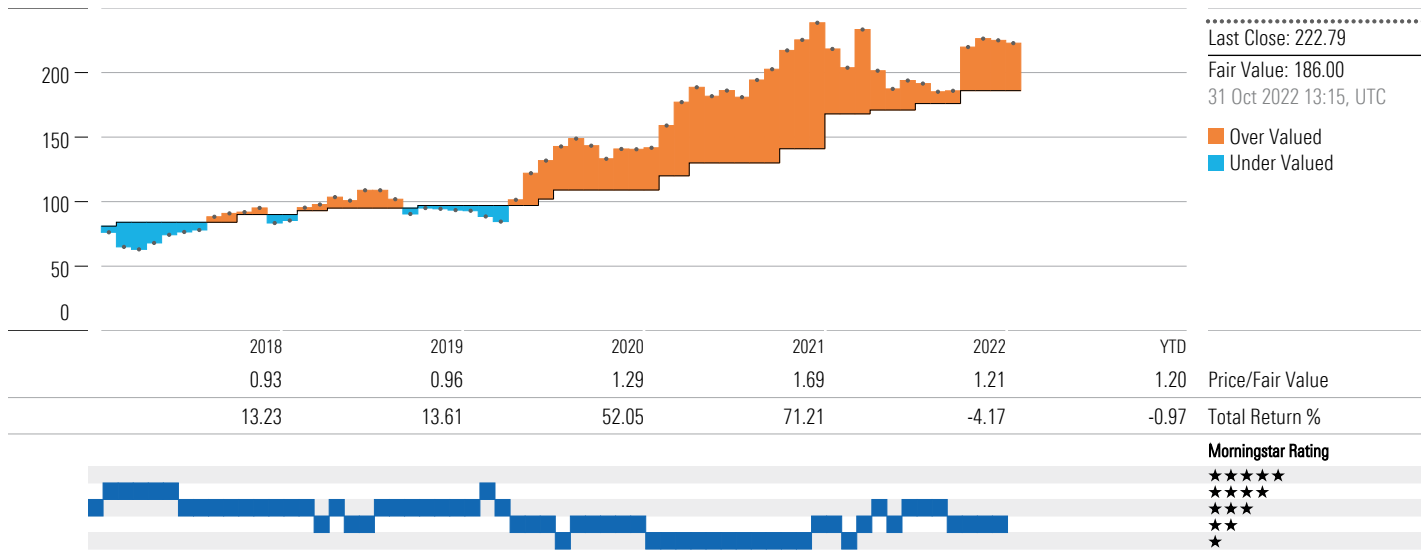


Tractor Supply Co TSCO ★★ 30 Jan 2023 22:34, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
222.79 USD 30 Jan 2023	186.00 USD 31 Oct 2022 13:15, UTC	1.20	24.61 USD Bil 30 Jan 2023	Narrow	Stable	Medium	Exemplary	4 Jan 2023 06:00, UTC

Price vs. Fair Value



Total Return % as of 30 Jan 2023. Last Close as of 30 Jan 2023. Fair Value as of 31 Oct 2022 13:15, 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.

Tractor Supply Harvests Growth Due to Robust Consumable Demand; Brand Asset Intact, but Shares Rich

Analyst Note Jaime M. Katz, CFA, Senior Equity Analyst, 26 Jan 2023

We plan to raise our \$186 per share fair value estimate on narrow-moat Tractor Supply by a mid-single-digit percentage after digesting fourth-quarter results that exceeded expectations, however, we continue to view shares as overvalued. Fourth-quarter comparable sales popped 8.6% (aided by a 2% boost from more favorable weather), above our 6% preprint estimate, composed of solid comparable ticket and transaction growth of 6.3% and 2.3%, respectively. On the profit front, higher operating costs (22.7% of sales) from the Orscheln integration and investment in growth initiatives offset better-than-expected gross margin performance (34%) thanks to price management efforts. All in, Tractor Supply delivered a 9% operating margin in the quarter, in line with our estimate.

Tractor Supply's consumable, usable, and edible segment delivered 3 times the firm's comparable growth rate (for the fourth consecutive quarter), besting market growth by 2 times in dollars and 3 times in volume. In our view, CUE products continue to be a key factor contributing to consumer stickiness and adjacent product sales.


Fiscal-year 2023 guidance is in line with our preprint estimates. Our net sales projection of \$15.3 billion is squarely within the \$15 billion-\$15.3 billion offered, estimated 4% same-store sales growth is within the firm's 3.5%-5.5% range, and our EPS outlook of \$10.52 is within the \$10.30-\$10.60 guidance. In 2023, we expect Tractor's operating margin to rise 10 basis points to 10.2% as logistics costs finally

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Sector

 Consumer Cyclical

Industry

Specialty Retail

Business Description

Tractor Supply is the largest operator of retail farm and ranch stores in the United States. The company targets recreational farmers and ranchers and has little exposure to commercial and industrial farm operations. Currently, the company operates 2,108 of its namesake banners in 49 states and 180 Petsense stores. Stores are typically located in towns outside of urban areas and in rural communities. In fiscal 2021, revenue consisted primarily of livestock and pet (47%), hardware, tools, and truck (21%), and seasonal gift and toy (21%).

moderate in the back half of the year. Longer term, Tractor's leadership in the farm and home category should allow it to capitalize on tailwinds relating to rural revitalization, pet ownership, and homesteading as it expands its adjacent offerings like gardening. As such, we believe the firm can harness average sales growth of 6%, operating margins of nearly 11%, and EPS growth of 9% over the next decade as it continues to improve its leverage of fixed costs.

Business Strategy & Outlook

Jaime M. Katz, CFA, Senior Equity Analyst, 31 Oct 2022

Tractor Supply is the largest consumer farm specialty retailer in the United States, set to achieve \$14 billion in sales in 2022. The firm has differentiated itself through its products and customer demographics, which provide underlying support to its brand intangible assets and narrow economic moat. At the end of 2021, the store base had grown about 26% over the prior five-year period, to more than 2,000 locations (around 2,200 including Petsense), driving sales and EPS compound annual growth rates over the past three years of 17% and 26%, respectively. We forecast that the firm will grow to around 3,000 stores by 2031 (including Petsense and 81 acquired locations from Orscheln Farm & Home) as it populates big-box centers in the western half of the U.S., with Petsense accounting for about 280 units.

The firm competes with big-box retailers like PetSmart and Lowe's, which also have solid pricing power because of scale and distribution advantages across numerous categories. We believe Tractor Supply derives its success from its evolving customer-led store layout, which makes it a destination store for many of its customers. In addition, since Tractor Supply focuses on an active do-it-yourself rural consumer, many of its products are higher-end than those found in retailers that focus on a casual consumer.

We believe that the firm has reached critical mass in its consumer segment, and better efficiency gains ahead from category expansions like side lot and store updates under project fusion should help elevate the sales and profit growth opportunity set. Better customer attribution data, improved bargaining power with vendors, and more sophisticated logistics should also improve inventory levels and cash conversion. Additionally, stable gross margins thanks to strong private-label penetration and operating cost leverage from scale should help operating margins remain over 10% throughout our forecast. Despite the strides made, investments to improve the customer experience could limit near-term operating margin upside; capital expenditures will likely remain elevated over the medium term as the firm invests to support growth.

