



VERTEX

NASDAQ:VRTX

Health Care Team:

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LEXINGWORTH

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Business Overview

- Vertex Pharmaceuticals, Inc is a global biotechnology company based in Boston, Massachusetts, that invests in scientific innovation to create transformative medicines for people with serious diseases.
- The company has multiple approved medicines and ongoing clinical research programs that treat the underlying cause of cystic fibrosis (CF) — a rare, life-threatening genetic disease.
- In addition, Vertex has a rapidly expanding pipeline of genetic and cell therapies for diseases such as sickle cell disease, beta thalassemia, Duchenne muscular dystrophy and type 1 diabetes mellitus.
- The company has research and development sites and commercial offices in North America, Europe, Australia and Latin America

Management Team



Reshma Kewalramani, M.D.
Chief Executive Officer

Prior to joining Vertex in 2017, Dr. Kewalramani spent more than 12 years at Amgen where she held a variety of roles across Research and Development, VP, Global Clinical Development, Nephrology & Metabolic Therapeutic Area.



Charles F. Wagner
Chief Financial Officer

Prior to joining Vertex in 2019, Mr. Wagner served 4 years as the CFO of Ortho Clinical Diagnostics, a Carlyle Group portfolio company. Before that, he served 3 years as the CFO of Bruker Corporation.



Stuart A. Arbuckle
Chief Operating Officer

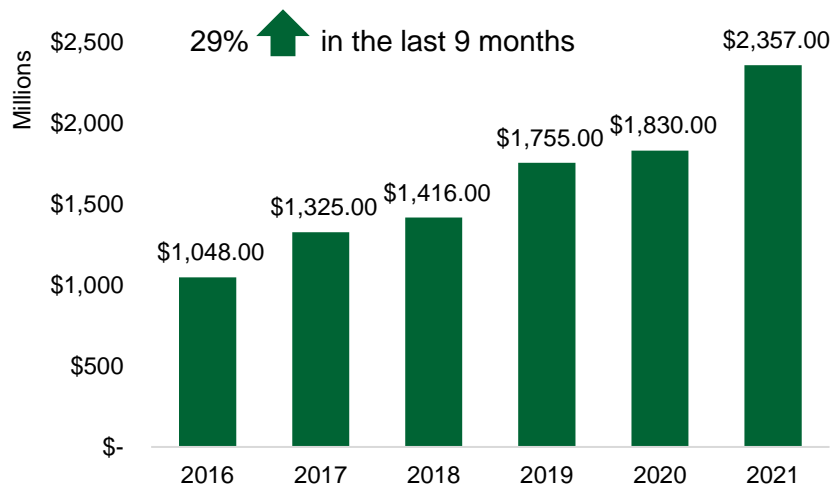
Prior to joining Vertex in 2012, Mr. Arbuckle held multiple commercial leadership roles at Amgen, Inc. As VP and General Manager, Oncology Business Unit, marketing, patient advocacy and access efforts for Amgen's portfolio of cancer medicines.



David Altshuler, M.D., Ph.D.
Chief Scientific Officer

Prior to joining Vertex in 2015, Dr. Altshuler was a Founding Core Member, Deputy Director and Chief Academic Officer at the Broad Institute of Harvard and MIT. He was professor of Genetics and Medicine at Harvard Medical School, Professor of Biology at MIT and a physician at Massachusetts General Hospital

