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Key takeaways

Recommendation
BUY

- **Our valuation estimates suggest a company values of €125,666.53mln, 9.44% above current market value as of Dec2022. Our recommendation is a BUY.**

- **The company's main driver of growth is the Pharmaceutical segment which is expected to growth at 5.2% CAGR between FY22 and FY26.**

- **Dupixent is the company's leading product. It represents 51% of the total revenue from Specialty care and has a 5Y CAGR of 108%. In the short term it expects to reach €13B in revenue.**

- **The pipeline of products under Research and Development are expected to generate €8,5 mln.**

- **The debt level in the company has been decreasing in the last 2 years mainly due to the redemption in bonds.**

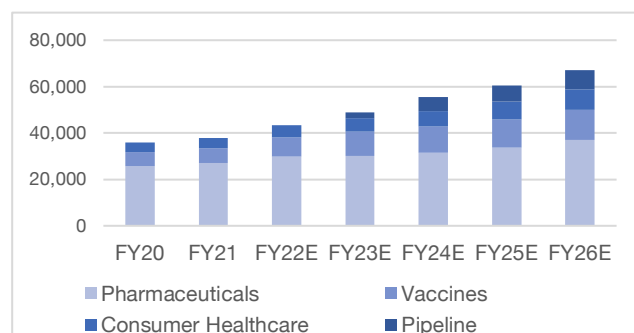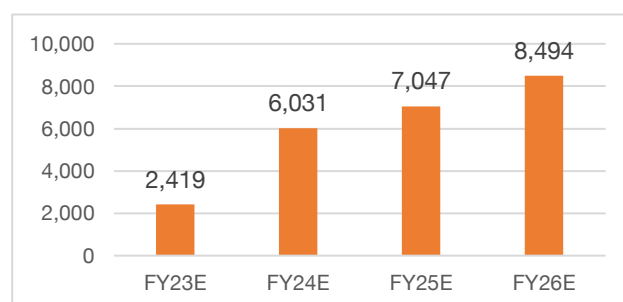| Value of firm (in mln)	€125,666.53
Current Market capitalization (in mln)	€114,830
Premium/discount	9.44%

Figure 1: Forecasted revenue by segment

Figure 2: Expected revenues from new launches

Company Overview

Sanofi is a pharmaceutical company engaged in the research, development, manufacture, and marketing of therapeutic solutions in the United States, Europe and Internationally. It is based in Paris and its reporting currency is the euro. It operates through three segments: Pharmaceuticals, Vaccines, and Consumer Healthcare. Further, it has various pharmaceutical products and vaccines in development stage.

The company shows a revenue CAGR of 8% in the period FY18-FY22, mainly driven by the Pharmaceutical segment, which made up 65% of total revenue in FY22. We expect that the company will growth on average at 12% every year.

Figure 1: Company's revenue trend
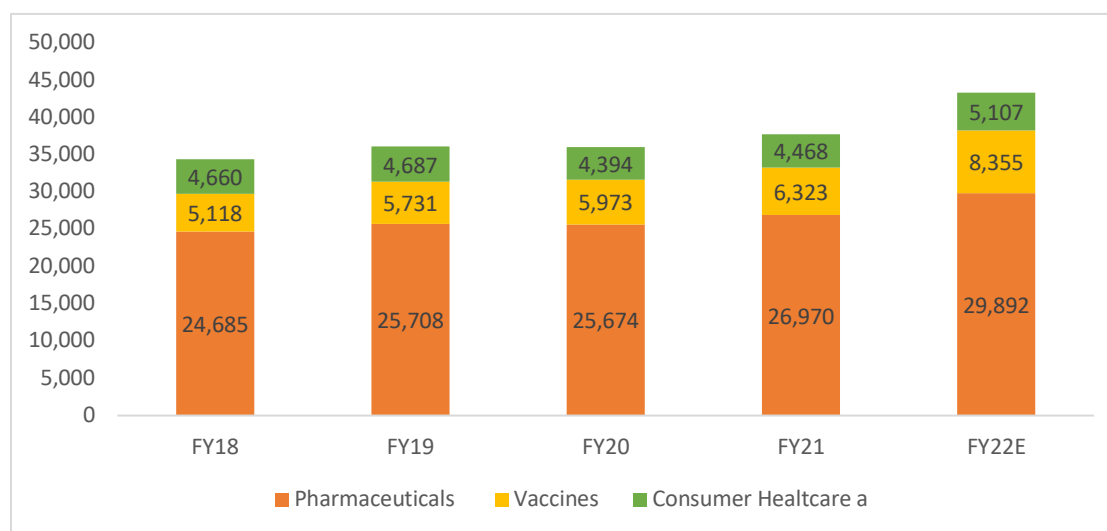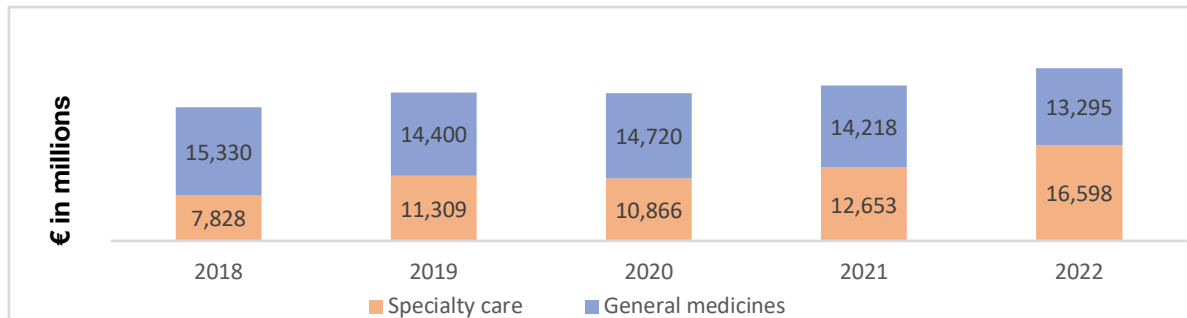

Source: Company Annual Reports and Own calculations

Key considerations

➢ Q4 2022 revenue is forecasted using the percentage (%) of revenue growth between Q3 2022 and Q3 2021 and multiplying that rate to Q4 2021.

➢ The forecast of revenues for the period FY23-FY26 has been prepared by segment and product. This report outlines the forecast of the products that make up a larger percent of the company's revenues, as well as the pipeline products. Those not explicitly included in the report have been projected using its historical growth.

➢ The forecast of P&L items above EBITDA for Q4 2022 has been calculated by segment and then added up. We have used the % change between Q3 2021 and Q3 2022 for COGS, R&D and SG&A to project Q4 2022, from Q4 2021 figures.

Pharmaceuticals

Pharmaceuticals refers to revenue from Specialty Care and General Care which are divided into other subsegments. In 2022, Pharmaceutical sales increased by 11% due the great result in the Specialty Care (31% increase) while the General medicines decreased by 6.5% due to the increase in competition in the Core asset products.
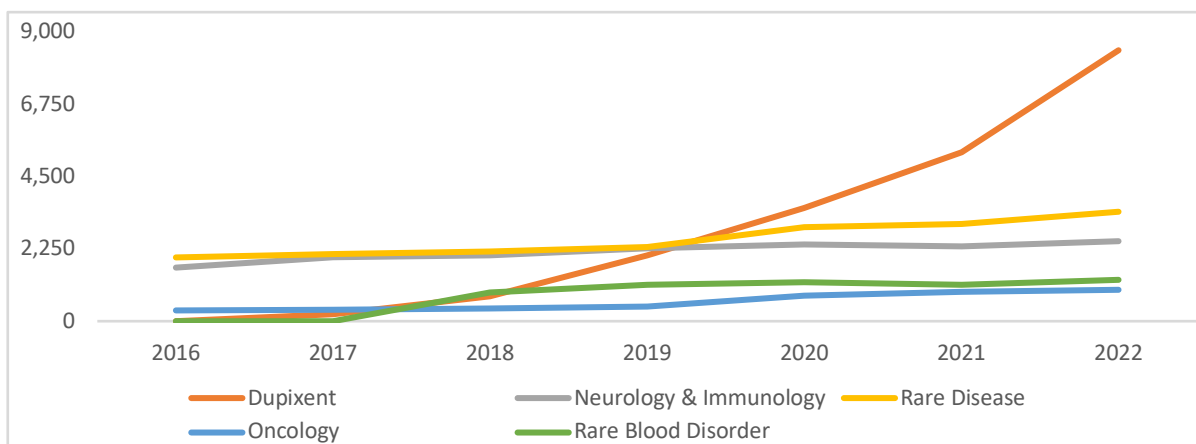
Figure 2: Pharmaceuticals segment

Specialty Care

Specialty care business is the main driver for pharmaceutical revenue. As of November 2022, a significant portion of revenue comes from Dupixent, which accounts for 51% of total revenue; it is followed by Rare Disease, Neurology Oncology, and Rare Blood.

