HORIZON

MFIF
Minutemen Fixed Income Fund

Horizon Therapeutics

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Investment Thesis

We recommend an overweight position of Horizon Therapeutics 2026 term loan B. Horizon Therapeutics (HZNP) is an American biopharmaceutical company focused on researching, developing, and commercializing medicines that addresses critical needs for people impacted by rare and rheumatic diseases. Currently Horizon markets primarily in the United States which represented 99% of sales in FY2020, however management has shown plans to expand globally in coming quarters. HZNP net sales FY2020 were $2.2bn and going into 4Q2021 guidance shows $3.21bn in net sales and $1.345bn in EBITDA by YE2021, a respective 45% and 33% increase y/y. HZNP operates in two major segments, its orphan segment, and its inflammation segment. HZNP's orphan segment consists of drugs that combat rare diseases and is driven by its two leading drugs Tepezza and Krystexxa, which made up $820mm and $405mm in revenue FY2020 respectively. HZNP currently has about $2.4bn in long term debt and has a debt/EBITDA ratio of 2.48x. HZNP's credit profile is already in a good position hence why we believe it is unjustified for them to be trading wider than most comps, especially due to the fact the company has seen 50%+ growth y/y in multiple key revenue drivers. We believe HZNP is still set to further improve its credit profile and that the company is being undervalued by the market. Our recommendations fall on the beliefs that HZNP's strategy on investing and maximizing value/future returns for key revenue drivers will prove crucial in long term. Also, HZNP's recent acquisition of Viela Bio will bring diversity to its pipeline and an approved product, UPLINZA which will provide strong potential growth in a new market. Lastly, we believe, HZNP's emphasis to expand globally and raise disease awareness will allow them to capture large shares of untapped markets. **We expect the spread on HZNP's 2026 term loan b to tighten 50-75bps by YE2023, with continued tightening as the loan amortizes.**

Figure 1: Capitalization Table

Horizon Therapeutics Capitalization Table (HZNP)						
LTM Adj. EBITDA	1,077.0				**Debt/EV**	10%
Outstanding Debt and Leverage Metrics						
Type of Debt	**Rate**	**Maturity**	**Debt Outstanding**	**xEbitda**	**Price**	**YTW**
Term Loan Facililty due 2028	1ML + 200	03/15/28	1,592		99.875	3.27%
Term Loan Facililty due 2026	1ML + 225	05/22/26	418		99.85	3.37%
1st Lien Debt			**2,010**	**1.9x**		
Senior Secured Notes						
2027 Notes	5.50%	08/01/27	600		104.84	4.05%
Total Secured Notes			**600**	**0.6x**		
Total Debt			**2,610**	**2.4x**		
Market Captialization			24,920			
Less: Cash			1,069			
Enterprise Value			26,461	**24.6x**		

Source: Company Filings, MFIF Analysis, Bloomberg

Security Data

TL Maturity: 05/22/2026
Rating: B+
Rank: 1st Lien
Price: 97.75
Yield W/ CRV: 3.37%
DM: 230.98
Coupon: 1M L+ 225

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Industry Overview

The United States is the largest market for biopharmaceuticals accounting for about 33% of the overall market. The US is the world leader in biopharmaceutical research and development as well. This is rapidly growing industry at technology and research continues to advance and is expected to grow at a 7.32% CAGR overall in the forecast period 2021-2026. Covid-19 took this industry by storm in the past two years. HZNP however didn't see any drastic headwinds from the pandemic as its main space of operations, rare diseases, saw exponential growth through 2020.

Investment Rationale and Catalysts

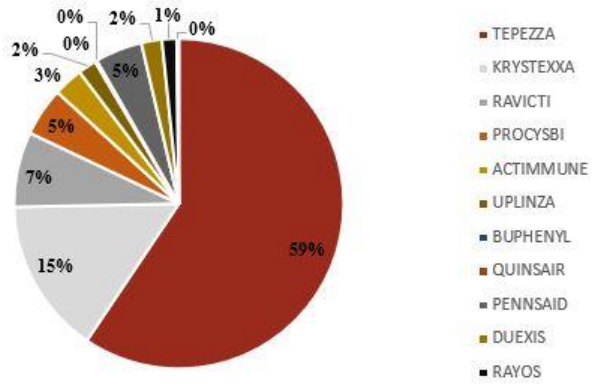
HZNP's strategy on investing and maximizing value/future returns for key revenue drivers will prove crucial in long term

Following 3Q2021 earnings HZNP's saw record revenue growth in its main revenue drivers Tepezza and Krystexxa. Both drugs operate in the rare disease space which often faces little competition in the industry due to the niche consumer base. Tepezza is the first and only medicine approved to combat Thyroid Eye Disease (TED). Tepezza made up 37% of HZNP total revenue FY2020 and we expect this percentage to grow by YE2021. Tepezza captured $616.4mm in revenue during Q3 and pushed its guidance to >$1.625bn FY2021, representing y/y growth of 98%. Krystexxa, the only medicine approved for uncontrolled gout, also saw record net sales in 3Q21 with $158.1mm in net sales pushing guidance FY2021 to $550mm, representing y/y growth of 35%. We believe these trends are here to say and that HZNP through strategic moves will be able to maximize net sales in the coming years. HZNP has emphasized creating new formulations in its pipeline for Tepezza and Krystexxa to allow them to broaden its disease base. These products will be able to drive revenues and help achieve under 2.0x debt/Ebitda ratio by YE2022. We believe Tepezza and Krystexxa will be able to surpass its projected peak sales of $3.8bn and $1bn for numerous reasons.