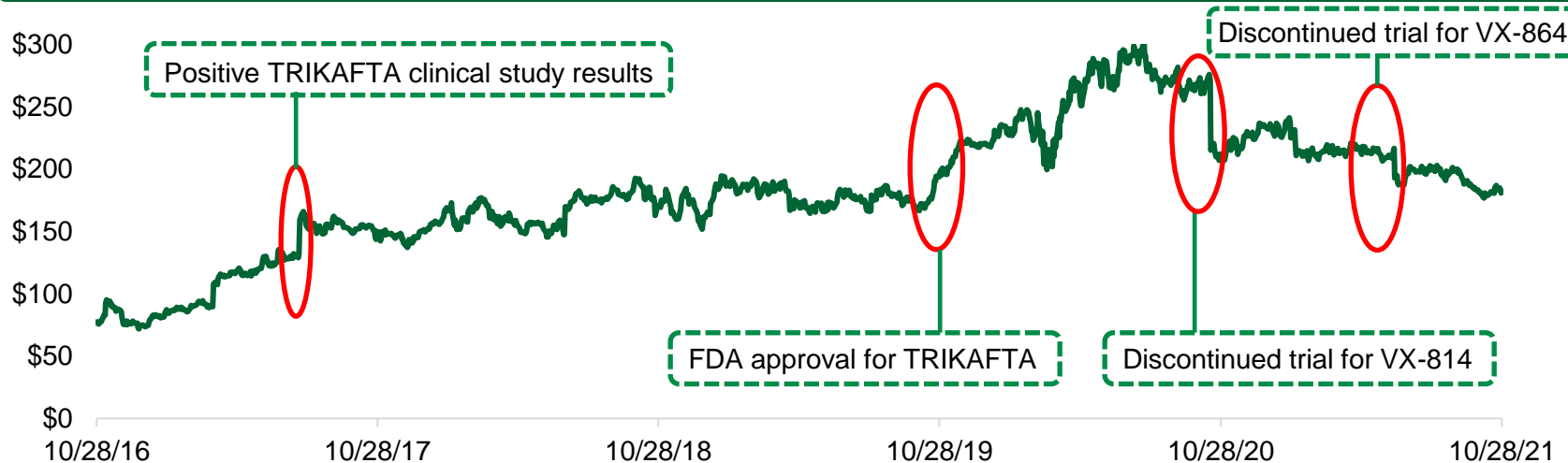
R&D Expenses



Key Statistics (October 2021)

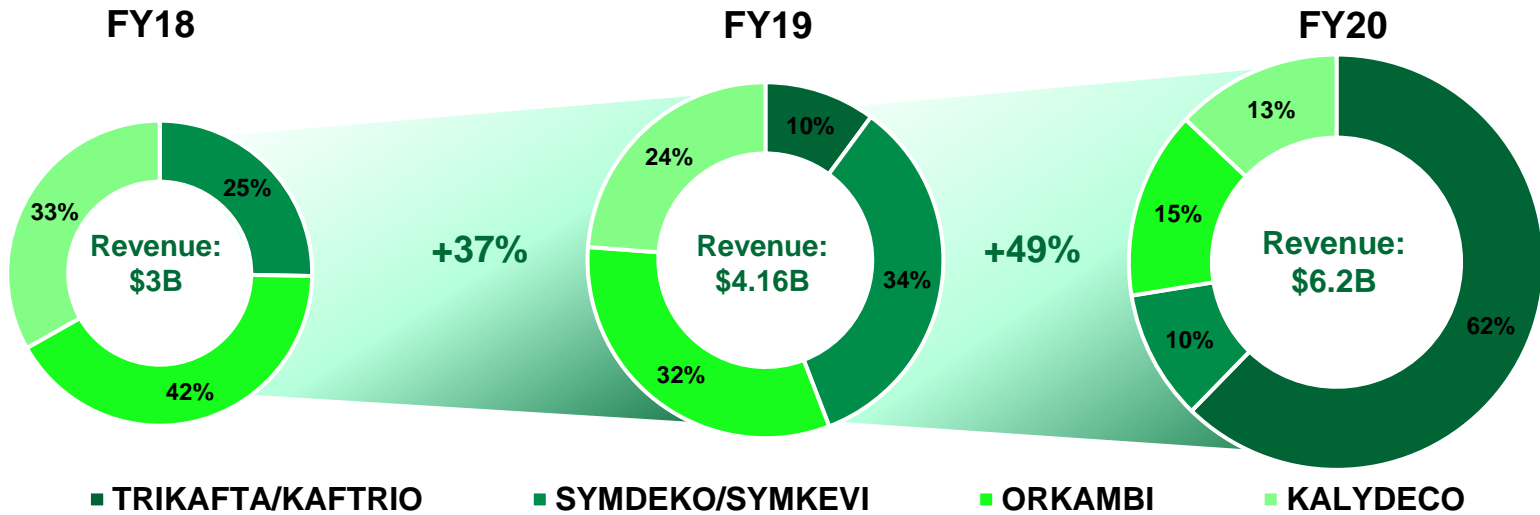
Share Price	\$182
Market Cap	\$46.63B
52 Week Range	\$176.26 - \$242.99
Net Debt	-\$2923B
Enterprise Value	\$39.67B
EBITDA	\$2.77B
Diluted EPS	\$8.34

