

# Medical Equipment Industry Operating Benchmarks

Operational and market capitalization data for 122  
medical equipment companies

1-Jan-2022







# Version



VERSION	NOTES
2021-1.1	Initial version, dated 04.01.21
2021-2.1	Updated financial and market cap data for 06.25.21. Removed companies that merged or were taken private.
2021-3.1	Updated financial and market cap data for 11.30.21. Removed companies that merged or were taken private.
2022-1.1	Updated financial and market cap data for 01.01.22. 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.

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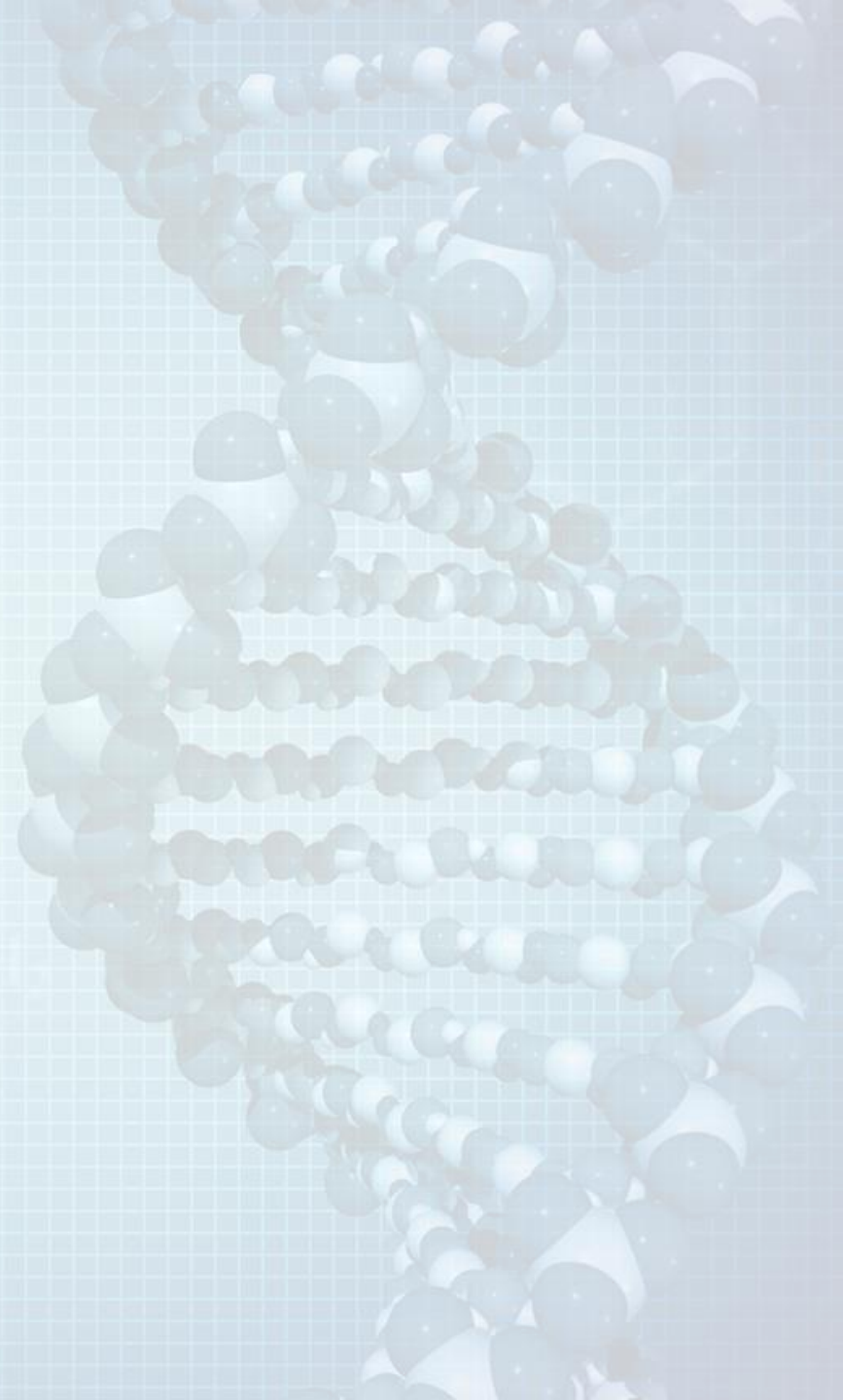
# 2022 Medical Equipment Industry Report: Key Takeaways



- The Medical Equipment industry 3-year CAGR is 10.0% (overall dollars growth). The average company 3-year CAGR is 13.2% .
- The average Medical Equipment company has gross margins of 54.6%, invests 30.5% of revenue in selling, general, and administrative expense, 8.5% in research and development, and generates 15.0% operating margin, 22.6% EBITDA margin, 12.0% free cash flow, and 12.7% return on invested capital.
- The Medical Equipment company average inventory turns is 4.7 . The median is 2.9 . 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 Medical Equipment company has 27.5% PP&E, and 76.0% in goodwill and intangibles, all as a percentage of revenue. Goodwill and intangibles are a proxy for mergers and acquisitions; based on this measure, Medical Equipment is among the highest industries in mergers and acquisitions. Furthermore, its ratio of goodwill and intangibles to physical assets (PP&E) indicates it is an industry with a high IP content.
- As expected, Medical Equipment 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.
- Medical Equipment 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).
- Medical Equipment companies with higher gross margins tend to have significantly higher market cap multiples. Furthermore, they spend more on R&D to protect their high gross margins. They furthermore use their supply chains to provide differentiated service to protect their high gross margins.
- 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 2.2X average and 10.8X laggards. Leaders have significantly higher gross margins, invest significantly more in R&D, 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 122 publicly-traded Medical Equipment companies.



