

REGENERON

SCIENCE TO MEDICINE®



Panni Alexa

- DCF Valuation
- Precedent Transactions



Balint Bajkai

- Comparable Company Analysis
- Market Overview

Danube Capital presents:

REGENERON

Target Price: \$853

Current Price: \$762

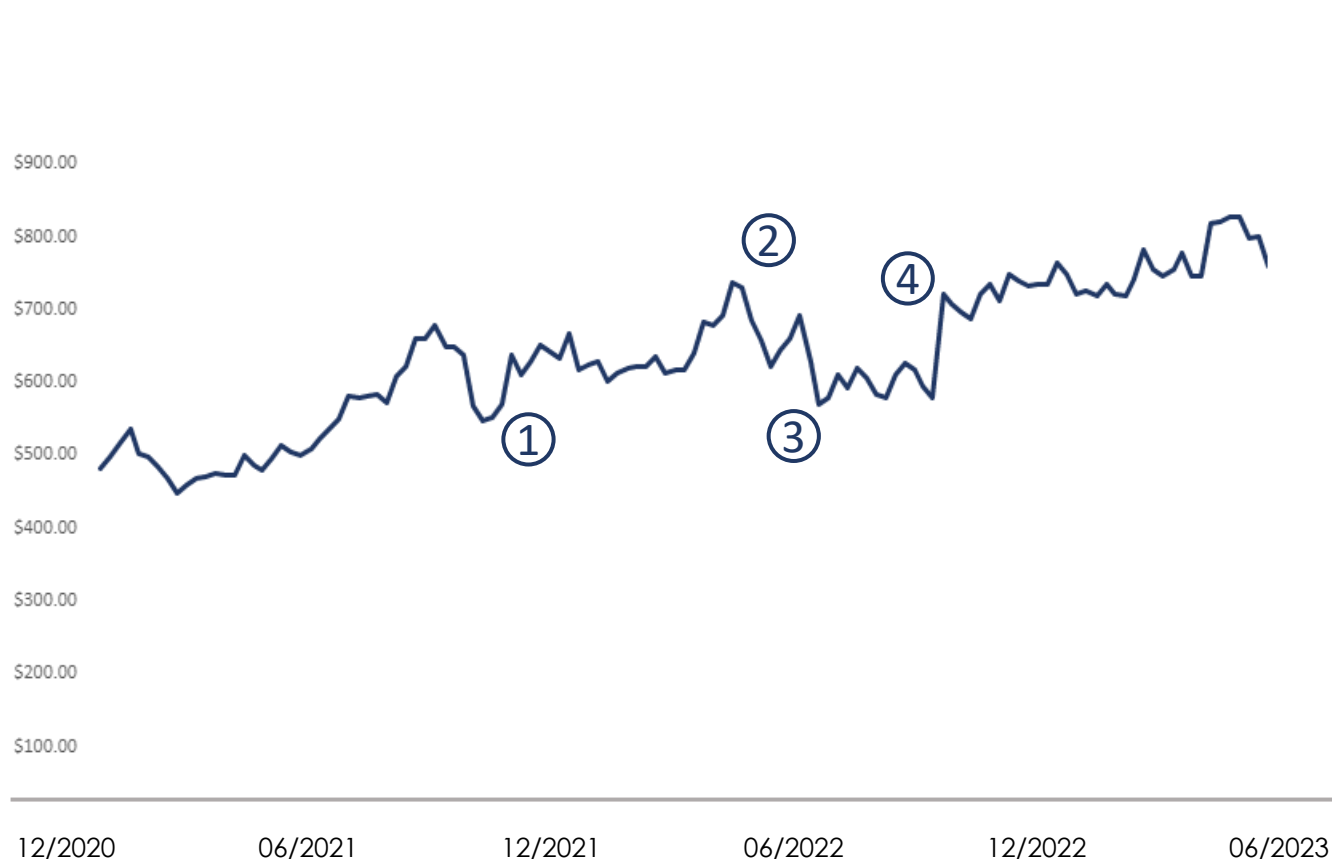
Upside Potential: 15%

Recommendation: **BUY**

Investment Horizon: 4 years

Share Price Performance & Main Drivers

Stable stock driven by pipeline news



Major changes in share price

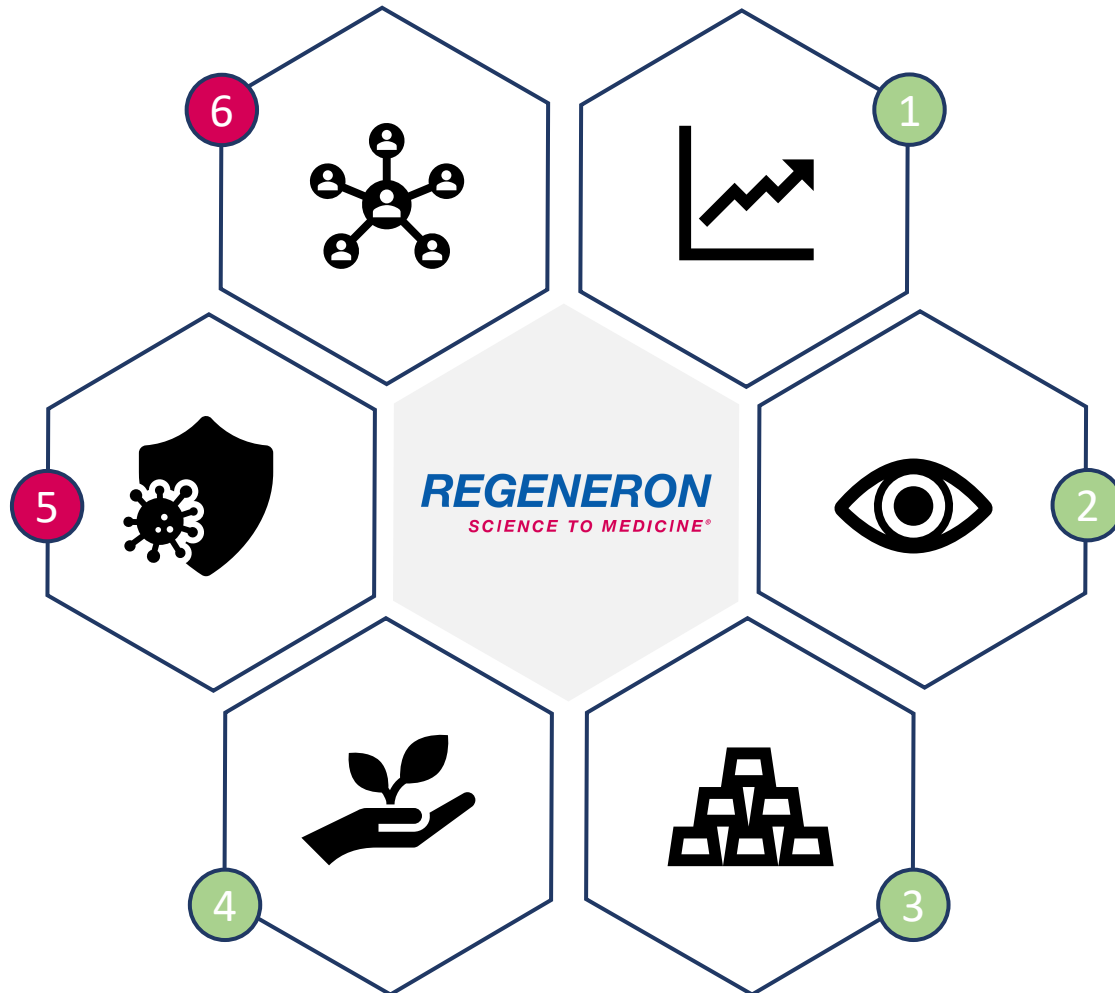
- 1 Phase 3 win for eczema drug Dupixent
- 2 Extension of review period by FDA for REGEN-COV
- 3 Regeneron presents at Goldman Sachs 43rd Annual Global
- 4 Record sales of Eylea eye disease drug