Bulls Say

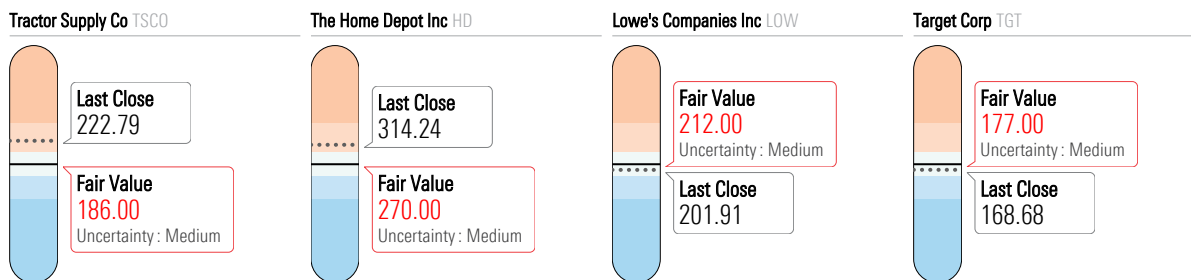
Jaime M. Katz, CFA, Senior Equity Analyst, 31 Oct 2022

- ▶ Tractor Supply has room for store growth, which should help it achieve high-single-digit EPS growth over the next decade (in line with the 8%-11% it expects). A quicker-than-expected rollout of side lot projects could lead to faster sales growth than we expect.

Tractor Supply Co TSCO ★★ 30 Jan 2023 22:34, UTC

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Competitors



	Tractor Supply Co TSCO	The Home Depot Inc HD	Lowe's Companies Inc LOW	Target Corp TGT
Economic Moat	Narrow	Wide	Wide	None
Moat Trend	Stable	Stable	Stable	Negative
Currency	USD	USD	USD	USD
Fair Value	186.00 31 Oct 2022 13:15, UTC	270.00 23 Nov 2022 20:20, UTC	212.00 14 Dec 2022 21:49, UTC	177.00 21 Nov 2022 18:51, UTC
1-Star Price	251.10	364.50	286.20	238.95
5-Star Price	130.20	189.00	148.40	123.90
Assessment	Over Valued 30 Jan 2023	Over Valued 30 Jan 2023	Fairly Valued 30 Jan 2023	Fairly Valued 30 Jan 2023
Morningstar Rating	★★ 30 Jan 2023 22:34, UTC	★★ 30 Jan 2023 22:34, UTC	★★★ 30 Jan 2023 22:34, UTC	★★★ 30 Jan 2023 22:34, UTC
Analyst	Jaime M. Katz, Senior Equity Analyst	Jaime M. Katz, Senior Equity Analyst	Jaime M. Katz, Senior Equity Analyst	Zain Akbari, Equity Analyst
Capital Allocation	Exemplary	Exemplary	Exemplary	Exemplary
Price/Fair Value	1.20	1.16	0.95	0.95
Price/Sales	1.76	2.06	1.37	0.73
Price/Book	12.05	246.74	321.82	7.05
Price/Earning	22.94	18.94	19.49	23.04
Dividend Yield	1.65%	2.42%	1.96%	2.35%
Market Cap	24.61 Bil	320.27 Bil	122.10 Bil	77.65 Bil
52-Week Range	166.49 — 241.54	264.51 — 374.67	170.12 — 240.71	137.16 — 254.87
Investment Style	Mid Core	Large Core	Large Core	Large Value

- ▶ A unique merchandise assortment partially insulates the firm from e-commerce competitors, offering products that have either immediate need or are expensive to ship.
- ▶ With its distribution network continuing to evolve, Tractor Supply should be able to leverage logistics expenses better, leading to improving distribution costs.

Bears Say Jaime M. Katz, CFA, Senior Equity Analyst, 31 Oct 2022

- ▶ Competition is fierce throughout retail, and Tractor Supply will have to innovate to keep its market leadership position and ensure elevated brand relevance.
- ▶ Optimal real estate opportunities could become more difficult to capture as the firm expands further into competitors' markets and real estate prices stabilize or rise in many areas.
- ▶ Free cash flow could be tempered in the near term as the firm increases its capital expenditures to roll out the project fusion and side lot initiatives, expand the store footprint, build out the distribution network, and invest in IT.

Tractor Supply Co TSCO ★★

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Economic Moat Jaime M. Katz, CFA, Senior Equity Analyst, 31 Oct 2022

Tractor Supply's brand and product mix have built a loyal following of recreational farmers, ranchers, and those participating in the rural lifestyle, supporting a narrow moat built on a solid brand intangible asset. The niche product offerings place Tractor Supply in a unique position, insulated from peers that focus on one segment of the market. Tractor Supply's breadth across categories (equine, livestock, pet and small animal products; hardware, truck, towing and tool products; seasonal products; work/recreational clothing and footwear; maintenance products; and now extending into outdoor/garden) provides a one-stop solution (and destination) for those looking to fill multiple needs across outdoor categories.

We believe the business' ability to cater to a more recreational outdoor hobbyist lends the business to higher-income demographics and less revenue cyclicality. It has been estimated in the past that less than 10% of customers are classified as full-time farmers and ranchers, and the largest customer segment does not farm at all. And while hobby farmer consumers generate more than \$23 billion annually in revenue for farm supply stores (IBISWorld), farm supply products represent only a portion of Tractor Supply's merchandise selection, implying room for growth—seasonal and parts of other categories not directly tied to the outdoor lifestyle/farming alone constitute 20%-25% of sales, in our estimation. Additionally, with Tractor Supply's estimated 7% share of a \$180 billion total addressable market (according to the company), we still see a robust opportunity for market share gains and adjacent category expansion (as noted earlier via the pursuit of garden/outdoor revenue).

In our opinion, Tractor Supply's generally resilient consumer base allows for more consistent revenue growth through both expanded footprint and category exposure, which are indicated by modestly improving gross margins over the long term. We suspect gross margin improvement can come from multiple sources (better product offerings, more seasonal, more private label, price management initiatives), which should be durable or improved upon longer term. This ultimately, will be returned to customers via way of everyday low pricing, which should help shoppers stay sticky. We believe Tractor Supply is somewhat insulated from competitive pricing pressure from Home Depot and Lowe's in overlapping product categories due to the company's focus on rural presence versus its competitors' more urban/suburban focus.

If private label/exclusive brands become a more important part of sales (29% of 2021 revenue) and have a disparate positive impact on gross margins by a few hundred basis points at least, the upward trend should be reasonable to achieve, particularly as consumers become more tied to these specific brands that are solely distributed at Tractor Supply. Private label is meaningful among the consumable, usable, and edible products the company sells and includes key products that customers use on a regular basis—making those end users become repeat customers—like pet food, seasonal products, livestock

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feed, and pest control. The increased emphasis on immediate-need, or CUE, products (we estimate private label to represent 40%-50% of sales) could tick gross margins higher, indicating the company's pricing power and the strength of its brand. While some CUE products generate lower merchandise margins, the increased frequency of consumer visits drives adjacent product sales with higher margins. Additionally, Tractor Supply should be able to support stable gross margins as it increases its scale in multiple categories.