**122**



## REVENUE

Aggregate revenue for companies in the data set is \$0.6 trillion for the latest reporting fiscal year as of the date on the cover of this report.



**\$0.6T**



## MARKET CAPITALIZATION

Aggregate market cap for companies in the data set is \$3.3 trillion as of date on the cover of this report.



**\$3.3T**

### 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*



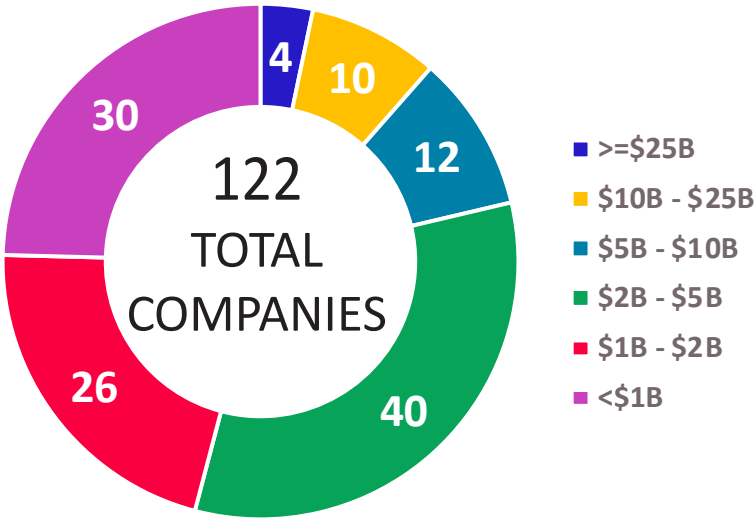
Abbott Laboratories	Carl Zeiss Meditec AG	Fisher & Paykel Healthc	JINS Holdings Inc	Ortho Clinical Diagnost	Sonic Healthcare Ltd	Wuxi AppTec Co Ltd
Abiomed Inc	Charles River Laborator	Fulgent Genetics Inc	Koninklijke Philips NV	Ossur hf	Sonova Holding AG	Zimmer Biomet Holdings
AdaptHealth Corp	Cochlear Ltd	Gerresheimer AG	Laboratory Corp of Amer	Paramount Bed Holding C	Sotera Health Co	
AddLife AB	Coloplast A/S	Getinge AB	LivaNova PLC	Paul Hartmann AG	Steris PLC	
Agilent Technologies In	Conmed Corp	Globus Medical Inc	Lonza Group Ltd	Penumbra Inc	Stevanato Group SPA	
Alcon Inc	ConvaTec Group PLC	GN Store Nord A/S	Masimo Corp	PerkinElmer Inc	Straumann Holding AG	
Align Technology Inc	Danaher Corp	H U Group Holdings Inc	Medpace Holdings Inc	Qiagen NV	Stryker Corp	
Ambu A/S	Demant A/S	Haemonetics Corp	Medtronic PLC	Quest Diagnostics Inc	Supermax Corp Bhd	
Ansell Ltd	Dentsply Sirona Inc	Hologic Inc	Menicon Co Ltd	Quidel Corp	Syneos Health Inc	
Apria Inc	DexCom Inc	Hoya Corp	Merit Medical Systems I	RadNet Inc	Sysmex Corp	
Asahi Intecc Co Ltd	Diasorin SpA	Icon PLC	Mettler-Toledo Internat	Repligen Corp	Tandem Diabetes Care In	
Avanos Medical Inc	Draegerwerk AG & Co KGa	ICU Medical Inc	MicroPort Scientific Co	ResMed Inc	Tecan Group Ltd	
Azenta Inc	Edwards Lifesciences Co	IDEXX Laboratories Inc	Myriad Genetics Inc	Safilo Group SpA	Teleflex Inc	
Baxter International In	El.En. SpA	Illumina Inc	Natera Inc	Sartorius AG	Terumo Corp	
Becton, Dickinson and C	Elekta AB	Insulet Corp	Neogen Corp	Sartorius Stedim Biotec	The Cooper Companies In	
BioMerieux SA	Envista Holdings Corp	Integer Holdings Corp	Nihon Kohden Corp	Shandong Weigao Group M	Thermo Fisher Scientifi	
Bio-Rad Laboratories In	EPS Holdings Inc	Integra Lifesciences Ho	NovoCure Ltd	Ship Healthcare Holding	Top Glove Corp Bhd	
BML Inc	Essilorluxottica	Intuitive Surgical Inc	NuVasive Inc	Siemens Healthineers AG	Varex Imaging Corp	
Boston Scientific Corp	Eurofins Scientific SE	Invacare Corp	Olympus Corp	SmileDirectClub Inc	Waters Corp	
Bruker Corp	Exact Sciences Corp	IQVIA Holdings Inc	OPKO Health Inc	Smith & Nephew PLC	West Pharmaceutical Ser	

