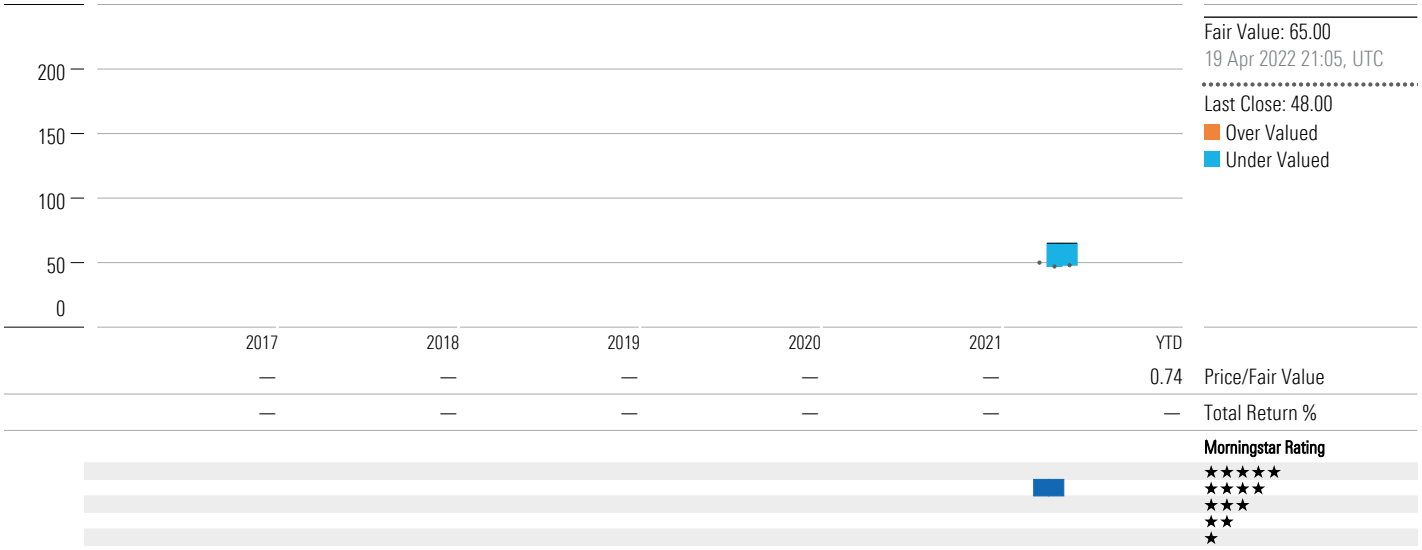
ESAB Corp ESAB ★★★★ 10 May 2022 21:18, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
48.00 USD	65.00 USD	0.74	2.88 USD Bil	Narrow	Stable	Medium	Standard	—
10 May 2022	19 Apr 2022 21:05, UTC		10 May 2022					

Price vs. Fair Value



Total Return % as of —. Last Close as of 10 May 2022. Fair Value as of 19 Apr 2022 21:05, UTC.

Contents

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

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

ESAB Reaffirms Full-Year Outlook After Solid First Quarter; Maintaining FVE

Analyst Note Krzysztof Smalec, CFA, Equity Analyst, 11 May 2022

Nothing in narrow moat rated ESAB's first-quarter earnings results materially alters our long-term outlook for the firm. Therefore, we are maintaining our $65 fair value estimate. The stock is currently trading in 4-star territory, at a roughly 26% discount to our fair value estimate, which we view as an attractive entry point.

ESAB delivered 14% year-over-year revenue growth in the first quarter, as 14% price attainment and 4% volume growth were partially offset by a 4% foreign exchange headwind. Demand was healthy across all regions, with organic sales up 21% in the Americas and 16% in EMEA and APAC. Despite supply chain disruptions and cost inflation, the company expanded its first-quarter adjusted EBITDA margin by 30 basis points from the prior-year period, from 16.6% to 16.9%. We believe that ESAB's ability to implement price increases to offset inflation underscores the firm's solid execution, pricing power, and the strength of its economic moat.