More important, the management team continuously develops the business for success. Solid focus on culture (specifically, the continuous improvement that was previously highlighted in the Tractor Value System program) and the business holistically (Team, Sales, Customer and Execution, which has now graduated to Project Fusion) gives the company good footing to resonate with its consumers going forward. TVS was launched in 2006 in order to reduce waste, cost, and improve efficiencies throughout the organization. Ultimately, this process identifies areas that need improvement, which eventually leads to innovation and shorter lead times as new processes are implemented. This expedites newer product in the channel with better technological features, allowing for consistent price increases. The launch of TSC&E was all about cultivating a lean environment without sacrificing quality of merchandise or customer service. Building a team from the customer base, and rewarding employees based on success helps develop the right leader to take the business forward. Furthermore, Project Fusion, a space productivity program, was initiated to enhance the customer experience across the store base, encouraging customers to make repeat visits. Previous efforts like the OneTractor initiative, increasing customer engagement through digital technology (including stockyard kiosks), better CRM, GURA or greet, understand, recommend, ask, growth of the Neighbor's Club loyalty program (27 million members), and expanded supply chain capabilities in order to better serve customers, caters to the evolving consumer landscape, helping to ensure the company's brand intangible asset remains intact. A recently enhanced focus on accessibility, including curbside pickup, same- and next-day delivery, and an easy-to-use app have created further opportunities to connect with the customer base during the social distancing period of COVID-19.

Overall, all of these points have helped Tractor Supply deliver average adjusted returns on invested capital including goodwill of 14% during the past five years. We believe this metric should be 18% in fiscal 2031, as current investments slow and begin to pay off (versus our cost of capital assumption of 9%). We still think the familiarity of the brand and improving knowledge levels of the employee base keeps the business in the forefront of consumers' minds as the premier choice for outdoor hobby and pet needs.

We are confident that the brand intangible asset will continue to be relevant and will benefit Tractor Supply for at least another 10 years, as we find it difficult to believe any new entrant would be able to enter the market with scale across the numerous categories the company has operated in retailing.

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While we think new competitors could enter through the e-commerce channel, in our opinion they would be limited to operating in few and particular categories because of the prohibitive shipping costs numerous products entail. Additionally, shipping in general is more expensive in rural areas, where households are farther apart and delivery routes are longer.

Fair Value and Profit Drivers Jaime M. Katz, CFA, Senior Equity Analyst, 31 Oct 2022

We are raising our fair value estimate to \$186 per share from \$176 after incorporating third-quarter results and updated guidance into our model. Net and comparable store sales ticked up by 8.4% and 5.7%, respectively, driven by comparable average ticket growth of 7%, which more than offset a 1.3% transaction volume decline. We believe the firm's ability to deliver significant comparable growth without discounting amid unfavorable weather has improved over time via inventory optimization, reducing the risk of gross margin pressure. Furthermore, as result of strong performance and the acquisition of Orscheln, Tractor Supply lifted its 2022 outlook to include \$9.55-\$9.63 in EPS (up from \$9.48-\$9.60) on roughly \$14 billion in sales. Our 2022 forecast includes \$14.1 billion in sales and \$9.63 in EPS. Our fair value estimate implies a forward 2023 price/earnings ratio of 17.7 times and a 2023 enterprise value/EBITDA multiple of 12.1 times.

Longer term, we view the expanding breadth of its offerings (side lot repositioning to include lawn and garden), potential for growth of its current consumer base, and increased penetration of new consumers as positive factors that could drive top-line growth. Over the medium term (next five years) we project that total sales can grow at an average of 8%, supported by 4% comparable-store sales, about 4% average square footage growth, and improving productivity. We forecast gross margins to rise modestly over the next decade, constrained by our belief that e-commerce retailers can compete in about 30% of the sales areas Tractor Supply operates in and the everyday-low-price strategy. We forecast the selling, general, and administrative expense ratio remain flattish at the end of our forecast (22.4%) as the business continues to invest to maintain its leadership position in the outdoor enthusiast segment. Our model assumes 40 basis points of operating margin improvement from 2021 over the next decade, as consistent improvements in the supply chain and merchandising are largely offset by elevated investment to remain a best in class retailer. Over the long term, we project a midteens average rate of return on invested capital rate versus our 9% cost of capital assumption, providing quantitative support for our narrow economic moat view.

Risk and Uncertainty Jaime M. Katz, CFA, Senior Equity Analyst, 31 Oct 2022

We've assigned Tractor Supply a Medium Uncertainty Rating despite operating in a cyclical retail environment in which consumers' spending habits in large part drive sales. Tractor Supply's target demographic is fairly affluent, which helps insulate the firm somewhat during a recession (generating same-store sales of 1% in 2008, negative 1% in 2009, and 23% in 2020). While some segments of the

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business could be swayed by weather (lawn and garden, heating) or the performance of the housing market (clothing, tools), we think sales from the CUE product categories, including pet food, livestock, and equine categories, should offer stability in the revenue cycle.

In markets and product categories that Tractor Supply overlaps with other big-box retailers (Lowe's, PetSmart, Walmart), we think the company could be forced to be a price taker, which could weigh on local profits. Additionally, there are no barriers to entry to prevent new competitors from operating in any of the firm's markets, although it's difficult for us to see how a smaller, less nimble business would be able to offer similar product prices, as it probably would not have vendor relationships of the same strength. With our forecast for roughly 2,700 Tractor Supply and just under 280 Petsense stores by 2031, the firm risks oversaturation and cannibalization of sales in established locations, however, we expect some localized merchandise selection could prevent this.

Some risk lies in competition from the e-commerce channel, particularly in categories that have been commodified. The biggest risk, in our opinion, is a slowdown in domestic economic growth, which could lead to declines in home sales pricing, higher unemployment, or slowing income growth levels. We believe risk stemming from environmental, social, and governance concerns is manageable, as the factors with most materiality (higher cost of wages and turnover, as well as higher energy costs) still provide low risk to economic profits.

Capital Allocation Jaime M. Katz, CFA, Senior Equity Analyst, 31 Oct 2022

Our capital allocation rating for Tractor Supply is Exemplary. Forecast adjusted returns on invested capital, including goodwill (14% on average over the next five years) are set to handily outpace our weighted cost of capital estimate (at 9%) over our entire outlook, and the balance sheet remains sound, given the company's medium revenue cyclicality and operating leverage. With little debt, the balance sheet remains sound. Net debt/EBITDA should average below 1 times over the next decade, and near-term capital demands remain minimal.

Former Macy's president Hal Lawton became CEO of Tractor Supply in January 2020. We think Lawton was chosen for his wide expertise across retailing, most recently directing merchandising, marketing, stores, operations, and more at Macy's. More important, his extensive e-commerce experience, with both eBay and Home Depot, could help Tractor Supply better monetize its omnichannel presence (digital sales accounted for 7% of total sales in 2021, up from around 2%-3% at the end of 2019).

