Caterpillar Inc CAT ★★ 15 Feb 2023 21:10, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
248.07 USD 14 Feb 2023	209.00 USD 15 Feb 2023 21:07, UTC	1.17	127.17 USD Bil 15 Feb 2023	Wide	Stable	Medium	Standard	1 Feb 2023 06:00, UTC

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Contents

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Reporting Currency: USD | Trading Currency: USD
Currency amounts expressed with "$" are in U.S. dollars (USD) unless otherwise denoted.

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

Wide-Moat Caterpillar Closes Out 2022 With Solid Machinery Sales

Analyst Note Dawit Woldemariam, Equity Analyst, 1 Feb 2023

Caterpillar reported solid fourth-quarter results to close out 2022. The company's machinery sales grew 21% year on year to $15.8 billion, thanks to stronger pricing and increased sales volume. Retail sales (to end users) of machines were up 4% year on year globally, with North America (up 13% year on year) being the biggest contributor to growth in the quarter. Notably, retail was up sequentially compared with the third quarter of 2022, showing Caterpillar's increased ability to meet the demand from end users. That said, we're not expecting much uplift from the dealer channel this year, as funding for infrastructure has still not flowed through to U.S. states. In the quarter, Caterpillar noted that dealer inventories increased $700 million sequentially compared with the third quarter. If we compare this to the same period a year ago, we see a $800 million favorable impact on total sales. We'd like to see this number cross over a billion dollars in the medium term.

Management also provided adjusted profit margin guidance for various revenue scenarios for 2023, leading us to increase our fair value estimate to $208 from $196 previously. The company's guidance led us to tweak both our sales and operating margin assumptions in our cash flow model. We're now expecting machinery sales growth of 8% in 2023, while operating margins come in at nearly 15%. Our forecast bakes in some impact from the U.S. infrastructure bill in late 2023. We expect most of the spending to flow through in 2024 and 2025. We also increased our midcycle operating margin assumption slightly from 14.5% to 15% to account for increased sales volume over the next five years, in addition to favorable pricing for Caterpillar. We still hold the view that supply chains won't be fixed overnight, but we're starting to see positive improvements on that front and think Caterpillar's pricing power will allow the company to more than offset elevated manufacturing costs.

Financial Summary and Key Statistics

	Actual		Forecast	
	2021	2022	2023	2024
Revenue (USD Mil)	48,188	56,574	61,265	65,275
Revenue Growth %	23.5	17.4	8.3	6.6
Operating Income (Mil)	6,363	8,358	9,078	10,175
Operating Margin %	13.2	14.8	14.8	15.6
Adjusted EBITDA (Mil)	7,460	9,365	11,087	11,946
Adjusted EBITDA Margin %	15.5	16.6	18.1	18.3
Earnings Per Share (Diluted) (USD)	11.83	12.64	15.05	17.02
Adjusted Earnings Per Share (Diluted) (USD)	10.81	13.84	16.38	17.70
Adjusted EPS Growth %	64.8	27.9	18.4	8.1
Price/Earnings	19.1	17.3	14.9	13.8
Price/Book	8.5	9.8	8.1	6.7
EV/EBITDA	17.2	14.7	12.2	11.3
Free Cash Flow Yield %	5.9	4.7	5.3	6.0

Source: Morningstar Valuation Model. Data as of 31 Jan 2023.

Morningstar Equity Company Report | Report as of 15 Feb 2023 21:20, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NEW YORK STOCK EXCHANGE, INC. Page 2 of 28

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Sector	Industry
Industrials	Farm & Heavy Construction Machinery

Business Description

Caterpillar is the premier manufacturer of heavy equipment, power solutions, and locomotives. It is currently the world's largest manufacturer of heavy equipment with over 13% market share in 2021. The company is divided into four reportable segments: construction industries, resource industries, energy and transportation, and Caterpillar Financial Services. Its products are available through a dealer network that covers the globe with about 2,700 branches maintained by 160 dealers. Caterpillar Financial Services provides retail financing for machinery and engines to its customers, in addition to wholesale financing for dealers, which increases the likelihood of Caterpillar product sales.

On valuation, we still view Caterpillar's shares as overvalued by roughly 21% based on our $208 fair value estimate. The company's shares have appreciated quite a bit since it reported third-quarter 2022 results. We believe this is largely the result of the market becoming more bullish on the infrastructure story for Caterpillar. The U.S. currently has many roads and bridges that are in need of maintenance and repair, providing Caterpillar a secular tailwind in the next handful of years. That said, our cash flow model accounts for cyclicality in Caterpillar's international businesses.

Business Strategy & Outlook Dawit Woldemariam, Equity Analyst, 1 Feb 2023

We believe Caterpillar will continue to be the leader in the global heavy machinery market, providing customers an extensive product portfolio consisting of construction, mining, energy, and transportation products. For nearly a century, the company has been a trusted manufacturer of mission-critical heavy machinery, which has led to its position as one of the world's most valuable brands. Caterpillar's strong brand is underpinned by its high-quality, extremely reliable, and efficient products. Customers also value Caterpillar's ability to lower the total cost of ownership.

The company's strategy focuses on employing operational excellence in its production process, expanding customer offerings, and providing value-added services to customers. Since 2014, Caterpillar has taken steps to reduce structural costs and its fixed asset base by implementing cost management initiatives and by either closing or consolidating numerous facilities, reducing its manufacturing floorspace considerably. Over the past decade, the company has continually released new products and upgraded existing product models to drive greater machine efficiency. Customers also rely on the services that Caterpillar provides, for example, machine maintenance and access to its proprietary aftermarket parts. Furthermore, its digital applications help customers interact with dealers, manage their fleet, and track machine performance to determine when maintenance is needed.

Caterpillar has exposure to end markets that have attractive tailwinds. On the construction side, we believe the company will benefit from the $1.2 trillion infrastructure deal in the U.S. The country's road conditions are in poor condition, which has led to pent-up road construction demand. In energy, we think the improvement in the price of oil since COVID-19 lows will encourage exploration and production companies to increase oil and gas capital expenditures, leading to increased sales of Caterpillar's oil-well-servicing products. That said, we believe mining markets will have limited upside, as fixed-asset investment growth in China starts to slow, likely capping commodity price upside.

Bulls Say Dawit Woldemariam, Equity Analyst, 15 Feb 2023

- Increased infrastructure spending in the U.S. and emerging markets will lead to more construction equipment purchases, substantially boosting Caterpillar's sales growth.
- Higher fixed-asset investment growth in China strengthens support for increased investment in mining capital expenditures, benefiting Caterpillar.
- A continued recovery from the temporary demand shock in oil prices will lead to increased oil and gas capital

expenditures, leading to more engine, transmission, and pump sales for Caterpillar.

Bears Say Dawit Woldemariam, Equity Analyst, 15 Feb 2023

- The fallout from the global health pandemic could stretch declines in nonresidential spending for multiple years, leading to pressure on Caterpillar's sales and margin growth.
- Commodity prices soften globally would force mining and oil-well-servicing customers to cut back on capital expenditures until demand recovers.
- Caterpillar faces stiff competition from foreign competitors across end markets. Growing competition could pressure its market share.

Fair Value and Profit Drivers Dawit Woldemariam, Equity Analyst, 15 Feb 2023

We're raising our fair value estimate to $209 per share from $208 previously, following Caterpillar's 10-K release. The change is mainly due to a lower net pension obligation in 2022 compared with 2021.

During Caterpillar's fourth-quarter earnings, management provided guidance that led us to tweak both our sales and operating margin assumptions in our cash flow model. We're now expecting machinery sales growth of 8% in 2023, while operating margins come in at nearly 15%. We see stronger volume as a key driver, thanks to stronger U.S. nonresidential construction spending.

We expect sales to grow on average over 5% over the next five years, showing continued strength after a solid 2022, when sales increased 17% year over year. We believe mining markets will see limited upside, largely due to weaker expectations for commodity markets. We project operating margins will peak at nearly 16% in 2025, before moderating to 15% in our midcycle year, as we believe Caterpillar will benefit from a better sales mix (sales of high-feature equipment) and higher-margin aftermarket sales. Our discounted cash flow model is derived using Caterpillar's industrial operations, excluding financial services. To account for the financial services subsidiary in our valuation, we make an enterprise value adjustment based on our assessment of the business' value.

We think the largest revenue driver will be increased infrastructure spending in the United States. There is significant pent-up road construction demand, with many urban roads in relatively poor condition. We also see low-hanging fruit in emerging economies to construct new roads and build out infrastructure to increase urbanization. These factors will result in increased construction equipment revenue for Caterpillar, leading us to forecast over 5% average sales growth over the next five years.

In mining, we expect mining capital expenditures to be flat to down in our forecast. In this environment, revenue will grow over the next five years by nearly 3% on average, reflecting higher aftermarket sales growth (due to increased machine utilization), offsetting weakness in new equipment purchases. In our view, it's unlikely that fixed-asset investment growth in China will stay at historical levels, meaning that the commodity price outlook will probably be softer than historical levels.

For energy and transportation, we forecast revenue to grow by nearly 5% through the next five years. We think oil and gas capital expenditures will increase, following the temporary demand shock in oil due to the COVID-19 pandemic. This will result in higher engine, transmission, and pump sales, which are used in oil well servicing.

Economic Moat Dawit Woldemariam, Equity Analyst, 15 Feb 2023

We assign Caterpillar a wide economic moat rating, underpinned by intangible assets and switching costs. Throughout its history, the company has consistently provided customers with reliable, high-quality products, while offering the lowest total cost of ownership. These factors have led to Caterpillar becoming one of the world's most valuable brands. The strength of its brand and extensive dealer network has solidified Caterpillar as the market leader for heavy machinery equipment. The global heavy machinery market is led by large players like Caterpillar that can deliver world-class products, in addition to value-added services to customers through its global dealer network. It is a leading player in many of its end markets with particular strength in construction and mining products. We believe smaller local and regional competitors will struggle to win market share in these end markets globally, allowing Caterpillar to maintain its strong market share positions.

