

# STATISTICS CLASS PROBLEM

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Suppose the return distributions for two risky assets are as follows:

| <i>State</i> | $p_s$ | $r_{a,s}$ | $r_{b,s}$ |
|--------------|-------|-----------|-----------|
| 1            | 1/3   | -3%       | 36%       |
| 2            | 1/3   | 9%        | -12%      |
| 3            | 1/3   | 21%       | 12%       |

1. Calculate the expected returns for assets  $a$  and  $b$ .
2. Calculate the variances and standard deviations for assets  $a$  and  $b$ .
3. Calculate the covariance and correlation between assets  $a$  and  $b$ .
4. Calculate the expected return and standard deviation for an equally weighted portfolio consisting of asset  $a$  and  $b$ .
5. Determine the least risky combination of assets  $a$  and  $b$  and calculate the expected return and standard deviation for such a portfolio.