Figure 3: Specialty care business

Overall, Specialty Care shows a 5Y CAGR of 33% which is driven by growth from Dupixent which has a 5Y CAGR of 108% as shown in Figure 3 above.

Dupixent

Dupixent is a treatment for moderate-to-severe atopic dermatitis (AD), asthma and chronic rhinosinusitis, it is Sanofi's biggest product in terms of sales. Sanofi has a "Play to Win" strategy which is focused on growth. As stated in Sanofi's earnings call, the goal for Dupixent is to deliver strong growth of €13 billion in annual net sales. The product had a notable increase in the last 3 years: between 2021 and 2022 it grew by 61% reaching a total of €8 billion. Onwards, it is expected that Dupixent will grow at a lower rate, we predict that in 3 years it will reach 12.9% growth which is the average segment growth in the last six years excluding Dupixent. An important thing to note is the company will get new approval of Dupixent for different treatments almost every year in the near future. Most of the revenue from Dupixent will come from this FDA approval and the 12.9% target represents the total revenue growth including the products in the pipeline for Dupixent. We are assuming that growth above the average total growth of revenues in the company (8%) is due to pipeline approvals, and the difference between the target growth of 12.9% and the company growth will represent the revenue from the Dupixent pipeline[1].

Figure 4: shows the revenues for Dupixent and for the Dupixent product in the pipeline

€ in millions	2022	2023E	2024E	2025E	2026E
Total Dupixent Revenue	8,434	12,213	15,730	17,759	20,050
Dupixent	8,434	9,112	9,844	10,634	11,489
Pipeline Dupixent	-	3,101	5,886	7,125	8,562

Figure 5: Dupixent
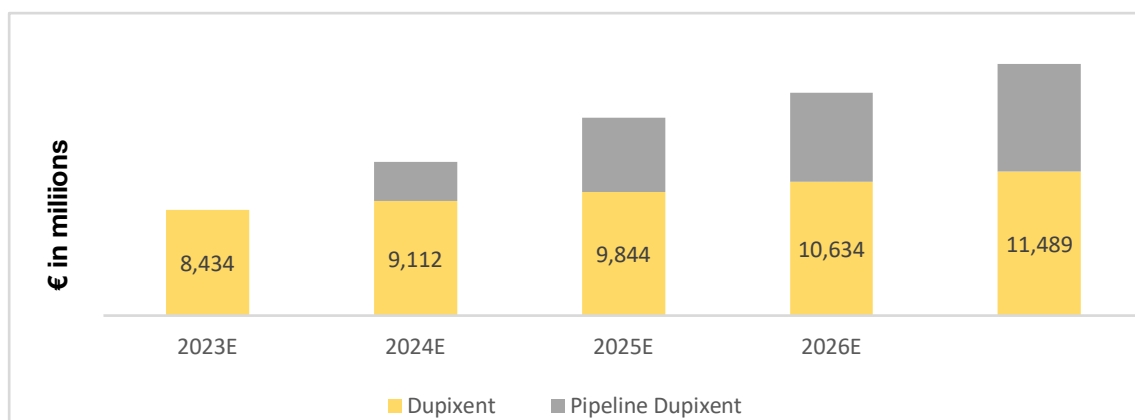
Source: Company Annual Report and own calculations

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[1]For what concerns the product in the pipeline, these are revenues without considering the probability to receive the approval, in the pipeline discussion the calculations including the probability will be shown.

Aubagio

Aubagio is a prescription medicine used to treat relapsing form of Multiple Sclerosis (MS)[2]. According to the 2021 annual report, Aubagio is expected to face generic competition in the US starting from March 2023. To forecast the impact of the generic competition in the US we look at the competition pressure in Lovenox, another Sanofi product, that can be characterized as having competition pressure since 2017 in the US.

	2017	2018	2019	2020	2021	2022
Lovenox Competition Pressure	-29.90%	-34.50%	-13.20%	-9.10%	-3.30%	-38.30%

For 2023 and going forward, we expect from the US revenue the same pressure that we observed in Lovenox from 2017 to present day (2022).

$$Revenue_{US2023} = Revenue_{US2022} * (1 + competition\,pressure\,in\,Lovenox_{from2017})$$

To address the concerns surrounding the EU and RoW region, the company is having positive results due to the increase in demand. This this portion of revenue has been forecasted using the historical CAGR which is 5% for UE and 14% for RoW.

Figure 6: Aubagio forecast
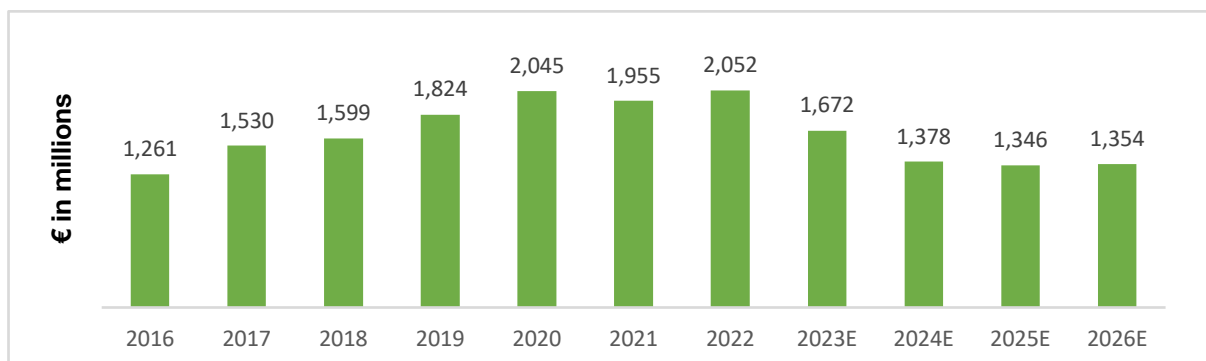
Source: Company Annual Report and own calculations

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[2] http://www.aubagio.com

Myozyme and Nexviazyme

Rare Disease business is primarily focused on products for rare genetic diseases. Myozyme and Nexviazyme are products chosen for analysis under this category. Myozyme is an enzyme replacement used to treat Pompe disease. Nexviazyme is a new treatment option for Pompe. As noted by company management, the conversion of Nexviazyme in the eligible Pompe population has translated into a reduction in Myozyme sales: Q3 2021 sales compared to Q3 2022 sales reflect a decrease of 10.2%. The company expects a switch by patients to the new product: this will cause a strong start in Nexviazyme that will disadvantage Myozyme sales.
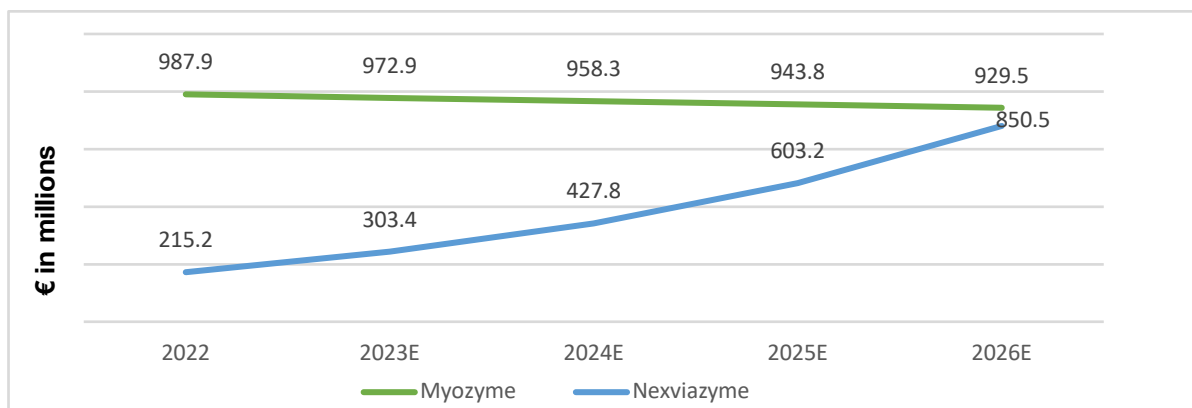
Figure 7: Myozyme vs Nexviazyme
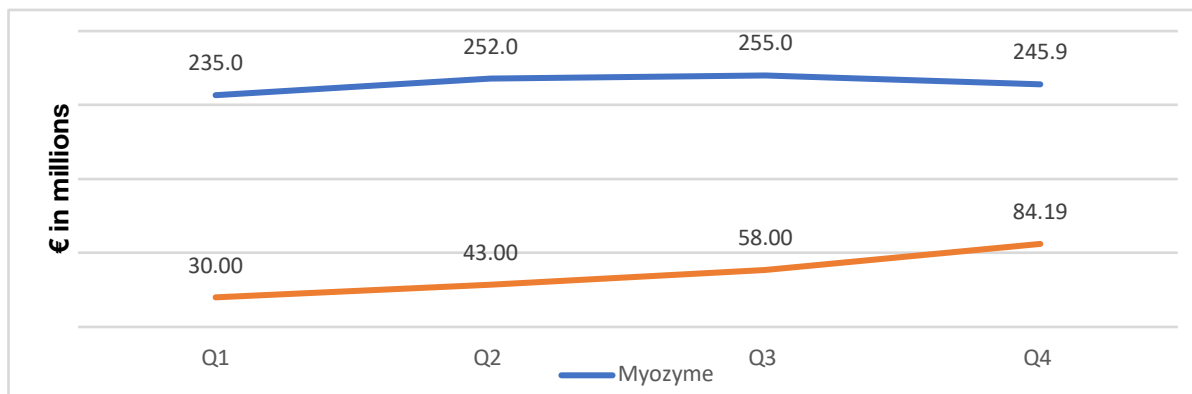
Source: Company Quarterly results and own calculations