Looking across the heavy machinery industry, Caterpillar offers some of the most reliable, high-quality, and efficient products. The company's products can be categorized in three groups: lifecycle performance (medium- to heavy-duty applications), lifecycle value (light- to medium-duty applications), and utility (light-duty applications). These products provide a wide range of value propositions based on customer type. Lifecycle performance customers value premium products (high specifications and features) that can withstand high utilization, operate around the clock, provide the lowest total cost of ownership, and ultimately measure machine success by cost per work completed. Lifecycle value customers gravitate toward simpler products for less extreme operating conditions that hold up on performance and quality. These customers tend to be more price conscious than lifecycle performance customers and have been a challenge to serve in the past. Caterpillar has since changed its approach in recent years to develop products that address customer-specific performance needs in this customer segment.

Utility customers are the most price sensitive—success is measured by cost per hour—and operate primarily in emerging markets. Caterpillar serves utility customers through its SEM brand, with low-feature products that are specifically designed with the cost-conscious customer in mind. Caterpillar's strategy to launch new offerings focused on customer needs by segment has led to the development of high-quality products customers value, strengthening its brand and competitive positioning. We believe Caterpillar benefits from pricing power, manifested from its brand familiarity of more than 90 years and complex customer needs. Customers come to Caterpillar not only for the best products in the industry but also for its ability to provide aftermarket parts on-demand and services to keep their machines running to get projects completed.

Caterpillar is focused on offering products with the lowest total cost of ownership, which takes into consideration both purchase and future costs. In addition to the initial purchase price, owners weigh how much it will cost to operate and maintain a machine. Future costs include labor costs, maintenance and repair costs, costs for spare parts, fuel costs, and insurance costs, to name a few. Customers in developed markets typically look for machines that help minimize future costs and are not necessarily looking for the cheapest up-front equipment (primarily a focus for customers in developing markets). Cheaper equipment can increase the likelihood of machine failure during operation, leading to lost productivity that cuts into an operator's profitability (mission-critical equipment). Many of Caterpillar's competitors talk about providing customers the lowest total cost of ownership, but we think Caterpillar is the market leader. Its products employ better efficiency and output (measured by cost per work completed or cost per ton) for customers compared with competitors, allowing them to spread costs over the lifetime of equipment (operating leverage as work output increases). This dynamic supports its brand value in the eyes of customers looking to optimize their operations.

Fuel consumption costs are another lever that operators can focus on to drive down total ownership costs. Caterpillar offers a wide range of products that enhance fuel efficiency, specifically through its diesel-electric and electric drivetrains offerings. These products also help the company address carbon emissions concerns, which is increasingly a point of focus for government authorities. We think Caterpillar's risk to increased emissions regulation is moderate given its continued focus on producing next generation products that reduce machine emissions.

When it comes to labor costs, Caterpillar helps customers reduce labor costs through improved product efficiency (new features help customers complete jobs faster). For example, new product models continually introduce better operator control, comfort, and visibility through the machine cab (in addition to cameras that offer 360-view of a job site). Caterpillar has also benefited from its ability to bring down maintenance costs for customers by increasing machine connectivity over the past decade. More than 1 million of its assets are connected to its digital platform (out of 2 million assets in the field). Newly assembled machines are equipped with technology (the company is also working to retrofit machines in the field) helping both customers and the company track data (machine utilization rates and productivity) to inform future service needs. Caterpillar's large parts distribution network and product support offering through its dealer network keep service intervals reasonable, increasing machine up-time and optimizing the total cost of ownership.

Caterpillar's exclusive dealer network is a key tenet to its strong competitive positioning across multiple geographies. The breadth of Caterpillar's dealer network is unmatched, with 160 dealers operating about 2,700 branches globally. The company has significant presence on every continent and sells most of its products through its dealer network (turbines and locomotives are sold directly by Caterpillar). These dealers are often very large organizations that exclusively sell Caterpillar products. We think it's very difficult for existing competitors and new entrants to replicate the size and coverage of Caterpillar's dealers. Fully stocking a branch is challenging without similar product breadth to Caterpillar, hence, why many competitors' products are sold at dealerships that carry multiple product lines. Caterpillar's value proposition not only consists of its high-quality products, but it also includes the reliable product support provided by dealers. When customers need parts or machine servicing, they can rely on the dealer network to reduce their machine down-time.

Caterpillar's increased focus on its installed base through aftermarket and service offerings keeps customers from switching. The company's machines and engines perform mission-critical functions for large construction, mining, and oil drilling projects. Caterpillar's products are known for their durability and quality, despite operating in extreme conditions. For customers, switching to an alternative product poses significant risk to their operations, with the potential for project disruptions from machine failures and long lead times to service equipment. Caterpillar's service agreements give customers priority on proprietary aftermarket parts and services from dealers, making it easy to understand what the total cost of a machine will be throughout its operating life. We also believe the high cost of failure associated with switching away from Caterpillar's products increases the likelihood of elevated projects costs, ultimately cutting into a customer's profitability.

Furthermore, customers invest a significant amount of time and money into machinery, creating additional friction to switch products. The purchase price of heavy machinery can run up into the hundreds of thousands (can get into the low-million-dollar range for new mining trucks), in addition to the time it takes machine operators to fully train on a machine to reach optimal productivity to complete projects on time. Caterpillar also benefits from long product upgrade cycles, particularly in mining, where mining trucks have a useful life of over 10 years. In our view, these factors alone keep customers from switching, but the strongest reason keeping customers put is Caterpillar's aftermarket offering. The company's parts distribution and extensive dealer network provide customers with aftermarket parts and reliable services to ensure their equipment operate efficiently, saving them from the headache of machine down-time and from having to search for parts independently.

We do not believe Caterpillar's wide economic moat faces any substantial threats from environmental, social, and governance risks. Caterpillar has exposure to product safety issues and carbon emissions regulation, but we do not view them as material enough to include in our valuation. Product safety issues include both customer injuries while operating Caterpillar machinery and injuries suffered by Caterpillar employees in the production of products. Carbon emissions regulation is increasingly a topic of discussion, but we think Caterpillar is already hedging against this risk through the development of next-generation products that reduce the carbon emissions of its products, namely its diesel-electric and electric drivetrains. Additionally, we think the effect from climate change initiatives will likely be incremental rather than immediate. In our view, the immediate threat is to new oil wells on federal lands, rather than the private lands that shale firms operate on. The increase in renewables, electric vehicles, and cleaner internal combustion engine vehicles will likely have a modest impact on fossil fuel demand in the next 10 years.

Moat Trend Dawit Woldemariam, Equity Analyst, 15 Feb 2023

We assign Caterpillar a stable moat trend rating because we believe the company's opportunities to improve its competitive positioning are about evenly balanced with potential threats. Foreign competition exists, but we think it is unlikely these competitors will be able to undermine Caterpillar's brand equity and switching costs over the next two decades. Increased utilization of digital applications is a long-term opportunity for Caterpillar, but we think it will take some time for adoption rates to reach critical scale. Likewise, while Caterpillar is a leader in autonomous technology, this too is a longer-term opportunity for Caterpillar.

Much has been made of the threat from Chinese competitors, but we think Caterpillar is well positioned globally to withstand competition. We do not think that competition from Sany and Zoomlion warrants a negative moat trend rating. Both companies are commonly referenced as viable competitive threats to Caterpillar, but we see meaningful hurdles for both companies to reach global market success. First, both Sany and Zoomlion do not possess the same level of product quality as Caterpillar and come up short in aftermarket services. Caterpillar's customers value products that offer high-quality, reliability, and a high number of features (classified as premium products), along with fast access to aftermarket parts and services. Second, we agree that these companies have a considerable presence in their home market, China, but are relatively absent in global markets. Looking at geographical sales mix, both companies produce most of their revenue in China. Zoomlion produces approximately 10% of annual sales from overseas (5% global market share), while Sany generates around 30% of annual sales from overseas (7% global market share). Third, Sany and Zoomlion's dealer network isn't as robust as Caterpillar's dealer network; which covers every continent. We believe the lack of dealer coverage by Chinese competitors globally could lead to longer lead times for replacement parts and machinery maintenance for customers. Caterpillar is well positioned to fend off competition in emerging markets, with its SEM brand. Price-sensitive customers can purchase simpler machines (not as many features) without compromising on the performance and quality that Caterpillar products are known for.

However, we believe Komatsu (based in Japan) is a more viable competitor to Caterpillar. Komatsu produces construction, mining, and utility equipment mostly in Asia and the Americas (makes up about 80% of revenue). The company holds the number two position in the global heavy machinery market behind Caterpillar at around 10% market share. That said, we think Caterpillar will maintain its lead over Komatsu based on its ability to continually bring the best products to market supported by an extensive support network provided by dealers.

Caterpillar's future strategy revolves around selling multiple digital applications to enhance the customer's experience. Nearly all of Caterpillar's new equipment manufactured today are connected machines. This essentially means that all the components on a machine are connected to an electronic architecture, collecting valuable data around performance to drive insights. We think adoption of digital solutions by customers are still in the early stages. Increased utilization of digital applications has the potential to strengthen customer switching costs, but we think it will take some time for Caterpillar to sell multiple digital applications to customers that lock them into the company's ecosystem.

