

Returns

As at 30 April 2022	1m %	3m %	1y %	3y %pa	5y %pa	Inception %pa (Nov13)
Castlereagh Equity	-4.5	-4	-16	13	13	12
All Ordinaries	-0.8	0	6	6.3	5.4	NA
XBI	-18	-16	-46	-5	2	NA

Portfolio Composition

NAV per share	% in Cash	% shares in USD	% shares in AUD
1.70	48	12	40

Commentary

The month of April saw a continuation of the conditions experienced in March. The Ukraine war continues, lockdowns in China, supply chain disruptions, and continuing surge in the price of commodities. The mood and prices in the biotech sector continue to be gloomy. Expectations -inflation and recession.

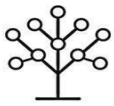
Counterintuitively, I believe the conditions are increasingly favourable for CE to build a portfolio of great companies at very reasonable prices. During April, I continue to sell ASX shares and redeployed the proceeds into US life sciences companies.

Building a Life Sciences Portfolio

The Life Sciences Industry

The life sciences industry is still very much in the knowledge gathering phase. The primary reason is the massive complexity of biology. Life sciences covers all living organisms. The four main divisions are broadly humans, animals, plants and microbes. The number and diversity of all living organisms are in many zeroes beyond the grasp of normal human intuition. Even just with humans, our DNA sequences comprise of 3.3 billion base pairs. Within our DNA, we have identified roughly 20,000 genes which code for proteins, with the remaining portions of DNA (terms "junk DNA") of which the functions are currently unknown. Our 20,000 genes code for roughly 400,000 proteins discovered so far. A typical human body contains 10 to the power of 13 cells.

Advancements in sequencing (reading/writing biological molecules), microfluidics (flow of liquids in tiny spaces), robotics (machines) and bioinformatics (software) now allow scientists to investigate the complex workings of biology. Significant costs decrease in sequencing (reading DNA) and synthesis (writing DNA) are driving up usage volumes and application on a near exponential basis. Miniaturisation in robotics and microfluidics enable experiments to be conducted in higher numbers simultaneously with less usage of inputs. Software and machine learning then collect, organise, and allow analysis of the large amount of data generated from these experiments.



Sectors of Life Sciences

In a gold rush where the ultimate winners are still indeterminate, we invest in the suppliers of picks and shovels. For CE at present, the two sectors are industrialised drug discovery and supplier of tools. There are several other different sectors, such as software, cell engineering, precision medicine and synthetic biology. All of these sectors are related to and build upon each other. As the industry continues to expand, new sectors and new businesses will arise. I will try to place CE at the forefront of all of these developments.

I have briefly mentioned our industrialised drug discovery positions. As for suppliers of tools, CE has initiated positions in Twist Bioscience (TWST) and 10X Genomics (TXG). Given the current environment, and the cash demands for growth inherent in these two businesses, I have been more cautious than usual, and our committed capital for both positions combined is about 3% of portfolio.

Twist Bioscience

TWST is a manufacturer and supplier of synthetic DNA products to the life sciences industry. They started in 2013 and build a platform to make DNA cheaper, better and faster. In 2022, TWST is now the dominant player in the industry with the lowest costs. Revenue has grown at roughly 40% per annum and forecasted to reach USD\$200m in 2022. The total addressable market for their 4 main business divisions is in many billions, and growing at roughly 20% per annum for the foreseeable future. More importantly, there are many markets apart from the 4 main divisions that TWST could go into, and possibly many more different market segments will arise in the future as the industry expands.

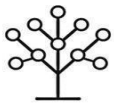
TWST has one of the best management teams I have come across. The CEO, Emily Leproust, and the other two founders, Bill Peck and Bill Banyai, are well known in the industry. The team has continuously demonstrated year after year that they are well ahead of the curve in terms of technology and business developments. They have the rare ability to balance short term objectives with long term goals. The CEO is excellent in communicating a clear message and in fostering a healthy and dynamic culture within the company.

TWST is an investment in excellent management being able to identify and exploit opportunities in an expanding industry with lucrative markets.

10x Genomics

10x Genomics is a manufacturer and supplier of machines, kits and reagents for the analysis of single cells. 10x products basically separate the contents of a cell into tiny spaces. The contents are then tagged with molecular barcodes (tiny DNA fragments). Everything is then put through an Illumina sequencing machine, and 10x software is then used to compile the data generated. The molecular barcodes enable accurate identification of the nature, position and origin of each particular content of the cell.

Just like TWST, 10x is obsessively focused on continuously pushing the limits of their product offerings to provide better solutions to their customers. The CEO and co-founder, Serge Saxanov, is a bit more lowkey than TWST's Emily Leproust, but demonstrably capable.



10x revenue has grown from \$70m in 2017 to a forecast of \$600m in 2022. The total addressable market is in many billions and growing at above 20% per annum. Just like TWST, management of 10x is continuously expanding the scope of their addressable market with constant new products offering. The business model of 10x is an installed based of instruments and recurring consumables at high margins.

Expectations for CE portfolio

It will not be smooth sailing.

Investor partners of CE should expect inevitable errors and bad outcomes from my investment choices. The main assurance from me is that that I can spot them early to limit losses, and conversely, to recognise good investments and allow them to compound.

In the short term, investor partners should not expect massive portfolio movements to the upside. The conditions are currently not right for that, but are very good for building positions slowly with expectations of excellent long-term returns. The biotech sector has experienced a huge influx of money in the wake of COVID in 2020. Valuations were at nosebleed levels during the peak, driven by aggressive buying from players such as Cathie Wood of ARK. The biotech sector is relatively small, and the sudden infusion of large amounts of capital caused massive price dislocations.

Expectations have now caught up to reality. Many stocks are down 50% to 75% from their peak. New investors are scared and wary of deploying more capital into the sector. The one bit of good news is that the good businesses have taken the opportunity to raise more capital during the boom and are now adequately funded to pursue their objectives. As at the time of writing, TWST has cash of \$650m and TXG has cash of \$590m. All 4 of our industrial drug discovery companies have similar cash balances.

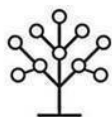
Some things just take time, especially so in the life sciences sector. This period of consolidation will sort out the quality businesses from their counterparts. My job is to make sure our capital goes to quality businesses. I expect that the volatility of biotech stocks (and more particularly, the stocks that CE will invest in) will ameliorate going into the future as the businesses become more mature and stable.

I believe the conditions are currently favourable for deploying CE capital, and I will continue to do so over the next several months. For any investor partners with spare patient capital, I believe the time is right to consider adding to your shareholding.

Thank you for your trust and confidence in us.

Regards
Peter Phan

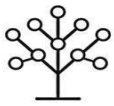
Portfolio Manager



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Appendix 1: Performance

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD	XAO	XBI
2022	-5.5	0	0.5	-4.5									-10	-0.7	-34

XAO= All Ordinaries Index

XBI= S&P Biotech ETF

Appendix 2: Top 5 Holdings= 31% of total portfolio

Company
Beamtree
Smartpay
Industrialised Drug Discovery Basket
Fiducian
Suppliers of Tools Basket

*note: holdings not ranked in any order