

Industrial Industry Operating Benchmarks

Operational and market capitalization data for 293
Industrial companies

2-Dec-2025



Version

| VERSION | DATE | NOTES |
|----------|----------|--|
| 2021.1.1 | 04.01.21 | Initial version, dated 04.01.21 |
| 2021.2.1 | 06.25.21 | Updated financial and market cap data for 06.25.21. Removed companies that merged or were taken private. |
| 2021.3.1 | 11.30.21 | Updated financial and market cap data for 11.30.21. Removed companies that merged or were taken private. |
| 2022.1.1 | 01.01.22 | Updated financial and market cap data for 01.01.22. Added companies and removed those that merged or were taken private. |
| 2022.2.1 | 05.16.22 | Updated financial and market cap data for 05.16.22. Added companies and removed those that merged or were taken private. |
| 2022.2.2 | 10.07.22 | Updated financial and market cap data for 10.07.22. Added companies and removed those that merged or were taken private. |
| 2023.1.1 | 12.01.23 | Updated financial and market cap data for 12.01.23. Added companies and removed those that merged or were taken private. |
| 2025.1.1 | 12.02.25 | Updated financial and market cap data for 12.02.25. Added companies and removed those that merged or were taken private. |

Versioning convention: This document is versioned as follows: **YYYY.N.n**, where **YYYY** is the year, **N** is the major release number, and **n** is the minor release number. A major release includes one or more of the following: the number of companies changes; reports and analyses change; financial and market cap information are updated, and a new date is attached to the report. A minor fixes errors, including data errors, formatting errors, and inconsistencies.

Contents

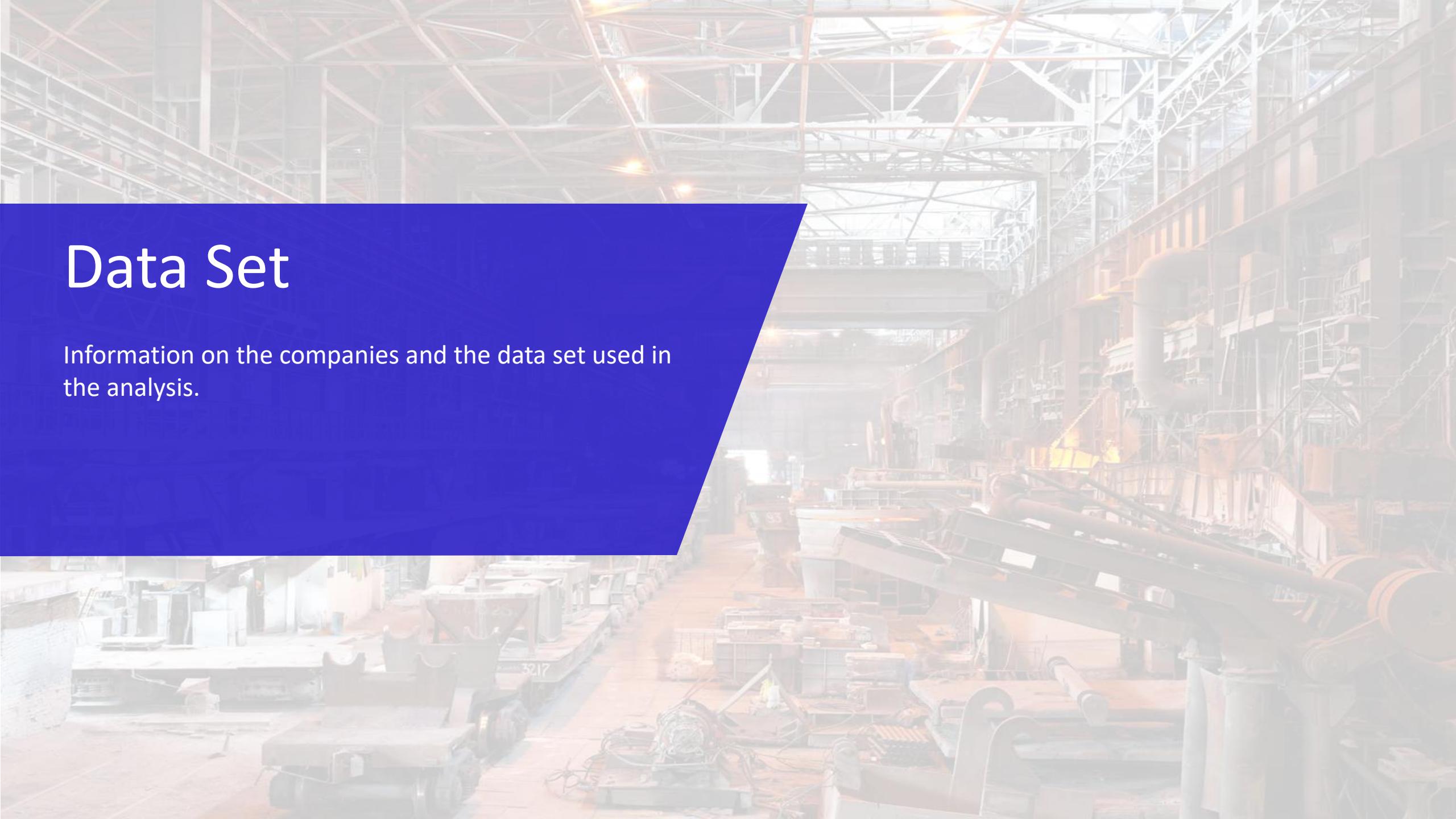
- 5  [DATA SET](#)
- 11  [OVERALL MARKET](#)
- 15  [ANALYSIS SUMMARY](#)
- 22  [APPENDIX](#)

2025 Industrial Industry Report: Key Takeaways

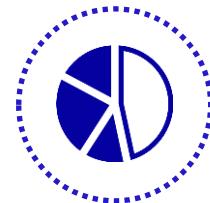
- The Industrial industry 3-year CAGR is 4.3% (overall dollars growth). The average company 3-year CAGR is 2.7%.
- The average Industrial company has a gross margin of 27.9% , invests 15.7% of revenue in selling, general, and administrative expense, 2.3% in research and development, and generates 10.9% operating margin, 15.8% EBITDA margin, 6.4% free cash flow, and 11.0% return on invested capital.
- The Industrial company average inventory turns is 6.5 . The median is 3.9 . The difference between the average and the median indicates a few outliers raise the average. The median is more in line with the industry operational structure.
- The average Industrial company has 33.1% PP&E, and 33.9% in goodwill and intangibles, all as a percentage of revenue. Goodwill and intangibles are a proxy for mergers and acquisitions; based on this measure, there has been a significant amount of M&A activity in the Industrial industry. While industrial is often thought of as an asset-driven industry, goodwill and intangibles exceed PP&E on most balance sheets.
- As expected, Industrial companies that lead in operating profit, net profit, cash flow, and return on investment (ROA, ROIC, economic profit) are also leaders in market cap multiple.
- Industrial companies with higher inventory turns tend to have significantly lower market cap multiples than companies with lower inventory turns. This is an indication that inventory turns is a poor indicator of company market performance. (Note: controlling for gross margin yields the same conclusion).
- Industrial companies with higher gross margins have higher market cap multiples. There is not a significant statistical relationship between R&D investment and market cap multiple. Historical analysis (using aggregate data and ratios) indicates the operational structure is essentially the same as it was a decade ago. This includes similar gross margins, operating margins, asset intensity, inventory turns, and cash flows. This indicates the industry has a certain physical setpoint and that there are individual winners and losers around that setpoint, but that the overall industry is not operationally performing better than it was a decade ago.
- Individual operational measures are poor statistical predictors of market cap multiple. Quartile analysis was performed to contrast the operational characteristics of market cap multiple leaders with others.
- Market cap multiple leaders have cap multiples that are 2.4X average and 12.3X laggards. Leaders have higher gross margins and generate significantly higher operating margins, cash flow, and return on investment (ROA, ROIC, and economic profit).
- From a supply chain management perspective, data in this report supports the thesis that market leaders run their supply chains with more of a profit center mentality than a cost center mentality, which has historically been the case. This further suggests supply chain management has evolved to a sophisticated multivariate decision science, rather than a unidimensional cost management function.

Data Set

Information on the companies and the data set used in the analysis.



Data Set



COMPANIES

The data set includes 293 publicly-traded Industrial companies.

293



REVENUE

Aggregate revenue for companies in the data set is \$3.7 trillion for the latest reporting fiscal year as of the date on the cover of this report.

\$3.7T



MARKET CAPITALIZATION

Aggregate market cap for companies in the data set is \$6.1 trillion as of date on the cover of this report.

