

Equity Valuation and Financial Statement Analysis

GlaxoSmithKline Plc. VS AstraZeneca Plc.

EDLIRA TIRANA

12/20/2020

TABLE OF CONTENT

INTRODUCTION TO INDUSTRY	Pg.2
Opportunities to Pharmaceutical Industry	Pg.2
Challenges to Pharmaceutical Industry	Pg.2
OVERALL PERFORMANCE PHARMACEUTICAL INDUSTRY IN UK	Pg.2
About GlaxoSmithKline Plc.	Pg.4
About AstraZeneca Plc.	Pg.5
FINANCIAL AND EQUITY PERFORMANCE OF GLAXOSMITHKLINE AND ASTRAZENECA	Pg.6
GlaxoSmithKline' Performance	Pg.6
AstraZeneca' Performance	Pg.8
Comparison of Key Performance Indicators	Pg.9
COMPANIES VALUATION	Pg.12
Valuation Methods	Pg.12
Absolute Valuation Method: DFC Method	Pg.13
Relative Valuation Method: EV/EBITDA Multiple	Pg.15
KEY FINDINGS	Pg.17
CONCLUSIONS	Pg.20
References	Pg.21

INTRODUCTION TO INDUSTRY

The increasing global health care with an expected rise of spending at 5% Compound Annual Growth Rate in 2019-2023 represents enormous opportunities for the sector according to a Deloitte Analysis in Global Health Care (2020). In 2019, the worldwide pharmaceutical market recoded a value of nearly \$1.3 trillion, while only top 10 pharma companies recoded third of the total sales in the value of \$392.5 billion (ThePharmaletter, 2020).

The industry of the pharmaceutical sector in UK represents a leading sector contributing to wealth in terms of Gross Value Added (The Association of the British Pharmaceutical Industry, 2016) and it remains critical to the UK economy growth as per Enterprise Ireland Report (2018) and has a substantial contribution to UK exports.

Opportunities to Pharmaceutical Industry

- New Technology and Industry 4.0 as per Office of National Statistics of the UK (2018), which increases efficiency in manufacturing and reduces costs;
- Big Data Exploitation and AI & Machine Learning (Enterprise Ireland Report, 2018);
- M&A opportunities to share R&D knowledge as well reduce manufacturing costs.

Challenges to Pharmaceutical Industry

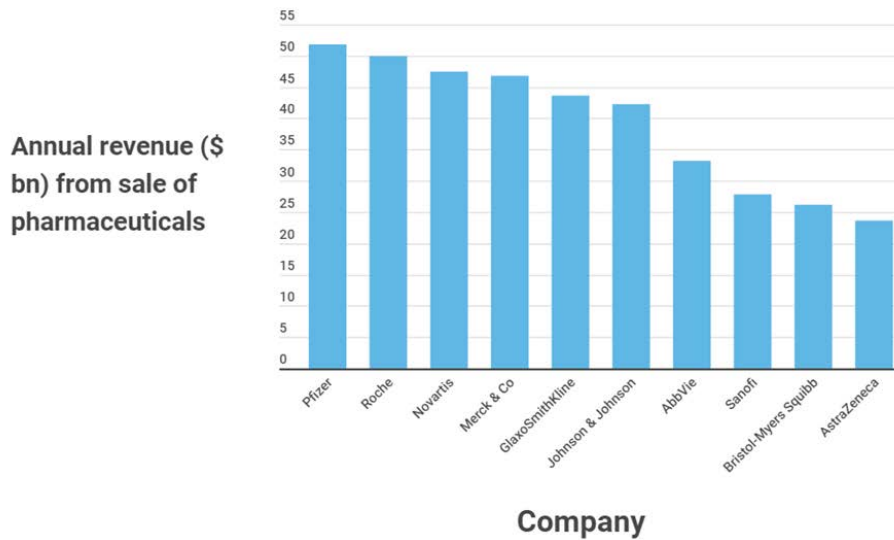
- High competitive sector with ongoing developments, innovative medicines and technology, as well giant merges and acquisitions;
- Reduce of clinical trial cycle times, which will improve R&D process in the future;
- Regulatory environment;
- Financial challenges have been present time after time and have perturbed health systems around the world resulting in lower spending by states for the health sector;
- On the other hand, the tremendous digital evolution that the world is facing is encouraging the entry of non-traditional players in the health care sector as per Deloitte (2020) reducing the actual players efforts to grow revenue and increase expense and R&D costs. The digitization in health care will increase costs, while it will be difficult to manage it because of cyber security issues;
- Brexit represents a lot of uncertainty for the UK pharmaceutical companies.

OVERALL PERFORMANCE PHARMACEUTICAL INDUSTRY IN UK

Data about UK Pharmaceutical industry by 2018 as per UK Office of National Statistics (Enterprise Ireland Report, 2018) and Statista (2020) show an increase in numbers of enterprise operating in pharma manufacturing sector:

- Number of Enterprises in manufacture of pharma products: 645
- Pharmaceutical Sector generates a market value of around: £21bn
GBP
- R&D as a percentage of sales in pharma manufacturing in the UK (2018): 35%
- Expenditure on pharma products in the UK (2018): £7.9bn
- Net Capital Expenditure in manufacturing of pharma products in the UK (2018): £1.05bn
- The UK pharmaceutical sector value forecasted to increase to an annual growth of: 3.6%
(2018-2023)
- The UK health budget in 2017/18 increased with 1.8% over the previous year:
£124.7bn

Top 10 companies by pharmaceutical revenues, 2019



Source: The Pharma Letter (2020)

In the ranking above most of the pharmaceutical companies have countries of origin outside UK, while only two from the top 10 pharmaceutical companies are head quartered in the UK: GlaxoSmithKline and AstraZeneca.

Ranking	Company	Full-year revenues 2019	Full-year revenues 2018	% revenue growth Year on Year	FY 2019 EPS	% EPS growth year-on-year
1	Pfizer	\$51.75bn	\$53.65bn	-4%	\$2.95 _c	1%
2	Roche	Pharma sales \$50bn; group sales \$63.35bn	Pharma sales \$45.31bn; group sales \$58.59bn	Pharma 11%; group 9%	\$20.77	13%
3	Novartis	\$47.45bn	\$44.75bn	9%	\$5.28 _n	12%
4	Merck & Co	\$46.84bn	\$42.29bn	11%	\$3.81 _e	64%
5	GlaxoSmithKline	\$43.54bn	\$39.65bn	8%	\$1.46 _e	4%
6	Johnson & Johnson	Pharma sales \$42.19bn; group sales \$82.06bn	Pharma sales \$40.73bn; group sales \$81.58bn	Pharma sales; 3.6%; group sales 0.6%	\$5.63	Unchanged
7	AbbVie	\$33.27bn	\$32.75bn	1.6%	\$5.28	44.3%
8	Sanofi	Pharma sales \$27.77bn; group sales \$40.36bn	Pharma sales \$26.63bn; group sales \$38.5bn	Pharma 4.1%; group 4.8%	\$2.51	-67%
9	Bristol-Myers Squibb	\$26.15bn	\$22.56bn	16%	\$4.69 _g	18%
10	AstraZeneca	Pharma sales \$23.57bn; group sales \$24.38bn	Pharma sales \$20.49bn; group sales \$23.75bn	Pharma sales 15%; group sales 13%	\$3.50 _n	1%

Source: The Pharma Letter (2020)

About GlaxoSmithKline Plc.

