Hitech Electronics Industry Operating Benchmarks

Operational and market capitalization data for 169 Hitech Electronics companies

1-Jan-2022

worldlocity

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.

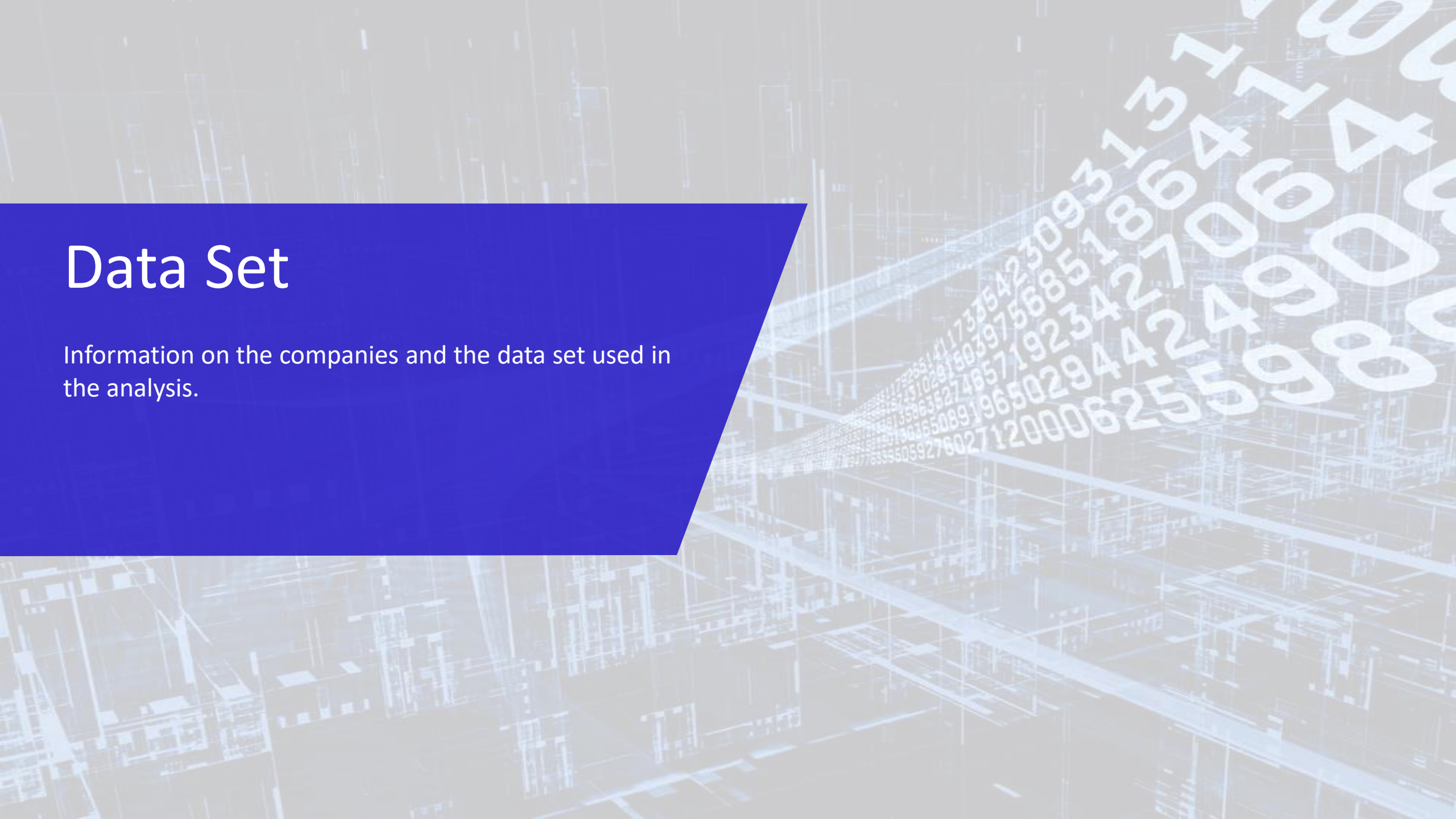
Contents

2022 Hitech Electronics Industry Report: Key Takeaways

- The Hitech Electronics industry 3-year CAGR is 6.2% (overall dollars growth). The average company 3-year CAGR is 3.9%.
- The average Hitech Electronics company has gross margins of 33.3%, invests 16.0% of revenue in selling, general, and administrative expense, 7.8% in research and development, and generates 9.7% operating margin, 15.2% EBITDA margin, 6.8% free cash flow, and 10.8% return on invested capital.
- The Hitech Electronics company average inventory turns is 6.0. The median is 4.1. 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 Hitech Electronics company has 32.0% PP&E, and 31.1% in goodwill and intangibles, all as a percentage of revenue. Goodwill and intangibles are a proxy for mergers and acquisitions; based on this measure, Hitech Electronics is among the top industries in mergers and acquisitions. In a sign of the "intangibles economy," and of increasing IP content in their products and services, Hitech Electronics companies have almost as many intangible assets as physical assets.
- As expected, Hitech Electronics 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.