Reasoning for Tepezza

Tepezza was just recently approved by the FDA in January 2020. It is currently the only medicine on the market that combats Thyroid Eye Disease (TED), and there is no bio-similar from competitors in sight. The drug blocks IGF-1R and turns off signaling complex at the source of the disease. The lack of competition will give HZNP the opportunity to maximize the drug's potential and capture as many patients as possible. Currently there is an estimated 15k-20k annual patient incidence of acute TED in the US. This is a growing market as more research/development is focused on the disease we will see more awareness brought to it. The TED market is expected to grow at 8.4% CAGR through YE2026. Tepezza in its first year was able to capture an estimated ~$1.625bn in revenue and had 36% growth between 2Q21 and 3Q21. Recently data from a trial supported Tepezza to be used in the chronic form of TED as well which has a market in the US of >70k patients, and that this is another $1bn+ opportunity for Tepezza. Using our base case we projected that HZNP currently has ~7k acute patients and that this segment will grow at a rate of ~5% y/y resulting in

Figure 2: Revenue by Product



Source: Company Filings, MFIF. Analysis

Figure 3: Tepezza Breakdown

Tepezza	
Approval Date:	FDA Approved in January 2020
Acute Patient #	15-20k
Chronic Patient #	>70k (only 5% of chroninc patients use Tepezza)
(TED)	Rare, serious, progressive and vision threatening autoimmune disease
How Tepezza Works	Blocks IGF-1R and turns off signaling complex at the source of the disease
Treatment timeline	1 Infusion every 3 weeks for 5 months
Biosimilar	N/A
Doses#	8 Total Doses
Total Cost:	**$340,000-$646,000**

Figure 4: Tepezza Peak Sales Sensitivity Analysis

	Tepzza Net Sales Analysis (Patients to avg. drug cost)				
Patients #	$ 120,000	$ 170,000	$ 220,000	$ 270,000	$ 320,000
10,000	1,200,000,000	1,700,000,000	2,200,000,000	2,700,000,000	3,200,000,000
15,000	1,800,000,000	2,550,000,000	3,300,000,000	4,050,000,000	4,800,000,000
20,000	2,400,000,000	3,400,000,000	4,400,000,000	5,400,000,000	6,400,000,000
25,000	3,000,000,000	4,250,000,000	5,500,000,000	6,750,000,000	8,000,000,000
30,000	3,600,000,000	5,100,000,000	6,600,000,000	8,100,000,000	9,600,000,000

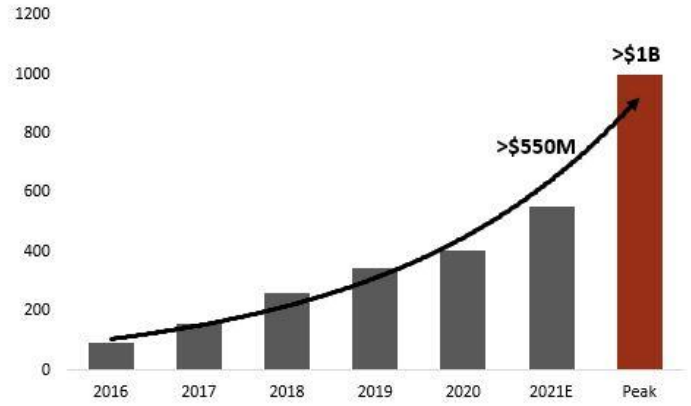
Source: Company Filings

revenues of ~3.8bn by YE23. Only 5% of 3Q21 was derived from chronic patients which would be about ~370 patients, however we believe this trend to change drastically in the coming quarters and that this segment has the potential to grow at around 10% quarter to quarter according to our base case. Results for chronic patients have been very promising in a study 90% of patients with chronic TED saw a 4mm reduction in proptosis, this is well above average for TED treatments and shows the overall efficacy of the drug. We also believe HZNP's plan to expand Tepezza across multiple global geographies to capture more patients is being undervalued by the market. Management has revealed plans to expand into Europe and Japan and we believe this would allow them to tap into a market of another ~52,000 acute patients and ~183,000 chronic patients. We however don't believe to see any results from this expansion by YE2023, due to the infrastructure being built out to support the demand globally. HZNP's strategy will be key in sustaining this growth y/y. Due to these factors we believe HZNP will be able to surpass guided peak sales of $3.8bn, and that the drug has potential to produce over ~$3.0bn by 2023 alone. This will attribute HZNP's TLB tightening closer to competitors and improving its overall credit profile.

