Construction Industry Operating Benchmarks

Operational and market capitalization data for 128 construction 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.

<u>**Versioning convention:**</u> 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 Construction Industry Report: Key Takeaways

- The Construction industry 3-year CAGR is 5.4% (overall dollars growth). The average company 3-year CAGR is 3.8%.
- The average Construction company has gross margins of 25.1%, invests 10.4% of revenue in selling, general, and administrative expense, 1.1% in research and development, and generates 7.4% operating margin, 10.0% EBITDA margin, 4.0% free cash flow, and 6.4% return on invested capital.
- The Construction company average inventory turns is 84.7. The median is 9.3. 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 Construction company has 15.6% PP&E, and 24.4% in goodwill and intangibles, all as a percentage of revenue. Goodwill and intangibles are a proxy for mergers and acquisitions; based on this measure, Construction is among the lowest industries in both PP&E and mergers and acquisitions. That said, the average Construction company carries more on its balance sheet in goodwill and intangibles than it does in PP&E.
- As expected, Construction 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.
- Construction 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).
- Construction companies is one of the few industries in which gross margin leaders are not leaders in market cap multiple.
- Historical analysis (using aggregate data and ratios) indicates the operational structure is essentially the same as it was a decade ago. This includes similar gross margins, operating margins, asset intensity, inventory turns, and cash flows. This indicates the industry has a certain physical setpoint and that there are individual winners and losers around that setpoint, but that the overall industry is not operationally performing better than it was a decade ago.
- Individual operational measures are poor statistical predictors of market cap multiple. Quartile analysis was performed to contrast the operational characteristics of market cap multiple leaders with others.
- Market cap multiple leaders have cap multiples that are 15.9X average and 2.6X laggards. Leaders do not have significantly higher gross margins, but do 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 128 publicly-traded Construction companies.

128

REVENUE

Aggregate revenue for companies in the data set is $1.1 trillion for the latest reporting fiscal year as of the date on the cover of this report.

$1.1T

MARKET CAPITALIZATION

Aggregate market cap for companies in the data set is $0.8 trillion as of date on the cover of this report.

$0.8T

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.
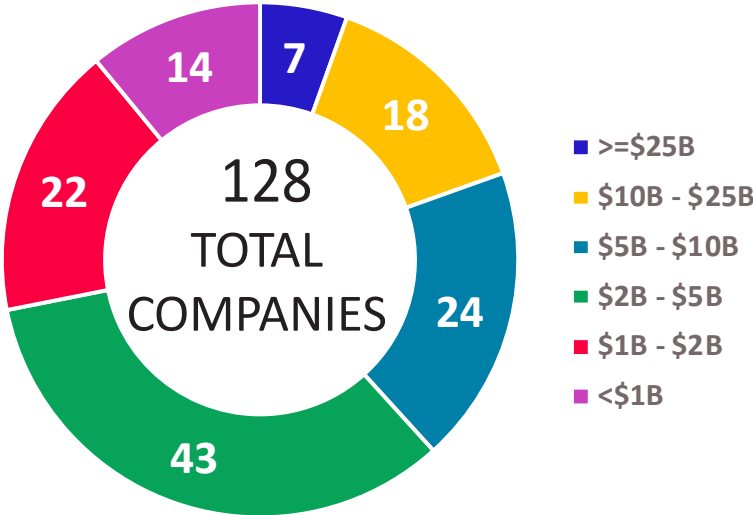
Data Set
Companies included in this report