ESAB's first quarterly earnings results since its recent spin-off from Colfax were in line with management's expectations. The company maintained its outlook for full-year 2022 and continues to expect sales of $2,450 million-$2,500 million, adjusted EBITDA of $400 million-$420 million, and adjusted EPS of $3.85-$4.05. We note that management's guidance range excludes any contribution from Russia, which accounted for roughly 7% of ESAB's revenue in 2021. ESAB launched 28 new products in the first

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Sector
Industrials

Industry
Metal Fabrication

Business Description

ESAB, spun off from Colfax in 2022, is a leading manufacturer of equipment and consumables used in welding, cutting, and joining applications. Alongside its competitors Lincoln Electric and ITW's Miller brand, ESAB is one of the top three players in the welding space. ESAB generated roughly $2.4 billion in revenue and $306 million in GAAP operating income in 2021.

quarter and is on pace to launch around 110 new products in 2022, which we believe will help drive solid organic revenue growth.

ESAB's net leverage ratio is currently around 2.75 times adjusted EBITDA, within management's long-term target range of 2-3 times. Management said on the earnings call that it is focused primarily on reducing leverage, but it is also considering initiating a modest quarterly dividend.

Business Strategy & Outlook Krzysztof Smalec, CFA, Equity Analyst, 11 May 2022

ESAB is a leading manufacturer of equipment and consumables used in welding, cutting, and joining applications. The company is one of the top three players in the welding solutions space, alongside Lincoln Electric and ITW's Miller brand.

ESAB was acquired by Colfax in 2012 and spun off as a standalone company in 2022. During the decade under Colfax's ownership, ESAB staged an impressive turnaround, having nearly doubled its adjusted operating margins, from 7% in 2012 to 13.4% in 2021. Furthermore, the company has ramped up its R&D spending from 0.5% of sales in 2012 to 1.6% in 2021. As a result, new product introductions have quadrupled over the last five years, from 24 in 2016 to 100 in 2021, which has helped ESAB outgrow its competitors in recent years.

Following the spinoff from Colfax, ESAB's net leverage ratio stood at around 2.75 times adjusted EBITDA. We think the company will initially focus on reducing leverage, but we expect that M&A will be an important part of ESAB's long-term strategy. Management has indicated that acquisitions will likely focus on bolstering the firm's portfolio of specialty alloys, digital solutions, as well as robotic and automation solutions. We believe that this strategy offers compelling revenue growth opportunities and has the potential to reinforce customer switching costs.

For full-year 2022 ESAB anticipates revenue in the range of $2,450 million to $2,500 million and adjusted EPS in the range of $3.85 to $4.05. We note that this guidance range assumes no contribution from Russia, which accounted for roughly 7% of ESAB's revenue in 2021. Management's long-term strategic goals include growing revenue to $3.0 billion to $3.5 billion, expanding adjusted EBITDA margins to over 20%, and delivering over 100% cash conversion.

Bulls Say Krzysztof Smalec, CFA, Equity Analyst, 11 May 2022

- On an organic revenue basis, ESAB has outgrown its two main competitors since 2018.
- ESAB has delivered steady and impressive margin expansion, having more than doubled its adjusted operating margin since 2012.
- Automation and digital solutions have the potential to reinforce ESAB's moat and deliver revenue growth well above the core welding growth rate.

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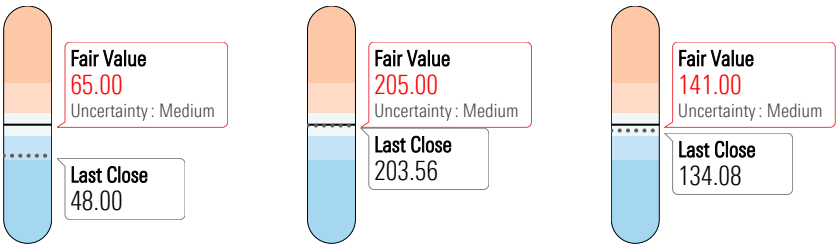
Competitors



