EDISON

BioPharma Credit

New debt investment in OptiNose

Investment trusts
Debt: Direct lending

BioPharma Credit (BPCR) has recently entered into an agreement to provide up to US$82.5m in the form of a five-year senior secured loan to OptiNose, a Nasdaq-listed, commercial-stage pharma company with its flagship product XHANCE, an FDA-approved nasal spray for the treatment of chronic rhinosinusitis with nasal polyps. The therapy uses the inhaled corticosteroid fluticasone propionate coupled with OptiNose's proprietary Exhalation Delivery System (EDS) designed to reach deep into the nasal passages. We estimate that BPCR still has c US$400m in uncommitted cash available for further deals. We also acknowledge the recent settlement of the dispute between Lexicon (one of BPCR's borrowers) and Sanofi, which will result in a US$260m cash inflow for Lexicon.

Month ending	Share price (%)	NAV (%)	NASDAQ Biotechnology (%)	FTSE All-Share (%)	Credit Suisse HY (%)	S&P Euro Lev Loan (%)
31/03/19	1.0	0.3	(0.8)	0.6	4.1	(1.3)
30/04/19	0.2	0.3	(4.8)	2.7	3.6	0.6
31/05/19	0.5	0.4	(6.0)	(6.2)	(2.8)	(0.5)
30/06/19	1.4	0.4	9.3	4.7	1.2	2.3
31/07/19	(2.4)	0.0	(3.1)	(1.9)	3.2	(2.0)

Source: Refinitiv. Note: All % on a total return basis in US$.

High fixed coupon and solid collateral

The notes bear interest at 10.75%, which we consider quite attractive for BPCR and even slightly ahead of some of the earlier deals. In the context of the Fed's recent return to monetary easing, the fixed rate is positive for investors. BPCR received a 0.75% upfront fee (ie c US$0.6m), somewhat below earlier deals (1–2%), but in addition it received three-year warrants on Optinose shares at zero cost. The warrants have an exercise price of US$6.72 per share (c 14% below the current share price). We estimate that BPCR is thus entitled to acquire a c 1% stake in OptiNose for US$3.0m (if exercised in full). As the note is secured on all of OptiNose's assets and based on current XHANCE sales consensus, we feel that interest and principal payments are well covered by this product alone.

BPCR's first investment alongside BioPharma V

OptiNose will issue up to US$150m in senior secured notes to BPCR (US$82.5m) and BioPharma V (US$67.5m), Pharmakon's recently launched new private debt fund. This illustrates BPCR's improved capacity to enter into more/larger deals alongside the private fund. The notes purchased by both funds are subject to a 2.5-year make-whole arrangement, as well as prepayment fees at 2% and 1% before the third and fourth anniversary, respectively.

Valuation: Offers a c 7% dividend yield

As at 26 September 2019, BPCR's shares are trading at a minor 0.6% discount to its last reported NAV (as at end-July 2019). Including the DPS of 1.8c payable in September, the shares offer a c 7% trailing dividend yield, in line with BPCR's target.

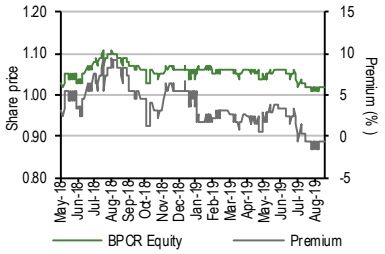
30 September 2019

Price*	**US$1.02**
Market cap	**US$1,401.4m**
AUM	**US$1,409.5m**
NAV (ordinary shares)**	102.59c
Premium/(discount) to NAV	(0.6%)

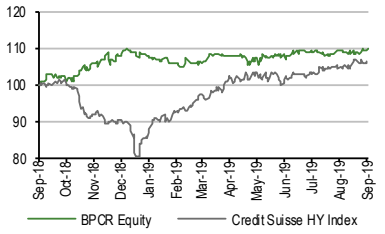
*Ordinary shares. **As at end-July 2019.

Yield	6.9%
Ordinary shares in issue	1,373.9m
Code	BPCR
Primary exchange	LSE
AIC sector	Debt – Direct Lending
Benchmark	N/A

Share price/discount performance



One-year performance vs index



52-week high/low	109.0c	102.0c
NAV** high/low	104.27c	100.44c

**Including income.

Gearing

Gross*	0.0%
Net*	0.0%

*As at end-July 2019.