\$6.1T

Notes:

1. Unless otherwise noted, all company financial data are based on trailing twelve months results as of the date on the cover of this report.
2. All market capitalizations are as of the date on the cover of this report.
3. M=million; B=billion; T=trillion.

Data Set

Companies included in this report



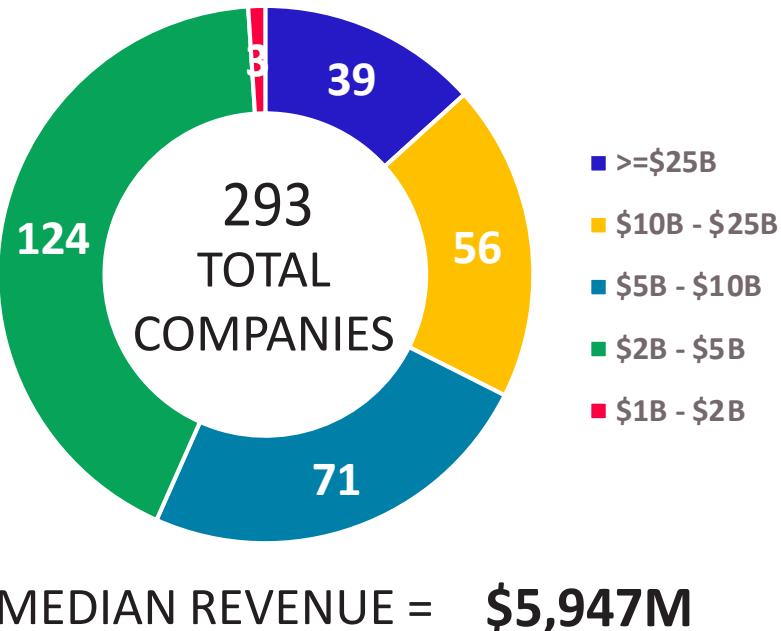
| | | | | | | | | | | | |
|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| 3M Co. | Berjaya Corp. Bhd. | Crown Holdings, Inc. | Flowserve Corp. | Grupo Carso SAB de CV | Interpump Group SpA | Kone Oyj | Mitsubishi Corp. | Packaging Corporation o | Sekisui Chemical Co., L | Takasago Thermal Engine | Valmont Industries, Inc |
| A. O. Smith Corp. | Berli Jucker Public Co. | Cummins, Inc. | FLSmidth & Co. A/S | GS Yuasa Corp. | Investment AB Latour | Konecranes Oyj | Mitsubishi Electric Cor | Palfinger AG | Sembcorp Industries Ltd | Techtronic Industries C | Veolia Environnement SA |
| Aalberts NV | Brookfield Business Par | Dai Nippon Printing Co. | Fluidra SA | Guoco Group Ltd. | ITOCHU Corp. | Konica Minolta, Inc. | Mitsubishi Heavy Indust | Parker-Hannifin Corp. | SGH Ltd. | Teijin Ltd. | Verallia SA |
| ABB Ltd. | Brother Industries, Ltd | Daifuku Co., Ltd. | Fomento de Construcion | Haitian International H | ITT, Inc. | Krones AG | Mitsui & Co., Ltd. | Pentair plc | Shanghai Electric Group | Terex Corp. | Veralto Corp. |
| Acuity, Inc. | Bucher Industries AG | DAIKIN INDUSTRIES Ltd. | Fortune Brands Innovati | Halma Plc | Iveco Group NV | Kuala Lumpur Kepong Bhd | Mitsui Kinzoku Co., Ltd | Poste Italiane SpA | Shanghai Industrial Hol | The Bidvest Group Ltd. | Vertiv Holdings Co. |
| Advanced Drainage Syste | Builders FirstSource, I | Daimler Truck Holding A | Fosun International Ltd | Hankyu Hanshin Holdings | Iwatani Corp. | Kubota Corp. | Mueller Industries, Inc | Prysmian SpA | Siemens AG | The Manitowoc Co., Inc. | Vestas Wind Systems A/S |
| AGC, Inc. (Japan) | Carlisle Cos., Inc. | Danieli & C. Officine M | Franklin Electric Co. | Hanwa Co., Ltd. | Jardine Cycle & Carriag | Kurita Water Industries | Nabtesco Corp. | PT Astra International | Siemens Energy AG | The Middleby Corp. | Volvo AB |
| AGCO Corp. | Carpenter Technology Co | Deere & Co. | Fuji Electric Co., Ltd. | Heidelberger Druckmasch | Jardine Matheson Holdin | Kyocera Corp. | Nagoya Railroad Co., Lt | Regal Rexnord Corp. | SIG Group AG | The Timken Co. | Wacker Neuson SE |
| Alfa Laval AB | Carrier Global Corp. | Delta Electronics (Thai | FUJIFILM Holdings Corp. | Hi-Lex Corp. | JELD-WEN Holding, Inc. | Kyushu Railway Co. | Nexans SA | Republic Services, Inc. | Signify NV | The Toro Co. | Wärtsilä Oyj Abp |
| Alliance Global Group, | Cascades, Inc. | Deluxe Corp. | Fujikura Ltd. | Hillenbrand, Inc. | JG Summit Holdings, Inc | Legrand SA | NGK Insulators, Ltd. | REV Group, Inc. | Silgan Holdings, Inc. | The Weir Group Plc | Waste Connections, Inc. |
| AMADA Co., Ltd. | Caterpillar, Inc. | DMG MORI CO., LTD. | Fullshare Holdings Ltd. | Hino Motors, Ltd. | Johnson Controls Intern | Lennox International, I | NIBE Industrier AB | Reynolds Consumer Produ | Sinotruk Hong Kong Ltd. | THK CO., LTD. | Waste Management, Inc. |
| Amcor Plc | CCL Industries, Inc. | Donaldson Co., Inc. | Furukawa Electric Co., | Hitachi Construction Ma | Jungheinrich AG | Lifco AB | NIDEC Corp. | Ricoh Co., Ltd. | SKF AB | thyssenkrupp AG | Watts Water Technologie |
| AMETEK, Inc. | Chart Industries, Inc. | Dongfang Electric Corp. | Gates Industrial Corp. | Hitachi Ltd. | Kanadevia Corp. | Lincoln Electric Holdin | Nisshinbo Holdings, Inc | Rockwell Automation, In | SMC Corp. (Japan) | Top Frontier Investment | WEG SA |
| Ardagh Metal Packaging | China Everbright Enviro | dormakaba Holding AG | GE Vernova, Inc. | Honeywell International | Kanematsu Corp. | LIXIL Corp. | NKT A/S | ROCKWOOL A/S | Smiths Group Plc | TOPPAN Holdings, Inc. | Weichai Power Co., Ltd. |
| ARE Holdings, Inc. | China High Speed Transm | Dover Corp. | GEA Group AG | HOSHIZAKI Corp. | Kawasaki Heavy Industri | Louisiana-Pacific Corp. | Nordex SE | Ryerson Holding Corp. | Smurfit WestRock Plc | TOTO Ltd. | Xylem, Inc. |
| Asahi Kasei Corp. | China International Mar | Dürr AG | Geberit AG | Hubbell, Inc. | Keihan Holdings Co., Lt | Makita Corp. | Nordson Corp. | San Miguel Corp. | Snap-On, Inc. | Toyota Industries Corp. | YASKAWA Electric Corp. |
| ATI, Inc. | CITIC Ltd. | Eaton Corp. Plc | Generac Holdings, Inc. | Huhtamäki Oyj | Keio Corp. | Manitou BF SA | nVent Electric Plc | Sandvik Aktiebolag | Sojitz Corp. | Toyota Tsusho Corp. | Yokogawa Electric Corp. |
| Atkore, Inc. | CK Hutchison Holdings L | Ebara Corp. | Georg Fischer AG | Husqvarna AB | Keppel Ltd. | Marubeni Corp. | OC Oerlikon Corp. AG | Sanwa Holdings Corp. | Sonoco Products Co. | Trane Technologies Plc | Zoomlion Heavy Industry |
| Atlas Copco AB | Clean Harbors, Inc. | Emerson Electric Co. | GFL Environmental, Inc. | IDEX Corp. | Kingboard Holdings Ltd. | Masco Corp. | O-I Glass, Inc. | Sany Heavy Equipment In | Spirax Group Plc | Transcontinental, Inc. | |
| Aurubis AG | Cleanaway Waste Manage | Energizer Holdings, Inc | Glory Ltd. | IHI Corp. | Kingspan Group Plc | Mayr-Melnhof Karton AG | Okamura Corp. | Schindler Holding AG | Stanley Black & Decker, | Trelleborg AB | |
| Avery Dennison Corp. | CNH Industrial NV | EnerSys | Goldwind Science & Tech | Illinois Tool Works Inc | Kintetsu Group Holdings | Melrose Industries Plc | Orbia Advance Corp. SAB | Schneider Electric SE | Steel Partners Holdings | Türk Traktör ve Ziraat | |
| Ayala Corp. | Compagnie de Saint-Goba | Enviri Corp. | Graco, Inc. | IMI Plc | KION GROUP AG | Metlen Energy & Metals | Oshkosh Corp. | Seaboard Corp. | Sulzer AG | Türkiye Sise ve Cam Fab | |
| Ball Corp. | Compass Diversified Hol | Epiroc AB | Graphic Packaging Holdi | Inaba Denkisangyo Co., | Koç Holding A.S. | Metso Corp. | Otis Worldwide Corp. | Sealed Air Corp. | Sumitomo Corp. | Umicore SA | |
| Barloworld Ltd. | Contemporary Amperex Te | ESAB Corp. | Greif, Inc. | Ingersoll Rand, Inc. | KOKUYO CO., LTD. | MISUMI Group, Inc. | Owens Corning | Secure Waste Infrastruc | Sumitomo Heavy Industri | U-NEXT HOLDINGS Co., Lt | |
| Bekaert SA | Crane Co. | FANUC Corp. | Griffon Corp. | International Paper Co. | Komatsu Ltd. | Mitani Corp. | PACCAR, Inc. | Seibu Holdings, Inc. | Swire Pacific Ltd. | Valmet Corp. | |