- Hitech Electronics 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).
- Hitech Electronics companies with higher IP content in their products invest more in R&D, have higher gross margins, and significantly higher market cap multiples. There is a symbiotic relationship between gross margin and R&D investment: higher R&D investment leads to more differentiated products and higher gross margins; on the other hand, differentiated products create higher gross margins, which allows for higher R&D investment. Companies in a low gross margin trap may have challenges breaking out of it without multi-year increases in R&D investment (or M&A).
- 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 2.7X average and 24.0X 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 169 publicly-traded Hitech Electronics companies.

169

REVENUE

Aggregate revenue for companies in the data set is $2.2 trillion for the latest reporting fiscal year as of the date on the cover of this report.

$2.2T

MARKET CAPITALIZATION

Aggregate market cap for companies in the data set is $5.4 trillion as of date on the cover of this report.

$5.4T

Notes:

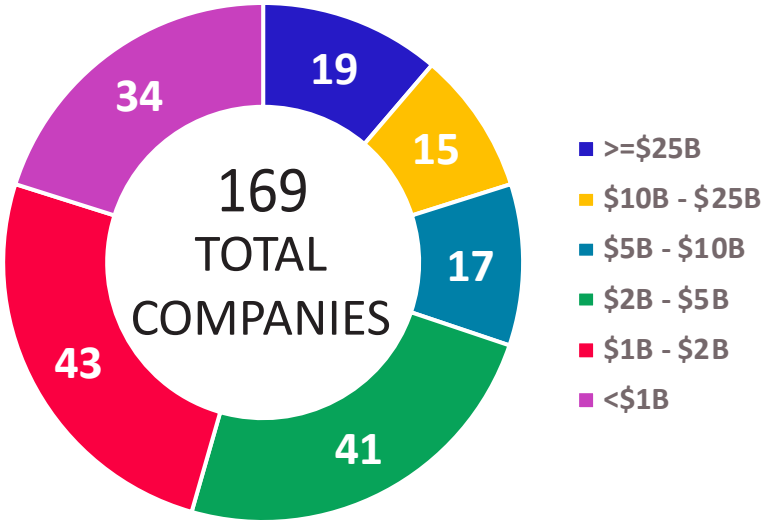
1. Unless otherwise noted, all company financial data are based on trailing twelve months results as of the date on the cover of this report.
2. All market capitalizations are as of the date on the cover of this report.
3. M=million; B=billion; T=trillion.