We forecasted growth in Nexviazyme based on the growth shown in the first quarters since its launch (41%) and we expect a reduction in Myozyme over time (2.5% which is the impact of Nexviazyme's launch).

Figure 8: Myozyme and Nexviazyme forecast

Source: Company Annual Report and own calculations

General Medicines

General medicines account for 44% of the total revenue from Pharmaceuticals. This business comprises revenue from core assets and non-core assets. Most of the products in this subsegment are impacted by the competition pressure from either generic or biosimilar products.

Since 2018, the revenue from the business started to decrease due to patents expiring and the increase in competition in the diabetes segment. The products impacted showed an average decrease of 15% every year and the segment has a 4Y CAGR of -3%.

Figure 9: General Medicines trend
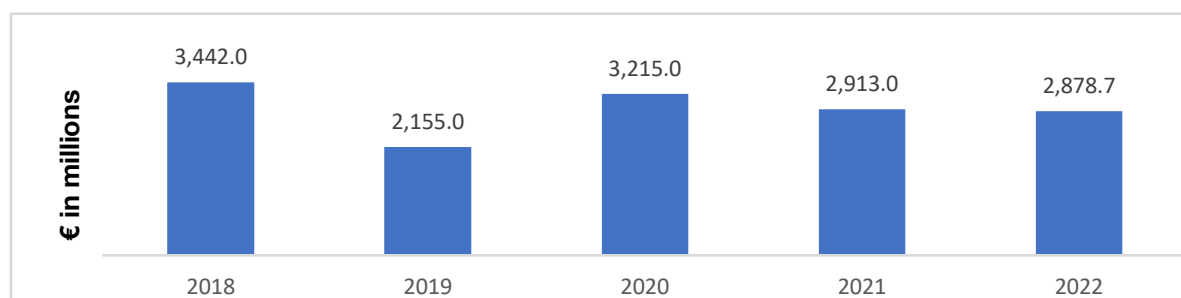
Source: Company Annual Report and own calculations

Lovenox, Lantus, Aprovel and Plavix are affected by the competition since their patent expiration. They account for almost 40% of the total segment and are the main driver of the decrease in revenue. Sanofi measures the level of the competition by considering the percent change in revenue of this product between one year and the previous year. Since they expect a persistent pressure in these products, we projected the competition pressure using the average of the competition pressure in the last years.

We distinguished the competition pressure in each region, we took the average for each region, and we projected revenues for each product using this average going forward. In the table below is shown the average competition pressure for each product in each region.

AVG %	US	EU	RoW
Lovenox	-11%	-7%	-9%
Lantus	-20%	-11%	-2%
Aprovel	-	-11%	-
Plavix	-	-9%	-

$$R_{US,EU,RoW}2023 = R_{2022} * (1 + AVG\ competition\ pressure\ in\ US, EU, RoW)$$

Revenues from Lantus and Lovenox are affected by competition in all regions, while Aprovel and Plavix are only in the EU[3].

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[3] For what concern the revenue from Aprovel and Plavix that comes from US and Row we used the historical CAGR to project the revenue from FY23 and FY26.
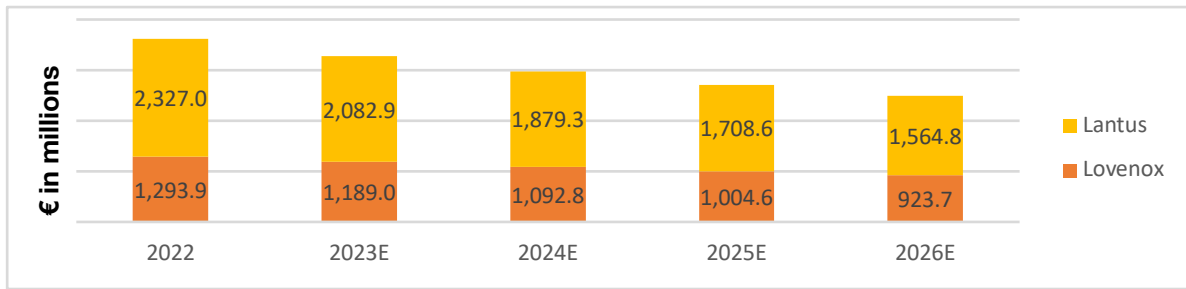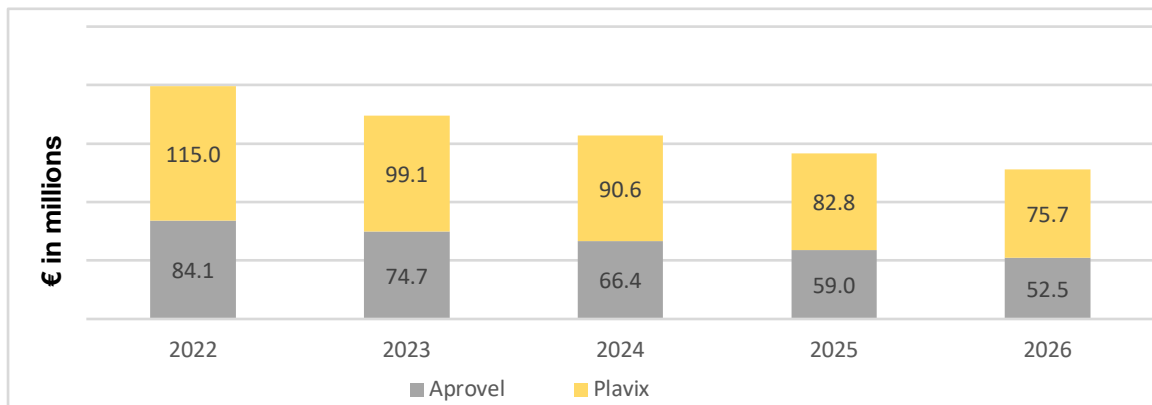
Figure 10: Showing Lovenox and Lantus

Figure 11: Aprovel and Plavix competition pressure in the EU

Vaccines

This segment is composed of five main vaccines distributed across the world: influenza (flu), Polio, meningitis, booster vaccines and travel/endemic vaccines. As shown below, Influenza and Polio make up most of the revenue in the vaccine segment.

Figure 12: Vaccines revenue by product (% of total)
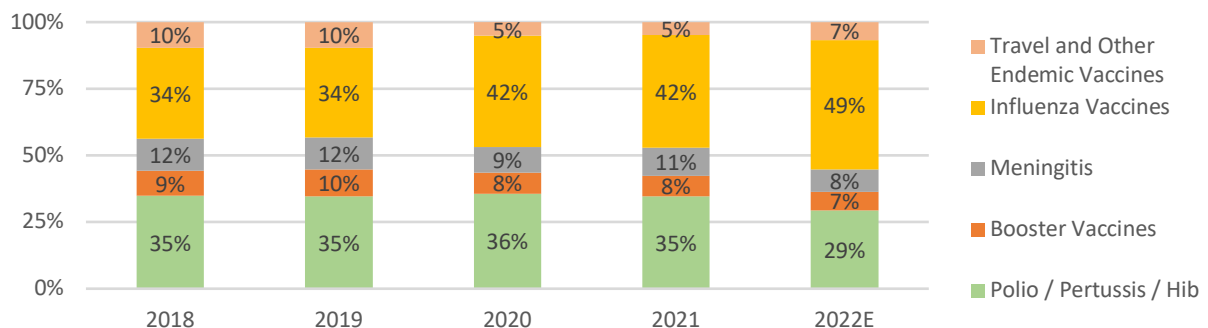
Source: Company Annual Report and own calculations

The segment has had significant growth in recent years due to the Influenza vaccine, a leading product in the northern hemisphere market (approximately 70% of flu vaccines sales).[4] The

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[4] Sanofi Q3 2022 financial results report.