5-Year Historic Stock Performance

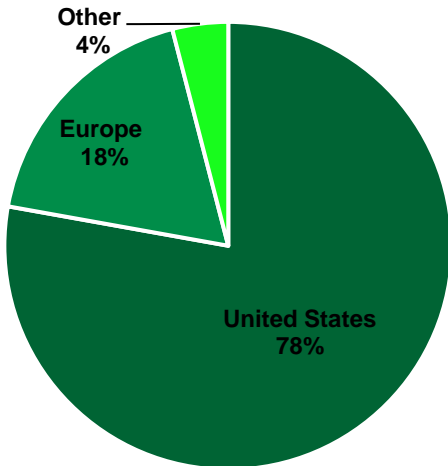


Source: Company material, 10K, 10Q, Yahoo Finance, Macrotrends

Revenue Growth & Product Breakdown

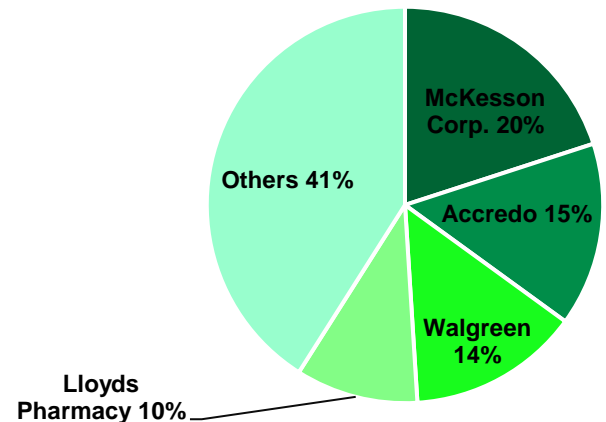


Geographic Revenue Breakdown (FY20)



- In the U.S. products are sold to a limited number of specialty pharmacy and specialty distributors, who then resell products to patients and health care providers.
- Internationally, products are sold to a limited number of specialty distributors and retail chains, as well as hospitals and clinics
- Outside of the U.S. and Europe, Vertex sells its products in Australia, Canada, and Israel.

Significant Customers



Cystic Fibrosis Portfolio



The 4 approved treatments Kalydeco, Orkambi, Symdeko, and Trikafta collectively can treat half of the 83,000 people with CF in North America, Europe, and Australia.

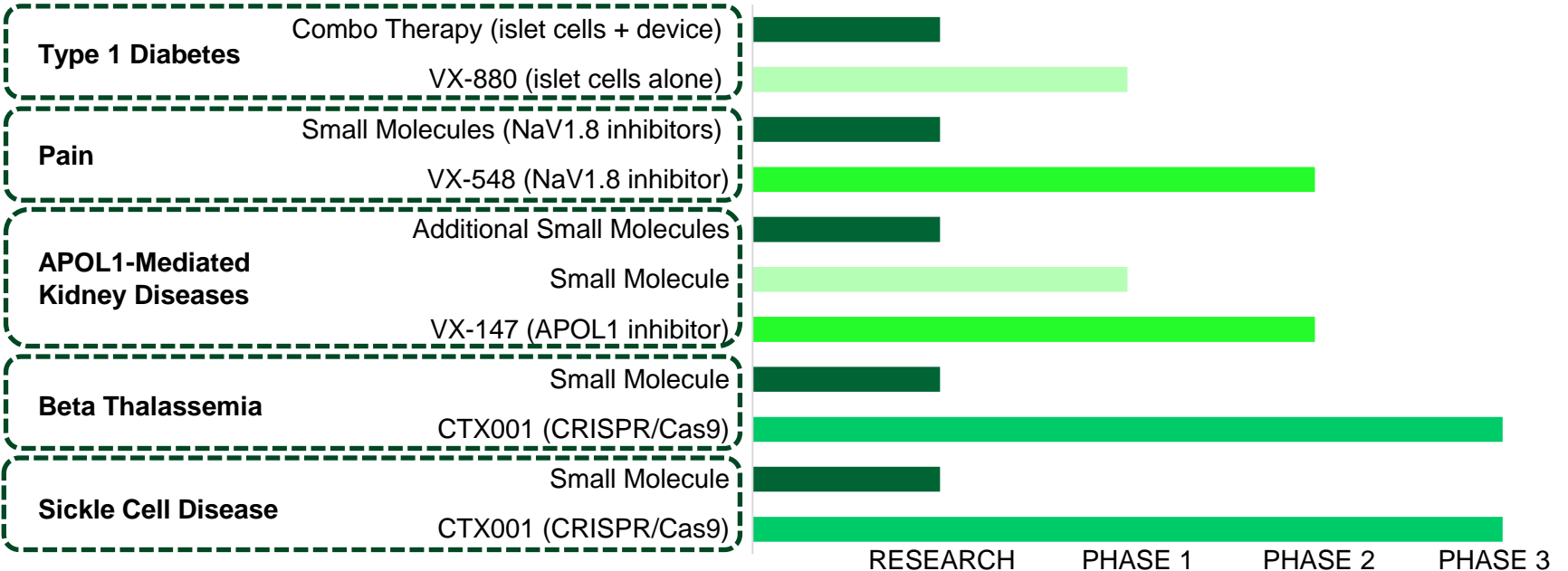


Trikafta is the first approved treatment that is effective for cystic fibrosis patients 12 years and older with at least one F508del mutation, which affects 90% of the population with CF or roughly 27,000 people in U.S.



