Currencies as an asset class

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Currencies provide several attractive attributes to institutional portfolios; low correlations to traditional asset classes, liquidity and stable return expectations. As such, the addition of a currency component may enhance the risk/return profile of a portfolio. However, as currencies carries no natural long term risk premium, a strategic inclusion of currencies in a portfolio would have zero long term expected returns. Therefore, a tactical approach is needed and so far few investors have succeeded in this, both from a fundamental and quantitative view.

We believe that probabilistic AI models provides an attractive way of incorporating active currency strategies into institutional portfolios.

It's all about probabilities

Trying to predict the future price of a financial asset is of little interest since the estimate will always be surrounded by too much noise to be of much value in itself. What investors should do, is try to predict the probability of a future stock price. Only then can we begin to do optimal investment decisions under uncertainty in a robust and consistent way.

We have tested our probabilistic AI model within and across all asset classes and one thing is consistent across the board. Robust excess returns come from uncertainty estimation, not return estimation.

Case study

Here we will show the importance of investing through probabilities by running our AI model on the most liquid currency pairs EURUSD, USDCHF, GBPUSD, USDJPY, AUDUSD, USDCAD. Note that this is not an attempt at creating a full and robust investment strategy, but merely to highlight the importance of incorporating uncertainty.

Each month we will form two portfolios:

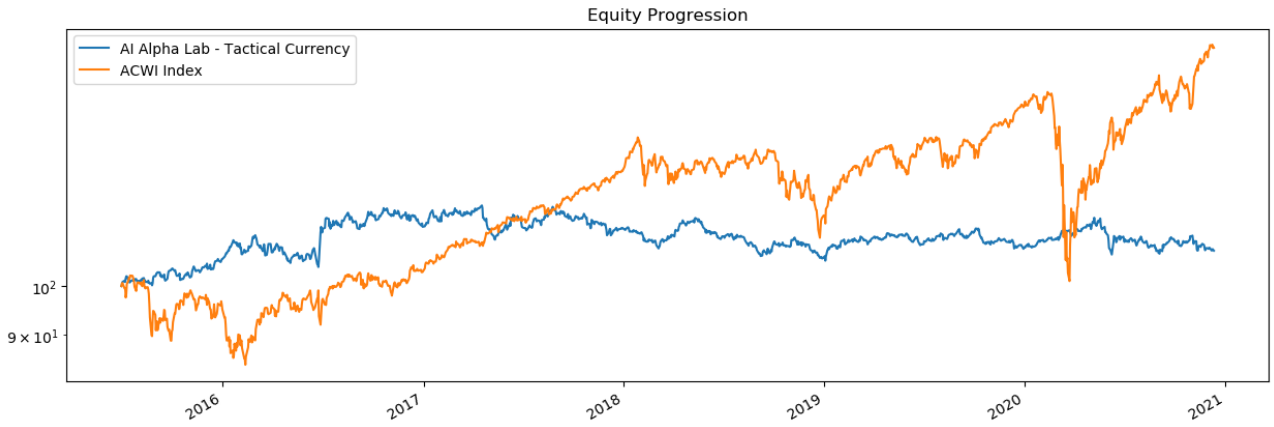
The first portfolio will buy/sell those pairs with positive/negative return expectations for the next month. The respective long/short leg of the portfolio will be equal weighted.

The second portfolio will buy/sell those pairs with positive/negative return expectations for the next month, only if the model uncertainty for a specific pair is in the lower 50% of the universe, i.e. the model predictions used must have relative explanatory power. The respective long/short leg of the portfolio will be equal weighted.

The models rebalances monthly and no turnover or transaction costs are included for the sake of simplicity.

Both portfolios are benchmarked against the MSCI ACWI index in USD and the objective is to provide equity like returns with lower variance and drawdowns, as well as low correlation to other asset classes.

Below is the test of the strategy, which do not take advantage of the uncertainty feature of our probabilistic AI model.



