NUS INVESTMENT SOCIETY

Horizon Therapeutics, (NASDAQ: HZNP)

BUY: US$142.60 (+33.0%)

Equity Research – Healthcare

Date: 18th November 2021

Analysts

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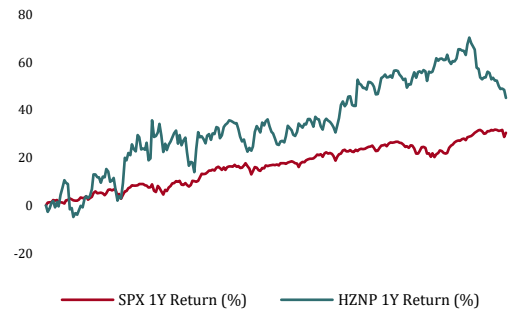
Company Description

Ticker	HZNP
Last close (181121)	US$107.19
12M Target Price	US$142.60
+/- Potential	+33.0%
GICS Sector	Healthcare
GICS Subindustry	Biotechnology

1Y Price Change vs. Relative Index (SPX)



Company Description

Horizon Therapeutics is a biotechnology company specialised in the discovery, development, and commercialization of medicines that address critical needs for people impacted by rare, autoimmune, and severe inflammatory diseases.

Key Financials

Market Cap	US$24.31b
Basic Shares O/S	226.8M
Free Float	98.7%
52-Wk High-Low	US$66.41 – US$120.54
Fiscal Year End	31-Dec-2021

(US$ M)	FY18A	FY19A	FY20E	FY21E
R&D	83	103	209	242
SG&A	692	697	973	1262
Revenue	1208	1300	2200	2819
Gr Rate (%)	*14.4*	*7.6*	*69.2*	*28.1*
EBIT	38	127	490	640
Margin (%)	*3.1*	*9.7*	*22.3*	*22.7*

Key Executives

Timothy P Walbert	Chief Executive Officer
Paul Hoelscher	Chief Financial Officer

We are initiating coverage of **Horizon Therapeutics ("HZNP" or "Horizon")** with a BUY rating and a **US$142.60** 12M price target.

2Q21 Earnings Highlights

- Net sales and adjusted EBITDA increased 80% and 92% QoQ.
- TEPEZZA generated second quarter net sales of US$453m, implying YoY growth of 173%.
- KRYSTEXXA generated record net sales of US$130m, implying YoY growth of 73%.
- Orphan segment generated net sales of US$747m, implying YoY growth of 97%. Orphan segment operating income was $321m. Net sales for the Inflammation segment were $86m, and segment operating income was $47m.

Investment Thesis

- **Horizon's portfolio positions them at the forefront of a rapidly growing rare-disease market –** TEPEZZA's differentiated mechanism of action provides the best patient prognosis and is expected to eventually dominate the market for TED. KRYSTEXXA has long runway for market share expansion and is currently clinically superior to potential competitors. Lastly, UPLIZNA is differentiated from similar treatments, value-adding through an increasingly important dimension of patient comfort.

- **Long term value lies in significant label expansion opportunities in the pipeline** – Despite their commercial success, there is still significant room for market share expansion for Horizon's portfolio drugs, through both geographical expansion and entering new patient segments.

- **Horizon's synergistic commercialization and acquisition strategy is difficult to mimic and is expected to be accretive** – their pre-commercialization and post-commercialization strategy synergizes well with their track record of high-payoff acquisitions, allowing them to maximize the revenue potential of acquired drugs.

Catalysts

- Relaunch of UPLIZNA is expected to result in positive Q4 and full-year earnings
- Positive interim results for new indications of KRYSTEXXA and UPLIZNA may signal the materialization of market share expansion opportunities
- Further acquisitions are expected to bolster Horizon's orphan drug portfolio, allowing them to expand into new rare disease areas and solidifying their position

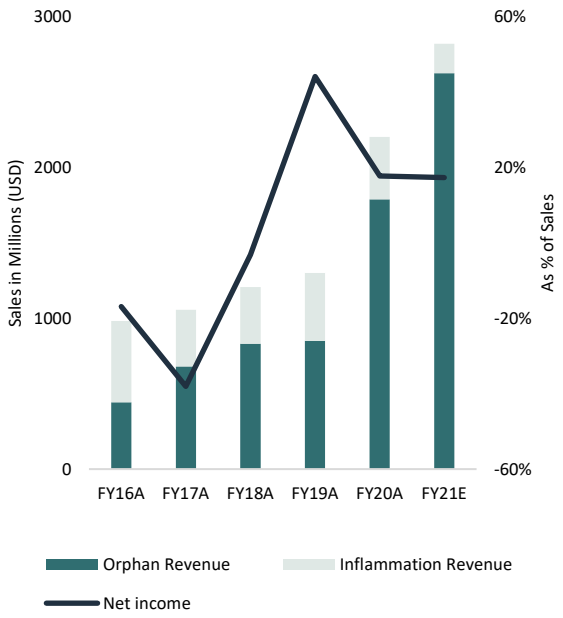
Valuations

Our 12M price target at the date of coverage is **US$142.60**, which was derived from a bottom-up DCF valuation approach.

Investment Risks

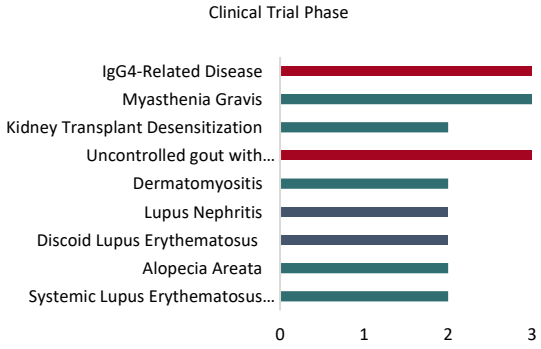
- Potential entry of competitors may worsen future sales of drugs
- Clinical trial failures might negatively impact market outlook
- Rising pricing pressures from payers may cause a loss of coverage and therefore a loss in pricing power

Figure 1: Revenue of primary segments, net income as percentage of sales



Source: Company Filings, Team Estimates

Figure 2: Pipeline trials



Source: Company Website

Company Overview

Horizon Therapeutics is a biotechnology company specialised in the discovery, development, and commercialization of medicines that address critical needs for people impacted by rare, autoimmune, and severe inflammatory diseases. The company operates in two segments, Orphan and Inflammation. Its portfolio comprises 12 medicines in the areas of rare diseases, gout, ophthalmology, and inflammation.

It markets TEPEZZA (teprotumumab-trbw) for intravenous infusion; KRYSTEXXA (pegloticase injection) for intravenous infusion; RAVICTI (glycerol phenylbutyrate) oral liquid; PROCYSBI (cysteamine bitartrate) delayed-release capsules and granules for oral use; ACTIMMUNE (interferon gamma-1b) injection for subcutaneous use; BUPHENYL (sodium phenylbutyrate) tablets and powder for oral use; QUINSAIR (levofloxacin) solution for inhalation; and UPLIZNA (inebilizumab-cdon) injection for intravenous use. The company also markets PENNSAID (diclofenac sodium topical solution) for topical use; DUEXIS (ibuprofen/famotidine) tablets for oral use; RAYOS (prednisone) delayed-release tablets for oral use; and VIMOVO (naproxen/esomeprazole magnesium) delayed-release tablets for oral use.

The company was formerly known as Horizon Pharma and changed its name to Horizon Therapeutics in May 2019. Horizon Therapeutics was founded in 2005 and is headquartered in Dublin, Ireland with additional offices overseas in 12 locations.

2Q21 Earnings Review

- Net sales increased 80% QoQ to US$832.5m, and adjusted EBITDA increased 92% QoQ to $366.9m
- TEPEZZA generated second quarter net sales of US$453m, implying YoY growth of 173%.
- Revised full-year net sales guidance to more than US$1.55b, representing more than 89% growth year-over-year.
- KRYSTEXXA generated record net sales of US$130m, implying YoY growth of 73%. This was mainly driven by increasing adoption of KRYSTEXXA with immunomodulation.
- A dedicated nephrology sales team was created early this year, and they have already driven more prescribing nephrologists in the first half of this year versus all of 2020.
- UPLIZNA generated second quarter net sales of US$14.5m.
- Orphan segment generated net sales of US$747m, implying a YoY increase of 97%. Orphan segment operating income was US$321m. Net sales for the Inflammation segment was US$86m, and segment operating income was US$47m.
- Expects non-GAAP gross profit margins for the full year to be between 86% and 87%

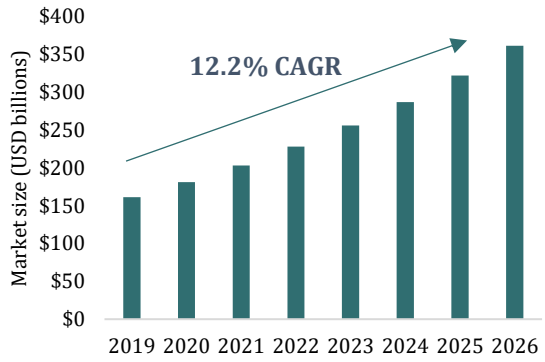
Industry Outlook

The rare disease market has been gaining plenty of growth traction, with a third of clinical pipelines globally accounting for orphan drugs. More importantly, a key recent issue is the relatively recent H3 Act by Congress that has been enacted to curb drug pricing in a bid to reduce out-of-pocket expenses (OOP) from patients i.e., expenses that are not covered by Medicare or insurance providers.

Burgeoning growth of the Rare Disease market

Based on the US Department of Health and Services definition, a rare disease is defined as a condition that affects under 200,000 people in the US. This definition was established by Congress in the Orphan Drug Act of 1983. Rare diseases became known as orphan diseases to incentives pharmaceutical and biotech companies to develop new treatments in these niche indications. This was materialised in the Orphan Drug Act where Congress created financial incentives to encourage companies to do so, such as the Orphan Drug status, which confers an orphan drug 7 years of market exclusivity upon FDA approval. Other countries have their own official definitions of a rare disease. In the European Union, it is defined as rare when it affects fewer than 1 in 2,000 people. Similarly, the EU has similar orphan status conferral to drugs that are approved for rare disease indication by the European Medicines Authority (EMA).

Figure 3: Global rare disease market

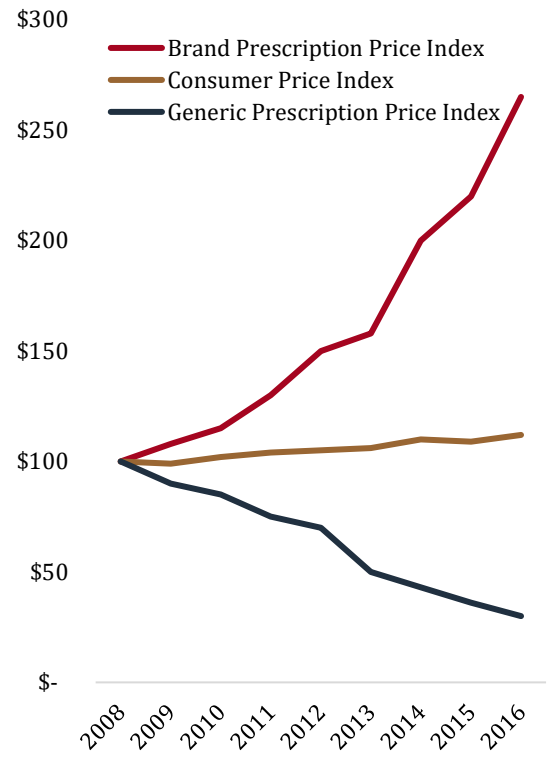


Source: GM Insights

The Global Rare Disease Market exceeded US$144.3b in 2019 and is poised to grow at over 12.2% CAGR between 2020 and 2026. Growing prevalence of rare diseases and its consequences on healthcare expenditure have augmented the demand for special treatments, positively impacting the rare disease treatment market growth. Geographically, the US dominates with > US$82b, whereas by drug type, biologic drugs took up most of the market with > US$124b in 2019. Japan dominated the Asia Pacific region, valued at > US$10.3b in 2019. This is owing to the ramp in biomedical and regenerative medicine research, and the Japanese government has established support systems and special regulatory authorities to augment the development of novel drugs for rare disease treatment. Furthermore, Japan's MOH is typically a country prioritised for drug launch as indicated by their inclination to purchase novel, valuable treatments while rewarding R&D.