Key stats

- **IPO:** April 1991
- **Ticker:** REGN
- **52-week average:** 703.41
- **Market cap:** 82.31 billion

Investment Thesis

Regeneron is exploiting undervalued opportunities



- 1 Well positioned for exploiting highly growing specialty drugs industry
- 2 Providing the #1 anti-VEGF treatment for retinal diseases
- 3 Steadily increasing revenue for the past 5 years with a 68% increase since 2017
- 4 New \$3B share repurchase program announced in February 2023
- 5 Rapidly decreasing Covid-19 vaccine sales
- 6 Competition threatens the blockbuster eye-care treatment Eylea sales

Time span of holding period

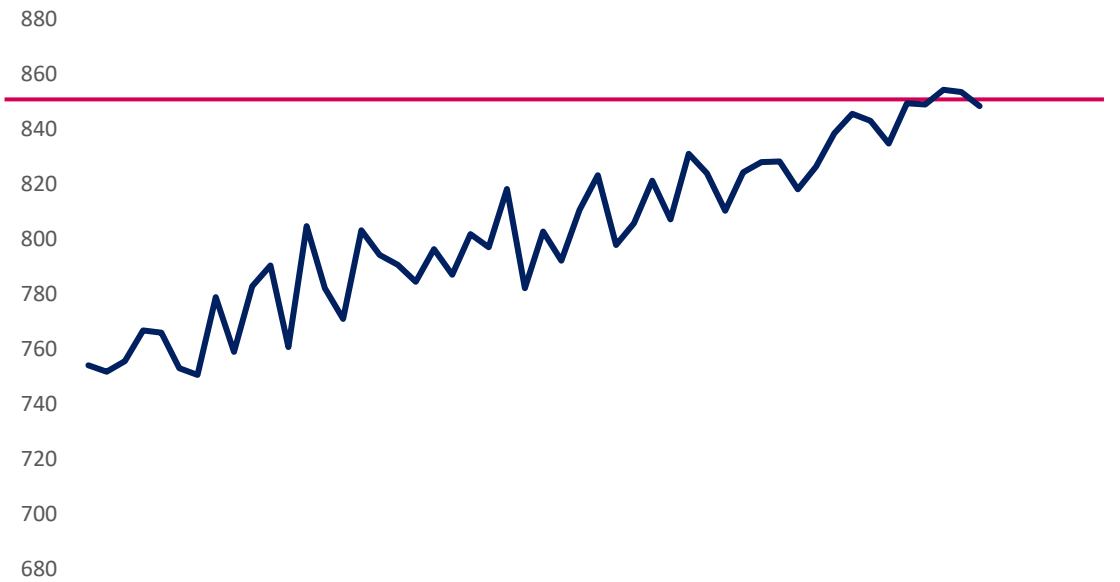
Investment thesis will materialize in 4 years

-  Highly anticipated drugs coming to the end of the pipeline
-  New drugs potential materializing
-  Overall market sentiment improvement
-  Time period needed to counter fundamental undervaluation
-  Strong market growth leading up to the exit



Holding for about 4 years or when reaches target price

Simulation of next 4 year stock price



Company Overview

Experienced senior management leads by example

Company description

company that discovers, develops, and commercializes pharmaceutical products
 [2] Main focus areas: oncology, immunology, ophthalmology, dermatology
 [3] Headquarters: New York
 [4] Global operations: 75% of sales in the US, 25% in Europe & Asia Pacific

Management team



Dr Leonard S Schleifer

Co-President/CEO/
Co-Founder
35 years tenure



Dr George D Yancopoulos

Co-President/Chief Scientific Office
Co-founder
35 years tenure

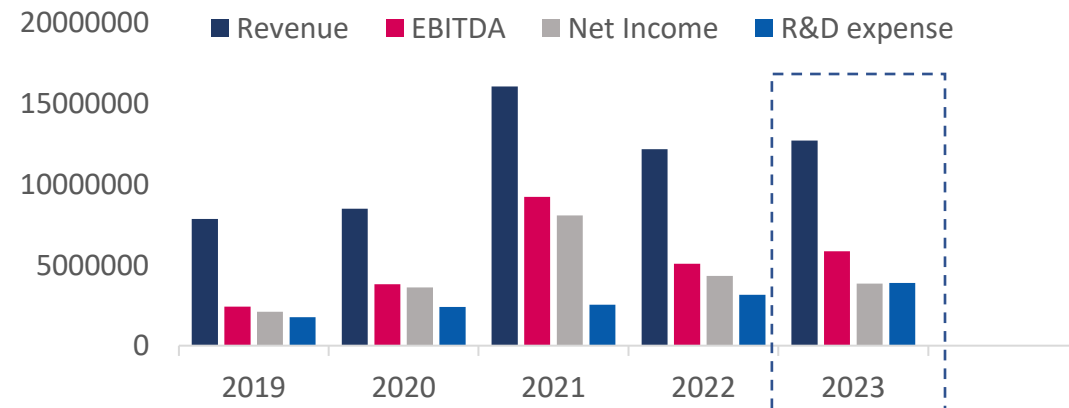


Robert E Landry Jr

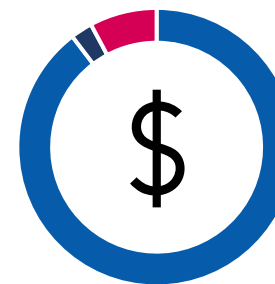
CFO

10 years tenure

Financials



Shareholder structure



- 89.6% held by institutions
- 2.5% held by insiders
- 7.9% held by others

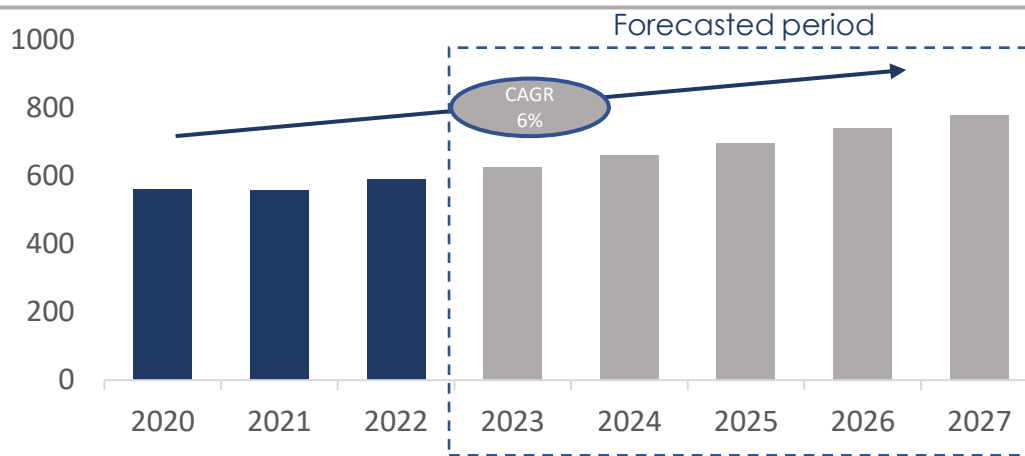
Top holders:

- FMR LLC 10.29%
- Blackrock 8.50%
- Vanguard group 8.08%

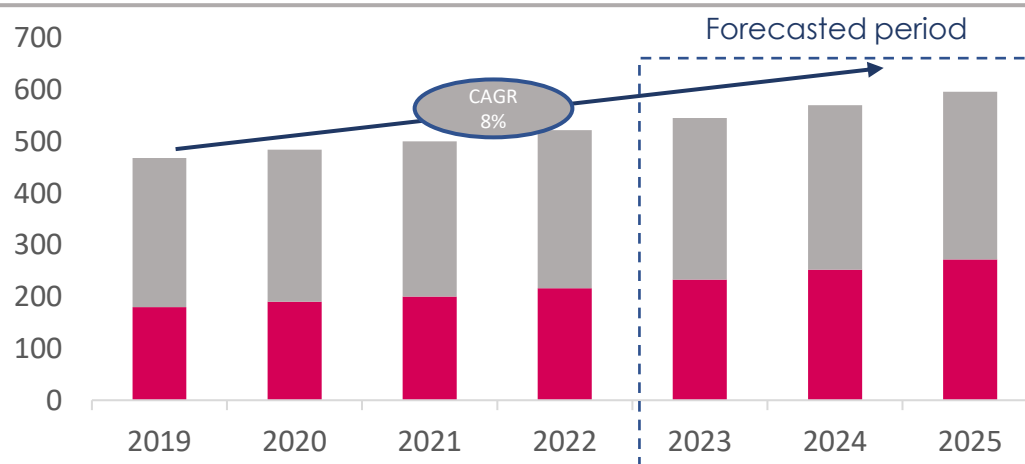
Market overview

Fast growing market is led by rare diseases

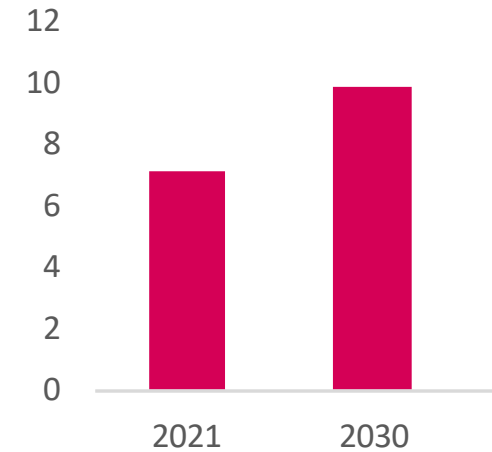
Pharmaceuticals market size



Profit pool growth lead by specialty drugs



3.7% CAGR
Eylea market size projected to reach 10 billion by 2030

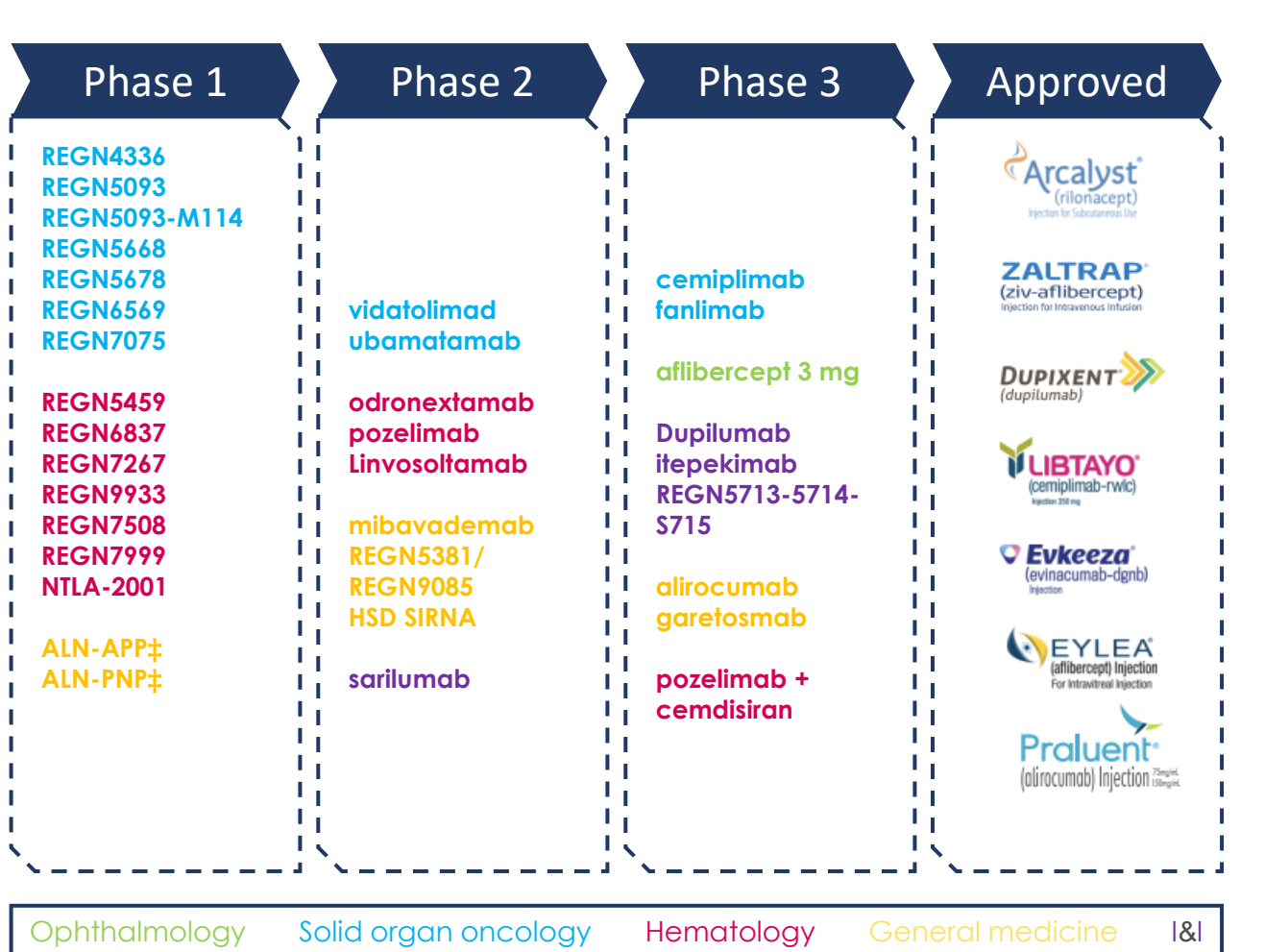


Porter's five forces

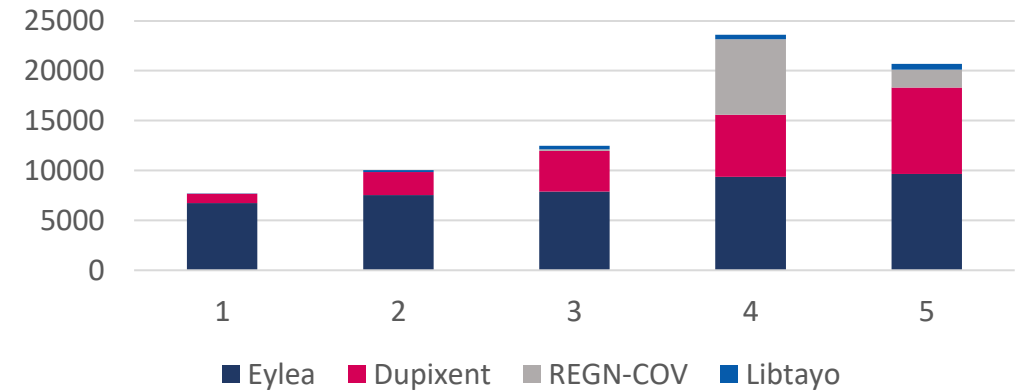
- Competition** in the biotech industry is **medium**, as the number of competitors is high however mostly different diseases are targeted.
- Potential new entrants** into this space is **low**, as the amount of investment and specialization are both extremely high.
- Threat of substitutes** is **medium**, even though their key products are market leaders, competitors could threaten their dominance.
- Power of suppliers** in the industry is **high**, as Regeneron highly relies on raw materials and manufacturing support.
- Power of buyers** is **low**, as the drugs Regeneron makes are needed by their customers and demand is very inelastic.

Pipeline

