The dataset selection, period segmentation and findings of exceptions are also our innovations and contributions.

Compared to the dataset used in the main paper, our selection criterion of data is more reliable and reasonable. The author just focused on the North American market and research only one market in each sub-period, and then the research results seem perfect. However, this will lose universality. In experiment 2, we select 5 different market indices from all over the world, including Japan, Taiwan, UK and Brazil. These indices are typical in different continents. By obtaining data from markets of huge variations, we would like to compare the performances of different portfolio strategies in the same period to test the truthfulness of paper results.

The method of period segmentation in papers is worth learning, which covers many events and crises. In our experiment 2, we divide the whole period into four, covering 1995 dot com bubble and 2007-2008 financial crisis, which both are important events in recent 30 years. The aim of this kind of period segmentation is to test the performances of different portfolio strategies in both down turning economic conditions and steady economic environment.

Unfortunately, even the mean reversion strategies including RMR cannot escape the rule that most papers have limitations and are somehow glamorized by certain restrictions. The performances of mean-reversion strategies are not so good in financial crisis in the markets except North American ones. In the graph of BE500 Period 3, we can see that they are beaten by best strategy which are hindsight using future data. In other words, every strategy will fail when crisis comes.

Another exception is the scenario of emerging market which lacks a complete security market system. From the picture of strategy performances in Brazilian market (IBOV), mean-reversion strategies were once again beaten by best strategy. The terminal wealth is low in around 2000 and climbs slowly in next 4 years. However, after 2005 Brazilian security market regulation reform, people gained confidence to Brazilian stock market and the performances of mean-reversion strategies started to get better. To sum up, incomplete security market system does affect the performances of mean-reversion strategies.

On-Line Moving Average Reversion (OLMAR) exploits multiple-period mean reversion via efficient and scalable online machine learning techniques, that is, Passive Aggressive (PA) learning method. OLMAR assumes that next price will revert to a Moving Average, that is, =, where denotes the Moving Average at the end of *t*th period. In time series analysis, MA is typically used to smooth short-term price fluctuations and focuses on long-term trends. Thus, it can solve the two drawbacks of existing mean reversion algorithms.