We hold a positive view of Tractor Supply's investment strategy, as we see the company is spending strategically to maintain its competitive advantages and respond rapidly to evolving demand. Despite the hiccup when re-evaluating Petsense's long-term opportunity set (which resulted in an impairment), active spending on potentially lucrative expansion categories (garden and outdoor, for example) should more than offset such missteps. Quantitatively, we believe this is supported by robust ROIC (including

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goodwill) and improving operating margin performance (averaging 10.5% over our forecast).

We deem cash distributions as appropriate, with the management team returning capital to shareholders when optimal. As such, it suspended share repurchases early in the COVID-19 cycle but has resumed opportunistic purchases given the strong demand that has persisted over the last year (providing such flexibility). Additionally, Tractor Supply has consistently raised its dividend in recent years, most recently lifting the payout by 77% to \$0.92 per quarter, in an effort to return excess capital to shareholders.

Analyst Notes Archive

Tractor Supply Touts Strong Growth Opportunities, While Nimbly Navigating Cost Pressures Jaime

M. Katz, CFA, Senior Equity Analyst, 20 Oct 2022

We plan to lift our \$176 fair value estimate by a low-single-digit percent for narrow-moat Tractor Supply after incorporating third-quarter results into our model. Despite unfavorable weather, net and comparable store sales ticked up by 8.4% and 5.7%, respectively (near our 9.3% and 5.5% respective forecasts), driven by comparable average ticket growth of 7%, which more than offset a 1.3% transaction volume decline. We believe the firm's ability to deliver significant comparable growth without discounting amid unfavorable weather has improved over time via inventory optimization, reducing the risk of gross margin pressure. Indeed, the firm delivered a 35.6% gross margin (down 40 basis points), despite higher costs from freight, labor, and a higher proportion of lower margin consumable, usable, and edible sales (C.U.E.). Still, with C.U.E. comparable sales that were 3 times the overall sales growth rate, we think the differentiated category offerings are a key factor driving in-store trips and adjacent purchases.

As a result of strong performance and the acquisition of Orscheln, Tractor lifted its 2022 outlook to include \$9.55-\$9.63 in EPS (up from \$9.48-\$9.60, and near our \$9.54 preprint forecast) on roughly \$14 billion in sales. Our updated forecast is set to reflect \$14.1 billion in sales and \$9.63 in EPS. More importantly, we see 2023 high-single-digit sales and earnings growth as feasible as the firm encourages conversion through its Project Fusion enhancements and garden centers, which are set to grow beyond the current 500 and 260 locations, respectively (generally resulted in high-single-digit comparable sales lifts). Moreover, growth in its 27 million Neighbors loyalty program will continue to provide benefits, as it extends membership to its 180 Petsense locations and engages a wider base with a new loyalty credit card. As such, we see no impediment in achieving mid-single-digit top-line and high-single-digit bottom-line results over the next decade.

Tractor Supply Closes Acquisition of Orscheln With Remedies for Anti-Competitive Concerns Jaime

M. Katz, CFA, Senior Equity Analyst, 12 Oct 2022

Tractor Supply Co TSCO ★★

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Narrow-moat Tractor Supply is set to complete its purchase of Orscheln Farm & Home on Oct. 12. Initially, Tractor Supply was set to acquire the entirety of Orscheln's store base (166 locations) for \$320 million, a price we view as reasonable at around 1 times sales. Tractor Supply had \$531 million in cash as of its June 25 balance sheet date and should have no issues financing this transaction. Given limited direct peers in the farm and home supply category, the Federal Trade Commission mandated the sale of 85 Orscheln locations to Bomgaars and Buchheit to ensure operators across the industry keep quality, selection, and service levels healthy (leaving Tractor Supply with 81 rebranded locations). As a result, the sale of 85 stores, Orscheln headquarters, and Orscheln's distribution center will reduce the transaction price by \$82 million for Tractor Supply, capping its outlay at \$238 million.

We don't plan to alter our \$176 fair value estimate in response to the deal closure. In 2023, Orscheln is set to contribute \$300 million in sales (2% of our 2022 \$13.9 billion projection) and \$0.10 in EPS (1% of our 2022 \$9.54 EPS estimate). We model \$14.8 billion in 2023 revenue, in line with the firm's updated guidance for sales over \$14 billion upon transaction close. Furthermore, our Exemplary capital allocation rating remains unchanged, as the Orscheln business model and consumer fits squarely into Tractor Supply's existing target market. As a result, we don't expect any impact to our mid-teen ROIC estimates and view this tie-up as a prudent use of capital. Tractor lifted its store base potential to 2,800 (from 2,700), but we plan to hold our roughly 2,600 boxes in 2031 intact. To start, optimal locations could be harder to come by for new boxes. Additionally, the FTC has laid out onerous steps for future transactions, requiring approval for acquiring in a farm store that has operated or is operating within a 60-mile radius of a divested store for the next 10 years.

Inflation Fails to Slow Appetite for Outdoor Lifestyle Demand at Tractor Supply; Brand Asset Intact

Jaime M. Katz, CFA, Senior Equity Analyst, 22 Jul 2022

We plan a mid-single-digit increase to our \$171 fair value estimate (attributable to time value of money and modestly higher near-term EPS) after digesting narrow-moat Tractor Supply's second-quarter 2022 results, but still view the stock as overvalued, even after accounting for the mid-single-digit slip in shares post print. Revenue rose 8.4% and comparable sales improved 5.5%, exceeding our expectations of 6.2% and 4.2%, respectively. Additionally, a 19-basis-point lower SG&A metric allowed Tractor Supply to achieve a 13.5% operating margin (flat year over year despite 50 basis points of gross margin pressure from inflation and logistics). Our preprint forecast for 10.3% operating margin in 2022 remains in line with the firm's updated outlook for 10.2%, despite wage and mix pressures (as consumable, usable, and edible products resonate with buyers).

Looking ahead, Tractor Supply's progress on elevating consumer touchpoints touts its enviable growth potential. Management's garden center additions (175 existing stores) should be implemented in 15% of locations by year end, aiding in attracting a wider cohort of demographics (younger and female).

Executed expansion plans of exclusive retailer battery-powered equipment and "Try Before You Buy"

Tractor Supply Co TSCO ★★

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initiatives complement this strategy and bolster the company's standing with consumers. While cost pressures remain, we're encouraged the firm continues to invest to refine stores' appearances, product offerings, and product placement and is on track for 30% store adoption by the year end. We think such upgrades will help Tractor Supply deliver 3.8%-4.0% comparable ticket growth long-term. Ongoing store expansion (with 70-80 new locations set for 2022), growth in e-commerce (7% this quarter), and 26 million loyalty members (up 24% year over year) indicate the brand continues to resonate with customers, underpin our forecast for Tractor to maintain 6% average sales growth long-term.

