

Wholesale Distribution Industry Operating Benchmarks

Operational and market capitalization data for 63 wholesale
distribution companies

21 April 2021



Version



VERSION	NOTES
2021-1.1	Initial version, dated 04.21.21

Contents

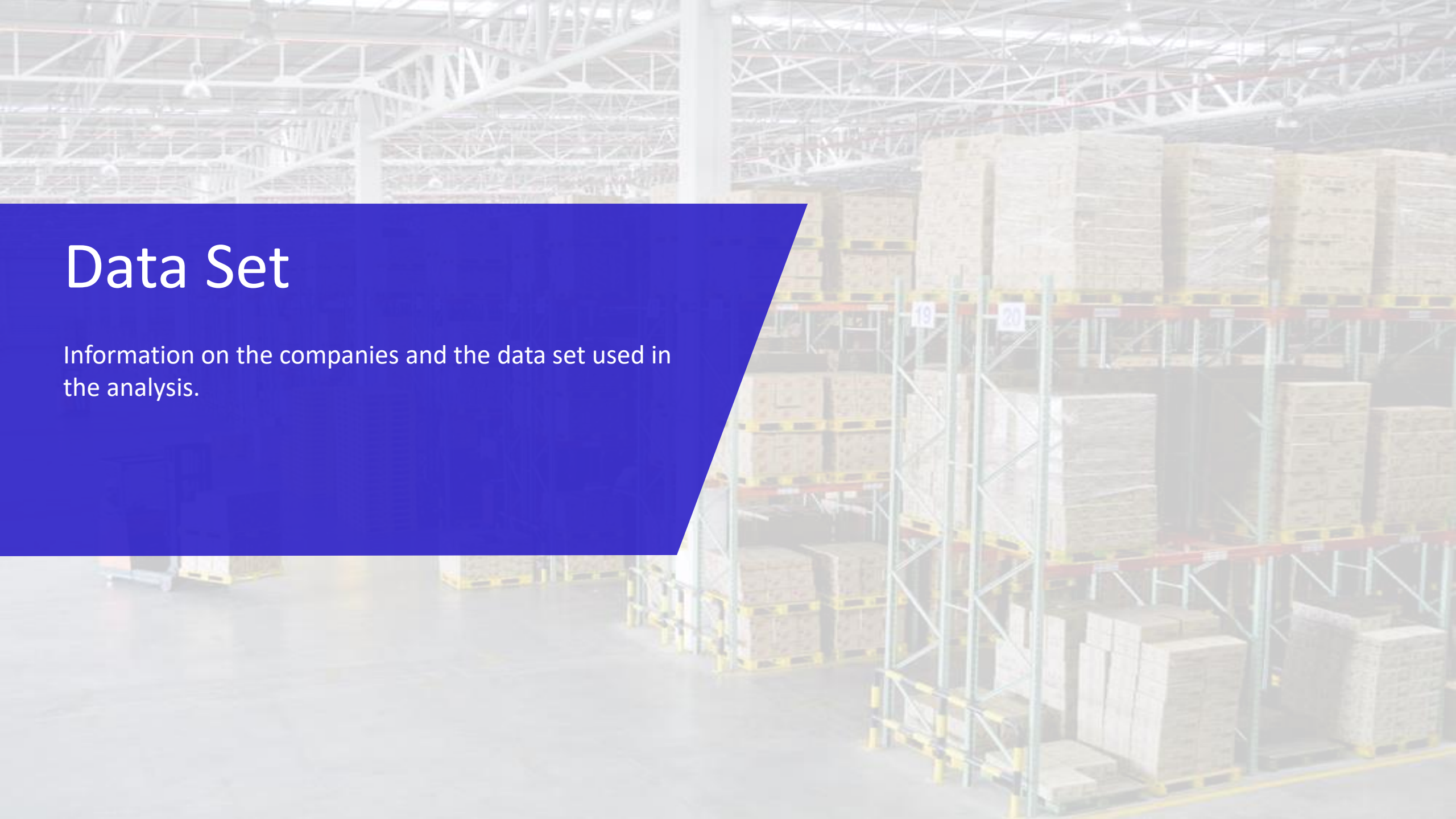
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2021 Wholesale Distribution Industry Report: Key Takeaways