In research phase of genetic therapies and small molecule treatments to address the remaining 10% of people with CF.

Pipeline Outside of CF



6 Source: Company material, 10K, 10Q,

Pharmaceuticals Overview

- The Pharmaceutical Manufacturing Industry develops products that are used to prevent or treat illnesses in humans and/or animals
- The U.S. Pharmaceutical industry has a combined market capitalization of \$484.80 billion, accounting for 40.4% of the \$1.2 trillion market worldwide
- **Segments:**
 - Prescription-Based
 - Over-the-Counter Medications

Key Trends



Biosimilars - Industry landscape has been prone to a high level of competition from generic drug manufacturers

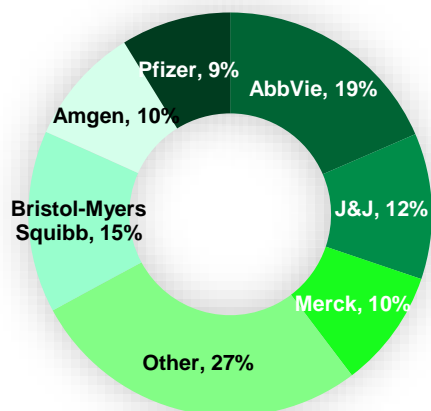


Strategic Partnerships - The industry benefited from strategic partnerships with federal governments in vaccine development



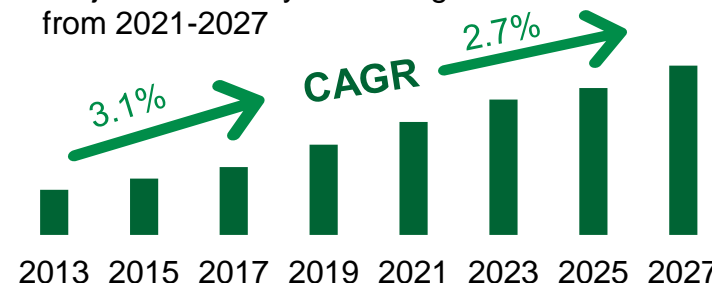
Investments in Breakthrough Therapies – The pharmaceutical industry is experiencing pressures on pricing; it is expected that organizations will look to invest in innovative breakthrough therapies to diversify their portfolios

Industry Leaders



Industry Performance and Outlook

- Pharmaceuticals Market Size is projected to reach \$1,199 billion by 2026, from USD at a CAGR of 3.2% during 2021-2026
- The industry's revenue has grown at a 3.1% CAGR from 2013-2020
- Projected industry revenue growth of 2.7% CAGR from 2021-2027



CF Monopoly

24.4%
CAGR
2021-2027

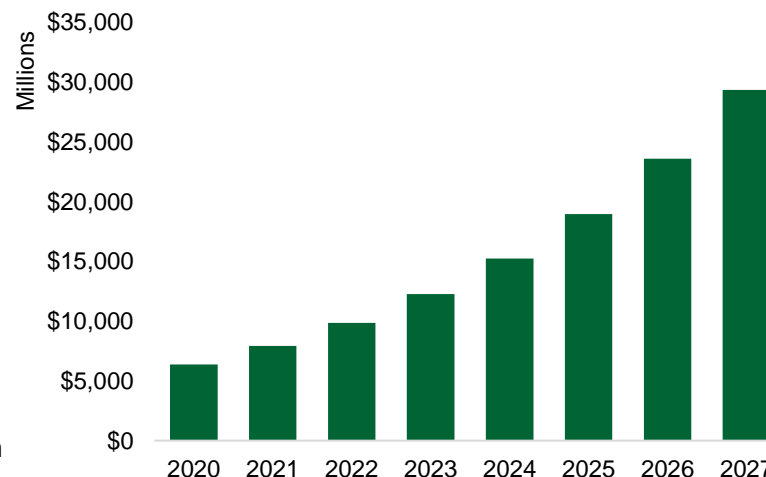
2027

\$29.3B

97%
Market
Share

- Vertex is a monopoly with 97% market share of the global CF treatment market which was valued at \$6.3B in 2020.
- Market size to grow at at CAGR of 24.4% through 2027.
- No other competitor with approved treatments.
- The only clear competitor AbbVie is in phase 2 of clinical trials evaluating a CF drug which is still years behind approval.
- Patents are not set to expire until mid-2030's
- Significant room to grow as more than 30,000 patients who can benefit from Vertex's drugs are not yet under treatment.