	ESAB Corp ESAB	Illinois Tool Works Inc ITW	Lincoln Electric Holdings Inc LECO
Economic Moat	Narrow	Narrow	Narrow
Moat Trend	Stable	Stable	Stable
Currency	USD	USD	USD
Fair Value	65.00 19 Apr 2022 21:05, UTC	205.00 1 Apr 2022 01:56, UTC	141.00 29 Apr 2022 15:48, UTC
1-Star Price	87.75	276.75	190.35
5-Star Price	45.50	143.50	98.70
Assessment	Under Valued 10 May 2022	Fairly Valued 10 May 2022	Fairly Valued 10 May 2022
Morningstar Rating	★★★★10 May 2022 21:18, UTC	★★★10 May 2022 21:18, UTC	★★★10 May 2022 21:18, UTC
Analyst	Krzysztof Smalec, Equity Analyst	Joshua Aguilar, Senior Analyst	Krzysztof Smalec, Equity Analyst
Capital Allocation	Standard	Exemplary	Standard
Price/Fair Value	0.74	0.99	0.95
Price/Sales	1.19	4.32	2.36
Price/Book	1.17	17.70	9.11
Price/Earning	12.25	23.92	24.38
Dividend Yield	—	2.36%	1.60%
Market Cap	2.88 Bil	63.40 Bil	7.86 Bil
52-Week Range	42.96—58.08	195.25—249.81	121.66—148.55
Investment Style	Small Value	Large Core	Mid Core

Bears Say Krzysztof Smalec, CFA, Equity Analyst, 11 May 2022

- As a result of its M&A-driven growth strategy, ESAB faces acquisition risk, including the possibility of overpaying for acquisitions and challenges integrating acquired companies.
- At the time of the spinoff, ESAB's net leverage ratio will be roughly 2.75 times adjusted EBITDA, which might constrain the firm's ability to make major acquisitions in the near term.
- While ESAB has leading market share abroad, it lags Lincoln Electric and ITW in the United States.

Economic Moat Krzysztof Smalec, CFA, Equity Analyst, 11 May 2022

We believe that ESAB, one of the largest manufacturers of welding and cutting products in the world, merits a narrow moat rating based primarily on intangible assets and secondarily on customer switching costs.

Alongside its rivals Lincoln Electric and Illinois Tool Works' Miller brand, ESAB is one of the top three players that offer a complete welding solutions package, including equipment and consumables, which

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we think differentiates the firm from smaller competitors. We believe that ESAB's moat rests primarily on intangible assets, including its reputation for quality, patent portfolio, and strong relationships with distributors. The company has established one of the most recognized brands in the welding space and enjoys leading market share internationally, though it is the number three player in the United States behind Lincoln Electric and ITW. We believe brand loyalty is relatively high in welding, and customers tend to stick with one manufacturer. The top brands in the industry resonate with customers, and welders tend to stay loyal to their preferred brand based on the equipment they trained on, familiarity with the product line, and customer service. ESAB capitalizes on this through its welding centers and training programs, which create exposure to the brand and drive brand loyalty among new professional welders.

When Colfax acquired ESAB in 2012, the business was struggling financially and underinvested in R&D and as a result ceded market share to its larger competitors. Since then, ESAB has steadily increased its R&D spending from 0.5% of sales in 2012 to 1.6% in 2021, which brings it more in line with its main rivals (1.7% for both ITW and Lincoln Electric). ESAB's increased R&D spending has started to bear fruit, and the company has gained market share in recent years thanks to new product introductions. For example, the company has had success with its Rebel line, which uses smart technology that simplifies the setup and constantly monitors the weld quality, a valuable feature considering an ongoing shortage of skilled labor in the industry. Additionally, the company regularly engages in bolt-on acquisitions to supplement its portfolio. For instance, the 2017 acquisition of TBi Industries added a leading robotic torch technology, which is important for welding productivity. Overall, ESAB's recent acquisitions have focused on bolstering its portfolio of specialty alloys, robotics and automation solutions, and digital solutions. We view ESAB's R&D spending as adequate to maintain its competitive position, though we think it will prove challenging for the firm to gain significant ground on Lincoln Electric and ITW, as both of its large rivals have established reputable brands and also have strong records of introducing innovative products.

To a lesser extent, we also believe ESAB benefits from customer switching costs. ESAB is one of the top three global players that offer a complete welding solutions package, including equipment and consumables. We think this differentiates the company from smaller competitors that only offer either equipment or consumables, as some customers value ESAB's one-stop-shop approach and comprehensive suite of welding solutions. Furthermore, based on their experience and familiarity with their preferred brand's equipment, we believe that welders tend to be reluctant to switch brands without the promise of a meaningful improvement in performance or reduction in cost.

We think that new "Internet of Things" solutions will reinforce customer switching costs. For instance, WeldCloud is an Internet of Things solution that allows customers to monitor their fleet, improve quality, and increase the productivity of their welding operations. We think that combining digital solutions with

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its equipment will allow ESAB to create stickier customer relationships by offering an integrated package. We also expect digital solutions to boost ESAB's recurring revenue by adding SaaS-based sales.