GlaxoSmithKline Plc. (GSK) is a specialized pharmaceutical company in three global businesses that research, develop and manufacture innovative pharmaceutical medicines, vaccines and consumer healthcare products with 99,000 employees across 95 countries (GlaxoSmithKline, 2020). They have an innovative and developed portfolio of pharmaceutical medicines and vaccines that treat respiratory, HIV, immuno-inflammation and oncology issues. GlaxoSmithKline, known as a top global vaccine player with 2m vaccines produced daily for global distribution (Gecgil, 2020) was ranked 5th among the top 10 pharma companies by revenue

in 2019 according to The Pharma Letter (2020) with a revenue of \$44 billion, mostly from the significant contribution of Shingrix vaccine approved in 2018, as well as other pharmaceuticals such as respiratory drugs Trelegy & Nucala, and HIV drugs Dovato & Juluca accounting 73.3% of the company's revenue, whereas the remaining 26.7% of revenue belonged to consumer health unit according to Pharmaceutical-technology.com (2020).

The portfolio of GlaxoSmithKline for the last year recoded flat pharmaceutical sales, whereas the acquisition of Pfizer's unit in August recorded growth in consumer healthcare summarizing an 8% growth in revenues. The company faced ups and downs during the year, such as loss of Advair exclusivity, and on the other side growth in respiratory medicines Trelegy, Ellipta and Nucala according to Fierce Pharma (2020). At the same time, the company invested around \$5.62 billion (£4.57bn) in R&D, in 2019 (GlaxoSmithKline, 2020).

The mega deals that GlaxoSmithKline recorded in 2018 was buying out Novartis's stake in consumer health joint venture for \$13 billion as per Pharm Exec (2019) and lately, the company has also announced successful clinical trial results on an injection to prevent HIV as per Gecgil (2020). As well, GlaxoSmithKline acquired the oncology company of Tesaro in a \$5.1bn acquisition (completed in January 2019), and granted a technology license to Sabin Vaccine Institute for its clinical-stage Ebola vaccines in 2019 according to Pharmaceutical-technology.com (2020). From 2009, GlaxoSmithKline owns the majority of ViiV Healthcare, a successful joint-venture with Pfizer and Shionogi, focused on advancing science into HIV treatment, prevention and care, which generated annual sales of \$6.36bn in 2019.

About AstraZeneca Plc.

AstraZeneca Plc. (AZN) is specialized in research, developing and manufacturing innovating pharmaceuticals and vaccines that treat Cardiovascular, Renal and Metabolism, Oncology, Respiratory & Immunology issues, as well Neuroscience and Infection employing 70,600 people in around 100 countries. Known as a company with a turbulent history, but with a promising future as per (Pharmaphorum, 2020), AstraZeneca accounted a revenue of \$24.4 billion in 2019, with an increase of product sales of 15% at constant currencies (Fiercepharma, 2020). There has been a long period of sales decline for the Company since 2010 (\$33 billion in 2010) after several lean years, hitting the growth back in 2018 as cited by Gardner (BioPharma Dive, 2019).

Oncology had an impressive result for AstraZeneca, paying off finally the investment, with an increase of 47% in constant exchange rates over the last year, accounting \$8.67 billion in sales of cancer medicines according to Fierce Pharma (2020). The most remarkable cancer drugs of AstraZeneca, Tagrisso, Imfinzi, and Lynparza recorded respectively \$3.19 billion, \$1.47 billion and \$1.20 billion in global sales. According to Fierce Pharma (2020) the smallest part of revenue was scored by Respiratory medicines accounting \$5.39 billion in sales, while the company lost its chance to compete GlaxoSmithKline with the new medicine Breztri for Chronic obstructive pulmonary disease, which was not approved by FDA (U.S Food and Drug Administration).

AstraZeneca had around \$6.1 billion R&D expenditures in 2019, \$1.8 billion on acquiring product rights, and invested on implementation of R&D restructuring strategy around \$10 million according to AstraZeneca Annual Report (AstraZeneca, 2019) The 2019 financial result apart from significant gains, marked an unpleasant position especially for the Q4 related to Tagrisso, Imfinzi and Lynparza (Fiercepharma, 2020).

In year 2014, AstraZeneca turned down a giant offer of \$118 billion by Pfizer, which was later appreciated by analysts as a wise decision by the part of Company as per Pharmaphorum (2020). Thereon, AstraZeneca realized some good partnerships and acquisitions, such as franchise deals of Takeda and Almirall’ respiratory in values of \$575 million and \$2 billion, and the acquiring of ZS Pharma for \$2.7 billion (Pharmaphorum, 2020). In March 2017, AstraZeneca reported an agreement with Sanofi to develop and launch MEDI8897, a drug in treating Respiratory Syncytial Virus Infections (AstraZeneca, 2019).

FINANCIAL AND EQUITY PERFORMANCE OF GLAXOSMITHKLINE AND ASTRAZENECA

GlaxoSmithKline’ Performance

Financial performance of GlaxoSmithKline has shown a steady growth during the last 5 years, recording a total turnover for the Group of \$44.2bn in 2019 with a growth of 41% of sales from 2015. Their sales divided in 3 worldwide regions, such as US, Europe and International has recorded shifts in each of them, with the biggest figure belonging to US.

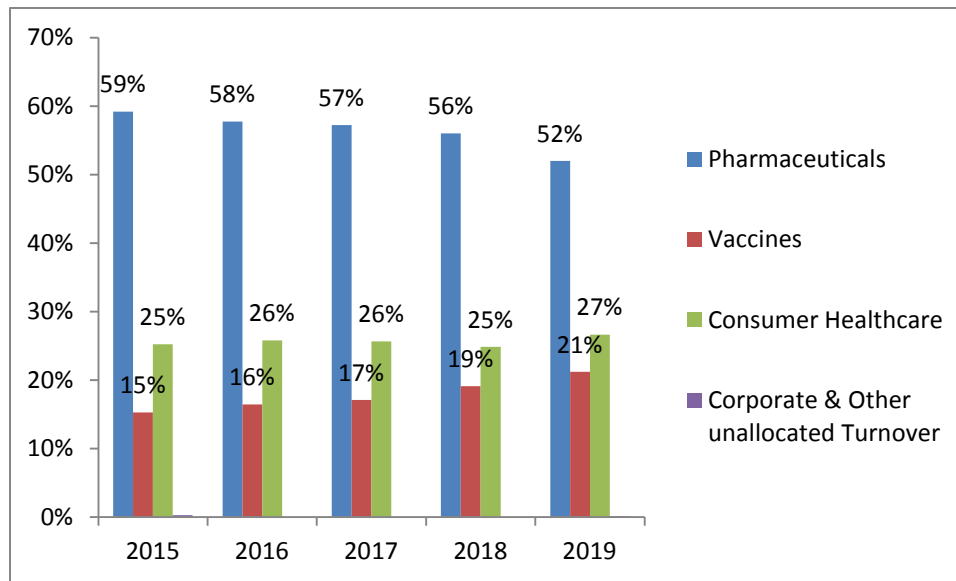
Table 1: GlaxoSmithKline Group Turnover by Geographical Region