Global CF Treatment Market



Collaborations Broadening Pipeline

- Collaboration with CRISPR on CTX001, a gene therapy designed to treat 2 rare blood disorders – beta thalassemia and sickle cell disease.
 - Anticipated submission of regulatory approval in late 2022.
 - Vertex pays \$900m upfront plus \$200m after approval to CRISPR to split costs and profits 60/40.
- Collaboration with Moderna Inc. on mRNA therapeutics for the delivery of gene-editing therapies to help treat CF.
 - mRNA therapeutics will allow vertex to address the remaining 10% of the CF market.

Positive VX-147 Clinical Results

- Vertex announced positive results from phase 2 of VX-147 in treating patients with the underlying cause of APOL1-mediated kidney disease.
- Over 100,000 patients in the U.S. and Europe live with APOL1-mediated kidney disease.
- VX-147 to advance into phase 3 of studies in Q1 of 2022.
- The promising results positions Vertex well to prove its more than a one hit wonder.



Risks



Strict Regulations:

Vertex depends on being able to successfully secure necessary regulatory approvals for every new product they hope to launch.



Medicare Negotiations:

Ongoing discussions regarding Medicare could allow for prices to be negotiated with drug makers, affecting company revenues.



Market Volatility:

Healthcare stocks are known to be volatile as there are multiple environmental factors that come in to play.

Catalysts



Research & Development:

Research and Development is one of Vertex's strongest catalysts right now as they have multiple project pipelines in testing phases and continue to expand their product lines.



Positive Results:

Vertex has received great news in their current studies of new drug candidates which in result has increased investor interest..



Strong Profit Margins:

With an increasing patient base, Vertex has enjoyed a strong revenue growth and due to their high pricing, they have benefited from strong profit margins.

Mitigating Factors



Long-Term Drug Patents:

Vertex Pharmaceuticals will be able to protect their profits for a number of years because of the drug patents they've acquired.



Dominance:

Vertex Pharmaceuticals has created a monopoly status in the Cystic Fibrosis market, which also allows them to keep costs low.

Comparable Companies Valuation Summary



Company Name	Market Cap.	Enterprise Value	Cash & S-t Inv.	Revenue NTM	EBITDA NTM	Price Per Share	EPS NTM	EV/Revenue NTM	EV/EBITDA NTM	P/E NTM	After Tax NI CAGR 3-Yr Hist.	Revenue CAGR 3-Yr Hist.	EBITDA Margin (%)
Pharmaceutical Preparation Manufacturing													
Sanofi SA	131,546	154,261	-	43,942	13,749	\$ 103.12	7.34	2.9x	9.1x	12.2x	2.5%	1.5%	31.3%
Bayer AG	58,360	97,963	9,332	49,289	12,496	\$ 58.84	7.08	1.9x	7.1x	7.6x	4.0%	1.5%	27.7%
Biogen Inc	39,210	46,686	2,955	10,872	4,223	\$ 270.03	19.17	4.1x	11.3x	14.1x	0.4%	(0.0%)	54.2%
Moderna Inc	92,832	97,316	8,906	17,771	12,614	\$ 236.85	25.61	4.4x	6.2x	8.7x	(23.0%)	81.2%	(91.1%)
Merck & Co Inc	199,954	206,626	10,016	56,014	24,459	\$ 82.72	5.80	4.0x	9.4x	11.7x	9.1%	4.3%	42.9%
Average	104,380	120,570	7,802	35,578	13,508	150.31	13.00	3.5x	8.6x	10.9x	-1%	18%	13%
Vertex Pharmaceuticals Inc	47,141	40,610	6,961	8,151	4,407	\$ 185.41	11.33	5.0x	9.2x	14.0x	37%	26.8%	-

Analysis and Valuation Summary

- Vertex exceeds peer performance in after-tax NI CAGR as well as revenue CAGR
- Based on our Comparable analysis we can conclude that Vertex's Fair Value Share Price is \$161.76, and their Implied Share Price is \$123.50

Comparables EV/EBITDA	8.6x
Vertex NTM Metric	\$4,407
Total Enterprise Value	37,900
- Total Debt	3088.04
+ Cash & Equivalents	6275.7
Equity Value	41,088
Shares Outstanding (m)	254
Fair Value Share Price	\$161.76