Data Set
Companies included in this report

3D Systems Corp
AAC Technologies Holdin
Acer Inc
Adtran Inc
ADVA Optical Networking
Alps Alpine Co Ltd
Amano Corp
Amphenol Corp
Anritsu Corp
Apple Inc
Arista Networks Inc
Array Technologies Inc
Asustek Computer Inc
AT&S Austria Technologi
Atotech Ltd
AU Optronics Corp
Barco NV
Bel Fuse Inc
Belden Inc
Benchmark Electronics I
BOE Varitronix Ltd
BYD Electronic (Interna
Canadian Solar Inc
Canon Inc
Casio Computer Co Ltd
Celestica Inc
China Aerospace Interna
China Shuifa Singyes En
Ciena Corp
Cisco Systems Inc
Cognex Corp
Coherent Inc
Comba Telecom Systems H
CommScope Holding Co In
Comtech Telecommunicati
Corning Inc
Corsair Gaming Inc
Cricut Inc
CTS Corp
Daktronics Inc
Dell Technologies Inc
EchoStar Corp
Elecom Co Ltd
Enphase Energy Inc
ESCO Technologies Inc
Eutelsat Communications
Extreme Networks Inc
Fabrinet
FIH Mobile Ltd
First Solar Inc
FIT Hon Teng Ltd
Flex Ltd
Fortive Corp
Funai Electric Co Ltd
Garmin Ltd
GCL-Poly Energy Holding
GoPro Inc
Hamamatsu Photonics KK
Hewlett Packard Enterpr
Hexagon AB
Hirose Electric Co Ltd
Hon Hai Precision Indus
Horiba Ltd
HP Inc
Ibiden Co Ltd
II-VI Inc
Infinera Corp
Itron Inc
Jabil Inc
Japan Aviation Electron
Japan Display Inc
Jenoptik AG
Jeol Ltd
JinkoSolar Holding Co L
Juniper Networks Inc
JVCKenwood Corp
Key Tronic Corp
Keyence Corp
Keysight Technologies I
Kingboard Laminates Hol
Knowles Corp
Koa Corp
Kyocera Corp
Lasertec Corp
Legend Holdings Ltd
Lenovo Group Ltd
LG Display Co Ltd
Littelfuse Inc
Logitech International
Lumentum Holdings Inc
Maxar Technologies Inc
Maxeon Solar Technologi
Methode Electronics Inc
Minebea Mitsumi Inc
MKS Instruments Inc
Motorola Solutions Inc
Murata Manufacturing Co
NetApp Inc
Netgear Inc
Nippon Electric Glass C
Nokia Oyj
Noritsu Koki Co Ltd
Novanta Inc
Oki Electric Industry C
OMRON Corp
OSI Systems Inc
Panasonic Corp
PC Partner Group Ltd
Plantronics Inc
Plexus Corp
Pure Storage Inc
Quanta Computer Inc
Razer Inc
Renishaw PLC
Rogers Corp
Samsung Electronics Co
Sanmina Corp
Sato Holdings Corp
Seagate Technology Hold
Seiko Epson Corp
Sensata Technologies Ho
Sharp Corp
Shimadzu Corp
Sierra Wireless Inc
Skyworth Group Ltd
SMA Solar Technology AG
SolarEdge Technologies
Sonos Inc
Sony Group Corp
Spectris PLC
Stratasys Ltd
Sunny Optical Technolog
SunPower Corp
Sunrun Inc
Super Micro Computer In
Taiyo Yuden Co Ltd
TCL Electronics Holding
TDK Corp
TE Connectivity Ltd
Teledyne Technologies I
Telefonaktiebolaget L M
Tessco Technologies Inc
Tokyo Ohka Kogyo Co Ltd
Topcon Corp
Toshiba Tec Corp
Trimble Inc
Truly International Hol
TT Electronics PLC
TTM Technologies Inc
Ubiquiti Inc
ULVAC Inc
Universal Electronics I
V Technology Co Ltd
Vaisala Oyj
Venture Corp Ltd
Viasat Inc
Viavi Solutions Inc
VIZIO Holding Corp
Vontier Corp
VOXX International Corp
VTech Holdings Ltd
Wacom Co Ltd
Western Digital Corp
Xiaomi Corp
Xinyi Solar Holdings Lt
Yangtze Optical Fibre a
Zebra Technologies Corp
Zepp Health Corp
ZTE Corp