Several high potential drugs in the pipeline



Current performance of portfolio



Eylea - injection treatment for rare eye disease
 Sales Target for 2023: \$9,448.8mn

Dupixent – medicine for moderate-to-severe eczema
 Sales Target for 2023: \$10,929.5mn

Libtayo – immunotherapy for non-small cell lung cancer
 Sales Target for 2023: \$795.0mn

Valuation - Comparable Company Analysis

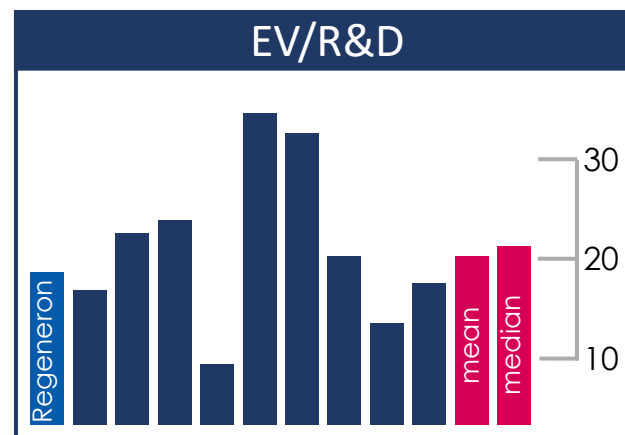
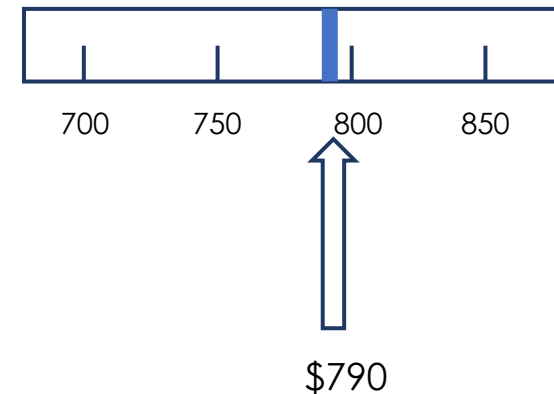
The biotech market has a handful of drug manufacturers

Peer group overview



Valuation overview

Valuation using price over earnings ratios and EV/R&D ratios suggest 790\$ price per share

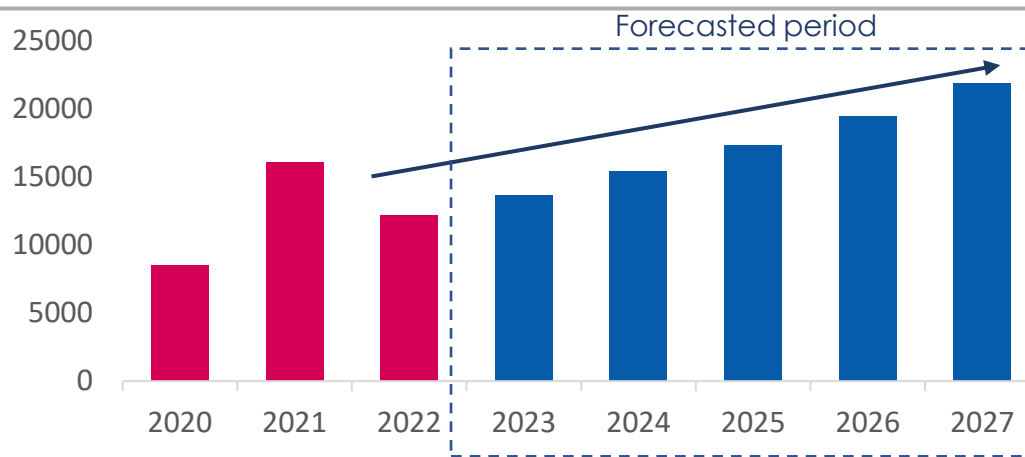


EV/R&D is the biotech industry specific comparable company analysis measure

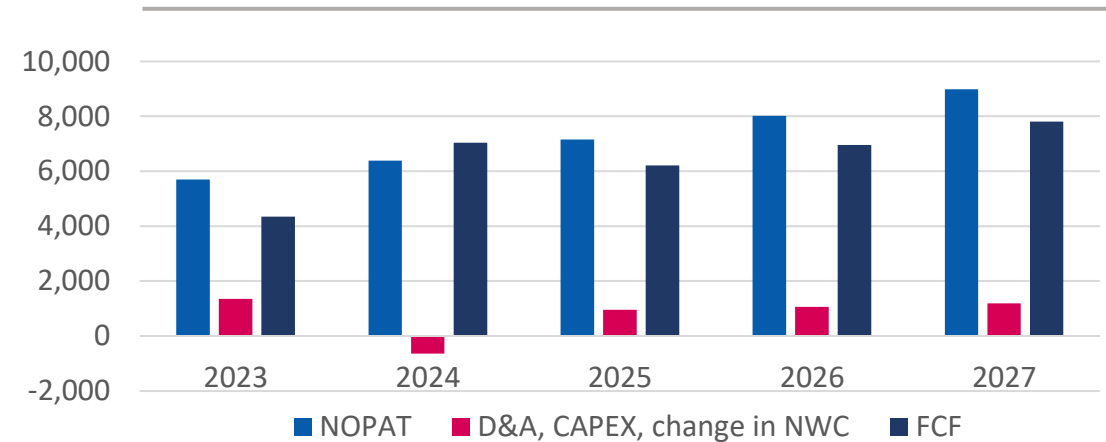
Valuation – Discounted Cash Flow method

Strong FCF projections signal undervaluation

Revenue development in the forecasting period



FCF composition



Capitalization of R&D expenses

Capitalizing instead of expensing R&D is crucial in Biotech to account for the future benefits of such projects