Data Set

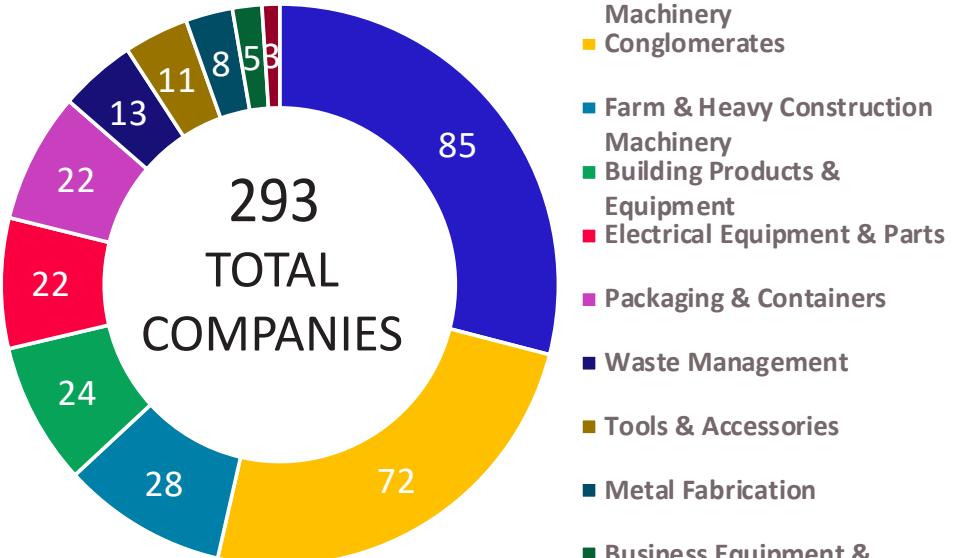
Company distribution



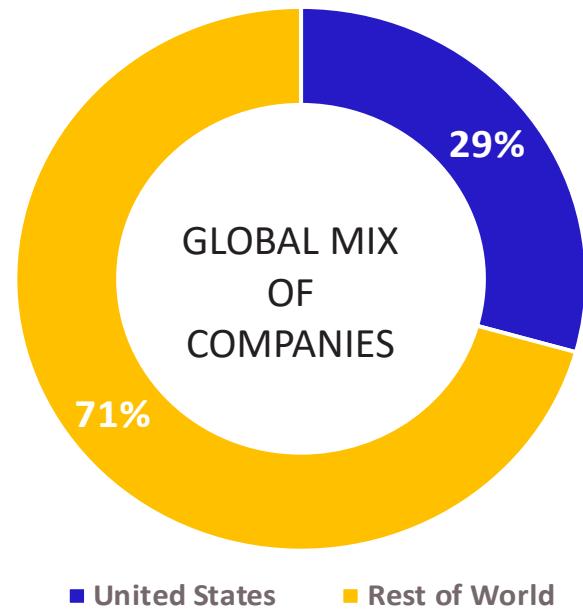
BY ANNUAL REVENUE



BY SUB-INDUSTRY



GEOGRAPHIC REGION



Notes:

1. Unless otherwise noted, all company financial data are based on trailing twelve months results as of the date on the cover of this report.
2. All market capitalizations are as of the date on the cover of this report.
3. M=million; B=billion; T=trillion.

Data Set

Index of key metrics included in this report

This report provides analysis of the following variables (and derivatives) for trailing twelve months (TTM) results and for the past ten years.

| OPERATIONS | ASSETS | CASH FLOW | ROI | VALUATION |
|--|---------------------------------------|------------------------------|-----------------------------------|-------------------------------|
| REVENUE | TOTAL ASSETS | OPERATING CASH FLOW | RETURN ON ASSETS (ROA) | MARKET CAPITALIZATION |
| GROWTH RATE | CASH AND CASH EQUIVALENTS | FREE CASH FLOW | RETURN ON INVESTED CAPITAL (ROIC) | ENTERPRISE VALUE (EV) |
| GROSS MARGIN | DEBT AND DEBT RATIOS | CAPITAL EXPENDITURES (CAPEX) | RETURN ON CAPITAL EMPLOYED (ROCE) | MARKET CAP / REVENUE |
| SALES AND MARKETING | EQUITY | DAYS IN RECEIVABLES | ECONOMIC PROFIT (EP) | ENTERPRISE VALUE / REVENUE |
| GENERAL AND ADMINISTRATIVE | PROPERTY, PLANT, AND EQUIPMENT (PP&E) | DAYS IN PAYABLES | RETURN ON OPERATING ASSETS (ROOA) | MARKET CAP / EBITDA |
| RESEARCH & DEVELOPMENT | GOODWILL & INTANGIBLES | INVENTORY TURNS | RETURN ON FIXED ASSETS (ROFA) | ENTERPRISE VALUE / EBITDA |
| REVENUE PER EMPLOYEE | OPERATING ASSETS | CASH CONVERSION CYCLE | RETURN ON PHYSICAL ASSETS (ROPA) | MARKET CAP / NET INCOME |
| STOCK COMPENSATION | INVESTED CAPITAL | | | ENTERPRISE VALUE / NET INCOME |
| GROSS MARGIN ROI | CAPITAL EMPLOYED | | | |
| TURN AND EARN | INVENTORY | | | |
| | DEFERRED TAX ASSETS | | | |
| | RECEIVABLES | | | |
| | PAYABLES | | | |
| PROFIT | | | | |
| OPERATING PROFIT | | | | |
| NET OPERATING PROFIT AFTER TAXES (NOPAT) | | | | |
| EARNINGS BEFORE INTEREST AND TAXES (EBIT) | | | | |
| EARNINGS BEFORE INTEREST, TAXES, AND AMORTIZATION (EBITDA) | | | | |
| ADJUSTED EBITDA | | | | |
| NET PROFIT | | | | |
| TAX RATE | | | | |

Notes:

1. For definitions and notes on these metrics and their use in this report, refer to the [Appendix](#).

Data Set

Three different analysis approaches in this analysis



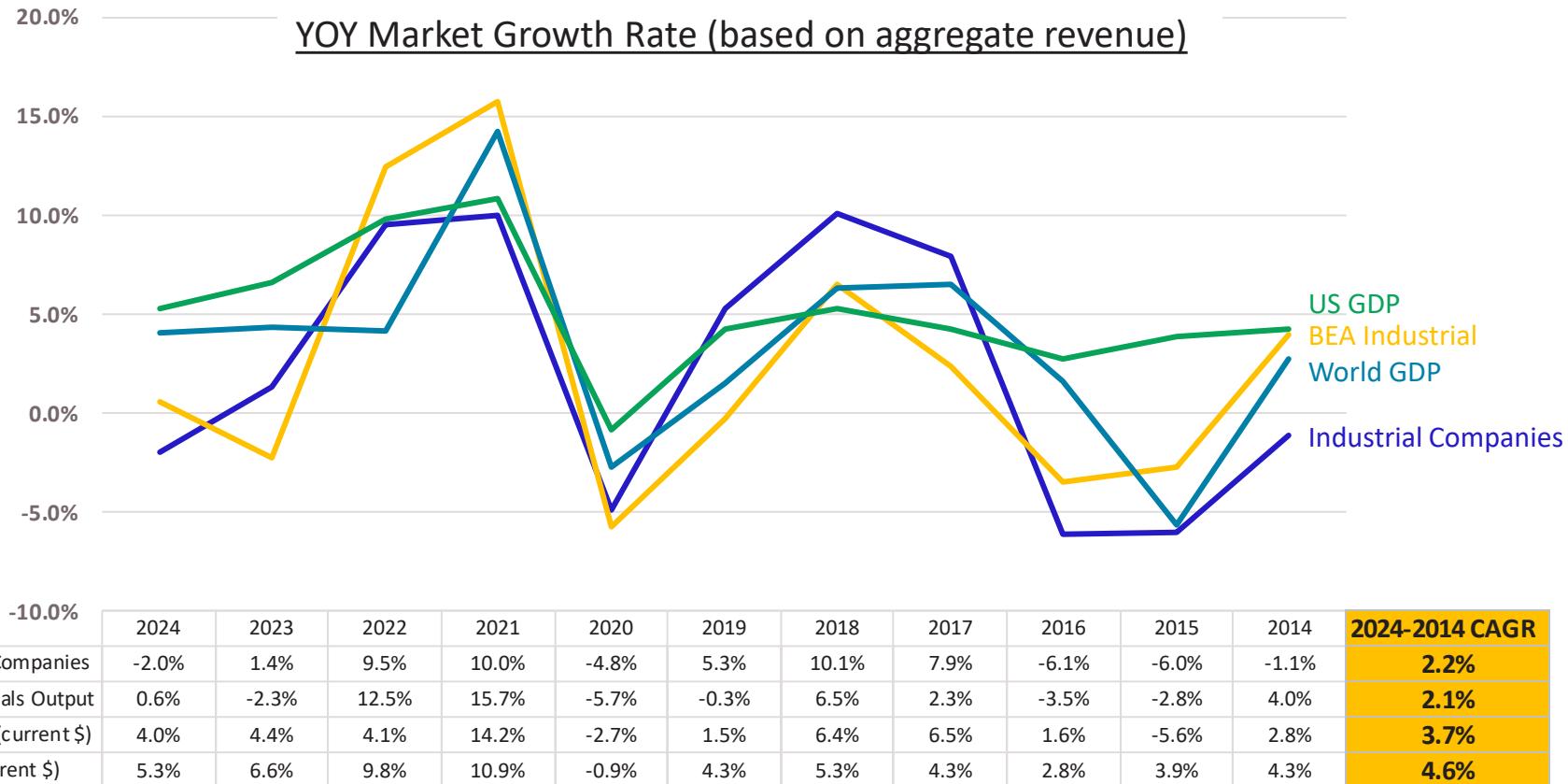
| APPROACH | DESCRIPTION | EXAMPLE | GOOD FOR |
|----------------------------|---|---|--|
| 1. Aggregate averages | Averages are computed by adding up all numbers from all companies. For example, the gross margin for the industry would be the sum of all revenue for all companies minus the sum of all COGS for all companies (divided by the sum of all revenue for all companies). | Average Gross Margin % = (sum of all revenues minus sum of all COGS) / sum of all revenues | Overall industry structure and operations; smooths outliers. |
| 2. Averages of percentages | Averages are computed by taking the averages of all percentages for all the companies. For example, the average gross margin % is the sum of all gross margin %s for all companies divided by the number of companies. | Average Gross Margin % = (sum of all gross margin %s) / (number of companies) | Comparison across companies. |
| 3. Quartile analysis | The market cap multiples of all companies are divided into quartiles. The operating characteristics of the top quartile companies are compared to the others. Likewise, measures for each company are divided into quartiles and the average market cap multiple within each quartile is shown. | <ol style="list-style-type: none">1) Isolate each quartile of market cap multiples; compare gross margin of leaders to others.2) Isolate each quartile of gross margin; display average market cap multiple within each gross margin quartile. | Understanding characteristics of leaders. |

Overall Market

Summary of the market using the companies in this report as a proxy for the overall Industrial market. Charts in this section use the “aggregate averages” approach.



Overall Market YOY growth rates, past ten years



NOTES & INSIGHTS

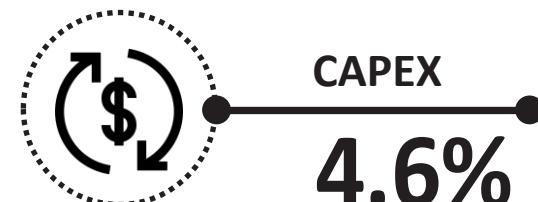
- Industrial market CAGR for the past decade was below the global current dollar GDP growth rate. CAGR is skewed because of the volatility and dislocation caused by the pandemic.
- BEA numbers are for US domestic output only; they are shown here for comparison purposes only.
- World GDP growth numbers typically follow closely the industrial company growth numbers for this data set. However, the pandemic has skewed this relationship.

Notes:

- "Industrial Companies" represents all companies in the data set for which there are year-over-year revenue numbers. The number of companies varies from year-to-year based on companies going public and some companies merging or being taken private as the decade progresses.
- "BEA Industrial Output" growth is calculated from the US Bureau of Economic Analysis (<https://apps.bea.gov/iTable/iTable.cfm?reqid=150&step=2&isuri=1&categories=gdpind>), GDP by Industry. Industrial output as defined here is based on output of the following sub-industries: Wood products; Fabricated metal products; Machinery; Electrical equipment, appliances, and components; Furniture and related products; Miscellaneous manufacturing; Plastics and rubber products. BEA updates its past numbers periodically, so past reports may not reflect the same past BEA numbers.
- World GDP and US GDP numbers are sourced from The World Bank (data.worldbank.org)
- World GDP and US GDP growth rates are based on *current* dollars. This means they have not been adjusted for inflation. *Current* numbers are used to ensure apples-to-apples comparisons with Industrial market growth rates. Note that GDP growth rates are typically reported in constant dollars pegged to a certain year in order to account for the effect of price inflation. Thus, GDP growth rates commonly reported in media are typically lower than those shown here.

Analysis Summary

Operational ratios based on aggregate data, TTM¹



Notes:

1. All revenue and cost numbers are aggregate values for all companies for the trailing twelve months (TTM) as of the date on the cover of this report.

2. Growth rate is based on total dollars growth of the industry over the past four years.

3. Market capitalization ratio is aggregate market capitalization for all companies as of the date on the cover of this report divided by total revenue for all companies on TTM basis.