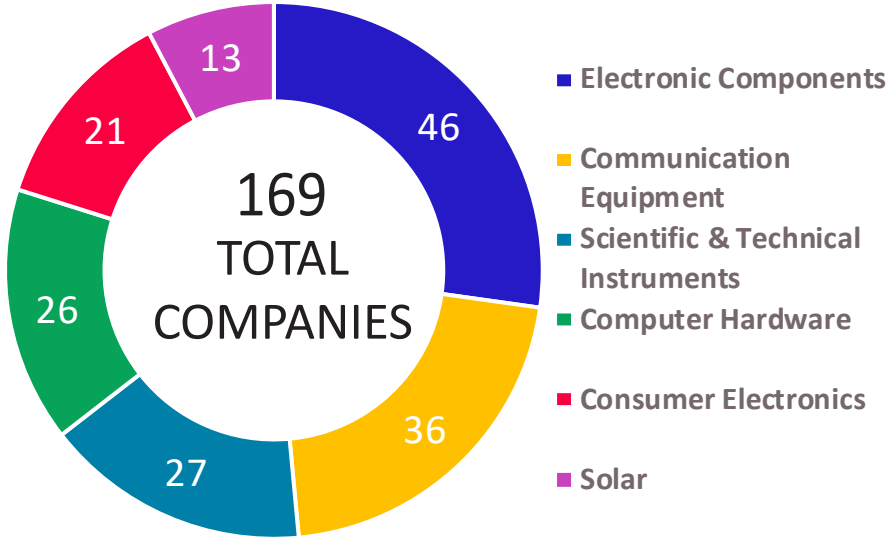
Data Set
Company distribution

BY ANNUAL REVENUE

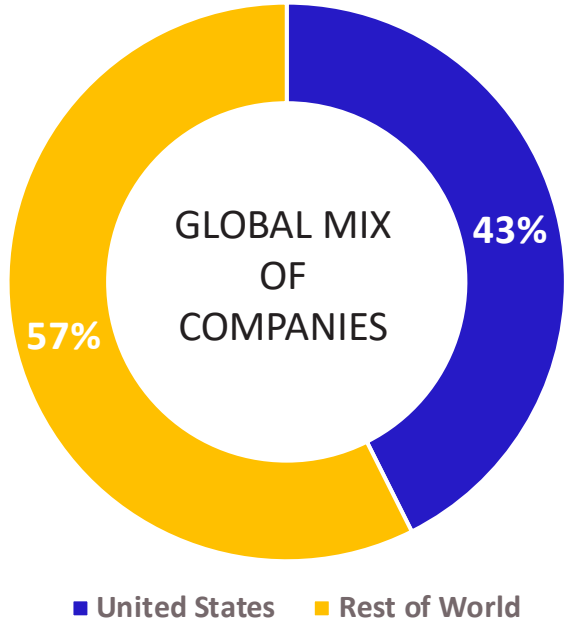


MEDIAN REVENUE = **$2,229M**

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

GROWTH RATE

GROSS MARGIN

SELLING, GENERAL, AND ADMIN

RESEARCH & DEVELOPMENT

REVENUE PER EMPLOYEE

OPERATING PROFIT

NET PROFIT

FREE CASH FLOW

STOCK COMPENSATION

CASH

DEBT

NET CASH

EBITDA

EQUITY

CAPITAL EXPENDITURES (CAPEX)

PROPERTY, PLANT, AND EQUIPMENT (PP&E, NET)

GOODWILL

DEFERRED REVENUE

REMAINING PERFORMANCE OBLIGATIONS (RPOS)

INVENTORY

DAYS IN PAYABLES

DAYS IN RECEIVABLES

CASH-TO-CASH CYCLE

CAPITALIZATION TO REVENUE

CAPITALIZATION TO EBITDA

RETURN ON INVESTED CAPITAL

RETURN ON ASSETS

RETURN ON PHYSICAL ASSETS

ECONOMIC PROFIT

Data Set

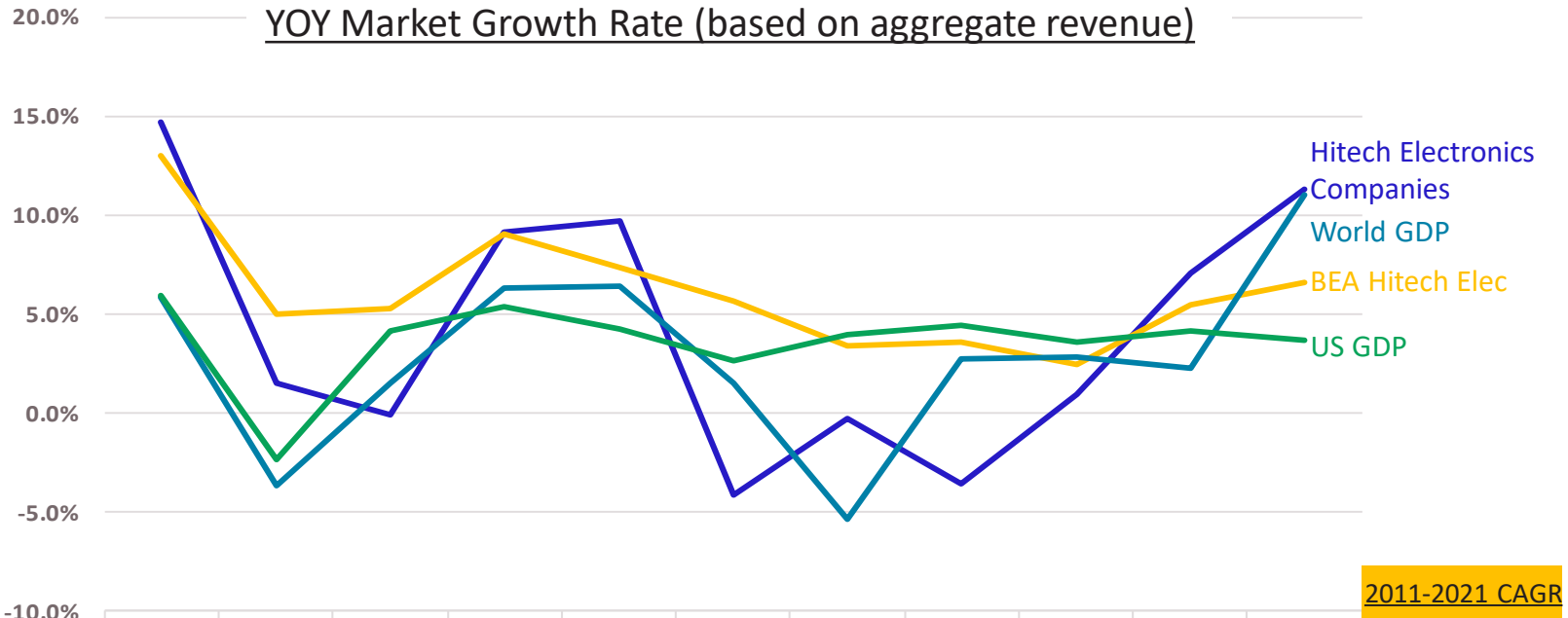
Three different analysis approaches in this analysis