Caterpillar has over 2 million assets in the field, of which, approximately 1 million are connected via its digital platform (the remaining assets can be retrofitted with digital connectivity). Digital applications offered by Cat Connect help customers manage equipment, improve productivity, and increase the safety of workers. Caterpillar's solutions can track the hours of machine use, reduce fuel consumption, optimize payload, and increase job-site awareness via cameras on machines. CAT Inspect brings equipment inspections into the modern age, with the ability to electronically transmit information and images to Caterpillar's back office to determine if machine servicing is needed.

VisionLink is a comprehensive solution, including equipment geofencing to mitigate machine theft, along with the ability to track equipment idle time, fuel consumption, and productivity. Cat MineStar solutions help miners work quickly, while maintaining efficiency. Customers continually look for ways to optimize costs in mining projects to yield greater project profitability. Specifically, Cat MineStar can track equipment, improve operator visibility, and enable machines to communicate with each other, increasing safety and reducing accidents involving workers. These digital solutions do add value to customers, but we think it will take time to accelerate adoption rates. Caterpillar will need to demonstrate the utility to customers and push to upsell existing customers to adopt multiple digital solutions.

Caterpillar is the market leader in mining autonomy, but it's still too early to call for a positive moat trend. The company has diligently worked to bring autonomous solutions to market, finding early success in the mining sector. Caterpillar maintains the largest fleet of autonomous mining trucks (over 800 trucks) and provides solutions for both surface mining and underground mining. Miners can start small by leveraging Cat MineStar to control a single mining truck remotely, eventually building up to operating a fully autonomous fleet of mining trucks.

Autonomy has advanced in the mining industry for a few reasons. First, mining operations afford the convenience of large open-pit mines for autonomous mining trucks to work unimpeded, utilizing efficient routes, along with the ability to work continuously around the clock (projects completed faster—boosting productivity by 30%). Second, autonomy improves worker safety and reduces the number of on-the-job injuries. Third, miners can cut down on the high labor costs to encourage workers to come work in remote locations. Despite the benefits of autonomy, the mining industry has yet to accelerate the adoption of autonomous mining trucks. We estimate the number of fully autonomous mining trucks in operation today is still just a fraction of the installed base of traditional mining trucks (approximately 20,000 trucks from our estimates).

Risk and Uncertainty Dawit Woldemariam, Equity Analyst, 1 Feb 2023

We assign Caterpillar a Morningstar Uncertainty Rating of Medium.

We believe the most substantial risk to Caterpillar is declining investment in mining capital expenditures, given the firm's exposure to coal, iron ore, copper, and gold. The recovery following the great financial crisis was fueled by increased commodity demand, leading mining companies to increase production to meet demand from emerging markets. Going forward, we think fixed-asset investment growth in China will be lower than historical levels. There is a chance for additional downside risk if China pulls back fixed-asset investment even more than we expect.

In the near term, we expect the U.S. infrastructure deal and strong demand for new roads in emerging markets (increasing urbanization) to serve as tailwinds for Caterpillar. However, during slow economic periods, investment in construction spending can quickly reverse, resulting in weaker capital returns for the company.

While we don't think the pandemic presents as great a risk to oil demand today, we believe a potential slowdown in global economic activity could soften demand in the near term. Longer term, we believe climate change initiatives will affect new wells on federal lands, rather than the private lands that shale firms operate on.

Caterpillar faces competition from foreign rivals, mainly Komatsu but increasingly from Chinese companies like Sany and Zoomlion. The latter have increased market share slightly but still generate a majority of revenue from China. We think it's unlikely that these firms can materially improve product quality and build dealer networks that rival Caterpillar. That said, we believe Caterpillar will need to continually improve the efficiency of its products.

Financial Strength Dawit Woldemariam, Equity Analyst, 15 Feb 2023

Caterpillar maintains a sound balance sheet. On the industrial side, the net debt/adjusted EBITDA ratio was relatively low at the end of 2022, coming in at 0.4. Total outstanding debt, including both short- and long-term debt, was $9.6 billion. Caterpillar's strong balance sheet gives management the financial flexibility to run a balanced capital allocation strategy going forward that mostly favors organic growth and also returns cash to shareholders.

In terms of liquidity, we believe the company can meet its near-term debt obligations given its strong cash balance. The company's cash position as of year-end 2022 stood at $6 billion on its industrial balance sheet. We also find comfort in Caterpillar's ability to tap into available lines of credit to meet any short-term needs. Caterpillar has access to $10.5 billion in credit facilities for the consolidated business (including financial services), of which, $2.8 billion is available to the industrial business.

Caterpillar's focus on operational excellence in its industrial operations and improved cost base has put the company on better footing when it comes to free cash flow generation throughout the economic cycle. We think the company can generate $8 billion in free cash flow in our midcycle year, supporting its ability to return nearly all of its free cash flow to shareholders through dividends and share repurchases.

The captive finance arm holds considerably more debt than the industrial business, but this is reasonable, given its status as a lender to both customers and dealers. Total debt stood at $27.3 billion in 2022, along with $26.4 billion in finance receivables and $962 million in cash. In our view, Caterpillar enjoys a strong financial position supported by a clean balance sheet and strong free cash flow prospects.

Capital Allocation Dawit Woldemariam, Equity Analyst, 1 Feb 2023

We assign Caterpillar a Standard capital allocation rating. The rating reflects our overall assessment that the company's balance sheet is sound and the quality of its investing (reinvestment and acquisitions) is fair and reasonable and supports its competitive positioning. We also think Caterpillar's shareholder distributions are appropriate.

We think Caterpillar has a sound balance sheet. The company's low balance sheet risk is largely due to its manageable debt levels and access to credit lines. We expect its net debt/adjusted EBITDA ratio and the number of debt maturities coming due in the near term to be relatively low. The captive finance arm does carry more debt, but we think this is reasonable given the nature of its operations. The business provides financing for both customers and dealers to support the sale of Caterpillar products.

Morningstar Equity Company Report | Report as of 15 Feb 2023 21:20, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NEW YORK STOCK EXCHANGE, INC. Page 10 of 28

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Caterpillar's investment strategy is fair and reasonable, in our view. The company's acquisition strategy has been focused on expanding its product portfolio. We've seen deals across end markets, and we expect Caterpillar to strategically make acquisitions in the future to boost its competitive positioning. We believe Caterpillar will likely favor organic growth, propelled by investments in internal projects to improve product efficiency and performance. Additionally, management has effectively added value through cost reductions and restructuring and efficiency improvements. These moves have improved operating margins and the company's ability to employ a lean manufacturing strategy. Continued investment in its digital applications are also on the horizon, aimed at increasing adoption rates with end users to help manage fleets, predict maintenance, and lower the total cost of ownership.

We believe shareholder distributions are appropriate. Caterpillar is committed to dividend payouts, increasing dividend growth year over year even during economic downturns. We expect a continued commitment to dividend payouts well into the future. Historically, share repurchases have fluctuated significantly based on the health of economic activity globally. Looking ahead, we think management will be committed to consistently repurchasing shares to meet its goal of returning nearly all of its free cash flow to shareholders throughout the economic cycle. In a midcycle environment, we expect free cash flow to be $8 billion.

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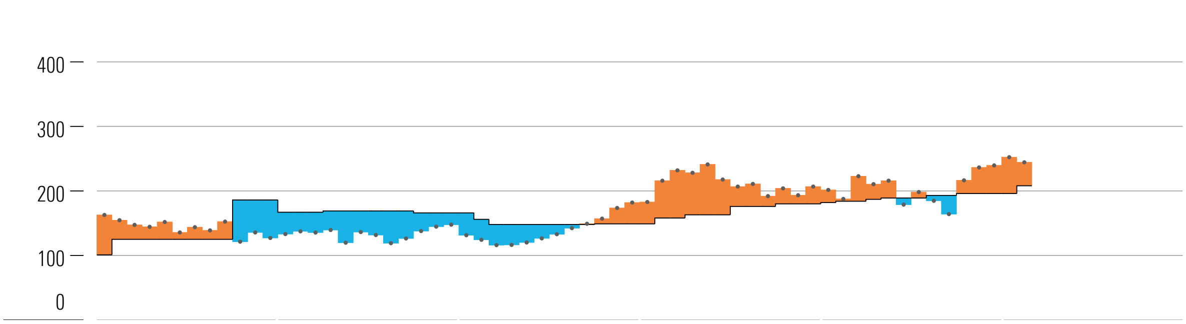
Price vs. Fair Value

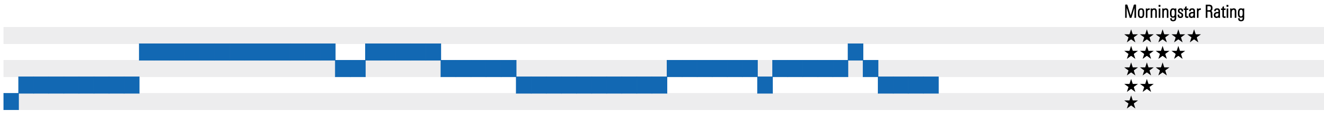


Last Close: 248.07
Fair Value: 209.00
15 Feb 2023 21:07, UTC

Over Valued
Under Valued

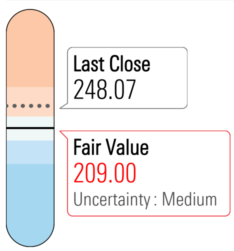
	2018	2019	2020	2021	2022	YTD	
	0.68	0.89	1.22	1.15	1.22	1.17	Price/Fair Value
	-17.28	19.19	26.04	15.93	18.11	2.50	Total Return %