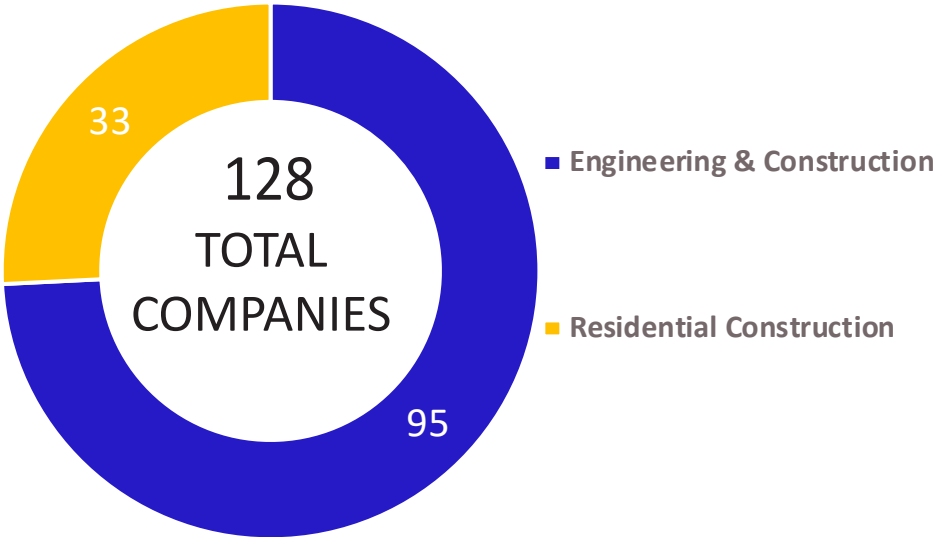|				
Abengoa SA	Bellway PLC	Downer EDI Ltd	Jacobs Engineering Grou	Monadelphous Group Ltd
Acciona SA	Berkeley Group Holdings	Dream Finders Homes Inc	JGC Holdings Corp	MYR Group Inc
Ackermans & Van Haaren	Bilfinger SE	Dycom Industries Inc	Johnson Controls Intern	NCC AB
ACS Actividades de Cons	Bird Construction Inc	Eiffage SA	Kajima Corp	Neinor Homes SA
AECOM	Bouygues	Ellaktor SA	KB Home	NV5 Global Inc
Aecon Group Inc	Cardno Ltd	EMCOR Group Inc	KBR Inc	NVR Inc
Aenza SAA	Cavco Industries Inc	Enka Insaat Ve Sanayi A	Keller Group PLC	NWS Holdings Ltd
AF Gruppen ASA	Century Communities Inc	Exeo Group Inc	Kier Group PLC	Obayashi Corp
Afry AB	China Railway Group Ltd	Fluor Corp	Kinden Corp	Obrascon Huarte Lain SA
Ameresco Inc	China State Constructio	GEK Terna Holding Real	Koninklijke Bam Groep N	Orion Group Holdings In
APi Group Corp	Chiyoda Corp	Granite Construction In	Koninklijke Boskalis We	Penta-Ocean Constructio
Arcadis NV	Chudenko Corp	Great Lakes Dredge & Do	Larsen & Toubro Ltd	Persimmon PLC
Argan Inc	CIMIC Group Ltd	Green Brick Partners In	Lennar Corp	Primoris Services Corp
Atlas Technical Consult	Comfort Systems USA Inc	Green Economy Developm	LGI Homes Inc	Promotora Y Operadora d
Aveng Ltd	Comsys Holdings Corp	HAZAMA ANDO Corp	M.D.C. Holdings Inc	PT Jasa Marga (Persero)
Babcock International G	Construction Partners I	Hochtief AG	M/I Homes Inc	PulteGroup Inc
Balfour Beatty PLC	Costain Group PLC	Hovnanian Enterprises I	MasTec Inc	Quanta Services Inc
Barratt Developments PL	Countryside Properties	IES Holdings Inc	Matrix Service Co	Redrow PLC
Bauer AG	Cyrela Brazil Realty SA	Infrastructure and Ener	Meritage Homes Corp	Road King Infrastructur
Beazer Homes USA Inc	D.R. Horton Inc	Innovate Corp	Metallurgical Corp of C	Sacyr SA