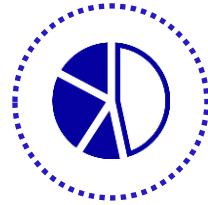
- The Wholesale Distribution industry 3-year CAGR is 5.2% (overall dollars growth). The average company 3-year CAGR is 4.5% .
- The average Wholesale Distribution company has gross margins of 20.7%, invests 14.1% of revenue in selling, general, and administrative expense, 0.5% in research and development, and generates 3.9% operating margin, 3.8% EBITDA margin, 5.2% free cash flow, and 2.1% return on invested capital.
- The Wholesale Distribution company average inventory turns is 8.9 . The median is 6.0 .
- The average Wholesale Distribution company has 11.0% PP&E, and 17.0% in goodwill, and intangibles, all as a percentage of revenue. Goodwill and intangibles are a proxy for mergers and acquisitions; based on this measure, Wholesale Distribution is among the lowest industries in mergers and acquisitions. That said, wholesale distributors operate with a low physical asset base as a percentage of revenue and are carrying significantly more goodwill and intangibles on their balance sheets than physical assets.
- As expected, Wholesale Distribution 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.
- Wholesale Distribution 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).
- Wholesale Distribution is a low gross margin industry, providing almost a pass-through service. Companies with higher gross margins generate higher operating margins and return on investment and have significantly higher market cap multiples.
- 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 18.2X 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 63 publicly-traded Wholesale Distribution companies.

▶ **63**



REVENUE

Aggregate revenue for companies in the data set is \$1.2 trillion for the latest reporting fiscal year as of the date on the cover of this report.

▶ **\$1.2T**



MARKET CAPITALIZATION

Aggregate market cap for companies in the data set is \$377 billion as of date on the cover of this report.

▶ **\$377B**

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

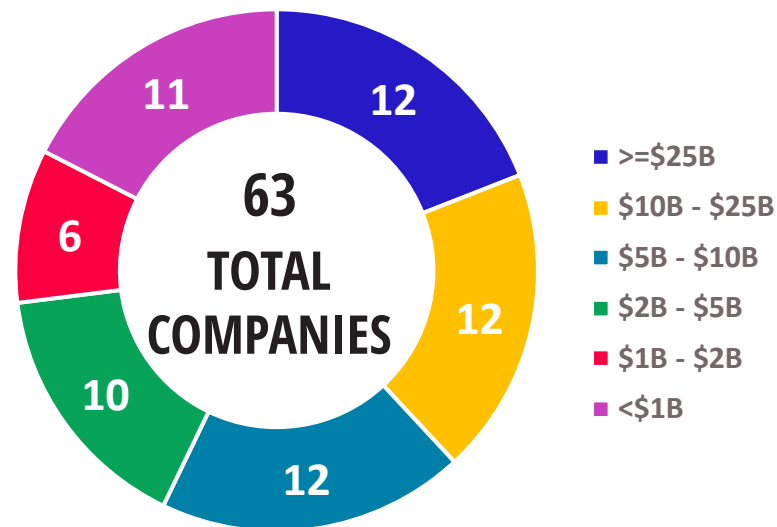


A.M. Castle & Co	Henry Schein Inc	Prestige Consumer Health	Watsco Inc
Amcon Distributing Co	HF Foods Group Inc	Rexel SA	Wayside Technology Group
AmerisourceBergen Corp	Houston Wire & Cable Co	Rheinmetall AG	WESCO International Inc
Andersons Inc	Huttig Building Products	Russel Metals Inc	
Andritz AG	Indutrade AB	ScanSource Inc	
Applied Industrial Technologies	Jeronimo Martins SGPS SA	Shanghai Pharmaceutical	
Arrow Electronics Inc	Lawson Products Inc	Shinko Shoji Co Ltd	
Atacadao SA	McKesson Corp	Sinopharm Group Co Ltd	
Avnet Inc	McKesson Europe AG	SiteOne Landscape Supply	
Axfood AB	Medipal Holdings Corp	Spar Group Ltd	
Bunzl PLC	Metcash Ltd	SpartanNash Co	
Cardinal Health Inc	METRO AG	Sysco Corp	
Colabor Group Inc	Mitsubishi Shokuhin Co	Systemax Inc	
Core-Mark Holding Co Inc	MSC Industrial Direct Co	The Chefs' Warehouse Inc	
DXP Enterprises Inc	Olam International Ltd	Titan Machinery Inc	
EACO Corp	Owens & Minor Inc	Toromont Industries Ltd	
Electrocomponents PLC	Park-Ohio Holdings Corp	United Natural Foods Inc	
EVI Industries Inc	Patterson Companies Inc	US Foods Holding Corp	
Fastenal Co	PC Connection Inc	Vital KSK Holdings Inc	
Finning International Inc	Performance Food Group	W.W. Grainger Inc	