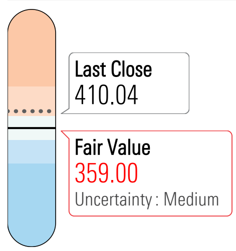
Morningstar Rating

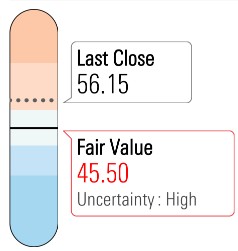


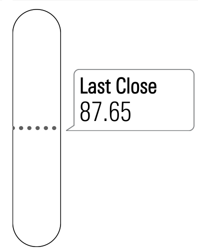
Competitors

	Caterpillar Inc CAT	Deere & Co DE	Terex Corp TEX	The Timken Co TKR









	Caterpillar Inc CAT	Deere & Co DE	Terex Corp TEX	The Timken Co TKR
Economic Moat	Wide	Wide	Narrow	—
Moat Trend	Stable	Stable	Stable	—
Currency	USD	USD	USD	USD
Fair Value	209.00 15 Feb 2023 21:07, UTC	359.00 15 Feb 2023 21:07, UTC1	45.50 15 Feb 2023 21:07, UTC2	— 15 Feb 2023 21:07, UTC3
1-Star Price	282.15	484.65	70.53	—
5-Star Price	146.30	251.30	27.30	—
Assessment	Over Valued 15 Feb 2023	Over Valued 15 Feb 2023	Over Valued 14 Feb 2023	Fairly Valued 14 Feb 2023
Morningstar Rating	★★15 Feb 2023 21:10, UTC	★★14 Feb 2023 22:30, UTC	★★14 Feb 2023 22:30, UTC	— —
Analyst	Dawit Woldemariam, Equity Analyst	Dawit Woldemariam, Equity Analyst	Dawit Woldemariam, Equity Analyst	—
Capital Allocation	Standard	Exemplary	Standard	—
Price/Fair Value	1.17	1.14	1.23	—
Price/Sales	2.18	2.42	0.89	1.42
Price/Book	8.01	6.00	3.24	2.76
Price/Earnings	19.33	17.58	13.11	15.70
Dividend Yield	1.93%	1.10%	0.92%	1.43%
Market Cap	127.17 Bil	121.63 Bil	3.82 Bil	6.26 Bil
52-Week Range	160.60—266.04	283.81—448.40	26.64—57.48	50.85—87.36
Investment Style	Large Core	Large Core	Small Core	Small Core

Morningstar Equity Company Report | Report as of 15 Feb 2023 21:20, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NEW YORK STOCK EXCHANGE, INC. Page 12 of 28

Caterpillar Inc CAT ★★ 15 Feb 2023 21:10, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
248.07 USD 14 Feb 2023	209.00 USD 15 Feb 2023 21:07, UTC	1.17	127.17 USD Bil 15 Feb 2023	Wide	Stable	Medium	Standard	1 Feb 2023 06:00, UTC

Morningstar Valuation Model Summary

Financials as of 31 Jan 2023	Actual			Forecast				
Fiscal Year, ends 31 Dec	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Revenue (USD Mil)	39,022	48,188	56,574	61,265	65,275	68,651	71,515	74,109
Operating Income (USD Mil)	4,321	6,363	8,358	9,078	10,175	10,800	10,962	11,114
EBITDA (USD Mil)	5,951	7,913	8,872	10,548	11,676	12,311	12,464	12,670
Adjusted EBITDA (USD Mil)	6,416	7,460	9,365	11,087	11,946	12,311	12,464	12,670
Net Income (USD Mil)	2,998	6,489	6,705	7,897	8,719	9,191	9,249	9,286
Adjusted Net Income (USD Mil)	3,600	5,932	7,339	8,597	9,069	9,191	9,249	9,286
Free Cash Flow To The Firm (USD Mil)	3,243	4,336	3,782	5,754	6,666	7,045	7,036	7,106
Weighted Average Diluted Shares Outstanding (Mil)	549	549	530	525	512	498	485	472
Earnings Per Share (Diluted) (USD)	5.46	11.83	12.64	15.05	17.02	18.44	19.07	19.67
Adjusted Earnings Per Share (Diluted) (USD)	6.56	10.81	13.84	16.38	17.70	18.44	19.07	19.67
Dividends Per Share (USD)	4.12	4.28	4.62	4.86	5.04	5.20	5.40	5.60

Margins & Returns as of 31 Jan 2023		Actual			Forecast					
	3 Year Avg	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**5 Year Avg**
Operating Margin %	13.0	11.1	13.2	14.8	14.8	15.6	15.7	15.3	15.0	15.3
EBITDA Margin %	—	15.3	16.4	15.7	17.2	17.9	17.9	17.4	17.1	—
Adjusted EBITDA Margin %	16.2	16.4	15.5	16.6	18.1	18.3	17.9	17.4	17.1	17.8
Net Margin %	11.0	7.7	13.5	11.9	12.9	13.4	13.4	12.9	12.5	13.0
Adjusted Net Margin %	11.5	9.2	12.3	13.0	14.0	13.9	13.4	12.9	12.5	13.4
Free Cash Flow To The Firm Margin %	8.0	8.3	9.0	6.7	9.4	10.2	10.3	9.8	9.6	9.9

Growth & Ratios as of 31 Jan 2023		Actual			Forecast					
	3 Year CAGR	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**5 Year CAGR**
Revenue Growth %	3.7	-23.1	23.5	17.4	8.3	6.6	5.2	4.2	3.6	5.6
Operating Income Growth %	1.6	-45.8	47.3	31.4	8.6	12.1	6.2	1.5	1.4	5.9
EBITDA Growth %	0.0	—	—	—	—	—	—	—	—	0.0
Adjusted EBITDA Growth %	-1.9	-35.3	16.3	25.5	18.4	7.7	3.1	1.2	1.7	6.2
Earnings Per Share Growth %	6.7	—	—	—	—	—	—	—	—	7.3
Adjusted Earnings Per Share Growth %	6.7	-42.4	64.8	27.9	18.4	8.1	4.2	3.4	3.1	7.3

Valuation as of 31 Jan 2023	Actual			Forecast				
	2020	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Price/Earnings	27.7	19.1	17.3	14.9	13.8	13.3	12.8	12.4
Price/Sales	2.1	2.1	2.0	2.1	1.9	1.9	1.8	1.7
Price/Book	8.5	8.5	9.8	8.1	6.7	5.6	4.8	4.1
Price/Cash Flow	25.9	16.9	21.2	18.7	16.5	15.8	15.9	15.9
EV/EBITDA	17.3	17.2	14.7	12.2	11.3	11.0	10.8	10.7
EV/EBIT	25.7	20.1	16.5	14.9	13.3	12.5	12.3	12.1
Dividend Yield %	2.3	2.1	1.9	2.0	2.1	2.1	2.2	2.3
Dividend Payout %	75.4	36.2	36.6	32.3	29.6	28.2	28.3	28.5
Free Cash Flow Yield %	3.9	5.9	4.7	5.3	6.0	6.3	6.3	6.3

Operating Performance / Profitability as of 31 Jan 2023	Actual			Forecast				
Fiscal Year, ends 31 Dec	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
ROA %	6.3	13.4	13.4	15.3	15.8	15.8	15.1	14.3
ROE %	22.7	51.6	51.0	54.9	50.6	45.5	39.7	35.2
ROIC %	13.1	12.4	19.8	27.8	28.6	28.0	26.6	25.4

Morningstar Equity Company Report | Report as of 15 Feb 2023 21:20, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NEW YORK STOCK EXCHANGE, INC. Page 13 of 28

Caterpillar Inc CAT ★★ 15 Feb 2023 21:10, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
248.07 USD 14 Feb 2023	209.00 USD 15 Feb 2023 21:07, UTC	1.17	127.17 USD Bil 15 Feb 2023	Wide	Stable	Medium	Standard	1 Feb 2023 06:00, UTC

Financial Leverage	Actual			Forecast				
Fiscal Year, ends 31 Dec	2020	2021	2022	2023	2024	2025	2026	2027
Debt/Capital %	48.7	42.4	42.7	38.4	34.1	28.5	25.9	23.7
Assets/Equity	4.0	3.7	3.8	3.4	3.0	2.7	2.5	2.4
Net Debt/EBITDA	0.4	0.2	0.4	0.2	0.0	-0.1	-0.2	-0.4
Total Debt/EBITDA	1.7	1.3	1.0	0.9	0.8	0.7	0.7	0.7
EBITDA/ Net Interest Expense	12.5	15.3	21.1	23.9	25.4	28.6	28.4	28.3

Key Valuation Drivers as of 31 Jan 2023	
Cost of Equity %	9.0
Pre-Tax Cost of Debt %	5.5
Weighted Average Cost of Capital %	8.6
Long-Run Tax Rate %	22.6
Stage II EBI Growth Rate %	4.0
Stage II Investment Rate %	20.0
Perpetuity Year	20

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

Discounted Cash Flow Valuation as of 31 Jan 2023	USD Mil
Present Value Stage I	26,190
Present Value Stage II	49,203
Present Value Stage III	35,770
Total Firm Value	**111,163**
Cash and Equivalents	6,042
Debt	-9,652
Other Adjustments	295
Equity Value	**107,848**
Projected Diluted Shares	519
Fair Value per Share (USD)	**209.00**

Morningstar Equity Company Report | Report as of 15 Feb 2023 21:20, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NEW YORK STOCK EXCHANGE, INC. Page 14 of 28

