

# Pfizer Analysis

Industry Group 4: Manufacturing  
Edgar Santos  
Sean Moore  
Matthew Karambatos



**Life is our life's work**

# AGENDA

- Company Snapshot – Pfizer Inc.
- Investment Thesis – What is driving our optimism?
  - SWOT Analysis
- Valuation – Financial Statements and Model Outputs
- Investment Recommendation – Buy, Sell, or Hold?

# PFIZER'S HISTORY

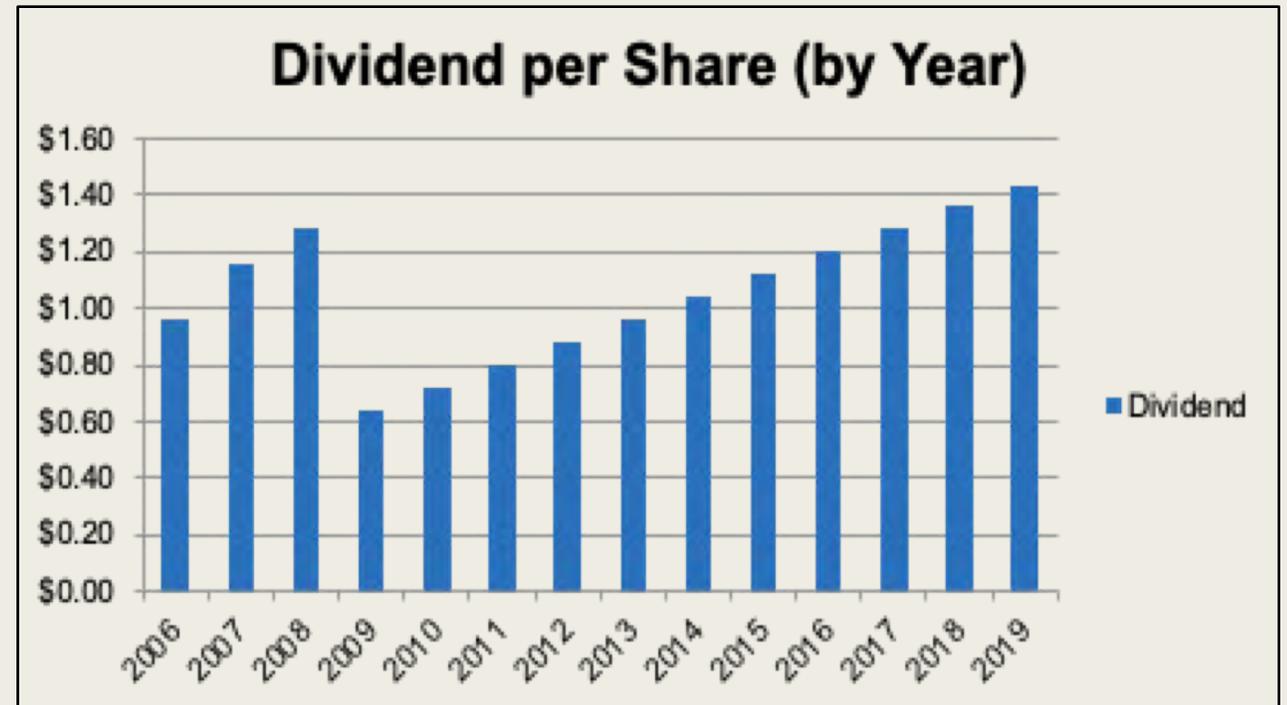
Founded in 1849 by cousins Charles Pfizer and Charles Earnhart in Brooklyn New York

In 1944 Pfizer became the world leader in manufacturing Penicillin which at the time was considered one of the world's top medical breakthroughs.

1997 - Fortune magazine names Pfizer the world's most admired pharmaceuticals company.

Since the millenium Pfizer has embarked in many mergers, with companies such as Warner Lambert in 2000, UpJohn in 2002, and Wyeth in 2009. The result is a giant pharma company with over 100,000 employees worldwide.

In 2018 GlaxoSmithKline and Pfizer merged their consumer healthcare divisions into a single entity which would have annual sales of around \$12.7 billion.



# BUSINESS UNITS OF PFIZER INC.

## INNOVATIVE MEDICINES

**Biosimilar medication:**  
**Enbrel** - used for various types of arthritis

**Gene Therapy :**  
**PF - 06939926** -  
an early stage therapy designed to target Duchenne Muscular Dystrophy.

**Rare Disease - Elelyso** -  
provides patients with a Gaucher disease treatment option.

## ESTABLISHED MEDICINES

**Vaccine: Prevnar 13**  
protects from infection such as pneumonia and meningitis.

**Oncology: Ibrance** -  
used to treat advanced metastatic breast cancer.

**Anti-Epileptic: Lyrica** -  
it can be used to treat fibromyalgia, diabetic peripheral neuropathy, and pain associated with spinal injuries.

## CONSUMER HEALTHCARE

**Anticoagulant: Eliquis** - used as a blood thinner for blood clots and strokes.

**Small molecule: Viagra** - used to treat erectile dysfunction.

**Small Molecule:**  
**Chantix** - aids individuals attempting to quit smoking

## MANAGEMENT & CORPORATE GOVERNANCE

**CEO - Albert Bourla**



Also serves as Pfizer's Chairman.

25 year career previously COO overseeing commercial strategy.

PhD in Biotechnology of Reproduction.

**CFO - Frank D'Amelio**



Responsible for corporate finance, audit, treasury, operations planning and analysis.

Frank has helped in numerous mergers and acquisitions mentioned earlier.