Data Set
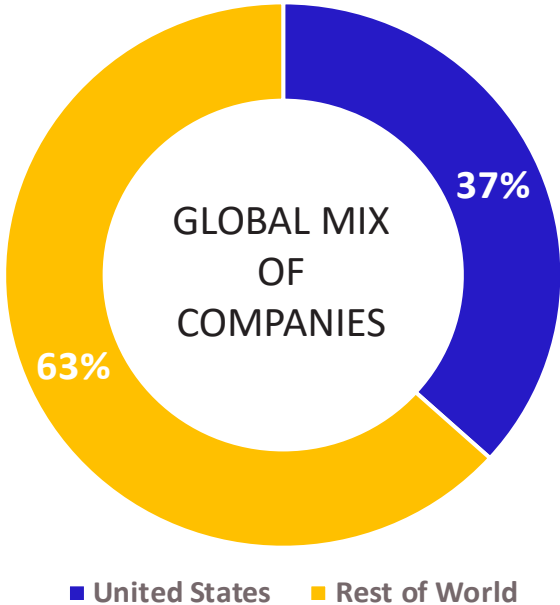## Company distribution

BY ANNUAL REVENUE

128 TOTAL COMPANIES

- 7 ■ >=$25B
- 18 ■ $10B - $25B
- 24 ■ $5B - $10B
- 43 ■ $2B - $5B
- 22 ■ $1B - $2B
- 14 ■ <$1B

MEDIAN REVENUE = **$3,639M**

BY SUB-INDUSTRY

128 TOTAL COMPANIES

- 95 ■ Engineering & Construction
- 33 ■ Residential Construction

GEOGRAPHIC REGION

GLOBAL MIX OF COMPANIES

- 37% ■ United States
- 63% ■ Rest of World

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	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 % = (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 Construction market. Charts in this section use the "aggregate averages" approach.

YOY Market Growth Rate (based on aggregate revenue)
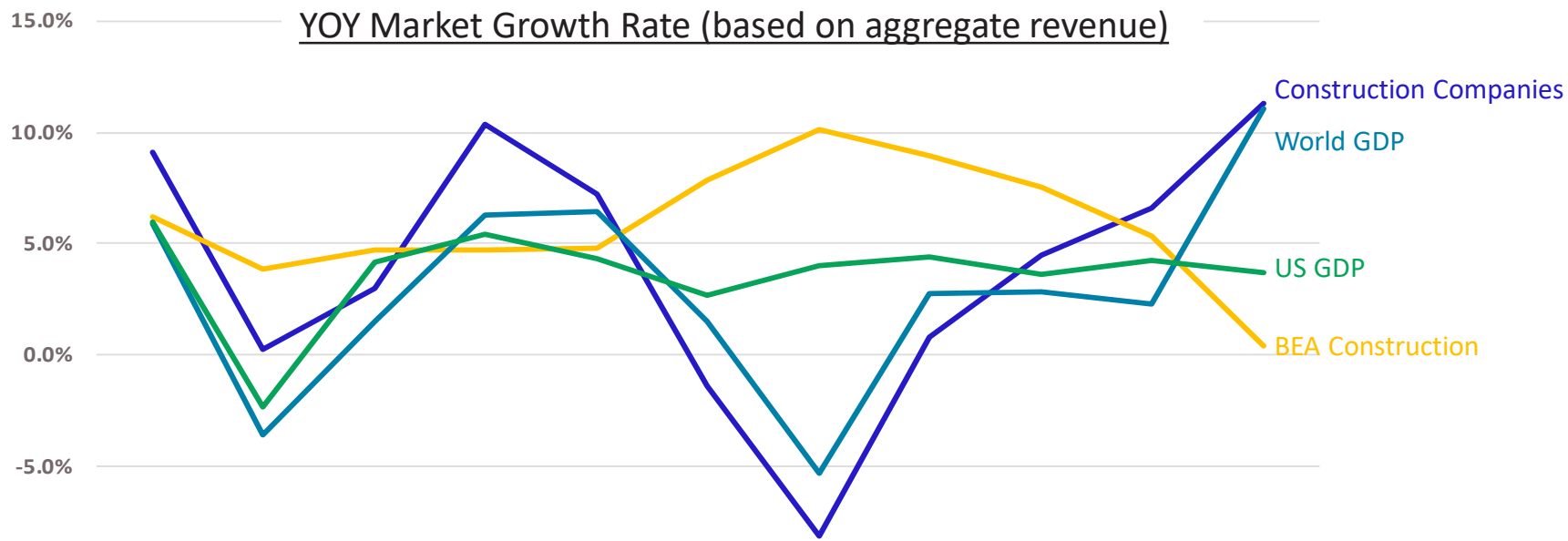
	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2011-2021 CAGR
Construction Companies	9.1%	0.2%	3.0%	10.4%	7.2%	-1.4%	-8.1%	0.8%	4.5%	6.6%	11.3%	**4.0%**
BEA Construction Output	6.2%	3.8%	4.7%	4.7%	4.8%	7.9%	10.1%	8.9%	7.5%	5.3%	0.4%	**6.4%**
World GDP (current $)	5.9%	-3.6%	1.5%	6.3%	6.5%	1.5%	-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