Caterpillar Inc CAT ★★ 15 Feb 2023 21:10, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
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Income Statement (USD)	Actual			Forecast				
Fiscal Year, ends 31 Dec	2020	2021	2022	2023	2024	2025	2026	2027
Revenue (Mil)	**39,022**	**48,188**	**56,574**	**61,265**	**65,275**	**68,651**	**71,515**	**74,109**
Cost of Goods Sold (Mil)	29,088	35,521	41,356	44,840	47,324	49,684	52,014	54,121
Gross Profit (Mil)	**9,934**	**12,667**	**15,218**	**16,425**	**17,951**	**18,968**	**19,501**	**19,988**
Selling, General, Administrative & Other Expenses (Mil)	3,915	4,724	4,999	5,261	5,552	5,829	6,102	6,349
Advertising & Marketing Expenses	—	—	—	—	—	—	—	—
Research & Development	—	—	—	—	—	—	—	—
Depreciation & Amortization (if reported separately)	—	—	—	—	—	—	—	—
Adjusted Operating Income (Mil)	**4,321**	**6,363**	**8,358**	**9,078**	**10,175**	**10,800**	**10,962**	**11,114**
Financial Non-Cash (Gains)/Losses (Mil)	0	0	925	0	0	0	0	0
Irregular Cash (Gains)/Losses (Mil)	0	0	0	0	0	0	0	0
Operating Income (Mil)	**4,321**	**6,363**	**7,433**	**9,078**	**10,175**	**10,800**	**10,962**	**11,114**
Net Interest Expense (Mil)	494	-1,604	-1,103	-1,089	-1,054	-1,036	-945	-838
Income Tax Expense (Mil)	853	1,517	1,858	2,295	2,537	2,674	2,688	2,697
After-Tax Items (Mil)	0	0	0	0	0	0	0	0
(Minority Interest) (Mil)	24	39	27	25	27	29	30	31
Net Income (Mil)	**2,998**	**6,489**	**6,705**	**7,897**	**8,719**	**9,191**	**9,249**	**9,286**
Adjusted Net Income (Mil)	**3,600**	**5,932**	**7,339**	**8,597**	**9,069**	**9,191**	**9,249**	**9,286**
Weighted Average Diluted Shares Outstanding (Mil)	549	549	530	525	512	498	485	472
Diluted Earnings Per Share	**5.46**	**11.83**	**12.64**	**15.05**	**17.02**	**18.44**	**19.07**	**19.67**
Diluted Adjusted Earnings Per Share	**6.56**	**10.81**	**13.84**	**16.38**	**17.70**	**18.44**	**19.07**	**19.67**
Dividends Per Common Share (USD)	4.12	4.28	4.62	4.86	5.04	5.20	5.40	5.60
EBITDA (Mil)	**5,951**	**7,913**	**8,872**	**10,548**	**11,676**	**12,311**	**12,464**	**12,670**
Adjusted EBITDA (Mil)	**6,416**	**7,460**	**9,365**	**11,087**	**11,946**	**12,311**	**12,464**	**12,670**

Morningstar Equity Company Report | Report as of 15 Feb 2023 21:20, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NEW YORK STOCK EXCHANGE, INC. Page 15 of 28

Caterpillar Inc CAT ★★ 15 Feb 2023 21:10, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
248.07 USD 14 Feb 2023	209.00 USD 15 Feb 2023 21:07, UTC	1.17	127.17 USD Bil 15 Feb 2023	Wide	Stable	Medium	Standard	1 Feb 2023 06:00, UTC

Key Cash Flow Items (USD)	Actual			Forecast as of 31 Jan				
Fiscal Year, ends 31 Dec	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Cash from Working Capital (Mil)	-1,247	404	-385	-1,068	-856	-803	-772	-721
(Capital Expenditures) (Mil)	-994	-1,129	-1,298	-1,501	-1,665	-1,819	-1,967	-2,112
Depreciation (Mil)	1,630	1,550	1,439	1,470	1,501	1,510	1,502	1,556
Amortization (Mil)	—	—	—	0	0	0	0	0
Net New (Investment), Organic (Mil)	**-1,039**	**1,670**	**-1,698**	**-1,088**	**-1,007**	**-1,099**	**-1,224**	**-1,263**
(Purchases)/Sales of Companies & Assets (Mil)	-111	-490	-88	-212	-230	-245	-257	-268
Net New (Investment), Total (Mil)	**-1,150**	**1,180**	**-1,786**	**-1,300**	**-1,237**	**-1,344**	**-1,481**	**-1,531**
Other Non-Cash Items, From Cash Flows (Mil)	997	-702	-154	0	0	0	0	0
Free Cash Flow to the Firm (Mil)	**3,243**	**4,336**	**3,782**	**5,754**	**6,666**	**7,045**	**7,036**	**7,106**

Balance Sheet (USD)	Actual			Forecast				
Fiscal Year, ends 31 Dec	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Assets								
Cash and Equivalents (Mil)	8,822	8,428	6,042	7,825	9,241	10,016	11,586	13,117
Inventory (Mil)	11,402	14,038	16,270	17,653	18,644	19,587	20,520	21,366
Accounts Receivable (Mil)	3,846	3,279	3,710	4,185	4,638	5,066	5,473	5,875
Net Property, Plant and Equipment (Mil)	8,309	8,172	8,186	8,227	8,402	8,723	9,201	9,770
Goodwill (Mil)	6,394	6,324	5,288	5,373	5,465	5,563	5,666	5,773
Other Intangibles (Mil)	1,308	1,042	758	864	979	1,101	1,230	1,364
Other Operating Assets (Mil)	6,955	8,726	9,543	9,543	9,543	9,543	9,543	9,543
Non-Operating Assets (Mil)	0	0	0	0	0	0	0	0
Total Assets (Mil)	**47,036**	**50,009**	**49,797**	**53,671**	**56,912**	**59,600**	**63,219**	**66,808**
Liabilities								
Accounts Payable (Mil)	6,060	8,079	8,657	9,448	10,036	10,604	11,173	11,700
Debt (Mil)	11,194	9,826	9,652	9,869	9,664	8,665	8,665	8,665
Other Operating Liabilities (Mil)	10,614	12,647	13,895	13,895	13,895	13,895	13,895	13,895
Non-Operating Liabilities (Mil)	7,329	6,076	4,631	4,631	4,631	4,631	4,631	4,631
Total Liabilities (Mil)	**35,197**	**36,628**	**36,835**	**37,843**	**38,226**	**37,795**	**38,364**	**38,891**
Equity								
Shareholders' Equity (Mil)	11,791	13,346	12,937	15,803	18,661	21,779	24,830	27,892
Minority Interest (Mil)	48	35	25	25	25	25	25	25
Total Equity (Mil)	**11,839**	**13,381**	**12,962**	**15,828**	**18,686**	**21,804**	**24,855**	**27,917**

Morningstar Equity Company Report | Report as of 15 Feb 2023 21:20, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NEW YORK STOCK EXCHANGE, INC. Page 16 of 28

Caterpillar Inc CAT ★★ 15 Feb 2023 21:10, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
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Management & Ownership

Management Activity as of 31 Mar 2023

Name	Position	Share Held	Report Date*	Insider Activity
Andrew Robert John Bonfield	Chief Financial Officer	63,188	31 Mar 2023	177,729
Daniel M. Dickinson	Independent Director	31,462	31 Mar 2023	6,886
D. James Umpleby	Chief Executive Officer and Chairman of the Board	318,035	31 Mar 2023	638,873
Denise C. Johnson	Group President	41,704	31 Mar 2023	129,993
Bob De Lange	Group President	53,879	31 Mar 2023	126,231
Suzette M. Long	Chief Legal Officer and General Counsel	16,776	31 Mar 2023	170,630
Joseph E. Creed	Group President	3,037	31 Mar 2023	154,536
Anthony D. Fassino	Group President	50,743	31 Mar 2023	42,140
Miles D. White	Independent Director	20,436	31 Mar 2022	293
Jananne A. Copeland	Chief Accounting Officer	7,740	31 Mar 2019	—

Fund Ownership as of 31 Jan 2023

Top Owners	% of Shares Held	% of Fund Assets	Change (k)	Portfolio Date
2ndVote Advisers Shareholders First	8.49	0.82	0	31 Dec 2022
Vanguard Total Stock Market Index Fund	3.07	0.32	123,975	31 Jan 2023
Vanguard US Total Market Shares ETF	3.04	0.35	-86,406	31 Dec 2022
Vanguard Instl Ttl Stck Mkt Idx Tr	3.04	0.33	62,179	31 Dec 2022
Vanguard 500 Index Fund	2.32	0.38	28,515	31 Jan 2023
Concentrated Holders				
Q3 Power Momentum - Rising Dividend	0.00	19.83	14	31 Dec 2022
PVG Tactical Core Strategy	0.00	14.44	2,883	31 Dec 2022
Horizons North American Infras DevpmtETF	0.00	9.57	0	31 Jan 2023
FT S&P Dividend Atrts By-Wrt 17	0.00	7.94	23	25 Jan 2023
FT S&P Dividend Atrts By-Wrt 16	0.00	7.18	28	25 Jan 2023

Institutional Transactions as of 31 Jan 2023

Top 5 Buyers	% of Shares Held	% of Fund Assets	Shrs Bought/Sold (k)	Portfolio Date
Altshuler Shaham Ltd	0.50	10.69	836,340	30 Sep 2022
Renaissance Technologies Corp	0.16	0.27	814,500	31 Dec 2022
Amundi	0.72	0.39	601,458	30 Sep 2022
Los Angeles Capital Management LLC	0.06	0.39	312,961	31 Dec 2022
Assenagon Asset Management SA	0.06	0.27	222,840	31 Dec 2022
Top 5 Sellers				
FMR Inc	0.83	0.07	-1,905,926	30 Sep 2022
Wellington Management Company LLP	0.12	0.02	-1,527,038	30 Sep 2022
Morgan Stanley - Brokerage Accounts	1.08	0.13	-511,390	30 Sep 2022
UBS Group AG	0.19	0.07	-462,201	30 Sep 2022
Vaughan Nelson Scarbrgh & Mccullough LP	0.00	—	-449,879	30 Sep 2022

*Represents the date on which the owner's name, position, and common shares held were reported by the holder or issuer.