In recent years, ESAB has bolstered its portfolio of robotics solutions through acquisitions. For example, in 2017 the company acquired TBi, a leading manufacturer of robotic welding torch technology. In 2021 ESAB acquired Octopuz, a software company which specializes in offline robot programming. We believe that these acquisitions complement ESAB's core portfolio of welding technology, analytics, and productivity solutions. We think that by building out its portfolio of robotics solutions, ESAB can offer customers a more comprehensive package (including equipment, consumables, and software) and capture more wallet share.

While sales of traditional equipment and consumables are often one-off transactions, sales of automation solutions inherently involve tighter client relationships as the supplier will often collaborate with customers on highly engineered solutions that may be customized to their needs. As automation solutions are tightly integrated into the customer's manufacturing process and perform a mission-critical function, we believe customers are reluctant to switch vendors given the potential cost of unscheduled downtime or possible modifications to the production line.

Fair Value and Profit Drivers Krzysztof Smalec, CFA, Equity Analyst, 11 May 2022

Following ESAB's first-quarter earnings release, we are maintaining our $65 fair value estimate, which implies an enterprise value multiple of around 9.5 times our 2022 adjusted EBITDA estimate.

For full-year 2022, management expects ESAB to grow its organic sales by 4%-7% and deliver segment adjusted EBITDA of $435 million-$455 million. We note that the guidance range excludes any contribution from Russia, which accounted for roughly 7% of ESAB's sales in 2021.

We forecast ESAB to increase revenue at a roughly 4.5% compound annual growth rate during our explicit five-year forecast period. We expect that increased R&D spending will continue to drive revenue growth thanks to new product introductions. We model a roughly 100-basis-point adjusted operating margin expansion, toward management's long-term target of around 15%, driven by volume leverage, mix shift, and ongoing productivity initiatives.

We assume a 7.9% weighted average cost of capital and a 22% long-run effective tax rate in our model.

Risk and Uncertainty Krzysztof Smalec, CFA, Equity Analyst, 11 May 2022

We assign ESAB a medium uncertainty rating.

The welding company is exposed to global macroeconomic conditions, including GDP growth, industrial

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production, and cyclicality in its end markets, which include the infrastructure, automotive, and industrial sectors. ESAB generates a majority of its sales in foreign countries, which exposes the business to economic, political, and foreign exchange risks associated with its operations abroad.

Another key risk to our thesis is the potential for overpaying for acquisitions and challenges integrating acquired companies, considering that regular M&A activity is an integral part of the firm's strategy.

Our medium uncertainty rating is not materially affected by environmental, social, and governance risks. We think the largest and potentially most material ESG risks for ESAB include failure to comply with various environmental as well as health and safety laws (including stringent regulations in the medical device business), asbestos-related claims, and potential product quality and safety failures which could expose the company to product liability lawsuits.

Capital Allocation Krzysztof Smalec, CFA, Equity Analyst, 7 Apr 2022

We assign ESAB a Standard capital allocation rating, which reflects our overall assessment of the company's balance sheet, management's investment decisions, and shareholder distributions.

We think ESAB has a sound balance sheet. Following the spinoff from Colfax in April 2022, the firm's net leverage ratio stood at roughly 2.75 times adjusted EBITDA, within management's long-term target net leverage ratio of 2-3 times adjusted EBITDA. We see management's investment history as fair, we and have no reason to expect future investments to be either materially value accretive or destructive. We view ESAB's shareholder distributions as appropriate.

ESAB is led by Shyam P. Kambeyanda, who had previously served as president and CEO of ESAB since 2016, prior to the firm's spinoff from Colfax. Under Kambeyanda's leadership, ESAB has steadily expanded its operating margins and outgrown its end markets. Prior to joining ESAB, Kambeyanda served as president of the Americas region of Eaton's hydraulics group. During his tenure as CEO, ESAB has delivered impressive results, and we believe that the company is in capable hands.

Management has said that it will continue to prioritize organic growth. In recent years, the company has ramped up its R&D spending, which has resulted in an accelerated pace of new product introductions that helped ESAB capture market share. As far as M&A is concerned, we expect that the company will continue to focus on bolt-on acquisitions which would help bolster its portfolio of specialty alloys, digital solutions, as well as robotic and automation solutions. Lastly, management has said that the board of directors is considering initiating a modest dividend.

