hardman&co

Pharmaceuticals & Biotechnology

Source: Eikon Thomson Reuters

Market data	
EPIC/TKR	**OXB**
Price (p)	12.5
12m High (p)	13.2
12m Low (p)	4.4
Shares (m)	3,283.7
Mkt Cap (£m)	410.5
EV (£m)	433.0
Free Float	63%
Market	LSE

Description

Oxford BioMedica is a UK-based biopharmaceutical company specialising in cell and gene therapies developed using lentiviral vectors – gene-delivery vehicles based on virus particles. In addition to vector development and manufacture, OXB has a pipeline of therapeutic candidates and undertakes innovative pre-clinical R&D in gene-medicine.

Company information

CEO	John Dawson
CFO	Stuart Paynter
Chairman	Lorenzo Tallarigo

+44 1865 783 000
www.oxfordbiomedica.co.uk

Key shareholders

Directors	0.4%
Vulpes	17.7%
M&G	17.7%
Aviva	6.7%
Hargreaves Lansdown	3.9%

Diary

May-18	AGM
Aug-18	Interims

Analysts

Martin Hall 020 7194 7632
mh@hardmanandco.com
Dorothea Hill 020 7194 7626
dmh@hardmanandco.com
Grégoire Pavé 020 7194 7628
gp@hardmanandco.com

Oxford BioMedica

Supply to meet demand

OXB is a specialist advanced-therapy lentivirus-based vector biopharma company. It offers vector manufacturing and development services, and is developing its own proprietary drug candidates. In addition to LentiVector® service contracts, OXB will receive royalties on commercial therapies developed with its platform. This deal structure was established with Novartis for Kymriah™ in 2017 and was followed post-period end by a collaboration and licence agreement (adopting a similar structure) with Bioverativ Inc (BIVV). Investment in manufacturing is being made to increase capacity and meet demand from further such deals.

- **Strategy**: OXB has four strategic objectives: delivery of process development services that embed its technology in partners' commercial products; commercial manufacture of lentiviral vector; out-licensing of proprietary candidates; and investment in R&D and the LentiVector platform.

- **FY results:** Growth in gross income (sales plus all other income) was key, rising 28% to £39.4m (£30.8m). This included grant income of £2m and licensing fees from Novartis (both original and new deals). Total operating costs increased 12% to -£46.4m (-£41.2m). The EBITDA loss was greatly reduced at -£2.6m (-£6.8m).

- **Placing:** Post period-end, OXB raised £20.5m gross (ca.£19.3m net) through the issue of 174.4m new Ordinary 1p shares, at a price of 11.75p per share, with existing and new shareholders in the UK and the US. The stated use of proceeds is investment in new facilities to meet demand for vector bioprocessing.

- **Risks:** The mid-term sales model, plus the ability to pay off debt, are dependent on successful progress of partners' clinical trials and commercialisation of LentiVector-enabled products, for receipt of bioprocessing milestones and royalty payments. All gene-therapy companies are subject to significant clinical risk.

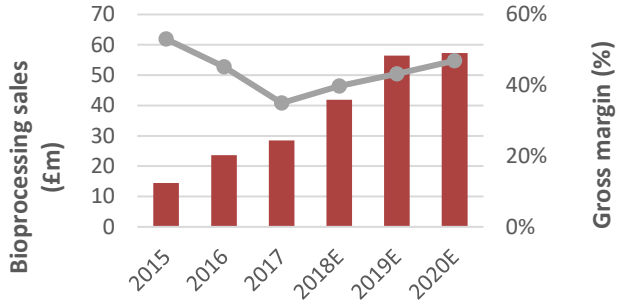
- **Investment summary:** OXB has transitioned to a commercial-stage company. Heavy, ongoing, investment in state-of-the-art GMP manufacturing facilities for production of gene therapy vector has resulted in commercial supply agreements with Novartis and a licence agreement with BIVV, on top of existing partnerships. The next value inflection points include the completion of Orchard Therapeutics' pivotal trial and further approvals of Novartis' Kymriah.

Financial summary and valuation

Year-end Dec (£m)	2015	2016	2017	2018E	2019E	2020E
Sales	15.91	27.78	31.49	42.30	58.00	65.80
EBITDA	-11.73	-6.78	-2.63	0.41	6.18	19.98
Underlying EBIT	-13.35	-10.45	-7.00	-4.02	1.33	14.67
Reported EBIT	-14.08	-11.32	-5.67	-5.08	0.17	13.41
Underlying PBT	-16.25	-15.34	-15.88	-8.41	-0.92	15.63
Statutory PBT	-16.98	-20.31	-11.76	-9.47	-2.08	14.36
Underlying EPS (p)	-0.48	-0.42	-0.42	-0.15	0.10	0.60
Statutory EPS (p)	-0.51	-0.60	-0.29	-0.19	0.06	0.56
Net (debt)/cash	-17.90	-19.05	-22.54	-20.40	-31.81	-17.70
Capital increase	0.14	17.50	0.39	19.40	0.10	0.10
P/E (x)	-	-	-	-	-	21.0
EV/sales (x)	-	-	-	-	-	21.7