# Data Set

## Company distribution

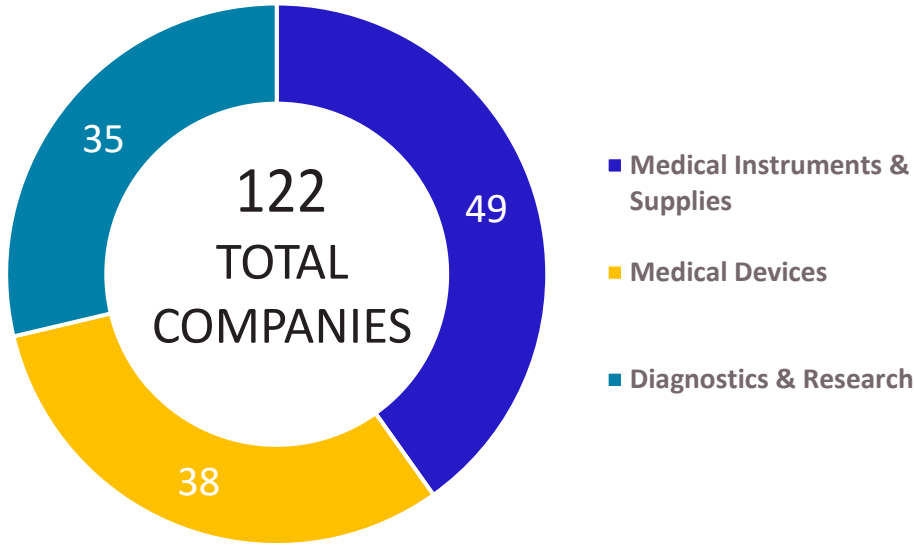


BY ANNUAL REVENUE

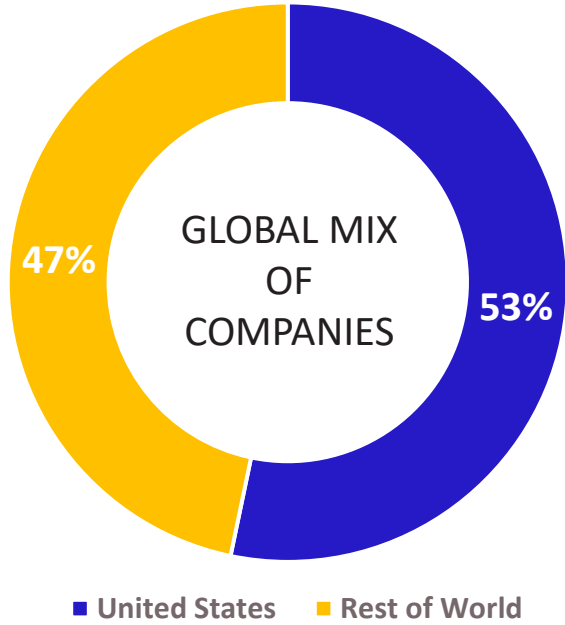


MEDIAN REVENUE = **\$2,229M**

BY SUB-INDUSTRY



GEOGRAPHIC REGION



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# Data Set

## *Index of key variables included in this report*

*This report provides analysis of the following variables (and derivatives) for trailing twelve months (TTM) results and for the ten-year historical period.*

REVENUE	CASH	INVENTORY
GROWTH RATE	DEBT	DAYS IN PAYABLES
GROSS MARGIN	NET CASH	DAYS IN RECEIVABLES
SELLING, GENERAL, AND ADMIN	EBITDA	CASH-TO-CASH CYCLE
RESEARCH & DEVELOPMENT	EQUITY	CAPITALIZATION TO REVENUE
REVENUE PER EMPLOYEE	CAPITAL EXPENDITURES (CAPEX)	CAPITALIZATION TO EBITDA
OPERATING PROFIT	PROPERTY, PLANT, AND EQUIPMENT (PP&E, NET)	RETURN ON INVESTED CAPITAL
NET PROFIT	GOODWILL	RETURN ON ASSETS
FREE CASH FLOW	DEFERRED REVENUE	RETURN ON PHYSICAL ASSETS
STOCK COMPENSATION	REMAINING PERFORMANCE OBLIGATIONS (RPOS)	ECONOMIC PROFIT

# 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 % = $\frac{(\text{sum of all revenues minus sum of all COGS})}{\text{sum of all revenues}}$	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 % = $\frac{(\text{sum of all gross margin \%s})}{(\text{number of companies})}$	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"><li>1) Isolate each quartile of market cap multiples; compare gross margin of leaders to others.</li><li>2) Isolate each quartile of gross margin; display average market cap multiple within each gross margin quartile.</li></ol>	Understanding characteristics of leaders.