Within this tremendous market with forecasted double-digit growth, companies which are focused on rare disease indications are up and coming, as seen in the likes of Vertex having steadily increased its monopoly in the cystic fibrosis treatment market. Other companies like Alexion Pharmaceuticals and Horizon Therapeutics are also within that basket - focusing solely on rare disease indications for example, the two have treatments or pipelines for similar indications for NMOSD. Despite orphan drugs being a lucrative field, they face a seemingly more difficult set of challenges than non-orphan drugs, with most coming from already established large pharma. Pharmaphorum identifies some of the challenges around clinical expertise and placebo comparisons in clinical trials, and a significant factor that has come under the microscope lately in 2021: drug pricing.

Figure 4: Drug Price Growth



Source: Express Scripts 2015 Prescription Price Index

Drug pricing landscape and recent payer pressure

US President Joe Biden issued the order through the yet to be passed, Build Back Better Act (BBBA), which lays out actions to address consolidation in health care markets and price competition in the prescription drug market. Under the BBBA, some of the new legislation to be implemented dictates Medicare being able to negotiate drug prices directly with companies, new out-of-pocket (OOP) limits on prescription drug costs for Medicare beneficiaries via Medicare reforms, price inflation caps, and even cost sharing with drug manufacturers limiting beneficiaries to a $2,000 OOP in the initial coverage phase. This also comes as an extension to then U.S. President Trump's, "Most Favored Nation" principle. Drug prices have seen a lot of controversy due to the meteoric rise in prescription drug prices over the past decade that have ignited payer and patient concerns.

However, these issues have also been plaguing the pricing landscape between pharma and politics for a long time, and industry trade associations like BIO and PhRMA are likely to oppose some of the new enacted policies. Key opinion leaders like biotech investor Peter Kolchinsky have since spoken out against the new laws together with biotech CEOs from companies such as Ovid Therapeutics and Silverback Therapeutics. The central argument is that introducing such price controls to the U.S. healthcare system would hurt overall access to drugs and treatments, and disincentivise research and development given that the NIH funds only the 'seed' (preclinical research) of the R&D, but not in trials most funds are needed for pipeline development where they traditionally come from private investors. It is to be expected that this process of balancing drug value, patient access and overall reinvestment to spur future R&D has to be toed very carefully by both industry and policymakers.

Porter's Five Forces

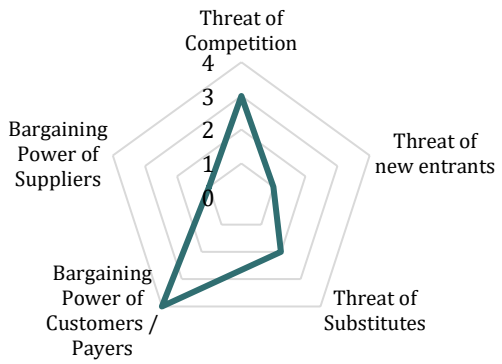
Threat of competition – Low to Moderate

Horizon's current portfolio of drugs is concentrated in orphan drugs that target rare indications in the chronic disease market. As a niche segment of the market, there are few competitors for its major commercialized drugs, like TEPEZZA and KRYSTEXXA. However, Horizon faces competition in its inflammation segment where drugs are relatively dated, such as PROCYSBI and DUEXIS, with generics competition for some of its portfolio inflammation drugs, like PENNSAID 2%. UPLIZNA also faces competitive threats from other NMOSD treatments from AstraZeneca and Roche. Nonetheless, for products that contribute more significantly to revenues., Horizon is not expected to face significant pricing or marketing competition. This allows it to preferentially develop marketing channels, logistics networks and increase patient education for their drugs' lifetime.

Threat of new entrants – Low

There are firms researching alternative substitutes to Horizon's portfolio, but there are significant barriers to overcome, which include superior clinical safety and efficacy that Horizon's currently marketed drugs have. In possible competition to TEPEZZA, Immunovant Inc is conducting Phase 2 clinical trials for a fully human anti-FcRn monoclonal antibody candidate for the treatment of active TED.

Figure 5: Porter's Five Forces



Source: Team Estimates

However, they have since paused the dosing because of concerns of elevated total cholesterol and low-density lipoprotein levels in patients treated with the candidate. The low safety profile and presence of unintended side effects will make it more challenging to eventually secure FDA approval. On the KRYSTEXXA front, Selecta has initiated a Phase 3 trial for a candidate for the treatment of chronic refractory gout. However, the clinical data did not meet the primary endpoint or demonstrate clinical superiority over KRYSTEXXA in Phase 2, which will make it more challenging for them erode KRYSTEXXA market share. RAVICTI and PROCYSBI also face the threat of entrants on the genetic therapy front. However, these new therapies are still in early stages of clinical trials. Especially with the current state of untested and unproven nature of gene therapies, we assess that the probability of entry still remains relatively low.

Threat of substitutes – Low to Moderate

While many of Horizon's drugs are currently the only FDA-approved medication for certain diseases, there are off-label, alternative treatments for the drugs that have been used to treat the indication in the past. Most notably, UPLIZNA faces competition from rituximab and other treatments marketed by Big Pharma for the treatment of NMOSD. However, UPLIZNA is superior in terms of patient convenience and comfort during administration, which is expected to be a strong pull factor in attracting a switch towards the use of this drug. The older drugs in its portfolio are facing generic competition, especially in its inflammation segment, which are often a chemically equivalent but cheaper variant of the brand drug. Nonetheless, these only contribute a small amount to total revenues.

Bargaining power of customers / payers - High

The bargaining power of customers, who in the US, mainly arises from two of the largest payer groups – the US government and commercial private insurers. The disease portfolio and areas of expertise of Horizon lie in targeting rare diseases and therefore imply high unmet needs as powerful bargaining chips for negotiation. However, this is dependent on the government being able to recognise the value of their drugs in spite of their price tag. International reference price controls can also hurt the prospects of listing higher prices. Insurers on the other hand, also have their own formularies for which they rank drugs from generics to brand-names, in accordance with many factors, though mainly expense. Horizon is thus dependent on being able to communicate value to these two particular payer groups, that form the bulk of the reimbursement landscape for patients in the USA, in order to secure the reimbursement crucial to maintain pricing power.

Bargaining power of suppliers - Low

Typically, there are many suppliers in the pharmaceutical industry regardless of raw material or medical equipment supply. Suppliers to supply many types of products to the manufacturing pharmas. Horizon has a few exclusive supply agreements with contractors, so they are obligated to purchase certain key inputs to the production of its drugs from these suppliers. Under certain agreements, Horizon is also obligated to purchase a minimum amount from these suppliers according to a forecast of production, even if the actual production does not hit that level. However, it is unlikely to be a risk given the ease of switching suppliers.

Investment Thesis

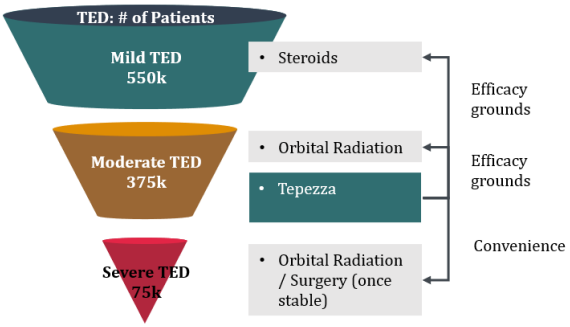
1. Horizon's portfolio positions them at the forefront of a fast-growing rare disease markets allowing their moat to considerably widen

Out of Horizon's currently approved drugs, TEPEZZA, KRYSTEXXA and UPLIZNA are the trifecta of value drivers that have asserted the company's dominance in the rare disease market. Of the 3, TEPEZZA and KRYSTEXXA are projected to have blockbuster verticals over their patent lifetimes, helped by their biologic exclusivity statuses (2022 and 2032 expiries respectively). We expect outsized growth to continue due to fundamentally superior clinical benefit, and lesser considered patient benefit in the case of UPLIZNA.

Figure 6: Superior Efficacy in TEPEZZA

Source: Academia

Figure 7: TEPEZZA's patient funnel



Source: Team Estimates

TEPEZZA

The darling of Horizon's portfolio, TEPEZZA had surprised investors, crushing net product sales expectations of US$30 - US$40m with US$820m in FY2020. However, we believe there's a larger runway for TEPEZZA's growth than what the market is pricing in. Its superior value inherently lies in clinical efficacy and patient access addresses an otherwise dire unmet need, which makes it particularly sticky amongst healthcare providers meaning it is extremely difficult to turn to alternatives. Furthermore, we believe that even non-drug therapies and frontline therapies will cede their market share to TEPEZZA.

TEPEZZA is a first-in-class drug approved for TED, which acts as a targeted inhibitor for the IGF-1R receptor on the orbital fibroblasts. Long term evidence (Wang & Smith, 2014) suggests the orbital fibroblast is the key effector cell in TED, which makes TEPEZZA inherently differentiated from its competitors. From its OPTIC clinical trial, TEPEZZA demonstrated an average of 77% proptosis responder rate, meaning a reduction in the protrusion of the eyes caused by the swelling of ocular tissue, over the average 15% of placebos across 2 studies. It remains "the only medical treatment for TED that reliably improves important aspects of its severity, including proptosis and diplopia", according to Terry J. Smith, MD, at Michigan Medical School. In contrast, alternate forms of therapy for 2L onwards include biologics like Roche's Actemra, Abbvie's Humira, Biogen's Rituxan, or other treatments like orbital radiotherapy or surgery. Within this peer basket, TEPEZZA is the sole biologic that is able to reverse proptosis and provide sustained treatment outcomes (Douglas et al., 2020; Smith et al., 2017), whereas other biologic treatments do not significantly alter long term disease outcomes (Douglas & Gupta, 2011), meaning the need for surgery is not reduced, unlike in the case of TEPEZZA.

On the other hand, radiotherapy and surgery prove relatively more invasive especially for the physically sensitive and often aesthetically prioritised region for patients. Thus, a treatment via IV delivery with high efficacy like TEPEZZA sees itself as a differentiated treatment possessing greater patient convenience as well. Furthermore, in frontline therapy where conventional steroids are deployed to curb inflammation through immune system suppression, steroids mainly treat symptoms while leaving the underlying disease untreated. The Thyroid Research Journal (Ting & Ezra, 2020) has acknowledged the possibility for TEPEZZA to cross into frontline therapy on 2 bases: 1) the significantly milder side effect profile versus steroids (e.g., hyperglycaemia), and 2) the relative affordability as an orphan drug of

US$14,900 per vial (administered every 3 weeks for a 21-week period). This confers TEPEZZA significant potential in market share expansion from its current estimated 7.5% market share (Muralidhar et al., 2020), when healthcare providers recognise the potential of the drug to maximise recovery while overall reducing patients costs as they seek alternative forms of less efficacious therapies.