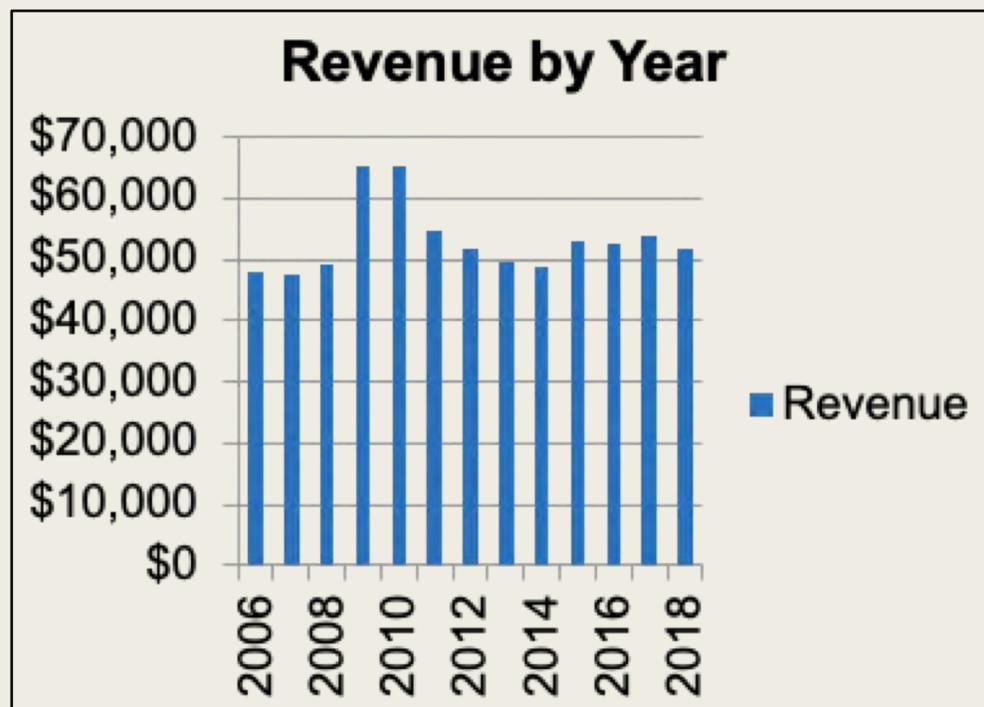
**CSO - Mikael Dolsten**



Focuses on advancing scientific leadership in small molecules, biotherapeutics, gene therapies, and vaccines.

Mikael is a named contributor on several patents and has published roughly 150 articles in medical journals.

## MARKET HIGHLIGHTS



Market Capitalization	\$210.88 Billion
Price to Earnings Ratio	14.02
Dividend Yield	4.01%
Earnings per Share	\$2.36
Last dividend paid per share	0.38
Total number of outstanding shares	5.534 billion

# COMPARABLES ANALYSIS

Multiples	Pfizer	Johnson & Johnson	Merck & CO	GSK	Astrazeneka PLC	Top 5 Competitors Avg.	% Over/Under Average	Weighting
P/E Ratio	14.02	24.01	19.59	17.23	48.7	24.34	-42.40%	10.35%
EPS	\$2.55	\$5.71	\$3.84	\$1.94	\$1.03	\$3.09	-17.48%	14.51%
Book Value Per Share	\$11.41	\$22.59	\$10.21	\$2.97	\$10	\$11.44	-0.26%	7.85%
Enterprise Value to Book Value	22.82	6.52	9.45	20.74	5.54	13.01	75.40%	8.26%
Market Cap to Book Value	3.35	6.33	8.77	15.68	5.03	7.83	-57.22%	8.96%
Price to Sales Ratio	4.24	4.82	5.14	2.71	5.33	4.23	0.24%	7.57%
Debt to Equity Ratio	56.96%	44.55%	76.76%	198%	136%	102.45%	-44.40%	7.37%
Times Interest Earned	9.56	66.26	16.89	9.81	4.01	21.31	-55.14%	6.87%
Return On Equity	25.80%	25.42%	37.99%	40.73%	10.09%	28.01%	-7.89%	7.10%
Payout Ratio	49.40%	70.75%	63.54%	85.10%	144.00%	73.56%	-32.84%	6.94%
Dividend Yield	4.28%	2.95%	3.24%	5.84%	2.79%	3.82%	12.04%	7.01%
Share Price	\$35.47	\$137.11	\$75.21	\$33.42	\$50.16	\$66.27	-46.48%	7.22%
Weighted Relative Premium (Discount)							-18.23%	100.00%

# REVENUE DRIVERS BY BUSINESS UNIT

## INNOVATIVE MEDICINES

### **Biosimilar medication:**

#### **Enbrel:**

Over 23 million people living worldwide with Arthritis, and growing

#### **Gene Therapy :**

##### **PF - 06939926 -**

Affects 1 in 3500 live male births, drug placed on fast-track by FDA as there is no other drug that has been able to treat DMD

#### **Rare Disease - Genotropin -**

Sales stayed flat at \$142 million in 2019 from 2018

## ESTABLISHED MEDICINES

### **Vaccine: Prevnar 13**

\$5.95B in sales in 2019, up 2.6% from 2018, as it is the best preventative for pneumonia

### **Oncology: Ibrance -**

Sales of \$1.28B in 2019 vs \$1.13B in 2018

### **Anti-Depression: Zoloft-**

Sales of \$78M in 2019 vs \$75M in 2018

## CONSUMER HEALTHCARE

### **Anticoagulant: Eliquis -**

2019 revenues up \$1.38B from 2018, at \$7.71B, up 22% from the year before

### **Small molecule: Viagra -**

\$500M in sales in 2019, down from 2018 due to patent expiry in 2012

### **Small Molecule: Chantix -**

Sold \$1.11B in 2019, up 7% from 2018

# 1. VACCINE TECHNOLOGY

## SARS-CoV-2 Vaccine:

Otherwise known as BNT162b2, it is a messenger RNA (mRNA) vaccine developed in conjunction with Germany's BioNTech for the prevention of COVID-19 disease.