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 % = (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.	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 Hitech Electronics market. Charts in this section use the “aggregate averages” approach.

Overall Market
YOY growth rates, 2011-2021



	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2011-2021 CAGR
Hitech Electronics Companies	14.7%	1.5%	0.0%	9.1%	9.8%	-4.1%	-0.3%	-3.6%	1.0%	7.1%	11.3%	**4.2%**
BEA Hitech Electronics Output	13.0%	5.0%	5.3%	9.1%	7.4%	5.7%	3.4%	3.6%	2.4%	5.5%	6.7%	**6.7%**
World GDP (current $)	5.9%	-3.6%	1.5%	6.3%	6.5%	1.5%	-5.3%	2.8%	2.9%	2.3%	11.1%	**2.8%**
US GDP (current $)	6.0%	-2.3%	4.1%	5.4%	4.3%	2.7%	4.0%	4.4%	3.6%	4.2%	3.7%	**3.6%**

NOTES & INSIGHTS

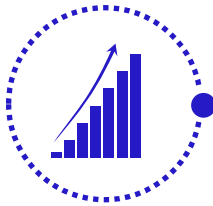
- Hitech electronics market CAGR for the past decade was 4.2%, which is higher than the global current dollar GDP growth rate (2.8%).
- BEA numbers are for US domestic output only. They are shown here for comparison purposes only.
- Growth rates in the early part of the decade were higher, probably due to the rebound from the great recession of 2009-2010.

Notes:

1. "Hitech Electronics 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 Hitech Electronics 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=gdpxind), GDP by Industry. Hitech Electronics output as defined here is based on output of the following sub-industries: computer and electronics products; data processing, internet publishing, and other information services; and computer systems design and related services. 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)
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 Hitech electronics 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.

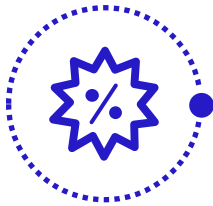
Analysis Summary

Operational ratios based on aggregate data, TTM[1]



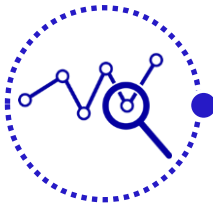
3-YEAR CAGR[2]

6.0%



GROSS MARGIN

30.1%

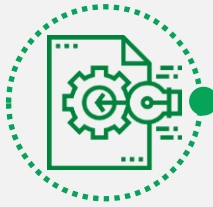


MARKET CAP[3]

2.5X

NET PROFIT

11.1%



R&D

6.1%

SG&A

10.9%

INVENTORY TURNS

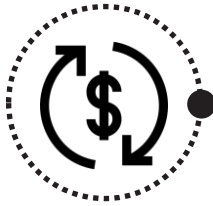
6.0

C2C (DAYS)