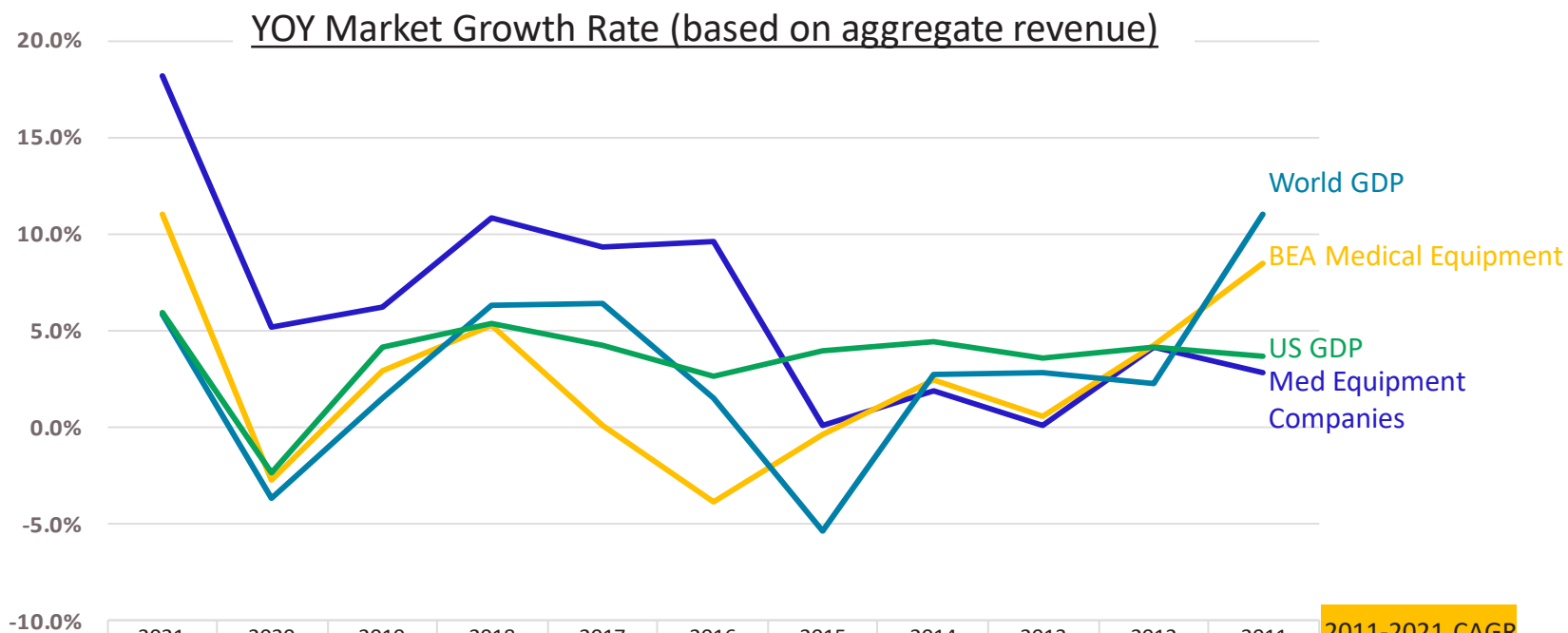
# Overall Market



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

# Overall Market

## YOY growth rates, 2011-2021



### NOTES & INSIGHTS

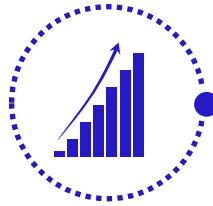
- Medical Equipment market CAGR for the past decade was 6.2%, which is higher than the global current dollar GDP growth rate (2.8%).
- The BEA does not maintain directly a medical equipment industry; its output is included in other industries. The BEA industry shown here is deemed the best fit.
- Growth rates in the early part of the decade were higher, probably due to the rebound from the great recession of 2009-2010.

#### Notes:

1. "Medical Equipment 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.
2. "BEA Medical Equipment 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=gdpixind>), GDP by Industry. Medical Equipment output as defined here is based on output of the following sub-industries: Electrical equipment, appliances, and components. BEA updates its past numbers periodically, so past reports may not reflect the same past BEA numbers.
3. World GDP and US GDP numbers are sourced from The World Bank ([data.worldbank.org](http://data.worldbank.org))
4. 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 Medical Equipment 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.

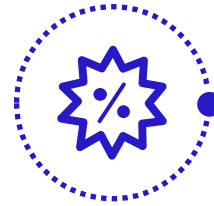
# Analysis Summary

Operational ratios based on aggregate data, TTM<sup>1</sup>



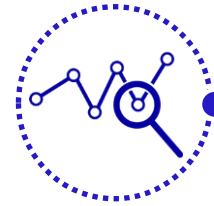
3-YEAR CAGR<sup>2</sup>

9.6%



GROSS MARGIN

54.1%



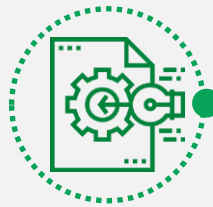
MARKET CAP<sup>3</sup>

5.8X



NET PROFIT

16.0%



R&D

7.2%



SG&A

27.3%



INVENTORY TURNS

3.4



C2C (DAYS)