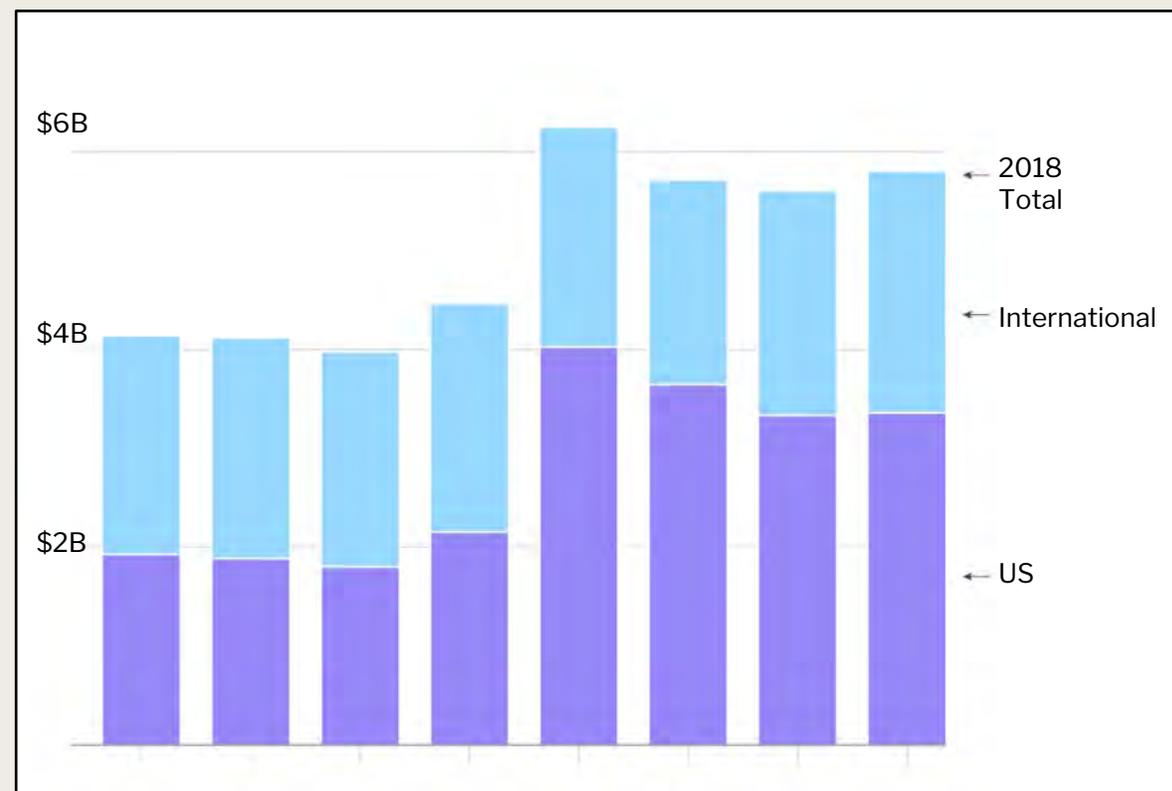
## Pevnar 13 Pneumonia Vaccine:

A vaccine part of the long-standing Pevnar vaccine family, a staple in the Western World for prevention of Pneumonia in children ages 6 weeks to 17 years.

## mRNA Platform Progress:

A vastly new vaccine technology platform that allows vaccine makers to skip the usage of live or attenuated virus vaccines, that have long proven an issue for immunocompromised individuals.

**Pevnar 13 Sales, 2011-2018**



Source: Axios

## BNT162b2 VACCINE

Currently undergoing Phase 2/3 Trials in various countries including; the United States, Argentina, Brazil, Germany, South Africa and Turkey. A total of 43,998 participants will be enrolled in the trial. Double-Blinded, Randomized, 1:1.

In an earlier Phase 1 clinical trial on humans, BNT162b2 produced a surprisingly strong immune response in all 45 participants, with average neutralizing antibody concentrations being 2.8x those of naturally infected patients who had been hospitalized.

Country	Doses Purchased (Ms)	Revenue Boost (Ms)
United States of America	600	\$11,700
Canada	20	\$390
European Union	300	\$5,850
New Zealand	1.5	\$29
UK	30	\$585
Japan	120	\$2,340
<b>Total</b>	<b>1071.5</b>	<b>\$20,894</b>
<b>Total with Unclaimed Supply Sold</b>	<b>1400</b>	<b>\$27,300</b>