Influenza vaccine's sales were propped up by the momentum generated by Covid-19, increasing sales significantly between 2020 and 2022. According to our Q4 2022 forecast, flu vaccines sales have increased at 29% CAGR between 2019 and 2022. In Q3 2022, influenza vaccines sales increased by 49% motivated by a favorable USD/EUR exchange rate and improvements in the manufacturing process, which allowed the company to ship its orders earlier as well as a favorable product mix in the US and Europe.[5] In 2019, Sanofi got approval for its high-dose trivalent and quadrivalent forms of its Fluzone for use in people over 65 years old, being the only one in the US market, which allowed Sanofi to differentiate its portfolio (BioPharma-Reporter, August 2022)[6] and boost revenue due to its higher price and singular position in the market.

As in the other segments, our Q4 forecast has been calculated using the growth in Q3 2022 with respect to Q3 2021, multiplied by Q4 2021 sales. By using this method, we have accounted for the seasonality of this type of vaccine, whose sales concentrate in the last two quarters.

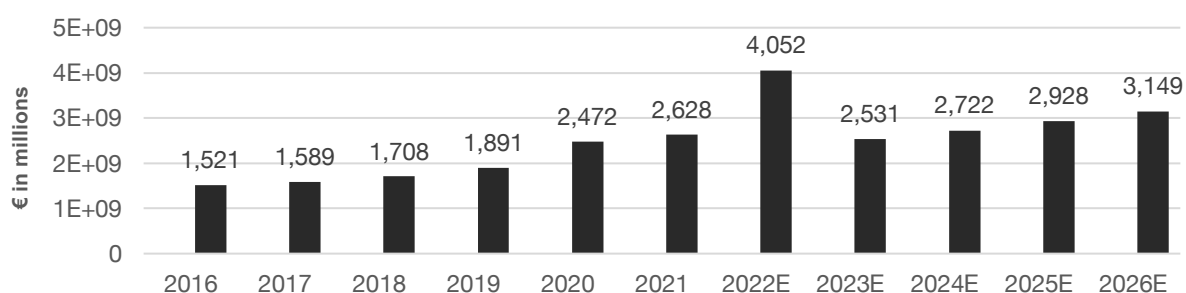Figure 13: Seasonality of influenza vaccines sales (in mln €)
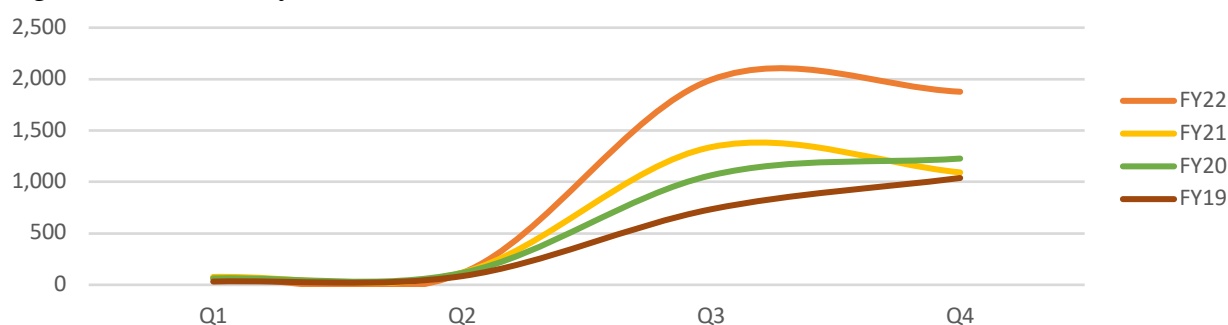
We expect demand for flu vaccines to trend back to pre-covid levels starting in FY23, as the demand for this vaccine has been relatively stable in the past and we do not expect a significant impact arising from Covid-19 going forward. We have calculated future revenues for the influenza vaccine between FY23 and FY26 as the continuation of the trend between FY16 and FY19: the average growth rate between FY16 and FY19 was 7.6%, which we have applied for the period FY20-FY26.

$$Revenue_i = Revenue_{i-1} \times (1 + 0.76)$$

Figure 14: Influenza vaccines revenue forecast

Regarding the other vaccines in the segment, most of them experienced a decrease in 2020 due to the lockdown situation but have registered revenue greater than pre-pandemic levels in the last year. Given that the demand for these vaccines in more stable, we forecast the same growth for 2024-26 as in the historical period 2017-19, on average.

Figure 15: Vaccines segment revenue forecast

€ in millions	2017	2018	2019	2020	2021	2022E	2023E	2024E	2025E	2026E
Polio / Pertussis / Hib	1,827	1,749	1,946	2,106	2,159	2,457	2,697	2,959	3,247	3,563
Booster Vaccines	474	470	563	467	488	582	645	715	715	715
Meningitis	623	609	682	559	658	703	722	741	741	741
Influenza Vaccines	1,589	1,708	1,891	2,472	2,628	4,052	2,531	2,722	2,928	3,149
Travel and Other Endemic Vaccines	493	488	539	301	306	561	603	649	698	750
Vaccines	**5,006**	**5,024**	**5,621**	**5,905**	**6,239**	**8,355**	**7,197**	**7,786**	**8,329**	**8,919**

Source: Company Annual Report and own calculations

Consumer Healthcare

The Consumer Healthcare segment is mainly comprised of digestive wellness, personal care, pain care and allergy products. In 2020, most products suffered a decrease in revenues triggered by the lockdown (decrease of 8% in this segment sales). In 2021, the company divested its nutritional subsegment and part of the cough and cold subsegment, which had a negative impact on sales of approximately €1.3B. However, this loss was offset by a growth in digestive wellness and the introduction of allergy, mental and physical wellness, personal care and other business lines. The main driver of growth in the segment is digestive wellness, which has increased at a CAGR of 7.8% in the last 6 years and 20% in FY22. The divesture of under-performing assets and introduction of new products had a positive impact in 2021 and 2022, as can be seen in figure 16. Given the stable demand in this segment and the introduction of new products in 2021, we believe the growth in Consumer Healthcare in 2022 (14%) is a good indicator of the growth that will be experienced going forward, which we have used for the years 2023-2026.

Figure 16: Consumer Healthcare revenue forecast
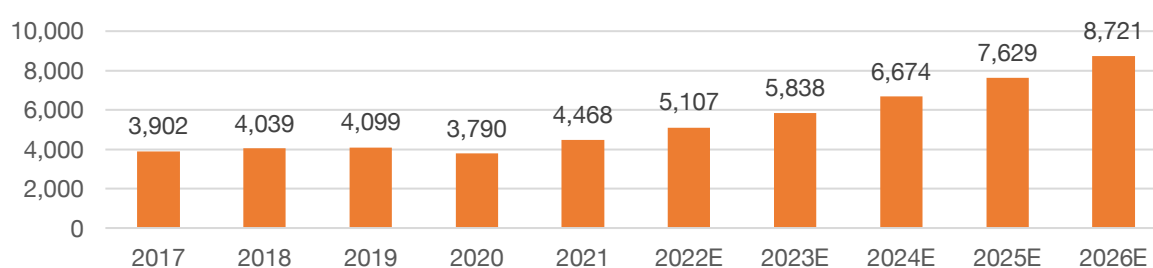
Source: Company Annual Report and own calculations

Pipeline products

Our forecast of revenues for the products in the pipeline, in the event that they were launched in the market, has been based on the potential competitors or most similar existing drugs currently in the market. We followed these steps:

1) Estimation of revenue since its launch until 2026. The date in which they are expected to be launched is given by the company and we took it as the best approximation.
2) Projected revenues have been adjusted by the probability of success of each drug, depending on their therapeutic area. According to a study by the MIT, published in the journal Biostatistics in 2018[7], the estimated probabilities were the following:

Figure 17: Probability of success by therapeutic area:

	P1 to P2	P2 to P3	P3 to Approval	Overall
Oncology	57.6	32.7	35.5	3.4
Metabolic/Endocrinology	76.2	59.7	51.6	19.6
Cardiovascular	73.3	65.7	62.2	25.5
Central Nervous System	73.2	51.9	51.1	15.0
Autoimmune/Inflammation	69.8	45.7	63.7	15.1
Genitourinary	68.7	57.1	66.5	21.6
Infectious Disease	70.1	58.3	75.3	25.2
Ophthalmology	87.1	60.7	74.9	32.6
Vaccines (Infectious Disease)	76.8	58.2	85.4	33.4
Overall	66.4	48.6	59.0	13.8
Overall (Excluding Oncology)	73.0	55.7	63.6	20.9

Source: Chi Heem Wong, Kien Wei Siah, Andrew W Lo. "Estimation of clinical trial success rates and related parameters." *Biostatistics* 20(2): April 2019, Pages 273-286. Published online: 31 January 2018. DOI: 10.1093/biostatistics/kxx069

The rare disease probability of success (60.4%) was obtained from a study by the Biotechnology Innovation Organization; Pharma Intelligence and QLS Advisors[8], and the data can be accessed in Statista.