104.9



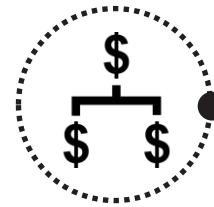
PP&E

24.1%



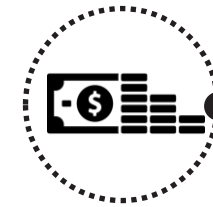
CAPEX

5.5%



FREE CASH FLOW

15.8%



ROIC

9.9%

## 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, 2011-Current



	METRIC	TTM	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	AVG11-21
OPERATIONS	Growth Rate (3YRCAGR)	9.6%	10.0%	7.7%	8.9%	7.8%	5.5%	3.1%	1.5%	2.2%	0.1%	4.2%	2.8%	4.9%
	Gross Margin	54.1%	53.9%	52.8%	53.6%	53.5%	53.6%	53.4%	52.8%	52.6%	52.5%	52.3%	52.2%	53.0%
	SG&A % of Revenue	27.3%	27.3%	28.9%	30.3%	30.1%	30.4%	29.6%	30.0%	30.5%	29.9%	29.5%	28.8%	29.6%
	R&D % of Revenue	7.2%	7.2%	7.3%	7.2%	7.1%	7.1%	7.0%	7.0%	6.8%	6.8%	7.0%	7.0%	7.0%
	Inventory Turns (COGS/Inv)	3.4	3.4	3.3	3.5	3.5	3.6	3.7	3.4	3.6	3.4	3.5	3.6	3.5
	Days in Inventory	107.5	107.5	111.8	105.2	103.0	102.1	98.0	107.6	100.3	106.4	104.8	101.8	104.4
PROFIT & CASH FLOW	Operating Income	18.1%	18.0%	15.1%	14.5%	14.6%	14.3%	15.2%	14.5%	14.1%	14.7%	14.8%	14.9%	15.0%
	Net Profit	16.0%	15.8%	11.6%	11.4%	9.4%	9.2%	10.5%	9.9%	10.0%	10.2%	9.4%	10.4%	10.7%
	EBITDA	26.0%	26.3%	23.2%	22.0%	21.2%	21.0%	21.6%	19.2%	19.3%	19.5%	17.7%	19.5%	21.0%
	Operating Cash Flow	21.3%	21.4%	19.8%	16.7%	16.0%	16.5%	15.8%	15.1%	16.5%	15.6%	17.8%	16.2%	17.0%
	FCF % of Revenue	15.8%	15.9%	14.3%	11.2%	10.9%	11.6%	11.1%	10.3%	11.8%	10.9%	13.1%	11.5%	12.1%
	CAPEX % of Revenue	5.5%	5.5%	5.5%	5.5%	5.1%	5.0%	4.7%	4.7%	4.7%	4.6%	4.8%	4.7%	5.0%
	Stock Compensation	1.5%	1.5%	1.4%	1.5%	1.3%	1.3%	1.4%	1.5%	1.3%	1.2%	1.2%	1.2%	1.3%
	Days in Receivables	59.3	60.2	66.1	65.6	65.1	68.3	67.7	68.3	66.9	70.0	72.4	72.8	67.6
	Days in Payables	62.0	63.0	67.1	63.6	63.3	59.9	56.0	55.4	53.4	54.8	56.0	59.2	59.2
	Cash-to-Cash Cycle (Days)	104.9	104.7	110.9	107.3	104.8	110.4	109.6	120.5	113.9	121.6	121.2	115.4	112.8
ASSETS	Property, Plant, Equipment %	24.1%	24.3%	26.4%	24.6%	21.9%	21.5%	20.5%	21.4%	20.4%	22.2%	21.8%	21.6%	22.4%
	Cash % of Revenue	23.6%	23.9%	27.5%	21.6%	17.7%	24.0%	24.2%	25.4%	24.5%	26.3%	25.4%	19.9%	23.7%
	Debt % of Revenue	53.4%	54.0%	61.1%	58.5%	53.6%	60.4%	56.6%	58.9%	43.0%	40.8%	42.9%	38.3%	51.6%
	Goodwill and Intangibles % of	108.4%	108.9%	112.8%	111.8%	118.3%	116.9%	106.5%	105.3%	73.2%	68.7%	68.7%	67.8%	96.3%
ROI	ROA	7.7%	7.6%	5.2%	5.5%	4.6%	4.4%	5.4%	4.8%	5.8%	6.1%	5.7%	6.5%	5.6%
	ROIC	9.9%	9.8%	6.7%	7.0%	5.9%	5.7%	7.1%	6.4%	7.9%	8.2%	7.7%	8.9%	7.4%
	Return on Physical Assets	48.1%	47.5%	37.0%	38.2%	41.6%	41.6%	46.8%	41.1%	42.3%	40.8%	41.6%	42.9%	41.9%
	Economic Profit % of Revenue	7.5%	7.3%	4.1%	6.8%	3.2%	4.3%	4.2%	2.5%	3.7%	4.6%	4.6%	5.4%	4.6%
CAP	Market Cap / Revenue	5.8	5.9	6.9	5.9	4.8	4.1	4.2	3.4	3.4	3.0	2.6	2.1	4.2
	Market Cap / EBITDA	22.4	22.4	29.5	25.9	21.8	18.4	16.5	15.6	16.1	13.7	13.1	9.1	18.4

### HISTORY

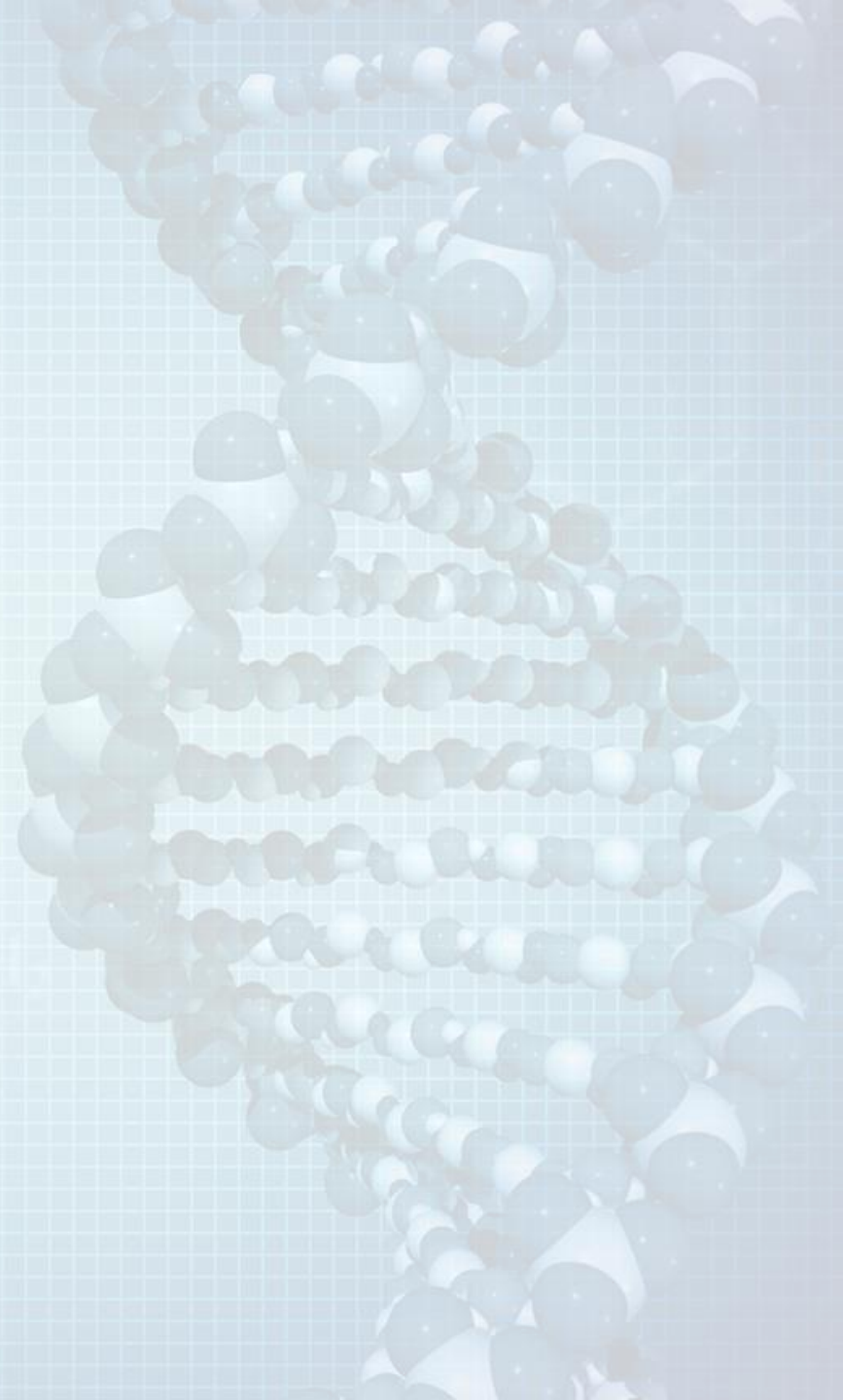
	2010	2000
	53.2%	43.8%
	28.4%	23.6%
	7.5%	8.4%
	3.7	4.0
	99.1	92.1
	16.8%	18.5%
	10.6%	15.1%
	21.3%	24.1%
	17.0%	12.5%
	12.8%	5.6%
	4.1%	6.9%
	1.2%	
	68.9	66.6
	62.3	69.7
	105.6	89.0
	21.2%	25.3%
	21.1%	7.7%
	35.3%	17.8%
	63.0%	20.3%
	6.9%	13.7%
	9.4%	20.0%
	50.0%	48.7%
	6.9%	7.6%
	1.8	3.4
	7.0	14.3