Pre-capitalization

EBIT: \$4,738.9mn
 ROC: 20.52%
 D&A: \$341.4mn

Post-capitalization

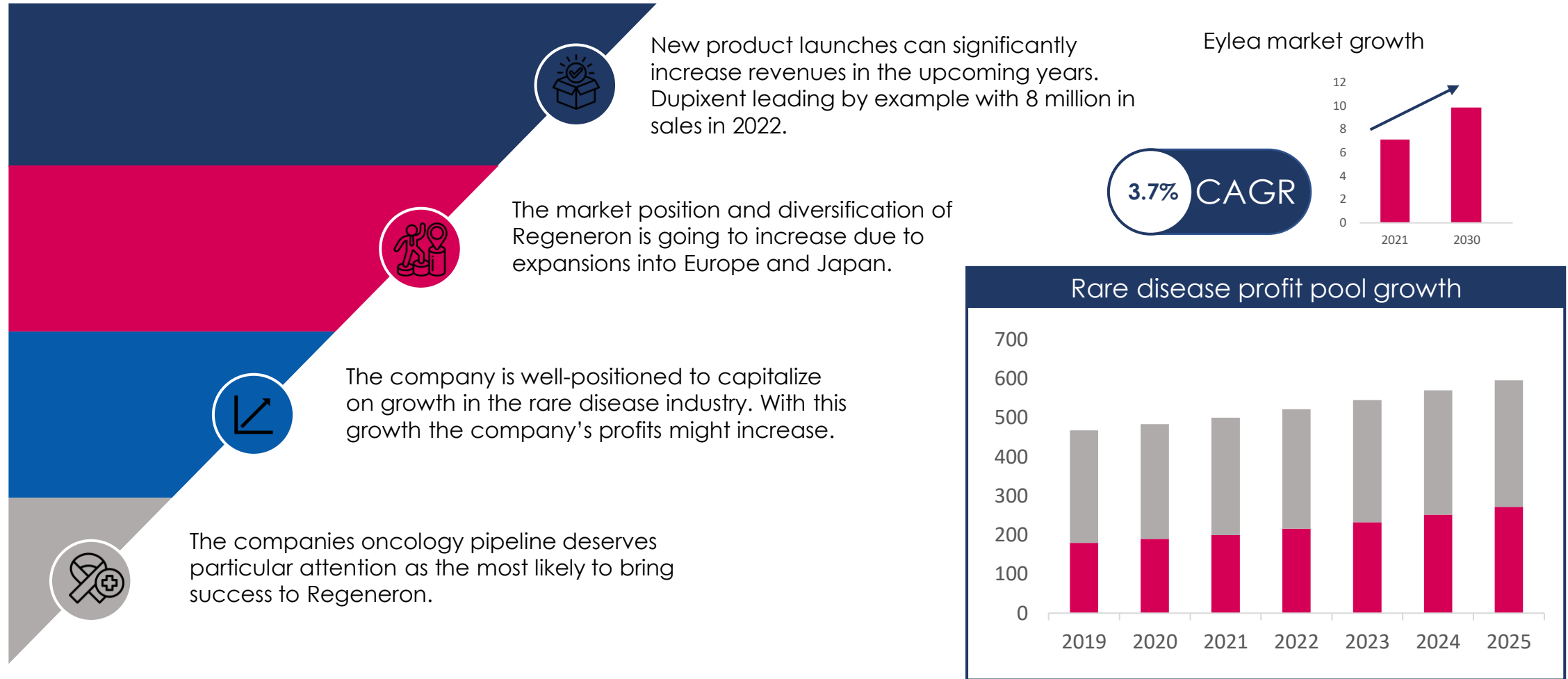
EBIT: \$5,732.2mn
 ROC: 17.59%
 D&A: \$2,929.6mn

Assumptions for DCF valuation

- Revenue growth:** Assumption is based on ROC and the reinvestment rate calculated from company fundamentals
- R&D expense:** Regeneron keeps investing in the development of its pipeline to provide life-saving treatments
- WACC:** 8.04%







Catalysts

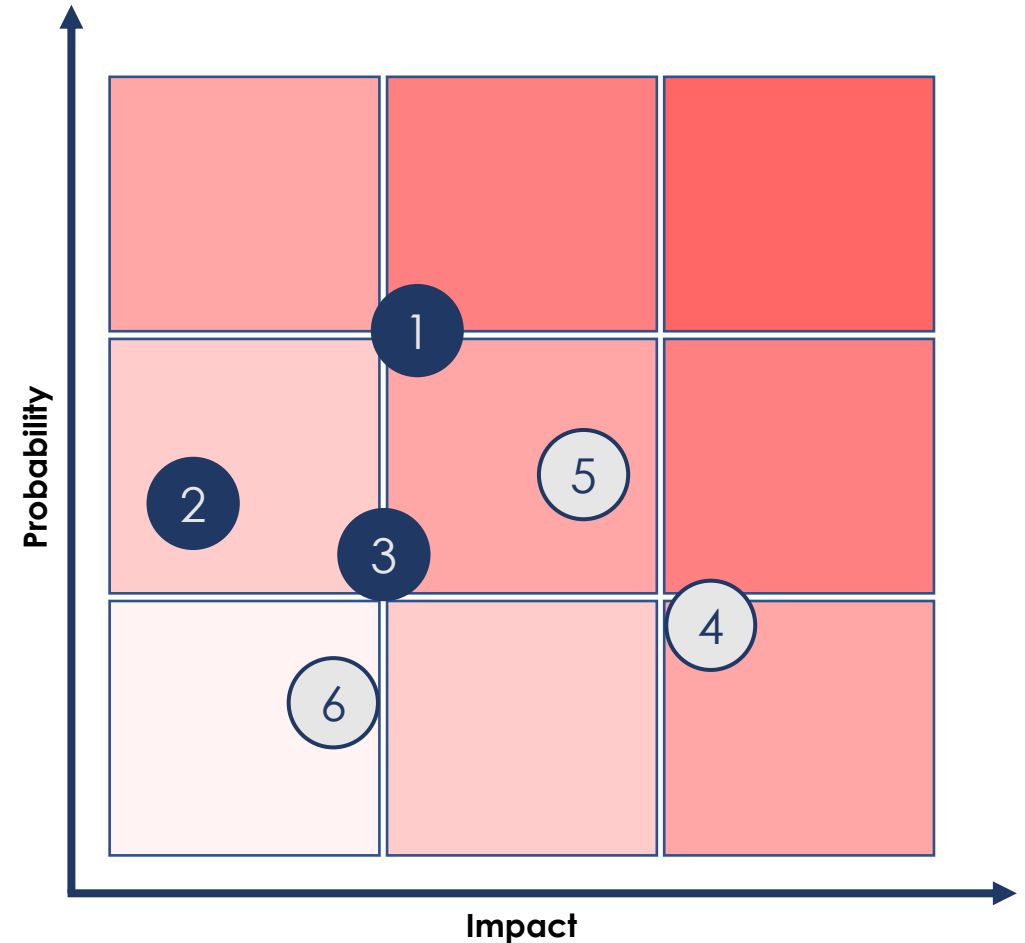
Regeneron's catalyst lie in their potential and current product line