3) Drugs in phase I or II have not been considered as they would take, on average, more than 5 years to reach approval (this goes beyond our 4-year forecast).

Details on estimated revenues for each product are included in the appendix section. A summary of the forecasted revenues is shown below.

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[7]Chi Heem Wong, Kien Wei Siah, Andrew W Lo. "Estimation of clinical trial success rates and related parameters." Biostatistics 20(2): April 2019, Pages 273-286. Published online: 31 January 2018. DOI: 10.1093/biostatistics/kxx069
[8] Statista- Biotechnology Innovation Organization; Pharma Intelligence; QLS Advisors
https://www.statista.com/statistics/597822/drug-development-phases-probability-of-success-rare-high-prevalence-disease-drugs/

Figure 18: Pipeline products revenue forecast

Product	Phase	Area	Launch	Probability of success	Revenue weighted by probability			
					2023E	2024E	2025E	2026E
Libtayo	Review	Oncology	2023	100%	88	88	88	88
Altuviiio	Review	Rare blood disorders	2023	100%	147	295	442	589
Beyfortus	Review	Vaccines	2023	100%	205	410	307	410
Vidprevtyn	Review	Vaccines	2023	100%	4	4	4	4
Dupixent	3	Immunology	between 2022-2025+	63.70%	1,975	3,749	4,539	5,454
Sarclisa	3	Oncology	between 2024-2025+	35.50%	0	0	15	62
Tolebrutinib	3	Neurology	between 2024-2025+	25.55%	0	96	20	4
Venglustat	3	Rare diseases	between 2024-2025+	60.40%	0	1,267	1,386	1,517
Fitusiran	3	Rare blood disorders	between 2024-2025+	60.40%	0	89	178	267
Rilzabrutinib	3	Rare blood disorders	2024	60.40%	0	34	68	99
Total					**2,419**	**6,031**	**7,047**	**8,494**

Source: Company Annual Report and own calculations

Total revenue forecast summary

Figure 19: Revenue forecast summary

| € in millions	2018	2019	2020	2021	2022E	2023E	2024E	2025E	2026E
Pharmaceuticals	24,685	25,708	25,674	26,970	29,892	30,066	31,410	33,740	36,999
Vaccines	5,118	5,731	5,973	6,323	8,355	7,197	7,786	8,329	8,919
Consumer Healthcare	4,660	4,687	4,394	4,468	5,107	5,838	6,674	7,629	8,721
Pipeline						2,419	6,031	7,047	8,494
Total revenue	**34,463**	**36,126**	**36,041**	**37,761**	**43,354**	**45,521**	**51,901**	**56,745**	**63,133**

Source: Company Report and own calculations

Costs

In the first 9 months of 2022, the gross margin has been impacted by the positive currency effect and the improvement of Pharmaceuticals and Vaccines gross margin ratio.

As previously mentioned, pharmaceutical segment revenues account for more than 65% of the whole. The movement in the gross profit margin is mainly due to the impact of this segment. In 2021, the gross margin from pharmaceutical increased by 2 p.p. due to the increased weighting of specialty care in the sales mix and the productivity gain, which led to an increase of 1.2 pp in the total gross margin. In 2020 the positive trend in the gross margin for pharmaceutical segment was interrupted by the impact of adverse price effect in the US for diabetes drug, leading to a decreased of 1pp. The effect of the Pharmaceutical segment is followed by Vaccines and CHC segments, leading to a positive trend of Gross margin over time.

Figure 20: Gross Profit Margin for each segment
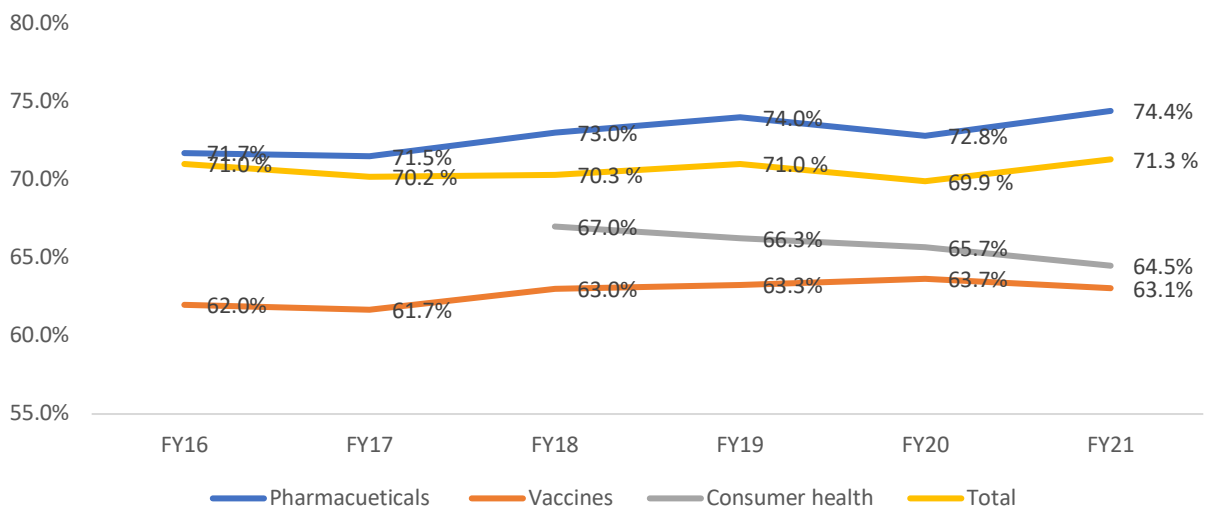
Source: Own calculations

For 2023, onward we assumed that the gross margin remains stable in each segment. Based on that stability and our forecast for revenue we calculated the future cost in each business, we then summed all the costs, and we calculated the future gross profit and gross profit margin. As a result, for 2023 going forward we expect a decrease in the gross profit margin due to the higher cost in pharmaceuticals that expect to launch new products.

Figure 21: Gross Profit over revenue
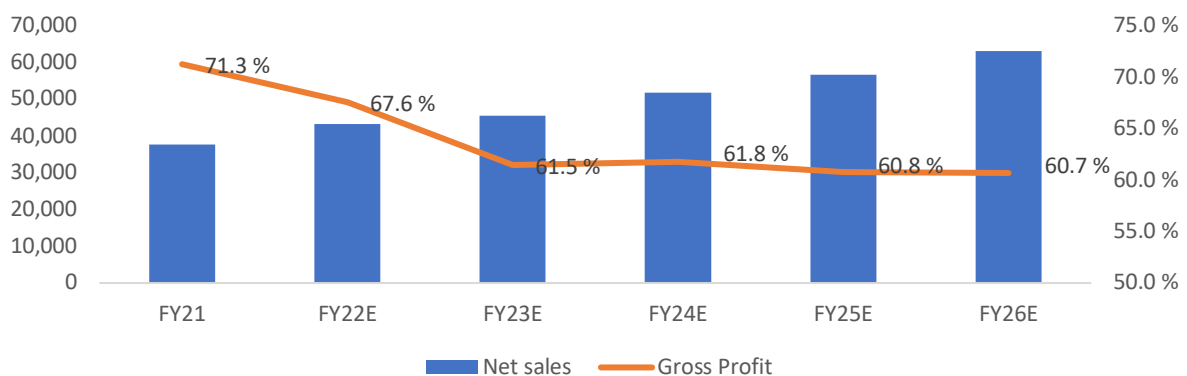
Source: Company Report and own calculations

Pipeline COGS

The forecasted revenues would also mean an increase in COGS. Given that we have a forecast of the pipeline by segment, we have assumed that the gross margin in each segment will remain constant in the next four years, which we have used to derive COGS associated with the pipeline.