Overall Market

Historical key metrics based on aggregate data, past ten years



| | METRIC | HISTORY | | | | | | | | | | | | |
|--------------------|-------------------------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| | | TTM | 2024 | 2023 | 2022 | 2021 | 2020 | 2019 | 2018 | 2017 | 2016 | 2015 | 2014 | AVG14-24 |
| OPERATIONS | Growth Rate (3YRCAGR) | 3.8% | 4.3% | 3.9% | 5.0% | 4.9% | 4.2% | 4.4% | 1.4% | -1.5% | -6.0% | -6.0% | -1.1% | 1.2% |
| | Gross Margin | 25.4% | 25.0% | 24.2% | 23.3% | 23.7% | 23.3% | 24.0% | 25.3% | 25.7% | 25.5% | 24.2% | 23.4% | 24.3% |
| | SG&A % of Revenue | 13.8% | 13.7% | 13.7% | 13.2% | 13.8% | 14.4% | 13.9% | 14.7% | 15.1% | 14.5% | 13.7% | 13.5% | 14.0% |
| | R&D % of Revenue | 2.9% | 2.8% | 2.7% | 2.7% | 2.8% | 2.8% | 2.8% | 2.8% | 2.8% | 2.8% | 2.6% | 2.5% | 2.7% |
| | Inventory Turns (COGS/Inv) | 4.3 | 4.6 | 4.6 | 4.6 | 4.7 | 4.7 | 5.0 | 4.8 | 4.6 | 4.6 | 4.8 | 4.7 | 4.7 |
| | Days in Inventory | 85.7 | 78.9 | 79.9 | 79.8 | 78.3 | 77.1 | 73.2 | 76.0 | 78.9 | 78.9 | 76.7 | 77.5 | 77.7 |
| | Revenue / Employee (\$K) | \$348 | \$345 | \$351 | \$350 | \$327 | \$309 | \$303 | \$294 | \$276 | \$262 | \$286 | \$305 | \$310 |
| PROFIT & CASH FLOW | Operating Income | 10.1% | 10.1% | 9.9% | 9.3% | 8.8% | 8.0% | 9.2% | 9.5% | 9.3% | 9.0% | 9.0% | 8.4% | 9.1% |
| | Net Profit | 7.2% | 7.2% | 7.0% | 7.1% | 6.6% | 4.8% | 6.4% | 6.9% | 6.8% | 5.4% | 5.8% | 5.9% | 6.4% |
| | EBITDA | 14.5% | 14.6% | 14.1% | 13.4% | 13.4% | 12.8% | 13.2% | 13.4% | 13.3% | 13.0% | 12.9% | 12.0% | 13.3% |
| | Operating Cash Flow | 10.6% | 10.1% | 8.8% | 7.4% | 9.3% | 11.9% | 9.3% | 9.1% | 8.5% | 11.5% | 8.5% | 7.0% | 9.2% |
| | FCF % of Revenue | 6.0% | 5.5% | 4.4% | 3.2% | 4.9% | 7.5% | 4.8% | 4.7% | 4.1% | 6.7% | 3.6% | 2.4% | 4.7% |
| | CAPEX % of Revenue | 4.6% | 4.6% | 4.4% | 4.3% | 4.4% | 4.4% | 4.5% | 4.4% | 4.4% | 4.8% | 4.8% | 4.6% | 4.5% |
| | Stock Compensation | 0.5% | 0.5% | 0.5% | 0.4% | 0.4% | 0.4% | 0.4% | 0.4% | 0.4% | 0.4% | 0.4% | 0.4% | 0.4% |
| ASSETS | Days in Receivables | 80.1 | 74.9 | 74.5 | 74.0 | 74.9 | 78.0 | 75.0 | 78.7 | 80.8 | 78.8 | 73.1 | 76.3 | 76.3 |
| | Days in Payables | 79.6 | 71.4 | 71.7 | 73.9 | 76.5 | 76.0 | 67.7 | 72.7 | 75.4 | 70.8 | 64.5 | 66.1 | 71.5 |
| | Cash-to-Cash Cycle (Days) | 86.2 | 82.3 | 82.7 | 79.9 | 76.7 | 79.1 | 80.6 | 82.0 | 84.3 | 86.9 | 85.2 | 87.7 | 82.5 |
| | Property, Plant, Equipment % | 29.2% | 28.0% | 27.1% | 26.5% | 29.3% | 31.8% | 27.8% | 26.6% | 28.4% | 29.4% | 27.1% | 26.2% | 28.0% |
| | Cash % of Revenue | 20.2% | 20.2% | 19.4% | 18.9% | 21.7% | 25.8% | 18.8% | 19.2% | 25.0% | 27.0% | 23.2% | 22.3% | 21.9% |
| | Debt % of Revenue | 62.4% | 59.6% | 59.6% | 57.3% | 61.0% | 65.9% | 54.8% | 52.8% | 56.3% | 59.4% | 53.5% | 47.1% | 57.0% |
| | Goodwill and Intangibles % of | 29.6% | 28.0% | 26.4% | 26.1% | 27.5% | 29.1% | 25.1% | 25.5% | 26.2% | 25.4% | 21.9% | 18.3% | 25.4% |
| ROI | ROIC | 7.3% | 7.7% | 7.9% | 7.5% | 6.6% | 6.1% | 7.6% | 7.6% | 7.9% | 7.4% | 8.1% | 8.3% | 7.5% |
| | ROCE | 8.6% | 8.7% | 8.9% | 8.6% | 7.6% | 6.4% | 8.4% | 8.6% | 6.8% | 6.5% | 7.3% | 7.3% | 7.7% |
| | ROA | 3.5% | 3.7% | 3.7% | 3.8% | 3.4% | 2.3% | 3.6% | 3.8% | 3.6% | 2.8% | 3.3% | 3.7% | 3.4% |
| | ROOA | 8.2% | 8.6% | 8.8% | 8.2% | 7.2% | 6.4% | 8.1% | 7.7% | 7.7% | 7.2% | 7.9% | 7.5% | 24.5% |
| | EP | -0.3% | 0.5% | -0.6% | 2.5% | 2.1% | -0.6% | -0.6% | 0.1% | 0.2% | -0.8% | 0.3% | 0.0% | 0.3% |

NOTES & INSIGHTS

- This chart shows the operational structure of the industry today and for the past decade.
- These data indicate that the operational structure of the industry has remained relatively constant for the past decade.
- This indicates that industry operates around a certain “setpoint” driven by physics and physical characteristics.
- That said, individual companies deviate significantly from the overall structural setpoint, resulting in significantly different company-level operational results (next section).
- The final three years of CAGR are one-year growth rates (due to lack of data).
- Historical numbers beyond ten years have fewer companies and need further analysis for apples-to-apples comparisons.

Analysis Summary

Charts that summarize key variables in the report. Charts in this section use the “averages of percentages” approach. In other words, it shows the averages of all percentages for all companies. (These numbers will differ from industry structural numbers in the previous section)

Analysis Summary

Average and median for different variables, TTM



The table below contains the average and median values for the 293 companies investigated. This shows that the average Industrial company operates with a gross margin of 27.9% , spends 15.7% of revenue on SG&A, 2.3% on R&D, and has inventory turns of 6.5 , operating income of 10.9%, net income of 6.9%, free cash flow of 6.4%, and return on invested capital of 11.0%.

| | REVENUE (TTM) | | OPERATIONS | | | PROFIT AND CASH | | | | ROIC |
|---------|----------------------|-------------|--------------|-------|------|-----------------|------------------|------------|----------------|-------|
| | Annual Revenue (\$M) | 3-Year CAGR | Gross Margin | SG&A | R&D | Inventory Turns | Operating Income | Net Income | Free Cash Flow | |
| Average | \$12,735 | 2.7% | 27.9% | 15.7% | 2.3% | 6.5 | 10.9% | 6.9% | 6.4% | 11.0% |
| Median | \$5,947 | 1.9% | 27.6% | 15.6% | 2.0% | 3.9 | 10.7% | 6.7% | 6.3% | 9.4% |

Notes:

1. TTM = trailing twelve months. All revenue and cost numbers are based on trailing twelve months results as of the date on the cover of this report. This report provides the averages of the percentages of all companies, including outliers.
2. Growth rate is based on the past four years of financial results
3. All percentage numbers are a percentage of revenue. Average is the average of all the percentages for each of the companies.

Analysis Summary

Average values by revenue quartile, TTM¹



Market cap multiples and operating performance are consistent across the revenue quartiles. Smaller companies run significantly higher inventory turns.

All numbers are averages within each quartile

| # | REVENUE (TTM) | | MKT CAP | OPERATIONS | | | | PROFIT AND CASH | | | | ROIC |
|------------|---------------|-------------|-----------------|--------------|-------|-------|-----------------|------------------|------------|----------------|------|-------|
| | Revenue(\$M) | 3-Year CAGR | Mkt Cap/Revenue | Gross Margin | SG&A | R&D | Inventory Turns | Operating Income | Net Income | Free Cash Flow | | |
| Quartile 4 | 74 | \$34,662 | 2.4% | 1.6 | 25.2% | 13.5% | 2.5% | 9.0 | 10.0% | 7.0% | 6.8% | 10.0% |
| Quartile 3 | 73 | \$8,718 | 3.7% | 1.7 | 26.0% | 14.8% | 2.4% | 5.7 | 10.4% | 6.6% | 5.2% | 11.7% |
| Quartile 2 | 73 | \$4,571 | 2.7% | 2.0 | 28.6% | 16.2% | 2.2% | 4.7 | 12.4% | 8.1% | 7.4% | 12.2% |
| Quartile 1 | 73 | \$2,689 | 2.1% | 1.8 | 31.8% | 18.4% | 2.0% | 6.3 | 10.7% | 5.9% | 6.2% | 10.1% |

REVENUE QUARTILES (\$M)