Analyst Notes Archive

Lowering ESAB's Fair Value Estimate to $65 After Reviewing Our Valuation Assumptions Krzysztof Smalec, CFA, Equity Analyst, 19 Apr 2022

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After reviewing our valuation assumptions for narrow-moat-rated ESAB, we have lowered our fair value estimate to $65 from $72. We had previously been assuming a 55 million diluted share count, based on the firm's March 14 investor day presentation. Later, management updated its full-year 2022 adjusted EPS guidance range to $3.85-$4.05 (from $4.30-$4.50) to reflect a 61 million diluted share count. Our 10% fair value estimate reduction reflects ESAB's updated share count and adjusted EPS guidance.

Initiating Coverage of ESAB With a Narrow Moat Rating and $72 Fair Value Estimate Krzysztof Smalec, CFA, Equity Analyst, 8 Apr 2022

We launch coverage of ESAB, recently spun off from Colfax, with a narrow moat rating and a $72 fair value estimate.

ESAB is one of the top three players that offer a complete package of welding solutions, including equipment and consumables, which we think differentiates the firm from smaller competitors. We believe that ESAB's moat rests primarily on intangible assets, including its reputation for quality, patent portfolio, and strong relationships with distributors. The business also benefits from customer switching costs as welders tend to stay loyal to their preferred brand based on the equipment they trained on, familiarity with the product line, and customer service.

During the decade under Colfax's ownership, ESAB staged an impressive turnaround, having nearly doubled its adjusted operating margins, from 7% in 2012 to 13.4% in 2021. Furthermore, the company has ramped up its R&D spending from 0.5% of sales in 2012 to 1.6% in 2021. As a result, new product introductions have quadrupled over the last five years, from 24 in 2016 to 100 in 2021, which has helped ESAB outgrow its competitors in recent years.

Following the spinoff from Colfax, ESAB's net leverage ratio stood at around 2.75 times adjusted EBITDA. We think the company will initially focus on reducing leverage, but we expect M&A to be an important part of ESAB's long-term strategy. Management has indicated that acquisitions will likely focus on bolstering the firm's portfolio of specialty alloys, digital solutions, as well as robotic and automation solutions.

The current valuation implies a strong margin of safety. The stock is trading in 5-star territory, at a roughly 35% discount to our fair value estimate. From a relative valuation perspective, ESAB is trading at an enterprise value/forward adjusted EBITDA multiple of around 6.0 times, less than half the 12.7 times multiple of its welding peer Lincoln Electric.

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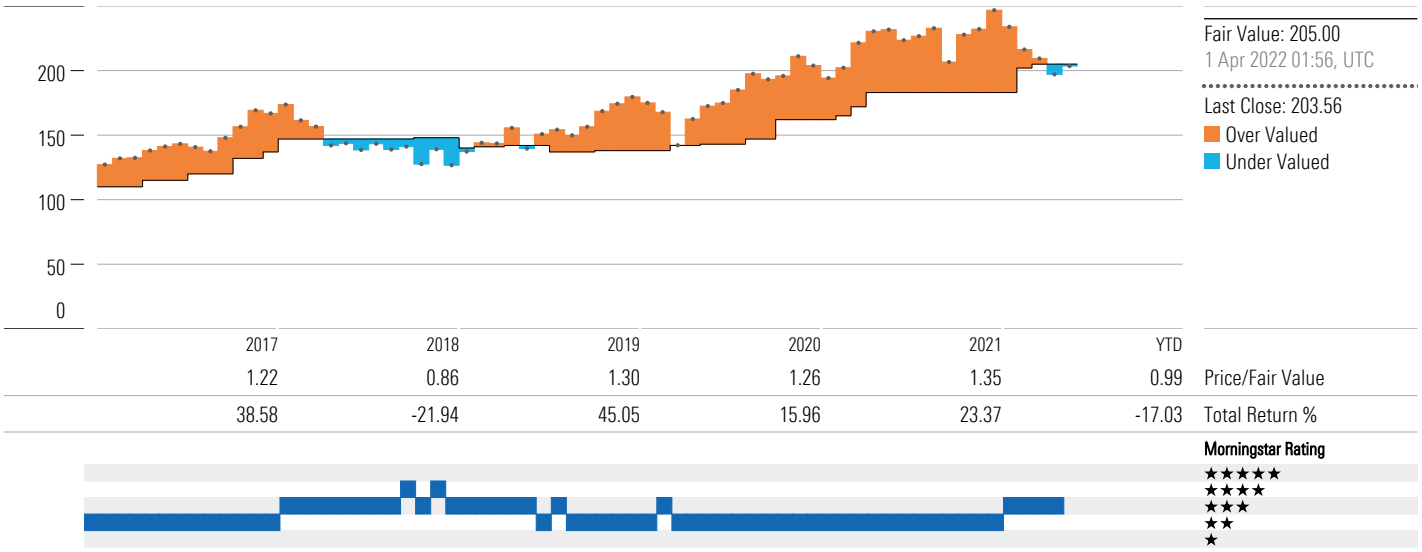
Competitors Price vs. Fair Value