Figure 22:

COGS in € millions	FY23	FY24	FY25	FY26
Pharmaceuticals	617	1,567	1,879	2,254
% of pipeline sales	*28%*	*28%*	*28%*	*28%*
Vaccines	93	183	138	183
% of pipeline sales	*44%*	*44%*	*44%*	*44%*
Total	**709**	**1,750**	**2,017**	**2,438**
% of pipeline sales	*29%*	*29%*	*29%*	*29%*

R&D

The R&D over sales ratio has ranged around 15.8% and 16.8% in the last 5 years, except for 2018 when was around 17.1% due to the acquisition of Bioverativ and Ablynx, and the higher spending in immune oncology and diabetes programs in the pharmaceutical segment. In 2021, R&D levels remained constant while revenue increased, decreasing the ratio of R&D over sales. For 2022 we expect that the ratio will reach previous levels due to an increase in the Pharmaceutical and Vaccines R&D expenditure.

The stability in the R&D expenditure over the years is attributable to active management of the portfolio and close cost control and has been achieved despite a greater proportion of products being in late stage. In our forecast for 2023-26, we take the average of the historical ratio (15.9%), which seems reasonable considering that it aligns with historical precedence and the increased R&D activity expected going forward.

Figure 23: R&D and R&D ratio
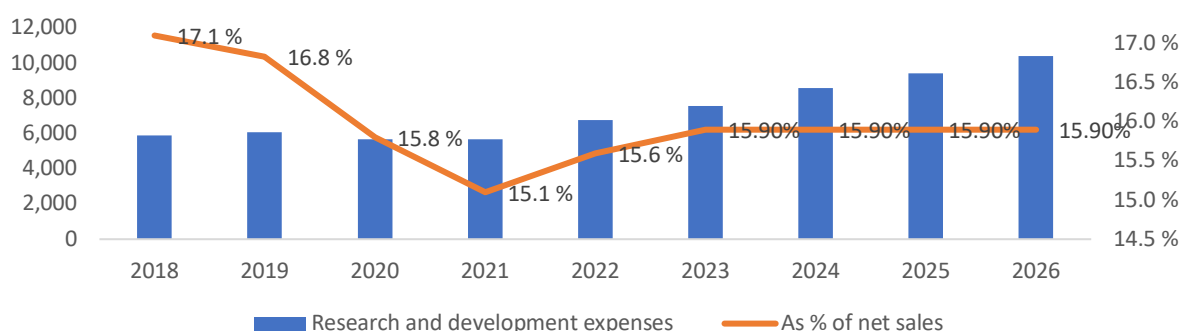
Source: Company Annual Reports and own calculations

SG&A

S&G costs mainly comprises marketing costs. It amounted to €9,555 million in 2021 compared with €9,391 million in 2020, representing a slight increase of 1.7% in line with increased promotional spend in Specialty Care. In 2022, we expect an increase in the marketing expense to €10.7bln due to the launch of Rezurbock and Nexviazyme (General Medicines business). The reduction in the ratio for 2 years in a row of selling and general expenses to net sales was due to close control over general expenses, and operational excellence. For the period going forward we expect that the ratio will reach 27.4% which is the average of the last 4 years.

Figure 24: SG&A and its ratio
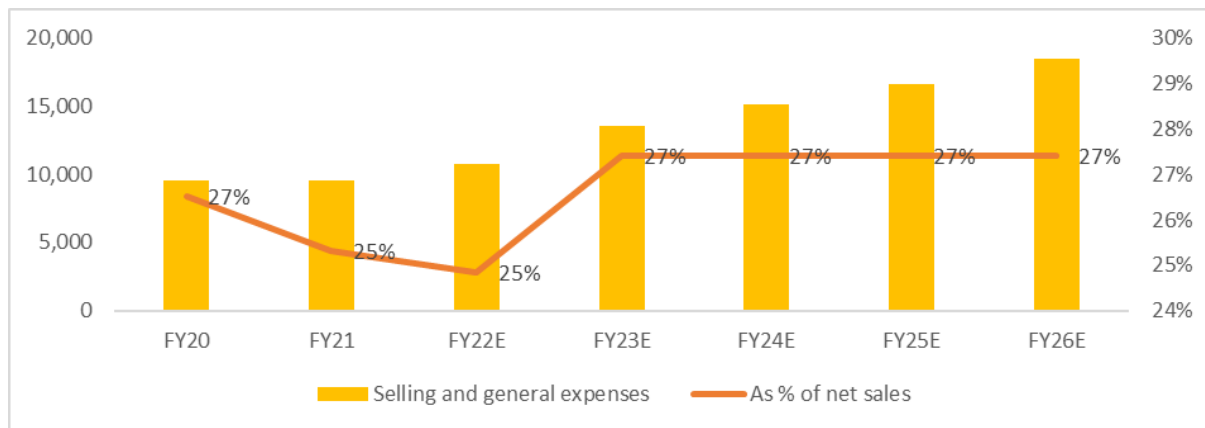
Valuation of the company

The full forecast of the P&L for Sanofi is shown below.

Figure 25: P&L forecast

€ in millions	2021	2022E	2023E	2024E	2025E	2026E
Net sales	**37,761**	**43,354**	**45,521**	**51,901**	**56,745**	**63,133**
Other revenues	1,414	2,429	2,056	2,051	2,440	2,297
Cost of Sales	(12,255)	(14,065)	(16,283)	(18,578)	(20,780)	(23,439)
As % of net sales	*(32.5)%*	*(30.7)%*	*(34.2)%*	*(34.4)%*	*(35.1)%*	*(35.8)%*
Gross Profit	**26,920**	**29,289**	**29,238**	**33,323**	**35,965**	**39,694**
As % of net sales	*71.3 %*	*67.6 %*	*61.5 %*	*61.8 %*	*60.8 %*	*60.7 %*
Research and development expenses	(5,692)	(6,773)	(7,566)	(8,580)	(9,412)	(10,405)
As % of net sales	*(15.1)%*	*(15.6)%*	*(15.9)%*	*(15.9)%*	*(15.9)%*	*(15.9)%*
Selling and general expenses	(9,555)	(10,774)	(13,046)	(14,794)	(16,229)	(17,942)
As % of net sales	*(25.3)%*	*(24.9)%*	*(27.4)%*	*(27.4)%*	*(27.4)%*	*(27.4)%*
Other current operating income/expenses	(946)	(1,564)	(1,713)	(1,942)	(2,131)	(2,355)
Other as a % of net sales	*(2.5)%*	*(3.6)%*	*(3.6)%*	*(3.6)%*	*(3.6)%*	*(3.6)%*
EBITDA	**10,714**	**13,269**	**10,054**	**11,198**	**11,436**	**12,286**
As % of net sales	*28.4 %*	*30.6 %*	*22.1 %*	*21.6 %*	*20.2 %*	*19.5 %*
D&A	(1,772)	(3,092)	(3,141)	(3,191)	(3,243)	(3,294)
As % of net sales	*(4.7)%*	*(6.8)%*	*(6.6)%*	*(5.9)%*	*(5.5)%*	*(5.0)%*
EBIT	**8,942**	**10,178**	**6,913**	**8,006**	**8,193**	**8,991**
Interest expense	(328)	(715)	(823)	(910)	(998)	(985)
Earnings before taxes	**8,614**	**9,463**	**6,090**	**7,097**	**7,195**	**8,006**
Tax expense	(1,558)	(1,940)	(1,248)	(1,455)	(1,475)	(1,641)
Tax rate (%)	*(18.1)%*	*(20.5)%*	*(20.5)%*	*(20.5)%*	*(20.5)%*	*(20.5)%*

Source: Sanofi financial statements and own calculations

Debt

The debt levels of the company have been decreasing in the last two years mainly due to the redemption of bonds. In 2021, a €2mln bond was redeemed. The aging of the bonds issued by the company is as follows:

€ in millions	2022	2023	2024	2025	+2026
Amount expiring	2700	3000	600	1750	10260

We are assuming the €2,700mln will be repaid in 2022, and that, after that, the company will issue consecutive bonds which will offset the repayments of the debt and will bring back the debt level to previous historical levels (around €25,000mln).

Figure 26: Sanofi debt forecast
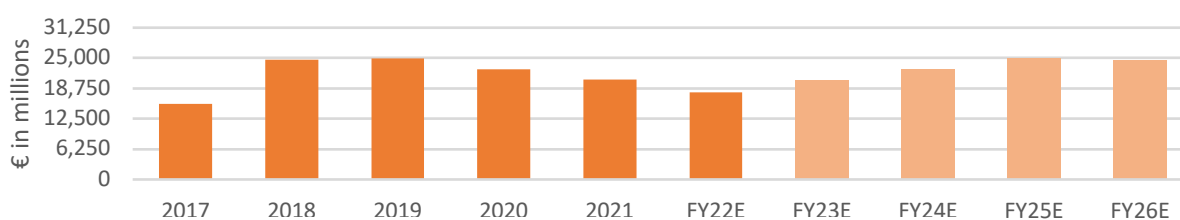
Source: Sanofi financial statements and own calculations

Given that the Sanofi's D/E ratio has not been stable in the last years (shown below), we have used APV method to value the company.