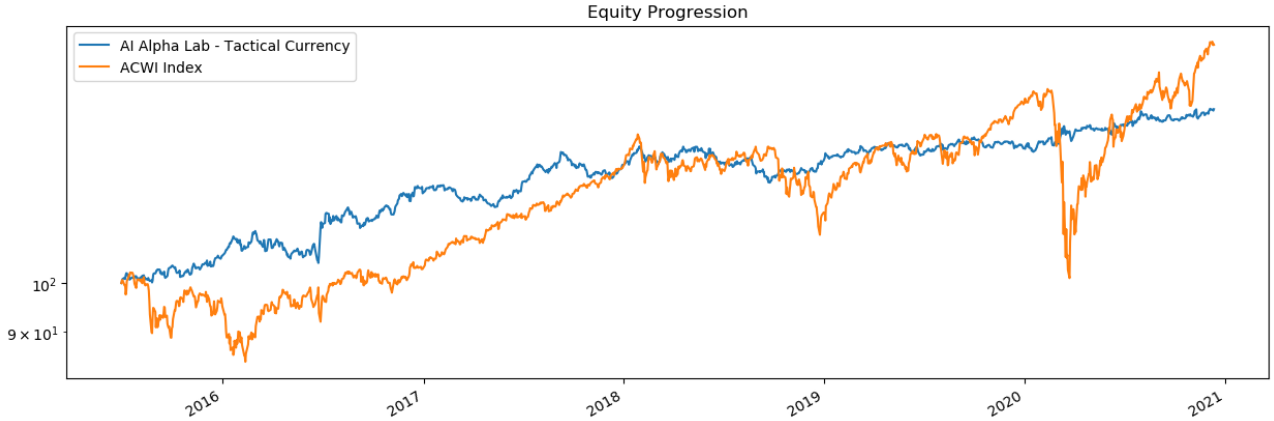
Performance	AI Model	MSCI ACWI
Total Return	8,0%	67,3%
YTD	-0,7%	13,5%
1Y	-1,9%	16,8%
3Y (ann.)	-1,3%	9,7%
5Y (ann.)	0,8%	12,4%
10Y (ann.)	1,4%	9,9%
Since Incep. (ann.)	1,4%	9,9%

Risk Metrics	AI Model	MSCI ACWI
Calmar Ratio	0,13	0,3
Ann. Volatility	7,7%	18,4%
Sharpe Ratio	0,22	0,61
Sortino Ratio	0,39	0,89

Risk Metrics	AI Model	MSCI ACWI
Max Drawdown	-11,2%	-33,5%
Worst Day	-2,1%	-11,2%
Worst Month	-3,7%	-13,4%
Worst Year	-6,3%	-9,1%

It is straightforward to conclude, that our state-of-the-art Bayesian neural network, capable of efficiently searching huge amount of data for all linear and non-linear causal structures, has limited success in producing significant return estimates.

Below we test the strategy that do take advantage of the uncertainty feature of our probabilistic AI model. Remember that this is an all-else-equal test, so everything else is exactly the same as the above test.



Performance	AI Model	MSCI ACWI
Total Return	45,6%	67,3%
YTD	8,8%	13,5%
1Y	7,6%	16,8%
3Y (ann.)	5,1%	9,7%
5Y (ann.)	7,0%	12,4%
10Y (ann.)	7,1%	9,9%
Since Incep. (ann.)	7,1%	9,9%

Risk Metrics	AI Model	MSCI ACWI
Calmar Ratio	0,95	0,3
Ann. Volatility	7,4%	18,4%
Sharpe Ratio	0,98	0,61
Sortino Ratio	1,74	0,89

Risk Metrics	AI Model	MSCI ACWI
Max Drawdown	-7,5%	-33,5%
Worst Day	-1,8%	-11,2%
Worst Month	-3,6%	-13,4%
Worst Year	1,0%	-9,1%
Correlation to BM	-0,03	1

The results of the second test dramatically change, simply because we are selective in our use of the return predictions from the model. Very few investors and no economic theory takes model uncertainty into account and we believe this to be a large uncompensated risk in most portfolios today, regardless of asset class or investment style.

We create alpha by knowing that we don't know. Probabilistic AI models does not provide significantly better estimates of future returns than most models applied today. However, combined with an estimate of the models uncertainty about its own estimates, it can improve performance significantly.

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It is emphasized that investment returns shown are simulated and do not represent actual performance of assets during a period. If the simulated strategy had been implemented during the period, the actual returns may have differed significantly from the simulated returns presented. Past performance, whether actual or simulated, is not a reliable indicator of future results and the return on investments may vary as a result of currency fluctuations.

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