Risks

Most risks come from the high competition in the market

-  Clinical trial failures might lead to lower than previously expected future revenues
-  Intensifying competition putting pressure on margins
-  Patent expirations hurting secured market position
-  Disputes with business partners can heavily affect the business due to the mutual dependence
-  Healthcare policy changes such as change in pricing models could hurt financial performance
-  Declining Eylea sales as competition is catching up



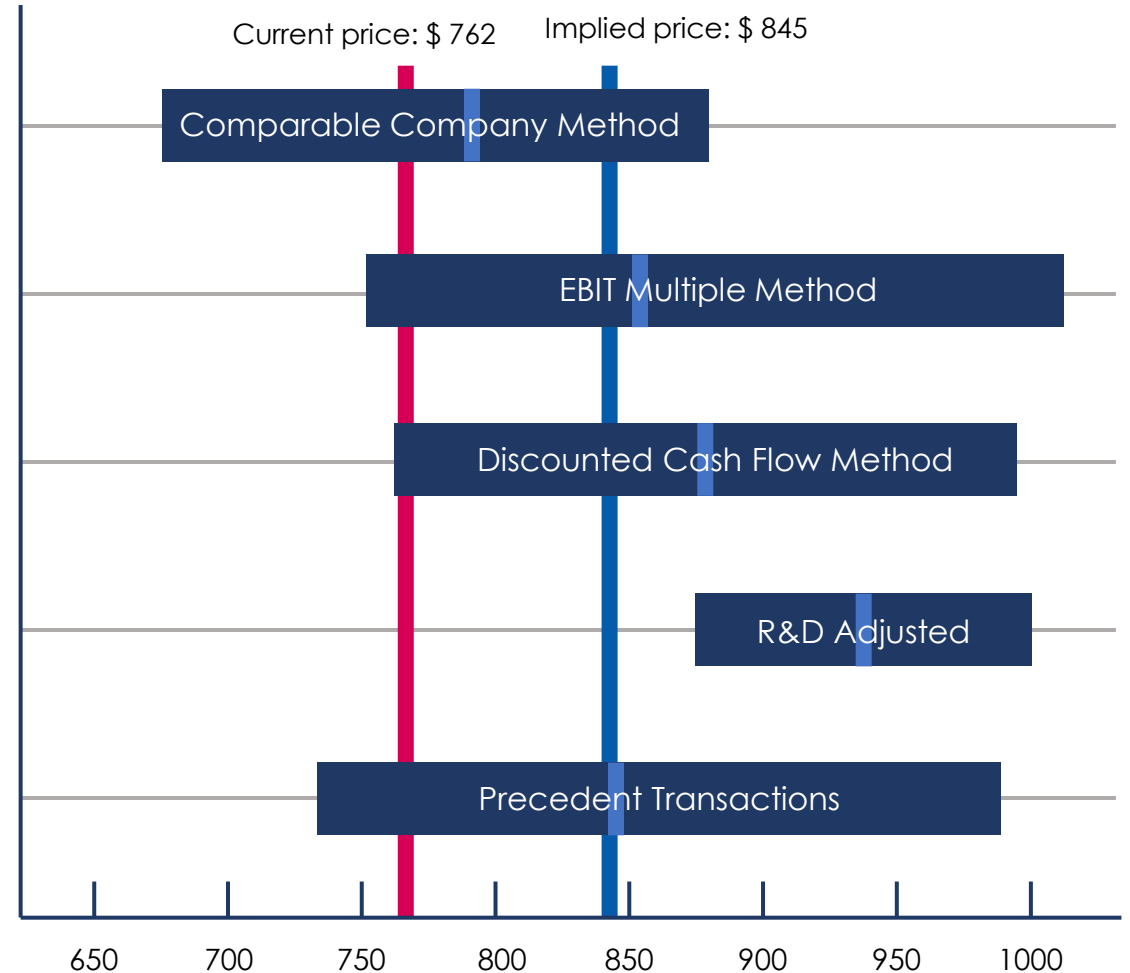
Conclusion – Entry & Exit

Valuations imply a target price of \$845

Investment strategy	
Entry:	Below \$780 per share
Exit:	At \$845 per share
Stop-Loss:	10%
Holding period:	4 years or until investment reaches target price



Revise the strategy if there are significant news related to the company's pipeline



Appendix B.1 - DCF

Regeneron		Scenario						
		2						
INCOME STATEMENT		Historical 2021	Historical 2022	Projected 2023	Projected 2024	Projected 2025	Projected 2026	Projected 2027
Revenue		\$ 16,072	\$ 12,173	\$ 13,692	\$ 15,401	\$ 17,323	\$ 19,485	\$ 21,916
Growth (%)		NA	-24%	12.48%	12.48%	12.48%	12.48%	12.48%
COGS		\$ 1,773	\$ 800	\$ 1,205	\$ 1,314	\$ 1,431	\$ 1,557	\$ 1,692
% of Sales		11.0%	6.6%	8.8%	8.5%	8.3%	8.0%	7.7%
			Bull Case	6.80%	6.53%	6.26%	5.99%	5.72%
			Base Case	8.80%	8.53%	8.26%	7.99%	7.72%
			Bear Case	10.80%	10.53%	10.26%	9.99%	9.72%
Gross Profit		\$ 14,299	\$ 11,373	\$ 12,487	\$ 14,086.8	\$ 15,891.6	\$ 17,927.5	\$ 20,224.0
% of Sales		89.0%	93.4%	91.2%	91.5%	91.7%	92.0%	92.3%
Cost of collaboration and contract manufacturing & other as % of Sales		\$ 619	\$ 671	\$ 641	\$ 721	\$ 811	\$ 912	\$ 1,026
		3.9%	5.5%	4.7%	4.7%	4.7%	4.7%	4.7%
General and administrative G&A as % of Sales		\$ 1,825	\$ 2,116	\$ 1,967	\$ 2,320.66	\$ 2,731.5	\$ 3,208.8	\$ 3,762.7
		11.4%	17.38%	14.37%	15.07%	15.77%	16.47%	17.17%
R&D Expenses R&D as a % of Sales		\$ 2,908	\$ 3,848	\$ 3,403	\$ 3,789	\$ 4,218	\$ 4,696	\$ 5,227
		18.09%	31.61%	24.85%	24.60%	24.35%	24.10%	23.85%
Total Operating Expenses % of Sales		\$ 5,352	\$ 6,634	\$ 6,011	\$ 6,830	\$ 7,760	\$ 8,817	\$ 10,016
		33.3%	54.5%	43.9%	44.3%	44.8%	45.2%	45.7%
INCOME STATEMENT		Historical 2021	Historical 2022	Projected 2023	Projected 2024	Projected 2025	Projected 2026	Projected 2027
Operating Income (EBIT)		\$ 8,947	\$ 4,739	\$ 6,476	\$ 7,257	\$ 8,131	\$ 9,111	\$ 10,208
Operating Profit Margin (%)		55.7%	38.9%	47.3%	47.1%	46.9%	46.8%	46.6%
Other Income		\$ 436	\$ 179	\$ 179	\$ 179	\$ 179	\$ 179	\$ 179
Interest and Other (Income) Expense: Interest and other income (expense)		\$ -57	\$ -59.4	\$ -59	\$ -59	\$ -59	\$ -59	\$ -59
Interest and Other, net		\$ -57	\$ -59.4	\$ -59	\$ -59	\$ -59	\$ -59	\$ -59
Earnings Before Taxes		\$ 9,326	\$ 4,858.8	\$ 6,417	\$ 7,197	\$ 8,072	\$ 9,051	\$ 10,149
Provision for Income Taxes Tax Rate (%)		\$ -1,251	\$ -520.4	\$ -774	\$ -868	\$ -973	\$ -1,092	\$ -1,224
		-13.4%	-10.7%	-12.1%	-12.1%	-12.1%	-12.1%	-12.1%
Equity in net income (loss) of equity method investees								
Net Income Net Profit Margin (%)		\$ 8,075	\$ 4,338.4	\$ 5,643	\$ 6,329	\$ 7,098	\$ 7,960	\$ 8,925
		50.2%	35.6%	41.2%	41.1%	41.0%	40.9%	40.7%
Operating Income (EBIT)		\$ 8,947	\$ 4,739	\$ 6,476	\$ 7,257	\$ 8,131	\$ 9,111	\$ 10,208
Depreciation & Amortization		\$ 286	\$ 341	\$ 373	\$ 373	\$ 195	\$ 219	\$ 246
EBITDA EBITDA Margin (%)		\$ 9,233	\$ 5,080	\$ 6,849	\$ 7,630	\$ 8,326	\$ 9,330	\$ 10,455
		57.4%	41.7%	50.0%	49.5%	48.1%	47.9%	47.7%

