

# How to Invest in SP500

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Market index outperforms lots of mutual funds (after fees). This file investigates some alternative investment strategies in SP500.

## 1 \$1 Every Time SP500 Dips Below $x\%$ of 50-Day MA

Everytime SP500 index dips below  $x\%$  of its 50-day MA line, we make \$1 of purchase of the index.

- $x=5\%, 10\%, 15\%, \dots$
- The annualized yield is calculated as a function of  $x$ .
- Not surprisingly, annualized yield is increasing in  $x$ . However, this needs to be interpreted with caution. If  $x=30\%$ , then almost no money is ever invested in SP500 index. Therefore, even if the resulted return is very high, little wealth is compounded.

## 2 Wait for $x\%$ Dip then Buy with $y\%$ Savings

Imagine Adam has \$1000 of leftover income every month for investment in SP500 index.

- He doesn't have to invest \$1000 into SP500 each month. For example, he could wait 3 months till a good dip occurs, then invest  $y\%$  of all savings \$3000
- What's the optimal strategy?
- Suppose Adam follows a strategy:
  - $\$1000/\text{month} = \$33/\text{day}$
  - Wait and accumulate money, and investment all accumulated money into SP500 when a dip of  $x\%$  happens below 50-day MA. Then rinse and repeat.
  - Obviously, this is NOT the only strategy. For example, Adam could wait and accumulate, if SP dips  $x\%$ , invest half or  $1/3$ , etc.
  - Or Adam could make investment each day as a function of the dip, so summarized by  $investment(dip)$ .

- \* The strategy listed above is a special one, where this function *investment(dip)* takes a 0-1 step function, also investment amount is also history dependent (how much has been saved up).
- Evaluation: calculate total accumulated wealth till now.