10.9x	Comparables P/E
\$11.33	Vertex EPS (NTM)
\$123.50	Implied Share Price

Gordon Growth Method

PV of Forecast Period	61,540
<i>% of Enterprise Value</i>	11.8%
Terminal Value	
Terminal Year UFCF	22,098
Perpetuity Growth Rate	1.0%
Terminal Value	591,913
PV of Terminal Value	458,078
<i>% of Enterprise Value</i>	88.2%
Enterprise Value	519,618
Less: Net Debt	(2,923)
Equity Value	516,695
Fully Diluted Shares Outstanding	2,403
Implied Share Price	\$215.07
Current Share Price	\$182.00
Implied Margin of Safety	18.2%

Terminal Multiple Method

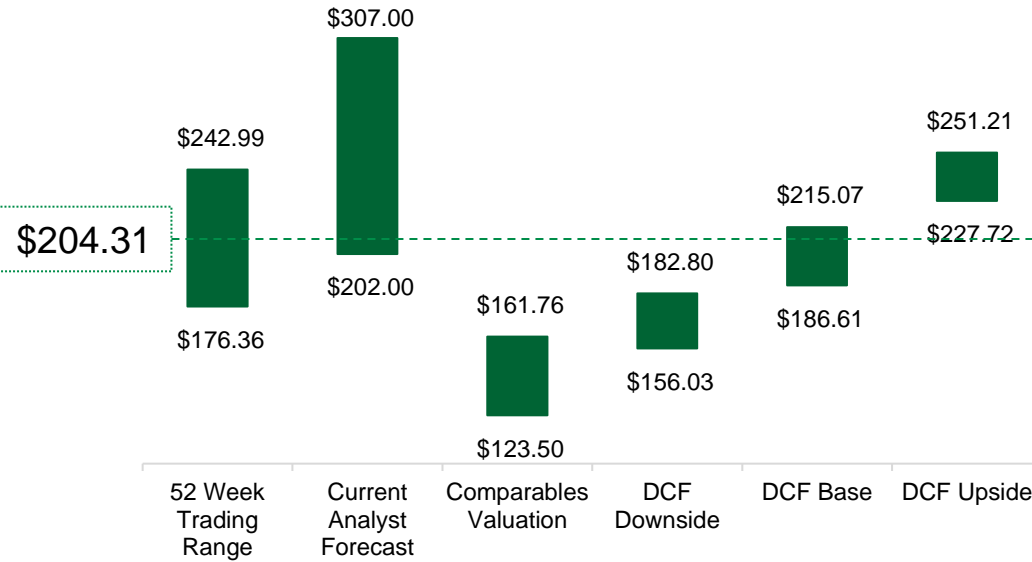
Cumulative PV of Free Cash Flow	61,540
<i>% of Enterprise Value</i>	13.6%
Terminal Value	
Terminal Year EBITDA	20,143
EBITDA Multiple	25.0x
Terminal Value	503,579
PV of Terminal Value	389,718
<i>% of Enterprise Value</i>	86.4%
Enterprise Value	451,257
Less: Net Debt	(2,923)
Equity Value	448,334
Fully Diluted Shares Outstanding	2,403
Implied Share Price	\$186.61
Current Share Price	\$182.00
Implied Margin of Safety	2.5%

Sensitivity Analysis

		WACC				
		3.8%	4.3%	4.8%	5.3%	5.8%
Terminal Growth	-	224.28	195.95	173.61	155.54	140.64
	0.5%	255.85	219.61	191.91	170.06	152.39
	1.0%	298.81	250.51	215.07	187.97	166.60
	1.5%	360.70	292.55	245.30	210.64	184.13
	2.0%	457.53	353.11	286.45	240.23	206.32

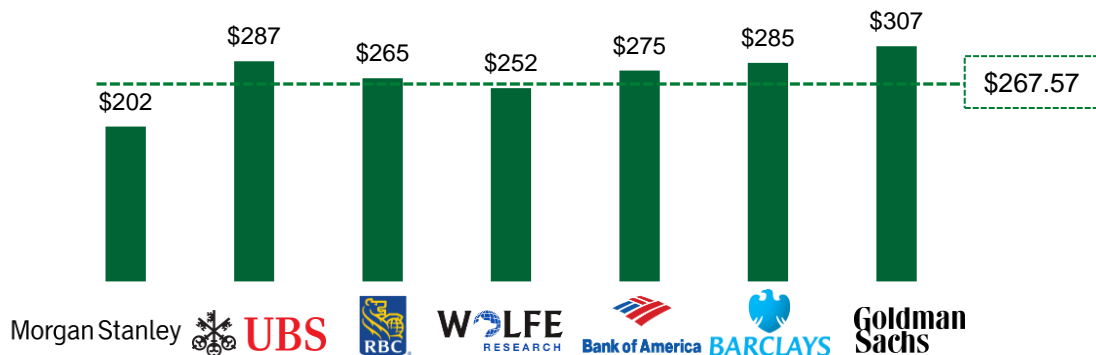
		WACC				
		3.8%	4.3%	4.8%	5.3%	5.8%
Exit Multiple	24.0x	189.43	184.71	180.12	175.68	171.37
	24.5x	192.85	188.04	183.37	178.84	174.44
	25.0x	196.27	191.37	186.61	182.00	177.52
	25.5x	199.69	194.70	189.86	185.16	180.60
	26.0x	203.11	198.03	193.10	188.32	183.68

