Interest Rates and Biotechnology;

Observations from the portfolio managers of the BlueBox Precision Medicine Fund

Executive Summary:

This note covers the interest rate sensitivity of biotechnology stocks to provide some context for the recent performance of the sector.

In conclusion, we believe:

1) Bond yields are not a structural driver of biotech stocks.

2) There are periods where the correlation is stronger. We are in one of those periods now.

3) All else equal, assuming sovereign bond yields do not reach very distressed levels, then the current period will likely pass, and focus will return to fundamentals. With the current period offering some good entry opportunities in select biotech stocks.

Bond yield sensitivity

There is a prevailing consensus among investors that rising interest rates are universally bad for biotech. We always argue that it depends on the wider economic environment, that the data is mixed on the effect and is unpredictable.

We believe this consensus is shaped by two things:

- Basic finance theory dictates that a higher cost of capital reduces the value of profits that are far out in the future.

- Biotech's significant underperformance after the COVID era, when a great deal of free money was in circulation and interest rates rose rapidly from zero or negative.

But we believe this misses some key points specific to the sector such as:

Changing the probability of success (POS) of a pipeline project is a much greater driver of change in valuations than a moderate change in the cost of capital e.g if POS goes from 25% to 50%, that is a 100% change in the “risk discount” being applied to future commercial profits, much greater than any change related to risk-free interest rates,

The easy money of the COVID period drove increasing company issuance of decreasing quality i.e. very early-stage projects with long time to clinical proof of concept, let alone FDA approval, as is often the case during frothy extremes.

In such an exuberant environment it is just as possible that the market chose to apply a much higher POS to all early-stage companies because of a perceived new technological revolution, over-confidence, or an excess of capital chasing too few stocks.

The subsequent 'popping of the bubble' might have been due to a more realistic appraisal of POS, or a change in availability of liquidity, or some combination of both and not purely an interest rate / bond yield phenomenon.

We analysed the weekly log returns of the XBI ETF (absolute and relative to the S&P500) against nominal and real US Treasury 10-year yields for ~20 years. The XBI represents around over 100 roughly equal weighted unprofitable biotechnology stocks, rebalanced quarterly.

The data shows that biotech stocks are not consistently correlated with yields. The correlation for the relative performance vs S&P 500 in that period is -9%, mildly negative but insignificant with an r-squared of 0.008 very little of the weekly movement is determined by yields. The beta suggests a negative outperformance of 2.5% vs the index for every 100bps change in the real yield.

But there are periods where the correlation rises (both in a positive way, biotech and yields move in the same direction) or a negative way (they move in opposite directions).

Figure 1 shows the rolling 52-week correlation between XBI returns (relative to the S&P 500) and Treasury yields, both nominal and real.

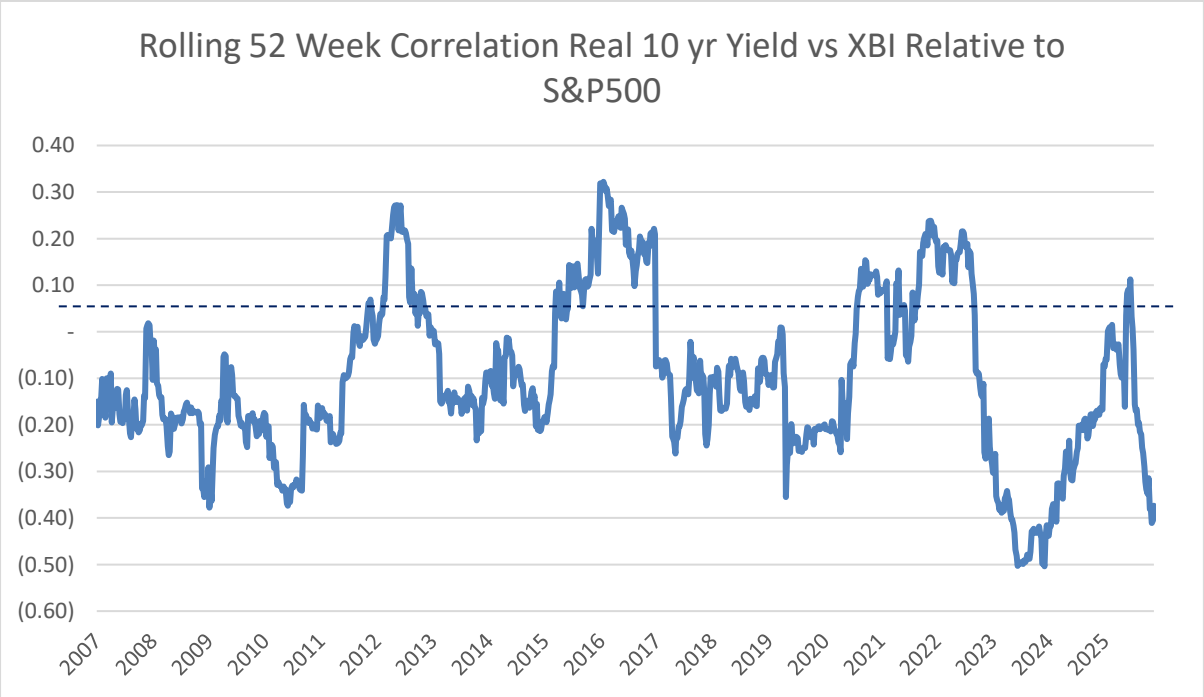


Figure 1: Source FRED, Bloomberg. AI assisted analysis.

Since around 2022, the negative correlation has risen significantly twice, meaning biotech stocks fell as yields rose. Before that, the picture is very mixed, and for most of the period interest rates did not drive the sector's moves.

We attempted to find other factors that are helpful in explaining some of the moves e.g. the rate of change in yields but this didn't lead to a reliable conclusion.

Recent Portfolio Positioning:

During the summer we had increased the proportion of the portfolio in revenue generating companies from 60% (our highest risk-on position) to c.73% a lower risk mix. This occurred both through some companies receiving FDA approval and some portfolio weighting changes.

We didn't have any specific risk to the sector in mind, but it was apparent that values in the pipeline companies had risen and it was harder to find attractive entry points, so we took a conservative view.

There was also evidence of some exuberance in genetic testing stocks. So, we have selectively reduced our weight from around 11% to 7% in the overall portfolio, specifically reducing Natera and Illumina, but maintaining our position in Guardant Health.

We may use the current sector weakness in unprofitable biotech stocks to pick off attractive names where valuations have improved. The exact timing is uncertain, and we never try to call the bottom. We expect to move gradually and to focus on specific companies we want to own for several years, in line with our long-term investment philosophy.

Conclusion:

In conclusion, we believe this period of negative sentiment will pass, unless there is a major macro event related to sovereign bond yields. We do not believe capital is scarce and the level of innovation remains very high.

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