Data Set

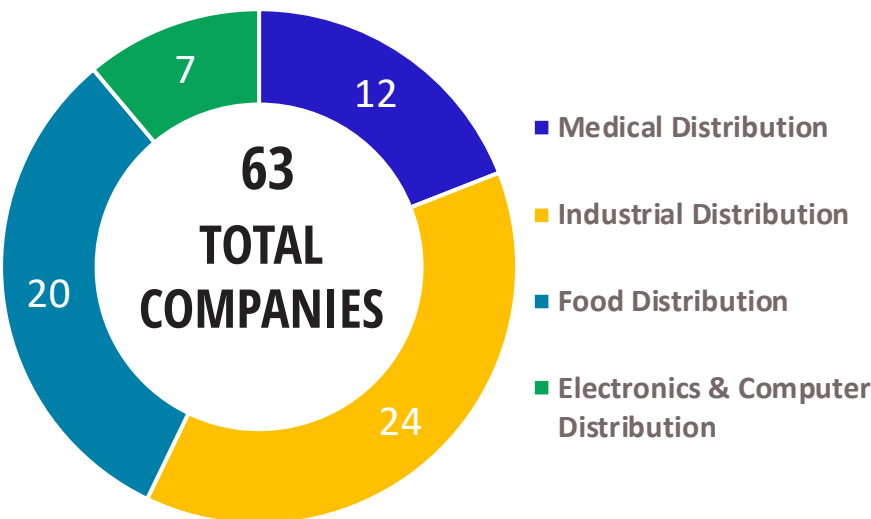
Company distribution

BY ANNUAL REVENUE

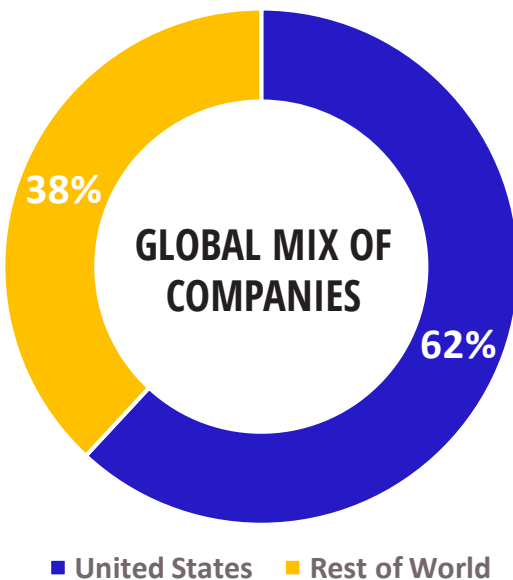


MEDIAN REVENUE = \$5,865M

BY SUB-INDUSTRY



GEOGRAPHIC REGION



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3. M=million; B=billion; T=trillion.

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 historical period from 2010-2020.

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 % = $\frac{(\text{sum of all revenues minus sum of all COGS})}{\text{sum of all revenues}}$	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">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.