Football Field



Analysis	Average Price	Weight
52 Week Trading Range	\$209.68	20%
Current Analyst Forecast	\$267.57	20%
Comparable Valuation	\$142.63	20%
DCF Valuation Gordon Growth	\$215.07	20%
DCF Valuation Terminal Multiple	\$186.61	20%

Analysts Price Targets



Price Target: \$267.57

Implied Margin of Safety: 47%

Recommendation: Buy



Exhibit 1: Assumptions

Base

Assumptions	2021E	2022E	2023E	2024E	2025E	2026E
Revenue Growth	27.0%	24.0%	23.5%	22.0%	20.0%	20.0%
EBITDA Margin	90.0%	90.0%	90.0%	90.0%	95.0%	95.0%
Tax Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
AR, % of Revenue	22.0%	24.0%	24.0%	24.0%	22.0%	21.0%
Inventories, % of Revenue	14.0%	14.0%	15.0%	18.0%	20.0%	13.0%
AP, % of Revenue	40.0%	35.0%	30.0%	27.0%	16.0%	25.0%
Additions to PP&E, % of sales	3.5%	3.5%	4.5%	3.5%	2.5%	2.5%
PP&E Depreciation, % of gross	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Other D&A, % of Gross	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%

Upside

Assumptions	2021E	2022E	2023E	2024E	2025E	2026E
Revenue Growth	31.0%	28.0%	27.5%	26.0%	24.0%	24.0%
EBITDA Margin	92.0%	92.0%	92.0%	92.0%	97.0%	97.0%
Tax Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
AR, % of Revenue	22.2%	24.2%	24.2%	24.2%	22.2%	21.2%
Inventories, % of Revenue	17.5%	17.5%	18.5%	21.5%	23.5%	16.5%
AP, % of Revenue	41.5%	36.5%	31.5%	28.5%	17.5%	26.5%
Additions to PP&E, % of sales	6.5%	6.5%	7.5%	6.5%	5.5%	5.5%
PP&E Depreciation, % of gross	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
Other D&A, % of Gross	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%

Downside

Assumptions	2021E	2022E	2023E	2024E	2025E	2026E
Revenue Growth	23.0%	20.0%	19.5%	18.0%	16.0%	16.0%
EBITDA Margin	88.0%	88.0%	88.0%	88.0%	93.0%	93.0%
Tax Rate	-	-	-	-	-	-
AR, % of Revenue	21.8%	23.8%	23.8%	23.8%	21.8%	20.8%
Inventories, % of Revenue	10.5%	10.5%	11.5%	14.5%	16.5%	9.5%
AP, % of Revenue	38.5%	33.5%	28.5%	25.5%	14.5%	23.5%
Additions to PP&E, % of sales	0.5%	0.5%	1.5%	0.5%	(0.5%)	(0.5%)
PP&E Depreciation, % of gross	(2.5%)	(2.5%)	(2.5%)	(2.5%)	(2.5%)	(2.5%)
Other D&A, % of Gross	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%

Exhibit 2: WACC

Capital Structure	Total Value	Weight
Equity	\$43,725,500,000.0	98.03%
Debt	\$876,800,000.0	1.97%
Preferred Equity	-	0.00%
Total	\$44,602,300,000.0	100.00%

WACC Analysis		
10-Year U.S. Treasury		1.5%
Market Risk Premium		5.5%
Beta		0.600
Cost of Equity		4.8%
Cost of Debt		2.9%
Tax Rate		21.0%
After-Tax Cost of Debt		2.3%
WACC		4.77%

Equity Analysis		
<i>Price:</i>	Current Trading Price	\$182.00
<i>Shares Outstanding:</i>	Fully Diluted S/O	240,250,000.00
<i>Cost Breakdown:</i>	10-Year U.S. Treasury	1.521%
	Market Risk Premium	5.5%
	5Yr Levered Beta	0.6
	2Yr Levered Beta	
	Manual Beta	
Cost of Equity		4.8%
Total Weight		\$43,725,500,000.0

