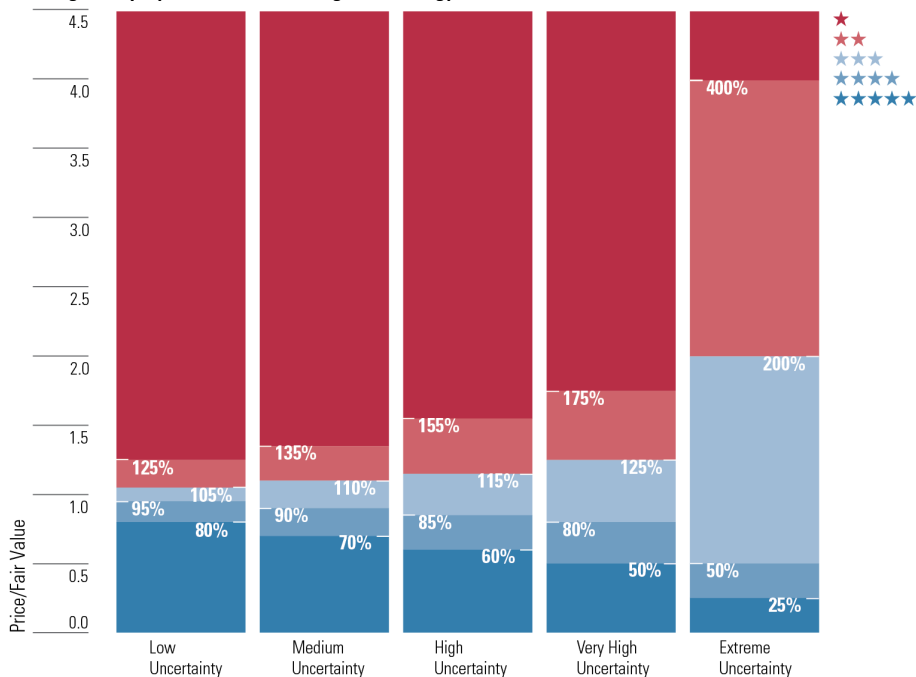
4. Market Price

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.

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

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

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

Sustainalytics analyzes over 1,300 data points to assess a company's exposure to and management of ESG risks. In other words, ESG Risk Ratings measures a company's unmanaged ESG Risks represented as a quantitative score. Unmanaged Risk is measured on an open-ended scale

starting at zero (no risk) with lower scores representing less unmanaged risk and, for 95% of cases, the unmanaged ESG Risk score is below 50.

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

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

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