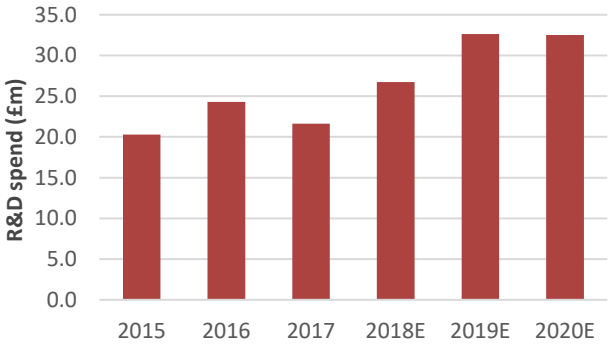
Source: Hardman & Co Life Sciences Research

Sales and gross margin



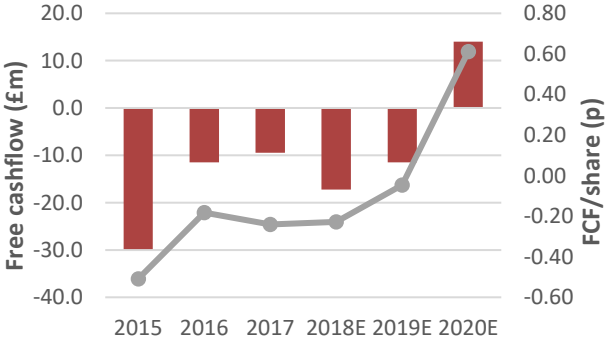
- Sales are from bioprocessing and process development fees. Gross income includes other income such as development milestones.
- Royalties will be receivable after partners' therapies reach the market, and are included in 'other income'
- The gross margin is forecast to trend in an upward direction over the next three years, as existing bioprocessing manufacturing capacity is fully utilised and more capacity comes on stream

R&D



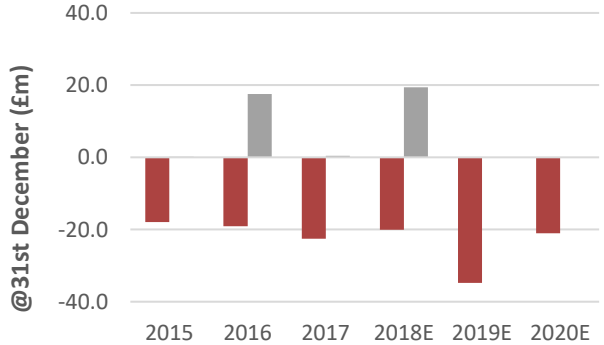
- Increased R&D spend is driven by investment in process development and LentiVector platform technology
- OXB intends to out-license/spin-out proprietary candidates, although it is going to start trials with its Parkinson's disease drug
- Process development for external customers is costed through the R&D line

Free cashflow and FCF/share



- OXB is expected to turn cash-generative from an operational standpoint in fiscal 2020
- Actual cash fluctuates, dependent on the timing of receipt of milestones and royalties
- Free cashflow will be affected by the investment being made to increase bioprocessing manufacturing capacity

Net debt and capital increases



- At 31st December 2017, OXB had net debt of -£22.5m, composed of £14.3m cash and £38.8m debt
- On 9th March 2018, the company raised new funds of £19.3m (net) through a Placing of shares at 11.75p for investment in manufacturing capacity
- $5.0m/£3.5m was received in February 2018 from BIVV following the signing of a collaboration and licence agreement

Source: Company data, Hardman & Co Life Sciences Research

Full-year results

Key features

Financial

- **Sales:** In the 12 months to December 2017, sales (bioprocessing and process development) together grew 13.4% to £31.5m. This was slightly below forecasts, by -£1.2m, when licensing income of £4.1m is excluded, and was driven by bioprocessing of clinical vector for Novartis and Orchard Therapeutics.
- **Gross margin:** COGS increased by 56% in 2017 to -£18.4m, greater than forecast by £0.9m, as a result of materials and sub-contracted costs. The gross margin therefore fell by 10.2pps to 35.0% (45.2%).
- **SG&A:** Reflecting the investment to deliver on partnerships and to prepare for capacity expansion, SG&A costs grew by 24% to -£6.3m (-£5.1m) for the period.
- **R&D:** R&D spend fell by -11% to -£21.6m (-£24.3m) due to a switch in bias from process development to bioprocessing revenue, and a drop off from 2016's increased investment in development of the LentiVector platform.
- **Other income:** The 2017 Innovate UK grant and up-front payment from Novartis contributed to growth of 162% to £7.9m (£3.0m) in other income. This was £5.1m above forecasts, due, in part, to a milestone from the original Novartis contract.
- **Gross income:** Together, sales and other income grew 28% to £39.4m (£30.8m).
- **Operating profit:** The underlying EBIT loss improved by 33% to -£7.0m (-£10.5m) and the statutory operating loss improved to -£5.7m (-11.3) for the period.
- **Cash position:** OXB has net debt of -£22.5m (-£19.1m) following a refinancing of debt in June 2017 to increase the facility, free up cash, and reduce related costs.