### 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 122 companies investigated. This shows that the average Medical Equipment company operates with a gross margin of **54.6%**, spends **30.5%** of revenue on SG&A, **8.5%** on R&D, and has inventory turns of **4.7**, operating income of **15.0%**, net income of **13.5%**, free cash flow of **12.0%**, and return on invested capital of **12.7%**.

	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	\$4,655	13.2%	54.6%	30.5%	8.5%	4.7	15.0%	13.5%	12.0%	12.7%
Median	\$2,229	8.1%	55.4%	27.5%	6.2%	2.9	14.8%	11.7%	12.8%	8.8%

### 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, TTM<sup>1</sup>

Market cap multiples for the top quartile revenue companies are smaller than the other three quartiles. Gross margins are very consistent across the revenue bands. Smaller companies spend significantly more on SG&A and R&D. Companies in the 3<sup>rd</sup> quartile have significantly higher ROIC.

All numbers are averages within each quartile

		REVENUE (TTM)		MKT CAP	OPERATIONS				PROFIT AND CASH			
	#	Revenue(\$M)	3-Year CAGR	Mkt Cap/ Revenue	Gross Margin	SG&A	R&D	Inventory Turns	Operating Income	Net Income	Free Cash Flow	ROIC
Quartile 4	31	\$12,985	8.4%	5.6	54.1%	26.5%	7.2%	5.7	19.0%	14.6%	16.8%	10.9%
Quartile 3	30	\$3,185	10.9%	8.2	55.7%	26.8%	7.2%	3.6	20.9%	26.8%	14.8%	22.4%
Quartile 2	30	\$1,550	21.8%	4.9	54.3%	31.3%	8.6%	5.8	17.1%	12.2%	13.4%	16.7%
Quartile 1	31	\$753	12.1%	8.2	54.5%	37.8%	11.2%	4.1	3.4%	1.0%	3.5%	1.1%

### REVENUE QUANTILES (\$M)

Quartile 4 >= \$4,337

Quartile 3 >= \$2,229 , < \$4,337

Quartile 2 >= \$1,035 , < \$2,229

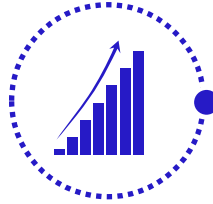
Quartile 1 < \$1,035

### 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.

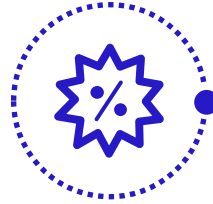
# Analysis Summary

Average numbers for the entire data set, TTM<sup>1</sup>



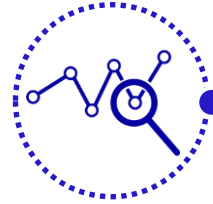
3-YEAR CAGR

13.2%



GROSS MARGIN

54.6%



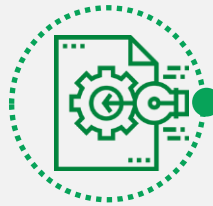
MARKET CAP

6.7X



NET PROFIT

13.5%



R&D

8.5%



SG&A

30.5%



INVENTORY TURNS

4.7



C2C (DAYS)

138.5



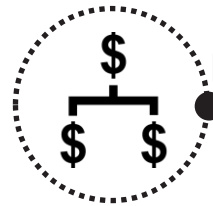
PP&E

27.5%



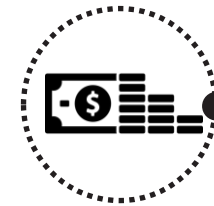
CAPEX

6.2%



FREE CASH FLOW

12.0%



ROIC

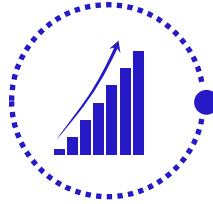
12.7%

## 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.

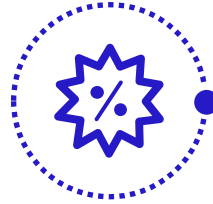
# Analysis Summary

Average numbers for the top-quartile market cap<sup>1</sup> multiple leaders



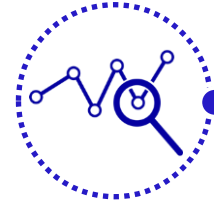
3-YEAR CAGR<sup>2</sup>

16.1%



GROSS MARGIN

61.2%



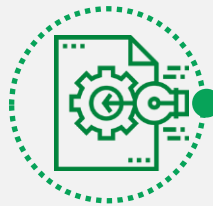
MARKET CAP

15.0X



NET PROFIT

13.5%



R&D

11.8%



SG&A

33.1%



INVENTORY TURNS

3.0



C2C (DAYS)