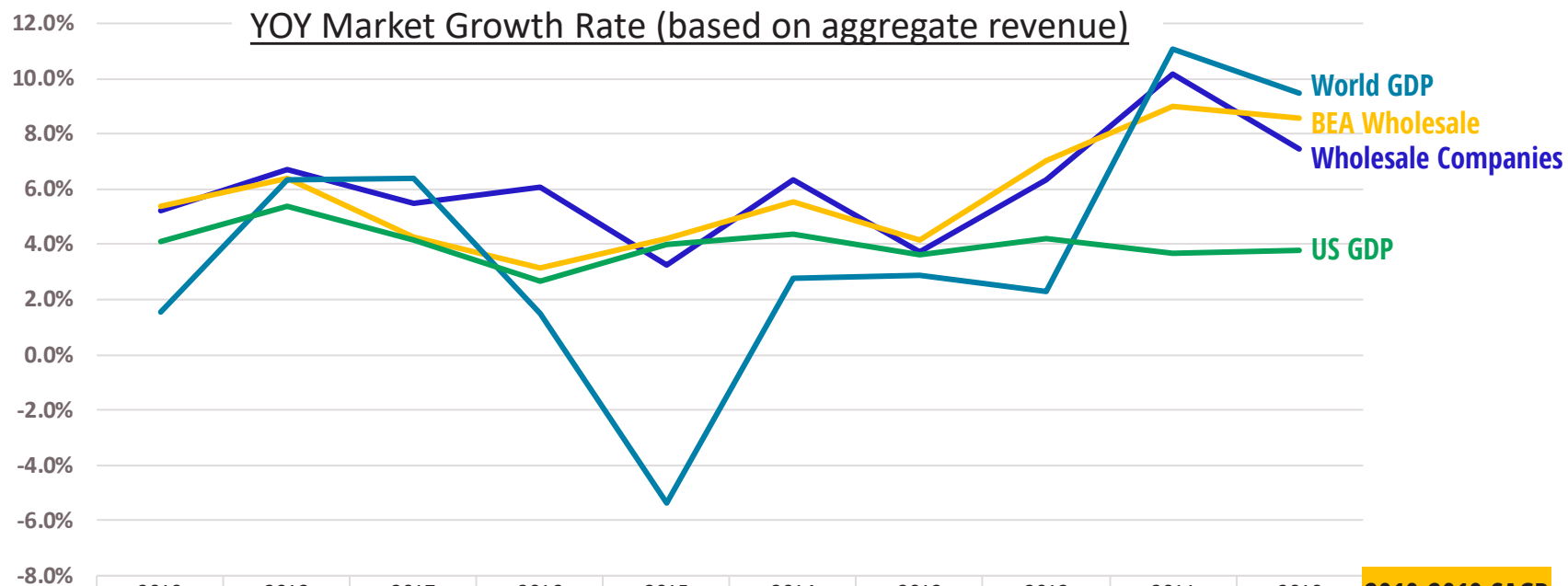
Overall Market

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



Overall Market

YOY growth rates, 2010-2019



NOTES & INSIGHTS

- Wholesale Distribution market CAGR for the decade of the 2010s was 6.1%, which is considerably higher than the global current dollar GDP growth rate (3.2%). BEA Wholesale CAGR for the decade was 5.4%, consistent with the revenue represented by this group of companies.
- Growth rates in the early part of the decade were higher, probably due to the rebound from the great recession of 2009-2010.

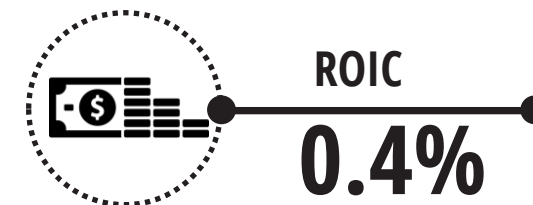
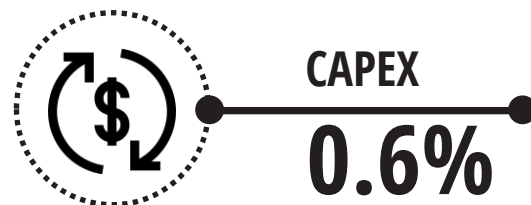
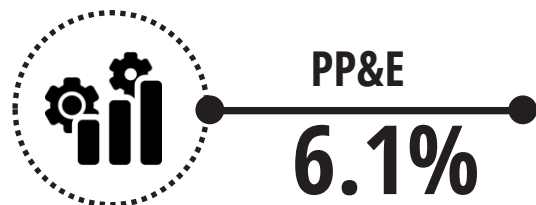
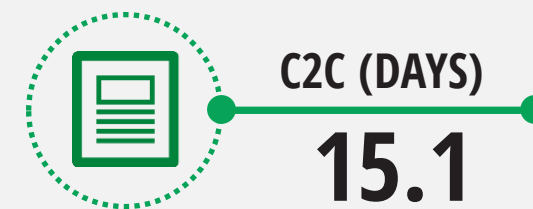
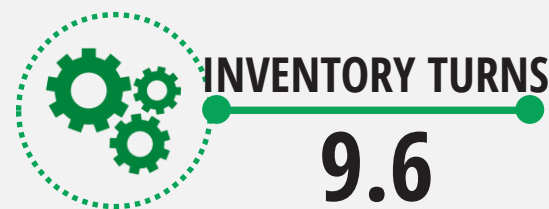
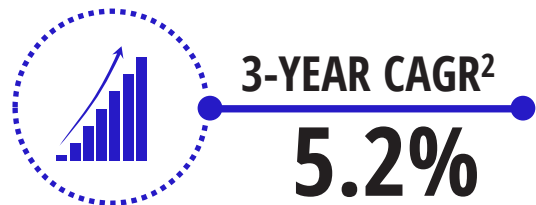
	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2010-2019 CAGR
Wholesale Companies	5.2%	6.7%	5.5%	6.1%	3.2%	6.3%	3.7%	6.3%	10.2%	7.4%	6.1%
BEA Wholesale Output	5.4%	6.4%	4.2%	3.1%	4.2%	5.6%	4.1%	7.0%	9.0%	8.6%	5.4%
World GDP (current \$)	1.6%	6.3%	6.4%	1.5%	-5.4%	2.8%	2.9%	2.3%	11.1%	9.5%	3.2%
US GDP (current \$)	4.1%	5.4%	4.2%	2.7%	4.0%	4.4%	3.6%	4.2%	3.7%	3.8%	4.0%