# BNT162b2 VACCINE

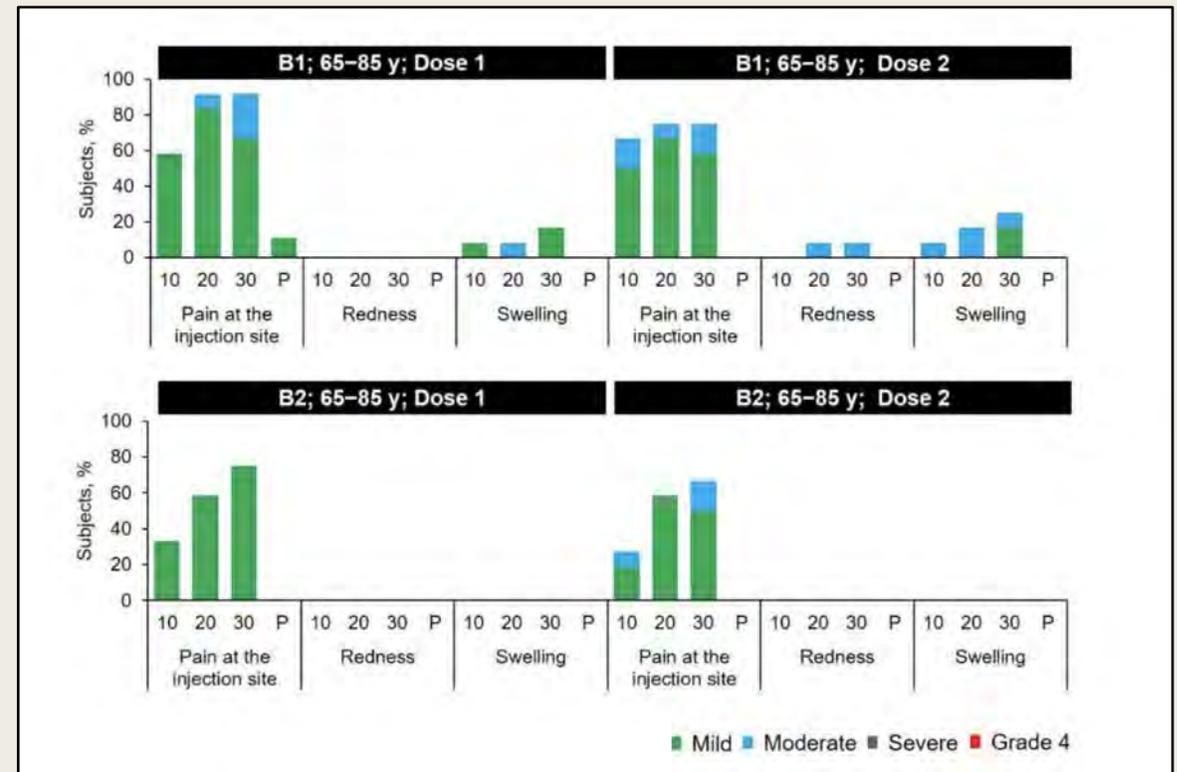
The agreement with BioNTech is of capped financial value, with BioNTech receiving an upfront payment of \$185M USD, an equity investment of \$113M USD (asset) and further consideration topping out at \$563M USD, for total maximum consideration of \$748M USD.

Pfizer is required to fund 100% of development costs initially, with 50% of those costs being repaid to Pfizer by BioNTech upon commercialization of the BNT162b2 vaccine.

Global supply will be produced at sites in; Belgium, Germany, and the US. 100M doses available in 2020, 1.3B by the end of 2021.

Manufacturer	2020 Doses	2021 Doses
Pfizer/BioNTech	100M	1.3B
Moderna/NIAID	20M	500M-1B
Astrazeneca/Oxford	400M	2.94B