151.8



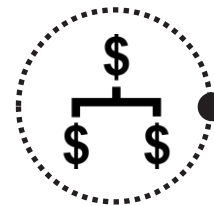
PP&E

32.1%



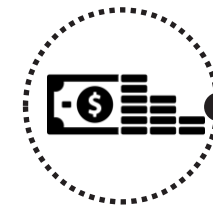
CAPEX

8.6%



FREE CASH FLOW

9.7%



ROIC

14.0%

## 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

Average metric value within the quartile and corresponding average market cap within the quartile

	n=122 METRIC	INDUSTRY BENCHMARKS			MARKET CAP MULTIPLE		
		Q4 AVG	MEDIAN	Q1 AVG	Q4 AVG	Q1 AVG	
OPERATIONS	3-Year CAGR	37.9%	8.1%	-1.4%	8.8	4.5	
	Gross Margin	73.2%	55.4%	33.5%	8.4	3.8	← Gross margin is important to market performance, indicating product superiority and pricing power are paramount.
	SG&A	53.6%	27.5%	11.6%	7.7	5.2	
	R&D	18.0%	14.8%	3.1%	11.5	6.9	
PROFIT	Operating Margin	33.9%	14.8%	-3.9%	9.4	5.7	← All forms of profitability have the highest correlation with market performance.
	EBITDA Margin	47.1%	21.3%	0.2%	9.4	6.4	
	Net Profit Margin	35.8%	11.7%	-5.7%	9.8	5.0	
CASH	Free Cash Flow	25.9%	12.8%	-3.3%	9.0	7.8	
	CAPEX % of Revenue	12.7%	4.7%	2.1%	7.9	4.3	
	PP&E (net) % of Revenue	49.0%	23.2%	12.2%	8.6	4.3	
ROI	ROIC % of Revenue	34.2%	8.8%	-3.3%	7.0	4.9	← All forms of ROI are strong indicators of market performance, at about the same level as profitability.
	ROA % of Revenue	24.6%	6.6%	-2.4%	8.5	4.8	
	ROPA % of Revenue	131.7%	34.6%	-17.4%	7.6	7.6	
	Economic Profit % of Revenue	23.9%	5.0%	-11.7%	9.0	6.7	
C2C	Inventory Turns	11.2	2.9	1.6	5.5	9.3	← Inventory turns and cash-to-cash (days) correlate little or negatively with market performance
	Payables (days)	247.5	126.0	48.2	9.3	5.6	
	Receivables (days)	115.4	61.9	38.0	5.5	8.6	
	Cash-to-Cash (days)	96.7	131.6	46.4	7.5	4.3	

**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.

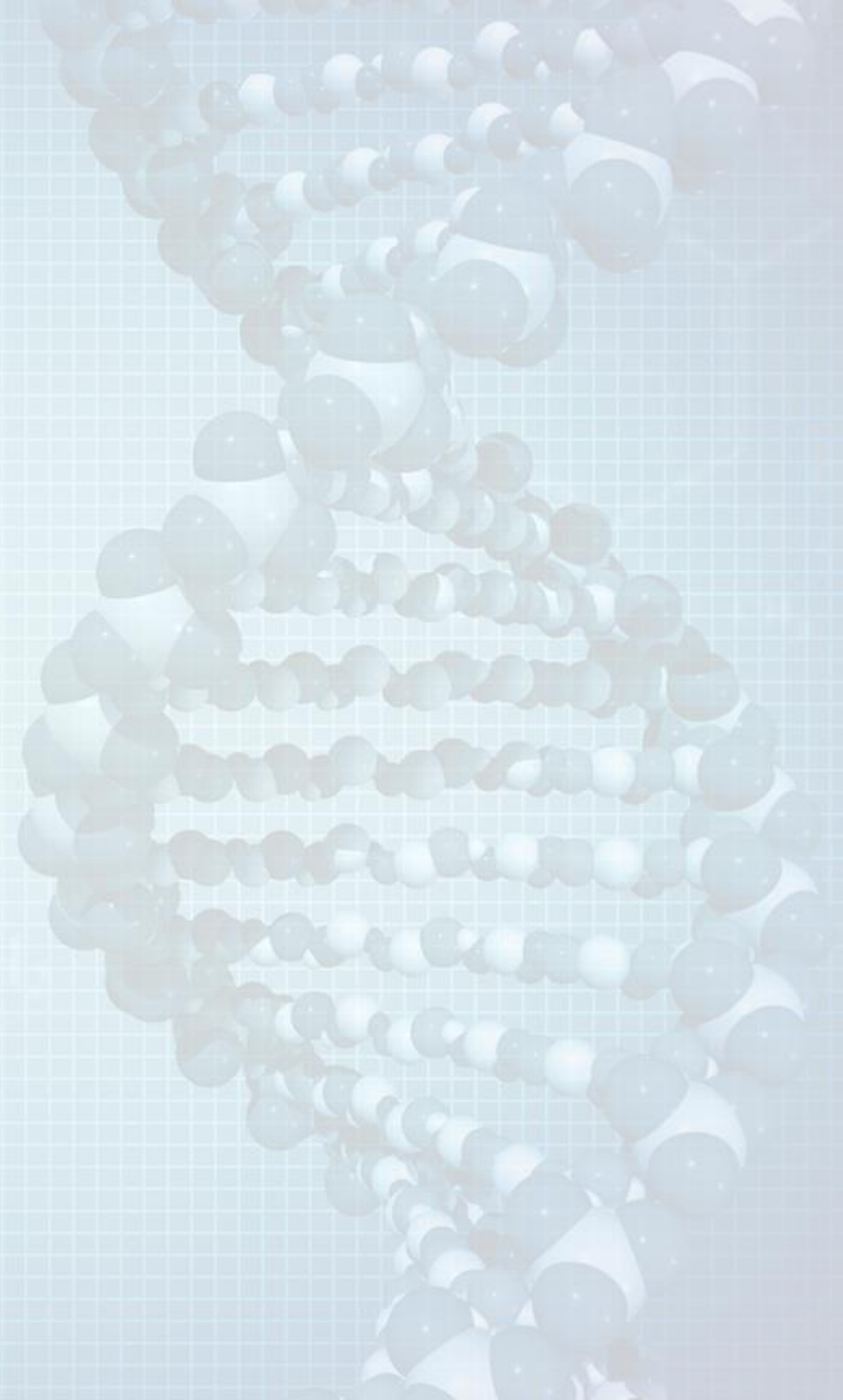
VARIABLE	DATA SET	QUARTILE (AVGS WITHIN EACH CAP QUARTILE)				DIFFERENCE
	AVG	TOP (Q4)	Q3	Q2	BOTTOM (Q1)	TOP-BOTTOM
Market Cap Multiple	6.7	15.0	6.8	3.6	1.4	10.8X
1-Year Growth	13.2%	16.1%	11.9%	13.3%	11.5%	4.6 pps
Gross Margin	54.6%	61.2%	56.3%	57.1%	43.9%	17.3 pps
SG&A	30.5%	33.1%	29.3%	33.3%	26.4%	6.7 pps
R&D	8.5%	11.8%	9.6%	6.8%	6.0%	5.8 pps
Operating Profit	15.0%	17.0%	14.9%	16.2%	12.1%	4.9 pps
Net Profit	13.5%	13.5%	21.2%	11.4%	8.3%	5.2 pps
Inventory Turns	4.7	3.0	3.3	3.5	9.3	-6.3 Turns
C2C Cycle (days)	138.5	151.8	155.0	153.8	92.8	58.9 Days
Net Cash	-14.8%	14.4%	-22.2%	-30.7%	-21.4%	35.8 pps
CAPEX	6.2%	8.6%	6.2%	5.1%	5.0%	3.5 pps
Free Cash Flow	12.0%	9.7%	15.4%	15.7%	7.5%	2.2 pps
ROIC	12.7%	14.0%	13.4%	11.5%	11.7%	2.3 pps
Return on Physical Assets	47.6%	34.6%	40.6%	71.3%	44.4%	-9.7 pps
Economic Profit	5.8%	6.8%	5.9%	6.5%	3.9%	3.0 pps