Figure 27: Sanofi D/E ratio

Source: Sanofi financial statements and own calculations

FCFF forecast

Following the APV method, we have started with a valuation of the company if it were unlevered. The estimation of investments in working capital has been based on the average WC ratios for the last 3 years of historical data (DSO, DPO, DIO).
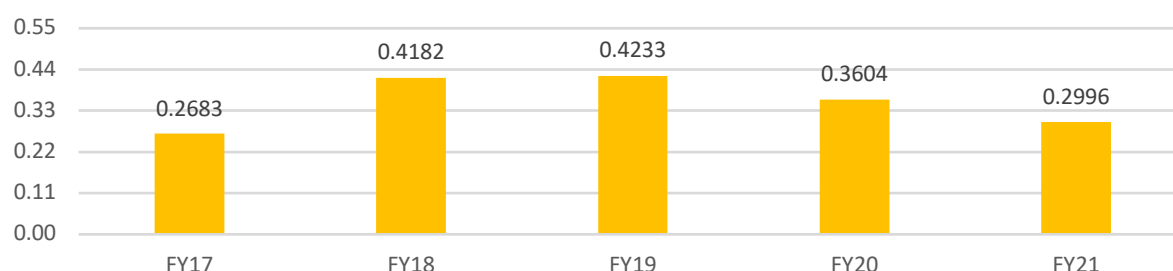Regarding Capex, it has not significantly increased in the last 5 years, when it grew at a CAGR of 1.6%. We have assumed the same growth in the period FY22-FY26. We have tied D&A growth to capex growth, as capex would increase the depreciable base of assets.

The effective tax rate was 20.0% in 2021 and 20.5% in the first 9 months of FY22. We have assumed the latter for our forecasted period.

Figure 28: Estimated FCFF 2022-2026

€ in millions	2021	2022E	2023E	2024E	2025E	2026E
EBITDA	10,714	13,269	10,055	11,200	11,437	12,288
After tax EBITDA @20.5%	8,776	10,549	7,994	8,904	9,093	9,769
D&A tax shield	320	634	644	654	665	675
FCInv	(1,479)	(1,503)	(1,527)	(1,551)	(1,576)	(1,601)
WCInv	445	(1,989)	(932)	(1,828)	(1,487)	(1,909)
FCFF	**8,063**	**7,692**	**6,179**	**6,179**	**6,694**	**6,934**

Source: Sanofi financial statements and own calculations

Cost of equity

To estimate the cost of equity, we first calculated the rolling beta of Sanofi using a monthly return for Sanofi versus the Russel 3000 for the same period. As it shows in the graph the rolling beta is too volatile to be a good approximation of the sensitivity of the company to the market. For that reason, we prefer to use the industry beta of 0.71, previously estimated in the industry report.

Figure 27: Sanofi Rolling beta
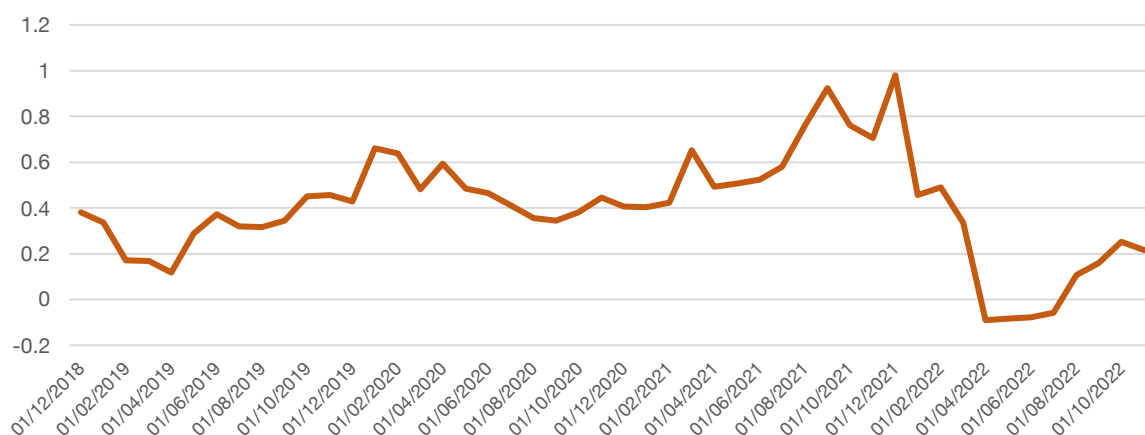
Source: Bloomberg and own calculations

Because the company has the same level of Debt to Equity of the industry, we unleveled the beta given the latest available D/E ratio of the company (0.3) and obtained 0.57. We used 3.89% as the risk-free rate based on the current 1-year US Treasury Securities yield[9].
For the Equity Market Risk Premium, we use 5.7%[10] which is the average market risk premium in the United States. The resulting cost of equity is 6.9%.

Figure 29: CAPM inputs

CAPM inputs	
Beta	0.71
unlevered beta	0.57
Rf	3.89%
EMRP	5.7%
CAPM	**7.2%**

We used a long-term growth rate of 2%. **Given the inputs above, we arrived at unlevered company value of €124,696.97mln.**

Tax shield

The discounted tax shield has been calculated based on the estimated debt levels a mentioned previously in the report. The interest expense over total debt ratio has been relatively stable in the past, between 1.1% and 1.8% in the last 5 years. However, for the period FY22-FY26,

considering the current higher interest rates, we have assumed a 4% as a cost of capital, which corresponds to the T-Bill yield.

The present value of the tax shield has been estimated to be €969.6mln.

Figure 29: Tax shield

€ in millions	2021	2022E	2023E	2024E	2025E	2026E
Borrowings	20,575	17,875	20,575	22,744	24,946	24,622
Interest/Debt	1.6%	4.0%	4.0%	4.0%	4.0%	4.0%
Tax shield @20.5%	76.1	172.8	150.2	172.8	191.0	209.5
Discounted tax shields		172.8	156.4	187.5	215.9	236.8
PV of tax shield		969.6				

Source: Own calculations

Conclusion

Based on our analysis, the current company value is €125,666.53mln, 9.44% above current market capitalization. Our recommendation for Sanofi is a **BUY**.

We believe that the market is expecting a lower level of revenue from Dupixent, following the company's expectations of €13B in 2023. The market could have believed this forecast and expect a slight decrease in growth going forward. Assuming this is the correct forecast for 2023, and applying a lower growth rate going forward (10% per year) the market would be expecting total company revenue of €17B in 2026, while our forecast gives €20B.

This, added to higher R&D expenses expectations could lead to the current market value. We projected R&D over sales using the last 5 years' average ratio. In the last two years the ratio decreased to 15% but it always ranged between 16.5% and 17.1%. The market could be expecting that the ratio will go back up to this level, increasing the expenses. With this adjustments on our work, the upside in the valuation is 1.63%.

On the other hand, the market could be using a different discount factor. By using a 4.3% SOFR (overnight financing US) as the risk free rate to compute the cost of equity and discount the FCF, instead of the 1 month T-Bill, all other things equal, we arrive at an upside of only 1.47%.

Value of firm	€125,666.53
Current Market capitalization	€114,830.00
Premium/discount	9.44%

Source: Own calculations and Capital IQ

Appendix

Pipeline revenue forecast explanation:

1. **Libtayo**®: this drug was approved by the European Commission in 2021 for the treatment of patients with advanced non-small cell lung cancer. Libtayo is currently being investigated in combination with either conventional or novel therapeutic approaches for other solid tumors and blood cancers (Sanofi press release, June 2021)[11]. It is currently under review for the treatment of lung cancer. We forecast this product to double FY22 sales (€88m x2= €176m, which means €88m from the pipeline) in FY23, and remain at the same level after that, as sales for this product have not increased in the last two years.

2. **Altuviiio**: this drug is used for the treatment of Hemophilia A, currently under review to be launched in the following months. We have used the revenues from another drug by Sanofi, Eloctate, to forecast revenues for this product. Eloctate registered €589m sales in FY22. We expect Altuviiio to register the same level of growth in a period of 3 years, with a linear growth.

3. **Beyfortus:** AstraZeneca and Sanofi's Beyfortus has been approved in the EU for the prevention of respiratory syncytial virus (RSV) lower respiratory tract disease in newborns and infants during their first RSV season. Beyfortus is the first single-dose RSV passive immunization for the broad infant population (AstraZeneca press release Nov 2022)[12]. There is currently no RSV vaccine in the market, although Pfizer is developing a RSV maternal vaccine that is currently in phase 3 (Pfizer press release Nov 2022)[13].