The need for TEPEZZA was elucidated further in the Q1 2021 supply chain disruption for TEPEZZA production brought about by the US government's mandate of its manufacturing facility, Catalent, to focus efforts on vaccine manufacture. This drought left many ophthalmology healthcare providers and patients hanging, as there were no equivalent alternative TED treatments. Ultimately, this leverage translates into significant pricing power that has and will continue to corner payers and allow further reimbursement in other markets when TEPEZZA expands into earlier lines of therapy, as well as occupy market share from invasive treatment therapies.

Figure 8: KRYSTEXXA's patient funnel

Source: Team Estimates, Company Investor's Presentation

Figure 9: Pipeline Potential for UPLIZNA

Drug	Clinical Trial Phase	Clinical Efficacy	Threat Level
Prednisone	Marketed	• Response in 2-4 weeks but high relapse, large side effect profile	• Low
Rituximab	Marketed	• High relapse, smaller spectrum of targets against possible disease outcomes	• Medium
Inebilizumab (Uplizna)	Phase 3	• Targets broader spectrum of cells including key plasmablasts, unlike Rituximab	• N.A.
Rilzabrutinib	Phase 2	• Well tolerated, but relatively early in trials	• Medium

Source: Academia

KRYSTEXXA

Its immunomodulation strategy catalysed its growth in FY2020, and the expectation for this to persist is due to the lack of close competitors. As monotherapy, KRYSTEXXA demonstrates a response rate of 45%. However, from the company's ongoing MIRROR open label trial, in combination with immunomodulator methotrexate, this roughly doubles to about 79% complete response when patients were on their 6th month. This additional clinical benefit has already paid off in the current management's strategy in shifting patients onboard to combination therapy, with around 35 - 40% of new patients on the therapy. Summing these factors together, KRYSTEXXA and methotrexate combination therapy's full FDA approval is merely a matter of time.

Furthermore, KRYSTEXXA is currently the only FDA-approved medication for the treatment of 3L uncontrolled gout, and we do not expect a competitor anytime soon, enabling the company to maximise its market dominance for the coming years. Recently in September 2020, competitor Selecta disclosed topline data from its Phase 2 trial for chronic refractory gout. They were unable to demonstrate statistically significant superior efficacy over pegloticase (KRYSTEXXA), ergo failing their clinical trial endpoint. Furthermore, SEL-212, their candidate, also contained immunomodulators through the company's ImmTOR technology that worked on neutralising anti-drug antibodies. In contrast, as earlier mentioned, KRYSTEXXA's combination with immunomodulators saw a 79% response rate, suggesting clinical superiority. KRYSTEXXA is expected to have captured most of the market share regardless of when Selecta's candidate enters the market, provided it gets FDA approval. This means that KRYSTEXXA's leadership position in refractory gout is one that will endure.

Ultimately, KRYSTEXXA is likely to continue its control in the third line therapy for gout treatment at the minimum, with catalytic prospects in its label expansion strategy to be discussed later.

UPLIZNA

UPLIZNA, under one of Horizon's subsidiaries, Viela Bio, is currently approved for Neuromyelitis Optica Spectrum Disorder (NMOSD), a rare, severe, relapsing, neuroinflammatory autoimmune disease that

attacks the optic nerve, spinal cord, brain, and brainstem that affects ~15,000 patients in the US. The NMOSD space sees strong competition from big pharma heavyweights, and we recognize that UPLIZNA's demonstrates marginally lower efficiency than Soliris. However, we believe for a more complete comparison, patient convenience is also a crucial factor for consideration.

Vis-a-vis Alexion's Soliris, comparing clinical trial data, its relapse-free rate for NMOSD stands at 97% whereas UPLIZNA is at 88%. However, Soliris's phase 3 trial permitted patients to be on immunosuppressive therapy concurrently, while the phase 3 trial with Viela Bio was for monotherapy only. Therefore, it is difficult to correctly differentiate based on efficacy alone. Viewed against Roche's Enspryng, after its phase 3 SAkuraSky study, 91% of Enspryng-treated AQP4 antibody-positive subgroup patients were relapse-free compared to 56.8% of patients receiving placebo at 96 weeks, placing it similar to the other two in efficacy.

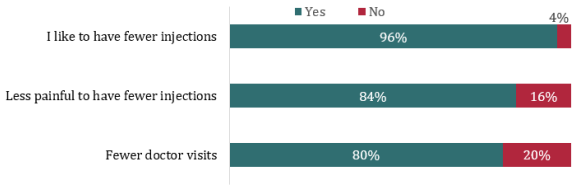
Despite a competitive environment with multiple drugs in the same market, an often-overlooked factor is patient convenience and comfort during administration. It should be noted that UPLIZNA provides patients better convenience when it comes down to delivery - it is dosed once every 6 months on maintenance. In contrast, Enspryng is dosed every four weeks after the initial loading dose, and Soliris is dosed fortnightly. A proxy for sentiment analysis comes from a 2020 study on "Patients' Preference for Long-Acting Injectable versus Oral Antipsychotics in Schizophrenia" (Blackwood et al., 2020), where results demonstrated half of the 707 patients preferring the administration with the longest interval of 3 months, with 96% agreeing to favour fewer injections, with 84% agreeing that it is less painful. It can thus be inferred that on the ground, when faced with largely similar drugs in terms of efficacy, patients will prefer fewer visits to the hospital. This translates more importantly to higher prescribing frequencies of UPLIZNA by healthcare providers to patients who are aware of their treatment options.

Figure 10: Number of Injections

Drug	Efficacy (1-year RFR)	Doses / Year
Soliris	97% relapse-free NMOSD	
Enspryng	88% relapse-free NMOSD	
Uplizna	91% relapse-free NMOSD	

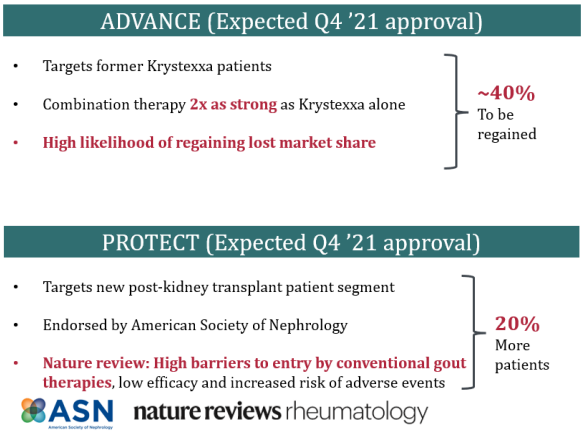
Source: Clinical Trial Data

Figure 11: Sentiment Proxy Analysis



Source: Sentiment proxy analysis from 2020 study on "Patients' Preference for Long-Acting Injectable versus Oral Antipsychotics in Schizophrenia"

Figure 12: Pipeline Potential for KRYSTEXXA



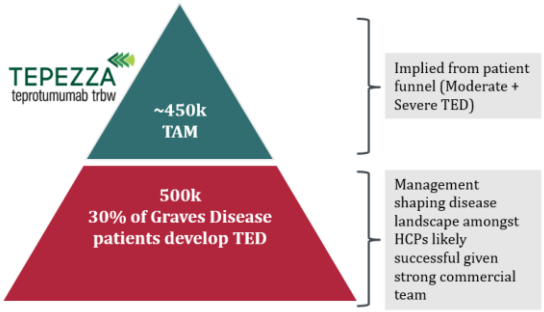
Source: Clinical Trial Data, ASN

2. Long term value lies in the pipeline with label expansion of TEPEZZA and KRYSTEXXA due to underlying clinical and patient benefits creating further market share expansion opportunities

Many of Horizon's drugs are expected to be blockbuster drugs in the future. This is due in part to the unmet need it addresses, and the clinical superiority providing them with the preferential ability to ramp up sales for a longer period before biosimilar or generic competition enters the market. However, we see the potential in the pipeline for drugs or drug improvements that extend past a singular indication. Specifically, the underlying mechanism and the nature of these drugs provides them with the added opportunity to pursue label expansion, therefore significantly expanding their serviceable addressable market in the future.

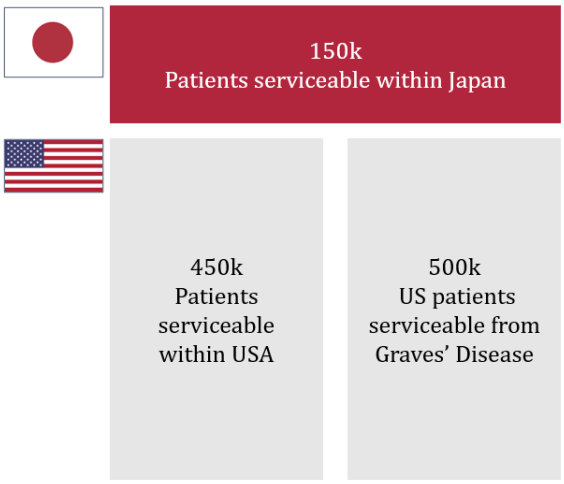
Horizon's clinical pipeline boasts significant label expansion opportunities mainly from KRYSTEXXA, as well as their opportunity in UPLIZNA' additional indications. KRYSTEXXA, a significant value driver, currently has 2 pending open-label trials: PROTECT and ADVANCE, which are seeking Q4 2021 approvals in post-kidney transplant patients with uncontrolled gout and patients who were previously only on KRYSTEXXA monotherapy respectively.

Figure 13: Underlying US Market Potential for TEPEZZA



Source: Team Estimates

Figure 14: More Addressable Markets



Source: Team Estimate

First, under PROTECT, post-kidney transplant patients become another segment of the market that Krsytexxa can capture. Its efficacy was endorsed by the American Society of Nephrology for its potential. According to the US National Kidney Foundation, taking the ~17,000 kidney transplants annually as a proxy, this means the new patient segment could add roughly 20% more patients to the total serviceable market of >100,000 patients with uncontrolled gout, on the premise that gout susceptibility increases 10-fold in post-transplant patients. Furthermore, it is a market with higher barriers to entry by conventional urate-lowering gout therapies such as allopurinol and febuxostat, as there is a general lack of efficacy and increased risk of adverse events for said patient population (Stamp et al., 2021).

Next, under ADVANCE, these patients developed anti-drug antibodies against KRYSTEXXA before and were untried for the combination therapy. There is a much higher chance that this group of patients represent a share of the 3L uncontrolled gout market that can be regained, as implied by the doubled efficacy from the combination therapy in KRYSTEXXA's MIRROR trial.

Thus, KRYSTEXXA stands to capture greater market share in uncontrolled gout with its 2-prong approach beyond the expected MIRROR trial approval. We believe KRYSTEXXA will be able to acquire the new niche patient segment of post-kidney transplant patients and regain its lost share from ex-monotherapy KRYSTEXXA patients, thereby extending its dominance in the 3L uncontrolled gout market.