### NOTES & INSIGHTS

- Leaders have market cap multiples that are 2.2X average, and 10.8X laggards.
- Leaders have higher gross margins and spend significantly more on R&D.
- Leaders excel in all forms of profitability and return on investment.
- Leaders are not significantly better in free cash flow, presumably because they invest significantly more in CAPEX.
- 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. Primary data sources for the analysis are YCharts and Calcbench.
2. Companies included in this analysis are filtered based on available financial, operational, and market cap data. Some significant companies such as Samsung and LG have been excluded because of lack of market capitalization data from the primary data sources.
3. Free cash flow = operating cash flow minus CAPEX.
4. ROA = return on assets = net income divided by total assets.
5. ROIC = return on invested capital = net income divided by (total debt plus equity).
  1. Note: the formal definition of ROIC uses NOPAT in the numerator. Furthermore, some companies may employ their own specific definition. The results here will be close to the formal definition, but generally slightly less.
6. ROCE = return on capital employed = EBIT divided by capital employed. Capital employed = total assets minus total current liabilities.
7. ROPA = return on physical assets = operating profit divided by (PP&E (net) plus inventory).
8. Economic profit = net operating profit after taxes (NOPAT) minus weighted average cost of capital (WACC) times capital invested. Capital invested = Equity plus the non-current portion of debt. WACC is industry-specific, as publicly reported by Aswath Damodaran, NYU Stern Business School.
9. Inventory turns = COGS (end of period) divided by inventory (end of period).
10. C2C = cash-to-cash in days = days in receivables plus days in inventory minus days in payables.
11. Unless otherwise noted, all data are based on the most recent fiscal year (MRY) for each company, as reported in the SEC EDGAR database as of the date on the cover of this report.
12. Historical data is for fiscal years 2010-2020 for all companies. The number of companies grows for each year in the historical analysis, as more companies became public across the decade.
13. In the case of companies formed from mergers, the oldest company is used to designate the resultant company founding year.
14. 3-Year CAGR is based on the past four years of annual financial data.
15. 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 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.
16. EBITDA is calculated as operating income plus depreciation and amortization.
17. Adjusted EBITDA = EBITDA minus stock compensation
18. Cash = cash, cash equivalents, and marketable securities.
19. Total debt includes 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.
20. CAPEX = gross CAPEX, in other words it does not net out the sale of assets.
21. Enterprise value (EV) = market cap plus total debt minus cash.
22. Most companies allocate depreciation and amortization costs to individual cost buckets, including cost of revenue, SG&A, and R&D. 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.
23. Individual company YOY numbers may be distorted due to mergers and acquisitions. No attempt has been made to normalize for mergers, acquisitions, and divestitures.

# Notes and Definitions

24. 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. In a certain small number of cases, companies do not have an inventory entry on their balance sheets. In this case, to maintain consistency across calculations, inventory is assumed to be zero for those companies. This is most prevalent in service-oriented industries such as transportation and wholesale distribution, where certain companies own zero inventory. This may have the effect of slightly overstating aggregate inventory turns versus if the calculation were only done for those companies that carry inventory. (Note: in goods-producing industries, companies without COGS or without inventories have been filtered out of the analysis).





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