Biotechnology in the investment mix?

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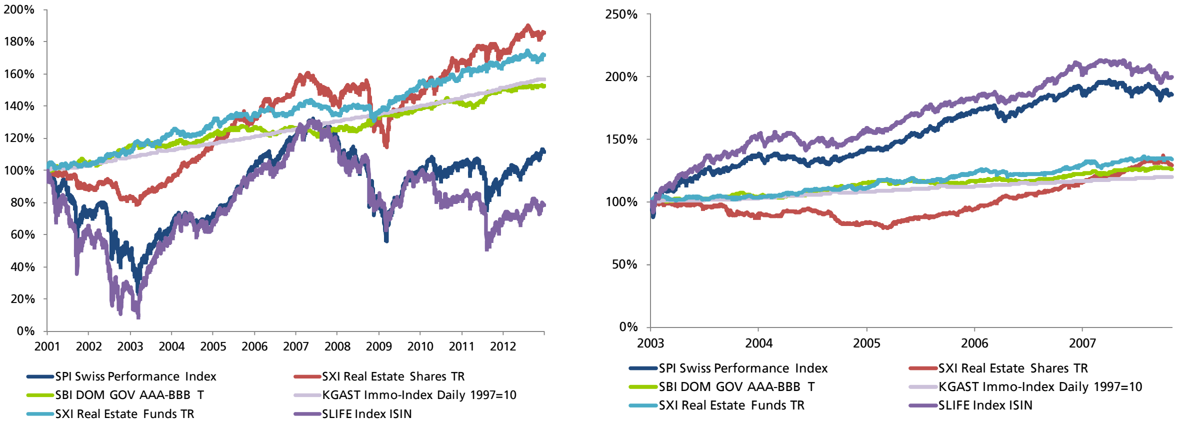
Over the past few decades, virtually no other industry compares with the biotechnology sector when it comes to making extensive, far-reaching, positive and rapid changes to the lives of people around the world. These innovations range from new developments in active substances and medical process techniques to enhanced diagnostic methods for the early detection of life-threatening illnesses. As a result, biotechnology represents a genuine success story globally thus, raising the question of whether this can generate a promising investment theme.

It generally doesn't take long for success stories to be seen as potential investment ideas. Biotechnology is no exception, primarily two reasons. Firstly, the sector features many relatively young companies that are seizing the opportunity to finance their future projects through capital markets, thereby transferring some of the entrepreneurial risk to a wider group of shareholders. Secondly, many investors are seeking fresh investment opportunities that can offer attractive returns for the risks taken.

The question of optimal allocation

To tackle the question of optimal allocation, it's worth taking a detailed look at the risk/return characteristics of listed biotechnology stocks. The optimal investment instrument is selected based on an investor's specific personal circumstances, including appropriate risk assessment (and risk appetite). To obtain a clear picture of the investment situation, it's useful to carefully examine the relationship between the opportunities (expected returns) and risks (for example, extent of a potential fall in the stock price) of investmenting in biotechnology stocks. In particular, investors should decide to which extent it makes sense, with regards to their overall portfolio, to include biotechnology stocks and whether they should be additional or a substitute (i.e. to replace existing equity positions) investment. To help answer this question, we have conducted a quantitative analysis of the 16 stocks from the SXI Life Sciences Index that are currently listed on the Swiss stock exchange. An initial glance at the return data since 2001 indicates that investments in biotechnology (SLIFE index) have produced relatively modest returns (see Graphic 1 on the left below) versus the asset classes usually included in a well-diversified client portfolio such as equities, bonds, real estate, etc.

Graphic 1: comparison of returns from various asset classes, in CHF, indexed



Source: Bloomberg, UBS AG

Besides government bonds in Swiss francs, real estate instruments denominated in Swiss francs have clearly outperformed other asset classes. So does this mean that it is not worth investing in biotechnology? In terms of a static addition to a portfolio (buy and hold), it is tempting to answer this question with a clear "no".