31.9

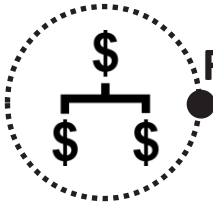
PP&E

20.0%



CAPEX

5.0%



FREE CASH FLOW

10.2%

ROIC

15.5%

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	2010	2000
															HISTORY	
OPERATIONS	Growth Rate (3YRCAGR)	6.0%	6.2%	4.8%	3.6%	3.7%	0.4%	-1.8%	0.9%	3.4%	1.0%	7.1%	11.3%	3.7%		
	Gross Margin	30.1%	29.8%	28.2%	27.7%	29.0%	29.2%	28.4%	28.2%	28.0%	27.8%	27.5%	26.6%	28.2%	26.8%	32.3%
	SG&A % of Revenue	10.9%	11.0%	12.0%	12.2%	11.9%	12.5%	12.7%	12.4%	12.7%	12.8%	12.8%	11.4%	12.2%	12.2%	17.9%
	R&D % of Revenue	6.1%	6.2%	6.6%	6.3%	6.1%	5.9%	5.8%	5.2%	5.4%	5.0%	4.9%	5.3%	5.7%	5.4%	9.4%
	Inventory Turns (COGS/Inv)	6.0	6.2	6.5	7.2	6.8	7.0	7.8	8.2	7.7	8.5	8.0	7.4	7.4	7.7	5.0
	Days in Inventory	61.0	58.8	56.2	50.9	53.4	52.5	46.6	44.4	47.1	43.0	45.7	49.4	49.8	47.1	73.3
PROFIT & CASH FLOW	Operating Income	13.3%	12.8%	10.0%	9.5%	11.2%	11.1%	10.1%	10.8%	10.1%	9.9%	9.7%	8.7%	10.4%	8.4%	9.5%
	Net Profit	11.1%	10.7%	7.5%	7.3%	7.9%	7.3%	7.3%	7.8%	7.9%	6.3%	2.9%	5.6%	7.1%	6.1%	4.9%
	EBITDA	19.1%	19.6%	15.8%	15.8%	17.1%	16.2%	15.7%	16.2%	15.8%	15.0%	14.0%	13.6%	15.9%	13.3%	14.2%
	Operating Cash Flow	15.2%	15.2%	15.0%	12.6%	12.9%	12.9%	13.6%	13.8%	13.9%	13.3%	12.0%	11.1%	13.3%	12.1%	7.4%
	FCF % of Revenue	10.2%	10.1%	9.9%	7.5%	7.4%	6.6%	8.1%	8.5%	8.9%	8.2%	6.3%	5.2%	7.9%	6.6%	1.5%
	CAPEX % of Revenue	5.0%	5.1%	5.1%	5.2%	5.5%	6.3%	5.5%	5.3%	5.0%	5.0%	5.7%	5.9%	5.4%	5.4%	5.9%
	Stock Compensation	1.3%	1.3%	1.3%	1.2%	1.5%	1.3%	1.3%	1.2%	1.2%	1.0%	0.9%	0.9%	1.2%	0.9%	
	Days in Receivables	53.5	53.6	53.9	56.1	54.9	55.9	50.6	49.0	56.1	53.8	53.2	52.9	53.6	56.3	66.3
	Days in Payables	82.6	74.8	75.3	72.4	77.0	78.8	68.6	60.1	63.8	55.4	60.6	69.2	68.7	68.5	61.9
	Cash-to-Cash Cycle (Days)	31.9	37.5	34.8	34.6	31.3	29.6	28.5	33.3	39.5	41.5	38.2	33.0	34.7	35.0	77.6
ASSETS	Property, Plant, Equipment %	20.0%	20.5%	22.8%	21.0%	20.6%	21.4%	19.8%	18.5%	19.6%	19.1%	20.2%	20.2%	20.3%	20.2%	19.2%
	Cash % of Revenue	22.9%	24.6%	29.2%	26.1%	25.4%	28.6%	28.8%	24.9%	23.4%	23.0%	21.7%	21.5%	25.2%	23.0%	16.5%
	Debt % of Revenue	25.5%	26.9%	28.9%	27.3%	26.2%	28.3%	24.0%	18.2%	16.9%	15.5%	15.5%	16.7%	22.2%	15.4%	18.5%
	Goodwill and Intangibles % of I	20.8%	21.3%	22.4%	22.4%	21.2%	22.0%	16.1%	13.4%	14.9%	13.7%	12.1%	13.5%	17.5%	13.7%	23.0%
ROI	ROA	9.0%	8.6%	5.6%	5.8%	6.2%	5.5%	5.8%	6.9%	6.9%	5.8%	2.8%	5.2%	5.9%	5.7%	4.5%
	ROIC	15.5%	14.7%	9.7%	9.9%	10.6%	9.2%	9.8%	11.6%	11.6%	9.6%	4.8%	8.7%	10.0%	9.5%	6.7%
	Return on Physical Assets	42.2%	40.4%	29.5%	30.5%	36.0%	35.3%	35.0%	40.7%	35.0%	36.0%	34.1%	28.9%	34.7%	28.2%	29.6%
	Economic Profit % of Revenue	7.1%	6.6%	-192.7%	3.6%	4.4%	5.3%	3.5%	4.2%	4.1%	4.3%	4.4%	3.2%	-13.6%	2.5%	1.0%
CAP	Market Cap / Revenue	2.5	2.6	2.9	2.7	1.9	1.5	1.9	1.4	1.2	1.3	1.2	1.1	1.8	1.0	2.1
	Market Cap / EBITDA	13.2	13.2	18.6	14.7	8.8	7.2	9.0	6.2	6.8	7.6	7.3	7.0	9.7	5.9	14.6