- Construction market CAGR for the decade of the 2010s was 3.3%, which is slightly higher than the global current dollar GDP growth rate (2.5%). BEA numbers are for US domestic construction only, so they may be different from global rates. They are shown here for comparison purposes only.
- Growth rates in the early part of the decade were impacted by the great recession. It appears that the construction industry recovered more slowly than other industries.

Notes:
1. "Construction 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 Construction 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. Construction output as defined here is based on output of the following sub-industries: Construction. 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 Construction 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.
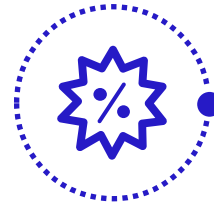
Analysis Summary
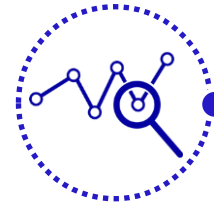## *Operational ratios based on aggregate data, TTM[1]*

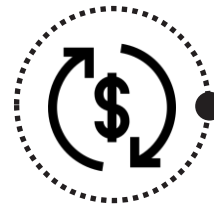|			
3-YEAR CAGR[2] 5.2%	**GROSS MARGIN** 25.0%	**MARKET CAP[3]** 0.8X	**NET PROFIT** 4.5%
R&D 2.5%	**SG&A** 9.0%	**INVENTORY TURNS** 3.7	**C2C (DAYS)** 53.8
PP&E 12.6%	**CAPEX** 2.7%	**FREE CASH FLOW** 3.4%	**ROIC** 6.2%
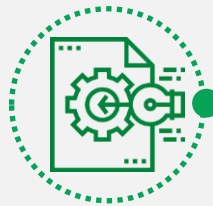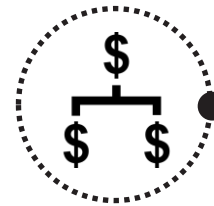
Notes:
1. All revenue and cost numbers are aggregate values for all companies for the trailing twelve months (TTM) as of the date on the cover of this report.
2. Growth rate is based on total dollars growth of the industry over the past four years.
3. Market capitalization ratio is aggregate market capitalization 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
OPERATIONS	Growth Rate (3YRCAGR)	5.2%	5.4%	4.9%	4.8%	1.9%	-0.5%	-1.1%	0.7%	5.5%	4.5%	6.6%	11.3%	4.0%		
	Gross Margin	25.0%	25.2%	24.8%	25.6%	26.0%	25.5%	24.7%	24.7%	25.9%	26.0%	26.3%	26.5%	25.6%	22.9%	15.3%
	SG&A % of Revenue	9.0%	9.1%	9.4%	9.8%	10.0%	12.0%	9.5%	9.4%	9.9%	10.7%	10.6%	10.6%	10.1%	7.9%	8.0%
	R&D % of Revenue	2.5%	2.5%	2.5%	2.2%	2.0%	3.4%	1.5%	1.9%	1.8%	2.0%	2.2%	0.7%	2.1%	0.6%	0.2%
	Inventory Turns (COGS/Inv)	3.7	3.6	3.8	4.0	4.0	3.6	3.4	3.4	3.7	3.8	3.9	4.0	3.8	4.3	2.8
	Days in Inventory	99.4	100.3	95.7	92.3	92.1	101.4	107.3	107.4	98.9	95.0	93.0	90.3	97.6	84.0	130.5