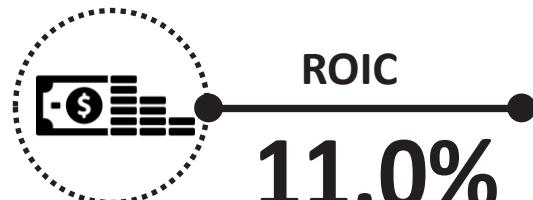
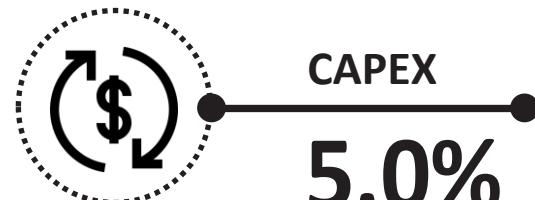
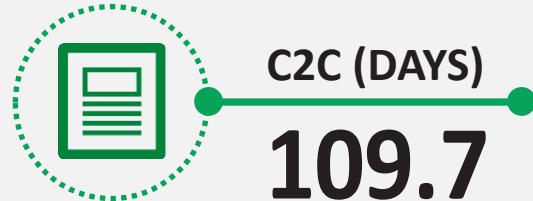
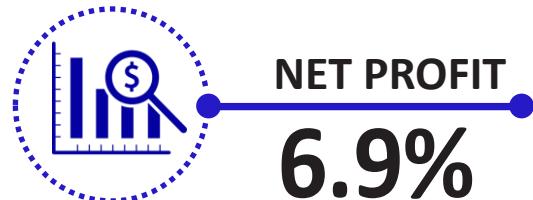
Quartile 4 >=\$14,310
 Quartile 3 >= \$5,947, <\$14,310
 Quartile 2 >= \$3,583, < \$5,947
 Quartile 1 < \$3,583

Notes:

1. TTM = trailing twelve months. All revenue and cost numbers are based on trailing twelve months results as of the date on the cover of this report. This report provides the averages of the percentages of all companies, including outliers.
2. Growth rate is based on the past four years of financial results
3. All percentage numbers are a percentage of revenue. Average is the average of all the percentages for each of the companies.

Analysis Summary

Average numbers for the entire data set, TTM¹

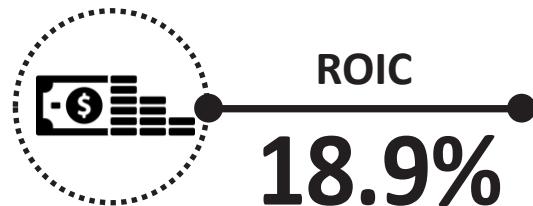
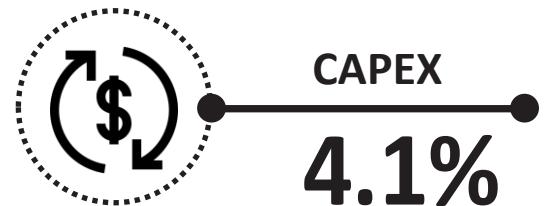
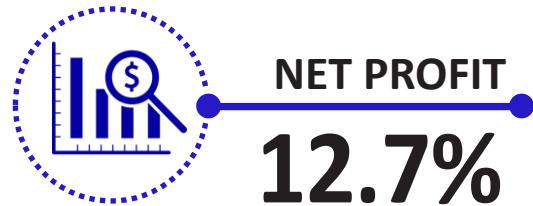


Notes:

1. All revenue and cost numbers are based on trailing twelve months (TTM) results as of the date on the cover of this report for all companies in the data set.
2. All ratios shown here are averages of the ratios of each company.

Analysis Summary

Average numbers for the top-quartile market cap¹ multiple leaders

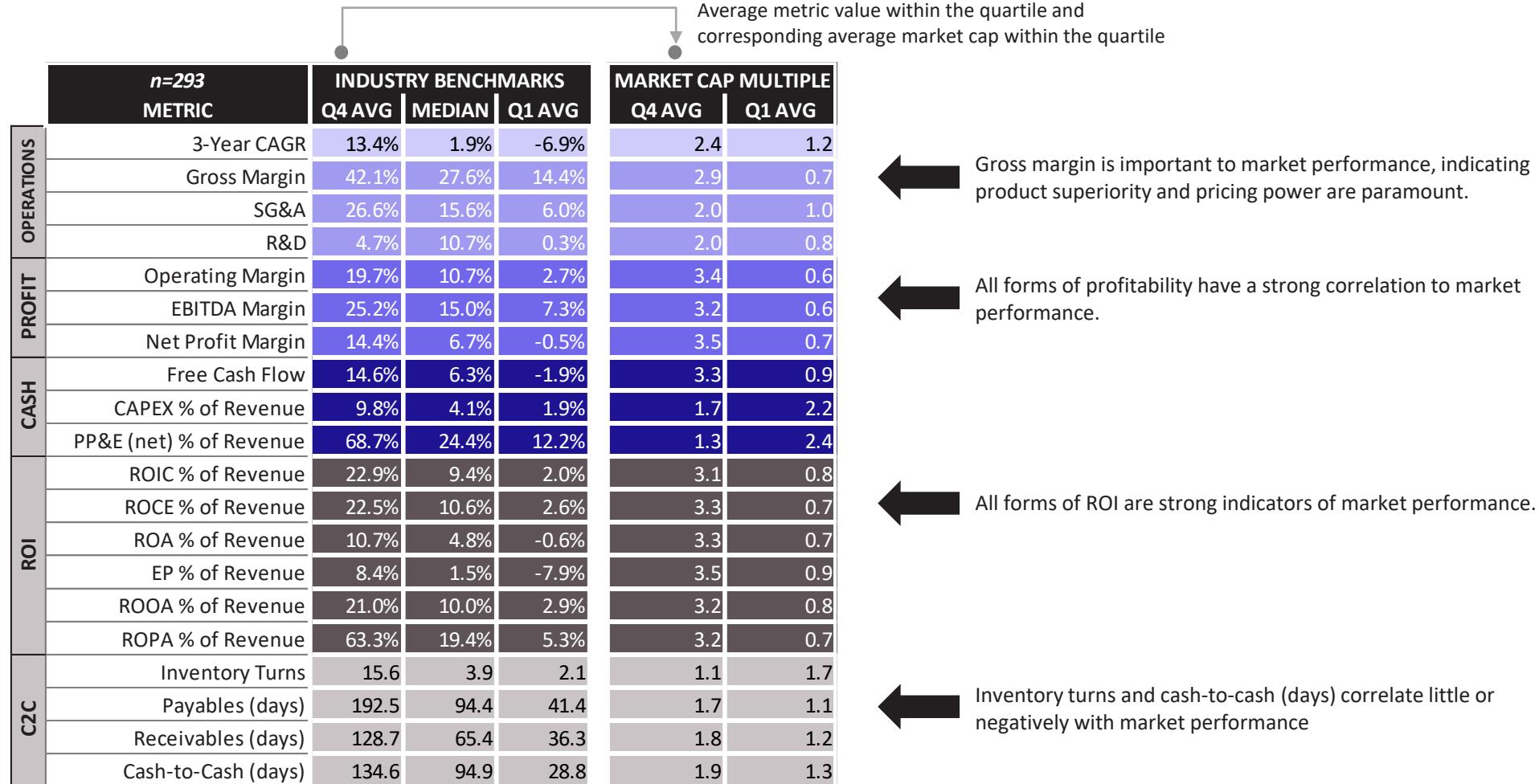


Notes:

1. All revenue and cost numbers are based on trailing twelve months (TTM) results as of the date on the cover of this report for all companies in the top quartile of market cap multiple performance.
2. All ratios shown here are averages of the ratios of each company.

Analysis Summary

Key metric benchmarks and relationship to market cap multiple



Notes:

1. All metric numbers are based on trailing twelve months (TTM) results as of the date on the cover of this report. Market capitalization numbers are as of the date on the cover of this report.
2. This chart uses the averages and medians of the percentages of each company within a quartile and across the entire data set. Q4=top quartile; Q1=bottom quartile.
3. Source of all data is Calcbench and YCharts and Worldlocity analysis.

Analysis Summary

Market cap multiple quartile comparison



This chart compares the operating characteristics of each market cap multiple quartile in order to glean insights into what cap leaders do differently. It summarizes the difference between the top and bottom quartiles in order to draw contrasts.

