**Assignment 4 Stock**

**1. what is the average nightly profit for your stocka and ”spy”? Since you always start with $100, this number will coincide with percentage profit.**

**SPY:**

from 2019-1-1 to 2020-1-1, the average nightly profit 0.26%

**PINS**:

from 2021-10-03 to 2022-10-03, the average nightly profit -2.68%

**2. is the profit from ”long” positions (when you buy) higher or lower than your profit from ’short” positions (when you sell short)? What is more profitable: long or short positions?**

**SPY:**

The profit of long position is higher than that of short position

So, Long position is more profitable

Profit for long position is 9.81$

Profit for short position is -3.8$

**PINS:**

The profit of long position is lower than that of short position

So, Short position is more profitable

Profit for long position is -43.21$

Profit for short position is -21.12$

**3. suppose you add a restriction that you will trade only if the absolute value of daily return is more than some threshold value x (e.g. 5%). (for example, unless stock price rises or falls by more than 5%, you will not trade). With such a restriction, you will trade less frequently but maybe your profit per trade will increase. We would like to investigate this. Take 100 points for x from 0 to 10% and plot the average profit per trade. Please discuss your findings. Any patterns? Any optimal values for x?**

**SPY:**

* **Please discuss your findings. Any patterns? Any optimal values for x?**

The larger X, the average profit increasely larger.

The optimal value is 10%

**PINS:**

* **Please discuss your findings. Any patterns? Any optimal values for x?**

The larger X, the average profit increasely larger

The optimal value is 10%

**4. perform the above analysis separately for long and short**

**positions. Discuss your findings.**

**SPY:**

**In most situation, long position will get more profit**

**PINS:**

**In most situation, short position will get the lowest loss.;**

**5. on the same plot, show the growth of your portfolio for your**

**stock and SPY and buy-and-hold strategy**