Aside from KRYSTEXXA, the follow-up pipeline with UPLIZNA seeks to expand into new indications with a differentiated mechanism of action, and this is consistent with the rare disease strategy that has brought the company thus far. An example is the promising field for IgG4-related disease treatment. IgG4-related disease is a form of chronic, debilitating rare disease characterised by tumour-like inflammatory and fibrotic mass formation in affected organs, and known to affect around 20-40k patients in the US. The current marketed treatment for this disease involves steroids and Roche's rituximab in often, off label use. There are some pipeline drugs such as Principia Biopharma's rilzabrutinib who are in early clinical trial stages, though they post minimal risk to UPLIZNA at the moment, who is a phase 3 candidate. First line therapy typically looks at steroids like glucocorticoids and prednisolone, though they are known to have high relapse rates between 30 - 60% (Kamisawa & Okazaki, 2016; Perugino & Stone, 2016). Scientists at the Healio journal (2017) have also acknowledged the need for "steroid-sparing" therapy, indicating the high unmet need for better forms of therapy. UPLIZNA (Inebilizumab), while also being B-cell depleter like rituximab, targets a broader spectrum of B cells including plasmablasts - a key biomarker for IGg4-related disease (Perugino & Stone, 2016) - unlike that of Rituximab. This hints to UPLIZNA being a potentially more effective targeted form of therapy. Finally, compared to rilzbrutinib in Phase 2, though the candidate from Principia Biopharma has been well-tolerated with good efficacy, it is relatively earlier than Horizon's candidate in Phase 3, thus posing significantly less risk to UPLIZNA on average. While UPLIZNA's trial readout for IgG4-related disease is to be expected in 2023, it is telling of a robust R&D with a forward-looking pipeline that is consistent with the strategy of targeting rare disease markets, and

as described, with the hopes of a strong commercial team that can deliver these drugs to the new target indication market efficiently.

With TEPEZZA, its story is not yet over: there is opportunity that lies in near term expansion beyond current disease awareness and into the Japan market. What can be overlooked for TEPEZZA's current indication is that TED often stems from a significantly more prevalent disease, Graves' Disease, where 30% of patients with Graves' Disease develop TED. Graves' Disease is a common autoimmune disorder that affects 1 in every 200 people in the US, whereas TED has an estimated prevalence of 0.25% (McAlinden, 2014) Management has indicated in the Q1 earnings call that they are actively shaping the disease landscape and awareness amongst healthcare providers, which could translate in exponentially higher prescription frequencies of TEPEZZA for a broader range of diseases and ultimately, indicating a huge untapped opportunity for Horizon to capture a significantly larger market share in future.

Separately, management also reiterated its business expansion strategy for TEPEZZA with Japan in its sights during the company's Q1 2021 earnings call. Assuming similar prevalence rates, it could signify a serviceable patient pool of around 150,000 patients annually. This market could therefore be on the table, assuming the company can obtain reimbursement from the Japanese government and their launch campaigns run smoothly.

Figure 15: HorizonCares Programme

HORIZONCares™
Improving access. Supporting health.

Source: Company Website

Figure 16: Big Pharma Outsources Programmes

- Big Pharma utilize such patient access programs as well, through "Buy X Get Y Free" discounts
- Access programs often outsourced to third party vendors and distributors

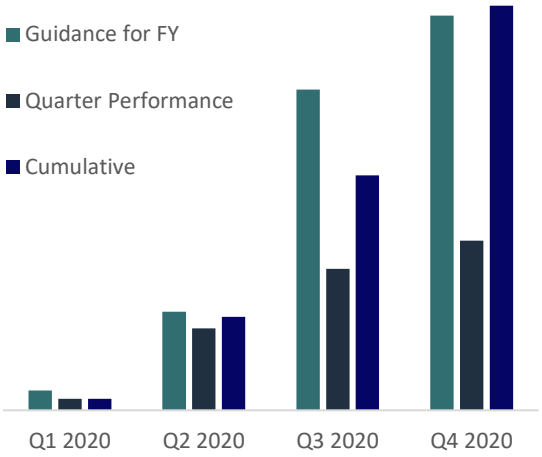
Source: Team Channel Checks

3. Horizon has a synergistic commercialization and acquisition strategy that is difficult to mimic

A core part of Horizon's success is attributed to its commercial team that is able to develop effective drug launch campaigns and gather healthcare provider buy-in even before approval. According to PM360, a journal for pharma marketers, 6 months before TEPEZZA's launch, 95% of target physicians were aware of the brand and more than 65% said they were highly likely to prescribe TEPEZZA. Even after COVID disrupted their supply chain from Catalent's temporary diversion to vaccine manufacturing, the team launched a direct-to-consumer patient campaign that resulted in an 82% aided awareness among patients, an increase of 68% prior to the campaign. FiercePharma also reported that 6 months post-disruption, nearly all prescriber patients had resumed therapy. Its commercialization strategy translated into a sustainable competitive advantage. The success of TEPEZZA established barriers to new competitors for at least 5 years, according to Jefferies analyst David Steinberg. Immunovant's RVT-1401, a phase 2 trial competitor, experienced declining trial volunteers in light of TEPEZZA. The widespread uptake and awareness thus also owe to the commercial team's marketing efforts in allowing Horizon to quickly monopolise the TED market and gain healthcare provider support.

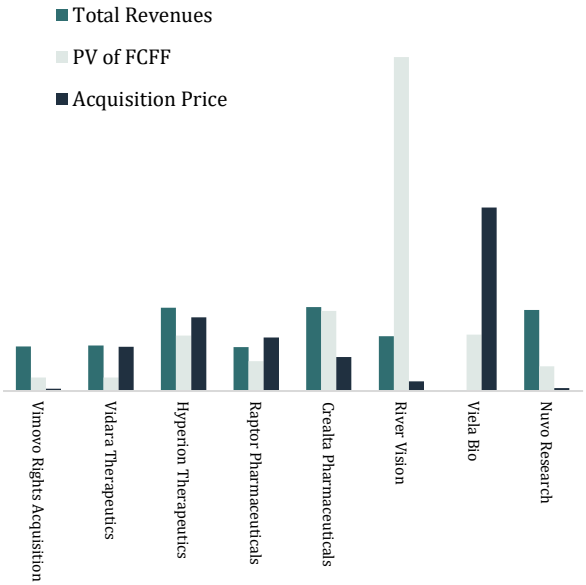
The significant revenue outperformance from the effective commercialization was also something that was out of the league for pharmaceutical players. The original 40m full year revenue estimate had to be revised upwards three times: 400% in Q1 of FY20, 225% in Q2 and by 23.5% in Q3. In contrast, Bain finds that only 38% of peers manage to see a 10% full year revenue outperformance, let alone 400% in the first quarter. Moving forward, we expect Horizon to be able to apply the lessons learnt to other drug launches.

Figure 17: Horizon's level revenue outperformance from TEPEZZA was out of the league for pharma peers



Source: Horizon

Figure 18: Horizon's stellar commercialization and post-commercialization strategy maximizes acquired drug revenue potential



Source: Horizon, Team Estimates

In addition to a strong prescriber awareness, Horizon, through HorizonCares, is able to encourage patient adherence to therapy, which is the pharmaceutical equivalent of customer lifetime value. HorizonCares is an inhouse patient support programme for Horizon's inflammation segment which provides value added services for patients. These include courier services and reminders for drug refills. More importantly, it heavily subsidises out-of-pocket (OOP) expenses for patients, transferring the cost burden mainly to payers through agreements with pharmacy benefit managers. In fact, with HorizonCares, 33% of patients on their inflammation drugs have no OOP costs. Using adherence to therapy as a proxy for continued drug sales based on prescription fills, costs do serve as a powerful incentive (or disincentive) for continued drug uptake. While such patient access or support programmes are an old mechanism in the pharmaceutical industry used to alleviate patients' OOP burden, traditional pharmas like Johnson & Johnson, Roche and Pfizer typically offer buy X get Y mechanisms, which still result in higher OOP margins for patients and are unable to undercut Horizon. In addition, their programmes are often outsourced to specific third-party vendors like DKSH or Zuelig Pharma, thereby factoring distributor margins that may incur cost transfer to patients. In contrast, Horizon's inhouse management of HorizonCares allows them to skip out eroding their own profit margins to third party vendors or incur cost transfers to patients, thereby enabling them to maximise revenue upside potential with their drug portfolio. These cost savings can also be passed on to payers, therefore increasing the value proposition in reimbursing Horizon's drugs

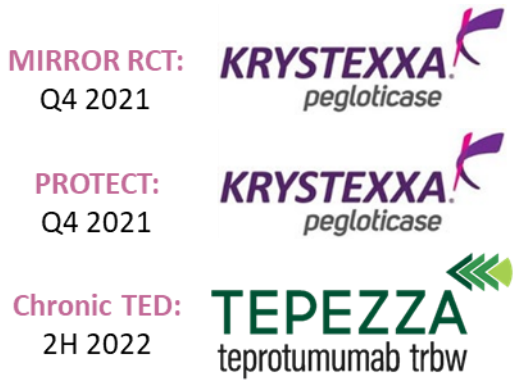
Horizon's commercialization and post-commercialization strategy play well into its acquisition-based portfolio diversification strategy. Their commercial expertise and in-house patient access programs have and will continue to enable Horizon to maximize the revenue potential of the acquired drugs better than their owners ever could. As seen from the table, Horizon has a good track record of value-additive acquisitions. For 6 out of the 7 acquisitions made since inception, the total accrued revenue has already exceeded the upfront acquisition price, with a long runway ahead. In addition, we estimate that 4 out of these 7 have present value of cash flows exceeding the acquisition price. This is not including any R&D synergies, cost savings from acquisition, or most importantly any pipeline research value.

Moving forward we ultimately expect management to continue the execution of a consistent consolidation strategy that adds to its duo portfolios of orphan and inflammation. As demonstrated through history, their tack-on strategy allows Horizon to gain development candidates quickly while hedging against the risks of clinical failure in early stages. Furthermore, with a powerful commercial team, drug-to-market times expedite quickly, resulting in an overall steeper sales ramp and robust pipeline continuity.

Catalysts

- UPLIZNA was launched during the pandemic with relatively minimal resources, resulting in a launch amongst a highly competitive landscape of drugs with similar efficacies. The company is planning a full relaunch of the medicine where they intend to apply the key learnings from the successful strategies used to relaunch TEPEZZA post-disruption of the supply chain. A key component of that strategy has been to invest in the marketing and field-based teams to provide

Figure 19: Horizon Portfolio Upcoming Interim Trial Results



optimal support for UPLIZNA, in order to build overall awareness amongst prescribers and patients. We believe the results of Horizon's aggressive relaunch strategy will bear fruit in the case of UPLIZNA and be reflected in Q4 earnings.

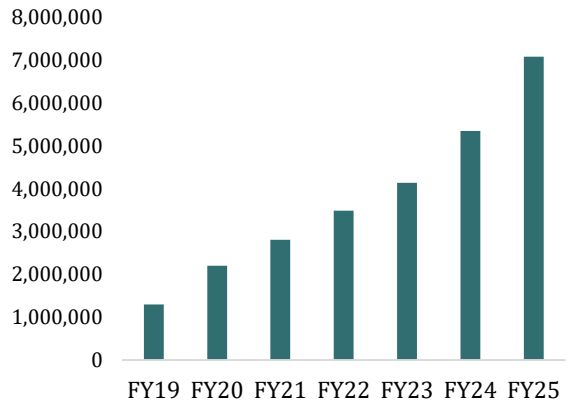
- KRYSTEXXA and UPLIZNA are currently in phase 3 trials for their respective new indications. Management has provided guidance for trial readouts by 2023 and we believe there is a strong likelihood of positive interim results in the year ahead based on the promising clinical data thus far. Positive results from key clinical trial readouts are expected to provide more evidence of its market potential and capacity for label expansions. As expected revenues increase, Horizon's outlook will likely revise positively upwards.

- Thus far, Horizon has demonstrated great foresight in acquiring companies with promising drug candidates. Horizon has sufficient cash on hand for further strategic acquisitions, which will accelerate Horizon's growth and solidify their position as a provider of novel therapies for rare diseases while adding to their bottom line. In particular, an acquisition to expand to another orphan indication can significantly improve its outlook as the market prices in an expanded pharmaceutical portfolio.