GSK Group Turnover by Region	2015	2016	2017	2018	2019
US	34%	37%	37%	39%	41%
Europe	27%	27%	26%	26%	24%
International	39%	37%	36%	35%	35%
Total	100%	100%	100%	100%	100%

Source: GlaxoSmithKline (2019, Annual Report).

Another key fact about GlaxoSmithKline’s performance is that its turnover during the years has been stable in different segments that the Group is operating, showing that in general, it has had no ups and downs because of external market issues and internal issues related to intellectual properties and drug patent expirations.

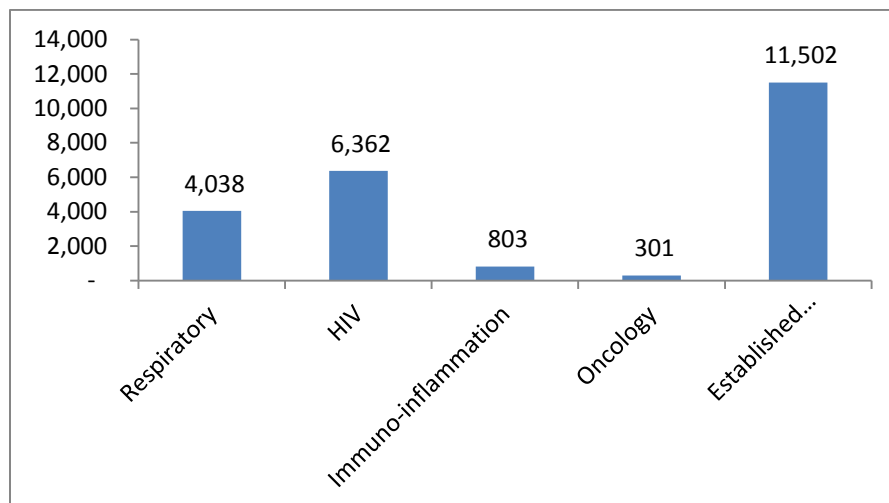
Chart 1: GSK Group Turnover by Segment



Source: GlaxoSmithKline (2019, Annual Report).

According to GSK Annual Report (2019), the biggest results in Pharmaceuticals have been registered by Established Pharmaceuticals followed by HIV and Respiratory drugs, which are the main areas where consumer's issues are focused nowadays, because of the increase in urban lifestyles and population ageing, thus contributing to rising demand for healthcare and drugs. On the other side, vaccines are an important asset for the company which has given the exclusivity and well performance in general with the new development of vaccines such as Shingles, recording revenue of \$2.7bn in 2019 followed by Meningitis and Influenza, while other Established Vaccines are on the top. Consumer healthcare's main sector remains Wellness followed by Oral healthcare, respectively possessing 47% and 30% in 2019 of the turnover in Consumer healthcare.

Chart 2: GSK Turnover in Pharmaceuticals, 2019



Source: GlaxoSmithKline (2019, Annual Report).

AstraZeneca' Performance

AstraZeneca recorded increase in Product Sales by 12% (15% at CER), as well increase by 18% (24% at CER) in emerging markets, and increase by 59% of sales in New Medicines in 2019. Their overall turnover during the last 5 years has undergone through constant decline from 2015 to years following later and reaching back in 2019 (\$24.38bn) close to the turnover of 2015 (\$24.71bn).

Their sales have recorded a considerable increase in Emerging markets during the last 5 years, with the biggest share recorded in 2019 as per AstraZeneca sales by region, followed by U.S, which during the years have incurred constant decline, as well for Europe.

Table 2: AstraZeneca Turnover by Geographical Region

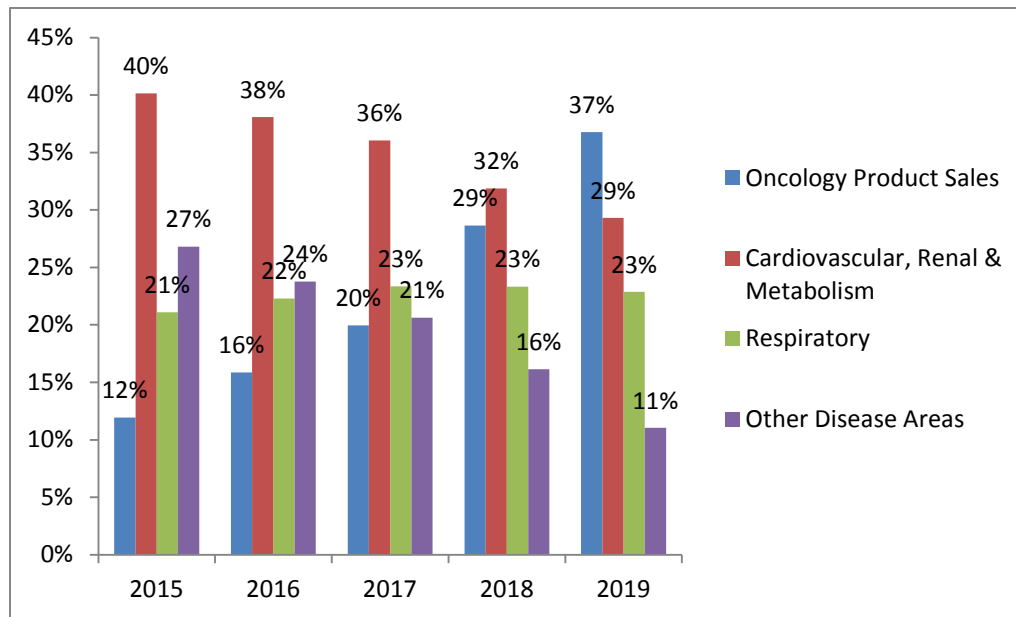
AZN Group Turnover by Region	2015	2016	2017	2018	2019
US	40%	35%	31%	33%	33%
Europe	23%	24%	24%	21%	18%
Rest of World	13%	15%	15%	13%	14%
Emerging Markets	25%	27%	31%	33%	35%
Total	100%	100%	100%	100%	100%

Source: Statista (2020)

According to AstraZeneca Group Annual Reports (2015-2019), the main therapy areas for 2019 are Oncology going through a mammoth increase since 2015 because of the new drugs developed and approved in this area, followed by Cardiovascular, Renal and Metabolism products which held the biggest share in 2015, and Respiratory drugs which have had a stable share in sales through years. As per NASDAQ (2019) AstraZeneca' newer drugs in the Oncology area have accelerated its growth in product sales in 2019, such as Lynparza, Tagrisso and Imfinzi, while patent expirations have impaired the product sales since 2010. AstraZeneca newer drugs in 2019 are linked with the front-line ovarian cancer, Lynparza, in Japan and the EU as well as for breast cancer in the EU, and Farxiga/Forxiga for type-I diabetes in the EU and Japan (NASDAQ, 2019).