Analyst

Milosz Papst +44 (0)20 3077 5720
investmenttrusts@edisongroup.com
Edison profile page

BioPharma Credit is a research client of Edison Investment Research Limited

Deal rationale

XHANCE (fluticasone propionate) is a nasal spray, an FDA-approved corticosteroid drug-delivery system used in the treatment of chronic rhinosinusitis with nasal polyps. The FDA has not recognized chronic rhinosinusitis (CRS) as a disease indication, but instead accepted nasal polyps and chronic sinusitis as indications. FDA approval for the treatment of nasal polyps in patients aged 18 years or older was issued in September 2017. OptiNose uses its proprietary EDS with a unique Bi-Directional mechanism designed to reliably and effectively deliver medications or vaccines high and deep into the nasal passages.

XHANCE is currently available to >75% of commercially insured people in the US. The salesforce, which was recently brought in house, is now targeting c 10,000 speciality-like primary care physicians, and management estimates the current annual market opportunity for rhinosinusitis with nasal polyps at c US$1.1bn. Broadening the US market opportunity into chronic sinusitis (without nasal polyps) is underway, with OptiNose initiating two Phase IIIb clinical trials (in Q418 and Q219). Should these be supportive of a label extension, and the prescribing base broadens into primary care physicians, Optinose's management believes the US opportunity for XHANCE could reach c US$9.5bn. Interestingly, the US healthcare system is spending c US$60bn pa in direct costs treating patients with chronic rhinosinusitis and its associated symptoms (including US$5.0bn pa on sinus surgeries), according to the American Academy of Allergy, Asthma & Immunology.

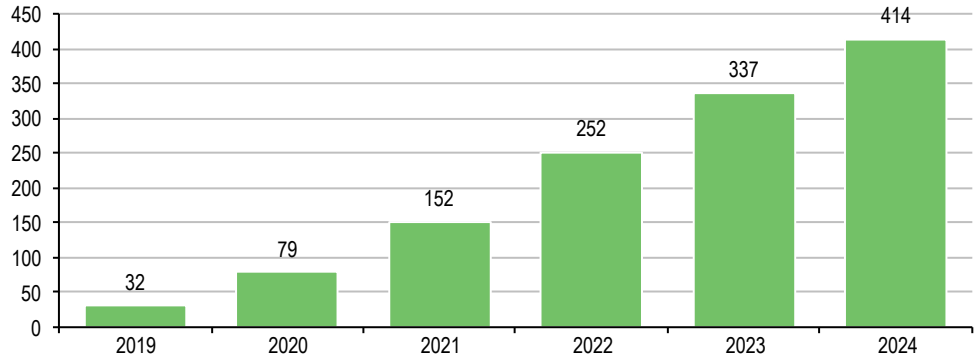
There are a number of treatment options, other than OptiNose's product, available at the moment. However, each of them seems to have significant limitations in comparison with XHANCE:

- **Traditional intranasal steroid (INS) sprays and pressurized aerosols** provide limited relief in the case of CRS due to a suboptimal delivery system (most of the steroids are placed in the front of the nose or the floor of the nasal passages). As a result, based on OptiNose's market research, 80% of patients using INS are dissatisfied with the relief offered and 90% would be interested in exploring an alternative product.
- **Saline rinses** are time-consuming and inconvenient, and in some cases difficult to apply and painful. Moreover, they require water free of pathogens. Similar inconveniences apply to **high-volume steroid nasal rinses**. Additionally, these pose a risk of systemic side effects due to high absorption of the steroid into the body (as opposed to fluticasone propionate used in XHANCE, which has low bioavailability, ie only a small part is being absorbed by the body).
- Similarly, **oral steroids** have considerable side effects, such as increased infection risk, loss of bone mineral density, death of bone tissue, cataract formation, glaucoma, adrenal suppression and psychiatric complications (including mania, depression and psychosis).
- **Endoscopic sinus surgery** is costly, risky and does not provide the desired effects for a significant part of patients, with up to 80% of them continuing to report syndromes within two years of surgery (according to OptiNose) and regrowth of polyps reported in 40% of cases within 18 months according to the American Laryngological, Rhinological and Otological Society.
- **Aspirin desensitization or other immunotherapies** are suitable for a selected group of patients only.
- There are a number of other alternatives, such as **leukotriene inhibitors** or **long courses of antibiotics**, but these are not well studied and exhibit different levels of effectiveness.
- Treatment of nasal polyps with **biologic monoclonal antibodies**, which is currently being developed, has a relatively high projected cost at c US$37,000 per year (according to OptiNose estimates). XHANCE was launched at a price comparable to the only other branded INS approved for the treatment of nasal polyps (which is higher than for generic INS products). As per the company accounts, its net revenue per XHANCE monthly prescription stands at US$185–205, which translates into c US$2,220–2,460 pa. Importantly, XHANCE is refundable