   We have assumed similar revenues for this vaccine as Sanofi's vaccine against Pertussis (whooping cough), as both target the same demographics and type of sickness. We expect an average of 4 years until they reach the same level of sales. On the other hand, assuming that Pfizer could launch its vaccine in two years time, we have reduced 2024 and 2025 forecast revenues by half.

4. **Vidprevtyn**: vaccine for the prevention of Covid-19, approved in Europe in November and ready to be supplied by Sanofi in the following months. To estimate the potential revenues that a new Covid-19 vaccine could uptake in the EU market, we first looked at the current market share of each player:
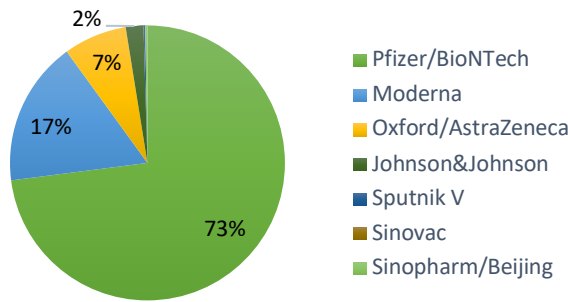
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[11] Sanofi press release 21 June 2021: junehttps://www.sanofi.com/en/media-room/press-releases/2021/2021-06-25-05-00-00-2252992
[12] AstraZeneca press release 4 November 2022: https://www.astrazeneca.com/media-centre/press-releases/2022/beyfortus-approved-in-the-eu-for-the-prevention-of-rsv-lower-respiratory-tract-disease-in-infants.html
[13] Pfizer press release 1 November 2022: https://www.pfizer.com/news/press-release/press-release-detail/pfizer-announces-positive-top-line-data-phase-3-global

Figure 30: Covid-19 vaccines EU market share

We do not believe a new vaccine in the market can absorb the market share of the big players (Pfizer, AstraZeneca, Moderna or J&J), but it could absorb the secondary players market share, which adds up to 0.5%. Therefore, the impact of this launch in revenues will not be very significant. In order to forecast demand, we looked at the cumulative doses administered in the EU, shown below.

Figure 31: Cumulative Covid-19 doses administered in the EU, by manufacturer
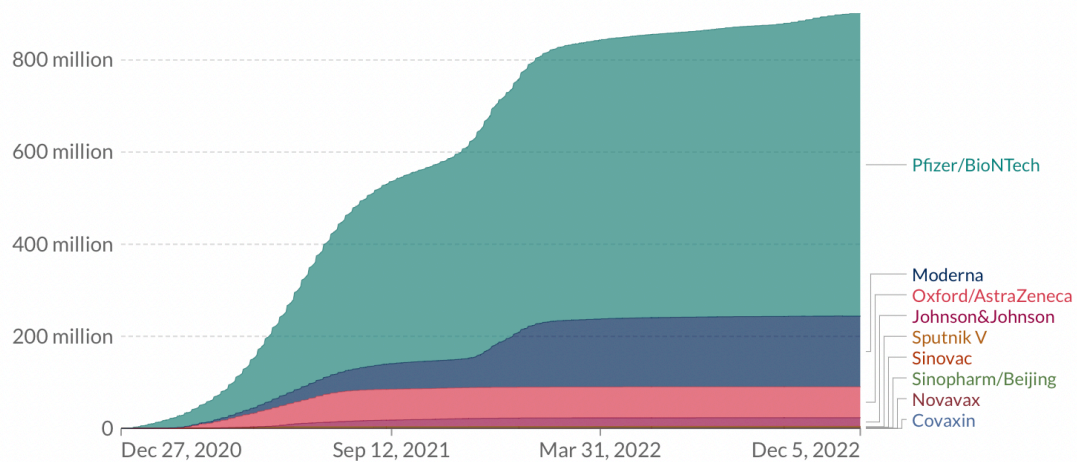
Source: Public health data for different countries[14][15]

The growth in the last six months has stabilized to an average of +0.02% new doses daily. We have used this number to forecast future daily demand. As the selling price of Sanofi's vaccine is not available, we have taken the average of Pfizer, AstraZeneca, Moderna and J&J prices of their Covid-19 vaccines. Our revenue forecast is:

$$Forecast \# of\, vaccines \times estimated\, market\, share \times selling\, price$$

We have assumed a stable demand of vaccines in FY24 onwards, equal to FY23 numbers, as well as the same market share and selling price. A summary is shown below.

Public health data for different countries[14] see: https://github.com/owid/covid-19-data/blob/master/public/data/vaccinations/locations-manufacturer.csv

[15] Chart from Our World in data: https://ourworldindata.org/grapher/covid-vaccine-doses-by-manufacturer

Figure 32: Vaccine against Covid-19 revenue forecast

	FY23E	FY24E	FY25E	FY26E
# of vaccines (A)	73,326,733	73,326,733	73,326,733	73,326,733
Market share (B)	0.5%	0.5%	0.5%	0.5%
# of vaccines by Sanofi (C=A*B)	363,310.93	363,310.93	363,310.93	363,310.93
Selling price (D)	11.19	11.19	11.19	11.19
Revenue (€) (C*D)	**4,065,449.28**	**4,065,449.28**	**4,065,449.28**	**4,065,449.28**

5. **Dupixent**: As explained in the revenue section, this product is growing exponentially, however, we expect it to grow at a lower rate each year, until it reaches the average growth in the segment (12.9%, excluding Dupixent) in 3 years (FY25). Most of the growth in this product is due to the approval of the drug for different treatments, as the company gets a new approval by the FDA nearly every year. We are assuming that growth above the average total growth of revenues in the company (8%) is due to pipeline approvals, and therefore we consider it revenue derived from the pipeline. For example, expected total growth for the product in FY23 is 49%, then:

$$Dupixent\,pipeline\,revenue_{FY23} = Dupixent\,revenue_{FY22} \times (1.49 - 1.08)$$

Our forecast has been reduced by the probability of success in this area.

6. **Sarclisa**: The product was launched in 2020. The company expects the drug to be approved for different applications of multiple myeloma in 2024 and 2025. Due to the new approvals, we expect an increase in Sarclisa sales equal to the numbers initially registered by the product, when it was first launched.

7. **Tolebrutinib:** this is a drug under investigation for relapsing remitting progressive multiple sclerosis (MS)[16]. Patient enrolment for the trials of this drugs were paused in June 2022 by the FDA, due to a limited number of cases of drug-induced liver injury that have been identified with Tolebrutinib exposure in Phase 3 studies (Sanofi press release, June 2022)[17]. For this reason, we have reduced the probability of success of this drug by half, to 25.5%. We have taken Lemtrada, another drug by Sanofi to treat MS, as a reference for our revenue forecast. This drug was recommended a restricted use in 2019 due to fatal side effects[18], which caused a decrease in revenues after that. Therefore, we have taken 2018 revenues as a reference (€375mln). We forecast €375mln sales in the first year of its launch, weighted by the success probability (25.5%), and a decrease of 17% YoY due to the high competition in the MS market (same decrease as Lemtrada was experiencing in the year 2017-2018).

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[16] Multiple sclerosis trust: https://mstrust.org.uk/a-z/tolebrutinib
[17] Sanofi press release, June 30, 2022: https://www.sanofi.com/en/media-room/press-releases/2022/2022-06-30-05-30-00-2471767
[18] Multiple sclerosis trust: https://mstrust.org.uk/news/european-drug-regulator-recommends-restricted-use-lemtrada

8. **Venglustat** is a drug to treat rare diseases, more specifically Gangliosidosis, Fabry and Gaucher diseases. We have looked at current revenues of Myozyme, a drug by Sanofi to treat another rare disease, Pompe disease. To forecast revenues by Venglustat, we have compared the incidence of each rare disease:

Figure 33: rare disease incidence

Rare disease	Incidence
Pompe disease	1:40000
Gangliosidosis	1:200000
Fabry	1:40000
Gaucher disease	1:40000

Given that the incidence of the last three is 2.2x the incidence of Pompe disease, our forecast for the first-year revenues are 2.2x current Myozyme revenues (€953mln), multiplied by the probability of success. Going forward, we have assumed the same growth as the CAGR in the segment for the last 7 years, 9.4%

9. **Fitusiran:** this is a drug to treat hemophilia A and B, that has proved to reduce bleedings by 61% in people with this disease[19]. Our forecast of revenues is based on the same drug as Altuviiio, with potential revenues starting in 2024.

10. **Rilzabrutinib:** drug to treat Immune Thrombocytopenia. It is expected to be launched by 2024. Our forecasted revenue has been based on the closest drug by Sanofi in terms of target illness, Cablivi. We assumed the same revenue and growth as Cablivi since its launch in 2019, weighted by the probability of success.

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[19] Sanofi press release July 10, 2022

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