The new AstraZeneca's drugs flew up to 81% in 2018 and 77% in the first semi-year 2019, reflecting a striking performance and a confidence in growing in long term (NASDAQ, 2019).

Chart 3: AZN Group Product Sales by therapy area



Source: AstraZeneca (2019, Annual Report).

It is important to take in consider the trend of the pharmaceuticals, which generate the biggest part of sales globally, in areas such as oncologic, pain therapy and anti-diabetics generating sales of \$100 billion, \$79 billion and \$40 billion, respectively according to (Statista, 2019). The key therapeutic areas generating the biggest revenue in 2018 as per Statista (2019) were comprised of respiratory with \$60.5 billion, autoimmune diseases with \$53.5 billion, mental health with \$35.5 billion and immunology at \$34.2 billion, key areas where GSK and AZN are focused in developing and investing in new pipelines and partnerships/joint-ventures. Other important area that of vaccines will mark persistent growth for the pharmaceuticals in 2020 according to Mc Govern (2020), with companies such as GlaxoSmithKline, Merck & Co., and Sanofi leading the market.

As cited by Reeves (2020) what makes GSK headway compared to its peers are its diversified portfolio and operations associated with a lower risk in long terms. And in general, there is an increasing tendency of pharmaceutical companies in creating joint-ventures and partnerships with other companies in developing new drugs and vaccines. But, at the end the success of a company in such industry “is rather backed by events than by multiples, marking the turning point of its stock price in stock market” as mentioned by Duncan (2006).

Comparison of Key Performance Indicators

The below table shows the key performance indicators of GSK and AZN:

Table 3: Comparison of Key Performance Indicators

	2015, Dec.31st	2016, Dec. 31st	2017, Dec. 31st	2018, Dec. 31st	2019, Dec. 31st
REVENUE \$m					
GSK	35,813	34,818	40,464	39,014	44,239
AZN	24,708	23,002	22,465	22,090	24,384
Operating Margin %					
GSK	10.99	21.61	20.08	22.91	18.64
AZN	12.41	15.53	12.06	8.83	6.98
Net Income \$m					
GSK	12,608	1,138	2,054	4,586	6,088
AZN	2,825	3,499	3,001	2,155	1,335
Return on Equity %					
GSK	176	25.14	313.03	195.36	61.7
AZN	14.82	20.99	20.13	15.71	10.43
Return on Capital (Joel Greenblatt) %					
GSK	117.73	23.71	40.73	49.05	64.62
AZN	66.14	74.19	49.6	44.68	37.45
Return on invested capital %					
GSK	5.11	5.99	6.54	9.59	7.88
AZN	5.82	6.54	6.13	3.64	2.55
R&D Expenditures \$m					
GSK	5,329	4,529	6,000	4,928	5,987
AZN	5,997	5,890	5,757	5,932	6,059
Return on Research Capital Ratio					
GSK	5.24	4.36	5.87	4.34	5.82
AZN	3.60	3.15	3.08	2.98	3.28
EBITDA \$m					
GSK	12,298	5,531	8,290	9,352	12,372
AZN	6,960	7,276	6,623	7,112	6,712
Free Cash Flow \$m					
GSK	1,928	6,847	7,287	9,671	8,747
AZN	2,043	2,781	2,335	1,587	2,027
P/E Ratio					
GSK	7.93	84.43	42.66	20.46	19.15
AZN	31.63	20.87	28.29	45.03	95.48
EV/EBITDA					
GSK	6.31	21.30	12.94	13.00	12.68
AZN	13.96	12.05	14.88	15.93	21.13
EV/Revenue					
GSK	3.4	3.38	2.73	3.12	3.6
AZN	3.93	3.9	4.39	5.16	5.79
Price-to-Free-Cash-Flow					
GSK	101.7	18.57	13.86	11.2	15.27
AZN	179.63	38.99	44.88	72.42	254.41

Source: Gurufocus (2020) & Macrotrends (2020)

From the above performance comparison, we notice a better performance of GSK compared to AZN in terms of Operating Margin, Return on Equity, and Return on Invested Capital, as well Free Cash Flow, indicating apparently that GSK is more profitable than AZN. As per a publication from Statista (2020) GSK has been listed on the top 10 companies with the best Return on invested capital ratios for 2019 in pharmaceutical industry. On the other hand, the advantage of GSK stands with the lower ratios of P/E ratio and EV/EBITDA in the last two years. In terms of P/E, GSK (14) appears to offer considerably better value than AstraZeneca (21). Its dividend yield is also much superior: 4.31% versus 2.81%.

Referring to Table 3, a key indicator of good performance related to pharmaceutical industry with high competitive advantages (patents) and high Research and Development expenditures is Return on Research Capital Ratio (RRCR) measured as a ratio of Current year's Gross Profit to Previous year's R&D expenses. A study from Hsieh, Mishra & Gobeli (2003) ascertain that an investment in R&D earns an operating margin return much higher than the industry cost of capital, making such expenses a key success factor in pharmaceutical industry. What draws attention is the fact that AstraZeneca has been spending a higher figure in R&D in some years comparing to GSK, but records a lower Return on Research Capital ratio, indicating that GSK has been generating more profits from its investments in R&D comparing to AZN. As of 2019, AZN recorded the highest R&D expenditure with 25.63% of revenues on R&D (by June 30, 2019) above the industry average level of 17%, while GSK recorded a level of 15% according to Investopedia (2019). Mostly, this is backed by the fact that smaller companies generate lower revenue and they spend significantly higher percentages of their budget on R&D to maintain a competitive position in the market.