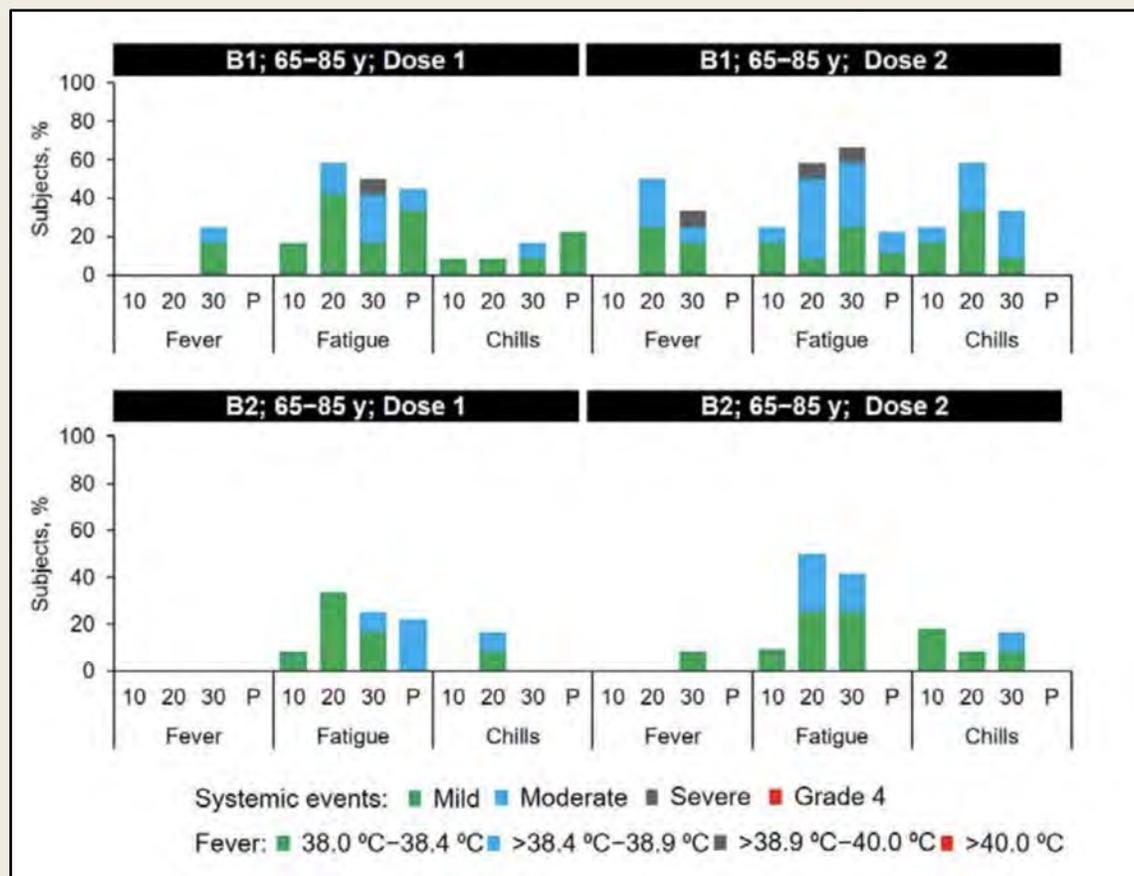
Source: Various incl. NYT



Source: Pfizer

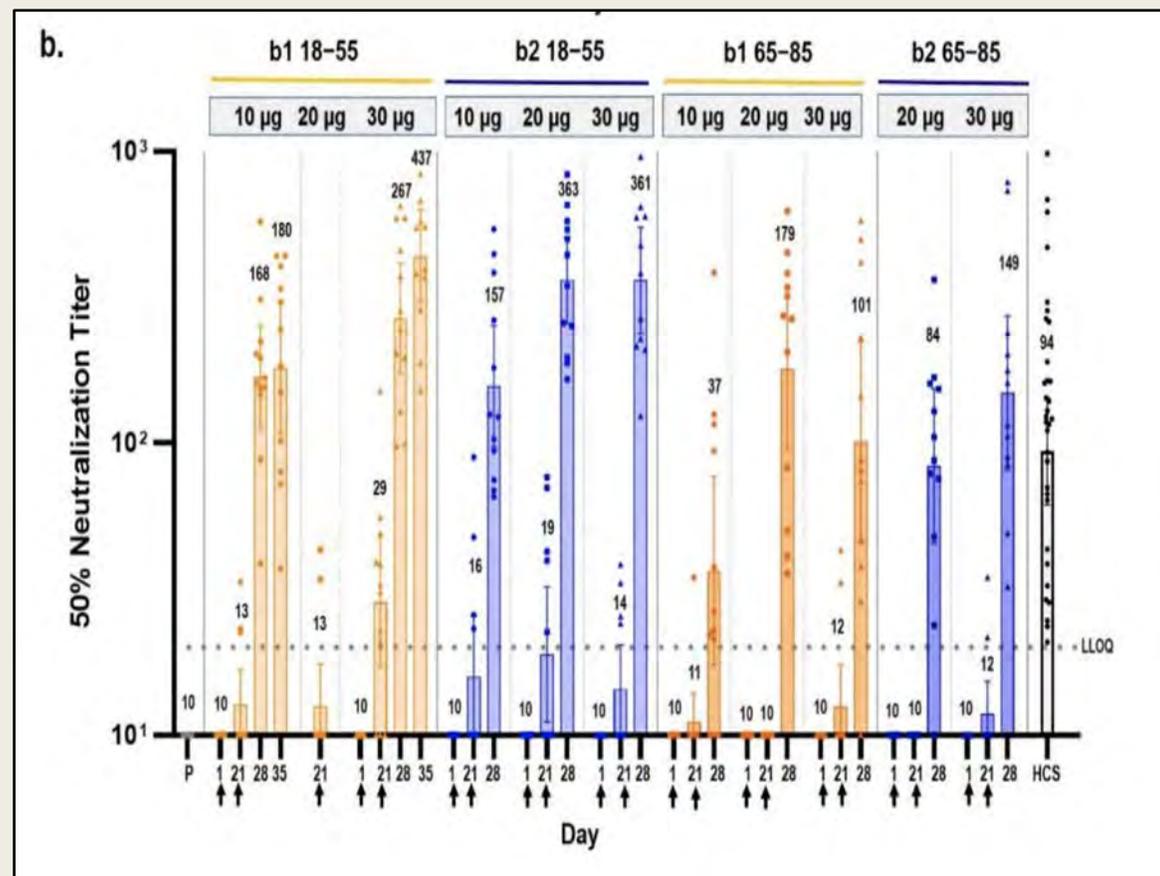
# BNT162b2 VACCINE

Below is a graphic outlining the prevalence of systemic reactions in the Phase 1/2 trials of BNT162b1 and b2, directly from Pfizer's peer-reviewed release.



Source: Pfizer

Below is a graphic outlining the mean density of at least 50% neutralizing antibodies per microliter of blood, with the HCS bar comparing it to post-infection human convalescent serum.



Source: Pfizer

# PREVNAR 13 VACCINE

Prevnar 13 has consistently been a top-seller for Pfizer, especially so after a 2014 decision by the CDC to also recommend its use in adults 65 and older.

One of the most significant effects of lower income countries rising into the ranks of the middle income nations is the effect on public health protocols, and by default vaccinations. Patent only expires in 2026.

In provinces across Canada, Prevnar 13 is a recommended vaccine with 3 doses given in the first year of a child's life, as well as a recommended vaccine for those 50 years or over in the province who are at risk of Invasive Pneumococcal Disease. The incidence of this disease has been steadily increasing in the province since 2003, to 9.4 per 100,000 people in 2012.

Below: A chart outlining the coverage rates of PCV3 vaccines across different WHO regions, outlining the large growth prospects for Prevnar 13 in South-East Asia, and the Eastern Mediterranean. There is also significant growth possible in the African region.

Last updated: 2020-07-20

Indicator Location	Pneumococcal conjugate vaccines (PCV3) immunization coverage among 1-year-olds (%)											
	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Africa	70	69	69	66	60	48	34	21	12	3		
Americas	83	82	82	82	85	83	79	77	69	51	34	28
South-East Asia	23	16	12	9	4							
Europe	80	78	73	62	48	46	45	44	41	37	24	8
Eastern Mediterranean	52	51	53	50	50	45	36	12	8	5	5	
Western Pacific	14	13	13	13	10	9	6	6	6	1	1	1

## mRNA VACCINE PLATFORM

One aspect of the current race for a COVID-19 vaccine that cannot be underscored is the rapid development of messenger RNA (mRNA) vaccines being seen.

Pfizer's BNT162b2 may be the first mRNA vaccine ever approved for use in humans, closely followed by Moderna's mRNA-1273.

