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Financial Derivatives
(section 8A)

Q:1:i)

① 4.80 buy and hold APPL.

In APPL, A \$1 investment at the start of January 2016 generates \$4.80 return to the end of December 2020, following the buy and hold strategy. This is where you buy once at the start of the term and sell only at the end of the term.

Q:1:ii)

② \$14.83 SMA Tesla.

A 1\$ investment in Tesla over the period of January 2016 till December 2020 generates \$14.83 return following the sample Moving average strategy. This is where you buy only when short term average.

Q:1:iii) \$5.74 EWM Amazon. As 1\$ investment in Amazon
③ over period of Jan 2016 till Dec 2020 generate \$5.74 return. This is where you buy only when short term avg (e.g 12 days) exceeds long term average (e.g 24 days)

Q:1) Sample moving average, strategy seems the best from the data available in the table.

Because it has highest return. Also the stock in which it is not highest is still close to the highest.

Q:2

$$a) E(R_p) = W_M \cdot E(R_M) + W_A \cdot E(R_A)$$

$$\begin{aligned} &\text{By putting values in the formula.} \\ &= 0.4 \times 0.12 + 0.6 \times 0.13 \\ &= 0.126 \approx 12.6\% \end{aligned}$$

$$b) \sigma_p = \sqrt{W_M^2 \cdot \sigma_M^2 + W_A^2 \cdot \sigma_A^2 + 2W_M W_A \text{Cov}_{M,A}}$$

By putting values in the formula.

$$= \sqrt{(0.4)^2 (0.18)^2 + (0.6)^2 (0.25)^2 + 2 \times (0.4)(0.6)(180)}$$

$$\sigma_p = 19.05\%$$

Q: 3)

Asset C is the risk-free asset as its co-variance with itself, also known as its variance is 0. Variance of an asset tells us associated with it.