Operational

- **Novartis deal:** The major deal signed in July 2017 for commercial supply of vector for CAR-T programmes was worth >$100m in three years, plus royalties on net sales. In 2017, OXB provided bioprocessing of clinical batches and process development for ongoing CAR-T programmes.
- **New appointments:** In preparation for capacity expansion, headcount has been increased, including three new senior executive team positions.

Full-year analysis – actual vs forecasts

Period to December (£m)	2016 actual	2017 actual	2017 forecast	Delta Δ
Gross income	30.8	39.4	41.6	-2.2
Sales	27.8	31.5	36.8	-5.3
COGS	-11.8	-18.4	-17.5	-0.9
SG&A	-5.1	-6.3	-6.4	+0.1
R&D	-24.3	-21.6	-22.1	+0.5
Other income	3.0	7.9	2.8	+5.1
Underlying EBIT	-10.5	-7.0	-4.4	-2.6
Depreciation & amort.	-3.7	-4.4	-4.4	0.0
EBITDA	-6.8	-2.6	0.0	-2.6
Operating profit	-11.3	-5.7	-5.4	-0.3
Underlying EPS (p)	-0.5	-0.4	-0.2	-0.3
Net cash/(debt)	-19.1	-22.5	-19.2	-3.3

Source: Hardman & Co Life Sciences Research

Post-period event: capital increase

On 15th February 2018, OXB announced that it had signed a collaboration and licence agreement with Bioverativ (BIVV) for the development and potential manufacture of vector for haemophilia gene therapy. In our report (28th February 2018) detailing the significance of this deal – '*Bioverativ deal – establishes structure*'[1] – we highlighted that this deal, together with existing partnerships with Novartis and Orchard Therapeutics, would utilise most of OXB's manufacturing capacity and that, if OXB were to attract further deals, it would need to invest in expanding its manufacturing capacity. On 9th March 2018, OXB announced a Placing to raise £20.5m gross new funds specifically for investment in its bioprocessing facilities.

Placing

The Placing was by way of an accelerated book build. OXB raised £20.5m gross (ca.£19.3m net) through the issue of 174,346,817 new Ordinary 1p shares at a price of 11.75p per share with existing and new shareholders in both the UK and the US. This represented a discount of 5.7% to the middle market price at the time of the announcement. The new shares represent 5.3% of the enlarged share capital and were admitted to trading on the main market on 14th March 2018. At the time of writing, only those institutions listed below have declared their new holdings.

Changes in major shareholdings

Shareholder	Pre-Placing		Number of	Post-Placing	
	Number of shares	%	Placing shares	Number of shares	%
Vulpes	580,908,434	18.68%	-	580,908,434	17.69%
M&G	558,825,646	17.97%	21,891,383	580,717,029	17.68%
Total number of shares	**3,109,340,469**		**174,346,817**	**3,283,687,286**	

Source: London Stock Exchange announcements, Hardman & Co Life Sciences Research

Use of proceeds

In 2017, OXB became the first and only supplier of lentiviral vector for a commercial therapeutic product, Kymriah (Novartis). Subsequently, the company has received a number of business development enquiries regarding the LentiVector platform, given OXB's IP position, 'know-how' and expertise. OXB estimates that the bioprocessing market was valued at ca.$200m in 2017 and is expected to grow to $800m by 2026[2], excluding milestones and royalties. Therefore, in order to satisfy this demand, the company has taken the decision to invest in more than doubling its bioprocessing capacity as follows:

- OXB has identified and is negotiating terms for a vacant 84,000 sq.ft. building near its existing HQ in Oxford.
- Phases 1 and 2 will involve ca.55% of this facility being converted into four GMP LentiVector production suites, a fill-and-finish area, and warehouse and office space.
- OXB estimates the costs of phases 1 and 2 to be £19m – split £14m for the GMP suites, £3m for the fill-and-finish suite, and £2m for the support plans.
- Costs will be incurred between 2Q'18 and 1H'21, with the first phase of expansion expected to become operational from 3Q'19.

[1] 28.02.18-bioverativ-deal-establishes-structure.pdf
[2] OXB Placing document – 9th March 2018.

Supply to meet demand

To balance the risks to shareholders (from development of proprietary cell and gene therapy candidates) with nearer-term creation of value (from bioprocessing and process development partnerships), the company's strategy is to advance clinical development of drug candidates through transfer to special purpose vehicles (SPVs) or out-licensing to partner organisations. The business model, therefore, includes licensing and partnership deals, collaboration agreements, bioprocessing supply deals, and progression of the proprietary discovery and pre-clinical pipeline.