Reasoning for Krystexxa

HZNP in recent quarters has been able to transform a 11-year-old biologic into a high growth medicine that we believe has plenty more potential to grow. Krystexxa is currently the only medicine approved for uncontrolled gout. The way Krystexxa works is by converting urate, the source of uric acid crystal into a water-soluble substance. The drug rapidly reveres disease progression. The drug has seen a 345% increase in net sales between 2016 ($91mm) and 2020 ($450mm) and we expect this exponential growth to continue. As of 2020 there is 9.5 million estimated U.S gout patients and this is expected to continue to grow at a low single digit CAGR. >100k of these uncontrolled gout patients are appropriate for Krystexxa use in the U.S, resulting in a capturable potential market size of >$3bn. We believe this market and patient will continue to increase the coming years due to HZNP's efforts to further develop the drug for other uses. Krystexxa strategy has accelerated volume growth in immunomodulation, new and existing rheumatology accounts, and nephrology. In 3Q21 there was >45% increase in use of Krystexxa in immunomodulation use. Management expects for drug sales to peak at approximately ~$1bn. However, we believe according to our base that Krystexxa net sales can exceed ~1.3bn by YE23, growing at a 5% CAGR. There will then be further opportunity globally in coming years afterwards. It is also important to note that HZNP has patents for Krystexxa until 2027, meaning the drug will face little competition until then. These factors are going to further drive the long-term growth of Krystexxa and help HZNP create robust cash flow to further pay down debt.

Figure 5: Krystexxa U.S Annual Net Sales Growth



Source: Bloomberg, MFIF Analysis

Figure 6: Commercial Execution of Revenue Drivers

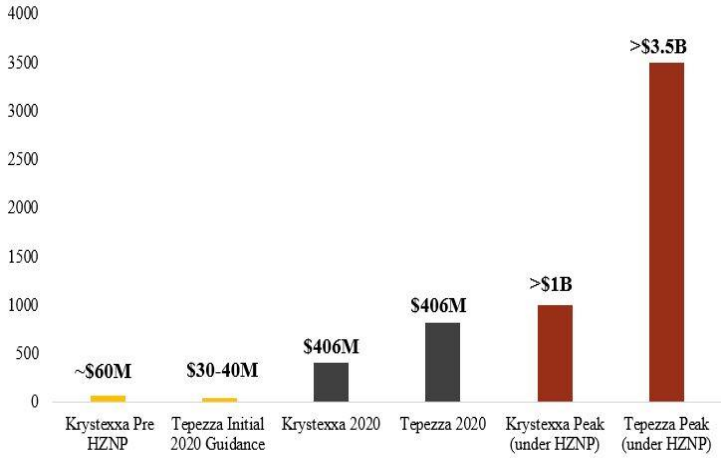
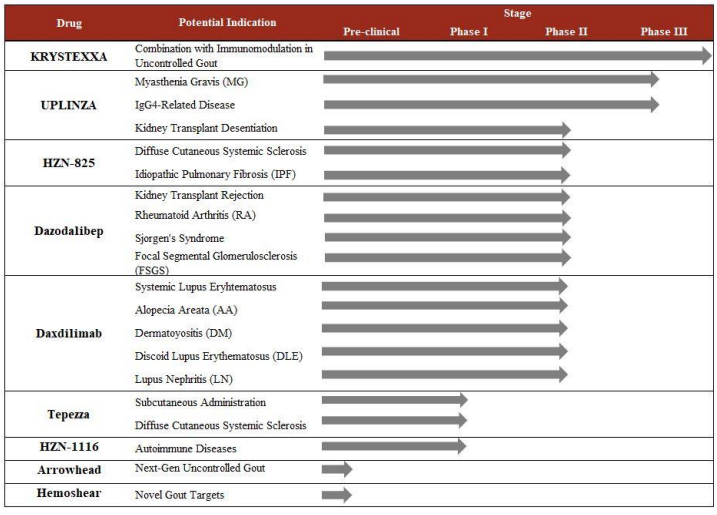


Figure 7: HZNP Pipeline

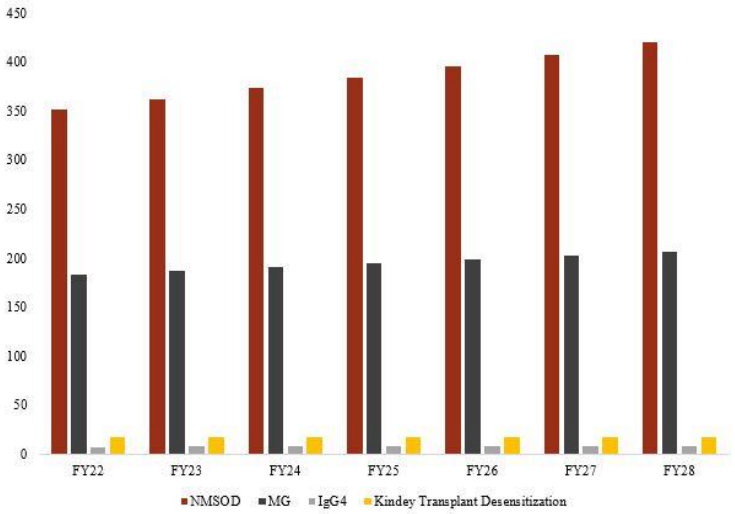


Source: Company Filings, MFIF. Analysis

HZNP's recent acquisition of Viela Bio will bring diversity to its pipeline and an approved product, UPLINZA which will provide strong potential growth in a new market

