Today I am sharing 1 of the projects I have done during my days in Singapore working for a hedge fund.

Basically, it was helping the traders to quantified their trading strategies and backtest them.

Here, i will talk about portfolio optimization.

Now, we have this Markowitz Portfolio Theory framework which is widely used in practice by fund managers. Harry Markowitz develop this theory back in the 50’s and won him a Nobel prize in Economic in the 70’s. So it is not so modern anymore.

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In every investment decision on stock, as an investor, we want to invest in stocks that give the highest expected return (return). Of course we want to consider the risk factor as well. This leads to the combination of multiple stocks and the weight of holding it will result in different expected returns and different risk associated with the investors. Just like the diagram on the slide

The relationship of on the left chart show the mathematics is linear, however, in real world situations, investors will consider multiple factors and objectives together when selecting the combination of stocks in a portfolio, such as how this portfolio performs as compared to a risk-free activity taken by investors or what is the average return earned per unit of risk. And this is how Markovits theory comes into play.

You will have this methodology how you apply this investment framework.

Identify the stocks market you want to invest in. It can be cross market like NYSE and HKSE.

Then…

I will show you how to build this in Excel later.

Next slide…

Essentially you want to get the best Sharpe ratio for your investment basket. On the slide show you how the Sharpe ratio is calculated.