Notes:

- "Wholesale Distribution 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 Wholesale Distribution 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=gdpindx>), GDP by Industry. Wholesale Distribution output as defined here is based on output of the following sub-industries: Warehousing and storage; Other transportation and support activities.
- 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 Wholesale Distribution 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, 2010-Current



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).

	METRIC	TTM	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	10YRAVG
OPERATIONS	Growth Rate (3YRCAGR)	5.2%	5.2%	5.9%	5.4%	5.3%	4.9%	4.8%	6.4%	6.7%	6.3%	10.2%	7.4%	6.3%
	Gross Margin	10.3%	10.4%	10.9%	11.1%	11.0%	11.2%	11.5%	11.9%	11.6%	11.6%	11.3%	11.1%	11.3%
	SG&A % of Revenue	5.6%	5.7%	5.8%	6.1%	6.1%	5.8%	6.3%	6.3%	6.0%	5.9%	5.6%	6.5%	6.0%
	R&D % of Revenue	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.3%	0.3%	0.3%	0.3%	0.2%
	Inventory Turns (COGS/Inv)	9.6	9.9	9.9	9.7	9.7	9.8	9.8	9.6	10.0	10.1	10.2	10.4	9.9
	Days in Inventory	38.0	36.8	36.8	37.5	37.6	37.2	37.2	37.9	36.5	36.0	35.9	34.9	36.7
PROFIT & CASH FLOW	Operating Income	2.2%	2.2%	2.6%	2.5%	2.6%	2.6%	2.6%	2.7%	2.8%	2.9%	3.1%	3.0%	2.8%
	Net Profit	0.1%	0.1%	1.2%	1.3%	1.6%	1.6%	1.1%	1.4%	1.4%	1.6%	1.8%	1.7%	1.5%
	EBITDA	1.6%	1.7%	3.1%	3.0%	3.8%	3.6%	3.3%	3.6%	3.5%	3.6%	3.7%	3.5%	3.5%
	Operating Cash Flow	2.9%	2.7%	2.8%	2.4%	2.3%	2.7%	2.9%	2.3%	2.4%	2.4%	2.0%	2.4%	2.4%
	FCF % of Revenue	2.3%	2.1%	2.0%	1.6%	1.5%	1.9%	2.1%	1.4%	1.6%	1.5%	1.3%	1.6%	1.6%
	CAPEX % of Revenue	0.6%	0.6%	0.7%	0.8%	0.8%	0.8%	0.8%	0.9%	0.8%	0.9%	0.8%	0.7%	0.8%
	Stock Compensation	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
	Days in Receivables	38.8	37.5	35.9	36.6	36.1	34.3	35.0	36.2	38.2	37.6	32.4	31.6	35.4
	Days in Payables	61.7	60.5	59.6	59.7	60.0	58.0	56.5	55.8	53.8	53.6	54.6	51.1	56.3
	Cash-to-Cash Cycle (Days)	15.1	13.8	13.1	14.4	13.7	13.5	15.6	18.3	20.9	20.0	13.7	15.4	15.9
ASSETS	Property, Plant, Equipment %	6.1%	6.1%	5.8%	5.1%	5.2%	4.9%	4.8%	5.2%	4.4%	4.1%	3.9%	3.8%	4.7%
	Cash % of Revenue	4.4%	4.3%	3.0%	3.0%	3.6%	3.5%	4.5%	3.3%	3.2%	3.3%	3.6%	3.9%	3.5%
	Debt % of Revenue	10.5%	10.7%	9.5%	8.4%	9.1%	8.6%	9.4%	8.8%	7.6%	6.4%	6.0%	5.8%	8.0%
	Goodwill and Intangibles % of Rev	7.5%	7.6%	7.7%	8.1%	8.3%	7.9%	7.6%	7.7%	7.8%	7.0%	6.5%	6.5%	7.5%
ROI	ROA	0.2%	0.2%	2.9%	3.1%	4.0%	4.1%	2.9%	3.5%	3.7%	4.6%	4.9%	4.8%	3.8%
	ROIC	0.4%	0.4%	6.1%	6.8%	8.3%	8.6%	5.8%	7.0%	7.5%	9.3%	10.1%	9.7%	7.9%
	Return on Physical Assets	14.2%	14.6%	17.8%	17.7%	18.2%	19.0%	18.7%	19.0%	21.3%	23.9%	24.9%	24.5%	20.5%
	Economic Profit % of Revenue	0.7%	0.7%	0.8%	0.7%	0.7%	0.9%	0.5%	0.7%	0.8%	1.3%	1.1%	0.9%	0.8%
CAP	Market Cap / Revenue	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3
	Market Cap / EBITDA	19.7	16.2	9.4	8.9	6.5	7.6	8.1	7.4	8.7	8.0	7.0	6.7	7.8

