Systematic Investing
Professor Dhar
Spring 2025

Assignment FX

In this assignment, you will build an FX trading strategy based on currency flows into US markets. The "Basic Balance" dataset is under Datasets on the website.

> Build a fundamentals-based strategy based on the model specified in the Deutsche Bank Research Report (Battle of the Dollar). The DB model states the following relationship between trade balance and the dollar index:
>
> ln(TWI(t)) = 0.000871*Basic Balance(t-T) + A, where
>
> A=4.54, and T can vary between 6 and 1 (even though T=1 is not tradable since the Basic Balance is released with a six week delay)
>
> TWI(t) is the Dollar Index (Trade Weighted Index) at time t and Basic Balance(t-T) is the Basic Balance T months ago. Basic Balance is defined as cumulative 12 month trade balance plus Net non-treasury portfolio flows. This has been calculated for you in the Basic Balance Excel file.
>
> If the predicted value is greater than actual, go long the dollar. If it is less, go short. Hold for one month.
>
> Show your analysis by varying T between 1 and 6. What lag provides the best results? How does this square with the claim in the article that a six month lagged Basic Balance best predicts the dollar index?
>
> Next, do a sensitivity analysis by using a threshold where the difference between actual and predicted must exceed the threshold to quality as material. Establish a threshold that you vary between, say 0 and 0.05 and you only take the position is the absolute value of the difference between actual and predicted exceeds the threshold, otherwise there is no position taken.

This assignment, along with the next one which is on the carry trade and the trend following ones, provide the basis for a potential term project, in case you want to do then in depth. You could also add a counter-trend component, and experiment with volatilities as well in a way that combines all the assignments covered in the course.

Assignment 5B (Carry Trade)

In this assignment, you will build an FX trading strategy based on interest rate differentials (the carry trade). The data file has been provided, along with the solution template to make your jo easier.

> Build a carry trade strategy for this you will need to use the **target fed funds rates** and daily currency returns. The strategy should go long a currency (versus the dollar) if its rate is higher than the US target rate and short otherwise.
>
> Also try establishing a threshold and varying it (say between 0 and 0.5%) that the rate difference must exceed in order to put on the carry trade (if the threshold is not exceeded, no trade is put on).
>
> You will ignore funding costs and the returns generated by borrowing in the "cheaper" currency and investing in the "premium" currency. In other words, consider only the returns from your daily positions and ignore the funding.

What's your assessment of the carry trade strategy?

For those interested in FX strategies as a project, try combining this with a technically-based strategy (assignment 2 and 4) the money-flow strategy (#5A, for which you will need to get current data), and try adding other elements as well, such as the long-bond yield differential from the term structure of the two countries in the currency pair.