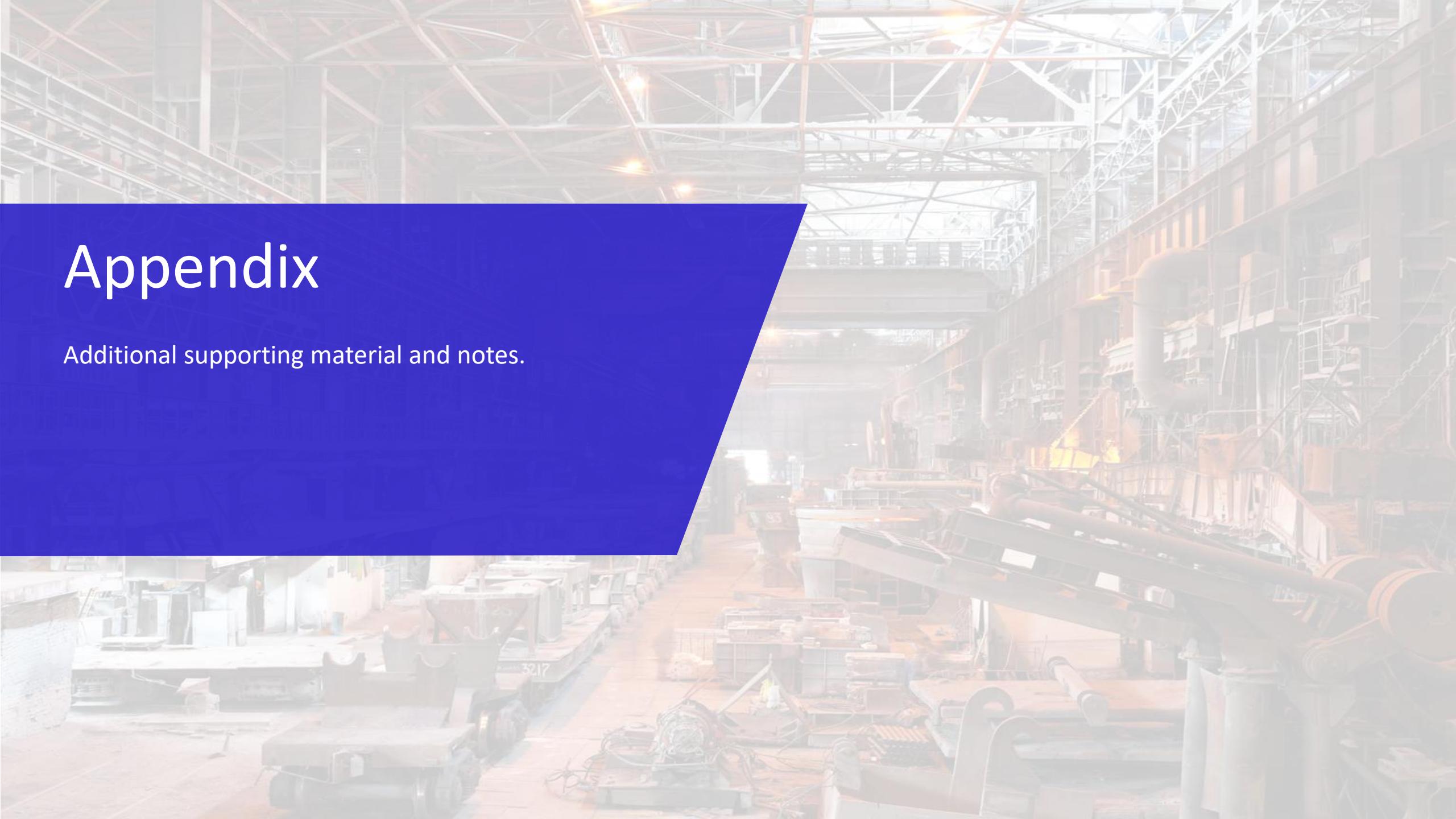
| n=293 METRIC | | DATA SET AVG | QUARTILE (AVGS WITHIN EACH MKT CAP QUARTILE) | | | | DIFFERENCE TOP-BOTTOM |
|-----------------|---------------------|-----------------|--|--------|--------|-------------|--------------------------|
| | | | TOP (Q4) | Q3 | Q2 | BOTTOM (Q1) | |
| OPERATIONS | Market Cap Multiple | 1.8 | 4.2 | 1.7 | 0.8 | 0.3 | 12.3X |
| | 1-Year Growth | 2.7% | 5.1% | 3.1% | 0.5% | 1.7% | 3.4 pps |
| | Gross Margin | 27.9% | 36.3% | 29.2% | 24.3% | 21.8% | 14.6 pps |
| | SG&A | 15.7% | 17.0% | 17.0% | 14.1% | 14.9% | 2.1 pps |
| PROFIT | R&D | 2.3% | 2.9% | 2.4% | 1.9% | 1.9% | 1.0 pps |
| | Operating Profit | 10.9% | 17.7% | 11.9% | 8.7% | 5.2% | 12.4 pps |
| | Net Profit | 6.9% | 12.7% | 7.7% | 5.6% | 1.5% | 11.2 pps |
| | EBITDA | 15.8% | 22.1% | 16.6% | 13.9% | 10.7% | 11.4 pps |
| CASH | Inventory Turns | 6.5 | 6.6 | 6.6 | 6.1 | 6.6 | 0.0 Turns |
| | C2C Cycle (days) | 109.7 | 112.2 | 117.5 | 118.6 | 91.7 | 20.5 Days |
| | Net Cash | -32.8% | -25.6% | -28.5% | -39.2% | -39.1% | 13.5 pps |
| | CAPEX | 5.0% | 4.1% | 5.4% | 5.5% | 4.9% | -0.8 pps |
| ROI | Free Cash Flow | 6.4% | 12.8% | 6.7% | 4.2% | 1.7% | 11.1 pps |
| | ROA | 5.0% | 9.4% | 5.7% | 3.8% | 1.1% | 8.3 pps |
| | ROIC | 11.0% | 18.9% | 11.7% | 8.4% | 5.0% | 13.9 pps |
| | EP | 0.9% | 6.6% | 1.9% | -2.1% | -3.1% | 9.6 pps |
| | ROOA | 11.0% | 17.1% | 12.2% | 8.6% | 6.2% | 10.9 pps |
| ROPA | ROPA | 28.0% | 52.3% | 25.9% | 20.4% | 13.4% | 38.9 pps |

NOTES & INSIGHTS

- Leaders have market cap multiples that are 2.4X average, and 12.3X laggards.
- Leaders have higher gross margins, which flows through to operating profit and cash flow.
- Leaders excel in all forms of profitability, cash flow, and return on investment.
- Paradoxically, cap leaders do not lead in inventory turns. Cap laggards are more likely to lead in inventory turns than cap leaders. This is likely because cap leaders are managing their supply chains as profit centers and cap laggards are solely focused on cost.
- All financial numbers are for the trailing twelve months as of the date on the cover of this report. All market cap numbers are as of the date on the cover of this report.

Appendix

Additional supporting material and notes.



Notes and Definitions (1 of 4)

| | |
|----|--|
| 1 | Primary data sources for the analysis are YCharts and Worldlocity research using data publicly available through the Internet. |
| 2 | Company data filtering - Companies included in this analysis are filtered based on available financial, operational, and market cap data. Generally, companies must have revenue, COGS, and market cap data to be included in the analysis. |
| 3 | Industry classification - companies are classified to industries using 1) Morningstar industry classifications; 2) Global Industry Classification System (GICS); and 3) Manual adjustments in those cases where either Morningstar is incorrect, GICS is incorrect, or both are incorrect. Both Morningstar and GICS are incorrect in a small percentage of cases. An attempt has been made to correct all of these, but there are probably still a small number of companies that may misclassified. |
| 4 | TTM = trailing twelve months = last four fiscal quarters. |
| 5 | Weighted Average Cost of Capital (WACC) = represents a company's average cost of raising funds from both debt and equity, weighted by their portion of the firm's capital structure. It's essentially the company's hurdle rate for new investments. WACC for each industry and each year is as reported by Aswath Damodaran, NYU Stern Business School. This is reported annually in January using data from the previous year. For a given year, this analysis uses the values reported in January for that year and uses the data set for US companies, only. Global WACC numbers for each industry will be slightly higher. |
| 6 | Tax Rates used in any financial calculations (for example NOPAT) are global industry averages for the money-making companies in each industry, as reported each year by Aswath Damodaran, NYU Stern Business School. This is reported annually in January using data from the previous year. For a given year, this analysis uses the values reported in January for that year. |
| 7 | Gross Profit = Revenue minus Cost of Goods Sold (COGS) |
| 8 | Gross Margin = Gross profit divided by Revenue |
| 9 | Operating Income = Gross profit minus operating costs, which typically include sales and marketing, general and administrative, and research and development costs. |
| 10 | EBIT = earnings before interest and taxes |
| 11 | EBITDA = earnings before interest, taxes, and amortization. EBITDA is calculated as operating income plus depreciation and amortization. |
| 12 | Adjusted EBITDA = EBITDA plus stock compensation. |
| 13 | Net Operating Profit After Taxes (NOPAT) = Operating Income times (1 minus Tax Rate). NOPAT is used in some ROI equations to focus on the operating aspects of a company, while also recognizing the reality of taxes. |
| 14 | Free Cash Flow = operating cash flow minus CAPEX. |
| 15 | Cash = cash, cash equivalents, and marketable securities. |
| 16 | Non-Operating Cash and Cash Equivalents is calculated as Cash and Cash Equivalents minus 3.5% times Revenue. The assumption here is that 3.5% of revenue is the amount of cash needed to fund operations. The amount of operating cash for each company and industry may be different, but this rule of thumb is used for scalability across a large number of companies. In those cases where the Non-Operating Cash and Cash Equivalents results in a negative number, it is set to zero. |