HZNP acquired biopharmaceutical company Viela Bio in 2Q21 for an all-cash deal of about $3.05bn using $1.3bn in debt to finance this deal brining total debt to around ~$2.4bn. However, we believe this acquisition will provide an opportunity for great future growth in the coming years. We also see Viela Bio to compliment HZNP due to significant overlap in targeted disease areas. At a cost standpoint we believe HZNP got a good price and did not overpay for Viela. Uplinza alone is considered a ~500mm a year product and could be valued at $2bn today (assuming $8-$9 a share). This acquisition brings three additional pipeline candidates to HZNP while also adding already FDA approved Uplinza to its product portfolio. HZNP is set to relaunch its newest promising drug Uplinza in Q42021. Uplinza is the first and only FDA-approved B-cell depleting treatment for Neuromyelitis Optica Spectrum Syndrome (NMOSD), which currently effects over 10k people in the US and has about 400 new diagnoses per year. NMOSD is an autoimmune, inflammatory disease of the central nervous system that attacks the optic nerve, it can also affect the brain and brainstem. This provides HZNP to get into a large uncrowded market and projects net sales for the drug will be ~556mm by YE26. The company is following similar strategies prelaunch as they did for Tepezza and Krystexxa. HZNP plans to market the drug towards patients already on rituximab, which is also a B-cell depleting drug that is often used to treat autoimmune diseases such as non-Hodgkin's lymphoma (NHL). However, the drug has also been used as an off-label remedy for NMSOD and this is the market HZNP plans to target. Patients currently on rituximab is a $6.4bn market and makes up 50% of the market for NMOSD. Commercialization efforts under Viela were mixed and not too strong, but we believe HZNP has shown the ability to quickly bring drugs and lead them to the top of the market. We believe HZNP will be successful in merging into this market and that is has advantages over current competitors. Using conservative projections along with management guidance we believe net sales can reach $668mm by 2028YE. From a dosing perspective Uplinza has advantage over peer Soliris which has bi-weekly dosing that can be burdensome to consumers. Uplinza has also shown high efficacy at 89%, while also only requiring dosing every 6 months. At a payer standpoint rituximab is cheaper, however it has never been approved for NMSOD use and we believe physicians will begin to transition to Uplinza which has been approved by the FDA. Uplinza is also being pursued in three additional indications which also represents a large opportunity for HZNP. Uplinza is in phase 2 trials to treat Myasthenia Gravis (MG), IgG4- Related disease, and kidney transplant desensitization. If approved, we could see high volume and growth for Uplinza across multiple segments. With its term loan B maturing in 2026 we believe that this gives abundant time for Uplinza to grow and exceed current market expectations.

Figure 8: Uplinza Peak Sales Potential (millions)



Source: Company Filings, MFIF. Analysis

HZNP's emphasis to expand globally and raise awareness will allow them to capture large shares of untapped markets

HZNP's management has made it clear through certain acquisitions and infrastructure purchases that it plans on expanding globally, as of 3Q21 between 97-99% of net sales was sourced from the United States. In 2Q21 HZNP purchased a drug product manufacturing facility in Waterford, Ireland at the price of $65mm in cash. HZNP plans to complete the buildout, validation, and regulating approval process by 2023. This adds a much needed 44,000 sq/ft facility that is ready for immediate use. The main emphasis is to bring the three highest potential drugs Tepezza, Uplinza, and Krsystexxa outside of the United States along with a few other of its pipeline biologic medicines. We believe this strategy will be successful due to HNZP's investment into the commercialization and marketing of its drugs. TED is just as prevalent in Europe and Japan as it is in the United States, and we see this move to expand into international territories very key to maximizing revenues of product leaders. Looking at the global expansion in terms of Krystexxa this move allow it to exceed management's initial expectations of $1bn in peak net sales. Europe makes up approximately ~33% of the global uncontrolled gout market, and antihyperuricemic agents (urate lowering drugs), which Krystexxa is, makes ~25% of global market share for treating the disease. The overall global gout therapeutic market is expected to grow at a 15.2% CAGR and is expected to reach $9.8bn by 2026. As of now it seems HZNP is only accounting for Krystexxa potential in the United States, and we believe if strategies are successfully implemented globally Krystexxa will have the opportunity to accumulate >$2bn in net sales for the product. This provides a high growth potential opportunity for Krystexxa and the rest of HZNP's biologic products.

Risks

- Introduction to bio-similar at better price point for either Tepezza or Krystexxa could prove to be detrimental as the two products make up >70% of total revenues.
- Future prospects are highly dependent on ability for HZNP to successfully develop and execute commercialization strategies for each medicine. Failure to do so would adversely impact financial conditions and future growth of affected products.
- HZNP relies on third parties to manufacture commercial supply for most of its medicines. The commercialization of medicines could be stopped/delayed if third party fails to prove sufficient quantities of medicine which would hurt overall profitability.

