



Chapter 5

Modern Portfolio Concepts



Modern Portfolio Concepts

- Manage the risk/return tradeoff
- Investors can reduce risk by adding additional assets to a one-asset portfolio without sacrificing returns



Portfolios

- Combinations of investments

- Style Focus
 - Growth
 - long-term price appreciation
 - Income
 - Seeks current income



Efficient Portfolio

- Provides highest return for given level of risk, or
- Has lowest risk for a given level of return.



Portfolio Return & Standard Deviation

- Portfolio average / expected return
 - weighted-average return of the assets comprising the portfolio.
- The portfolio standard deviation
 - measures the portfolio's actual return over a period of time and compares it to its average or expected return.
 - it measures variability of actual returns around expected return.



Portfolio Management Concepts

■ Correlation

- a statistical measure of relationship (if any) between two variables.
 - Positive (move in same direction)
 - Negative (move in opposite directions)
 - Zero (uncorrelated)
- Range of -1 to 1



Portfolio Management Concepts

■ **Diversification**

- process of combining assets having negative or low positive correlation to reduce the variability of a portfolio's return
 - potential risk reduction for a combination of assets depends on the degree of correlation of the two assets.



Capital Asset Pricing Model (CAPM)

- Links return and relevant risk for all assets
- Risk
 - $TR = \text{Unsystematic} + \text{Systematic}$
 - $\beta = \text{measure of systematic risk}$



Beta

- Beta can be positive or negative
- Beta for
 - Market = 1
 - Less volatile security < 1
 - More volatile security > 1
- Reveals how a security responds to market forces



CAPM Equation

- Calculates risk-adjusted required rate of return

$$R_f + \beta \underbrace{(R_m - R_f)}_{\text{Risk Premium}}$$



Review

- Review problems 152, 153, 154 and 158 in Volume III, Investments



Portfolio Management

- Two approaches to portfolio management are currently employed
 - the traditional portfolio management approach
 - modern portfolio theory (MPT)



The Traditional Approach

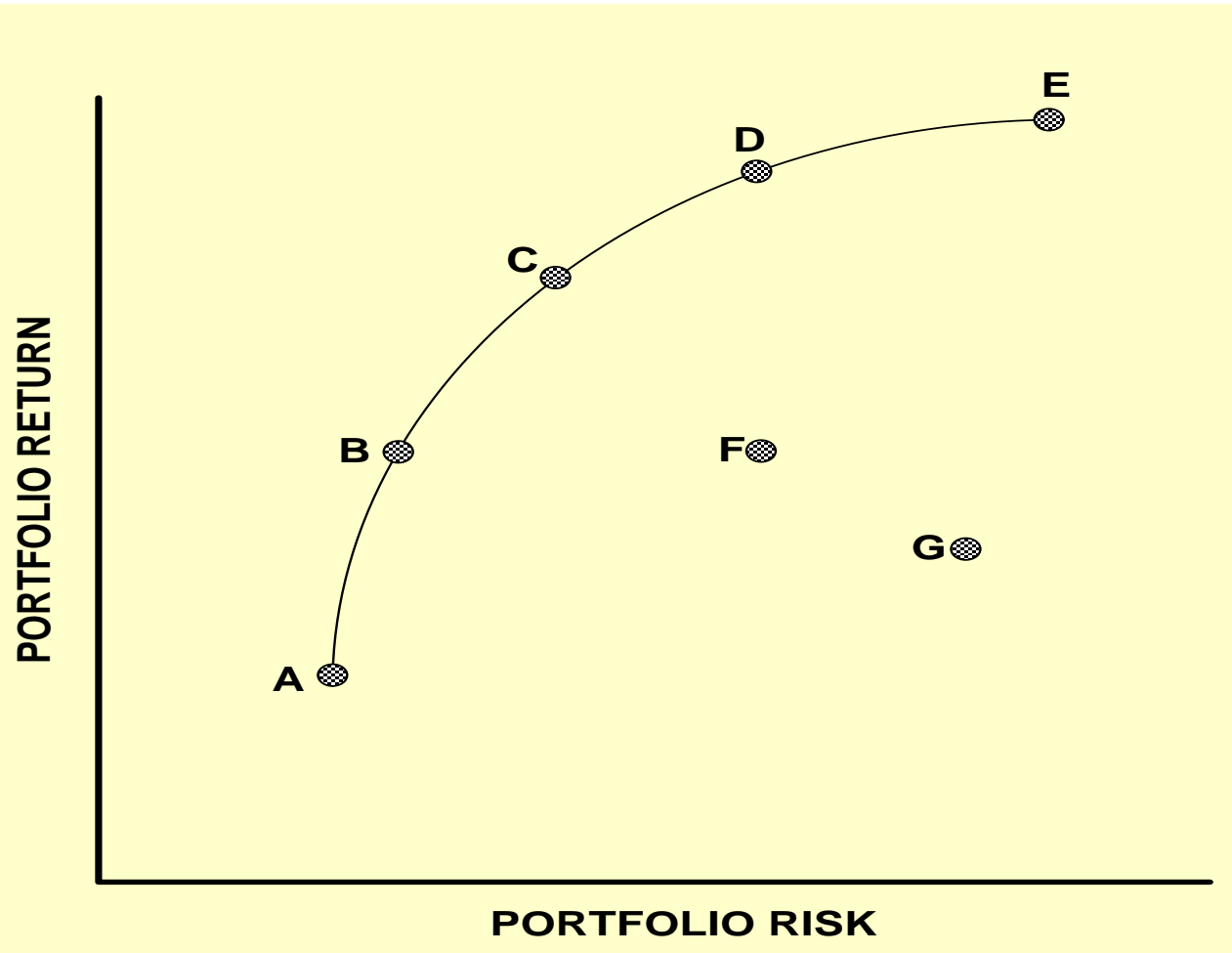
- Traditional portfolio management approach
 - emphasizes balancing the portfolio by assembling a wide variety of stocks and/or bonds of companies from a broad range of industries.
- Tools
 - Fundamental Analysis
 - Technical Analysis