Narrow-Moat Tractor Supply Continues to Capture Share of Wallet; Shares Rich Jaime M. Katz, CFA, Senior Equity Analyst, 6 Jun 2022

In advance of a corporate presentation, narrow-moat Tractor Supply offered an early read on its second-quarter (June ending) performance. For now, the firm expects to grow sales 8% and generate EPS of more than \$3.48 in the period, which are ahead of our 6.2% top-line and \$3.31 EPS forecasts. Admittedly, we have little insight into the composition of the earnings outperformance or the amount of share repurchases, which could prove to be a swing factor depending on the level of activity. We surmise the majority of the sales upside stemmed from the normalization of weather, which facilitated further outdoor category demand. Tractor Supply has already launched 200 garden locations within its existing footprint, an effort we believe will support incremental sales growth ahead.

However, the modest outperformance Tractor Supply is set to achieve in the second quarter doesn't alter our long-term prognosis for the business, and as such we have no intention of altering our \$171 fair value estimate. Over the next decade, we think Tractor Supply should be able to generate 6% top-line growth, benefiting from location growth, higher pet penetration, and increased conversion stemming from dynamic marketing to loyalty participants. As sales scale, Tractor Supply should be able to continue to absorb costs but also pass on savings to consumers by way of every day low pricing. This will ultimately bound operating margin metrics around 11%. In our opinion, Tractor Supply is in a unique position to continue to capitalize on the outside lifestyle trend, given there are no other national competitors in the space. However, with shares trading at a midteens premium and at nearly 20 times our 2023 EPS estimate, we think investors should wait for a wider margin of safety.

Narrow-Moat Tractor Supply Continues to Farm Profits; Shares Remain Rich Jaime M. Katz, CFA, Senior Equity Analyst, 21 Apr 2022

We don't plan to make any material adjustments to our \$168 fair value estimate for narrow-moat Tractor Supply after incorporating first-quarter results that were largely in line with our pre-print forecast. In the period, comparable store sales rose 5.2%, well ahead of our 1% estimate, supporting sales growth of 8.3% to \$3 billion (around our \$2.9 billion sales forecast). Notably, retail price inflation contributed around 10 points to comparable store sales, a figure that remained impressive given that the two-year

Tractor Supply Co TSCO ★★

30 Jan 2023 22:34, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
222.79 USD 30 Jan 2023	186.00 USD 31 Oct 2022 13:15, UTC	1.20	24.61 USD Bil 30 Jan 2023	 Narrow	Stable	Medium	Exemplary	 4 Jan 2023 06:00, UTC

comp stack (43.8%) remained higher than any time since the pandemic began. Retail inflation was also seen in average ticket, which rose 6.7%, however, transactions fell 1.4%, implying trip consolidation from customers. Despite the inflationary environment, Tractor Supply managed costs well, as evidenced by a mere 20-basis-point contraction in operating margin, to 8.1%, helped by lower COVID-19-related costs and employee incentive compensation.

Despite the uncertainty surrounding costs, as well as the geopolitical and economic environments, Tractor Supply held firm on its full-year outlook calling for sales of \$13.6 billion-\$13.8 billion, an operating margin between 10.1%-10.3%, and EPS of \$9.20-\$9.50. As our preprint forecast included \$13.6 billion in sales, a 10.4% operating margin, and \$9.40 in EPS, we don't surmise much change to our 2022 expectations. This projection implies mid-single-digit comparable store and total revenue growth over the back three quarters of the year along with flattish operating margins. Longer term, we model operating margin leverage stemming from selling, general, and administrative expense absorption, allowing the metric to creep toward 11%. With ongoing operating and capital spend to grow the footprint of the business, ROICs should remain constrained to a midteens level, still outpacing our 9% weighted average cost of capital estimate.

Tractor Supply Posts Strong Q4 as Management Raises Long-Term Targets; Shares Remain Overvalued

Jaime M. Katz, CFA, Senior Equity Analyst, 27 Jan 2022

We plan to raise our \$141 valuation for narrow-moat Tractor Supply by 15%-20% after incorporating better-than-expected fourth-quarter results and a higher long-term outlook into our model. However, we still view the shares as rich, trading more than 30% above our updated intrinsic value and at 23 times the midpoint of the firm's 2022 EPS outlook. Fourth-quarter comps of 12.7% (40% 2-year stack) were ahead of our 8% estimate, leading to 15% sales growth (to \$3.3 billion). Both comp ticket and transaction growth were healthy, up 10.3% and 2.4%, respectively, although 850 basis points of lift in ticket stemmed from inflation. The operating margin of 8.8% was a mere 10 basis points ahead of our forecast, as expense leverage was largely offset by inflation and mix. Fourth-quarter performance, the time value of money, and a lower long-term tax rate outlook should account for around half of our fair value lift. For reference, we reduced our tax rate estimate to 23% from 27% as we now view a U.S. hike as unlikely.

The other half of our fair value hike stems from updated long-term metrics, as Tractor Supply lifted its long-term expectations for the business. The firm now calls for an operating margin of 10.1%-10.3%, up from its prior forecast of 9%-9.5%. Given the potential profit upside of both the side lot expansion and store remodeling efforts, we already had the last five years of our decade-long explicit forecast in this range. We now plan to lift the near-term profit metrics, which were in the high 9% range, even closer to the updated target, as 2022 is already set to achieve a 10%-plus operating margin. Additionally, we plan to nudge our long-term revenue forecast toward the 6%-7% range offered, which is in line with our 6%

Tractor Supply Co TSCO ★★ 30 Jan 2023 22:34, UTC

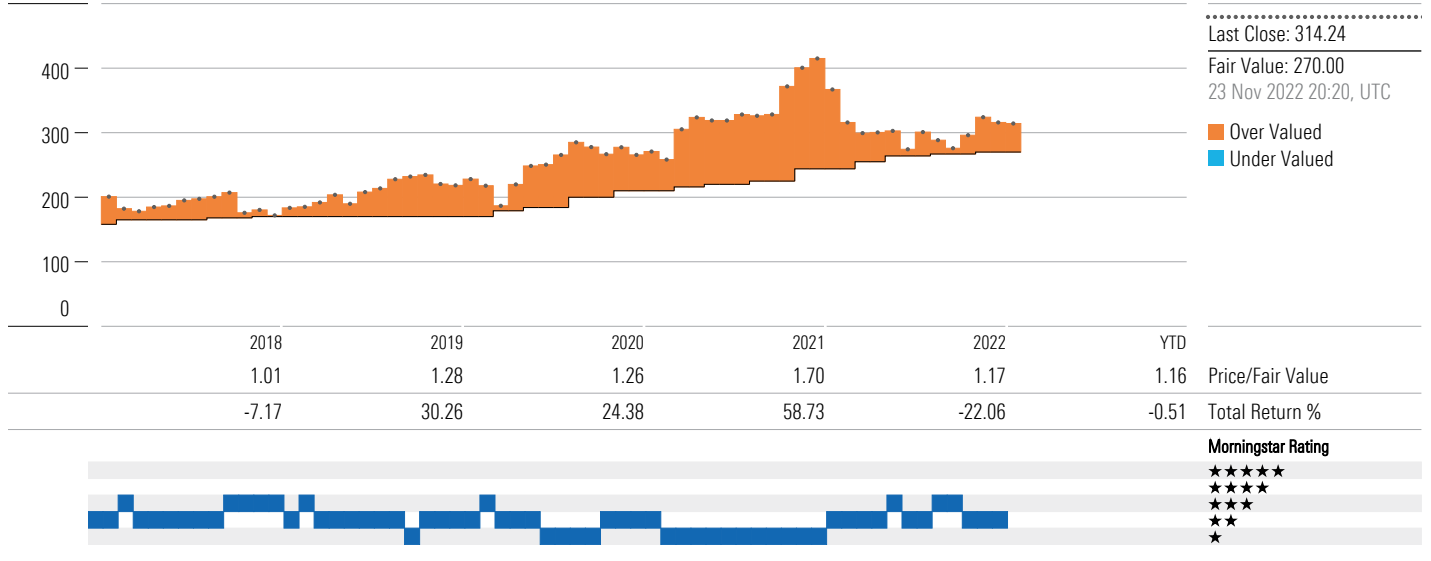
Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
222.79 USD <small>30 Jan 2023</small>	186.00 USD <small>31 Oct 2022 13:15, UTC</small>	1.20	24.61 USD Bil <small>30 Jan 2023</small>	 Narrow	Stable	Medium	Exemplary	 <small>4 Jan 2023 06:00, UTC</small>