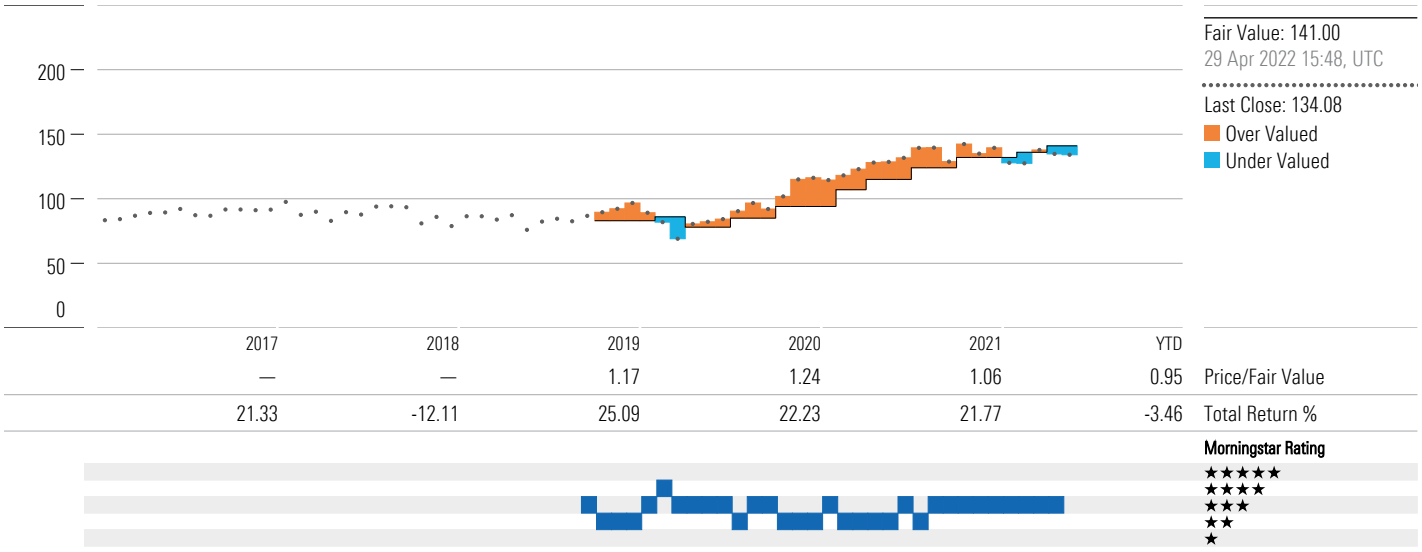
Illinois Tool Works Inc ITW



	2017	2018	2019	2020	2021	YTD
Price/Fair Value	1.22	0.86	1.30	1.26	1.35	0.99
Total Return %	38.58	-21.94	45.05	15.96	23.37	-17.03

Total Return % as of 10 May 2022. Last Close as of 10 May 2022. Fair Value as of 1 Apr 2022 01:56, UTC.

Lincoln Electric Holdings Inc LECO



	2017	2018	2019	2020	2021	YTD
Price/Fair Value	—	—	1.17	1.24	1.06	0.95
Total Return %	21.33	-12.11	25.09	22.23	21.77	-3.46

Total Return % as of 10 May 2022. Last Close as of 10 May 2022. Fair Value as of 29 Apr 2022 15:48, UTC.