While the key indicators that attract the investors' interest related to their annual inflow are indicated in the table as below:

Table 3.1: Comparison of Key Performance Indicators

Dividends paid \$m	2015	2016	2017	2018	2019
GSK	5,799	6,055	5,236	4,971	5,181
AZN	3,486	3,561	3,519	3,484	3,592
Dividend per ordinary share					
GSK	80p	80p	80p	80p	80p
AZN	188.5p	218.9p	202.5p	215.2p	218.3p
Dividend Yield %					
GSK	5.92	5.45	5.85	5.6	4.31
AZN	4.12	5.12	4.03	3.69	2.81
Dividend Payout Ratio %					
GSK	0.46	4.17	2.6	1.11	0.86
AZN	1.26	1.01	1.18	1.65	2.72
Earnings per Share \$					
GSK	5.16	0.46	0.83	1.85	2.43
AZN	1.12	1.38	1.19	0.85	0.52
Dividend per Share \$					
GSK	2.35	1.94	2.16	2.04	2.09
AZN	2.80	2.80	2.80	2.80	2.80
Free Cash Flow per Share \$					
GSK	0.409	2.108	2.559	3.374	3.061
AZN	0.212	0.723	0.773	0.492	0.196

Source: Gurufocus (2020)

COMPANIES VALUATION

Valuation Methods

After presentation of the companies industry with their opportunities and limitations, as well their financial performance over the last 5 years, we are able to value how much worth is each of them. Based on the performance history and the uncertainty of industry development, we recommend among the Absolute Valuation Model, the Discounted Cash Flow Model (DCF), excluding the Dividend Discount Model because both companies do not have a stable dividend growth rate, and above all their growth rate for 3 years is a negative result.

On the other hand, another good approach in valuation of pharmaceutical companies would be Risk-Adjusted Net Present Value (rNPV), but it requires knowledge of expected cash flows plus the probability of technical and regulatory success (DrugPatentWatch, 2020), especially on the relevant success rates for each stage of drug development. As DrugPatentWatch (2020) reveals “cash flows for pharmaceutical companies are driven by factors like drug development phases and revenue/market phases”.

What we need to reach the present value of operations are each period's forecast of free cash flow discounted by the Weighted Average of Cost of Capital (WACC), which represents the rate of return required by the company's debt and equity investors from investing. Free Cash Flow is a better metric than EBITDA, EBIT and Net Income in valuation because they exclude large capital expenditures and change in cash due to changes in operating assets and liabilities (CFI, 2020).

Absolute Valuation Method: DFC Method

With the figures taken from GSK Annual Report (2019) we have calculated the Company's value based on the 2-stage growth model, estimating in the first stage the free cash flows to the firm discounted with the WACC over the next 5 years (Fig.1), assuming that the company will generate the same cash flow level. After the calculation of present value of future free cash flows in the 5 years, we go with the Terminal Value calculation by discounting the terminal cash flows to today's value at a cost of equity 4.49%, while the perpetual growth rate is considered 1.7% below the expected long term GDP growth of 2.37% (OECD, 2018). The Total Equity Value is the sum of cash flows for the next 5 years plus the discounted terminal value. In the final stage we divide the equity value (after adjusted with Cash equivalents and Debt) by the number of outstanding shares. Given the data of GSK Annual Report (2019), share price by December 31, 2019 is \$46.9, whereas the implied share price appears to be \$102.74, meaning it is considerable undervalued (119%) according to DFC model, by end of December 2019.

Fig.1: DCF Method, GSK Intrinsic Value

GlaxoSmithKline Plc	
Terminal Value - Perpetuity Growth Rate Method	
Baseline Terminal FCF Growth Rate	1.70%
WACC	4.49%
EV/EBITDA multiple	12.68x
FCF \$	8,747,000
Current Price \$	46.9
Shares Outstanding	2,495,000
Debt \$	33,032,000
EBITDA \$	12,372,210
Fiscal Year End	31/12/2019
Number of Years forecast	5
Baseline Terminal Value	318,842,258
Implied Terminal EBITDA Multiple	25.77x
+ PV of Terminal Value	255,977,758
+ Sum of PV of FCF	32,523,795
Implied Enterprise Value \$	288,501,553
% of Implied EV from Terminal Value	88.7%
+ Cash and cash equivalents	6,166,170
- Debt \$	(38,327,980)
Implied Equity Value \$	256,339,743
Shares Outstanding	2,495,000
Implied Share Price \$	102.74
Premium/(Discount) to Current	119%

Source of data: GSK Annual Report (2019)

The same valuation method and steps are used to calculate AstraZeneca' Intrinsic Value. While for AZN, there is a lower Intrinsic Value and Equity Value/Share compared to Market Value and Market Equity Value/Share, mostly because AstraZeneca's free cash flows are considerable lower than GlaxoSmithKline and on the other hand, the number of outstanding shares seems to be close in numbers for both companies. Moreover, we notice a higher WACC for AZN, which indicates that this company is spending a comparatively large amount of money in order to raise capital, and being riskier compared to GSK. AZN Share price by December 31, 2019 is \$50.09 (Yahoo Finance, 2020), while Implied share price results in \$16.63 according to DFC model, indicating that market price is considerable higher than the intrinsic value, and thus overvalued.

Fig.2: DFC Valuation Model, AZN Intrinsic Value

AstraZeneca Plc	
Terminal Value - Perpetuity Growth Rate Method	
Baseline Terminal FCF Growth Rate	1.70%
WACC	5.66%
EV/EBITDA multiple	21.13x
FCF \$	2,027,000
Current Price \$	50.09
Shares Outstanding	2,602,000
Debt \$	11,904,000
EBIDTA \$	6,712,000
Fiscal Year End	31/12/2019
Number of Years forecast	5
Baseline Terminal Value	52,057,045
Implied Terminal EBITDA Multiple	7.76x
+ PV of Terminal Value	39,529,970
+ Sum of PV of FCF	10,264,179
Implied Enterprise Value \$	49,794,149
% of Implied EV from Terminal Value	79.4%
+ Cash and cash equivalents	5,369,000
- Debt \$	(11,904,000)
Implied Equity Value \$	43,259,149
Shares Outstanding	2,602,000
Implied Share Price \$	16.63
Premium/(Discount) to Current	-67%

Source of data: AZN Annual Report (2019)

Moreover, the fact that GSK's ROIC (7.88%) is twice as high as the estimated WACC, it proves that the company is value generating (healthy and growing), while AZN's ROIC (2.55%) is twice less than its WACC (5.66%) for 2019, it proves that the company is not generating value (a value destroyer) (Investopedia, 2020).

Relative Valuation Method: EV/EBITDA Multiple

Complementing the valuation process for both companies, a relative method is chosen, too. In Company's valuation, considering the financial performance, a good relative valuation method certainly is the EV/EBITDA multiple. EV/EBITDA considers everything regardless of tax, making it a perfect tool to value multinational companies as well it is much better than other multiples since it is not affected by the company's capital structure (Revolut, 2020) .

For the calculation of intrinsic value of both companies' shares, we have considered the average EV/EBITDA as per Statista (2020).

Fig.3: EV/EBITDA Multiple, GSK Plc.

GlaxoSmithKline Plc	
Terminal Value - Multiplies Method	
Median EV/EBIDTA of Companies	14.50x
Baseline Terminal EBITDA Multiple	14.00x
Baseline Terminal Value	173,210,940
Implied Terminal FCF Growth Rate	-0.5%
+ PV of Terminal Value	139,059,823
+ Sum of PV of FCF	32,523,795
Implied Enterprise Value \$	171,583,618
% of Implied EV from Terminal Value	81.0%
+ Cash and cash equivalents	6,166,170
- Debt \$	(38,327,980)
Implied Equity Value \$	139,421,808
Shares Outstanding	2,495,000.0
Implied Share Price \$	55.88
Premium/(Discount) to Current	19%

Source: GSK Annual Report (2019)

Fig.4: EV/EBITDA Multiple, AZN Plc.

