

# Report of Final Project

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## Intro

### -Data

We used two series hourly price data (as close price) of JYP(2016, 2017) and XAU(2014, 2015).

### -Method and Tool

We tried to use MA and Bollinger method to constitute a strategy which IR is over 1. From MA method, we can get buying signal when short term MA line crosses up through long term MA line vice versa. We choose Bollinger method as a filter, from which we can get buying signal when MA line reach the lower Bollinger band vice versa. We executed the transaction when these two signals were same. Besides, we set a stop loss trigger to avoid tremendous loss for each holding period. Then we focused on B/O spread and Transaction delay analysis and tried to figure out the influence of these two factors on our strategy. We also did the performance analysis to get the key statistic ratios and the 95% VaR.

## Analysis

### XAU/USD

#### 1.1-Graph of cumulative hourly returns

The chart below shows how the cumulative return goes by using our strategy. The green dots indicate where the stop loss triggers are generated. The red dots indicate where maximum drawdown.



Figure1 XAU/USD

As we can see, we can get around 30% cumulative return by using our strategy.

#### 1.2-Performance Analysis-Stats

Some statistics are as follow. The annualized risk-free rate is set as 4.00% for Sharpe Ratio.

Annualized Return	12.84%
Annualized volatility	11.08%
Information Ratio	1.16
Sharpe Ratio	0.80
Good Ratio	-1.65
VaR-95%	-18.23%

#### 1.3-Drawdowns

The Top 5 largest Drawdowns are as follow:

Rank	Date	Drawdown
1	7/10/2014 7:00 AM	-7.79%
2	7/10/2014 8:00 AM	-7.70%
3	7/10/2014 6:00 AM	-7.68%
4	7/10/2014 10:00 AM	-7.57%
5	7/10/2014 9:00 AM	-7.52%

1.4-B/O Spread & Transaction Delay Analysis(IR)

	0.01%	0.03%	0.05%
B/O Spread	1.16	1.15	1.14
	1 min	3 mins	5 mins
Transaction Delay	1.18	1.21	1.27

Here, we change the B/O spread (percentage) and transaction delay to get IR in three levels, which are all over 1. As transaction delay become longer, we can get better IR.

JPY/USD

2.1-Graph of cumulative hourly returns



Figure 2 JPY/USD

As we can see, we can get around 20% cumulative return by using our strategy.

2.2-Performance Analysis-Stats

Some statistics are as follow. The annualized risk-free rate is set as 4.00% for Sharpe Ratio.

Annualized Return	15.39%
Annualized volatility	8.38%
Information Ratio	1.84
Sharpe Ratio	1.36
Good Ratio	-2.20
VaR-95%	-13.78%

2.3-Drawdowns

The Top 5 largest Drawdowns are as follow:

Rank	Date	Drawdown
1	8/10/2016 9:00 AM	-7.00%
2	8/10/2016 8:00 PM	-6.87%
3	8/10/2016 9:00 PM	-6.87%
4	8/10/2016 8:00 AM	-6.84%
5	8/10/2016 6:00 PM	-6.84%

2.4-B/O Spread & Transaction Delay Analysis(IR)

The IRs after we added B/O spread and transaction delay to our strategy are as follow:

	0.01%	0.03%	0.05%
B/O Spread	1.75	1.59	1.42
	1 min	3 mins	5 mins
Transaction Delay	1.58	1.63	1.80

Conclusion

By using this combined strategy, we can get that IR is over 1 for XAU and JPY.

(Details are included in our python code which is in the zip package)