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No data available

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Morningstar Historical Summary

Financials as of 31 Dec 2021

Fiscal Year, ends 31 Dec	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	YTD	TTM
Revenue (USD K)	—	—	—	—	—	—	—	2,247,026	1,950,069	2,428,115	2,428,115	2,428,115
Revenue Growth %	—	—	—	—	—	—	—	—	-13.2	24.5	24.5	24.5
EBITDA (USD K)	—	—	—	—	—	—	—	325,576	300,403	412,275	412,275	412,275
EBITDA Margin %	—	—	—	—	—	—	—	14.5	15.4	17.0	17.0	17.0
Operating Income (USD K)	—	—	—	—	—	—	—	245,504	223,759	336,376	336,376	336,376
Operating Margin %	—	—	—	—	—	—	—	10.9	11.5	13.9	13.9	13.9
Net Income (USD K)	—	—	—	—	—	—	—	172,908	157,414	235,110	235,110	235,110
Net Margin %	—	—	—	—	—	—	—	7.7	8.1	9.7	9.7	9.7
Diluted Shares Outstanding (K)	—	—	—	—	—	—	—	59,998	59,998	59,998	59,998	59,998
Diluted Earnings Per Share (USD)	—	—	—	—	—	—	—	2.88	2.62	3.92	3.92	3.92
Dividends Per Share (USD)	—	—	—	—	—	—	—	—	—	—	—	—

Valuation as of 29 Apr 2022

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Recent Qtr	TTM
Price/Sales	—	—	—	—	—	—	—	—	—	—	1.2	1.2
Price/Earnings	—	—	—	—	—	—	—	—	—	—	12.8	12.0
Price/Cash Flow	—	—	—	—	—	—	—	—	—	—	12.0	11.2
Dividend Yield %	—	—	—	—	—	—	—	—	—	—	—	—
Price/Book	—	—	—	—	—	—	—	—	—	—	1.2	1.1
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 31 Dec 2021

Fiscal Year, ends 31 Dec	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	YTD	TTM
ROA %	—	—	—	—	—	—	—	—	4.7	6.9	6.9	6.9
ROE %	—	—	—	—	—	—	—	—	6.3	9.5	9.5	9.5
ROIC %	—	—	—	—	—	—	—	—	6.1	9.1	9.1	9.1
Asset Turnover	—	—	—	—	—	—	—	—	0.6	0.7	0.7	0.7

Financial Leverage

Fiscal Year, ends 31 Dec	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Recent Qtr	TTM
Debt/Capital %	—	—	—	—	—	—	—	—	3.0	3.5	3.5	—
Equity/Assets %	—	—	—	—	—	—	—	—	73.9	71.1	71.1	—
Total Debt/EBITDA	—	—	—	—	—	—	—	—	0.3	0.3	0.3	—
EBITDA/Interest Expense	Infinite	Infinite	Infinite	Infinite	Infinite	Infinite	Infinite	—	—	—	—	—

Morningstar Analyst Historical/Forecast Summary as of 10 May 2022

Financials

Fiscal Year, ends 31 Dec	2020	2021	Estimates 2022	2023	2024
Revenue (USD Mil)	1,950	2,428	2,488	2,627	2,773
Revenue Growth %	-13.2	24.5	2.5	5.6	5.6
EBITDA (USD Mil)	301	404	411	448	481
EBITDA Margin %	15.4	16.6	16.5	17.1	17.3
Operating Income (USD Mil)	224	325	337	369	405
Operating Margin %	11.5	13.4	13.5	14.1	14.6
Net Income (USD Mil)	205	281	246	280	308
Net Margin %	10.5	11.6	9.9	10.7	11.1
Diluted Shares Outstanding (Mil)	0	0	61	61	59
Diluted Earnings Per Share(USD)	—	—	4.03	4.59	5.19
Dividends Per Share(USD)	0.00	0.00	0.00	0.00	0.00

Forward Valuation

	2020	2021	Estimates 2022	2023	2024
Price/Sales	—	—	1.2	1.1	1.0
Price/Earnings	—	—	11.9	10.5	9.2
Price/Cash Flow	—	—	11.7	10.9	10.4
Dividend Yield %	—	—	—	—	—
Price/Book	—	—	—	—	—
EV/EBITDA	—	—	7.2	6.6	6.1

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.