by insurers, with commercially insured patients currently receiving the first monthly treatment for free and subsequently paying US$30 per monthly refill.

XHANCE was rolled out in April 2018 and its sales have been gathering momentum, with OptiNose reporting its third consecutive quarter with >50% growth in prescriptions in Q219. Consequently, sales reached US$10.7m in H119 (US$6.7m in Q219 alone) and OptiNose guides to US$29–34m in sales in FY19, which seems achievable given the current EvaluatePharma consensus of US$32m. Subsequently, consensus estimates imply sales growth at a five-year CAGR of 67% and reaching US$0.54bn in 2024, which translates into c US$1.1bn cumulative sales until the notes mature (see Exhibit 1). With OptiNose reporting a more than 80% gross margin on XHANCE in H119, the loan seems well secured. The note is secured on all of OptiNose's assets, with XHANCE being the company's main revenue-generating product.

Exhibit 1: Consensus sales of XHANCE (US$m)



Source: EvaluatePharma as at 27 September 2019

Funding provided by BPCR and BioPharma V is structured in up to four tranches, with the first US$80m (of which US$44m is from BPCR) provided straight away and used to repay OptiNose's existing US$75m notes with Athyrium. The second US$30m tranche will be issued by February 2020, while the last two tranches of US$20m each will be available at OptiNose's discretion before August 2020 and February 2021, respectively (with all tranches maturing in September 2024). However, the issue of all tranches except for the first is subject to the achievement of predefined quarterly and semi-annual sales milestones. These require XHANCE to reach a sales volume of US$9m in Q419 to issue the second US$30m tranche; US$11m in Q120 (or US$25m in H120) to issue the third US$20m tranche; and US$14.5m in Q320 (or US$31m in H220) to issue the final US$20m tranche. Based on current consensus estimates, these milestones look achievable.

OptiNose has another approved product, Onzetra Xsail (migraine treatment using EDS), which has been out-licensed to Currax Pharmaceuticals post the transaction date. Onzetra became commercially available from May 2016 and was marketed by Avanir, reaching c US$12m sales in 2018, according to EvaluatePharma. Avanir terminated the agreement in March 2019 to focus on its core area of central nervous system solutions. Under the current licence agreement, Currax will market Onzetra in the US, Canada and Mexico. OptiNose receives an upfront payment of US$4.5m, a one-time 10% royalty from 2020 Onzetra sales above the level of US$3m and a one-time US$1m payment on reaching an undisclosed regulatory milestone.

OptiNose is also exploring the potential use of its EDS device to deliver other drugs or drug combinations. An example is OPN-300 (oxytocin), which is in early-stage clinical development (Phase I). It is worth noting that there are certain advantages of delivering drugs through the nasal cavity/passages, as it allows them to be delivered directly into the bloodstream – as opposed to medicines delivered through the digestive system where they may be broken down before entering the bloodstream.

Dry powder deployment following Tesaro prepayment

We estimate that following the investment in OptiNose, BPCR's current cash position stands at a relatively high level of c 40% of NAV as at end-July 2019. This is the result of the US$322m Tesaro loan prepayment in early 2019 (triggered by Tesaro's acquisition by GlaxoSmithKline), which coincidentally took place shortly after BPCR's US$305m capital raise in autumn 2018. However, we note that BPCR received significant make-whole and prepayment fees of US$45.8m which, together with interest received on the loan, generated a return on investment of 22.5% pa. This has given BPCR an investment runway of around 15 months (ie before the cash drag results in returns below long-term target NAV total return of 8–9% pa). Since the Tesaro prepayment, the fund has gradually been deploying its cash with the investment in BDSI (total debt commitment of US$80m plus a US$25m equity investment, see our earlier note), advancement of a further US$38.6m associated with BPCR's interest in the stream of payments from Bristol-Myers Squibb (BMS) and now the debt investment in OptiNose. We understand that BPCR plans to be very active on the investment front and deploy the majority of its dry powder until end of 2019.