PROFIT & CASH FLOW	Operating Income	6.5%	6.6%	5.7%	6.2%	6.8%	6.4%	5.6%	5.5%	5.5%	5.2%	4.8%	5.0%	5.8%	4.8%	6.8%
	Net Profit	4.5%	4.5%	3.7%	4.1%	3.9%	4.7%	2.6%	3.2%	3.4%	2.6%	2.2%	2.6%	3.4%	2.9%	2.0%
	EBITDA	8.8%	8.8%	8.6%	9.1%	9.1%	9.7%	8.5%	8.2%	8.5%	8.1%	6.8%	7.7%	8.4%	7.6%	6.1%
	Operating Cash Flow	6.1%	6.2%	7.2%	4.7%	5.3%	5.9%	5.7%	4.7%	4.0%	3.8%	3.4%	3.5%	4.9%	4.2%	3.8%
	FCF % of Revenue	3.4%	3.4%	4.2%	2.1%	2.7%	3.2%	3.2%	1.9%	1.1%	0.7%	-0.3%	-0.7%	1.9%	0.2%	2.0%
	CAPEX % of Revenue	2.7%	2.7%	3.0%	2.6%	2.6%	2.6%	2.5%	2.8%	2.9%	3.1%	3.7%	4.3%	3.0%	4.0%	1.8%
	Stock Compensation	0.3%	0.3%	0.3%	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.2%	0.3%	0.3%	
	Days in Receivables	64.3	65.5	65.5	65.6	65.8	74.4	78.0	72.6	73.6	76.8	77.0	76.5	71.9	81.5	80.4
	Days in Payables	109.8	112.0	110.2	107.5	110.2	119.5	112.8	105.8	102.7	105.4	103.3	104.7	108.6	113.5	103.9
	Cash-to-Cash Cycle (Days)	53.8	53.8	51.0	50.4	47.6	56.3	72.6	74.2	69.8	66.4	66.8	62.1	61.0	52.0	107.1
ASSETS	Property, Plant, Equipment %	12.6%	12.7%	13.7%	12.9%	11.6%	12.5%	12.2%	12.4%	12.6%	14.1%	14.9%	15.6%	13.2%	15.0%	17.9%
	Cash % of Revenue	18.1%	18.3%	20.4%	15.8%	15.3%	16.6%	15.1%	14.3%	13.4%	14.1%	14.4%	14.9%	15.7%	16.7%	11.2%
	Debt % of Revenue	32.5%	32.8%	34.8%	31.2%	29.0%	30.3%	31.1%	29.9%	30.3%	32.7%	32.4%	33.7%	31.7%	32.9%	25.0%
	Goodwill and Intangibles % of	20.8%	20.9%	21.8%	19.9%	20.0%	21.3%	21.5%	18.6%	18.2%	19.6%	19.1%	19.5%	20.0%	19.4%	7.9%
ROI	ROA	3.5%	3.5%	2.7%	3.3%	3.3%	3.8%	2.1%	2.8%	3.0%	2.3%	1.9%	2.3%	2.8%	2.4%	1.9%
	ROIC	6.2%	6.2%	4.9%	5.9%	6.0%	7.0%	3.9%	5.1%	5.5%	4.2%	3.5%	4.2%	5.1%	4.5%	4.0%
	Return on Physical Assets	19.7%	20.0%	17.1%	19.6%	22.4%	19.2%	16.2%	15.9%	16.8%	15.7%	14.2%	14.9%	17.5%	14.6%	15.9%
	Economic Profit % of Revenue	1.3%	1.3%	0.5%	1.3%	1.6%	1.2%	0.5%	0.7%	1.2%	1.2%	0.1%	0.6%	0.9%	0.4%	0.9%
CAP	Market Cap / Revenue	0.8	0.8	0.8	0.6	0.6	0.6	0.7	0.6	0.5	0.5	0.6	0.5	0.6	0.4	1.2
	Market Cap / EBITDA	8.8	8.8	9.7	6.2	5.8	5.1	5.4	4.6	3.8	4.2	4.7	3.5	5.6	3.2	12.6

HISTORY

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 128 companies investigated. This shows that the average Construction company operates with a gross margin of *25.1%* , spends *10.4%* of revenue on SG&A, *1.1%* on R&D, and has inventory turns of *84.7* , operating income of *7.4%* , net income of *4.5%* , free cash flow of *4.0%* , and return on invested capital of *6.4%*.