However, if we look at individual asset cycles – and that of 2003 to 2007 in particular – an entirely different picture emerges. In contrast to the chart on the left, the chart on the right in Graphic 1 clearly illustrates that an addition for a limited period between 2003 and 2007 produced an extremely positive performance. With comparable risk (volatility), investors with biotechnology equity holdings (SLIFE) were able to achieve returns that came in 5% higher each year (see Table 1).

Table 1: risk and return indicators for various asset classes, in Swiss francs

Entire period (2001-2012)

Return & Risk	SPI	SIX RE Shares	SBI Dom Gov	KGAST Immo	SIX RE Funds	SLIFE
Return p.a.	1.30%	10.36%	6.22%	6.72%	8.62%	-2.46%
Volatility p.a.	18.93%	10.52%	3.39%	1.62%	5.58%	17.88%
Risk adj Return	0.07	0.98	1.83	4.15	1.55	-0.14

Partial period (2003-2007)

Return & Risk	SPI	SIX RE Share:	SBI Dom Gov	KGAST Immo	SIX RE Funds	SLIFE
Return p.a.	27.82%	19.52%	2.46%	6.27%	5.11%	32.93%
Volatility p.a.	13.60%	8.45%	3.17%	1.53%	4.62%	14.03%
Risk adj Return	2.05	2.31	0.77	4.10	1.11	2.35

Source: Bloomberg, UBS AG

So to be able to fully benefit from the specific risk/return attributes of biotechnology stocks, investors must be able to make dynamic adjustments to their biotechnology holdings.

Individual stocks or the whole market?

The results outlined above show that the static addition of biotechnology stocks may not generate the desired success. Indeed, the calculations indicate that it makes more sense to take a dynamic approach, i.e. investing in these securities as a flexible addition to an existing portfolio. The discussion would normally lead to a debate over which of the biotechnology companies currently listed have the best prospects for good returns in the future. Capital market research provides sufficient evidence that this type of forecast makes little sense as reliable predictions are impossible (see Fama 1965[1], Fama/French 1993[2], Brown/Goetzmann 1995[3]and Carhart 1997[4]). Implementation using a passive investment strategy, which supplements the portfolio with the entire market's returns instead of selecting individual stocks, appears to be far more useful in this regard. The results in Graphic 2 offer highly clear evidence that this is the most efficient option, the longer the investments are held. The longer the holding period (following 12, 24, 36 and 48 months), the clearer the outperformance of an investment in the index (passive) in terms of efficiency versus exposure to one of the 16 individual stocks. In terms of risk and returns, the most efficient investment (highest possible returns, lowest risk) is located on the Efficient Frontier (EF) and takes the furthest position on the left.