Regulatory clout in regards to this approval, as well as a continued and expanded partnership with BioNTech, will allow Pfizer to transfer knowledge gained during the development of BNT162b2 into other mRNA vaccines.

The Global mRNA Vaccine/Therapeutic market will double to just over \$2.2B in revenue by 2026, will likely faster growth in years beyond.

**Figure 8.14 Spanish mRNA Vaccines and Therapeutics Market Forecast: Revenue (\$bn) and AGR (%), 2018-2029**



Source: VisionGain

## 2. ESTABLISHED MEDICINES FINDING NEW/EXPANDED USES

### **Ibrance (CDK 4/6 Inhibitor):**

Ibrance is currently used as a Breast Cancer treatment, providing a major benefit over commonly used chemotherapy by being significantly easier on the patient.

### **Eliquis (Anti-coagulant):**

Eliquis is one of the most commonly used anticoagulants in the world, with an extension on specific patents keeping it under the sole distribution of Pfizer until 2026.



## IBRANCE/AROMASIN

Ibrance is currently used in conjunction with a hormonal breast cancer treatment involving aromatase inhibitors (AIs). This treatment is primarily used in post-menopausal women and men, primarily of an elevated age.

Ibrance is used in an alternate treatment to chemotherapy, one that causes significantly less severe and pronounced symptoms than chemotherapy, allowing Ibrance and co-operative AIs to capture market share from chemotherapy through a dampened effect on quality of life.

Roughly 30% of women who develop early stage breast cancer go on to develop metastatic cancer, making Ibrance and AIs a go-to treatment option.

Alongside Ibrance, Pfizer also sells an AI of their own. Pfizer received approval from the EU in 2005 for Aromasin to be used in women with early stage breast cancer, allowing for distribution of a solely Pfizer produced treatment.



## IBRANCE/AROMASIN

The market for Ibrance and Aromasin may increase as Western nations age, with the US population of ages greater than 65 jumping from 15% in 2016 to 21% in 2030, or an absolute jump from 49.2M to 73.1M citizens over the age of 65.

With Breast Cancer being the most prevalent form of cancer in men and women, calculations produced with estimates from the NIH produce an increase in market size for Breast Cancer patients over 60 years of age is 30.30% by 2030 and 52.76% by 2050.

If Ibrance continues to capture the same market share of cancer treatments, product revenue would jump by the corresponding amounts in market size. This is a best estimate scenario.

Ibrance sales expected to jump to \$9.218B by 2024, from \$4.118B in 2018.

Form of Cancer	Diagnoses	Proportion
Bladder	81,400	5.59%
Breast (Female – Male)	276,480	18.97%
Colon and Rectal (Combined)	147,950	10.15%
Endometrial	65,620	4.50%
Kidney (Renal Cell and Renal Pelvis) Cancer	73,750	5.06%
Leukemia (All Types)	60,530	4.15%
Liver and Intrahepatic Bile Duct	42,810	2.94%
Lung (Including Bronchus)	228,820	15.70%
Melanoma	100,350	6.89%
Non-Hodgkin Lymphoma	77,240	5.30%
Pancreatic	57,600	3.95%
Prostate	191,930	13.17%
Thyroid	52,890	3.63%
<b>Total Diagnoses</b>	<b>1,457,370</b>	<b>100.00%</b>

Source: CDC

Year	Over 65 Population	Incidence Rate of Breast Cancer	Market Size
2020	56,100,000	38.20%	21,430,200
2030	73,100,000	38.20%	27,924,200
2040	80,800,000	38.20%	30,865,600
2050	85,700,000	38.20%	32,737,400

Source: US Census/CDC

## ELIQUIS ANTICOAGULANT

Eliquis is one of the world's top selling anticoagulants, created in a partnership with Bristol-Myers Squibb that sees revenue on the drug shared between the two companies.

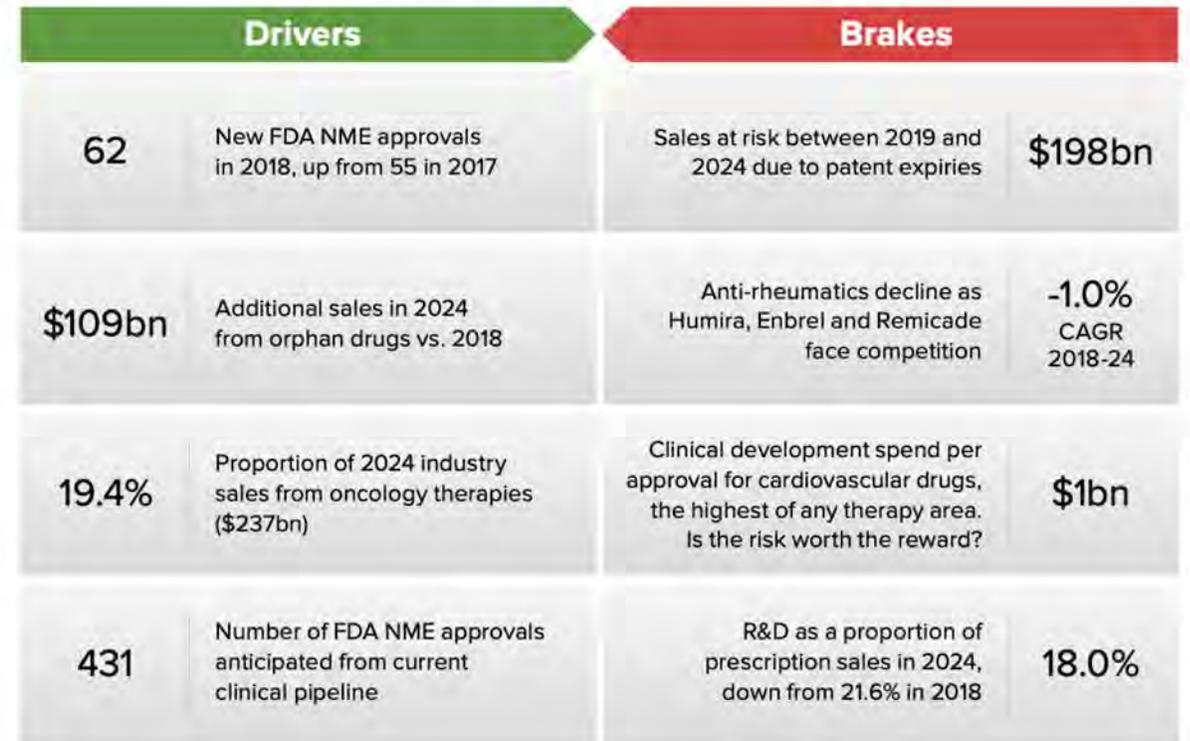
The patent on Eliquis is protected until 2026, allowing for another 6 years of avoidance of competition from generics.

