Homework 3: Dual Listing Arbitrage

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Abstract. In this homework we study pure arbitrage as a way of making risk-free profits by trading some volume between two markets. Even though the profits per trade are low compared to the amount of cash involved, it is still possible to make a significant profit over time.

1 Trading robot

1.1 Algorithm

1.2 Implementation

The previous algorithm is fundamentally implemented in three separate steps, executed every time there is a book update. These three steps are *offers and bids checking*, *trading* and *book updating*. We'll briefly explain

2 Results

As we can see in Table 2

3 Discussion

Our main conclusion is that it takes a high investment to make a small profit. This seems like it is not a good investment, but there is no chance on making a loss. So we make a small risk-free profit without the risk of making a loss. The strength of this system is that it only does immediate trades. This minimizes the risk to zero. So you have a guaranteed profit. This is also the weakness of this system. It might pass on a really good price for the share because it can not be sold immediately. So the system could be more profitable if we could implement statistics that can tell the robot that an asset can be very profitable in the nearby future.

References

[1] P. Wilmott et al, *The Mathematics of Financial Derivatives*, 1995.

4 Appendix

Table 1: Cash moved for each feed.

#	CHI (Buy)	CHI (Sell)	EUR (Buy)	EUR (Sell)	Profit
1	-37407.95	74623.63	-74613.81	37412.86	14.73
2	-57272.87	24620.31	-24617.09	57280.36	10.71
3	-37686.14	29292.16	-29288.31	37691.10	8.81
4	-19650.57	85786.14	-85774.92	19653.14	13.79
5	-66249.23	57756.53	-57748.97	66259.82	18.15

Table 2: Assets moved for each feed.

#	CHI (Buy)	CHI (Sell)	EUR (Buy)	EUR (Sell)	Position
1	491	-982	982	-491	0
2	749	-322	322	-749	0
3	496	-385	385	-496	0
4	257	-1122	1122	-257	0
5	866	-756	756	-866	0