Expected Return & Risk

It specifies whether the investor looking for capital preservation or capital appreciation or regular income.

Amount of risk the investor can bear (measured in terms of standard deviation).

Two Asset Portfolio:

\[ E(R_p) = w_A E(R_A) + (1-w_A)E(R_B) \]

Two Asset Portfolio:

\[ qSD = \sqrt{w_A^2 \sigma_A^2 + w_B^2 \sigma_B^2 + 2 w_A w_B \sigma_A \sigma_B \rho_{AB}} \]
Consider a portfolio with $30,000 in Equity and 20,000 in Bonds. The Correlation between the two asset classes is 0.7. Given the data below, the expected return and risk of the portfolio is:

<table>
<thead>
<tr>
<th>Investment</th>
<th>Assets</th>
<th>Return</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>30000</td>
<td>Equity</td>
<td>13%</td>
<td>20%</td>
</tr>
<tr>
<td>20000</td>
<td>Bond</td>
<td>10%</td>
<td>10%</td>
</tr>
</tbody>
</table>

A. 12% & 14.2%
B. 11.8% & 15.07%
C. 11.8% & 14.2%
Answer

- B
- Weight

Equity = 30000/50000 = 60%
Bond = 1 - 60% = 40%

Expected Return \( E(R_p) = 0.6 \times 13\% + 0.4 \times 10\% = 11.8\% \)

\[
\sigma_p = \sqrt{(0.6^2 \times 0.2^2) + (0.4^2 \times 0.1^2) + (2 \times 0.6 \times 0.4 \times 0.2 \times 0.1 \times 0.7)} \\
= \sqrt{0.0144 + 0.0016 + 0.00672} \\
= \sqrt{0.02272} \\
= 0.1507 \\
= 15.07\% 
\]