Appendix B.2 - DCF

FREE CASH FLOW (FCF)		2023	2024	2025	2026	2027
EBIT		\$ 6,476	\$ 7,257	\$ 8,131	\$ 9,111	\$ 10,208
Tax	-12.06%					
Tax-EBIT		\$ -774	\$ -868	\$ -973	\$ -1,092	\$ -1,224
Tax-Effectuated EBIT		\$ 5,702	\$ 6,389	\$ 7,158	\$ 8,019	\$ 8,985
Plus:						
Depreciation & Amortization		\$ 373	\$ 373	\$ 195	\$ 219	\$ 246
Less:						
Capital Expenditures		\$ -332	\$ -373	\$ -420	\$ -472	\$ -531
Change in Working Capital		\$ -1,396	\$ 645	\$ -726	\$ -808	\$ -899
Free Cash Flow		\$ 4,348	\$ 7,033	\$ 6,207	\$ 6,959	\$ 7,602

WEIGHTED AVERAGE COST OF CAPITAL (WACC)	
Weighted Average Cost of Capital	8.04%
Market Value of Equity	22,664
Market Value of Debt	\$ 1,981
Cost of Debt	4.9%
Cost of Equity	8.25%
Proportion of Debt	7%
Treasury Yield	3.44%
Expected Market Return	7.5%
Beta	1.20
Corporate Tax Rate	10%
Proportion of Equity	93%

PRESENT VALUE OF CASH FLOWS (PV of CF)		1	2	3	4	5
Discount Factor		0.93	0.86	0.79	0.73	0.68
Present Value of Cash Flows		\$ 4,024.86	\$ 6,026.06	\$ 4,922.40	\$ 5,108.15	\$ 5,300.92

FIRM VALUE: PERPETUITY GROWTH RATE METHOD	
Growth Rate in Perpetuity	2.00%
WACC	8%
PV of CFs	\$ 25,382.39
PV of Terminal Value	\$ 60,872.48
Firm Value	\$ 86,254.87

FIRM VALUE: PERPETUITY GROWTH RATE METHOD	
EBITDA Multiple	9.5
WACC	8.04%
PV of CFs	\$ 25,382.39
PV of Terminal Value	\$ 67,485.75
Firm Value	\$ 92,868.14

SHARES OUTSTANDING	
Shares Outstanding	109
Share Price Perpetuity Approach	\$ 794.76
Share Price EBITDA Multiple Approach	\$ 855.69
Price Target	\$ 825.22

DCF Share Price Perpetuity Approach		WACC				
		7.54%	7.79%	8.04%	8.29%	8.54%
1.75%	\$ 817.56	\$ 793.38	\$ 771.13	\$ 750.58	\$ 731.54	
2.00%	\$ 845.42	\$ 818.99	\$ 794.76	\$ 772.45	\$ 751.84	
2.25%	\$ 875.92	\$ 846.92	\$ 820.43	\$ 796.13	\$ 773.77	
2.50%	\$ 909.44	\$ 877.49	\$ 848.42	\$ 821.86	\$ 797.51	
2.75%	\$ 946.47	\$ 911.09	\$ 879.06	\$ 849.92	\$ 823.30	

DCF Share Price EBITDA Multiple Approach		WACC				
		7.29%	7.54%	7.79%	8.04%	8.29%
7.50	\$ 742.18	\$ 736.30	\$ 730.50	\$ 724.78	\$ 719.14	
8.50	\$ 809.96	\$ 803.29	\$ 796.72	\$ 790.24	\$ 783.84	
9.50	\$ 877.73	\$ 870.28	\$ 862.94	\$ 855.69	\$ 848.55	
10.50	\$ 945.51	\$ 937.27	\$ 929.15	\$ 921.15	\$ 913.25	
11.50	\$ 1,013.28	\$ 1,004.26	\$ 995.37	\$ 986.60	\$ 977.95	

Appendix C.1 – Recapitalizing R&D expenses

R & D Converter							
This spreadsheet converts R&D expenses from operating to capital expenses. It makes the appropriate adjustments to operating income, net income, the book value of assets and the book value of equity.							
Inputs							
Over how many years do you want to amortize R&D expenses				\$5	! If in doubt, use the lookup table below		
Enter the current year's R&D expense =				\$3,593	The maximum allowed is ten years		
Enter R& D expenses for past years: the number of years that you will need to enter will be determined by the amortization period							
Do not input numbers in the first column (Year). It will get automatically updated based on the input above.							
Output							
			Year	R&D Expense	Unamortized portion		Amortization this year
Year	R& D Expenses		Current	\$3,593	\$1	\$3,593	
-1	\$2,908		-1	\$2,908	\$1	\$2,326	\$581.62
-2	\$2,735		-2	\$2,735	\$1	\$1,641	\$547.00
-3	\$3,037		-3	\$3,037	\$0	\$1,215	\$607.32
-4	\$2,186		-4	\$2,186	\$0	\$437	\$437.22
-5	\$2,075		-5	\$2,075	\$0	\$0	\$415.02
0	\$2,052		0	\$2,052	\$0	\$0	\$0.00
0	\$1,621		0	\$1,621	\$0	\$0	\$0.00
0	\$1,271		0	\$1,271	\$0	\$0	\$0.00
0	\$860		0	\$860	\$0	\$0	\$0.00
0	\$626		0	\$626	\$0	\$0	\$0.00
Value of Research Asset =					\$9,211.84	\$2,588.18	
! Year -1 is the year prior to the current year							
! Year -2 is the two years prior to the current year							
Amortization of asset for current year =				\$2,588.18			
Adjustment to Operating Income =				\$1,004.32	! A positive number indicates an increase in operating income (add to reported EBIT)		
Tax Effect of R&D Expensing				\$352			