sales growth outlook for the next five years but modestly higher than the 5% we have called for in the latter portion of our outlook, as location growth helps boost a higher top line (with a target of 2,700 boxes, up from 2,500 prior). ■■■

Tractor Supply Co TSCO ★★ 30 Jan 2023 22:34, UTC

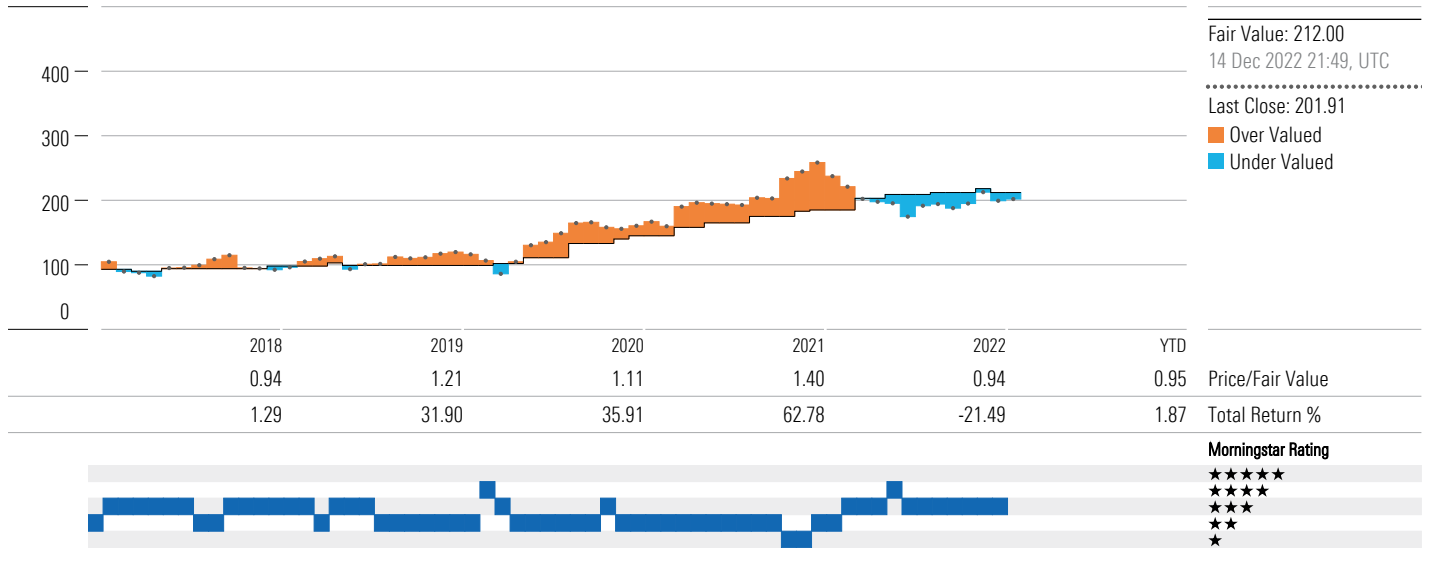
Competitors Price vs. Fair Value

The Home Depot Inc HD



Total Return % as of 30 Jan 2023. Last Close as of 30 Jan 2023. Fair Value as of 23 Nov 2022 20:20, UTC.

Lowe's Companies Inc LOW

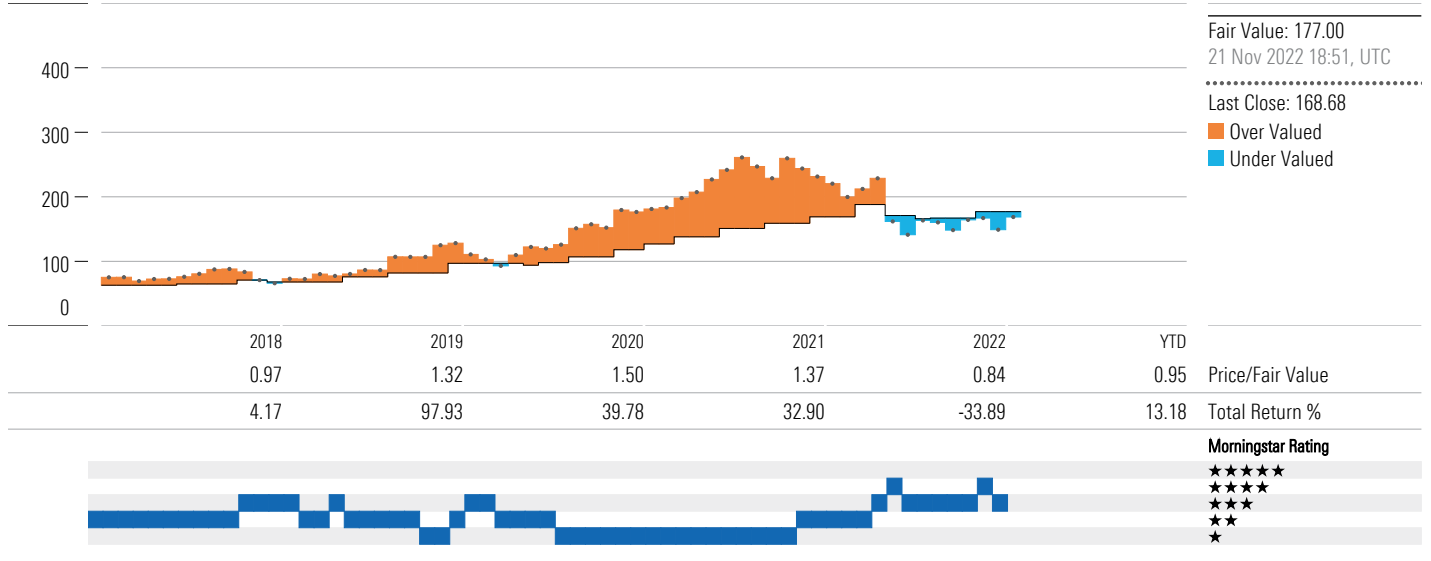


Total Return % as of 30 Jan 2023. Last Close as of 30 Jan 2023. Fair Value as of 14 Dec 2022 21:49, UTC.