Bioprocessing and process development deals

Novartis CAR-T bioprocessing deal

In July 2017, the deal for OXB to provide Novartis with lentivirus-based vector to supply its CAR-T programmes was extended to include commercial manufacture, in addition to ongoing process development. This included a $10m upfront payment and a minimum take-off contract of $90m of vector over three years, excluding royalties on net sales. Kymriah was approved by the FDA for r/r B-cell acute lymphoblastic leukaemia (ALL) in September, and BLA and NDA submissions have subsequently been made for r/r diffuse large B-cell lymphoma (DLBCL) and B-ALL/DLBCL in the US and Europe, respectively. Additional approvals can be expected within a month given the regulatory timelines experienced for Kymriah in B-ALL. Further information can be found in our recent reports[3,4,5].

Kymriah commercial progress

Since approval, Novartis has not disclosed sales of Kymriah in the US for B-ALL, and we have not assumed any royalty payments to OXB in 2017. Although the majority of OXB's bioprocessing capacity was employed in fulfilling the Novartis deal in 2017, this was provision of clinical batches of vector (we presume mainly for DLBCL). Novartis appears to have 35 treatment centres up and running across the US, in line with statements made in September 2017, and it is our expectation that there will be a small royalty payment to OXB in 2018 which will then increase slowly.

Post-period deal with BIVV

OXB signed a collaboration and licence agreement with BIVV for the development and potential manufacture of vectors for two haemophilia gene therapy programmes in February 2018[1]. OXB received $5m up-front and is eligible to receive milestone payments of up to $100m, thus establishing a 'new normal' deal structure. As announced in January, BIVV is in the process of being acquired by Sanofi for $11.6bn. Since both programmes are in pre-clinical development, we do not anticipate that this will have an immediate impact on manufacturing capacity, but should the therapies be successful and progress through clinical development, additional investment in capacity would be required by OXB.

[3] 12.09.17-new-era-for-cell-and-gene-therapies.pdf
[4] 24.08.17-ready-for-ctl019-approval.pdf
[5] 07.07.17-major-deal-to-supply-novartis-car-t-programmes.pdf

Investment in capacity

Demand increasing

The approval of Kymriah (Novartis), the first therapeutic product incorporating lentivirus-based vector, has boosted confidence in gene-based medicines delivered using viral vectors, and in OXB's offering in particular. Consequently, demand for lentivirus-based vector and for commercial development partnerships with OXB has increased. Such vectors are difficult to produce, and there are few groups that have the expertise to make them, increasing the demand on companies that have both the expertise and the capacity to undertake such work. Therefore, OXB is readying itself to meet this demand in order to remain a leader in the market.

Approval of Kymriah, while validating OXB's technology and serving to increase demand for its services, will also draw the attention of competing manufacturers of viral vector, including leading multi-channel contract development and manufacturing organisations (CDMOs), such as Lonza (LONN). The establishment of a more commercialised approach to deal-making, as exemplified by the BIVV deal, with a clear structure that embeds the LentiVector platform in partner therapies and positions OXB as the lead supplier of vector on approval, will allow OXB to remain ahead of the curve and to continue its transition to a commercial-stage organisation.

Its scale is, however, still notably less than that of pure-play CMOs, and considerable increases in manufacturing capacity are needed should: a) Novartis achieve further approvals for Kymriah and additional CAR-Ts; b) Orchard Therapeutics' pivotal trial be successful and achieve marketing authorisation; c) further deals for bioprocessing be signed, which is a stated expectation of management for this financial year.

Capacity expansion

As discussed earlier, the Board has taken the pro-active decision to invest in a new facility that will house additional GMP clean rooms for vector manufacturing, add a fill-and-finish capability (currently out-sourced), and provide warehousing. Furthermore, the footprint of the proposed new facility is sufficiently large to allow the addition of a further three GMP vector manufacturing suites in the future. The cost of initial planned expansion (phases one and two) is in the order of £19m, which will be spread over three years (estimated to be £8m, £8m, £3m). The first phase is expected to be completed at the end of 2019, with 50% of the new capacity to be live in 2020. At this point in time, the manufacturing capacity at OXB will be broadly equivalent to one of Lonza's smaller manufacturing sites. OXB is adopting a modular design approach that will allow further capacity expansion to meet the expected increase in demand in the future. For example, another GMP vector manufacturing suite could be added relatively easily in an unutilised part of the new facility, without causing disruption, for ca.£4m.

Planned increase in manufacturing capacity

Oxfordshire sites	Current	Planned by 2020	2020
Footprint	2,245m^2	4,200m^2	6,445m^2 +3,600m^2 unutilised
Cleanrooms	3	4	7
Fill-and-finish	Outsourced	In-house	All in-house
Warehousing	✗	✓	✓
Cost	£26m	£19m	-

Source: Hardman & Co Life Sciences Research

Scalability of bioreactors

Source: Sartoriusi

The additional cleanrooms will initially house the 200l bioreactors that are currently in use for development-scale bioprocessing (technology partially funded by the £2m Innovate UK grant awarded in August 2017). The space available allows flexibility to buy in larger volume bioreactors (up to 2,000l), as suspension culture technology advances. Reflecting the company's progression to a competitive CMDO, alongside its proprietary offering, the addition of fill-and-finish and warehousing capabilities should improve margins by reducing sub-contracted costs, improve manufacturing timeframes, and de-risk production through an in-house end-to-end cold chain.

