Calculate the expected rate of return on each alternative.

\[ \hat{k} = \text{expected rate of return.} \]

\[ \hat{k} = \sum_{i=1}^{n} k_i P_i. \]

\[ \hat{k}_{HT} = 0.10(-22\%) + 0.20(-2\%) + 0.40(20\%) + 0.20(35\%) + 0.10(50\%) = 17.4\%. \]

What is the standard deviation of returns for each alternative?

\[ \sigma = \text{Standard deviation} \]

\[ \sigma = \sqrt{\text{Variance}} = \sqrt{\sigma^2} = \sqrt{\sum_{i=1}^{n} (X_i - \bar{X})^2 P_i}. \]

\[ \sigma_{T-bills} = 0.0\%. \]

\[ \sigma_{HT} = 20.0\%. \]

\[ \sigma_{USR} = 18.8\%. \]

\[ \sigma_{Coll} = 13.4\%. \]

\[ \sigma_{M} = 15.3\%. \]

Standard deviation measures the stand-alone risk of an investment.

The larger the standard deviation, the higher the probability that returns will be far below the expected return.

Coefficient of variation is an alternative measure of stand-alone risk.
Expected Return versus Risk

<table>
<thead>
<tr>
<th>Security</th>
<th>Return</th>
<th>Risk, σ</th>
</tr>
</thead>
<tbody>
<tr>
<td>HT</td>
<td>17.4%</td>
<td>20.0%</td>
</tr>
<tr>
<td>Market</td>
<td>15.0</td>
<td>15.3</td>
</tr>
<tr>
<td>USR</td>
<td>13.8</td>
<td>18.8</td>
</tr>
<tr>
<td>T-bills</td>
<td>8.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Collections</td>
<td>1.7</td>
<td>13.4</td>
</tr>
</tbody>
</table>

Which alternative is best?

Got questions? Get answers!!

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