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 63 companies investigated. This shows that the average Wholesale Distribution company operates with a gross margin of **20.7%**, spends **14.1%** of revenue on SG&A, **0.5%** on R&D, and has inventory turns of **8.9**, operating income of **3.9%**, net income of **0.4%**, free cash flow of **5.2%**, and return on invested capital of **2.1%**.

	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	\$19,369	4.5%	20.7%	14.1%	0.5%	8.9	3.9%	0.4%	5.2%	2.1%
Median	\$5,865	3.4%	18.4%	12.3%	0.5%	6.0	2.8%	0.8%	4.1%	4.9%

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 gross margins for larger companies are significantly lower than those of smaller companies.

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	16	\$61,548	7.0%	0.2	11.3%	6.5%	0.3%	12.1	1.9%	0.4%	1.7%	-1.5%
Quartile 3	16	\$10,832	4.2%	0.5	21.2%	9.7%	N/A	8.8	3.9%	1.6%	3.7%	7.3%
Quartile 2	15	\$3,396	3.4%	1.6	25.4%	17.8%	1.2%	6.6	7.0%	2.9%	6.9%	4.9%
Quartile 1	16	\$700	3.5%	0.7	25.3%	22.3%	N/A	7.9	3.0%	-3.3%	8.3%	-2.1%

REVENUE QUANTILES (\$M)

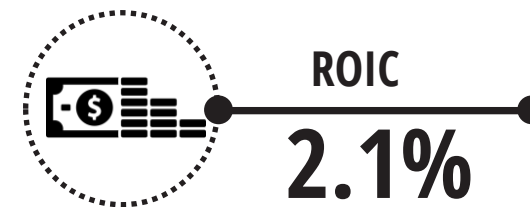
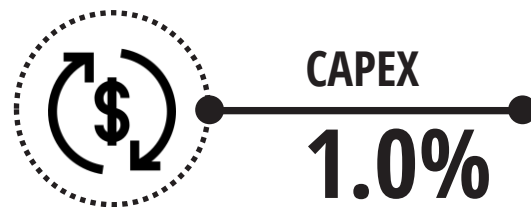
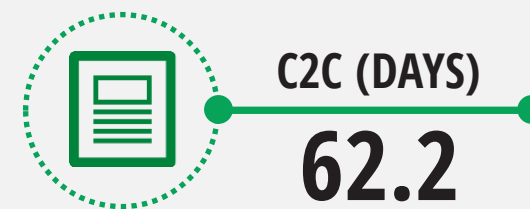
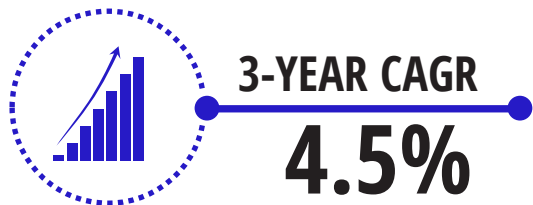
Quartile 4 >= \$18,444
 Quartile 3 >= \$5,865 , < \$18,444
 Quartile 2 >= \$1,489 , < \$5,865
 Quartile 1 < \$1,489

Notes:

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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