Capacity will be augmented by transfer to commercial scale of OXB's proprietary TRiP technology, for more efficient and higher-yield vector bioprocessing. Combined, higher-volume suspension cultures and TRiP technology support 'next generation bioprocessing', reducing cost of goods and further attracting customers.

Product pipeline

Given OXB's stated strategy to spin-out or partner its in-house developed products, all the attention over the last 12 months has been on OXB's bioprocessing and process development activities. However, OXB has been in active communication with US-based venture capital partners, and discussions are ongoing.

OXB – product pipeline

Product	Indication	Pre-Clinical	Phase I	Phase I/II	Phase II	Phase III	Approval	
LentiVector® platform								
CTL019[1,2]	r/r ALL							NOVARTIS
CTL019[1]	r/r DLBCL							NOVARTIS
2nd CAR-T	Cancer (multiple)							NOVARTIS
CMB305	Advanced, relapsed or metastatic sarcoma							IMMUNE DESIGN
LV305	NY-ESO-1 expressing cancers							IMMUNE DESIGN
OTL-101	ADA severe combined immunodeficiency					Process development and bioprocessing revenues, and royalties[3]		Orchard therapeutics
OTL-201	Sanfilippo A syndrome							Orchard therapeutics
Undisclosed	Undisclosed							GSK GlaxoSmithKline
Undisclosed	Undisclosed							GSK GlaxoSmithKline
Factor VIII	Hemophilia A							Bioverativ
Factor IX	Hemophilia B							Bioverativ
OXB Proprietary Products								
OXB-102	Parkinson's disease					To be spun out or out-licensed		OxfordBioMedica
OXB-202	Corneal graft rejection							OxfordBioMedica
OXB-302	Cancer, multiple							OxfordBioMedica
OXB-201	Wet AMD							OxfordBioMedica
OXB Partnered Products								
SAR422459	Stargardt disease							SANOFI
SAR421869	Usher syndrome 1B							SANOFI

Source: Oxford BioMedica

Parkinson's gene therapy to enter clinic

OXB has five wholly-owned gene-based therapeutic candidates in its pipeline for out-licensing/spin-out following pre-clinical development. The 2017 results announcement included a strategy update, with the progression of OXB-102 – a candidate gene therapy whose lower potency precursor, OXB-101 (ProSavin), was promising in Phase I/II trials – to Phase I/IIa trials in-house by 2H'18, unless a partner is secured. The therapy delivers therapeutic genes directly to the brain, increasing dopamine production, which compensates for that lost as a result of the disease. Single treatments could last many years, unlike the therapeutic effects of the current standard of care, Levodopa. The likely progression of this programme in to trials will require investment of £3m-£4m over a two-year period, with three trial sites being prepared in the UK and France. Successful progress will add incremental value.

OXB's closest competitor in this space is considered to be Voyager. Results from Voyager's Phase Ib clinical trial announced in March were mixed, with a lack of clear dose response – this could be related to the fact that efficacy of Voyager's candidate is contingent on concurrent L-dopa therapy, which is not the case for OXB-102.

Changes to forecasts

Expected increases in income

Forecasts have been updated to include additional process development fees (part of 'sales') from the BIVV partnership and in line with the clinical progress of Orchard Therapeutics' candidate gene therapy.

Other income (licensing fees, royalties, and grants) across the next three years has been increased to reflect the BIVV up-front payment, grant income and likely milestones. We have not altered our forecasts for the Novartis partnership at this stage.

Expected increases in costs

Overall costs have risen. OXB increased the average monthly headcount from 247 to 295, with 321 in position at the year-end, in order for to deliver on the signed contracts. A further increase towards 400 is expected in 2018, and to ca.500 in 2019, in part to staff the planned new manufacturing facility.

R&D spend is expected to increase in the near term. First, costs associated with the process development work being undertaken on behalf of BIVV are taken through this line. Second, OXB has made the decision to progress its lead candidate for *in vivo* gene therapy for Parkinson's Disease, OXB102, to Phase I clinical trials, which will cost about £3m-£4m over a two-year period. Third, final stages of the scaling-up of the TRiP and higher-volume suspension culture bioprocessing to commercial levels are underway.

As the new bioprocessing technologies come on line, gross margins are expected to increase due to economies of scale and increased production efficiency.