AstraZeneca Plc	
Terminal Value - Multiplies Method	
Median EV/EBIDTA of Companies	14.50x
Baseline Terminal EBITDA Multiple	14.00x
Baseline Terminal Value	93,968,000
Implied Terminal FCF Growth Rate	3.4%
+ PV of Terminal Value	71,355,418
+ Sum of PV of FCF	10,264,179
Implied Enterprise Value \$	81,619,597
% of Implied EV from Terminal Value	87.4%
+ Cash and cash equivalents	5,369,000
- Debt \$	(11,904,000)
Implied Equity Value \$	75,084,597
Shares Outstanding	2,602,000.0
Implied Share Price \$	28.86
Premium/(Discount) to Current	-42%

Source: AZN Annual Report (2019)

The above Figures give a clear picture of implied share price calculated using EV/EBITDA multiple, indicating that GSK implied share price (\$55.88) is moderately higher compared to the market share price as of December 31, 2019 (\$46.9), while implied share price of AZN (\$22.86) is significantly lower compared to the market share price as of December 31, 2019 (\$50.09). Comparable data of different pharmaceutical companies operating worldwide were chosen to compare both companies positions (Table 4).

Table 4: Comparable data of peer companies

Comparable Data as of December 31, 2019	P/E	EV/EBITDA	EV/REVENUE	PB Ratio	PS Ratio	Share Price
GlaxoSmithKline	18.95	12.68	3.6	7.84	2.64	46.9
AstraZeneca	95.48	21.13	5.79	9.97	5.21	50.09
Pfizer	12.93	9.82	4.79	3.25	4.07	37.12
Novartis	18.39	14.54	4.68	3.87	4.42	94.69
AbbVie	16.77	12.9	4.74	0	3.95	88.54
Sanofi	40.19	12	3.42	1.92	2.99	50.2
Johnson & Johnson	25.91	15.92	4.78	6.46	4.77	145.87
Industry Median	24.93	15.34	3.30	2.41	2.75	

Source: Gurufocus (2020)

As noticed from the data, GSK and Pfizer' share prices are the cheapest among the peers, while GSK seems to have closer ratios compared to the peers than AZN. P/E and EV/EBITDA ratios of GSK reflect lower figures than those of AZN, but close to the Industry median. From the data retrieved past year, GSK and AZN have reported EPS, respectively \$2.38 and \$0.53, while their share price by December 31, 2019 is reported \$46.9 and \$50.09, as well P/E Ratios to 19.5 and 95.48, indicating thus that GSK is much cheaper on a relative basis comparing to AZN. For every share purchased from GSK, the investor is getting \$2.38 of earnings as opposed to \$0.53 in earnings from AZN. In case all other ratios and figures being equal, for a close share price (\$46.9 to \$50.09), an investor is getting four times the earning power by purchasing GSK' Share.

KEY FINDINGS

WHY INVESTING IN PHARMACEUTICAL INDUSTRY

- Significant growth of Pharmaceutical industry in recent years;
- Valued at about 1.25 trillion U.S. dollars, by end of 2019;
- Potential to reap solid long-term returns that outperform the broader market;
- Compelling for long-term and safe investment.



GlaxoSmithKline Plc. Performance

- 5th among the top 10 pharma companies by revenue in 2019 (\$44bn);
- steady growth during the last 5 years;
- Biggest revenues by geographical sector are recorded in US, the biggest global drugs consumer;
- Biggest revenue recorded by Respiratory and HIV drugs.
- persistent growth for the Vaccines in 2020, leading the market.



AstraZeneca Plc. Performance

- Increase in Turnover for the past year, after 5 years of decline (\$24.38bn);
- Newer drugs in the Oncology area have accelerated its growth in product sales in 2019;
- A striking performance for 2019 and a confidence in growing in long term.



Comparing Financial Performance

P/E Ratio	
OSK	19.15
AZN	25.48
EV/EBITDA	
OSK	12.60
AZN	21.13
EV/Revenue	
OSK	5.0
AZN	5.79
Price-to-Free-Cash-Flow	
OSK	15.27
AZN	25.44

GlaxoSmithKline has a healthier financial position comparing to AstraZeneca, outperforming its competitor. While AstraZeneca has a stronger market perception and expectation.



REVENUE \$m		2019, Dec. 31st
OSK		44,259
AZN		24,564
Operating Margin %		
OSK		18.64
AZN		8.98
Net Income \$m		
OSK		8,088
AZN		1,333
Return on Equity %		
OSK		61.7
AZN		10.43
Return on Capital (Joel Greenblatt) %		
OSK		64.62
AZN		27.48
Return on Invested Capital %		
OSK		7.88
AZN		2.53
R&D Expenditures \$m		
OSK		5,987
AZN		6,059
Return on Research Capital Ratio		
OSK		5.82
AZN		5.28
EBITDA \$m		
OSK		12,572
AZN		6,712
Free Cash Flow \$m		
OSK		6,747
AZN		2,027

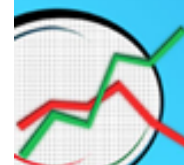
Share price Valuation

GlaxoSmithKline Plc DFC Valuation	
Implied Share Price \$	102.74
Premium/(Discount) to Current	119%
Current Price \$	46.9

GlaxoSmithKline Plc Multiple Valuation	
Implied Share Price \$	55.88
Premium/(Discount) to Current	19%
Current Price \$	46.9

AstraZeneca Plc DFC Valuation	
Implied Share Price \$	16.63
Premium/(Discount) to Current	-67%
Current Price \$	50.09

AstraZeneca Plc Multiple Valuation	
Implied Share Price \$	28.86
Premium/(Discount) to Current	-42%
Current Price \$	50.09



COMPARABLE DATA TO PEERS

Comparable Data as of December 31, 2019	P/E	EV/EBITDA	EV/REVENUE	PB Ratio	PS Ratio	Share Price
GlaxoSmithKline	18.95	12.68	3.6	7.84	2.64	46.9
AstraZeneca	95.48	21.13	5.79	9.97	5.21	50.09
Pfizer	12.93	9.82	4.79	3.25	4.07	37.12
Novartis	18.39	14.54	4.68	3.87	4.42	94.69
AbbVie	16.77	12.9	4.74	0	3.95	88.54
Sanofi	40.19	12	3.42	1.92	2.99	50.2
Johnson & Johnson	25.91	15.92	4.78	6.46	4.77	145.87
Industry Median	24.93	15.34	3.30	2.41	2.75	



RECOMMENDATION

- GlaxoSmithKline share price is significantly **undervalued**.
- Lower risk exposure.
- Stable expected growth
- Higher dividend yield, indicating a lower stock price.
- Sound long-term share price.
- Share price offers good value for money at the moment.
- AstraZeneca share price is significantly **overvalued**.
- Higher risk exposure.
- Higher Expected growth
- Higher Dividend per share, indicating a much more profit & dividend for the shareholders.