Lexicon-Sanofi dispute coming to an end

In July 2019, Sanofi announced that it was terminating the agreement with Lexicon (one of BPCR's borrowers) related to Zynquista, an oral drug containing sotagliflozin (a dual SGLT1/SGLT2 inhibitor) for use with insulin in patients with type 1 and type 2 diabetes. BPCR funded a US$124.5m five-year loan to Lexicon in December 2017, which made up 9% of BPCR's portfolio as at end July-2019. The termination followed the results of top-line summary Phase III trial data for the use of Zynquista in type 2 diabetes, which demonstrated positive results in two Phase III trials but fell short of a statistically significant improvement in a third Phase III trial in renally compromised diabetic patients. Earlier this year the FDA rejected Zynquista for type 1 diabetes. In Europe, the drug was approved in April 2019 for use as an adjunct to insulin therapy in type 1 diabetes. Outside the EU, Zynquista is being studied but has not yet been approved by any other regulatory authority. However, we note that on 16 September 2019, Farxiga (a competing SGLT-2 inhibitor) was granted FDA Fast Track designation for development to reduce the risk of cardiovascular death or the worsening of heart failure in adults with heart failure with reduced fraction (HFrEF) or preserved ejection fraction (HFpEF). This could drive renewed interest in the class, potentially benefiting Zynquista as well. It is also worth noting that BPCR's interest in royalty streams from BMS is linked, among others, to Farxiga.

Moreover, it is important to note that BPCR's investment decisions are based mainly on the value of already approved drugs representing the core component of loan collateral (ie Xermelo in the case of Lexicon), which means that Zynquista is considered only an additional safety buffer. Although market consensus with respect to Xermelo's sales ramp-up has reduced materially since BioPharma entered into the loan agreement, Pharmakon Advisors is confident that there is excess collateral value to fully support the loan.

This has been further supported by the resolution of the Lexicon-Sanofi dispute announced in September 2019. As part of the alliance termination and settlement agreement, Lexicon will regain all rights to Zynquista, and solely responsible for its worldwide development and commercialization in both type 1 and 2 diabetes. Moreover, Sanofi has agreed to pay Lexicon US$260m which, together with the US$106m in cash and short-term investments on Lexicon's balance sheet at end-June 2019, should allow the company to fund operations for more than a year (according to Lexicon's management). Sanofi will work with Lexicon to complete the transition of responsibility for ongoing clinical studies and other related activities.

General disclaimer and copyright

This report has been commissioned by BioPharma Credit and prepared and issued by Edison, in consideration of a fee payable by BioPharma Credit. Edison Investment Research standard fees are £49,500 pa for the production and broad dissemination of a detailed note (Outlook) following by regular (typically quarterly) update notes. Fees are paid upfront in cash without recourse. Edison may seek additional fees for the provision of roadshows and related IR services for the client but does not get remunerated for any investment banking services. We never take payment in stock, options or warrants for any of our services.

Accuracy of content: All information used in the publication of this report has been compiled from publicly available sources that are believed to be reliable, however we do not guarantee the accuracy or completeness of this report and have not sought for this information to be independently verified. Opinions contained in this report represent those of the research department of Edison at the time of publication. Forward-looking information or statements in this report contain information that is based on assumptions, forecasts of future results, estimates of amounts not yet determinable, and therefore involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements of their subject matter to be materially different from current expectations.

Exclusion of Liability: To the fullest extent allowed by law, Edison shall not be liable for any direct, indirect or consequential losses, loss of profits, damages, costs or expenses incurred or suffered by you arising out or in connection with the access to, use of or reliance on any information contained on this note.

No personalised advice: The information that we provide should not be construed in any manner whatsoever as, personalised advice. Also, the information provided by us should not be construed by any subscriber or prospective subscriber as Edison's solicitation to effect, or attempt to effect, any transaction in a security. The securities described in the report may not be eligible for sale in all jurisdictions or to certain categories of investors.