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 169 companies investigated. This shows that the average hitech electronics company operates with a gross margin of 33.3% , spends 16.0% of revenue on SG&A, 7.8% on R&D, and has inventory turns of 6.0 , operating income of 9.7% , net income of 7.2%, free cash flow of 6.8% , and return on invested capital of 10.8%.

	REVENUE (TTM)		OPERATIONS				PROFIT AND CASH			
	Annual Revenue ($M)	3-Year CAGR	Gross Margin	SG&A	R&D	Inventory Turns	Operating Income	Net Income	Free Cash Flow	ROIC
Average	$12,792	3.9%	33.3%	16.0%	7.8%	6.0	9.7%	7.2%	6.8%	10.8%
Median	$2,229	2.6%	32.7%	15.1%	6.1%	4.1	8.9%	7.2%	6.4%	8.0%

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[1]

Market cap multiples for smaller companies are larger than larger companies. SG&A and R&D costs are also significantly higher, with operating income, free cash flow and return on invested capital all significantly lower.

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	43	$44,302	3.3%	2.0	28.1%	11.8%	6.3%	6.2	10.9%	8.9%	7.8%	16.7%
Quartile 3	42	$3,778	4.2%	3.0	33.8%	14.5%	8.4%	5.9	11.5%	9.1%	8.1%	10.1%
Quartile 2	42	$1,609	6.6%	3.2	37.6%	18.5%	7.8%	5.9	9.6%	6.9%	4.8%	10.9%
Quartile 1	42	$727	1.5%	3.1	33.7%	19.5%	9.1%	5.9	6.9%	3.7%	6.5%	5.4%

REVENUE QUARTILES ($M)

Quartile 4 >= $6,432
Quartile 3 >= $2,229 , < $6,432
Quartile 2 >= $1,148 , < $2,229
Quartile 1 < $1,148

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[1]

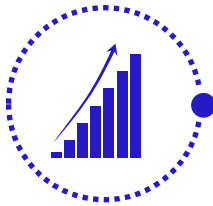
3-YEAR CAGR	GROSS MARGIN	MARKET CAP	NET PROFIT
3.9%	33.3%	2.8X	7.2%
R&D	SG&A	INVENTORY TURNS	C2C (DAYS)
7.8%	16.0%	6.0	98.8
PP&E	CAPEX	FREE CASH FLOW	ROIC
32.0%	5.6%	6.8%	10.8%

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.

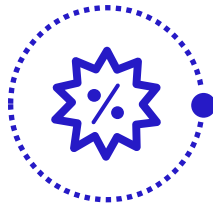
Analysis Summary

Average numbers for the top-quartile market cap[1] multiple leaders



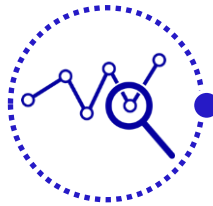
3-YEAR CAGR[2]

8.9%



GROSS MARGIN

47.7%

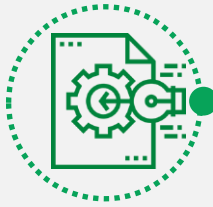


MARKET CAP

7.7X

NET PROFIT

15.6%



R&D

10.2%

SG&A

19.9%

INVENTORY TURNS

5.2

C2C (DAYS)