Caterpillar Inc CAT ★★ 15 Feb 2023 21:10, UTC

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248.07 USD 14 Feb 2023	209.00 USD 15 Feb 2023 21:07, UTC	1.17	127.17 USD Bil 15 Feb 2023	Wide	Stable	Medium	Standard	1 Feb 2023 06:00, UTC

Comparable Company Analysis These companies are chosen by the analyst and the data are shown by nearest calendar year in descending market capitalization order.

Valuation Analysis as of 31 Jan 2023	**Price/Earnings**			**EV/EBITDA**			**Price/Free Cash Flow**			**Price/Book**			**Price/Sales**		
Company/Ticker	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)
Deere & Co DE	20.7	17.3	15.0	20.3	17.4	14.8	23.4	23.8	16.5	6.7	6.2	5.3	2.9	2.5	2.2
Terex Corp TEX	9.9	11.9	11.2	7.4	8.1	7.8	19.0	14.0	13.5	2.5	2.7	2.4	0.7	0.8	0.8
The Timken Co TKR	17.8	34.4	27.2	12.6	15.5	13.8	50.0	13.8	26.8	2.1	4.8	4.8	1.7	2.0	1.9
Average	16.1	21.2	17.8	13.4	13.7	12.1	30.8	17.2	18.9	3.8	4.6	4.2	1.8	1.8	1.6
Caterpillar Inc CAT	**17.3**	**14.9**	**13.8**	**14.7**	**12.2**	**11.3**	**21.2**	**18.8**	**16.6**	**9.8**	**8.1**	**6.7**	**2.0**	**2.1**	**1.9**

Returns Analysis as of 31 Jan 2023	**ROIC %**			**Adjusted ROIC %**			**Return on Equity %**			**Return on Assets %**			**Dividend Yield %**		
Company/Ticker	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)
Deere & Co DE	22.9	28.9	31.9	27.6	35.0	38.5	38.0	36.9	37.2	14.4	15.9	17.2	0.8	1.1	1.2
Terex Corp TEX	14.6	16.0	15.4	21.0	22.6	21.7	26.2	25.1	22.7	10.0	10.1	9.9	1.2	1.1	1.1
The Timken Co TKR	6.7	13.1	11.0	6.7	13.6	14.5	10.0	10.9	16.5	5.4	6.0	7.5	2.3	1.1	1.2
Average	14.7	19.3	19.4	18.4	23.7	24.9	24.7	24.3	25.5	9.9	10.7	11.5	1.4	1.1	1.2
Caterpillar Inc CAT	**19.8**	**27.8**	**28.6**	**27.7**	**38.0**	**38.6**	**51.0**	**54.9**	**50.6**	**13.4**	**15.3**	**15.8**	**1.9**	**2.0**	**2.1**

Growth Analysis as of 31 Jan 2023	**Revenue Growth %**			**EBIT Growth %**			**EPS Growth %**			**FCF Growth %**			**DPS Growth %**		
Company/Ticker	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)
Deere & Co DE	26.8	21.0	11.1	89.5	22.9	16.5	88.6	23.7	15.7	18.3	-9.0	66.7	9.2	28.9	12.2
Terex Corp TEX	13.7	6.9	6.2	28.1	14.7	3.3	38.7	9.9	6.6	-43.3	59.1	1.2	8.3	15.4	6.7
The Timken Co TKR	-9.7	3.2	7.4	-32.1	15.2	19.2	-38.3	12.9	26.6	-93.0	5662.2	-43.3	0.1	7.3	2.0
Average	10.3	10.4	8.2	28.5	17.6	13.0	29.7	15.5	16.3	-39.3	1,904.1	8.2	5.9	17.2	7.0
Caterpillar Inc CAT	**17.4**	**8.3**	**6.6**	**31.4**	**8.6**	**12.1**	**27.9**	**18.4**	**8.1**	**-12.8**	**52.2**	**15.9**	**7.9**	**5.2**	**3.7**

Profitability Analysis as of 31 Jan 2023	**Gross Margin %**			**EBITDA Margin %**			**Operating Margin %**			**Net Margin %**			**FCF Margin %**		
Company/Ticker	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)
Deere & Co DE	28.7	28.4	29.1	19.8	19.6	20.7	17.2	17.5	18.4	14.7	14.7	15.0	12.4	10.3	13.5
Terex Corp TEX	21.0	22.3	22.1	10.6	11.3	11.0	9.5	10.2	9.9	6.8	6.9	6.8	3.4	5.8	5.7
The Timken Co TKR	28.6	29.8	30.1	17.0	16.3	17.1	10.6	11.8	13.1	7.0	7.3	8.1	3.4	14.5	6.9
Average	26.1	26.8	27.1	15.8	15.7	16.3	12.4	13.2	13.8	9.5	9.6	10.0	6.4	10.2	8.7
Caterpillar Inc CAT	**26.9**	**26.8**	**27.5**	**16.6**	**18.1**	**18.3**	**14.8**	**14.8**	**15.6**	**13.0**	**14.0**	**13.9**	**9.3**	**11.1**	**11.8**

Leverage Analysis as of 31 Jan 2023	**Debt/Equity %**			**Debt/Total Cap %**			**EBITDA/Net Int. Exp**			**Total Debt/EBITDA**			**Asset/Equity**		
Company/Ticker	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)
Deere & Co DE	56.6	44.2	38.2	36.2	30.7	27.6	22.0	24.9	43.4	1.3	0.9	0.8	2.4	2.2	2.1
Terex Corp TEX	65.6	54.3	48.9	39.6	35.2	32.8	9.5	7.7	8.0	1.7	1.5	1.4	2.6	2.3	2.2
The Timken Co TKR	24.8	27.1	81.4	19.9	21.3	44.9	21.2	21.0	12.8	0.9	0.9	2.2	1.8	1.9	2.5
Average	49.0	41.9	56.2	31.9	29.1	35.1	17.6	17.9	21.4	1.3	1.1	1.5	2.3	2.1	2.3
Caterpillar Inc CAT	**74.6**	**62.5**	**51.8**	**42.7**	**38.4**	**34.1**	**21.1**	**23.9**	**25.4**	**1.0**	**0.9**	**0.8**	**3.8**	**3.4**	**3.0**

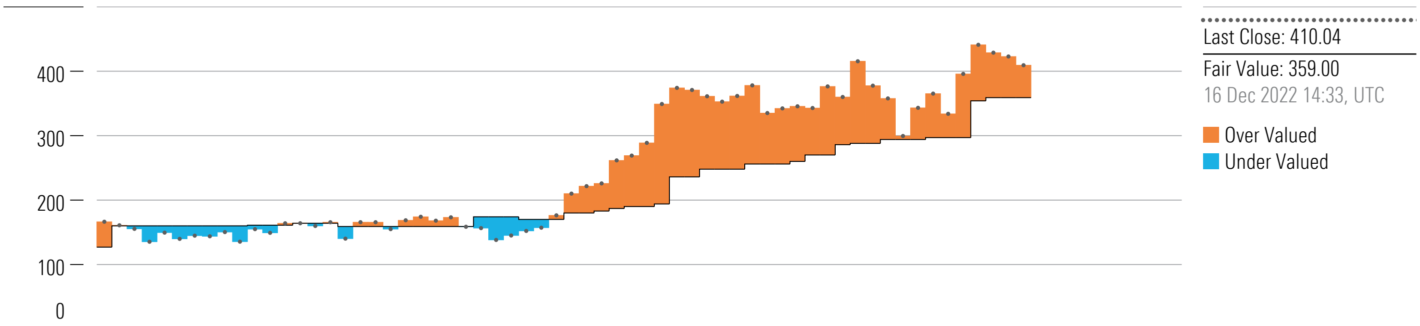
Liquidity Analysis as of 31 Jan 2023	**Cash per Share**			**Current Ratio**			**Quick Ratio**			**Cash/Short-Term Debt**			**Payout Ratio %**		
Company/Ticker	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)	2022	2023(E)	2024(E)
Deere & Co DE	22.9	12.3	19.4	1.7	1.5	1.7	1.2	0.9	1.1	4.7	3.6	5.6	17.5	18.4	17.8
Terex Corp TEX	4.4	5.2	4.5	2.0	2.1	2.0	1.0	1.1	1.0	160.1	190.4	160.3	12.0	12.6	12.6
The Timken Co TKR	3.1	4.3	11.8	1.9	1.8	2.6	1.2	1.2	1.9	1.1	1.4	3.7	43.2	47.5	32.9
Average	10.5	9.2	13.4	1.8	1.8	2.0	1.0	1.0	1.2	53.8	64.7	42.4	27.3	27.7	23.2
Caterpillar Inc CAT	**11.4**	**14.9**	**18.0**	**1.5**	**1.6**	**1.7**	**0.6**	**0.7**	**0.8**	**49.1**	**63.6**	**—**	**36.6**	**32.3**	**29.6**

Morningstar Equity Company Report | Report as of 15 Feb 2023 21:20, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NEW YORK STOCK EXCHANGE, INC. Page 18 of 28

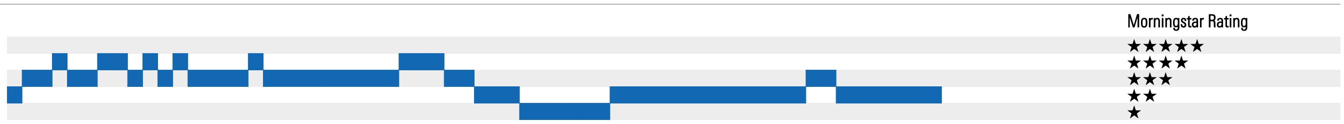
Caterpillar Inc CAT ★★ 15 Feb 2023 21:10, UTC