Relative Valuation

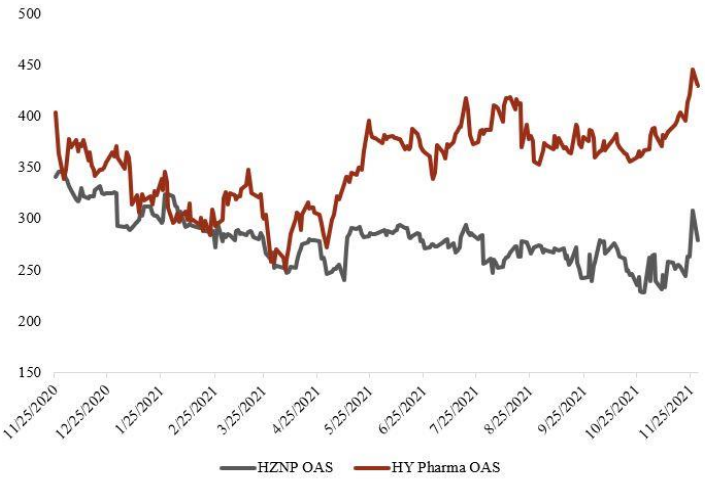
Over the last 4 fiscal quarter HZNP 2026 TLB's has been trading historically wide of both DVA and IQV and we believe this is totally unjustified. HZNP was able to see record revenue growth across multiple segments even through the Covid-19 pandemic. HZNP is currently trading at a discount margin (DM) of 231 bps while DVA and IQV trades about 40 bps tighter at 194 bps and 186 bps. HZNP has the second-best Net Debt/EBITDA ratio among comparable companies leveraged at about ~2.42x, while DVA is levered at 4.9x and IQV at 4.6x. However, it is also important to note that, HZNP would be even significantly less leveraged at Net Debt/EBITDA of 0.93x if they didn't issue ~1.3bn debt for a $3.05bn acquisition of Viela Bio. In 4Q2020 HZNP only had ~$1bn in long term debt. We believe this acquisition favors the long-term potential of HZNP and brings growth/synergies to its biologic segment and approved drug Uplinza into ~$1bn+ opportunities. EBS is the least leveraged among the group but is trading the widest at 267 bps. We believe HZNP is the safest investment among competitors and will continue to improve is credit profile rapidly in the coming quarters. We also believe the segments HZNP offers in gives them a competitive advantage over the rest of the pharmaceutical industry. HNZP operates in the rare disease space where there is lack of competition and biosimilars due to complexity of disease. We believe this will allow HZNP to see top line growth in it's two biggest revenues drivers Tepezza and Krystexxa and help achieve peak sales of >$3.6bn and >$1bn. We see HZNP achieving a FY22 leverage ratio of 2.0x with continued deleveraging as revenue grows.

Figure 9: Comparable Companies Analysis

Comp (in millions)	EBS	DVA	HZNP	IQV
Market Cap	1,987	10,782	24,920	48,653
Debt	879	12,042	2,610	12,495
Cash	404	1,072	1,068	1,574
EV	2,462	23,354	26,524	59,574
LTM Revenue	1,652	11,580	2,957	13,536
LTM Adj. EBITDA	468	2,457	1,077	2,719
Net Debt/Adj. EBITDA	1.88x	4.90x	2.42x	4.60x
LTM FCF	23	1,176	810	2,368
FCF/Debt	0.03x	0.10x	0.31x	0.19x
Individual Securities	**EBS**	**DVA**	**HZNP**	**IQV**
Rating	BB-	B+	B+	BB
TL Maturity	10/13/2023	8/12/2026	5/22/2026	6/11/2025
Price	98.88	99.13	97.75	99.62
Yld w Curv	3.33%	3.07%	3.24%	2.89%
DM	267 bps	194 bps	231 bps	186 bps
Spread Payments	1M L + 200	1M L + 175	1M L + 225	1M L + 175

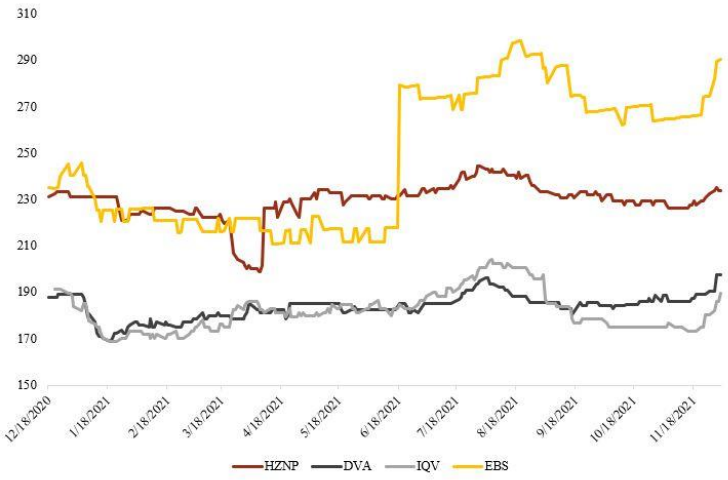
Source: Bloomberg, MFIF Analysis

Figure 10: OAS vs HY Pharma Index (12 Months)