Updates to forecasts

Year-end Dec	**2018**		**2019**		**2020**	
(£m)	Old	New	Old	New	Old	New
Gross income	53.1	51.0	56.5	65.4	69.0	86.9
Sales	47.0	42.3	54.0	58.0	66.5	65.8
COGS	-19.3	-20.5	-20.8	-23.2	-23.4	-30.4
SG&A	-6.9	-7.8	-7.4	-8.7	-8.4	-9.2
R&D	-23.3	-26.7	-23.3	-32.2	-23.9	-32.7
Other income	6.1	8.7	2.5	7.4	2.5	21.1
EBITDA	**7.9**	**0.4**	**9.4**	6.2	17.7	20.0
Operating profit	-0.9	-5.1	0.5	0.2	12.0	13.4
Underlying EPS (p)	0.1	-0.2	0.2	0.1	0.4	0.6
Net cash/(debt)	-16.5	-20.4	-12.2	-31.8	-0.3	-17.7

Source: Hardman & Co Life Sciences Research

Financials and investment case

Profit & Loss

- **Gross revenue:** A new line has been included in our P&L table – gross income – which is the sum of bioprocessing revenue, process development (PD) fees, and all licensing fees – up-fronts, milestones and royalties – and grants, to show that our numbers, although presented differently, equate to those reported by OXB.
- **Bioprocessing:** Together with process development, bioprocessing will be the main growth driver of gross income over the next three years. Licensing income, which carries a margin of almost 100%, is included in 'other income'.

Profit & Loss account

Year-end Dec (£m)	2015	2016	2017	2018E	2019E	2020E
GBP:EUR	1.38	1.18	1.14	1.14	1.14	1.14
GBP:USD	1.53	1.35	1.29	1.29	1.29	1.29
Gross income	**18.77**	**30.78**	**39.36**	**51.00**	**65.40**	**86.90**
Bioprocessing + PD	14.44	23.60	28.46	41.89	56.47	57.30
Additional income	3.54	3.80	3.03	0.36	1.49	8.51
Group revenues	**15.91**	**27.78**	**31.49**	**42.30**	**58.00**	**65.80**
COGS	-5.84	-11.84	-18.44	-20.50	-23.18	-30.36
Gross profit	**10.07**	**15.94**	**13.05**	**21.80**	**34.82**	**35.44**
Gross margin (%)	53.1%	45.2%	35.0%	39.8%	43.3%	46.9%
SG&A	-6.01	-5.09	-6.31	-7.82	-8.71	-9.22
R&D	-20.27	-24.30	-21.61	-26.73	-32.19	-32.66
EBITDA	**-11.73**	**-6.78**	**-2.63**	**0.41**	**6.18**	**19.98**
Depreciation	-1.26	-3.34	-4.11	-4.21	-4.63	-5.09
Amortisation	-0.36	-0.34	-0.26	-0.21	-0.21	-0.21
Other income	2.86	3.00	7.87	8.73	7.40	21.12
Underlying EBIT	**-13.35**	**-10.45**	**-7.00**	**-4.02**	**1.33**	**14.67**
EBIT margin (%)	83.9%	37.6%	-22.2%	-9.5%	2.3%	22.3%
Share-based costs	-0.73	-0.87	-0.97	-1.07	-1.17	-1.27
Exceptional items	0.00	0.00	2.30	0.00	0.00	0.00
Stat. Operating profit	**-14.08**	**-11.32**	**-5.67**	**-5.08**	**0.17**	**13.41**
Net interest	-2.90	-4.89	-8.88	-4.39	-4.30	-4.28
Forex gain/loss	0.00	-4.11	2.79	0.00	0.00	0.00
Pre-tax profit	**-16.25**	**-15.34**	**-15.88**	**-8.41**	**-0.92**	**15.63**
Exceptional items	0.00	0.00	0.00	0.00	0.00	0.00
Reported pre-tax	-16.98	-20.31	-11.76	-9.47	-2.08	14.36
Tax payable/credit	3.96	3.67	2.74	3.42	4.11	4.17
Underlying net income	**-12.29**	**-11.67**	**-13.12**	**-4.99**	**3.25**	**19.79**
Statutory net income	-13.02	-16.64	-9.02	-6.05	2.09	18.52
Ordinary 1p shares						
Period-end (m)	2,574	3,088	3,108	3,283	3,284	3,285
Weighted average (m)	2,570	2,780	3,096	3,248	3,284	3,285
Fully-diluted (m)	2,676	2,902	3,352	3,504	3,541	3,543
U/lying basic EPS (p)	**-0.48**	**-0.42**	**-0.42**	**-0.15**	**0.10**	**0.60**
Stat. basic EPS (p)	-0.51	-0.60	-0.29	-0.19	0.06	0.56
U/l fully-diluted EPS (p)	**-0.46**	**-0.40**	**-0.39**	**-0.14**	**0.09**	**0.56**
Stat. fully-diluted EPS (p)	-0.49	-0.57	-0.27	-0.17	0.06	0.52
DPS (p)	0.0	0.0	0.0	0.0	0.0	0.0

Source: Hardman & Co Life Sciences Research

- **COGS/gross profit:** COGS and gross margins are calculated against bioprocessing sales to more accurately reflect what is going on the business.
- **Process development:** This is essentially a contracted service provided by OXB in the build-up towards a commercial product. We believe that OXB makes a modest margin on cost. The cost of undertaking this work is included in R&D.
- **R&D:** This is a blend between in-house R&D projects and process development costs. The move to take OXB102 into the clinic will increase R&D, which would drop out again in the event that the product is the subject of a licensing deal.
- **Net interest:** Interest payable will reduce in 2018 and beyond, reflecting the better terms from the new Oaktree loan facility.