Investment in securities mentioned: Edison has a restrictive policy relating to personal dealing and conflicts of interest. Edison Group does not conduct any investment business and, accordingly, does not itself hold any positions in the securities mentioned in this report. However, the respective directors, officers, employees and contractors of Edison may have a position in any or related securities mentioned in this report, subject to Edison's policies on personal dealing and conflicts of interest.

Australia

Edison Investment Research Pty Ltd (Edison AU) is the Australian subsidiary of Edison. Edison AU is a Corporate Authorised Representative (1252501) of Crown Wealth Group Pty Ltd who holds an Australian Financial Services Licence (Number: 494274). This research is issued in Australia by Edison AU and any access to it, is intended only for "wholesale clients" within the meaning of the Corporations Act 2001 of Australia. Any advice given by Edison AU is general advice only and does not take into account your personal circumstances, needs or objectives. You should, before acting on this advice, consider the appropriateness of the advice, having regard to your objectives, financial situation and needs. If our advice relates to the acquisition, or possible acquisition, of a particular financial product you should read any relevant Product Disclosure Statement or like instrument.

New Zealand

The research in this document is intended for New Zealand resident professional financial advisers or brokers (for use in their roles as financial advisers or brokers) and habitual investors who are "wholesale clients" for the purpose of the Financial Advisers Act 2008 (FAA) (as described in sections 5(c) (1)(a), (b) and (c) of the FAA). This is not a solicitation or inducement to buy, sell, subscribe, or underwrite any securities mentioned or in the topic of this document. For the purpose of the FAA, the content of this report is of a general nature, is intended as a source of general information only and is not intended to constitute a recommendation or opinion in relation to acquiring or disposing (including refraining from acquiring or disposing) of securities. The distribution of this document is not a "personalised service" and, to the extent that it contains any financial advice, is intended only as a "class service" provided by Edison within the meaning of the FAA (i.e. without taking into account the particular financial situation or goals of any person). As such, it should not be relied upon in making an investment decision.

United Kingdom

This document is prepared and provided by Edison for information purposes only and should not be construed as an offer or solicitation for investment in any securities mentioned or in the topic of this document. A marketing communication under FCA Rules, this document has not been prepared in accordance with the legal requirements designed to promote the independence of investment research and is not subject to any prohibition on dealing ahead of the dissemination of investment research.

This Communication is being distributed in the United Kingdom and is directed only at (i) persons having professional experience in matters relating to investments, i.e. investment professionals within the meaning of Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended (the "FPO") (ii) high net-worth companies, unincorporated associations or other bodies within the meaning of Article 49 of the FPO and (iii) persons to whom it is otherwise lawful to distribute it. The investment or investment activity to which this document relates is available only to such persons. It is not intended that this document be distributed or passed on, directly or indirectly, to any other class of persons and in any event and under no circumstances should persons of any other description rely on or act upon the contents of this document.

This Communication is being supplied to you solely for your information and may not be reproduced by, further distributed to or published in whole or in part by, any other person.

United States

The Investment Research is a publication distributed in the United States by Edison Investment Research, Inc. Edison Investment Research, Inc. is registered as an investment adviser with the Securities and Exchange Commission. Edison relies upon the "publishers' exclusion" from the definition of investment adviser under Section 202(a)(11) of the Investment Advisers Act of 1940 and corresponding state securities laws. This report is a bona fide publication of general and regular circulation offering impersonal investment-related advice, not tailored to a specific investment portfolio or the needs of current and/or prospective subscribers. As such, Edison does not offer or provide personal advice and the research provided is for informational purposes only. No mention of a particular security in this report constitutes a recommendation to buy, sell or hold that or any security, or that any particular security, portfolio of securities, transaction or investment strategy is suitable for any specific person.

Frankfurt +49 (0)69 78 8076 960
Schumannstrasse 34b
60325 Frankfurt
Germany

London +44 (0)20 3077 5700
280 High Holborn
London, WC1V 7EE
United Kingdom

New York +1 646 653 7026
1,185 Avenue of the Americas
3rd Floor, New York, NY 10036
United States of America

Sydney +61 (0)2 8249 8342
Level 4, Office 1205
95 Pitt Street, Sydney
NSW 2000, Australia