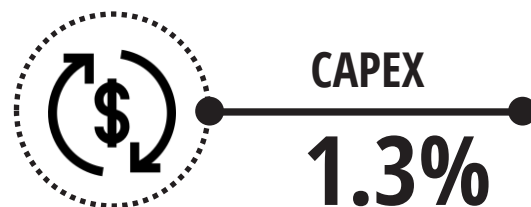
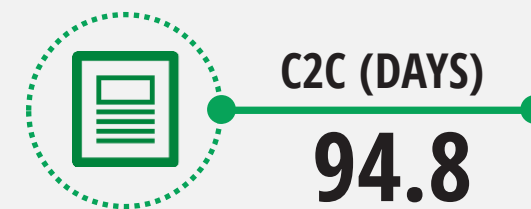
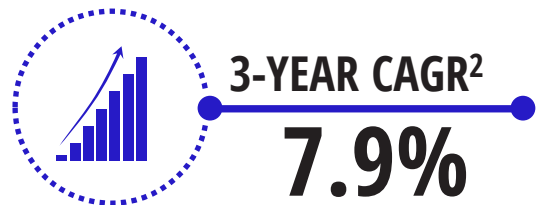


Notes:

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

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

	<i>n</i> =63 METRIC	INDUSTRY BENCHMARKS			MARKET CAP MULTIPLE		
		Q4 AVG	MEDIAN	Q1 AVG	Q4 AVG	Q1 AVG	
OPERATIONS	3-Year CAGR	17.6%	3.4%	-6.2%	1.2	0.4	Gross margin is important to market performance, indicating product superiority and pricing power are paramount.
	Gross Margin	38.3%	18.4%	7.5%	1.7	0.2	
	SG&A	28.0%	12.3%	2.8%	1.7	0.3	
	R&D	1.2%	2.8%	0.0%	3.4	0.3	
PROFIT	Operating Margin	10.5%	2.8%	-0.8%	1.9	0.4	All forms of profitability have the highest correlation with market performance.
	EBITDA Margin	12.6%	3.6%	-4.8%	1.9	0.3	
	Net Profit Margin	6.8%	0.8%	-7.2%	2.0	0.5	
CASH	Free Cash Flow	12.0%	4.1%	-0.4%	1.5	0.2	
	CAPEX % of Revenue	2.4%	0.7%	0.2%	1.4	0.5	
	PP&E (net) % of Revenue	22.4%	8.8%	2.9%	1.1	0.2	
ROI	ROIC % of Revenue	18.4%	4.9%	-18.1%	1.7	0.4	All forms of ROI are strong indicators of market performance, at about the same level as profitability.
	ROA % of Revenue	9.2%	2.1%	-9.4%	1.8	0.4	
	ROPA % of Revenue	41.6%	14.3%	-1.5%	1.6	0.4	
	Economic Profit % of Revenue	5.2%	0.7%	-3.7%	1.9	0.5	
C2C	Inventory Turns	18.4	6.0	3.1	0.3	1.6	Inventory turns and cash-to-cash (days) correlate little or negatively with market performance
	Payables (days)	124.9	60.8	21.9	1.6	0.3	
	Receivables (days)	88.6	46.6	15.6	0.7	0.3	
	Cash-to-Cash (days)	84.1	54.2	-2.9	1.3	0.3	

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.