Balance sheet

- **Loan facilities:** The long-term debt is the GBP equivalent of the $55m Oaktree loan which was agreed in 2017. The coupon is approximately 11%.
- **Net debt:** At 31st December 2017, the net debt was -£22.5m comprised of cash £14.3m and debt of £36.8m.
- **Capital increase:** OXB raised £19.3m (net) through a Placing of shares on 9th March, such that cash on the balance sheet on 15th March 2015 was ca.£33m.
- **Receivables:** The large increase in trade and other receivables from £6.9m to £17.1m was related to the timing of payment process development milestones, and manufacturing orders received just before the period end.

Balance sheet

@31st December (£m)	2015	2016	2017	2018E	2019E	2020E
Shareholders' funds	10.89	12.62	6.70	20.04	22.23	40.85
Cumulated goodwill	0.00	0.00	0.00	0.00	0.00	0.00
Total equity	10.89	12.62	6.70	20.04	22.23	40.85
Share capital	25.74	30.88	31.08	32.83	32.84	32.85
Reserves	-14.85	-18.26	-24.38	-12.79	-10.61	8.00
Provisions/liabilities	4.42	3.94	14.20	9.52	4.76	0.24
Deferred tax	0.00	0.00	0.00	0.00	0.00	0.00
Long-term loans	27.26	34.39	36.86	36.86	36.86	36.86
Short-term debt	0.00	0.00	0.00	0.00	0.00	0.00
less: Cash	9.36	15.34	14.33	16.46	5.05	19.17
less: Deposits	0.00	0.00	0.00	0.00	0.00	0.00
Invested capital	**33.21**	**34.95**	**40.48**	**47.00**	**55.85**	**55.83**
Fixed assets	24.40	27.51	25.37	31.03	36.36	37.33
Intangible assets	1.74	1.33	0.10	-0.12	-0.33	-0.55
Inventories	2.71	2.20	3.33	4.90	6.61	6.71
Trade debtors	*7.37*	*1.97*	*5.71*	*6.85*	*8.22*	*9.86*
Other debtors	*3.56*	*4.94*	*11.93*	*11.93*	*11.93*	*11.93*
Tax liability/credit	*2.72*	*3.00*	*2.78*	*2.76*	*3.42*	*4.11*
Trade creditors	*-3.59*	*-1.58*	*-3.68*	*-3.68*	*-3.68*	*-3.68*
Other creditors	*-5.70*	*-4.43*	*-5.05*	*-6.67*	*-7.67*	*-11.33*
Debtors less creditors	4.37	3.90	11.68	11.19	12.21	10.94
Invested capital	**33.21**	**34.95**	**40.48**	**47.00**	**55.85**	**55.83**
Net cash/(debt)	**-17.90**	**-19.05**	**-22.54**	**-20.40**	**-31.81**	**-17.70**

Source: Hardman & Co Life Sciences Research

Cashflow

- **Other income:** The Novartis royalties, plus up-front fees and milestones from licensing deals, carry 100% margins and flow through the P&L, suggesting that OXB will become cash-generative in fiscal 2020.
- **Depreciation:** The depreciation rate will rise as further investment in new manufacturing and storage facilities comes on stream.
- **Working capital:** Given that much of OXB's work is on a fee-for-service basis, there is no major working capital requirement for the group. Timing of receipts and payments does affect the change in working capital.
- **Capex:** Investment in the new manufacturing facilities is expected to see capital expenditure leap in 2018 and 2019, estimated at around £8m p.a., with the balance being spent in fiscal 2020.