Financial Analysis

Amount in USD Millions	FY18	FY19	FY20	FY21E	FY22E	FY23E	FY24E	FY25E
Revenue	1,207.6	1,300.0	2,200.4	2,819.7	3,538.2	4,266.8	5,591.7	7,457.3
Revenue Growth	14%	8%	69%	28%	25%	21%	31%	33%
Gross Margin	5%	14%	29%	76.1%	76.3%	76.6%	76.8%	77.1%
EBIT Margin	-10%	-2%	24%	22.7%	22.9%	23.2%	23.4%	23.7%
Profit Margin	-5%	61%	23%	17.3%	18.0%	18.6%	19.2%	19.8%
D/E Ratio	1.59	0.64	0.26	0.56	0.47	0.39	0.32	0.25

Figure 20: Strong forward revenue growth prospects of Horizon



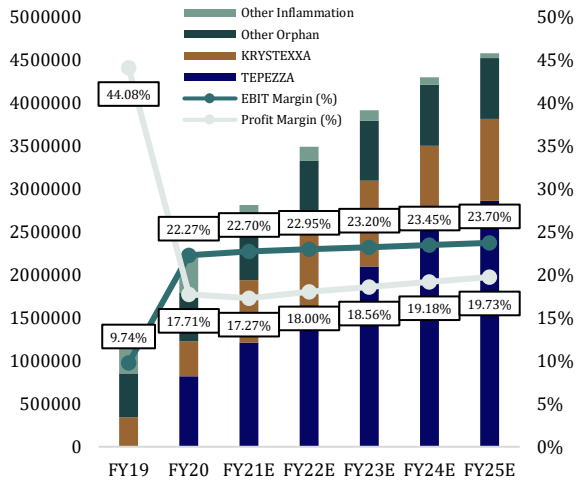
Source: Team Estimates

TEPEZZA and KRYSTEXXA expected to be strong drivers of growth

+5FY revenue growth is expected to be robust at 26.3% CAGR, which can be primarily attributed to the strength of Horizon's orphan drug portfolio, especially the two main blockbusters of TEPEZZA and KRYSTEXXA. While the rest of the portfolio will have their orphan drug exclusivity period expire by the end of FY23, we are confident that the clinical superiority of their drugs in the portfolio will prevent the entry of biosimilar competitors when the orphan drug marketing exclusivity period expires. This gives Horizon more leeway to achieve the sales peak of US$3.5b and US$1b respectively for the TEPEZZA and KRYSTEXXA blockbusters. Combined with a greater level of investment into sales and marketing channels for current drugs, hitting the sales peak is a high-probability event.

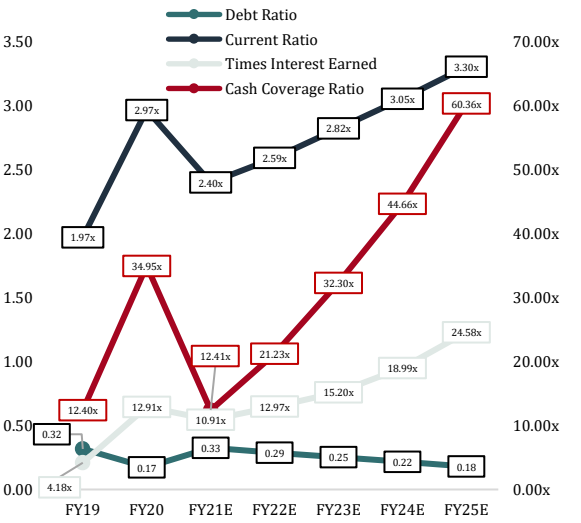
In addition, despite pressures on the government to cut payor healthcare costs due to high drug costs, and pressures to introduce generics earlier to make medication affordable, we believe that Horizon will be able to maintain its pricing power. The majority of its portfolio target rare indications with high clinical need and no

Figure 21: Improving margins as increasing R&D expenses compensate for efficient sales forces



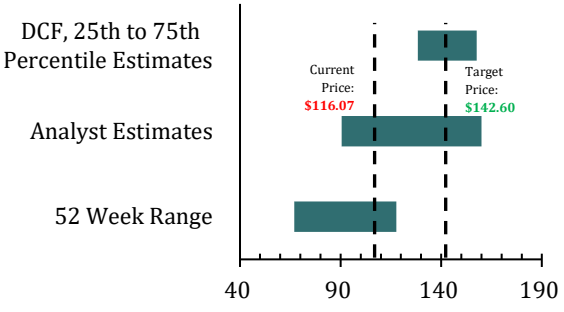
Source: Team Estimate

Figure 22: Healthy leverage ratios prime Horizon for inorganic growth



Source: Team Estimates, Horizon

Figure 23: Football Field



Source: Team Estimates

alternative cure, which makes them less susceptible to pressures to reduce pricing from the FDA.

Improving EBIT margins as increasing R&D expenses compensated for by an efficient sales force and distribution capabilities

We expect EBIT margins to improve from 22.3% to 23.7%. Horizon's investments into sales and marketing channels and infrastructure are expected to lead to a lower cost of marketing and sales. From FY21 to FY25, SGA expenses are expected to decline by 50 bps per year. In addition, improved logistics and distribution systems for their commercialized drugs is projected to cause a fall in cost of revenue by 25 bps per year, which is a conservative decline number that is half the effect of the improved marketing and sales forces worldwide. However, this is partially offset by the expected increase in R&D costs. The acquisition of Viela Bio not only brought UPLIZNA into the portfolio, but it also significantly increased the breadth and depth of pipeline clinical trials. While this implies a higher likelihood of an UPLIZNA label expansion in the future, the greater number of trials to monitor is expected to incur a 50bps in R&D costs as a percentage of revenue annually. Overall, strong revenue growth and lowered expenses nets a profit margin expansion from 17.71% in FY20 to 19.73% in FY25.

Healthy cash flow generation and debt financing capabilities for inorganic growth

Horizon's current capital structure is sustainable. Despite two sizable tranches of debt: US$418m from a Term Loan Facility due 2026 and US$600m from Senior Notes due 2027, Horizon has strong interest coverage and a strong ability to meet its debt obligations. In FY20, Horizon had 12.49x Times-Interest-Earned, which is indicative of its strong cash flow generation and financing capabilities. In FY20, cash and equivalents of US$2.08b exceeded total liabilities of US$2.05b. Even after the acquisition of Viela Bio in Q1'21, which incurred a cash outflow of almost US$2.77b, Horizon is still expected to be well above the threshold for interest and debt coverage ratios, as a result of strong cash flow generating abilities.

To finance the acquisition, Horizon raised an additional US$1.57b through a Term Loan Facility due 2028, which is expected to incur an annual interest expense ceiling of the 12-month LIBOR + 2.0%, subject to a LIBOR floor of 0.50%. While the debt ratio is expected to increase from 0.17 to 0.33, with times-interest-earned and current ratio decreasing from 12.19x to 10.20x and 2.97 to 2.38 respectively, these still indicate a preferential ability to remain solvent. In addition, cash coverage ratio is still positive at 11.71x, allowing its inorganic growth strategy to remain sustainable.

Towards FY25, debt ratio, times-interest-earned, current ratio are expected to increase to 0.19, 21.99x and 3.18x respectively, putting it in line with pre-acquisition levels. This is due to the strong cash-flow generating abilities of blockbuster drugs like TEPEZZA and KRYSTEXXA. Cash and equivalents are expected to build back up to US$4.40b on par with US$4.41b on liabilities, which poises the firm for another big-name acquisition by the end of the middle of the decade consistent with its tack-on acquisition strategy.

Figure 24: Modified Sigmoid Curve parameters

For $0 \leq t \leq C$,

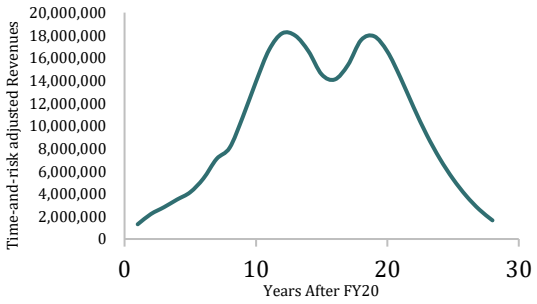
$$S(t) = \frac{P}{1 + \left(\frac{c}{t} - 1\right)^{k}}$$

For $t \geq C$

$$S(t) = \frac{P}{1 + \left(\left(\frac{d}{t-c}\right) - 1\right)^{-k}}$$

S(t) represents the sales at time t
p is the estimate peak sales
c is the exclusivity period
k is the shape of the function (taken to be 2)
d is the year of decline (taken to be until patent expiry)

Figure 25: Revenue ramp profile from FY21 to FY46



Source: Team Estimates

Figure 26: WACC Parameters

WACC Variables		
Input	**Rate (%)**	**Source**
Risk Free Rate	1.60	US 10-Year Treasury Yield
Equity Risk Premium	8.80	Implied risk premium from country debt rating; Aswath Damodaran
Beta	0.703	Re-levered Beta of Unlevered Peer Average
Tax rate	15	Global Minimum Corporate Tax Rate
Pre-tax Cost of Debt	5.02	Implied spread from historical average risk-free rate using interest coverage ratio; Aswath Damodaran
Cost of Equity	6.74	CAPM

Source: Various

Valuation

Valuation Price Target: **US$142.60**

We project a 12-month price target of US$142.60, representing an upside potential of 33.0%. This was derived using a bottom-up unlevered DCF approach. Terminal value was derived from projecting risk and time-adjusted revenues from all of Horizon's current pipeline drugs until the expected patent expiry of the final drug. Relative valuation was not employed as Horizon operates in very niche segments in the chronic diseases market, where it is often the only player.

Valuation Methodology

We assumed that pharmaceutical drugs would take time to reach their estimated sales targets. The estimated sales each year was calculated based on a sales ramp curve derived from a modified piecewise sigmoid function. For the years leading up to peak sales, sales per year increases according to the function. After the estimated years of exclusivity for each drug, an inverse sigmoid function was used to ramp down sales to 0 to factor in the presence of competition and generics.

The parameters of the functions were thus the variables as outlined in figure 24. Estimated peak sales was the estimated addressable market if management guidance was not given. This was done by multiplying the cost of benchmark therapy for that treatment, by the number of patients with indication, by our estimated target market share and finally by a royalty adjustment if the project is under a partnership agreement with another firm. The number of years of exclusivity was the number of years left with exclusivity plus half of the remaining life of the patent. k was fixed at 2 for the smoothest sales ramp. See Appendix B for a more detailed elaboration of parameter estimation for each drug.

Terminal growth from FCFF obtained in FY25 was assumed to be 0. Instead, pipeline value was taken to be the terminal value of the firm. After projecting time and risk-discounted revenues forward for +26FY for all 36 pipeline drugs, the total revenues were then applied to an FCFF margin to arrive at terminal value. Figure xx shows the revenue ramp profile of all drugs in its portfolio and pipeline.

Discount Rates

Our DCF model discounts revenues by the weighted average cost of capital (WACC) from FY21 to FY25. Using CAPM, the cost of equity obtained was 5.99%. The risk-free rate was taken to be the US 10-year treasury yield at the time of projection; market risk premium was taken to be the weighted average implied equity risk premium based on sovereign debt ratings; beta was the levered beta from the average of unlevered trading peer beta (peers here refer to large-to-medium sized healthcare stocks that generally react to the same macroeconomic pharmaceutical events); tax rate was taken to be 15% at the expected global minimum; and cost of debt was derived from the implied spread from the historical average risk-free rate based on its expected interest coverage ratio.