Competitors Price vs. Fair Value

Deere & Co DE

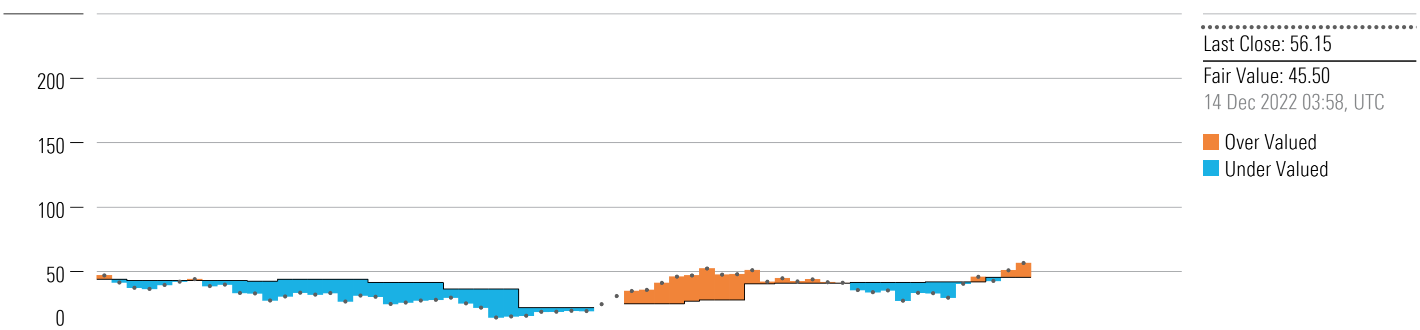


	2018	2019	2020	2021	2022	YTD	
	0.93	1.09	1.42	1.27	1.19	1.14	Price/Fair Value
	-2.94	18.19	57.04	28.89	26.36	-4.54	Total Return %

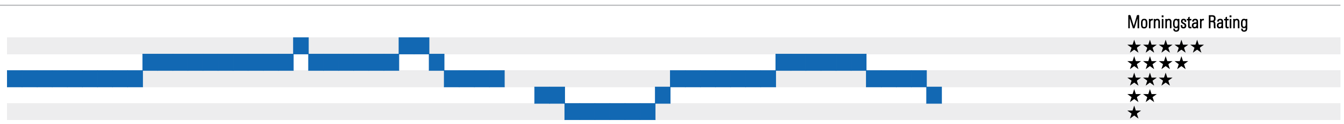


Total Return % as of 14 Feb 2023. Last Close as of 15 Feb 2023. Fair Value as of 16 Dec 2022 14:33, UTC.

Terex Corp TEX



	2018	2019	2020	2021	2022	YTD	
	0.65	0.82	1.40	1.07	0.94	1.23	Price/Fair Value
	-42.00	9.61	17.56	27.34	-1.62	32.54	Total Return %

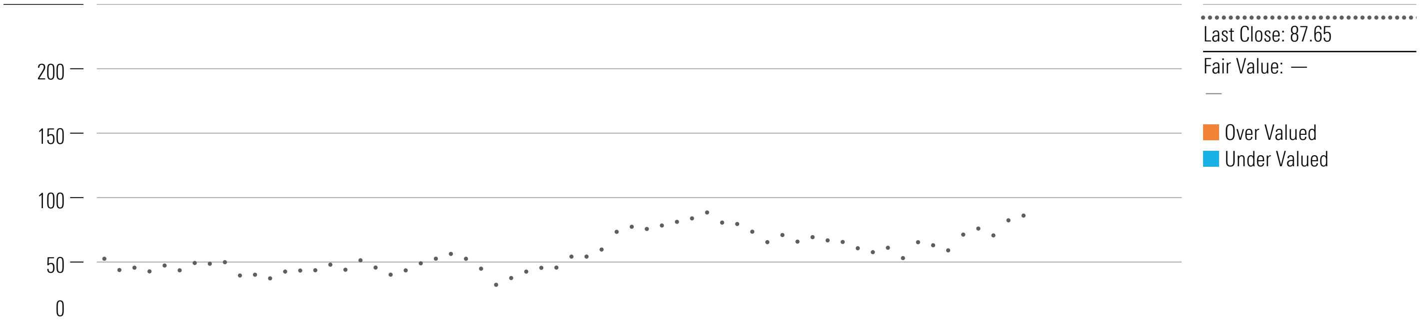


Total Return % as of 14 Feb 2023. Last Close as of 15 Feb 2023. Fair Value as of 14 Dec 2022 03:58, UTC.

Caterpillar Inc CAT ★★ 15 Feb 2023 21:10, UTC

Competitors Price vs. Fair Value (Continued)

The Timken Co TKR



	2018	2019	2020	2021	2022	YTD	
	—	—	—	—	—	—	Price/Fair Value
	-21.81	53.89	39.39	-8.89	3.77	21.75	Total Return %

Total Return % as of 14 Feb 2023. Last Close as of 15 Feb 2023. Fair Value as of —.

Recent Analyst Notes

Caterpillar Reports Better-Than-Expected Third-Quarter Results, Thanks to Strong Pricing Dawit Woldemariam,Equity Analyst,27 Oct 2022

Caterpillar's stronger-than-expected results led us to increase our fair value estimate to $196 per share from $193. The company increased equipment sales 22% year on year to $14.2 billion. The key drivers were strong pricing and solid volume gains. Caterpillar has flexed pricing to mitigate supply chain constraints. Headwinds included material and freight costs, as well as manufacturing inefficiencies. We expect supply chain challenges to remain persistent throughout 2022 and likely into early 2023.On the volume side, Caterpillar noted dealer inventories increased $700 million in the quarter, resulting in a favorable $1 billion impact on total sales. This remains near the low end of the typical range, but it is a positive sign compared with recent quarters. Last quarter, the company reported inventories decreased $400 million. Also, inventories were down $300 million in the third quarter of 2021. Over time, we expect dealer sentiment to gradually pick up as U.S. infrastructure spending starts to flow down to various U.S. states in 2023 (many roads and bridges are in poor condition).In terms of demand, management noted average fleet ages are starting to increase, since customers have had to hold on to machines longer than usual. Notably, Caterpillar's backlog increased by $1.6 billion to $30 billion, showing strong demand in the pipeline. We expect this to be a sales driver for the company as supply chains normalize. We forecast sales during 2023-26 to grow over 5% on average.Caterpillar's stock price jumped nearly 10% following the earnings report. We believe the positive response was related to the stronger-than-expected adjusted EPS performance. This puts the stock approximately 10% above our $196 fair value estimate. That said, we think the recent downward market volatility in markets may present long-term investors with a margin of safety in the stock.

Supply Headwinds Persist in Caterpillar's Second Quarter, but Demand Remains Strong Dawit Woldemariam,Equity Analyst,2 Aug 2022

We continue to remain positive on the demand story for Caterpillar, despite supply headwinds. The company has been pressured by the chip shortage and higher manufacturing costs over the past year, challenging its ability to meet current demand. However, we believe construction activity will continue to improve in the near term, giving us confidence that Caterpillar's products will see strong demand from customers over our forecast. In addition, we think the construction industry will benefit from increased U.S. infrastructure spending starting in 2023. Given this backdrop, we've raised our fair value estimate to $193 per share from $189. In the second quarter, machinery sales increased 11% year on year to $13.5 billion, largely due to strong sales in North America, which grew 18% year on year. The company's machinery operating margins fell approximately 30 basis points from 2021 levels, given persistent cost inflation (materials and freight costs). That said, management noted its ability to more than offset rising costs with strong price realization. We expect Caterpillar to also raise prices in the back half of the year at a high-single-digit clip to stay ahead of inflation. For 2022, we project over 15% sales growth for

Caterpillar's consolidated business.In the near term, we think how the supply chain progresses will be the key item to watch. While we expect the remainder of 2022 to be challenging, we expect to see improvements in 2023, giving Caterpillar the ability to meet demand (the company has strong backlogs). This gives us confidence to project stronger operating margins in 2023 (15.8%) compared with 2022 (13.9%) as elevated costs start to ease. Focusing on the infrastructure opportunity, we think dealers will start to restock inventories in 2023, leading us to project over 6% sales growth on average for 2023-25.

Caterpillar Reiterates Its Margin, Free Cash Flow, and Services Targets at Its 2022 Investor Day Dawit Woldemariam,Equity Analyst,18 May 2022

Caterpillar held its investor day on May 17, where it reiterated its 2019 investor day targets for operating margins, free cash flow, and services. Following the event, we raised our fair value estimate to $189 from $187 previously to reflect minor adjustments to our near-term margin expectations.Recall that the company's goal is to post a 300-600 basis point improvement in adjusted operating margins compared with its historical performance (2010-2016). Caterpillar has met this goal over the past few years, even in 2020 when the pandemic halted construction activity globally. The company has been adept at reducing costs, restructuring its operations, and driving manufacturing efficiency. Our midcycle profitability expectations remain unchanged, as we project 14.5% operating margins in 2026, reflecting the cyclicality of Caterpillar's business.Caterpillar has successfully grown its services business, reaching $19 billion in sales (2021), up from $14 billion (2016). In our view, the company can reach its $28 billion sales target for its services business by 2026 for two reasons. One, we think Caterpillar's dealers will be able to use the technology architecture the company has built to drive greater parts and service revenue. For example, more than one million machines (out of 1.9 million active construction machines) are connected to Caterpillar's network, making it easier for dealers to know when maintenance is needed (makes dealers proactive). Second, we expect to see Caterpillar lock in more customer value agreements at the point of sale, meaning it will handle all parts and service work for equipment (parts sales can make up more than double the machine purchase price).Management also highlighted its focus on sustainability as a key pillar to its strategy going forward. We believe Caterpillar is committed to not only improve its own carbon footprint (through electrifying its machines) but also helping its customers become more sustainable in their operations.