Currently, Eliquis carries with it an 11% CAGR, with the entirety of the prescription drugs industry holding a CAGR of 6.9% up until 2024.

Unconsidered in these growth rates for Eliquis, and namely the anticoagulant sub-sector, is the advancing prevalence of endothelial and circulatory complications caused by infections, highlighted by the COVID-19 Pandemic.

### Worldwide Prescription Drug Sales 2019-24 in figures

**+6.9%** CAGR\*  
2019-24



\* Compound Annual Growth Rate.

### 3. MANAGEMENT EXPERTISE/REPUTATIONAL ENHANCEMENT

Since the appearance of the SARS-CoV-2 Virus in East Asia in December 2019, Pfizer made a commitment to producing therapeutics and vaccines that would help lift the world out of the current pandemic. Pfizer has successfully completed the quickest ever turnaround for a vaccine in regards to a novel virus.

Pfizer's management team has long been heralded as a market leader, and their qualifications are more than enough to back it up.

50% of the individuals of Pfizer's exec leadership team hold a degree in Sciences, with 25% of them holding a PH.D in their respective field.

When compared to CEO compensation for other major players in the Pharma industry, Pfizer CEOs earned less in compensation per Billion dollars in company earnings for 2019 than all but Sanofi's CEO.

Company	CEO Compensation	Earnings (\$Bs)	CEO Comp in \$s/\$B in Earnings
Pfizer	\$ 27,913,775.00	16.3	\$ 1,712,501.53
J&J	\$ 29,802,564.00	15.1	\$ 1,973,679.74
Merck	\$ 17,643,087.00	9.8	\$ 1,800,315.00
Astrazeneca	\$ 18,500,000.00	1.3	\$ 14,230,769.23
Sanofi	\$ 2,028,000.00	7.2	\$ 281,666.67

Source: WSJ



## STRENGTHS & WEAKNESSES

### Strengths:

Pfizer is predicted to continue topping the prescription drugs market, with revenues coming in at a projected \$51.2B in 2024, at a 2018-2024 CAGR of roughly 16.3%.

Pfizer is the 2nd largest pharmaceutical company in the world based on revenue. Healthy pipeline of 6 treatments in phase 2-3 of clinical trials. within various indications.

Spends aggressively on R&D and has resulted in numerous blockbuster products such as Advil, Viagra, Chapstick, Robitussin, and many drugs specialized toward specific indications.

### Weaknesses:

Net Income and free cash flow have been on the decline over the course of the 2018-2020. This is due in part to patents expiring in 2017 and become generic drugs.

Pfizer carries a significant amount of debt. \$50 billion in long term debt is on the books as of 2020's June Quarterly report.

Large acquisitions that Pfizer has recently performed hasn't resulted in stellar return on equity as proof of the declining net income over the last few years.

Pfizer faces competition in the dominance of Prevnar vaccines, especially from Merck whose own Pneumococcal vaccine in development covers 15 strains vs Pfizer's 13.

## OPPORTUNITIES & THREATS

### Opportunities:

Currently, Pfizer holds the largest market share of any company in the prescription drugs sector, an industry expected to grow at a CAGR of 6.9% up to 2024, and extensively beyond.

Global sales at-risk from patent expiration will drop to a 10-year low across the industry in 2020 and 2021, allowing Pfizer to bolster its cash position for future R&D as gene therapy and mRNA therapeutics demand greater research.

### Threats:

As research on non-pharmaceutical interventions grows, the ability of physicians to knock off drug treatment by introducing early measures and early screening of disease may dampen growth.

A continued FDA push to bring more low-cost generics to market may also dampen growth in the industry, although it remains to be seen how well the FDA or companies that produce generics can break the patents held by big Pharma companies.