Figure 27: Clinical Trial Discount Rates

Discount Rates	
Input	**Rate (%)**
Preclinical Stage Discount Rate	17.7
Phase I/II Discount Rates	13.3
Phase III Discount Rate	13.6
Phase IV Discount Rate	8.7

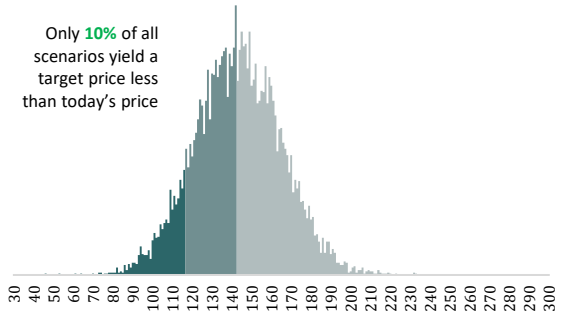
Source: Baras et al, 2012

Figure 28: Clinical Trial Discount Rates

Probability Distributions						
Probability	FCFF Margin	Preclinical Discount	Phase I/II Discount	Phase III Discount	Phase IV	WACC
1st Percentile	8.0%	15.7%	11.3%	11.6%	6.7%	4.8%
Median/Mean	13.0%	17.7%	13.3%	13.6%	8.7%	5.8%
99th Percentile	18.0%	19.7%	15.3%	15.6%	10.7%	6.8%
Implied Std Dev	2.2%	0.9%	0.9%	0.9%	0.9%	0.4%

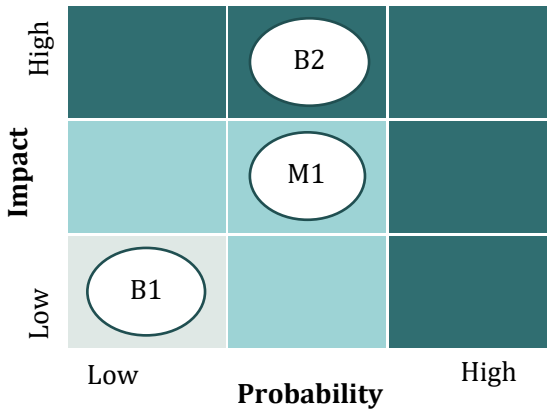
Source: Team Estimates

Figure 29: Monte Carlo Simulation



Source: Team Estimates

Figure 30: Risk Matrix



Source: Team Estimates

Terminal revenue from FY26 to FY46 was discounted by both WACC and clinical trial discount rates. Since there is a probability of failure and different R&D completion timings associated with each of Horizon's pipeline drugs, the clinical trial discount rates used account for both the probability of failure and the time value of money. Preclinical stages, Phase I/II, Phase III and Phase IV drugs were discounted by 17.7%, 13.3%, 13.6% and 8.7% respectively (Baras et al., 2012).

Sensitivity Analysis

Monte Carlo analysis was performed over 10,000 iterations, flexing on terminal FCFF margins, the abovementioned discount rates, and WACC. The various parameters were assumed to follow a normal distribution.

The 50th percentile estimate of US$142.60 arising from the simulation was taken to be the target price. In addition, there is an asymmetric risk-reward opportunity – only 10% of simulated scenarios yield a target price that is less than the current price. As our recommendation of a buy remains for over 90% of scenarios, our model is robust with respect to variance in key uncertain parameters.

Investment Risks

Market Risk 1(M1)

Payer pricing pressure causing loss of coverage under Medicare and insurers: Horizon's products have exorbitant costs, which is a double-edged sword. They are widely used mainly because of their accessibility; most of the costs are covered under Medicare through collaboration with PBMs. The argument for high prices failing to justify value and reinvestment into R&D could severely affect revenues for Horizon. However, it is our opinion that this issue is deeply pervasive of the pharmaceutical industry and not unique to Horizon, therefore, changes in pricing policies are foreseeably difficult and arduous to enact fairly.

Business Risk 1 (B1)

Potential entry of competitors for key pipeline drugs: Selecta Biosciences has a Phase 3 clinical product candidate for chronic refractory gout, SEL212, which has shown some positive results in their recent topline data. Hence, there is a possibility that SEL212 will be approved by the FDA upon completion of its phase 3 trial this year, which will erode KRYSTEXXA's market share. However, the clinical data shown exposed some flaws in SEL212; mainly, it did not meet the primary endpoint of statistical superiority in the trials. Hence, the probability of this risk can be regarded as minimal, although it is not negligible.

Currently, UPLIZNA is only approved for the treatment of NMOSD, but there are multiple competitors in the NMOSD market. The closest threat would be Telitacicept by RemeGen, which is in Phase III stage of clinical trial evaluation to treat NMOSD. If Telitacicept is approved, this could erode UPLIZNA's market share.

Business Risk 2 (B2)

Possibility of clinical trial failure: The outcome of clinical testing is often uncertain. Failure can occur at any time during the clinical trial process. However, Horizon's R&D and acquisition strategy for top-class drugs have proved itself in the past and we expect the same moving forward.

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Appendix B: Parameter Estimation for Pipeline Drugs

<table>
<tr><td>Existing Portfolio Drugs (less inflammation segment)</td><td>Projected that they will reach their estimated sales peak at the end of their exclusivity life plus half of their remaining patent life, after which they will start declining when competition eventually arrives. This reflects our view that even without marketing exclusivity, these clinically superior drugs will continue to be the preferred treatment for the indication, allowing sales to ramp up

For each drug currently in their portfolio, the number of years to peak is the number of years of exclusivity left, and the years to decline is the number of patent years remaining.

Expected target revenues are as shown below:

<table><tr><td>TEPEZZA</td><td>3,500,000</td></tr><tr><td>KRYSTEXXA</td><td>1,000,000</td></tr><tr><td>RAVICTI</td><td>450,000</td></tr><tr><td>PROCYSBI</td><td>250,000</td></tr><tr><td>ACTIMMUNE</td><td>120,000</td></tr><tr><td>BUPHENYL</td><td>11,000</td></tr><tr><td>QUINSAIR</td><td>1,000</td></tr></table></td></tr>
<tr><td>Inflammation segment drugs</td><td>Estimated to have already reached its peak sales because they are not orphan drugs, and because sales have already begun to decline. Therefore, we priced in a decline based on the remaining patent period</td></tr>
<tr><td>All Pipeline Drugs</td><td>Depending on the stage of clinical trials, we are discounting the future revenues from 13-17%, which includes both the probability of success and the time value of money.

Already marketed drugs have a much lower discount rate at 8.6%

To factor in the net margins after deductions from sales intermediaries, we assumed that 80% of this sales price will actually go to Horizon.</td></tr>
<tr><td>KRYSTEXXA PROTECT and ADVANCE trials (Phase 4 clinical)

+

KRYSTEXXA Combination with immunomodulation in uncontrolled gout</td><td>PROTECT is an open-label trial that is evaluating the use of KRYSTEXXA for uncontrolled gout. ADVANCE is an open-label trial that evaluates the use of KRYSTEXXA plus MTX in patients who have previously failed KRYSTEXXA therapy.

The new trial therapies are expected to allow KRYSTEXXA therapies to target an additional 20% of their 100K uncontrolled gout patients. This is because both trials target relatively niche groups of patients: PROTECT aims to evaluate the drug for the most severe kidney transplant patients, and ADVANCE is only for those who have failed on KRYSTEXXA alone. However, together with their Phase 3 KRYSTEXXA Combination trial candidate, the KRYSTEXXA pipeline is expected to successfully expand their addressable target market to 100k patients. In other words, the combination therapy is expected to help address 60-80% of this target.

The high safety, efficacy and convenience of KRYSTEXXA, in addition to their already ongoing efforts to expand the KRYSTEXXA marketing and sales channels gives us confidence that they will be able to hit the target of 100k that they have set for themselves.

The revenue per year for the drug was pegged at 80% of the existing list price for KRYSTEXXA, based on the number of doses per year per patient.</td></tr>
<tr><td>UPLIZNA/ HZN-825/HZN-4920/HZN-7734/TEPEZZA/HZN-116</td><td>For the remaining pipeline drugs, we estimated their target addressable market based on the approximate incidence of the disease in the United State population.

For pipeline drugs without any current list price, we conservatively pegged prices at the price of an equivalent cost of therapy or care for a single year for that particular indication. Since the price is at this level, we estimate that HZNP will be able to capture at least 50% of the addressable market based on the price</td></tr>
</table>

	alone. The improved quality of life from the new treatment will likely cause this number to be larger. If management's guidance for the addressable market was available, that number was used as the estimate instead of an estimated incidence rate.
Arrowhead/ HZN-003/007/HemoShear	These are pre-clinical therapies and treatments that seek to use novel methods to expand the total addressable market. Partnerships with Arrowhead seek to address approximately 500k patients Commercial terms with arrowhead not certain except for a 40m upfront payment. This will likely not have a significant impact on the total revenue flows of the firm in the long term. Hemoshear is seeking to address novel gout targets using genetic therapies, which is expected to allow HZNP to target the next tranche of US gout patients that are still seeking treatments but are excluded from KRYSTEXXA treatments because they have milder cases of gout. Estimated target market is approximately 4.2 M, but we assumed a conservative 5% of market penetration because of the uncertainty surrounding novel genetic therapies. This puts the addressable market at around 225k patients, in line with market penetration of Arrowhead. The price for these two therapies were tagged at the yearly price of KRYSTEXXA, because these are similar gout therapies.
Terminal Value	The total terminal value for the firm was calculated as the total cash value of the future drugs into perpetuity. Revenues were aggregated, following which a cash flow margin from 10-15% was applied in a Monte Carlo Scenario Analysis together with other variables.

Appendix C: Financial Model

Cash Flow Consolidation

USD Thousands	FY19	FY20	FY21E	FY22E	FY23E	FY24E	FY25E
Cash flows from operating activities:							
Net income	573,020	389,796	487,368	637,820	797,561	1,096,390	1,538,501
Adjustments to reconcile net income to net cash provided by operating activities:							
Depreciation and amortization expense	237,157	279,451	268,498	277,393	288,885	303,306	322,743
Equity-settled share-based compensation	91,215	146,627	217,977	273,522	331,120	440,229	600,380
Goodwill	0	0	(2,775,330)	0	0	0	0
Acquired in-process research and development expense	0	77,517	0	0	0	0	0
Loss on debt extinguishment	58,835	31,856	0	0	0	0	0
Amortization of debt discount and deferred financing	22,602	12,640	0	0	0	0	0
(Gain) loss on sale of assets	10,963	(4,883)	0	0	0	0	0
Deferred income taxes	(565,537)	(33,453)	0	0	0	0	0
Impairment of long-lived assets	0	0	0	0	0	0	0
Foreign exchange and other adjustments	574	1,812	0	0	0	0	0
Changes in operating assets and liabilities:							
Accounts receivable	56,166	(251,173)	(279,272)	(239,270)	(248,112)	(470,010)	(689,876)
Inventories	(3,268)	(21,451)	(18,966)	(22,765)	(23,126)	(44,165)	(64,302)
Prepaid expenses and other current assets	(72,763)	(114,788)	(66,761)	(86,640)	(89,842)	(170,192)	(249,806)
Accounts payable	(8,723)	16,015	10,689	12,115	12,479	23,701	34,697
Accrued trade discounts and rebates	8,591	(113,991)					
Accrued expenses	19,788	114,621					
Deferred revenues	(4,901)	0					
Other non-current assets and liabilities	2,613	25,092	(275,334)	153,629	159,979	307,255	453,483
Net Cash Provided by Operating Activities	426,332	555,688	(2,431,131)	1,005,804	1,228,943	1,486,514	1,945,821
Cash flows from Investing Activities							
Payments for acquisitions	0	(262,305)	0	0	0	0	0
Purchases of property and equipment	(17,857)	(169,852)	(217,653)	(273,115)	(330,627)	(439,575)	(599,487)
Payment related to license agreement	0	(30,000)	0	0	0	0	0
Payments for long-term investments, net	0	(13,314)	0	0	0	0	0
Change in escrow deposit for property purchase	(6,000)	6,000	0	0	0	0	0
Proceeds from sale of assets	6,000	5,400	0	0	0	0	0
Net Cash provided by (used in) investing activities	(17,857)	(464,071)	(217,653)	(273,115)	(330,627)	(439,575)	(599,487)
Cash flows from Financing Activities							
Net proceeds from the issuance of ordinary shares	326,793	919,786	0	0	0	0	0
Net proceeds from the issuance of senior notes	590,057	0	0	0	0	0	0
Repayment of senior notes	(814,420)	(1,739)	1,596,000	0	0	0	0
Net proceeds from term loans	935,404	0	0	0	0	0	0
Repayment of term loans	(1,336,207)	0	0	0	0	0	0
Contingent consideration proceeds from divestiture	3,297	0	0	0	0	0	0
Proceeds from the issuance of ordinary shares in conjunction with ESPP program	11,317	16,168	0	0	0	0	0
Proceeds from the issuance of ordinary shares in connection with stock option exercises	24,882	36,869	0	0	0	0	0
Payment of employee withholding taxes relating to share-based awards	(31,569)	(66,505)	0	0	0	0	0
Net Cash provided by (used in) financing activities	(290,446)	904,579	1,596,000	0	0	0	0
Effect of foreign exchange rate on cash, cash equivalents and restricted cash	(107)	7,244	0	0	0	0	0
Net increase in cash, cash equivalents and restricted cash	117,922	1,003,440	(1,052,784)	732,688	898,316	1,046,940	1,346,334
Cash, cash equivalents and restricted cash, beginning of the year	962,117	1,080,039	2,083,479	1,030,695	1,763,383	2,661,699	3,708,639
Cash, cash equivalents and restricted cash, end of the year	1,080,039	2,083,479	1,030,695	1,763,383	2,661,699	3,708,639	5,054,973