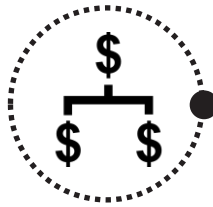
129.8

PP&E

38.1%

CAPEX

7.3%



FREE CASH FLOW

13.0%

ROIC

17.5%

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=169 METRIC	INDUSTRY BENCHMARKS Q4 AVG	INDUSTRY BENCHMARKS MEDIAN	INDUSTRY BENCHMARKS Q1 AVG	MARKET CAP MULTIPLE Q4 AVG	MARKET CAP MULTIPLE Q1 AVG
OPERATIONS	3-Year CAGR	18.2%	2.6%	-7.5%	4.9	1.3
	Gross Margin	54.6%	32.7%	13.0%	6.1	0.7
	SG&A	29.4%	15.1%	4.8%	3.0	2.2
	R&D	15.8%	8.9%	2.2%	4.6	1.4
PROFIT	Operating Margin	22.6%	8.9%	-1.7%	6.7	1.2
	EBITDA Margin	31.7%	13.8%	1.3%	6.0	1.1
	Net Profit Margin	19.9%	7.2%	-5.4%	6.7	1.3
CASH	Free Cash Flow	21.8%	6.4%	-8.3%	6.6	1.2
	CAPEX % of Revenue	14.3%	3.4%	1.0%	3.7	2.6
	PP&E (net) % of Revenue	87.1%	17.0%	5.5%	2.0	2.9
ROI	ROIC % of Revenue	30.0%	8.0%	-4.1%	4.4	1.4
	ROA % of Revenue	16.5%	5.3%	-2.7%	5.4	1.4
	ROPA % of Revenue	96.1%	21.5%	-2.2%	5.3	1.4
	onomic Profit % of Revenue	13.5%	2.2%	-8.5%	6.5	1.6
C2C	Inventory Turns	13.0	4.1	2.4	2.3	4.1
	Payables (days)	166.8	89.5	42.0	4.0	2.4
	Receivables (days)	127.2	68.1	43.8	3.8	3.3
	Cash-to-Cash (days)	128.5	89.1	15.3	4.7	1.6

Gross margin is important to market performance, indicating product superiority and pricing power are paramount.

All forms of profitability have the highest correlation with market performance.

All forms of ROI are strong indicators of market performance, but less so than profitability.

Inventory turns and cash-to-cash (days) correlate little or negatively with market performance

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 AVG	QUARTILE (AVGS WITHIN EACH CAP QUARTILE)				DIFFERENCE
		TOP (Q4)	Q3	Q2	BOTTOM (Q1)	TOP-BOTTOM
Market Cap Multiple	2.8	7.7	2.1	1.0	0.3	24.0X
1-Year Growth	3.9%	8.9%	3.2%	2.1%	1.4%	7.6 pps
Gross Margin	33.3%	47.7%	36.3%	30.6%	18.1%	29.6 pps
SG&A	16.0%	19.9%	18.7%	15.2%	10.2%	9.7 pps
R&D	7.8%	10.2%	9.1%	8.6%	3.5%	6.7 pps
Operating Profit	9.7%	17.9%	9.3%	7.5%	4.1%	13.8 pps
Net Profit	7.2%	15.6%	4.4%	5.5%	3.0%	12.7 pps
Inventory Turns	6.0	5.2	7.0	6.5	5.3	-0.2 Turns
C2C Cycle (days)	98.8	129.8	86.4	104.0	74.4	55.4 Days
Net Cash	-5.9%	0.7%	-8.5%	-5.9%	-9.8%	10.5 pps
CAPEX	5.6%	7.3%	5.5%	6.4%	3.1%	4.2 pps
Free Cash Flow	6.8%	13.0%	8.2%	3.2%	2.8%	10.2 pps
ROIC	10.8%	17.5%	7.6%	11.5%	6.4%	11.1 pps
Return on Physical Assets	34.9%	76.2%	29.3%	21.3%	11.9%	64.3 pps
Economic Profit	2.6%	7.1%	2.2%	0.7%	0.2%	6.9 pps

NOTES & INSIGHTS

- Leaders have market cap multiples that are 2.7X average, and 24.0X laggards.
- Leaders have significantly higher gross margins and investments in R&D. This is perhaps a chicken-and-egg question: does the higher investment in R&D result in a higher gross margin product, or does the higher gross margin product allow for a higher investment in R&D? It is likely a symbiotic and self-reinforcing relationship.
- 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. 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 employed. Capital employed = Total assets minus total current liabilities. 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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