**Table 2: Worldwide Sales At Risk from Patent Expiration (2010-2024)**

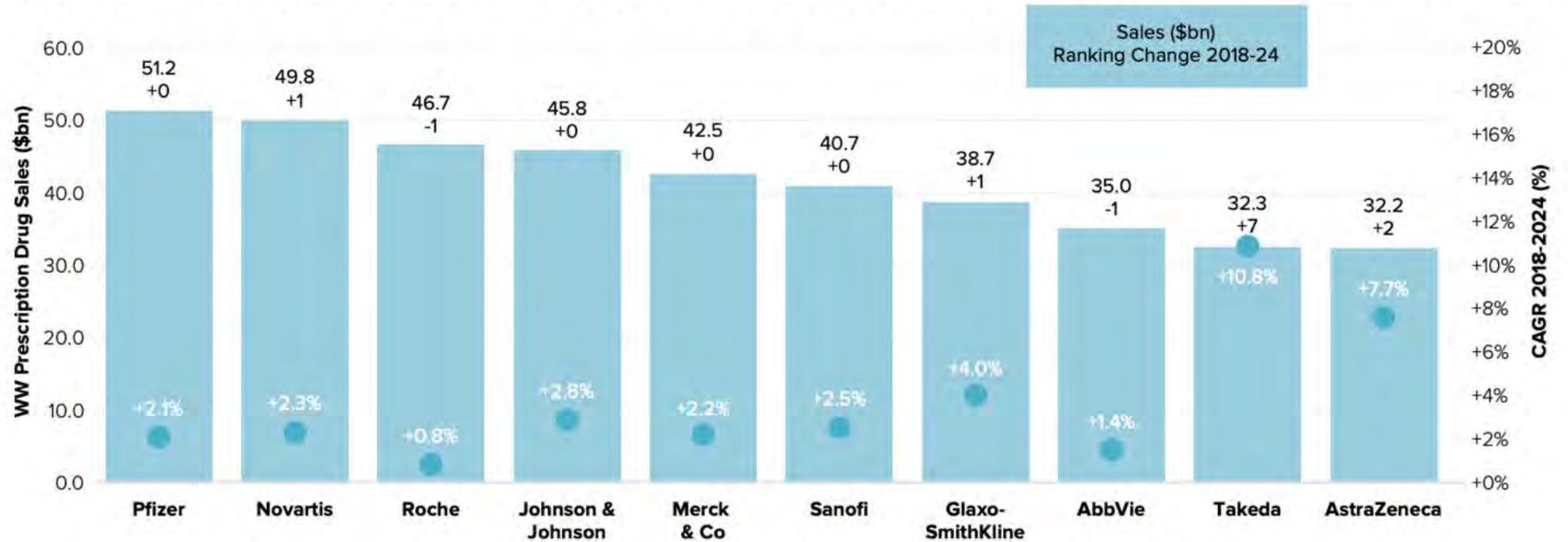
Source: EvaluatePharma, May 2019

Year	WW Prescription Sales (\$bn)														
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Sales at Risk	29	34	52	33	31	52	39	33	39	39	14	16	40	57	32
Expected Sales Lost	12	20	36	23	20	18	18	30	23	20	19	14	16	23	22
% Market at risk	4.2%	4.6%	7.2%	4.5%	4.1%	6.9%	5.1%	4.2%	4.7%	4.7%	1.6%	1.6%	3.9%	5.2%	2.7%

# PRESCRIPTION DRUG SECTOR RANKINGS 2024

**Figure 3: Worldwide Prescription Drug Sales in 2024: Top 10 Companies**

Source: EvaluatePharma, May 2019



## KEY INPUTS &amp; ASSUMPTIONS

	This Year	Last Year
Revenues	\$ 49,704.00	\$ 51,750.00
Operating Income or EBITDA	\$ 26,248.00	\$ 28,302.00
Interest expense	\$ 1,549.00	\$ 1,574.00
Book value of equity	\$ 64,336.00	\$ 63,143.00
Book value of debt	\$ 113,370.00	\$ 104,042.00
Do you have R&D expenses to capitalize?	Yes	
Do you have operating lease commitments?	Yes	
Cash and Marketable Securities	\$ 22,794.00	\$ 9,830.00
Cross holdings and other non-operating assets	\$ -	\$ -
Minority interests	\$ 228.00	\$ 303.00
Current Assets	\$ 46,424.00	\$ 49,926.00
Current Liabilities	\$ 32,723.00	\$ 33,196.33
Property, Plant & Equipment	\$ 14,113.00	\$ 13,967.00
Depreciation	\$ 5,474.00	\$ 6,010.00
Number of shares outstanding =	5534	
30D Average Closing Price =	\$ 36.85	
Cash Dividends paid in last full year	\$ 8,043.00	
Effective tax rate =	12.67%	
Marginal tax rate =	21.00%	

## KEY INPUTS & ASSUMPTIONS

Value Drivers:	Beginning	Terminal Year
2021 BNT162b2-associated growth =		54.93%
2022 BNT162b2-associated growth normalization =		-27.46%
Compounded annual revenue growth rate over next 5 years =		2.21%
Target pre-tax operating margin (EBITDA as % of sales in year 10) =		50.00%
Year of convergence		5
Sales to capital ratio (for computing reinvestment) =		0.25
Net Capital Expenditures	\$	5,620.00
Change in Net Working Capital	\$	(3,028.67)
Reinvestment Rate =		11.30%
Return on Capital =		12.90%
		10.00%

Default Assumptions:	
Cost of Capital after Year 10 =	5.36%
ROC after Year 10 =	12.90%
Effective Tax Rate in Terminal Year =	21.00%
Growth Rate in Perpetuity =	0.86%
Probability of Failure	0%



## OUTPUTS & EXPECTATIONS

### CANADIAN ANALYSTS

**RBC Capital** (Buy) - Price Target of \$43.00

**Cantor Fitzgerald** (Buy) - Price Target of \$53.00

**Credit Suisse Group** (Buy) - Price Target of \$41.30

### US ANALYSTS

**Morgan Stanley** (Hold) - Price Target of \$42.00

**SVB Leerink** (Buy) - Price Target of \$42.00

**Cowen & Co.** (Buy) - Price Target of \$48.00

**Citigroup** (Hold) - Price Target of \$37.00

### OUR RECOMMENDATION

Strong buy, as we have valued Pfizer at \$48.68 per share, a 32% increase compared to the stock's current price of \$36.85

**\$41.13**

(+10.92% Upside)

Based on 11 ranked analysts offering 12 month price targets for PFE in the last 3 months, the average price target is \$41.13, with a high estimate of \$53.00 and a low estimate of \$35.00.

