ACM vs MSCI World (USD)

Proof of concept: 10 year Back-test

Introduction

This back-test seeks to determine whether Amsterdam Capital Management can provide similar active return to the existing AEX and AIM factsheets, in order to set up a Fund (Spinosa Caute Fund) in collaborations with Bots.io.

The period for the back-test is **30-11-2013 to 30-11-2023** (10 years), limited by third party processing power constraints.

<u>The report is built up as follows:</u>

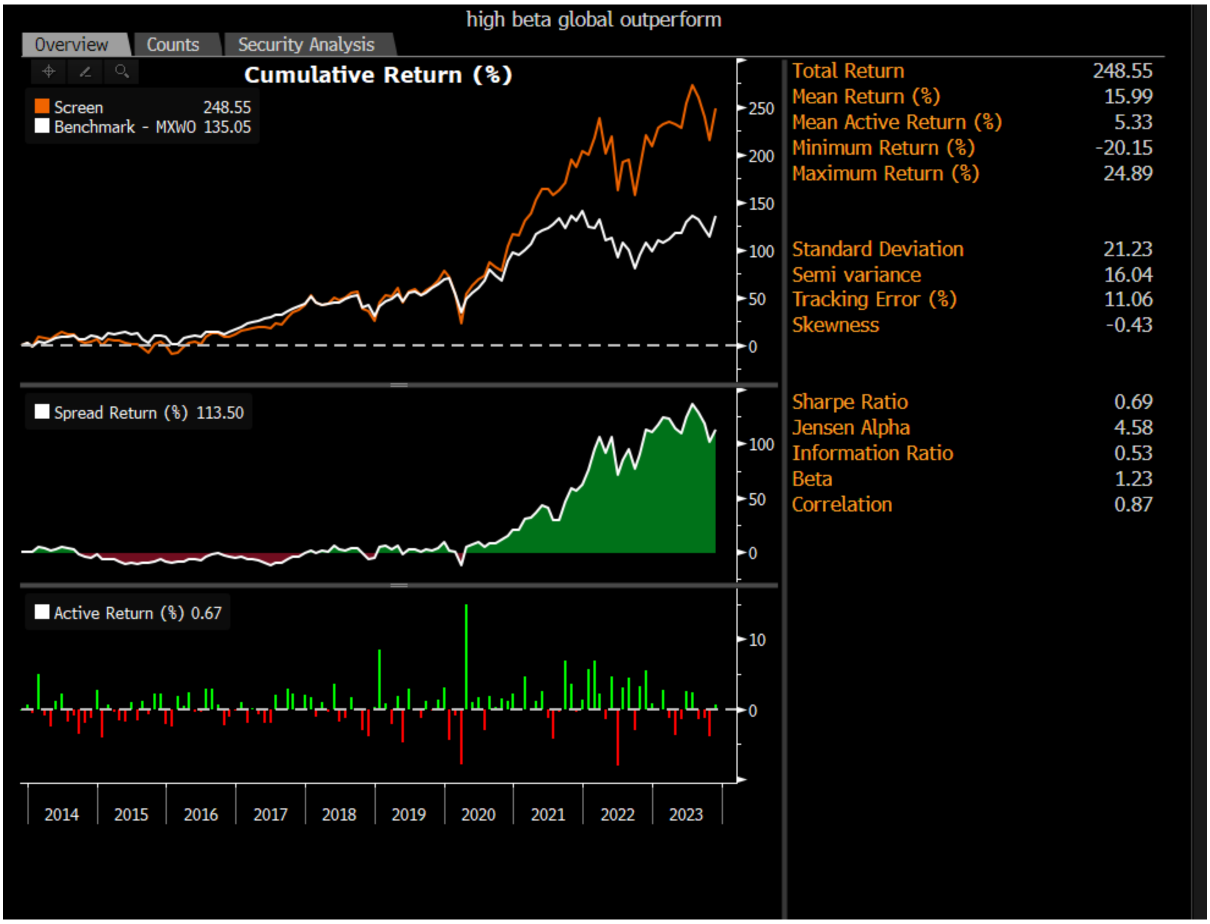
1. **Company opinions**, showing the predictive value in return and risk selecting our "Outperform" opinions. Also high Beta is selected (25% quartile).
2. **Portfolio overlay**, a number of strategies are suggested that would actively increase return or decrease relative risk. These are Momentum, Treasuries and Hedging.

1. Company Opinions

Assumptions: portfolio universe only consists of constituents of the MSCI World index[1], excluding the financial industry (banks, insurance companies etc.) portfolio holdings are equal weighted, monthly trading only, portfolio holdings consist of "Outperforms" only, performance measured against the MSCI World (EUR) index.

High beta is selected for the entire back test. This is defined as 1st quartile (the highest 25% beta equities).

[1] The MSCI World Index captures large and mid cap representation across 23 Developed Markets (DM) countries. With 1,480 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country. Countries include: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the UK and the US. The MSCI World Index was launched on Mar 31, 1986.



Findings

- An active return of **+5.33% annualised** or total return of **248.55%** is achieved over ten years
- Sharpe ratio (return/risk) was 0.69, versus the Index Sharpe in this time frame of 0.40. This indicates that the return to risk ratio is positive, focussing on higher returns over that period, with a Beta of 1.2x.
- Largest monthly draw-down was -20.15% in 2020, largest monthly return was 24.89% in 2020.

2. Portfolio overlay

Depending on the performance and drawdown targets that are decided upon as per above, we would suggest a portfolio overlay that would actively increase return or decrease relative risk based on the basic average risk profile.

The following aspects can be used to improve the risk/return profile:

- Momentum. This is currently not included in the back test. During positive and negative Momentum periods beta is adjusted. We will adjust for this in the fund, reducing the Beta when Momentum is negative. This will further improve the Sharpe ratio, reduce downside volatility and reduce average Beta.
- Treasuries. This is currently not included in the back test. Especially during a negative Momentum period we can (in additions to selecting low beta corporates) incorporate leveraged treasuries. This would decrease the drawn down further and increase performance by around 0.5% annualised.
- Currency hedging. The back test results are unhedged results shown in US dollars. Due to back test constraints no hedge for currencies is in place. Over the 10 year back test period this has led to a drag of -6% return over the period. To remove the currency volatility, currency hedges will be implemented.

Conclusion

An active return of **+5.33% annualised** or total return of **248.55%** was shown based on the 10 year back test results.

In addition, the Sharpe ratio is higher than the index, or in other words, the return versus volatility is superior to that of the index (0.69 versus 0.40).

A number of strategies can be applied to further improve the risk/return characteristics. Being Momentum, Treasuries and Currency hedging.