Source: Bloomberg, MFIF Analysis

Figure 11: Comparable Discount Margin



Source: Bloomberg, MFIF Analysis

Summary Model

Horizon Therapeutics NYSE: HZNP	Historical				Projections		
Summary Model (millions)	FY 17	FY 18	FY 19	FY 20	FY 21P	FY 22P	FY 23P
Income Statement:							
Revenues:							
Net Sales	1056	1208	1300	2200	3,077	3,903	4,808
Cost of goods sold	546	422	362	533	812	1,171	1,442
Total Revenue	**510**	**785**	**938**	**1668**	**2,264**	**2,732**	**3,366**
Growth%		14.33%	7.66%	69.26%	39.82%	26.85%	23.20%
Operarting Expenses							
Research and development	225	83	103	209	369	351	433
Selling, general and administrative	677	692	697	973	1,376	1,483	1,827
Total operarting expenses	**902**	**783**	**811**	**1,178**	**1,755**	**1,834**	**2,260**
Other Expenses Net							
Interest expense, net	(127)	(122)	(87)	(60)	(71)	(81)	(81)
Total other expenses	**(121)**	**(122)**	**(147)**	**(88)**	**(69)**	**(77)**	**(77)**
Income (loss) before expense (benefit) for income taxes	**(513)**	**(119)**	**(20)**	**402**	**440**	**821**	**1,029**
Benefit from income taxes	(103)	(45)	(593)	12	(138)	(123)	(154)
Net loss	**(411)**	**(74)**	**573**	**390**	**577**	**944**	**1,183**
Net Income	**(411)**	**(74)**	**573**	**392**	**577**	**948**	**1,187**
Balance Sheet							
Cash and cash equivalents	751	959	1,076	2,080	1,210	1,584	2,156
Total Current Assets	**1,230**	**1,548**	**1,686**	**3,070**	**2,576**	**3,067**	**3,770**
PP&E	20	20	30	189	301	351	377
Developed Technology	2,444	2,121	1,699	1,783	3,143	3,537	3,981
Total Assets	**4,166**	**4,146**	**9**	**6,073**	**8,901**	**9,937**	**11,224**
Total liabilites	**3,175**	**3,092**	**2,251**	**2,047**	**4,233**	**4,321**	**4,420**
Net debt	**1,577**	**1,564**	**1,001**	**1,003**	**2,610**	**2,610**	**2,610**
Statement of Cash Flows							
Cash From Operating Activities	**280**	**195**	**426**	**556**	**652**	**671**	**926**
Capital Expenditures	(4)	(5)	(18)	(170)	(103)	(195)	(240)
Cash from Investing Activities	**(102)**	**28**	**(18)**	**(464)**	**(3,001)**	**(195)**	**(240)**
Cash From Financing Activities	**58**	**(17)**	**(290)**	**906**	**1,489**	**(101)**	**(114)**
Net Change in Cash	242	204	118	1,003	(859)	375	571
FCF	**276**	**190**	**408**	**386**	**549**	**476**	**685**
EBITDA Reconciliation							
Net Income	**(411)**	**(74)**	**573**	**392**	**577**	**948**	**1,187**
(+) Interest Expense, net	127	122	87	60	71	81	81
(+) Taxes	103	45	593	(12)	138	123	154
(+) Depreciation & Amortization	283	276	237	279	285	146	214
EBITDA	**102**	**368**	**1,490**	**719**	**1,071**	**1,298**	**1,636**
Credit Metrics							
Debt	1,577	1,564	1,001	1,003	2,610	2,610	2,610
EBITDA	102	368	1,490	719	1,071	1,298	1,636
Debt/EBITDA	15.43x	4.25x	0.67x	1.40x	2.44x	2.01x	1.60x
EBITDA/Interest	0.81x	3.03x	17.11x	12.06x	15.08x	16.02x	20.20x

