Solutions

2.1

- $E[r] = 0.25(24) + 0.55(10) + 0.20(-8) = 9.7\%$.
- Variance $= 0.25(14.1)^2 + 0.55(0.1)^2 + 0.20(-17.9)^2 = 113.8 \rightarrow \sigma = 10.7\%$.

2.2

- Premium $= 9.9 - 3.5 = 6.4$ points.
- The breakdown is specific risk – a diversified holder sheds it for free, so it earns no premium.

2.3

- $\sigma_p^2 = 0.25(0.107)^2 + 0.25(0.06)^2 + 2(0.5)(0.5)(0.25)(0.107)(0.06)$
- $= 0.00286 + 0.0009 + 0.0008 = 0.00456 \rightarrow \sigma_p = 6.8\%$.
- Weighted average: $0.5(10.7) + 0.5(6) = 8.35\%$ – beaten by 1.6 points.

2.4

- Its risk is nearly the same bet again ($\rho \approx 0.9$): the covariance term barely shrinks, so the sd barely falls.

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