Exhibit 3: Bull Gordon Growth Method

PV of Forecast Period	67,639
<i>% of Enterprise Value</i>	11.2%
Terminal Value	
Terminal Year UFCF	25,993
Perpetuity Growth Rate	1.0%
Terminal Value	696,236
PV of Terminal Value	538,814
<i>% of Enterprise Value</i>	88.8%
Enterprise Value	606,453
Less: Net Debt	(2,923)
Equity Value	603,530
Fully Diluted Shares Outstanding	2,403
Implied Share Price	\$251.21
Current Share Price	\$182.00
Implied Margin of Safety	38.0%

Exhibit 4: Bull Terminal Multiple Method

Cumulative PV of Free Cash Flow	67,639
<i>% of Enterprise Value</i>	12.3%
Terminal Value	
Terminal Year EBITDA	24,933
EBITDA Multiple	25.0x
Terminal Value	623,314
PV of Terminal Value	482,379
<i>% of Enterprise Value</i>	87.7%
Enterprise Value	550,019
Less: Net Debt	(2,923)
Equity Value	547,096
Fully Diluted Shares Outstanding	2,403
Implied Share Price	\$227.72
Current Share Price	\$182.00
Implied Margin of Safety	25.1%

Exhibit 5: Bull Sensitivity Analysis

Terminal Growth Share Price Sensitivity (\$)

Terminal Growth	WACC				
	3.8%	4.3%	4.8%	5.3%	5.8%
-	262.00	228.71	202.44	181.21	163.70
0.5%	299.14	256.54	223.97	198.29	177.52
1.0%	349.68	292.88	251.21	219.36	194.24
1.5%	422.47	342.33	286.77	246.02	214.86
2.0%	536.37	413.57	335.18	280.83	240.96

Exit Multiple Share Price Sensitivity (\$)

Exit Multiple	WACC				
	3.8%	4.3%	4.8%	5.3%	5.8%
24.0x	231.12	225.31	219.69	214.23	208.94
24.5x	235.35	229.44	223.70	218.14	212.75
25.0x	239.58	233.56	227.72	222.05	216.56
25.5x	243.82	237.68	231.73	225.97	220.37
26.0x	248.05	241.81	235.75	229.88	224.18

Exhibit 6: Bear Gordon Growth Method

PV of Forecast Period	55,825
<i>% of Enterprise Value</i>	12.6%
Terminal Value	
Terminal Year UFCF	18,634
Perpetuity Growth Rate	1.0%
Terminal Value	499,128
PV of Terminal Value	386,273
<i>% of Enterprise Value</i>	87.4%
Enterprise Value	442,098
Less: Net Debt	(2,923)
Equity Value	439,175
Fully Diluted Shares Outstanding	2,403
Implied Share Price	\$182.80
Current Share Price	\$182.00
Implied Margin of Safety	0.4%

Exhibit 7: Bear Terminal Multiple Method

Cumulative PV of Free Cash Flow	55,825
<i>% of Enterprise Value</i>	15.1%
Terminal Value	
Terminal Year EBITDA	16,163
EBITDA Multiple	25.0x
Terminal Value	404,078
PV of Terminal Value	312,714
<i>% of Enterprise Value</i>	84.9%
Enterprise Value	368,539
Less: Net Debt	(2,923)
Equity Value	365,616
Fully Diluted Shares Outstanding	2,403
Implied Share Price	\$152.18
Current Share Price	\$182.00
Implied Margin of Safety	(16.4%)

Exhibit 8: Bear Sensitivity Analysis

Terminal Growth Share Price Sensitivity (\$)

Terminal Growth	WACC				
	3.8%	4.3%	4.8%	5.3%	5.8%
-	190.60	166.70	147.84	132.59	120.01
0.5%	217.22	186.65	163.27	144.83	129.92
1.0%	253.45	212.70	182.80	159.94	141.90
1.5%	305.63	248.15	208.30	179.05	156.69
2.0%	387.29	299.22	243.00	204.01	175.40

Exit Multiple Share Price Sensitivity (\$)

Exit Multiple	WACC				
	3.8%	4.3%	4.8%	5.3%	5.8%
24.0x	154.51	150.69	146.97	143.38	139.88
24.5x	157.25	153.36	149.58	145.91	142.36
25.0x	160.00	156.03	152.18	148.45	144.83
25.5x	162.74	158.70	154.78	150.98	147.30
26.0x	165.49	161.38	157.39	153.52	149.77