Appendix C.2 - Recapitalizing R&D expenses

Input Summary

Normalized EBIT (before adjustments)	\$4,738.90
Adjusted EBIT =	\$5,743.22
Adjusted Interest Expense =	\$59.40
Adjusted Capital Spending	\$4,412.90
Adjusted Depreciation & Amort'n =	\$2,929.58
Tax Rate on Income =	35.00%
Current Revenues =	\$12,172.90
Current Non-cash Working Capital =	\$9,637.00
Chg. Working Capital =	\$2,441.00
Adjusted Book Value of Debt =	\$1,980.00
Adjusted Book Value of Equity =	\$26,976.52

Length of High Growth Period =	10.5	Forever
Growth Rate =	12.68%	2.00%
Debt Ratio used in Cost of Capital Calculation	2.34%	2.34%
Beta used for stock =	1.20	1.00
Riskfree rate =	3.44%	3.44%
Risk Premium =	6.91%	6.91%
Cost of Debt =	4.13%	5.88%
Effective Tax rate (for cash flow) =	10.70%	10.70%
Marginal tax rate (for cost of debt) =	35.00%	10.70%
Return on Capital =	17.59%	17.59%
Reinvestment Rate =	72.10%	11.37%

Output of the program

Cost of Equity =	11.73%
Equity/(Debt+Equity) =	97.66%
After-tax Cost of debt =	2.68%
Debt/(Debt +Equity) =	2.34%
Cost of Capital =	11.52%

<i>Intermediate Output</i>	
Expected Growth Rate	12.68%
Working Capital as percent of revenues =	79.17% (in percent)

Appendix C.3 - Recapitalizing R&D expenses

The FCFF for the high growth phase are shown below (upto 10 years)

Expected Growth Rate		12.68%	12.68%	12.68%	12.68%	12.68%	11.16%	9.12%	7.09%	5.05%	3.02%		
Cumulated Growth		112.68%	126.97%	143.08%	161.22%	181.67%	201.94%	220.36%	235.98%	247.90%	255.38%		
Reinvestment Rate		72.10%	72.10%	72.10%	72.10%	72.10%	63.43%	51.86%	40.29%	28.72%	17.15%		
EBIT	\$6,095	\$6,868	\$7,739	\$8,720	\$9,826	\$11,072	\$12,308	\$13,430	\$14,382	\$15,109	\$15,565		
Tax rate (for cash flow)	10.70%	10.70%	10.70%	10.70%	10.70%	10.70%	10.70%	10.70%	10.70%	10.70%	10.70%		10.70%
EBIT * (1 - tax rate)	\$5,443	\$6,133	\$6,911	\$7,787	\$8,775	\$9,888	\$10,991	\$11,993	\$12,843	\$13,492	\$13,899		\$19,477.58
- (CapEx-Depreciation)	\$1,483	\$3,200	\$3,606	\$4,063	\$4,578	\$5,159	\$5,018	\$4,444	\$3,670	\$2,726	\$1,663		\$1,539.38
-Chg. Working Capital	\$2,441	\$1,222	\$1,377	\$1,552	\$1,749	\$1,971	\$1,953	\$1,775	\$1,505	\$1,149	\$721		\$675.27
Free Cashflow to Firm	\$1,518	\$1,711	\$1,928	\$2,172	\$2,448	\$2,758	\$4,020	\$5,774	\$7,669	\$9,617	\$11,515		\$17,262.92
Cost of Capital		11.52%	11.52%	11.52%	11.52%	11.52%	11.34%	11.09%	10.84%	10.60%	10.35%		
Cumulated Cost of Capital		1.1152	1.2437	1.3870	1.5467	1.7249	1.9205	2.1335	2.3648	2.6155	2.8863		
Present Value		\$1,534	\$1,550	\$1,566	\$1,583	\$1,599	\$2,093	\$2,706	\$3,243	\$3,677	\$3,990		

Growth Rate in Stable Phase =	2.00%
Reinvestment Rate in Stable Phase =	11.37%
FCFF in Stable Phase =	\$17,262.92
Cost of Equity in Stable Phase =	10.35%
Equity/ (Equity + Debt) =	97.66%
AT Cost of Debt in Stable Phase =	5.25%
Debt/ (Equity + Debt) =	2.34%
Cost of Capital in Stable Phase =	10.23%
Value at the end of growth phase =	\$209,737.64

Valuation	
Present Value of FCFF in high growth phase =	\$23,540.75
Present Value of Terminal Value of Firm =	\$72,667.25
Value of operating assets of the firm =	\$96,208.00
Value of Cash, Marketable Securities & Non-operating assets =	\$7,790.30
Value of Firm =	\$103,998.30
Market Value of outstanding debt =	\$1,981.00
Minority Interests	\$0.00
Market Value of Equity =	\$102,017.30
Value of Equity in Options =	\$0.00
Value of Equity in Common Stock =	\$102,017.30
Value of equity per share =	\$940.02
Stock price =	\$762.10
% Under or Over valued =	-18.93%

Appendix D – Precedent Transactions

	AM	Enterprise	LTM	LTM	LTM	
Acquirer Name	Target Name	Value	Revenue	EBITDA	EBIT	
1 CBPE Capital LLP	Rosemont Pharmaceuticals	08/04/2006	\$ 176,000,000	4.32x	-	14.56x
2 CSL Ltd	Vifor Pharma AG	12/23/2022	\$ 11,638,690,000	5.97x	20.69x	36.90x
3 CITIC Capital	3SBio Inc	05/30/2013	\$ 247,600,000	2.52x	-	10.69x
4 Merck & Co Inc	Acceleron Pharma Inc	11/23/2021	\$ 10,962,090,000	-	-	-
5 Sanofi	Bioverativ Inc	03/09/2018	\$ 11,137,440,000	9.53x	24.12x	38.51x
6 AstraZeneca PLC	Medimmune LLC	06/19/2007	\$ 14,667,600,000	10.84x	-	-
7 Sanofi	Genzyme Corp	04/11/2011	\$ 19,138,110,000	4.77x	-	-
8 Roche Holding AG	Genentech Inc	03/27/2009	\$ 44,047,080,000	8.20x	15.72x	17.25x
9 Pfizer Inc	Cubist Pharmaceuticals	12/08/2014	\$ 8,276,550,000	7.11x	38.51x	-
10 Kerui Tancheng Investment Holding CO Ltd	Biotest AG	01/31/2018	\$ 774,210,000	-	11.52x	19.07x

"-" means data was not given or was an outlier

Maximum	\$ 44,047,080,000	10.8x	38.5x	38.5x
75th Percentile	\$ 13,910,372,500.00	8.5x	24.1x	32.4x
Median	\$ 11,049,765,000	6.5x	20.7x	18.2x
25th Percentile	\$ 2,649,795,000.00	4.7x	15.7x	15.2x
Minimum	\$ 176,000,000	2.5x	11.5x	10.7x

REGENERON PHARMACEUTICALS, INC. (XNAS:REGN)		
Current share price	\$ 754.88	
Shares outstanding	109,710,300	
LTM Revenue	\$ 12,369,900,000.00	
LTM EBIT	\$ 4,883,600,000.00	
LTM EBITDA	\$ 5,250,200,000.00	Upside %
Implied share price (LTM Revenue)	\$ 737.39	-2%
Implied share price (LTM EBIT)	\$ 808.37	7%
Implied share price (LTM EBITDA)	\$ 990.12	31%
Average implied share price	\$ 845.29	12%