Cashflow

Year-end Dec (£m)	2015	2016	2017	2018E	2019E	2020E
Underlying EBIT	-13.35	-10.45	-7.00	-4.02	1.33	14.67
Depreciation	1.26	3.34	4.11	4.21	4.63	5.09
Amortisation	0.36	0.34	0.26	0.21	0.21	0.21
Inventories	*-1.30*	*0.50*	*-1.13*	*-1.57*	*-1.71*	*-0.10*
Receivables	*-5.78*	*4.03*	*-10.73*	*-1.14*	*-1.37*	*-1.64*
Payables	*2.98*	*-3.28*	*2.73*	*0.00*	*0.00*	*0.00*
Change in working capital	-4.09	1.25	-9.13	-2.71	-3.08	-1.74
Exceptionals/provisions	0.95	-0.75	10.27	-0.75	-0.75	-0.75
Disposals	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.35	1.27	0.00	0.00	0.00
Company op. cashflow	**-14.87**	**-5.93**	**-0.22**	**-5.77**	**-0.72**	**15.75**
Net interest	-1.46	-3.21	-10.76	-4.39	-4.30	-4.28
Tax paid/received	3.24	4.08	3.51	2.76	3.42	4.11
Operational cashflow	**-13.08**	**-5.06**	**-7.47**	**-7.40**	**-1.55**	**20.08**
Capital expenditure	-16.72	-6.46	-1.97	-9.87	-9.96	-6.06
Sale of fixed assets	0.00	0.00	0.00	0.00	0.00	0.00
Free cashflow	**-29.80**	**-11.52**	**-9.44**	**-17.27**	**-11.51**	**14.02**
Dividends	0.00	0.00	0.00	0.00	0.00	0.00
Acquisitions	0.00	0.00	0.00	0.00	0.00	0.00
Disposals	0.00	0.00	0.00	0.00	0.00	0.00
Other investments	0.00	0.00	0.00	0.00	0.00	0.00
Cashflow after invests.	**-29.80**	**-11.52**	**-9.44**	**-17.27**	**-11.51**	**14.02**
Share repurchases	0.00	0.00	0.00	0.00	0.00	0.00
Share issues	0.14	17.50	0.39	19.40	0.10	0.10
Currency effect	-1.44	-7.13	-2.79	0.00	0.00	0.00
Loans/cash acquired	0.00	0.00	8.36	0.00	0.00	0.00
Change in net debt	**-31.10**	**-1.15**	**-3.48**	**2.13**	**-11.41**	**14.12**
Hardman FCF/share (p)	-0.51	-0.18	-0.24	-0.23	-0.05	0.61
Opening net cash	13.20	-17.90	-19.05	-22.54	-20.40	-31.81
Closing net cash	**-17.90**	**-19.05**	**-22.53**	**-20.40**	**-31.81**	**-17.70**

Source: Hardman & Co Life Sciences Research

Notes

Notes

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Hardman & Co Research Limited (trading as Hardman & Co)
35 New Broad Street
London
EC2M 1NH

+44 (0) 20 7194 7622
Follow us on Twitter @HardmanandCo

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The full detail is on page 26 of the full directive, which can be accessed here: http://ec.europa.eu/finance/docs/level-2-measures/mifid-delegated-regulation-2016-2031.pdf

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Hardman & Co team

Management

+44 (0)20 7194 7622

John Holmes	jh@hardmanandco.com	+44 (0)20 7194 7629	Chairman
Keith Hiscock	kh@hardmanandco.com	+44 (0)20 7194 7630	CEO
David Banks	db@hardmanandco.com	+44 (0)20 7194.7622	Corporate Advisory/Finance

Investor engagement and marketing

+44 (0)20 7194 7622

Richard Angus	ra@hardmanandco.com	+44 (0)20 7194 7635
Max Davey	md@hardmanandco.com	+44 (0)20 7194 7622
Antony Gifford	ag@hardmanandco.com	+44 (0)20 7194 7622
Ann Hall	ah@hardmanandco.com	+44 (0)20 7194 7622
Gavin Laidlaw	gl@hardmanandco.com	+44 (0)20 7194 7627
Vilma Pabilionyte	vp@hardmanandco.com	+44 (0)20 7194 7637

Analysts

+44 (0)20 7194 7622

Agriculture		**Bonds / Financials**	
Doug Hawkins	dh@hardmanandco.com	Brian Moretta	bm@hardmanandco.com
Yingheng Chen	yc@hardmanandco.com	Mark Thomas	mt@hardmanandco.com
Building & Construction		**Consumer & Leisure**	
Tony Williams	tw@hardmanandco.com	Steve Clapham	sc@hardmanandco.com
Mike Foster	mf@hardmanandco.com	Mike Foster	mf@hardmanandco.com
		Jason Streets	js@hardmanandco.com
Life Sciences		**Media**	
Martin Hall	mh@hardmanandco.com	Derek Terrington	dt@hardmanandco.com
Dorothea Hill	dmh@hardmanandco.com		
Grégoire Pavé	gp@hardmanandco.com		
Mining		**Oil & Gas**	
Paul Mylchreest	pm@hardmanandco.com	Angus McPhail	if@hardmanandco.com
Property		**Services**	
Mike Foster	mf@hardmanandco.com	Mike Foster	mf@hardmanandco.com
Special Situations		**Tax Enhanced Services**	
Steve Clapham	Brian Moretta	Brian Moretta	bm@hardmanandco.com
Paul Singer	Chris Magennis	Chris Magennis	cm@hardmanandco.com
Yingheng Chen	yc@hardmanandco.com		
Technology		**Utilities**	
Milan Radia	mr@hardmanandco.com	Nigel Hawkins	nh@hardmanndco.com

Hardman & Co

35 New Broad Street
London
EC2M 1NH

Tel: +44(0)20 7194 7622

www.hardmanandco.com