	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	$8,406	3.8%	25.1%	10.4%	1.1%	84.7	7.4%	4.5%	4.0%	6.4%
Median	$3,639	2.2%	19.7%	8.3%	0.7%	9.3	6.0%	4.2%	3.5%	6.8%

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[1]

Market cap multiples and operating margins are consistent across the quartiles. Smaller companies have significantly lower ROICs. Larger companies have significantly lower inventory turns, which may be a result of running a different operating model in which they own much more inventory. R&D numbers are unreliable because a high percentage of construction companies do not explicitly report R&D numbers. Future versions of this report will either eliminate R&D as a metric or find data through a different data source.

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	32	$24,466	3.5%	0.8	25.4%	10.1%	2.7%	22.6	7.1%	5.2%	4.3%	8.5%
Quartile 3	32	$5,179	2.8%	0.8	26.1%	13.4%	0.0%	133.6	6.8%	4.4%	4.8%	6.4%
Quartile 2	32	$2,871	6.4%	1.1	26.3%	9.5%	#DIV/0!	32.9	8.2%	6.2%	5.1%	6.1%
Quartile 1	32	$1,109	2.2%	2.3	22.4%	9.2%	0.5%	148.8	7.6%	2.3%	1.5%	4.5%

REVENUE QUARTILES ($M)

Quartile 4 >= $7,742
Quartile 3 >= $3,639 , < $7,742
Quartile 2 >= $1,843 , < $3,639
Quartile 1 < $1,843

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.
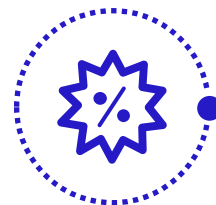
Analysis Summary
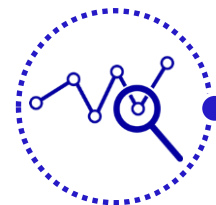*Average numbers for the entire data set, TTM[1]*

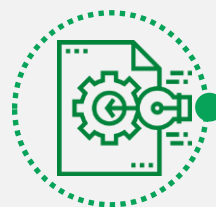**3-YEAR CAGR**
3.8%

GROSS MARGIN
25.1%

MARKET CAP
1.2X

NET PROFIT
4.5%

R&D
1.1%

SG&A
10.4%

INVENTORY TURNS
84.7

C2C (DAYS)
137.4

PP&E
15.6%

CAPEX
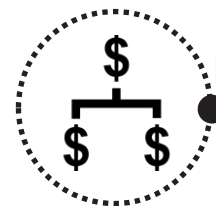## 2.7%

FREE CASH FLOW
4.0%

ROIC
6.4%

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.
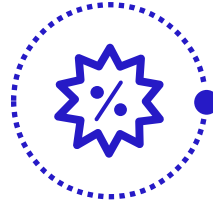2. All ratios shown here are averages of the ratios of each company.

Analysis Summary
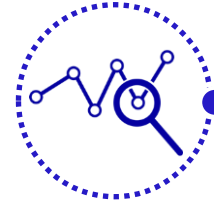## *Average numbers for the top-quartile market cap[1] multiple leaders*
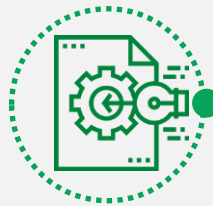
3-YEAR CAGR[2]
5.4%

GROSS MARGIN
28.0%

MARKET CAP
3.2X

NET PROFIT
9.9%

R&D
0.2%

SG&A
11.9%

INVENTORY TURNS
26.2
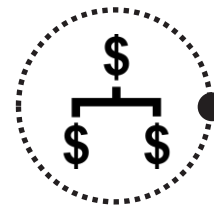
C2C (DAYS)
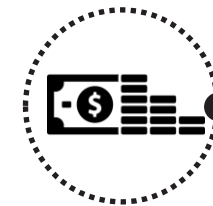## 184.3