CONCLUSIONS

GlaxoSmithKline may have disappointed a lot of investors by reducing its dividend payout ratio during the past year, but it represents a still an income stock (Halley, 2020). Its dividend yield is higher comparing to AstraZeneca's and above average market. On other hand, financial performance of GlaxoSmithKline is showing a healthy company with future opportunities to increase and diversify its portfolio of pharmaceuticals and healthcare services. There are plenty of growth possibilities for the company in oncology after buying out Tesaro last year \$5.1bn.

GlaxoSmithKline stock has two important advantages in relation to dividend: consistent growth and a high but sustainable yield, and as long as it is undervalued, it represents a good investment in longer period.

On the other side, AstraZeneca is facing a higher growth in revenues and during the last years it has enriched its robust portfolio with products, that take the major role in pharmaceuticals and disease areas, including cancer, cardiovascular, diabetes, gastrointestinal, infection, inflammation and respiratory. AstraZeneca has a high market capitalization, supported by high P/E ratio, but that doesn't mean that it has the same enterprise value, one fact that can be misleading when comparing to other peers. As well AstraZeneca has a higher dividend payout ratio comparing to GSK, when its earnings have been lower and this indicates usually at greater risk of dividend being cut, with the level of debt higher making it hard to accomplish. AstraZeneca paid out 139% of its free cash flow as dividends during the last year, uncomfortably high, putting the future of dividend payout ratio in question. Apart from the analysis above, AstraZeneca share price according to valuation is overvalued considerably, making it an expensive purchase.

Although AstraZeneca's future represents a remarkable growth, the future always is uncertain and decisions related to such investment should be fully appreciated taking in consider the overall financial performance and other factors that may result in turning points. Since GlaxoSmithKline share price is at a lower price to its historical average, but it still has long term prospects, it could be a strong signal to buy. As for the moment, the Global Pandemic of COVID-19 will provide once-in-a-lifetime opportunity to get ahead of the competitors and challenge even the most robust enterprises.

References:

AstraZeneca. (2019). *Annual Reports. 2015-2019*. Retrieved on Internet on December 11, 2020 at <https://www.astrazeneca.com/investor-relations/annual-reports.html>

© AstraZeneca. (2020). *Our Company*. Retrieved on Internet on December 08, 2020 at <https://www.astrazeneca.com/our-company.html>

CFI Education Inc. (2020). *FCFF vs FCFE. Differences between Free Cash Flow to Firm (FCFF) and Free Cash Flow to Equity (FCFE)*. Retrieved on Internet on December 16, 2020 at <https://corporatefinanceinstitute.com/resources/knowledge/valuation/fcff-vs-fcfe/>

Deloitte. (2020). *Analysis: Global Health Care Sector*. Retrieved on Internet on December 11, 2020 at <https://www2.deloitte.com/global/en/pages/life-sciences-and-healthcare/articles/global-health-care-sector-outlook.html>

Deloitte. (2019). *Ten years on Measuring the return from pharmaceutical innovation 2019*. Global data. Retrieved on Internet on December 12, 2020 at <https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/life-sciences-health-care/deloitte-uk-ten-years-on-measuring-return-on-pharma-innovation-report-2019.pdf>

DrugPatentWatch. (2020). *Valuation of Pharma Companies: 5 Key Considerations*. Retrieved on Internet on December 17, 2020 at <https://www.drugpatentwatch.com/blog/valuation-of-pharma-companies-5-key-considerations/>

Enterprise Ireland. (2018). *Report on UK Pharmaceutical Manufacturing Sector Overview*. Part of the Evolve UK series. Retrieved on internet on December 12, 2020 at <https://globalambition.ie/wp-content/uploads/2020/03/Enterprise-Ireland-Report-UK-Pharmaceutical-Manufacturing-Sector-Overview.pdf>

Fierce Pharma. (2020). *The top 20 pharma companies by 2019 revenue*. By Eric Sagonowsky. Retrieved on Internet on December 10, 2020 at <https://www.fiercepharma.com/special-report/top-20-pharma-companies-by-2019-revenue>

Fierce Pharma. (2020). *The top 20 pharma companies by 2019 revenue*. By Carly Helfand. Retrieved on Internet on December 10, 2020 at <https://www.fiercepharma.com/special-report/top-20-pharma-companies-by-2019-revenue>

Gardner, J. (2019). *Pharma of the Year: AstraZeneca. Dive Awards 2019*. Published by BioPharma Dive. Retrieved on Internet on December 14, 2020 at <https://www.biopharmadive.com/news/astrazeneca-pharma-dive-awards/566229/>

Gecgil, T. (2020). *£1K to invest? I'd buy AstraZeneca or GSK pharma shares for a rich retirement*. The Motley Fool Ltd Copyright. Retrieved on Internet on December 12, 2020 at

<https://www.fool.co.uk/investing/2020/05/24/1k-to-invest-id-buy-astrazeneca-or-gsk-pharma-shares-for-a-rich-retirement/>

© GlaxoSmithKline plc. (2020). *About us*. Retrieved on Internet on December 08, 2020 at <https://www.gsk.com/en-gb/about-us/>

GlaxoSmithKline. (2020). Annual Reports. 2015-2019. Retrieved on Internet on December 11, 2020 at <https://www.annualreports.com/Company/glaxosmithkline-plc>

GlaxoSmithKline. (2020). ViiV Healthcare. Retrieved on Internet on December 13, 2020 at <https://www.gsk.com/en-gb/products/viiv-healthcare/>

Gurufocus. (2020). AbbVie Inc' Summary of Financial Ratios and Performance. Retrieved on Internet on December 18, 2020 at <https://www.gurufocus.com/stock/ABBV/summary>

Gurufocus. (2020). AstraZeneca Plc' Summary of Financial Ratios and Performance. Retrieved on Internet on December 18, 2020 at <https://www.gurufocus.com/stock/AZN/summary>

Gurufocus. (2020). Johnson & Johnson' Summary of Financial Ratios and Performance. Retrieved on Internet on December 18, 2020 at <https://www.gurufocus.com/stock/JNJ/summary>

Gurufocus. (2020). Novartis AG' Summary of Financial Ratios and Performance. Retrieved on Internet on December 18, 2020 at <https://www.gurufocus.com/stock/NVS/summary>

Gurufocus. (2020). GlaxoSmithKline Plc' Summary of Financial Ratios and Performance. Retrieved on Internet on December 18, 2020 at <https://www.gurufocus.com/stock/GSK/summary>