Income Statement

USD Thousands	FY18	FY19	FY20	FY21E	FY22E	FY23E	FY24E	FY25E
Net Sales	1,207,570	1,300,029	2,200,429	2,819,685	3,538,200	4,283,267	5,694,681	7,766,340
Cost of Sales	(391,301)	(362,175)	(532,695)	(675,046)	(838,216)	(1,004,017)	(1,320,623)	(1,781,634)
Gross Margin	816,269	937,854	1,667,734	2,144,640	2,699,984	3,279,249	4,374,058	5,984,706
Research and development	(82,762)	(103,169)	(209,364)	(242,532)	(322,026)	(411,253)	(575,242)	(823,340)
Selling, general and administrative	(692,485)	(697,111)	(973,227)	(1,262,052)	(1,565,959)	(1,874,299)	(2,463,441)	(3,320,780)
Loss (gain) on sale of assets	42,985	(10,963)	4,883	0	0	0	0	0
Impairment of long-lived assets	(46,096)	0	0	0	0	0	0	0
EBIT	37,911	126,611	490,026	640,055	812,000	993,697	1,335,375	1,840,585
Interest expense, net	(121,692)	(87,089)	(59,616)	(83,063)	(83,063)	(82,199)	(82,358)	(82,298)
Loss on debt extinguishment	0	(58,835)	(31,856)	0	0	0	0	0
EBT	(83,132)	(20,224)	401,645	556,992	728,937	911,498	1,253,017	1,758,287
Income Tax Expense	44,752	593,244	(11,849)	(69,624)	(91,117)	(113,937)	(156,627)	(219,786)
Net Income	(38,380)	573,020	389,796	487,368	637,820	797,561	1,096,390	1,538,501

Balance Sheet Output

USD Thousands	FY18	FY19	FY20	FY21E	FY22E	FY23E	FY24E	FY25E
Assets								
Cash and Cash Equivalents	962,117	1,080,039	2,083,479	1,030,695	1,763,383	2,661,699	3,708,639	5,054,973
Working Capital and Others								
Receivables	464,730	408,685	659,701	938,973	1,178,243	1,426,355	1,896,365	2,586,240
Inventories								
Total Other Non-Financial Assets	77,177	152,087	273,244	340,005	426,645	516,487	686,679	936,485
D/A Objects								
Goodwill	413,669	413,669	413,669	3,188,999	3,188,999	3,188,999	3,188,999	3,188,999
Net PPE	20,101	30,159	189,037	391,981	640,510	934,594	1,321,727	1,847,091
Net Intangibles	1,950,269	1,702,628	1,782,962	1,534,026	1,286,072	1,038,584	792,573	548,806
Operating Lease Assets	0	39,800	34,400	29,547	24,693	19,840	14,987	10,134
Finance Lease Assets	0	0	0	0	0	0	0	0
Other Financial Assets and Investments								
Total Other Financial Assets	3,148	555,165	560,841	560,841	560,841	560,841	560,841	560,841
Total Assets	3,941,962	4,436,034	6,072,616	8,109,315	9,186,401	10,487,539	12,355,114	14,982,175
Liabilities								
Working Capital and Others								
Accounts Payable	30,284	21,514	37,710	48,399	60,513	72,992	96,693	131,390
Total Other Non-financial Liabilities	259,357	264,678	539,892	623,834	782,800	947,641	1,259,905	1,718,244
Other Financial Assets and Investments								
Total Other Financial Liabilities	565,531	560,668	418,937	66,474	66,474	66,474	66,474	66,474
Leases								
Total Operating Lease Liabilities	0	50,884	47,347	40,533	35,197	30,335	25,325	20,469
Debt								
Total Debt	1,896,684	1,352,841	1,003,379	2,599,379	2,599,379	2,599,379	2,599,379	2,599,379
Total Liabilities	2,751,856	2,250,585	2,047,265	3,378,619	3,544,363	3,716,821	4,047,777	4,535,957
Total Equity	1,190,106	2,185,449	4,025,351	4,730,696	5,642,037	6,770,718	8,307,337	10,446,219
Total Liabilities and Equity	3,941,962	4,436,034	6,072,616	8,109,315	9,186,401	10,487,539	12,355,114	14,982,175

Costs

Factoring Out Share-Based Compensation

USD Thousands	FY16	FY17	FY18	FY19	FY20	FY21E	FY22E	FY23E
Cost of Revenue	(392,001)	(493,368)	(391,301)	(362,175)	(532,695)	(675,046)	(838,216)	(1,004,017)
Add Back SBC	26	2469	3699	3818	7203	8,716	10,937	13,240
Actual Cost of Revenue	(391,975)	(490,899)	(387,602)	(358,357)	(525,492)	(666,329)	(827,279)	(990,777)
Research and development	(60,707)	(224,962)	(82,762)	(103,169)	(209,364)	(242,532)	(322,026)	(411,253)
Add Back SBC	9413	9263	8880	9117	13973	19,471	24,433	29,578
Actual Research and development	(51,294)	(215,699)	(73,882)	(94,052)	(195,391)	(223,061)	(297,592)	(381,675)
Selling, general and administrative	(603,048)	(655,093)	(692,485)	(697,111)	(973,227)	(1,262,052)	(1,565,959)	(1,874,299)
Add Back SBC	104705	109821	102281	78280	125451	189,789	238,151	288,301
Actual Selling, general and administrative	(498,343)	(545,272)	(590,204)	(618,831)	(847,776)	(1,072,263)	(1,327,807)	(1,585,998)
	0	0	0	0	0	**0**	**0**	**0**
Loss (gain) on sale of assets	0	0	42,985	(10,963)	4,883	0	0	0
Add Back SBC	0	0	0	0	0	0	0	0
Actual Loss (gain) on sale of assets	0	0	42,985	(10,963)	4,883	0	0	0
Impairment of long-lived assets	(71,260)	(22,270)	(46,096)	0	0	0	0	0
Add Back SBC	0	0	0	0	0	0	0	0
Actual Impairment of long-lived assets	(71,260)	(22,270)	(46,096)	0	0	0	0	0

Projected Shared-based Compensation Expense

USD Thousands	FY16	FY17	FY18	FY19	FY20	FY21E	FY22E	FY23E
Cost of Revenue	26	2,469	3,699	3,818	7,203	8,716	10,937	13,240
% revenues	0.00%	0.23%	0.31%	0.29%	0.33%	0.31%	0.00%	0.00%
Research and development	9,413	9,263	8,880	9,117	13,973	19,471	24,433	29,578
% revenues	0.96%	0.88%	0.74%	0.70%	0.64%	0.69%	0.00%	0.00%
Selling, general and administrative	104,705	109,821	102,281	78,280	125,451	189,789	238,151	288,301
% revenues	10.67%	10.40%	8.47%	6.02%	5.70%	6.73%	0.00%	0.00%
Loss (gain) on sale of assets	0	0	0	0	0	0	0	0
% revenues	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Impairment of long-lived assets	0	0	0	0	0	0	0	0
% revenues	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total SBC	114,144	121,553	114,860	91,215	146,627	217,977	273,522	331,120

Core Expense Projection

USD Thousands	FY16	FY17	FY18	FY19	FY20	FY21E	FY22E	FY23E
Cost of Revenue	(391,975)	(490,899)	(387,602)	(358,357)	(525,492)	(666,329)	(827,279)	(990,777)
% revenue	-40.0%	-46.5%	-32.1%	-27.6%	-23.9%	-23.63%	-23.38%	-23.13%
Base Case	*0*	*0*	*0.0025*	*0*	-23.9%	-23.63%	-23.38%	-23.13%
Research and development	(51,294)	(215,699)	(73,882)	(94,052)	(195,391)	(223,061)	(297,592)	(381,675)
% revenue	-5.2%	-20.4%	-6.1%	-7.2%	-8.9%	-7.91%	-8.41%	-8.91%
Base Case	*0*	*0*	*-0.5%*	*0*	-7.4%	-7.91%	-8.41%	-8.91%
Selling, general and administrative	(498,343)	(545,272)	(590,204)	(618,831)	(847,776)	(1,072,263)	(1,327,807)	(1,585,998)
% revenue	-50.8%	-51.6%	-48.9%	-47.6%	-38.5%	-38.03%	-37.53%	-37.03%
Base Case	*0*	*0*	*0.5%*	*0*	-38.5%	-38.03%	-37.53%	-37.03%
Loss (gain) on sale of assets	0	0	42,985	(10,963)	4,883	0	0	0
% revenue	0.0%	0.0%	3.6%	-0.8%	0.2%	0.00%	0.00%	0.00%
Base Case	*0*	*0*	*-0.6%*	*0*	0.0%	0.00%	0.00%	0.00%
Impairment of long-lived assets	(71,260)	(22,270)	(46,096)	0	0	0	0	0
% revenue	-7.3%	-2.1%	-3.8%	0.0%	0.0%	0.00%	0.00%	0.00%
Base Case	*0*	*0*	*0*	*0*	0.0%	0.00%	0.00%	0.00%

Depreciation Schedule

Assume that new CAPEX will be allocated in the same proportion as the gross PPE amounts at carrying cost as of FY19
Assume also that historical assets depreciate in the same manner and they have no salvage value

Estimated Useful Life of New PPE **27.7**

Average Useful Life	Conservative	Average	Optimistic	Weight	Years	Notes
Buildings	40.00	40.00	40.00	33.92%		
Land improvements	10.00	10.00	10.00	16.08%		
Machinery and equipment	5.00	6.00	7.00	1.98%		
Furniture and fixtures	3.00	4.00	5.00	2.64%		
Computer equipment	3.00	3.00	3.00	1.21%		
Software	3.00	3.00	3.00	0.00%		
Trade show equipment	3.00	3.00	3.00	0.00%		