Wide-Moat Caterpillar Posts Solid Earnings to Start 2022, Despite Continued Supply Headwinds Dawit Woldemariam,Equity Analyst,28 Apr 2022

Supply headwinds continue to be the story in the industrial sector, but Caterpillar remained resilient to start the year. First-quarter machinery sales grew 15% year on year as nonresidential construction spending continues to improve following pandemic lows. We have raised our fair value estimate to $187 per share from $184 largely due to the time value of money since our last update. We still view the shares as overvalued at current levels, though, trading roughly 13% above our fair value estimate.Caterpillar's construction segment performed well in the quarter, up 12% year on year, thanks to stronger pricing and volume. However, operating margin came in at

17.3%, down about 170 basis points from the first quarter of 2021. While supply headwinds present near-term challenges, we reiterate our confidence in the company's ability to offset rising costs, thanks to its pricing power. We believe customers are willing to pay higher prices for machinery that is high quality and exceptionally durable. By using Caterpillar's products, customers can get more out of their machines, boosting productivity. This gives us confidence to forecast 18% operating margins for the construction segment in 2022, up over 120 basis points compared with 2021.Dealer inventories improved in the quarter, increasing $1.3 billion from the fourth quarter of 2021. We're still not expecting significant changes in dealer inventories in 2022, given the current supply chain crunch. However, as supply pressures ease throughout the year, we think Caterpillar's dealers will start to restock inventories in anticipation of increased infrastructure-related spending in the United States. We expect the majority of infrastructure spending to start flowing through in 2023 and 2024.

Supply Headwinds Pressured Caterpillar's Fourth-Quarter Margins; We Expect Improvement in 2022 Dawit Woldemariam,Equity Analyst,30 Jan 2022

Caterpillar's fourth-quarter results benefited from strong end user demand, but this was partially offset by higher costs. Even so, we raised our fair value estimate to $182 from $180, based on our updated top line expectations. In the near term, we believe Caterpillar's end markets will continue to strengthen, largely due to improving non-residential construction activity. Looking further out, we believe the new U.S. infrastructure bill will drive demand for new construction machinery starting in late 2022, with the majority of new projects likely beginning in 2023 and 2024. Additionally, we lowered our tax rate assumption to reflect Morningstar's updated view that a rise in the U.S. corporate tax rate will not occur. We expect Caterpillar's long-term tax rate to be approximately 24%.Caterpillar's machinery sales surged 24% in the quarter compared with the same period a year ago. The main drivers to sales growth were higher volume and stronger pricing. That said, Caterpillar's operating margins were pressured by higher manufacturing costs. Management called out higher freight and materials costs, along with some production inefficiencies (component shortages). These factors pushed operating margins down to approximately 11% (down from roughly 12% in the fourth quarter of 2020). Supply headwinds present near-term challenges for Caterpillar, but we remain confident in the company's ability to offset cost inflation in 2022, thanks to its pricing power.Dealer inventories improved in the quarter, declining by $100 million (compared with a $1.1 billion decline a year ago). We don't expect significant changes in dealer inventories in the first half of 2022, given supply chain constraints. However, looking out into late 2022 and early 2023, we believe increased infrastructure spending in the U.S. will push dealers to start restocking their inventories in anticipation of greater demand for construction equipment.

U.S. Corporate Tax Rate Unlikely to Change After Roadblocks Rise in Senate Julie Utterback,Senior Equity Analyst,23 Dec 2021

Given recent political developments around the Build Back Better bill, we are reversing our forecast that the U.S. corporate tax rate will rise to 26% in 2022. We now believe the U.S. statutory tax rate will remain at 21% at least through President Joe Biden's remaining term, which ends in early 2025. Our equity analysts will incorporate this new U.S. corporate tax rate assumption into their valuation models in the coming weeks. We previously simulated the impact of various tax rate changes on covered U.S. equities; reversing the statutory tax rate assumption to 21% results in a 3% average valuation increase, all else being equal.Given their slim majority in the Senate, Democrats needed to present a unified front to pass this bill, and two Democratic senators presented roadblocks in recent months. First, Sen. Kyrsten Sinema opposed raising the U.S. corporate tax rate, which led to consideration of funding methods other than a corporate tax rate increase. Also, Sen. Joe Manchin has expressed opposition to the bill primarily because providing the services included in recent proposals would wind up costing much more than the $1.75 trillion headline number when extended for the typical 10-year term considered in the Senate's budget reconciliation process.Sinema's and Manchin's current terms end in line with Biden's current term, so these roadblocks may provide a hurdle to such a bill during that time frame. Also, considering recent polling numbers and midterm election patterns, we would not be surprised to see Democrats lose a majority in at least one of the congressional bodies after 2022's election, which would prevent passage of such significant legislation in the remainder of Biden's term. Any way we slice it, the Build Back Better bill may not pass, and even if a slimmed-down version passes in early 2022, we think it is highly unlikely that the U.S. corporate tax rate will increase, given Sinema's objections to that funding method.

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, indepth 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 shortterm market-price movements), but we believe these negatives are mitigated by deep analysis and our longterm approach.

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

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

1. Economic Moat

The concept of an economic moat plays a vital role not only in our qualitative assessment of a firm's long-term investment potential, but also in the actual calculation of our fair value estimates. An economic moat is a structural feature that allows a firm to sustain excess profits over a long period of time. We define economic profits as returns on invested capital (or ROIC) over and above our estimate of a firm's cost of capital, or weighted average cost of capital (or WACC). Without a moat, profits are more susceptible to competition. We have identified five sources of economic moats: intangible assets, switching costs, network effect, cost advantage, and efficient scale.

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

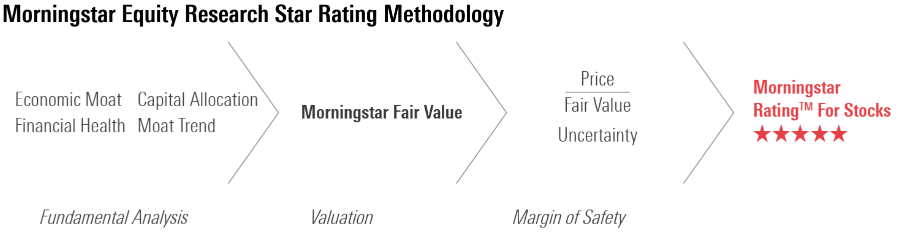
When considering a company's moat, we also assess whether there is a substantial threat of value destruction, stemming from risks related to ESG, industry disruption, financial health, or other idiosyncratic issues. In this context, a risk is considered potentially value destructive if its occurrence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

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.

Morningstar Equity Research Star Rating Methodology



Our model is divided into three distinct stages:

Stage I: Explicit Forecast

In this stage, which can last five to 10 years, analysts make full financial statement forecasts, including items such as revenue, profit margins, tax rates, changes in workingcapital accounts, and capital spending. Based on these projections, we calculate earnings before interest, after taxes (EBI) and the net new investment (NNI) to 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

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Research Methodology for Valuing Companies

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 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.

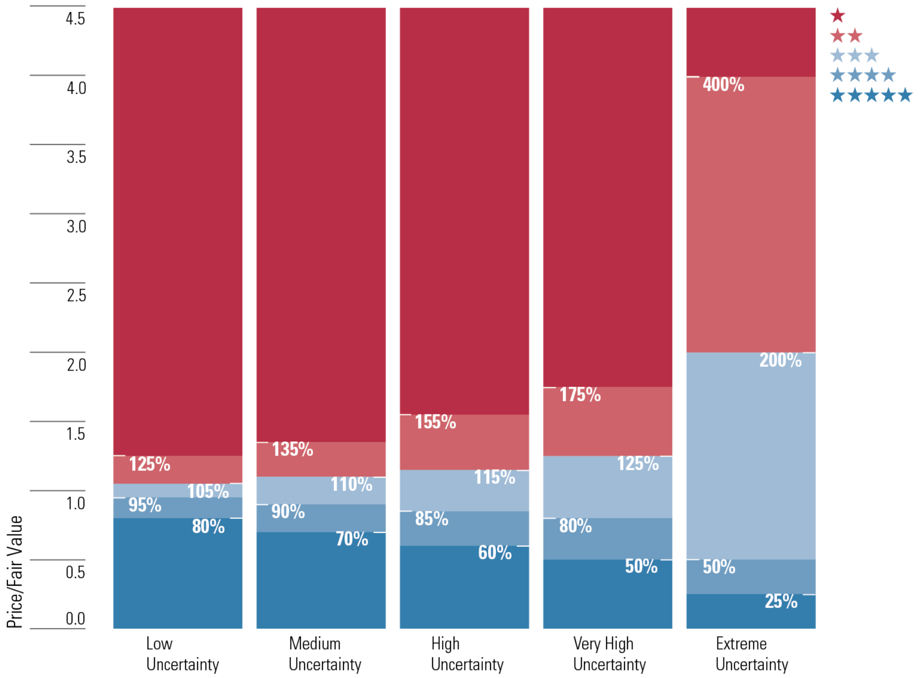
Our recommended margin of safety—the discount to fair value demanded before we'd recommend buying or selling the stock—widens as our uncertainty of the estimated value of the equity increases. The more uncertain we are about the potential dispersion of outcomes, the greater the discount we require relative 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.

Morningstar Equity Research Star Rating Methodology



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

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

Research Methodology for Valuing Companies

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

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

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

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

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

Sustainalytics analyzes over 1,300 data points to assess a company's exposure to and management of ESG risks. In other words, ESG Risk Ratings measures a company's unmanaged ESG Risks represented as a quantitative score. Unmanaged Risk is measured on an open-ended scale starting at zero (no risk) with lower scores representing less unmanaged risk and, for 95% of cases, the unmanaged ESG Risk score is below 50.

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

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

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