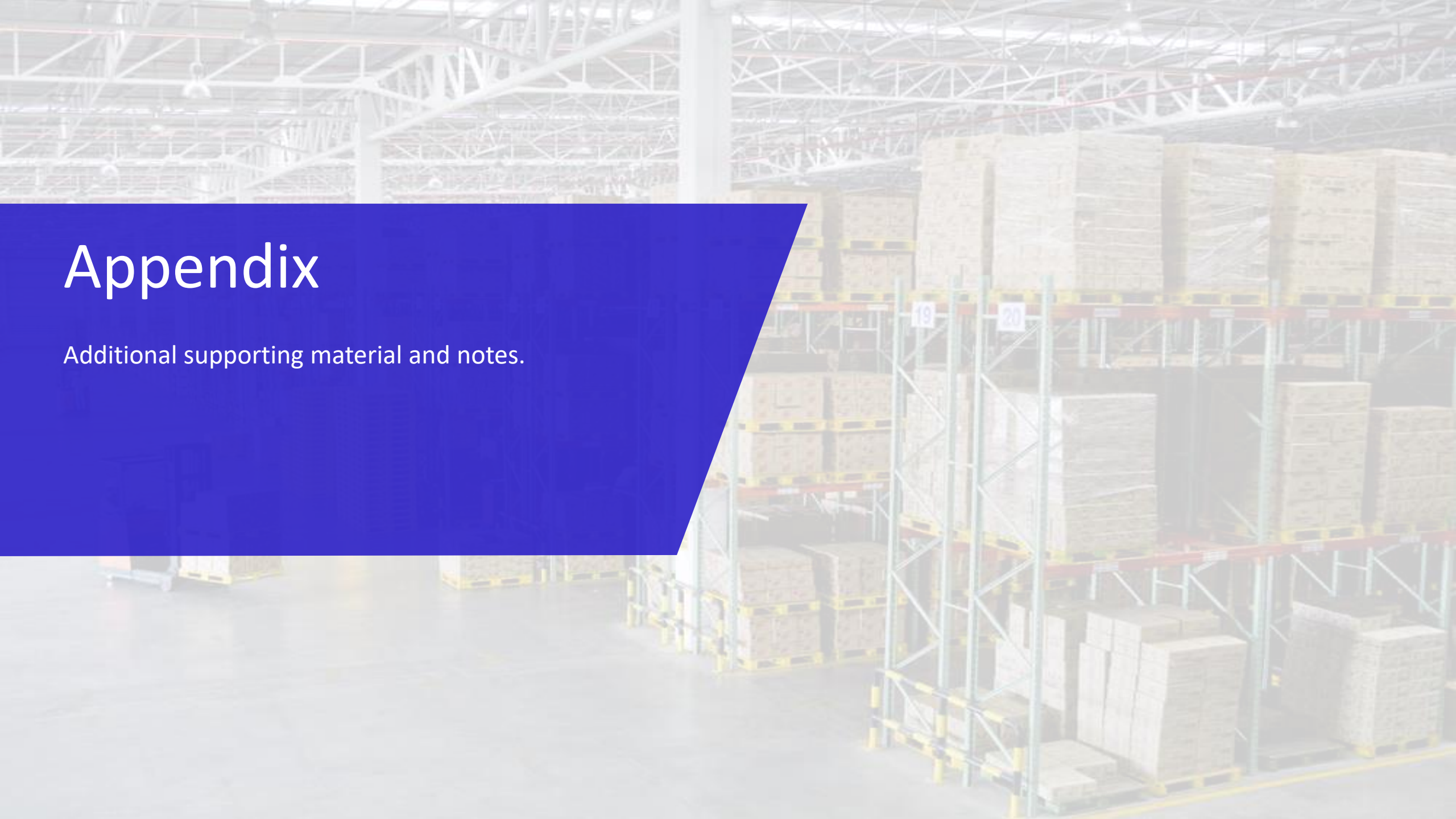
VARIABLE	DATA SET	QUARTILE (AVGS WITHIN EACH CAP QUARTILE)				DIFFERENCE
	AVG	TOP (Q4)	Q3	Q2	BOTTOM (Q1)	TOP-BOTTOM
Market Cap Multiple	0.8	2.0	0.6	0.3	0.1	18.2X
1-Year Growth	4.5%	7.9%	2.4%	0.2%	7.4%	0.6 pps
Gross Margin	20.7%	34.8%	23.2%	14.4%	10.1%	24.7 pps
SG&A	14.1%	25.9%	12.7%	9.7%	7.8%	18.1 pps
R&D	0.5%	1.2%	0.0%	0.9%	0.0%	1.1 pps
Operating Profit	3.9%	8.9%	3.6%	1.9%	1.1%	7.8 pps
Net Profit	0.4%	5.6%	-3.4%	-0.5%	-0.3%	5.9 pps
Inventory Turns	8.9	4.6	10.3	8.3	12.4	-7.8 Turns
C2C Cycle (days)	62.2	94.8	63.9	59.4	30.5	64.3 Days
Net Cash	-13.9%	-21.6%	-11.8%	-11.5%	-10.5%	-11.1 pps
CAPEX	1.0%	1.3%	1.5%	0.8%	0.6%	0.7 pps
Free Cash Flow	5.2%	9.4%	5.9%	4.1%	1.3%	8.1 pps
ROIC	2.1%	11.8%	-0.8%	-1.2%	-1.6%	13.3 pps
Return on Physical Assets	17.3%	32.6%	17.0%	10.2%	8.8%	23.8 pps
Economic Profit	0.7%	3.6%	0.5%	-1.2%	-0.2%	3.9 pps

NOTES & INSIGHTS

- Leaders have market cap multiples that are 2.7X average, and 18.2X laggards.
- Leaders have significantly higher gross margins, investments in SG&A, operating profit, 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 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.



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