Revenue Build and Drug Build-ups

Horizon Therapeutics NYSE: HZNP — **Revenue Build**

	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21P	1Q22P	2Q22P	3Q22P	4Q22P	1Q23P	2Q23P	3Q23P	4Q23P	FY20A	FY21P	FY22P	FY23P
Orphan Segment:																				
TEPEZZA	23.45	165.94	286.87	343.75	2.07	453.26	616.36	431.61	458.86	487.89	518.82	551.77	586.89	624.32	664.24	706.81	820.01	1503.29	2017.34	2582.26
		608%	*73%*	*20%*	*-99%*	*21849%*	*36%*	*-30%*	*6%*	*6%*	*6%*	*6%*	*6%*	*6%*	*6%*	*6%*				
KRYSTEXXA	93.25	75.20	108.47	128.93	106.76	130.32	158.10	166.00	174.30	183.02	192.17	201.78	211.87	222.46	233.58	245.26	405.85	561.17	751.26	913.17
		-19%	*44%*	*19%*	*-17%*	*22%*	*21%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*				
RAVICTI	61.19	65.55	64.65	70.23	72.82	68.43	76.32	77.09	77.86	78.64	79.42	80.22	81.02	81.83	82.65	83.47	261.62	294.65	316.13	328.97
		7%	*-1%*	*9%*	*4%*	*-6%*	*12%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*				
PROCYSBI	38.34	41.36	43.11	47.29	43.36	49.78	49.35	50.33	51.34	52.37	53.41	54.48	55.57	56.68	57.82	58.97	170.10	192.82	211.60	229.04
		8%	*4%*	*10%*	*-8%*	*15%*	*-1%*	*2%*	*2%*	*2%*	*2%*	*2%*	*2%*	*2%*	*2%*	*2%*				
ACTIMMUNE	26.54	28.30	28.31	35.68	28.76	27.78	30.06	30.36	30.67	30.97	31.28	31.60	31.91	32.23	32.55	32.88	118.83	116.97	124.52	129.58
		7%	*0%*	*26%*	*-19%*	*-3%*	*8%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*				
UPLINZA	0.00	0.00	0.00	0.00	1.87	14.48	18.68	22.41	26.89	32.27	38.73	46.47	55.77	66.92	80.31	96.37	0.00	57.44	144.37	299.37
				0%		*673%*	*29%*	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*				
BUPHENYL	2.31	2.85	3.23	2.16	1.66	2.26	1.87	1.89	1.91	1.92	1.94	1.96	1.98	2.00	2.02	2.04	10.55	7.68	7.74	8.05
		23%	*13%*	*-33%*	*-23%*	*36%*	*-17%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*				
QUINSAIR	0.28	0.06	0.16	0.20	0.21	0.22	0.30	0.32	0.33	0.35	0.37	0.39	0.40	0.42	0.45	0.47	0.70	1.05	1.44	1.74
		-79%	*176%*	*22%*	*5%*	*6%*	*36%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*				
Orphan Segment Net Sales	**245.36**	**379.25**	**534.80**	**628.24**	**257.51**	**746.51**	**951.04**	**780.01**	**822.16**	**867.43**	**916.14**	**968.66**	**1025.41**	**1086.88**	**1153.61**	**1226.27**	**1787.66**	**2735.07**	**3574.40**	**4492.18**
Inflammation Segment:																				
PENNSAID	41.56	35.05	50.31	51.09	45.82	48.94	47.96	48.44	48.93	49.42	49.91	50.41	50.91	51.42	51.94	52.46	178.01	191.16	198.66	206.73
		-16%	*44%*	*2%*	*-10%*	*7%*	*-2%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*				
DUEXIS	31.35	27.80	27.90	38.29	19.47	22.11	20.92	20.29	19.68	19.09	18.52	17.96	17.42	16.90	16.39	15.90	125.33	82.78	75.24	66.61
		-11%	*0%*	*37%*	*-49%*	*14%*	*-5%*	*-3%*	*-3%*	*-3%*	*-3%*	*-3%*	*-3%*	*-3%*	*-3%*	*-3%*				
RAYOS	19.43	14.46	18.13	19.79	15.27	13.41	14.87	14.13	13.42	12.75	12.11	11.51	10.93	10.39	9.87	9.37	71.81	57.68	49.80	40.56
		-26%	*25%*	*9%*	*-23%*	*-12%*	*11%*	*-5%*	*-5%*	*-5%*	*-5%*	*-5%*	*-5%*	*-5%*	*-5%*	*-5%*				
VIMOVO	18.21	6.23	5.28	7.91	4.35	1.58	2.20	1.83	1.52	1.26	1.05	0.87	0.72	0.60	0.50	0.41	37.62	9.96	4.69	2.23
		-0.79	*1.76*	*0.22*	*0.05*	*0.06*	*0.36*	*-17%*	*-17%*	*-17%*	*-17%*	*-17%*	*-17%*	*-17%*	*-17%*	*-17%*				
Inflammation Segment Net Sales	**110.55**	**83.53**	**101.62**	**117.07**	**84.90**	**86.04**	**85.96**	**84.69**	**83.55**	**82.52**	**81.59**	**80.75**	**79.99**	**79.31**	**78.69**	**78.14**	**412.77**	**341.58**	**328.40**	**316.13**
Total Net Sales	**355.91**	**462.78**	**636.43**	**745.31**	**342.41**	**832.55**	**1036.99**	**864.70**	**905.71**	**949.95**	**997.73**	**1049.41**	**1105.40**	**1166.18**	**1232.31**	**1304.42**	**2200.43**	**3076.65**	**3902.80**	**4808.31**

Tepezza Drug Build-Up

Tepezza Drug Buildup	**Estimates**	**4Q21P**	**1Q22P**	**2Q22P**	**3Q22P**	**4Q22P**	**1Q23P**	**2Q23P**	**3Q23P**	**4Q23P**
Acute Patients	7,080	7,434	7,806	8,196	8,606	9,036	9,488	9,962	10,460	10,983
Acute Patient Growth %		5.0%	5.0%	5%	5%	5%	5%	5%	5%	5%
Backed into acute patients using management segment revenue guidance FY21										
Chronic Patients	373	410	451	496	546	601	661	727	800	880
Chronic Patient Growth %		10%	10%	10%	10%	10%	10%	10%	10%	10%
Chronic segment currently makes up 5% of revenue, backed in to using FY21 guidance										
Total Patients	**7,453**	**7,844**	**8,257**	**8,692**	**9,152**	**9,637**	**10,149**	**10,689**	**11,260**	**11,863**
Avg. Dose Cost	15,565	15,721	15,878	16,037	16,197	16,359	16,523	16,688	16,855	17,023
Dose Cost Growth %		1%	1%	1%	1%	1%	1%	1%	1%	1%
# Doses	14	14	14	14	14	14	14	14	14	14
Total treatment costs	**217,910**	**220,089**	**222,290**	**224,513**	**226,758**	**229,026**	**231,316**	**233,629**	**235,965**	**238,325**
(treatment cost can vary depending on timeline of symptoms/conditions)										
Net Sales	**1,624,083,230**	**1,726,444,927**	**1,835,455,124**	**1,951,566,630**	**2,075,265,259**	**2,207,072,458**	**2,347,548,147**	**2,497,293,822**	**2,656,955,921**	**2,827,229,493**
On Quarterly Basis		**431,611,232**	**458,863,781**	**487,891,657**	**518,816,315**	**551,768,114**	**586,887,037**	**624,323,456**	**664,238,980**	**706,807,373**
FY21 Management Guidance >$1.625bn										
Conversion to millions	**1,624**	**432**	**459**	**488**	**519**	**552**	**587**	**624**	**664**	**707**

