

Innovation & Business Exercise, IB3

Crypto as an Asset Class, the 5% Sleeve

Digital Finance, BSc Course

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Companion to "Crypto as an Asset Class" | 18 min | Groups of 3 to 4

Illustrative figures (not market forecasts).

60/40 portfolio: expected return $\mu_p = 6\%$, volatility $\sigma_p = 10\%$.

Bitcoin: expected return $\mu_b = 20\%$, volatility $\sigma_b = 60\%$, correlation with the 60/40 $\rho = 0.2$.

You move **5%** of the portfolio into BTC (so $w_p = 0.95$, $w_b = 0.05$).

Your task. Compute the new portfolio's expected return and volatility, read off what changed, then make the wrapper decision. Roles: **scribe**, **skeptic**, **presenter**.

(a) **New expected return** $\mu_{\text{new}} = w_p \mu_p + w_b \mu_b = \underline{\hspace{2cm}}$

(b) **New volatility** (two-asset standard deviation)

$$\sigma_{\text{new}} = \sqrt{w_p^2 \sigma_p^2 + w_b^2 \sigma_b^2 + 2 w_p w_b \rho \sigma_p \sigma_b} = \underline{\hspace{2cm}}$$

(c) **Read it.** Return went from 6% to $\underline{\hspace{1cm}}$; volatility from 10% to $\underline{\hspace{1cm}}$. Did the crude return/volatility ratio improve or worsen? $\underline{\hspace{1cm}}$

Why does a 60%-volatility asset add so *little* volatility here? (two reasons)

(d) **Decision.** For this 5% sleeve, choose a **spot-BTC ETF** or **self-custody**, and give the single strongest reason for a typical investor.

Your output (present this). One slide or this sheet. Presenter, **90 seconds**: your two numbers, whether risk-adjusted return improved, and your wrapper decision with its one reason.