Tractor Supply Co TSCO ★★

30 Jan 2023 22:34, UTC

Target Corp TGT



Total Return % as of 30 Jan 2023. Last Close as of 30 Jan 2023. Fair Value as of 21 Nov 2022 18:51, UTC.

Tractor Supply Co TSCO ★★

30 Jan 2023 22:34, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
222.79 USD 30 Jan 2023	186.00 USD 31 Oct 2022 13:15, UTC	1.20	24.61 USD Bil 30 Jan 2023	Narrow	Stable	Medium	Exemplary	4 Jan 2023 06:00, UTC

Morningstar Historical Summary

Financials as of 30 Sep 2022

Fiscal Year, ends 31 Dec	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	YTD	TTM
Revenue (USD K)	5,164,784	5,711,715	6,226,507	6,779,579	7,256,382	7,911,046	8,351,931	10,620,352	12,731,105	—	10,198,342	13,517,626
Revenue Growth %	10.7	10.6	9.0	8.9	7.0	9.0	5.6	27.2	19.9	—	8.4	10.0
EBITDA (USD K)	614,675	704,107	774,077	837,038	852,216	879,088	939,198	1,214,052	1,576,856	—	1,323,975	1,692,456
EBITDA Margin %	11.9	12.3	12.4	12.4	11.7	11.1	11.3	11.4	12.4	—	13.0	12.5
Operating Income (USD K)	514,650	589,472	650,508	694,080	686,382	701,737	743,220	1,065,901	1,306,698	—	1,075,733	1,368,787
Operating Margin %	10.0	10.3	10.5	10.2	9.5	8.9	8.9	10.0	10.3	—	10.5	10.1
Net Income (USD K)	328,234	370,885	410,395	437,120	422,599	532,357	562,354	748,958	997,114	—	817,842	1,039,180
Net Margin %	6.4	6.5	6.6	6.5	5.8	6.7	6.7	7.0	7.8	—	8.0	7.7
Diluted Shares Outstanding (K)	141,723	139,435	136,845	133,813	128,204	123,471	120,743	117,436	115,824	—	112,461	113,042
Diluted Earnings Per Share (USD)	2.32	2.66	3.00	3.27	3.30	4.31	4.66	6.38	8.61	—	7.27	9.20
Dividends Per Share (USD)	0.49	0.61	0.76	0.92	1.05	1.20	1.36	1.50	2.08	—	2.76	3.28

Valuation as of 30 Dec 2022

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Recent Qtr	TTM
Price/Sales	2.2	2.0	1.9	1.6	1.3	1.3	1.4	1.7	2.3	1.9	1.9	1.9
Price/Earnings	35.5	31.2	28.6	24.0	22.2	20.5	20.5	21.8	30.5	24.4	24.4	24.4
Price/Cash Flow	34.4	27.5	24.2	22.2	13.9	16.1	15.1	11.8	22.0	28.5	28.5	28.5
Dividend Yield %	0.63	0.77	0.89	1.21	1.4	1.44	1.46	1.07	0.87	1.64	1.64	1.64
Price/Book	9.1	8.7	8.6	6.8	6.8	6.8	7.4	8.7	13.4	12.8	12.8	12.8
EV/EBITDA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Operating Performance / Profitability as of 30 Sep 2022

Fiscal Year, ends 31 Dec	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	YTD	TTM
ROA %	18.2	18.8	18.6	17.3	15.3	17.9	13.4	12.1	13.5	—	—	13.3
ROE %	28.9	29.2	30.6	30.7	29.4	35.7	35.9	42.9	50.8	—	—	52.5
ROIC %	28.9	29.2	28.8	26.6	23.7	28.2	18.4	15.8	17.9	—	—	17.8
Asset Turnover	2.9	2.9	2.8	2.7	2.6	2.7	2.0	1.7	1.7	—	—	1.7

Financial Leverage

Fiscal Year, ends 31 Dec	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Recent Qtr	TTM
Debt/Capital %	0.1	0.4	10.7	16.6	23.4	20.8	60.5	62.7	64.2	—	65.7	—
Equity/Assets %	65.5	63.6	58.8	54.3	49.5	50.6	29.6	27.3	25.8	—	24.5	—
Total Debt/EBITDA	0.0	0.0	0.2	0.4	0.5	0.5	2.9	2.9	2.5	—	3.1	—
EBITDA/Interest Expense	1,103.9	373.6	267.6	144.1	61.5	47.9	47.3	42.2	59.3	Infinite	64.9	62.8

Morningstar Analyst Historical/Forecast Summary as of 27 Oct 2022

Financials	Estimates					Forward Valuation	Estimates					
	2021	2022	2023	2024	2025		2021	2022	2023	2024	2025	
Fiscal Year, ends 12-25-2021												
Revenue (USD Mil)	10,620	12,731	14,084	15,266	16,287	Price/Sales	1.5	2.1	1.8	1.6	1.5	
Revenue Growth %	27.2	19.9	10.6	8.4	6.7	Price/Earnings	20.5	27.7	23.4	21.5	19.6	
EBITDA (USD Mil)	1,288	1,577	1,759	1,922	2,059	Price/Cash Flow	14.8	52.9	40.4	24.8	24.1	
EBITDA Margin %	12.1	12.4	12.5	12.6	12.6	Dividend Yield %	1.1	0.9	1.6	1.8	2.1	
Operating Income (USD Mil)	1,071	1,307	1,424	1,551	1,671	Price/Book	8.6	13.8	13.2	11.7	10.4	
Operating Margin %	10.1	10.3	10.1	10.2	10.3	EV/EBITDA	14.5	18.9	16.5	15.1	14.1	
Net Income (USD Mil)	806	997	1,081	1,157	1,244							
Net Margin %	7.6	7.8	7.7	7.6	7.6							
Diluted Shares Outstanding (Mil)	117	116	112	110	108							
Diluted Earnings Per Share(USD)	6.87	8.61	9.63	10.52	11.52							
Dividends Per Share(USD)	1.50	2.08	3.68	4.10	4.72							

Appendix

Historical Morningstar Rating

Tractor Supply Co TSCO 30 Jan 2023 22:34, UTC

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
★★	★★	★★	★★	★	★★	★★	★★	★★★	★★★★	★★★★	★★★★
Dec 2019	Nov 2019	Oct 2019	Sep 2019	Aug 2019	Jul 2019	Jun 2019	May 2019	Apr 2019	Mar 2019	Feb 2019	Jan 2019
★★★	★★★	★★★	★★★	★★★	★★	★★	★★★	★★	★★★	★★★	★★★
Dec 2018	Nov 2018	Oct 2018	Sep 2018	Aug 2018	Jul 2018	Jun 2018	May 2018	Apr 2018	Mar 2018	Feb 2018	Jan 2018
★★★	★★★	★★★	★★★	★★★	★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★