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

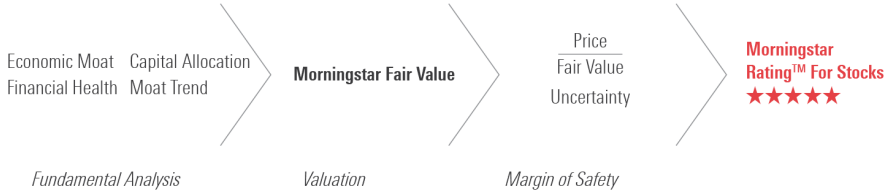
Once a company's marginal ROIC hits its cost of capital, we calculate a continuing value, using a standard perpetuity formula. At perpetuity, we assume that any growth or decline or investment in the business neither creates nor destroys value and that any new investment provides a return in line with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

Morningstar's Uncertainty Rating captures a range of likely potential intrinsic values for a company and uses it to assign the margin of safety required before investing, which in turn explicitly drives our stock star rating system. The Uncertainty Rating represents the analysts' ability to

Morningstar Equity Research Star Rating Methodology



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bound the estimated value of the shares in a company around the Fair Value Estimate, based on the characteristics of the business underlying the stock, including operating and financial leverage, sales sensitivity to the overall economy, product concentration, pricing power, exposure to material ESG risks, and other company-specific factors.

Analysts consider at least two scenarios in addition to their base case: a bull case and a bear case. Assumptions are chosen such that the analyst believes there is a 25% probability that the company will perform better than the bull case, and a 25% probability that the company will perform worse than the bear case. The distance between the bull and bear cases is an important indicator of the uncertainty underlying the fair value estimate. In cases where there is less than a 25% probability of an event, but where the event could result in a material decline in value, analysts may adjust the uncertainty rating to reflect the increased risk. Analysts may also make a fair value adjustment to reflect the impact of this event.

Our recommended margin of safety widens as our uncertainty of the estimated value of the equity increases. The more uncertain we are about the estimated value of the equity, 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 for our qualitative analysis 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

4. Market Price

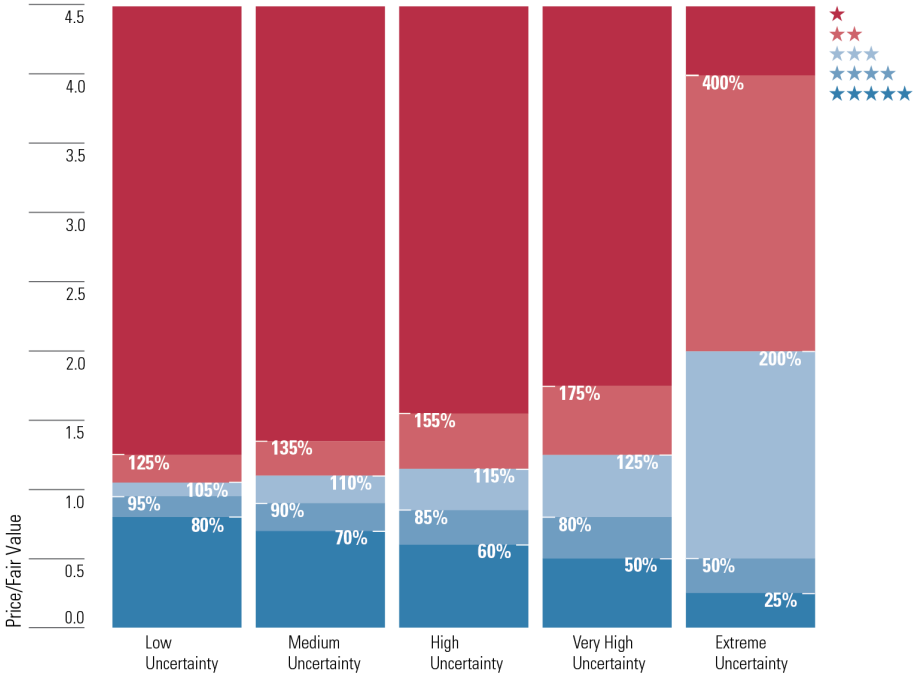
The market prices used in this analysis and noted in the report come from exchange on which the stock is listed which we believe is a reliable source.

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

Morningstar Equity Research Star Rating Methodology



tabs on the companies they follow, and, based on thor ough 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.

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: "Exem-

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plary", "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/

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

Risk Warning

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