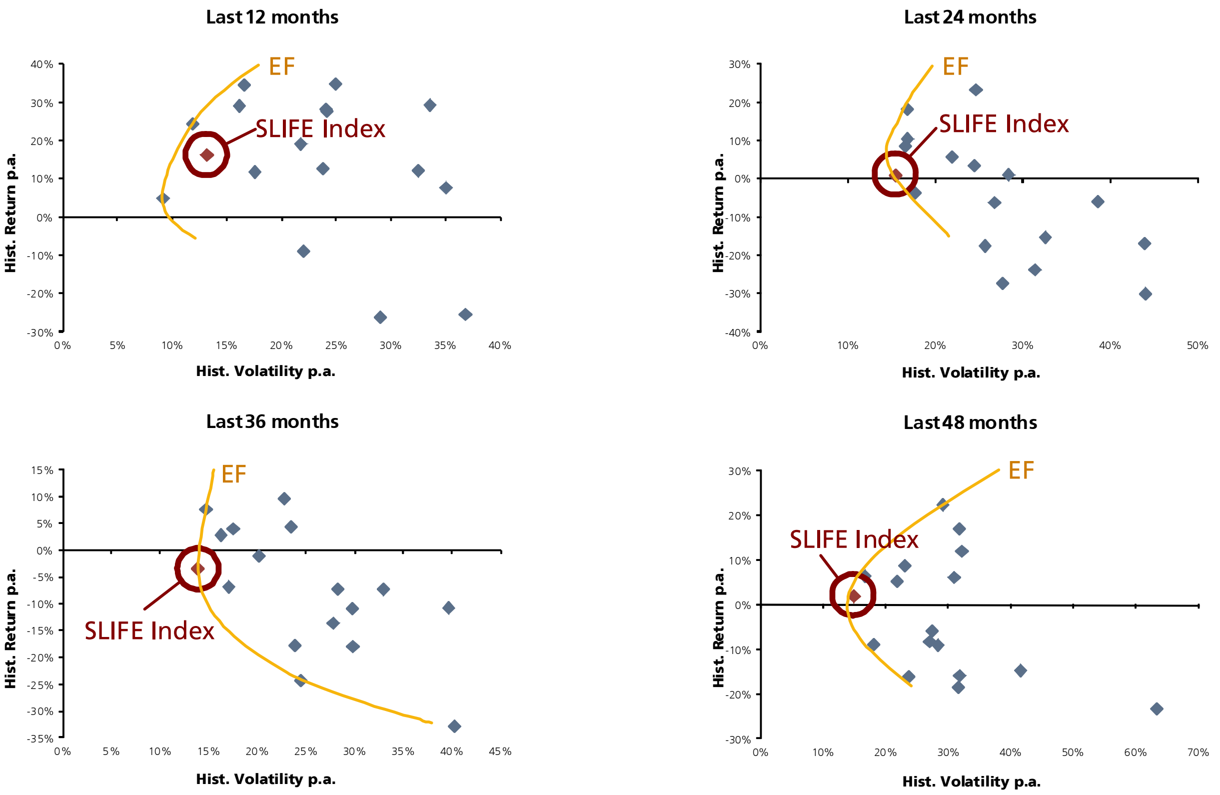
[1] Eugene Fama, (1965): Random Walks In Stock Market Prices, Financial Analysts Journal 21, No. 5, pages 55-59

[2] Eugene Fama, Kenneth French (1993): Common Risk Factors in the Returns on Stocks and Bonds, Journal of Financial Economics 33, No. 1, pages 3–56

[3] Stephen Brown, William Goetzmann (1995): Performance Persistence, Journal of Finance 50, No. 2, pages 679-698

[4] Mark Carhart (1997): On Persistence in Mutual Fund Performance, in: Journal of Finance 52, No. 1, pages 57-82

Graphic 2: efficiency of individual stocks versus the market as a whole (SXI Life Sciences, SLIFE)



Source: Bloomberg, UBS AG

Adjusting portfolio weights via a single transaction

Given the importance of dynamic allocation, the question arises as to which investment instruments are best-suited as supplementary investments in biotechnology stocks. As the analysis outcomes of historical return periods for life sciences companies listed on the Swiss stock exchange indicate, investors can adjust their portfolios by making straightforward shifts and thus obtain higher returns with lower risk. However, this approach only succeeds if the costs involved are not excessively high, the workload is reduced to a minimum, and if the adjustments can be made without a need for complex heuristics. As investors can add or exclude an entire market using a passive investment instrument – such as an exchange traded fund (ETF) – a single transaction can be used to make simple and low-cost dynamic adjustment to portfolio weightings in line with the relevant portfolio strategy. From the perspective of a straightforward and efficient rebalancing strategy, ETFs therefore also offer an exceptionally useful way to temporarily include a well diversified basket of biotechnology stocks.

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About the author

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Thomas Merz became head of UBS ETFs Switzerland & Liechtenstein on October 1, 2012. He has over 13 years experience in the investment industry. Prior to UBS, Thomas was with Credit Suisse Asset Management since 2006. As Head of Credit Suisse ETFs Switzerland he was responsible for ETF business at Credit Suisse and instrumental in the growth of their ETF business. Prior to joining Credit Suisse Asset Management, Thomas held various management positions within Credit Suisse. Thomas Merz is a well known indexing specialist. Additionally, he is a lecturer at Zurich University of Applied Sciences and a recognized author of various ETF and Indexing publications. Thomas Merz has a degree in natural sciences & mathematics from the University of Zurich, and a degree in business & economics from the University of Basel.

About UBS ETFs

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