Base Case	
Acute Assumption	*Assuming 8.4% CAGR growth in TED market along with growth seen in Q21*
Growth %	**5%**
Chronic Assumption	*Assuming phase 3 readouts hold up and HZNP sucessfully targets >70,000 chronic population with TED*
Growth %	**10%**

Bull Case	
Acute Assumption	*Assuming Tepezza growth stays in line with managemtn expecations peaking out $3.4bn in net sales*
Growth %	**10%**
Chronic Assumption	*Assuming HZNP struggles to capture chornic market and readouts aren't as strong as believed*
Growth %	**20%**

Bear Case	
Acute Assumption	*Assuming bio-similar is introduced in market and Tepezza is no longer only approved drug*
Growth %	**-5%**
Chronic Assumption	*Tepezza effectivness in chronic cases fails and little to no market share is captured*
Growth %	**-1%**

Uplinza Peak Sales Potential Build-up

Uplinza Drug Buildup (Peak Sales)	Estimates	FY23	FY24	FY25	FY26	FY27	FY28	FY29
Potential Patients								
NMSOD								
Total market Size NMSOD (patients)	10,000	10,300	10,609	10,927	11,255	11,593	11,941	12,299
Bull Market Captured:	30%	30.0%	30.0%	30%	30%	30%	30%	30%
Managemet Case:	25%	25.0%	25.0%	25%	25%	25%	25%	25%
Base Market Captured:	20%	20.0%	20.0%	20%	20%	20%	20%	20%
Bear Market Captured:	15%	15.0%	15.0%	15%	15%	15%	15%	15%
Total NMSOD patients	**2,500**	**2,575**	**2,652**	**2,732**	**2,814**	**2,898**	**2,985**	**3,075**
Growth %	3%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Sales by segment	**341,935,000**	**352,193,050**	**362,758,842**	**373,641,607**	**384,850,855**	**396,396,381**	**408,288,272**	**420,536,920**
Phase 2 Trials:								
Myasthenia Graavis (MG)								
Total market Size	65,900	67,218	68,562	69,934	71,332	72,759	74,214	75,698
20 per 100,000 people in United States								
Market share captured	2.0%	2.0%	2.0%	2%	2%	2%	2%	2%
Total MG Patients	**1,318**	**1,344**	**1,371**	**1,399**	**1,427**	**1,455**	**1,484**	**1,514**
Growth %	2%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Sales by segment	**180,268,132**	**183,873,495**	**187,550,965**	**191,301,984**	**195,128,023**	**199,030,584**	**203,011,196**	**207,071,420**
IgG4- Related Disease								
Total market size	2,700	2,727	2,754	2,782	2,810	2,838	2,866	2,895
0.82 per 100,00 people in United States								
Market share captured	2%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Total IgG4 Patients	**54**	**55**	**55**	**56**	**56**	**57**	**57**	**58**
Growth %	1%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Sales by segment	**7,385,796**	**7,459,654**	**7,534,250**	**7,609,593**	**7,685,689**	**7,762,546**	**7,840,171**	**7,918,573**
Kidney Transplant Desensitization								
Total market size	6,000	6,060	6,121	6,182	6,244	6,306	6,369	6,433
20,000 US kindey transplants per year								
30% of patients awaiting kidney transplant waiting list expericne								
Market share captured	2%	2.0%	2.0%	2%	2%	2%	2%	2%
Total kidney patients	**120**	**121**	**122**	**124**	**125**	**126**	**127**	**129**
Growth %	1%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Sales by segment	**16,412,880**	**16,577,009**	**16,742,779**	**16,910,207**	**17,079,309**	**17,250,102**	**17,422,603**	**17,596,829**
Total Patients	**3,992**							
Avg. Treatment Cost	136,774	136,774	136,774	136,774	136,774	136,774	136,774	136,774
(treatment cost can vary depending on timeline of symptoms/conditions)								
Net Sales	**546,001,808**	**560,103,207**	**574,586,835**	**589,463,390**	**604,743,876**	**620,439,612**	**636,562,242**	**653,123,742**
On Quarterly Basis	**136,500,452**	**140,025,802**	**143,646,709**	**147,365,848**	**151,185,969**	**155,109,903**	**159,140,560**	**163,280,935**
FY21 Management Guidance >$1.625bn								
Conversion to millions	**137**	**140**	**144**	**147**	**151**	**155**	**159**	**163**