PP&E
18.1%

CAPEX
4.3%

FREE CASH FLOW
5.4%

ROIC
10.6%

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=128 METRIC	INDUSTRY BENCHMARKS			MARKET CAP MULTIPLE	
	Q4 AVG	MEDIAN	Q1 AVG	Q4 AVG	Q1 AVG
OPERATIONS					
3-Year CAGR	20.0%	2.2%	-10.8%	1.0	2.1
Gross Margin	53.4%	19.7%	7.1%	1.0	1.7
SG&A	23.8%	8.3%	2.1%	1.2	2.6
R&D	2.7%	6.0%	0.2%	0.1	0.3
PROFIT					
Operating Margin	18.0%	6.0%	-1.1%	1.4	1.7
EBITDA Margin	21.6%	8.7%	0.4%	1.5	1.6
Net Profit Margin	13.7%	4.2%	-4.1%	1.5	0.5
CASH					
Free Cash Flow	13.2%	3.5%	-4.5%	1.5	0.7
CAPEX % of Revenue	7.8%	1.0%	0.2%	2.2	1.0
PP&E (net) % of Revenue	42.3%	9.0%	1.7%	0.8	1.0
ROI					
ROIC % of Revenue	19.7%	6.8%	-8.2%	2.4	0.6
ROA % of Revenue	12.4%	4.3%	-2.8%	2.6	0.5
ROPA % of Revenue	124.5%	17.9%	-20.4%	1.3	2.0
Economic Profit % of Revenue	9.3%	1.5%	-7.1%	1.5	0.7
C2C					
Inventory Turns	310.9	9.3	0.9	2.1	1.1
Payables (days)	488.1	39.3	3.9	1.1	2.1
Receivables (days)	266.8	82.6	13.5	0.7	1.4
Cash-to-Cash (days)	205.0	71.4	-88.8	1.1	0.8

← 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, at about the same level as 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-BOTTOM
		TOP (Q4)	Q3	Q2	BOTTOM (Q1)	
Market Cap Multiple	1.2	3.2	1.0	0.5	0.2	15.9X
1-Year Growth	3.8%	5.4%	6.9%	2.6%	-0.4%	5.8 pps
Gross Margin	25.1%	28.0%	27.4%	20.6%	24.6%	3.4 pps
SG&A	10.4%	11.9%	9.0%	10.4%	10.6%	1.3 pps
R&D	1.1%	0.2%	0.9%	0.2%	2.2%	-2.0 pps
Operating Profit	7.4%	13.1%	7.8%	5.6%	3.2%	9.9 pps
Net Profit	4.5%	9.9%	6.4%	1.7%	0.1%	9.7 pps
Inventory Turns	84.7	26.2	148.5	34.7	132.6	-106.3 Turns
C2C Cycle (days)	137.4	184.3	201.6	89.8	72.3	111.9 Days
Net Cash	-19.9%	-17.8%	-14.5%	-19.8%	-27.9%	10.1 pps
CAPEX	2.7%	4.3%	2.1%	2.5%	1.8%	2.5 pps
Free Cash Flow	4.0%	5.4%	6.6%	2.6%	1.2%	4.2 pps
ROIC	6.4%	10.6%	10.6%	4.6%	-0.2%	10.8 pps
Return on Physical Assets	35.4%	101.1%	17.6%	21.9%	1.1%	100.0 pps
Economic Profit	1.2%	3.3%	1.0%	-0.2%	0.9%	2.4 pps

NOTES & INSIGHTS

- Leaders have market cap multiples that are 2.6X average, and 15.9X laggards.
- Construction is one of the few industries in which leaders do not have significantly higher gross margins than laggards.
- Leaders excel in all forms of profitability, cash flow, and return on investment.
- It should be noted that not many construction companies report R&D investment; thus, the reported numbers are low. Future versions of this report will either eliminate R&D as a metric or seek a separate data source for it.
- 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.

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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