Gurufocus. (2020). Overview of Market Industries: Valuation and Profitability. Europe Industry Comparison. Retrieved on Internet on December 18, 2020 at https://www.gurufocus.com/industry_overview.php?sector=Healthcare®ion=Europe

Gurufocus. (2020). Pfizer Inc' Summary of Financial Ratios and Performance. Retrieved on Internet on December 18, 2020 at <https://www.gurufocus.com/stock/PFE/summary?search=pfizer>

Gurufocus. (2020). Sanofi SA' Summary of Financial Ratios and Performance. Retrieved on Internet on December 18, 2020 at <https://www.gurufocus.com/stock/SNY/summary>

Halley, J. (2020). Is GlaxoSmithKline a Great Dividend Stock? The Motley Fool. Retrieved on Internet on December 18, 2020 at <https://www.fool.com/investing/2020/06/19/is-glaxosmithkline-a-great-dividend-stock.aspx>

Hsieh, P-H., Mishra, C. & Gobeli, D. (2003). *The return on R&D versus capital expenditure in pharmaceutical and chemical industries*. Engineering Management, IEEE Transactions on. 50. 141 - 150.

Internships China. (2020). Bribery and Corruption: The GlaxoSmithKline (GSK) Case. Retrieved on Internet on December 14, 2020 at <https://internshipschina.com/glaxosmithkline-gsk-scandal-bribery-china-explained/>

Investopedia. (2020). Return on Invested Capital (ROIC). By Will Kenton. Retrieved on Internet on December 16, 2020 at <https://www.investopedia.com/terms/r/returnoninvestmentcapital.asp>

Investopedia. (2019). Average Research & Development Costs for Pharmaceutical Companies. Retrieved on Internet on December 17, 2020 at <https://www.investopedia.com/ask/answers/060115/how-much-drug-companys-spending-allocated-research-and-development-average.asp>

Macrotrends. (2020). *AstraZeneca Free Cash Flow 2006-2020*. Retrieved on Internet on December 15, 2020 at <https://www.macrotrends.net/stocks/charts/AZN/astrazeneca/free-cash-flow>

Macrotrends. (2020). *GlaxoSmithKline Free Cash Flow 2006-2020*. Retrieved on Internet on December 15, 2020 at <https://www.macrotrends.net/stocks/charts/GSK/glaxosmithkline/free-cash-flow>

Mc Govern, B. (2020). *Pharma Outlook 2020: Oncology Commands Sector Growth*. Retrieved on Internet on December 17, 2020 at <https://investingnews.com/daily/life-science-investing/pharmaceutical-investing/pharmaceutical-outlook/>

Moore, D. (2006). *Pharmaceuticals – interesting times in a cyclical industry*. Morgan Stanley. Retrieved on Internet on December 16, 2020 at http://www.buildingipvalue.com/06intro/019_022.htm

NASDAQ. (2020). AZN Price/Earnings & PEG Ratios. Retrieved on Internet on December 15, 2020 at <https://www.nasdaq.com/market-activity/stocks/azn/price-earnings-peg-ratios>

NASDAQ. (2020). GSK Price/Earnings & PEG Ratios. Retrieved on Internet on December 15, 2020 at <https://www.nasdaq.com/market-activity/stocks/gsk/price-earnings-peg-ratios>

NASDAQ. (2019). Here's Why AstraZeneca's (AZN) Shares Are Up Year to Date. Retrieved on Internet on December 15, 2020 at <https://www.nasdaq.com/articles/heres-why-astrazenecas-azn-shares-are-up-year-to-date-2019-11-18>

OECD. (2018). [The Long View: Scenarios for the world economy to 2060](https://www.oecd.org/economy/growth/scenarios-for-the-world-economy-to-2060). OECD Economic Policy Paper No.22. By Yvan Guillemette and David Turner. Retrieved on Internet on December 17, 2020 at <http://www.oecd.org/economy/growth/scenarios-for-the-world-economy-to-2060.htm>

Pharm Exec. (2019). *Pharm Exec's Top 50 Companies 2019*. Pharmaceutical Executive by Michael Christel. Vol. 39, Issue 6. Retrieved on Internet on December 11, 2020 at <https://www.pharmexec.com/view/pharm-execs-top-50-companies-2019>

Pharmaceutical-technology.com. (2020). *The world's biggest pharmaceutical companies: Top ten by revenue*. Analysis. Retrieved on Internet on December 12, 2020 at <https://www.pharmaceutical-technology.com/features/top-ten-pharma-companies-in-2020/>

Pharmaphorum.com. (2020). *A history of AstraZeneca*. Retrieved on Internet on December 12, 2020 at https://pharmaphorum.com/views-analysis-sales-marketing/a_history_of_astrazeneca/

Protel Associates Ltd. (2019). UK Pharmaceutical Industry Outlook – 2019. *Short term slowdown in capex for the UK pharmaceutical industry in 2019*. Retrieved on Internet on December 12, 2020 at <https://www.protelprojects.com/blog/uk-pharmaceutical-industry-outlook-2019/>

Revolut. (2020). Understanding enterprise multiple EV/EBITDA. By Ashutosh Garg. Retrieved on Internet on December 18, 2020 at <https://blog.revolut.com/understanding-enterprise-multiple-ev-ebitda/>

Statista. (2020). *Average EV/EBITDA multiples in the health & pharmaceuticals sector worldwide in 2019 and 2020, by industry*. Retrieved on Internet on December 18, 2020 at <https://www.statista.com/statistics/1030111/enterprise-value-to-ebitda-in-the-health-and-pharmaceuticals-sector-worldwide/>

Statista. (2020). *Return on invested capital of top pharmaceutical companies 2019*. By Matej Mikulic. Retrieved on Internet on December 18, 2020 at <https://www.statista.com/statistics/473544/top-global-pharmaceutical-companies-return-on-invested-capital/>

Statista. (2019). *Top 10 therapeutic classes by estimated global pharmaceutical sales in 2018*. Retrieved on Internet on December 17, 2020 at <https://www.statista.com/statistics/279916/top-10-therapeutic-classes-by-global-pharmaceutical-sales/>

Stewart, C. (2020). *Pharmaceutical industry in the United Kingdom (UK) - Statistics & Facts*. Statista Copyright. Retrieved on Internet on December 11, 2020 at <https://www.statista.com/topics/5056/pharmaceutical-industry-in-the-uk/>

The Association of the British Pharmaceutical Industry. (2016). Facts and figures. *UK pharmaceutical market*. Retrieved on Internet on December 12, 2020 at <https://www.abpi.org.uk/facts-and-figures/>

The Pharma Letter. (2020). *Annual revenue of top 10 big pharma companies*. By Cheryl Barton. Retrieved on Internet on December 10, 2020 at <https://www.thepharmaletter.com/article/annual-revenue-of-top-10-big-pharma-companies>

Yahoo Finance. (2020). AstraZeneca's share price history. Retrieved on Internet on December 17, 2020 at <https://finance.yahoo.com/quote/AZN/history/>