The Home Depot Inc HD 30 Jan 2023 22:34, UTC

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
★★	★★	★	★	★	★	★★	★★	★★	★★★	★★	★★
Dec 2019	Nov 2019	Oct 2019	Sep 2019	Aug 2019	Jul 2019	Jun 2019	May 2019	Apr 2019	Mar 2019	Feb 2019	Jan 2019
★★	★★	★	★★	★★	★★	★★	★★	★★	★★★	★★	★★★
Dec 2018	Nov 2018	Oct 2018	Sep 2018	Aug 2018	Jul 2018	Jun 2018	May 2018	Apr 2018	Mar 2018	Feb 2018	Jan 2018
★★★	★★★	★★★	★★	★★	★★	★★	★★	★★	★★★	★★	★★

Lowe's Companies Inc LOW 30 Jan 2023 22:34, UTC

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
★★	★★★	★★	★★	★★	★★	★★	★★	★★★	★★★★	★★	★★
Dec 2019	Nov 2019	Oct 2019	Sep 2019	Aug 2019	Jul 2019	Jun 2019	May 2019	Apr 2019	Mar 2019	Feb 2019	Jan 2019
★★	★★	★★	★★	★★	★★★	★★★	★★★	★★	★★★	★★★	★★★
Dec 2018	Nov 2018	Oct 2018	Sep 2018	Aug 2018	Jul 2018	Jun 2018	May 2018	Apr 2018	Mar 2018	Feb 2018	Jan 2018
★★★	★★★	★★★	★★	★★	★★★	★★★	★★★	★★★	★★★	★★★	★★

Target Corp TGT 30 Jan 2023 22:34, UTC

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
★	★	★	★	★	★★	★★	★★	★★	★★★	★★★	★★
Dec 2019	Nov 2019	Oct 2019	Sep 2019	Aug 2019	Jul 2019	Jun 2019	May 2019	Apr 2019	Mar 2019	Feb 2019	Jan 2019
★	★	★★	★★	★★	★★	★★	★★★	★★	★★	★★★	★★★
Dec 2018	Nov 2018	Oct 2018	Sep 2018	Aug 2018	Jul 2018	Jun 2018	May 2018	Apr 2018	Mar 2018	Feb 2018	Jan 2018
★★★	★★★	★★	★★	★★	★★	★★	★★	★★	★★	★★	★★

Research Methodology for Valuing Companies

Overview

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

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

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

1. Economic Moat

The concept of an economic moat plays a vital role not only in our qualitative assessment of a firm's long-term investment potential, but also in the actual calculation of our fair value estimates. An economic moat is a structural feature that allows a firm to sustain excess profits over a long period of time. We define economic profits as returns on invested capital (or ROIC) over and above our es-

timate 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 mid-cycle basis. If we deem the probability of occurrence sufficiently high, we would not characterize the company as possessing an economic moat.

To assess the sustainability of excess profits, analysts perform ongoing assessments of the moat trend. A firm's moat trend is positive in cases where we think its sources of competitive advantage are growing stronger; stable where we don't anticipate changes to competitive advantages over the next several years; or negative when we see signs of deterioration.

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

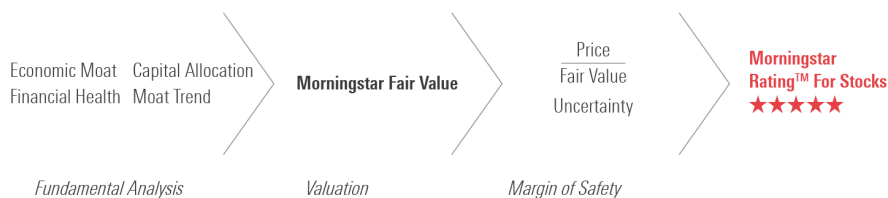
Once a company's marginal ROIC hits its cost of capital, we calculate a continuing value, using a standard perpetuity formula. At perpetuity, we assume that any growth or decline or investment in the business neither creates nor destroys value and that any new investment provides a return in line with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

Morningstar Equity Research Star Rating Methodology



Research Methodology for Valuing Companies

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 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.

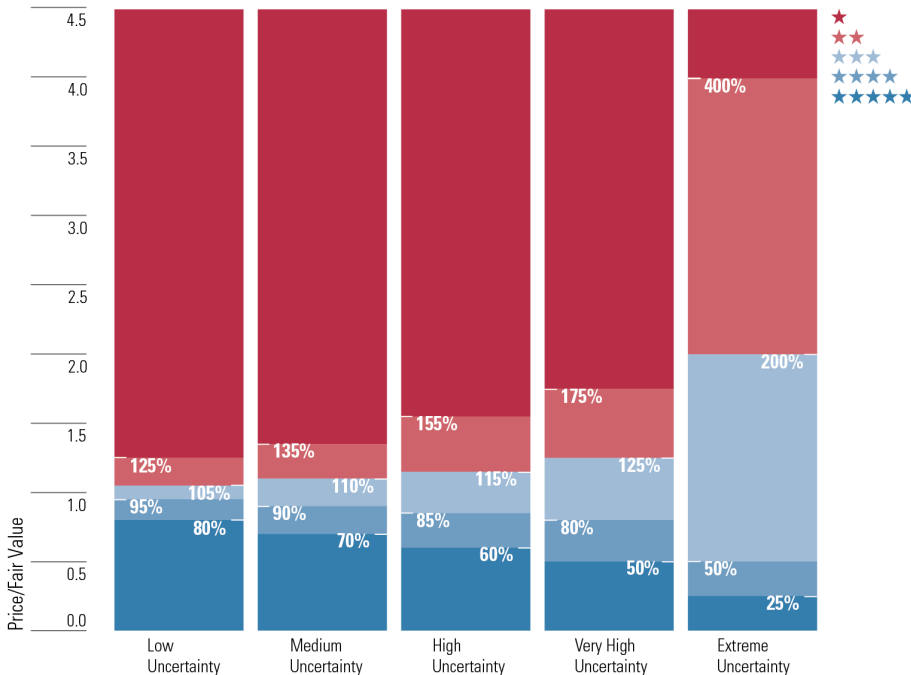
	Margin of Safety	
Qualitative Analysis		
Uncertainty Ratings	★★★★★ Rating	★ Rating
Low	20% Discount	25% Premium
Medium	30% Discount	35% Premium
High	40% Discount	55% Premium
Very High	50% Discount	75% Premium
Extreme	75% Discount	300% Premium

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

4. Market Price

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

Morningstar Equity Research Star Rating Methodology



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

Morningstar Star Rating for Stocks

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

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

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

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

factors.

The Morningstar Star Ratings for stocks are defined below:

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

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

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

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

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

Other Definitions

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

Research Methodology for Valuing Companies

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

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

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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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Research Methodology for Valuing Companies

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