Notes and Definitions (2 of 4)

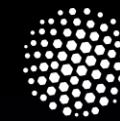
| | |
|----|---|
| 17 | Total Debt = short-term debt, the current portion of long-term debt, long-term debt, borrowings under credit facility, capital lease obligations, convertible notes, and deferred rent. |
| 18 | Operating Assets = total receivables + inventories + deferred tax assets + Net PP&E + goodwill and intangibles. Operating assets are the assets needed to drive operations in a manufacturing, distribution, retail, transportation or other company engaged in supply chains. Deferred Tax Assets are considered part of operating assets since they were created by operating activities and represent a future tax savings. Receivables are included because they are a direct result of operations. Goodwill and Intangibles are included because they are presumably used in the producing, selling, and distributing goods and services. |
| 19 | Capital Employed = Total Assets minus Current Liabilities, or alternatively, Shareholders Equity plus Non-Current Liabilities. This is intended to capture all the long-term capital invested in the business. |
| 20 | Invested Capital = Total Debt + Total Equity minus Non-Operating Cash and Cash Equivalents. In those cases where equity is negative, equity is set to zero. Invested capital is intended to represent the amount of capital invested in a business by shareholders and debtholders. Non-operating cash is subtracted in order to arrive at the net debt invested in the business. |
| 21 | Return on Assets (ROA) = Net Income divided by Total Assets. |
| 22 | Return on Invested Capital (ROIC) = NOPAT (defined above) divided by Invested Capital (defined above). If a company's Invested Capital is negative, ROIC is meaningless and not calculated for that company. |
| 23 | Return on Capital Employed (ROCE) = EBIT (defined above) divided by capital employed (defined above). If a company's Capital Employed is negative, ROCE is meaningless and not calculated for that company. |
| 24 | Economic Profit (EP) = Net Operating Profit after Taxes (NOPAT) minus Weighted Average Cost of Capital (WACC) times Invested Capital. WAAC, NOPAT, and invested Capital are defined above. EP is also known as Economic Value Added (EVA). EVA is a trademark of Stern Value Management. A company is deemed to be creating value if its EP is greater than zero. The idea is that the cost of capital represents a hurdle rate for investors and debtholders and must be exceeded by NOPAT in order for value to be created. |
| 25 | Return on Operating Assets (ROOA) = NOPAT / Operating Assets. ROOA is a measure of operational efficiency and can be used to compare the supply chain operational efficiency of different companies. |
| 26 | Return on Fixed Assets (ROFA) = Operating Profit divided by Property, Plant, and Equipment (PP&E, net of depreciation). ROFA is sometimes used as supply chain metric to show how much operating profit is being generated by a company's fixed assets. |
| 27 | Return on Physical Assets (ROPA) = Operating Profit divided by (PP&E (net) plus Inventory). ROPA is sometimes used as a supply chain metric to show how much operating profit is being generated by a company's physical assets. |
| 28 | Inventory Turns = COGS (end of period) divided by Inventory (end of period). A more precise definition is the average COGS over a period divided by average Inventory over that period. In this analysis, the end of period (typically the end of the most recent fiscal year, or trailing twelve months (TTM)) is used for ease of calculation and scalability. |

Notes and Definitions (3 of 4)

| | |
|----|--|
| 29 | Gross Margin ROI = GMROI = Gross Profit divided by Inventory. GMROI is typically used in the retail industry to understand how much gross profit is generated by a certain amount of inventory. Different product lines and products will have different GMROI values. In this analysis we use Gross Profit and Inventory at the end of a reporting period. A more precise calculation would use the average inventory over the reporting period. |
| 30 | Turn and Earn = Inventory Turnover times Gross Margin %. Turn and Earn is a metric that shows the tradeoff between inventory turns and gross margin. High gross margin targets with low inventory turns can result in the same results as low gross margin targets with high inventory turns. In the automotive retail business, "Earn" has a double meaning - it also means that the faster you turn inventory, the more product allocation you will "earn" from the manufacturer. |
| 31 | Cash-to-Cash (C2C) = Days in Receivables plus Days in Inventory minus Days in Payables. This is also called the Cash Conversion Cycle (CCC). |
| 32 | Capital Expenditures (CAPEX) = gross CAPEX, in other words it does not net out the sale of assets. |
| 33 | Enterprise Value (EV) = Market Capitalization plus Total Debt minus Cash. |
| 34 | Mergers and Acquisitions - In the case of companies formed from mergers, the oldest company is used to designate the resultant company founding year. |
| 35 | Depreciation is the systematic allocation of a fixed asset over its useful lifetime. The useful life of production and other machinery for accounting purposes is typically somewhere between 7 and 20 years. Enterprise software, can be a significant part of the fixed asset base of companies, typically has a useful life for depreciation purposes of 3-10 years. This does not apply to Software as a Service (SaaS) or subscription software, which are treated as an expense, not an asset that has to be depreciated. |
| 36 | Amortization is the expensing of the cost of an intangible asset over time. Intangible assets include goodwill, intellectual property, patents, and software. Amortization is a non-cash charge that shows up in various elements of a company's income statement. The costs of obtaining a contract - typically sales commissions - are also amortized under accounting standards ASC 606 and IFRS 15. |
| 37 | Allocation of Depreciation and Amortization - Most companies allocate depreciation and amortization costs to individual cost buckets, including COGS, SG&A, and R&D. This is done based on where the depreciated or amortized asset is used. For example, depreciation of manufacturing equipment, which is used in production, would be allocated to COGS, while the amortization of intellectual property used in sales and marketing would be allocated to that cost bucket. Some subset of companies explicitly show depreciation and amortization costs on the income statement after the other cost buckets. No attempt was made to reallocate these costs for this subset of companies. This has the effect of understating COGS, SG&A, and R&D for those companies. |
| 38 | 3-Year Compound Annual Growth Rate (CAGR) is based on the past four years of annual financial data. |
| 39 | Market Capitalization is based on the stock prices as of the date on the cover of this report for each company. Market Cap to Revenue Ratios or Enterprise Value to Revenue ratios are market capitalization divided by trailing twelve months (TTM) revenue through the most recently reported fiscal quarter as of the date on the cover of this report. |

Notes and Definitions (4 of 4)

| | |
|----|---|
| 40 | Mergers and Acquisitions - Individual company YOY numbers may be distorted due to mergers and acquisitions. No attempt has been made to normalize for mergers, acquisitions, and divestitures. |
| 41 | All Financial Data is based on what has been reported as of the date on the cover of this report. Data is captured for Trailing Twelve Months (last four quarters) and for the last fiscal year that occurred on or before the calendar year end (12/31) for each year. |
| 42 | Historical data is the past eleven fiscal years for all companies. The number of companies grows for each year in the historical analysis, as more companies became public across the decade. |
| 43 | Aggregate Inventory Turns is calculated as follows: sum of all COGS for all companies in an industry divided by sum of all inventories for all companies in an industry at the end of the calendar year or for the most recent trailing twelve months (TTM). The aggregate COGS number that is used for aggregate inventory calculations is the sum of COGS for those companies that have non-zero inventory. This has been found to be more accurate due to missing inventory data for certain companies in out years (several years beyond the present). |
| 44 | Research and Development - A good percentage of companies in various industries do not report research and development separately on their income statements. In these companies, R&D is included in COGS. This has the effect of overstating COGS for those companies, which by extension understates their gross margins and overstates their inventory turns. Aerospace & Defense, Automotive, Industrials, and Hitech Electronics are the industries in which a significant number of companies do not report R&D separately, and in which R&D represents a significant percentage of revenue. R&D as a percentage of revenue in these industries can average 4%-8% of revenue. This can result in understating aggregate and average gross margins for an industry and overstating aggregate and average inventory turns. No attempt has been made to normalize for this effect (it will be studied in later reports). Other industries that have significant R&D such as Hitech Semiconductors, Pharmaceuticals, and Medical Equipment have this problem, but only for a small percentage of companies that do not report R&D. |



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