PPE

At carrying cost	FY17	FY18	FY19	FY20
Buildings	0	0	0	80,341
Construction in process	0	0	265	63,656
Land	0	0	0	38,076
Leasehold improvements	14,956	9,982	25,985	26,323
Software	9,415	14,843	14,890	14,618
Machinery and equipment	4,819	4,800	5,217	4,695
Computer equipment	2,235	2,485	3,316	2,858
Other	2,508	2,501	6,334	6,261
Total PPE and Deposits at Gross	33,933	34,611	56,007	236,828

USD Thousands	FY18	FY19	FY20	FY21E	FY22E	FY23E	FY24E	FY25E
Purchases of PPE	(4,771)	(17,857)	(169,852)	(217,653)	(273,115)	(329,606)	(433,168)	(580,222)
Capex % Revenues	0.4%	1.4%	7.7%	7.7%				

CAPEX	FY18	FY19	FY20
Buildings	0	0	80,341
Construction in process	0	265	63,391
Land	0	0	38,076
Leasehold improvements	(4,974)	16,003	338
Software	5,428	47	(272)
Machinery and equipment	(19)	417	(522)
Computer equipment	250	831	(458)
Other	(7)	3,833	(73)
Total CAPEX	454	16,315	101,533

Average % into CAPEX	FY18	FY19	FY20	Average
Buildings	0.00%	0.00%	79.13%	26.38%
Construction in process	0.00%	1.62%	62.43%	21.35%
Land	0.00%	0.00%	37.50%	12.50%
Leasehold improvements	-1095.59%	98.09%	0.33%	-332.39%
Software	1195.59%	0.29%	-0.27%	398.54%
Machinery and equipment	-4.19%	2.56%	-0.51%	-0.71%
Computer equipment	55.07%	5.09%	-0.45%	19.90%
Other	-1.54%	23.49%	-0.07%	7.29%
				152.9%

USD Thousands	FY18	FY19	FY20	FY21E	FY22E	FY23E	FY24E	FY25E
Historical Depreciation	6,100	6,700	24,300	19,971	25,060	30,244	39,747	53,240
Historical Depreciation % Revenue	0.5%	0.5%	1.1%	0.7%				

USD Thousands	FY18	FY19	FY20	FY21E	FY22E	FY23E	FY24E	FY25E
Beginning PPE				189,037	391,981	640,510	933,609	1,314,605
Additions to PPE				217,653	273,115	329,606	433,168	580,222
Expected Depreciation				(14,708)	(24,586)	(36,507)	(52,173)	(73,157)
Ending Net PPE	20,101	30,159	189,037	391,981	640,510	933,609	1,314,605	1,821,670

USD Thousands	FY18	FY19	FY20	FY21E	FY22E	FY23E	FY24E	FY25E
Historical Depreciation				(6,837)	(6,837)	(6,837)	(6,837)	(6,837)
FY20				(7,872)	(7,872)	(7,872)	(7,872)	(7,872)
FY21E					(9,878)	(9,878)	(9,878)	(9,878)
FY22E						(11,921)	(11,921)	(11,921)
FY23E							(15,666)	(15,666)
FY24E								(20,985)
Total Depreciation				(14,708)	(24,586)	(36,507)	(52,173)	(73,157)

Intangible Objects Amortization Schedule

USD Thousands	FY18	FY19	FY20	FY21E	FY22E	FY23E	FY24E	FY25E
Beginning Intangibles				1,782,962	1,534,026	1,286,072	1,038,584	792,573
Additions to Intangibles				0	0	0	0	0
Expected Amortization				(248,936)	(247,954)	(247,488)	(246,011)	(243,767)
Ending Net Intangibles	1,950,269	1,702,628	1,782,962	1,534,026	1,286,072	1,038,584	792,573	548,806

USD Thousands	FY18	FY19	FY20	FY21E	FY22E	FY23E	FY24E	FY25E
Historical/Expected Amortization				(248,936)	(247,954)	(247,488)	(246,011)	(243,767)
FY21E				0	0	0	0	0
FY22E					0	0	0	0
FY23E						0	0	0
FY24E							0	0
FY25E								0
Total Depreciation				(248,936)	(247,954)	(247,488)	(246,011)	(243,767)

Working Capital

USD Thousands	FY18	FY19	FY20	FY21E	FY22E	FY23E	FY24E	FY25E
Accounts Receivable	464,730	408,685	659,701	938,973	1,178,243	1,421,948	1,868,727	2,503,131
DSO	140.47	114.74	109.43	121.55	121.55	121.55	121.55	121.55
Optimistic				122.55	122.55	122.55	122.55	122.55
Base Case				121.55	121.55	121.55	121.55	121.55
Conservative				120.55	120.55	120.55	120.55	120.55
Inventories	50,751	53,802	75,283	94,249	117,014	139,707	181,619	240,617
DIO	47.79	54.80	52.29	51.63	51.63	51.63	51.63	51.63
Optimistic				52.63	52.63	52.63	52.63	52.63
Base Case				51.63	51.63	51.63	51.63	51.63
Conservative				50.63	50.63	50.63	50.63	50.63
Accounts Payable	30,284	21,514	37,710	48,399	60,513	72,767	95,284	127,168
DPO	10.96	7.26	8.80	9.01	9.01	9.01	9.01	9.01
Optimistic				10.01	10.01	10.01	10.01	10.01
Base Case				9.01	9.01	9.01	9.01	9.01
Conservative				8.01	8.01	8.01	8.01	8.01

Other Asset Disaggregation

USD Thousands	FY18	FY19	FY20	FY21E	FY22E	FY23E	FY24E	FY25E
Total Other Assets (Current and NC)	80,325	747,052	868,485	930,392	1,012,179	1,095,572	1,252,499	1,477,365
Deferred Tax Assets	3,148	555,165	560,841	560,841	560,841	560,841	560,841	560,841
Operating Lease ROU Assets	0	39,800	34,400	29,547	24,693	19,840	14,987	10,134
Total Other Non-financial Assets	77,177	152,087	273,244	340,005	426,645	514,891	676,671	906,390
%revenues	6%	12%	12%	12%				
Total Other Liabilities	824,888	876,230	1,006,176	1,083,305	1,236,934	1,393,985	1,685,806	2,102,434
Deferred Tax Liabilities	107,768	94,247	66,474	66,474	66,474	66,474	66,474	66,474
Accrued Trade Discounts and Rebates	457,763	466,421	352,463	352,463	352,463	352,463	352,463	352,463
Current Operating Lease Liabilities	0	0	0					
Total Lease Liabilities	0	50,884	47,347	40,533	35,197	30,335	25,325	20,469
Total Other Non-Financial Liabilities	259,357	264,678	539,892	623,834	782,800	944,713	1,241,544	1,663,028
% revenues	21%	20%	25%	22%				

Long Term Loans

Notes

				1	2	3	4	5
USD Thousands	**FY18**	**FY19**	**FY20**	**FY21E**	**FY22E**	**FY23E**	**FY24E**	**FY25E**
Existing Debt				1,003,379	2,599,379	2,599,379	2,599,379	2,599,379
Current Portion of Debt	0	0	0	0	0	0	0	0
Add: New Debt Financing				1,596,000	0	0	0	0
Total LT Debt Only (not total)	1,896,684	1,352,841	1,003,379	2,599,379	2,599,379	2,599,379	2,599,379	2,599,379

Contractual Interest Payments

Notes		Effective Interest Rate	Interest Expense >	FY21E	FY22E	FY23E	FY24E	FY25E
Total LT Debt Obligations				43,163	43,163	42,299	42,458	42,398
Term Loan Facility due 2028	12mo LIBOR (min 0.5%	2.500%		39,900	39,900	39,900	39,900	39,900
less repayment				0	0	0	0	0
Total Interest Payments				83,063	83,063	82,199	82,358	82,298

Debts

USD Thousands	FY18	FY19	FY20
Term Loan Facility due 2028			1,596,000
Term Loan Facility due 2026		418,026	418,026
Senior Notes due 2027		600,000	600,000
Exchangeable Senior Notes due 2022		400,000	0

Equity Consolidation

Equity

USD Thousands	FY18	FY19	FY20	FY21E	FY22E	FY23E	FY24E	FY25E
Beginning Equity Amount		1,190,106	2,185,449	4,025,351	4,730,696	5,642,037	6,767,009	8,280,184
New Equity Financing/ Stock Options		362,992	1,368,224	0	0	0	0	0
Stock Repurchase		0	0	0	0	0	0	0
Add: Net Income/ (Loss)		573,020	389,796	487,368	637,820	794,875	1,079,361	1,486,747
Less: Dividends		0	0	0	0	0	0	0
Add: Share Based Compensation Expense		91,215	146,627	217,977	273,522	330,097	433,814	581,086
Other Equity Movements		(31,884)	(64,745)	0	0	0	0	0
Ending Equity	1,190,106	2,185,449	4,025,351	4,730,696	5,642,037	6,767,009	8,280,184	10,348,017

Leases and Right of Use Assets

	Operating Leases	Finance Leases
Discount Rate	7.08%	0.0%
Implied Additional Years of Lease	2.088	0.0%

Operating Leases

				1.00	2.00	3.00	4.00	5.00	7.09
USD Thousands	**FY18**	**FY19**	**FY20**	**FY21E**	**FY22E**	**FY23E**	**FY24E**	**FY25E**	**TV**
Undiscounted Lease Maturities				7,296	6,119	5,969	6,587	6,836	33,241
Discounted Lease Maturities				6,814	5,337	4,862	5,010	4,856	20,469
Total Future Undiscounted Lease Payments			66,048	58,752	52,633	46,664	40,077	33,241	
Total Future Discounted Lease Payments			47,347	40,533	35,197	30,335	25,325	20,469	
Implied Imputed Interest			(18,701)	(18,219)	(17,436)	(16,329)	(14,752)	(12,772)	
Total Operating Lease Liabilities	0	50,884	47,347	40,533	35,197	30,335	25,325	20,469	

Operating Leases

USD Thousands	FY18	FY19	FY20	FY21E	FY22E	FY23E	FY24E	FY25E	TV
Average Lease Expense			4,853	4,853	4,853	4,853	4,853	4,853	
ROU Asset Amortization				(4,853)	(4,853)	(4,853)	(4,853)	(4,853)	
Operating Lease Assets	0	39,800	34,400	29,547	24,693	19,840	14,987	10,134	

Finance Leases

USD Thousands	FY18	FY19	FY20	FY21E	FY22E	FY23E	FY24E	FY25E	TV
Average Lease Expense			0	0	0	0	0	0	
Asset Amortization				0	0	0	0	0	
Finance Lease Assets	0	0	0	0	0	0	0	0	

Financial Assets and Liabilities

Assets

USD Thousands	FY18	FY19	FY20	FY21E	FY22E	FY23E	FY24E	FY25E
Total Derivative Assets	0	0	0	0	0	0	0	0
Deferred Tax Assets	3,148	555,165	560,841	560,841	560,841	560,841	560,841	560,841

Liabilities

USD Thousands	FY18	FY19	FY20	FY21E	FY22E	FY23E	FY24E	FY25E
Total Derivative Liabilities	457,763	466,421	352,463	352,463	352,463	352,463	352,463	352,463
Deferred Tax Liabilities	107,768	94,247	66,474	66,474	66,474	66,474	66,474	66,474

Investments

Other Investments

USD Thousands	FY18	FY19	FY20	FY21E	FY22E	FY23E	FY24E	FY25E
Short Term Investments	0	0	0					
Long Term Investments	0	0	0					
Total Investments	0	0	0	0	0	0	0	0
Investments % Revenue	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%