Modern Portfolio Theory (MPT)

- Relies on security & portfolio
 - expected returns
 - standard deviations
 - Correlations
- **Diversification**
 - achieved by combining securities with negative (or low positive) correlations between each other's rates of return.

Portfolio Theory



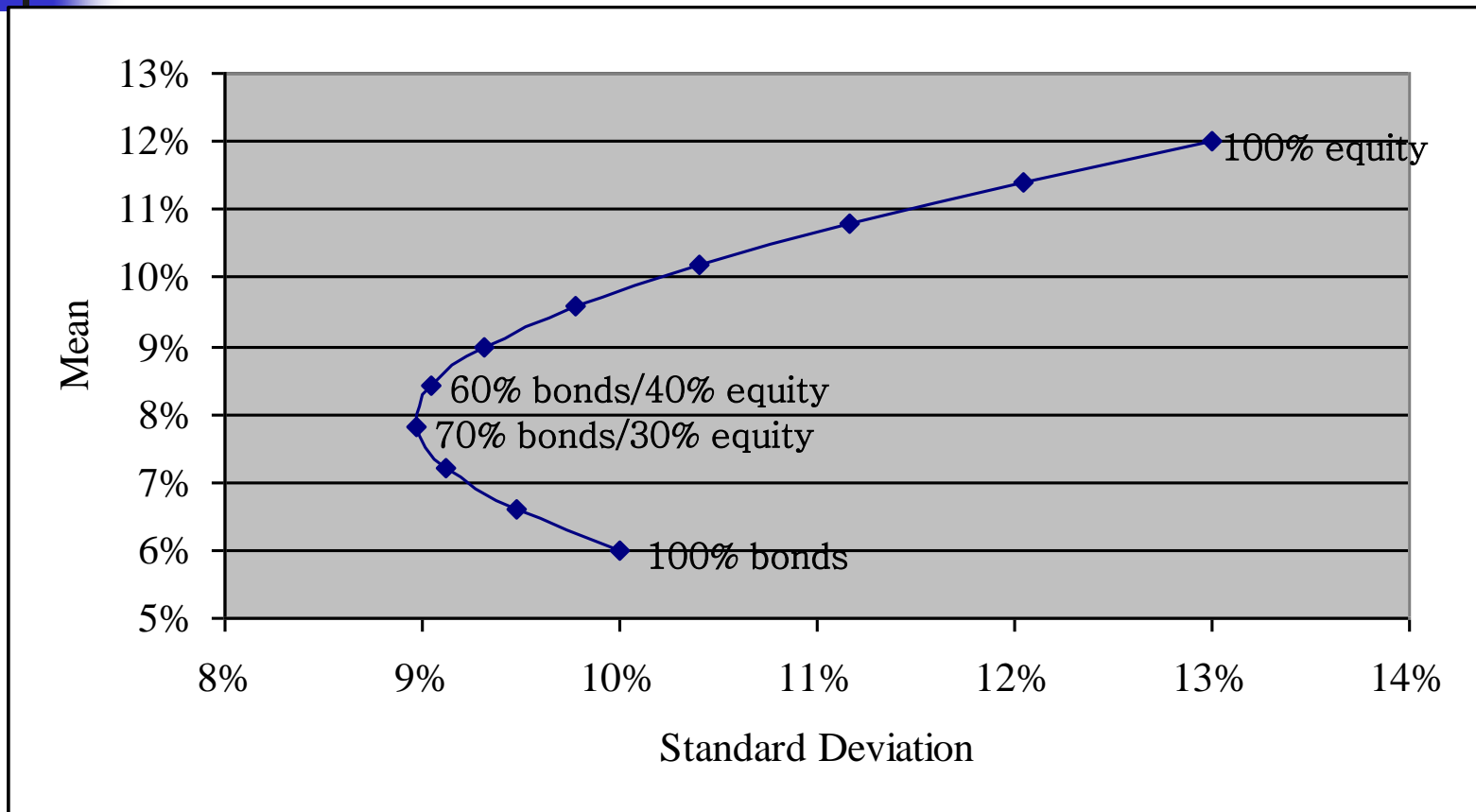
Blending Portfolios Together

Assuming: $R = 0.3$

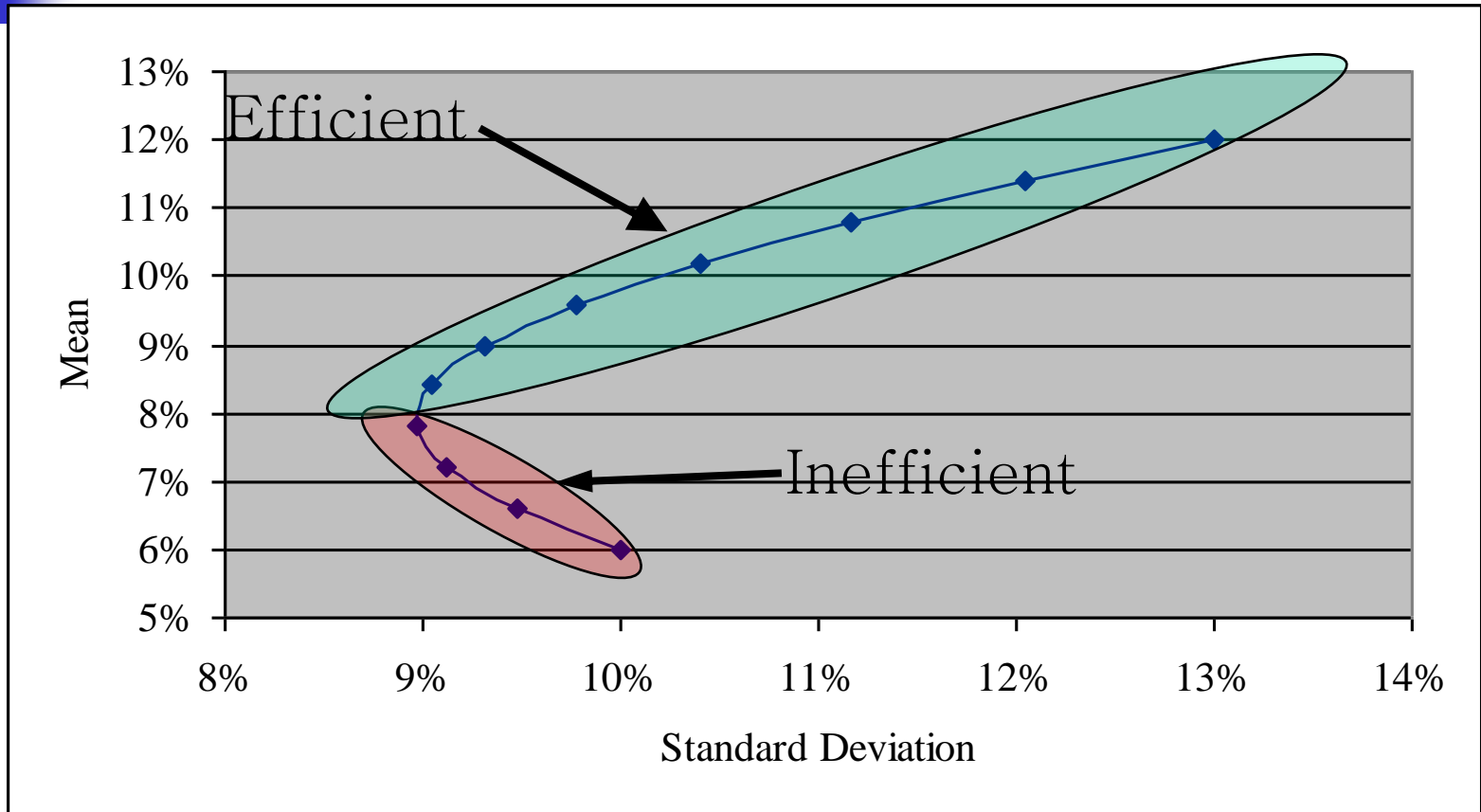
<u>A / B</u>	<u>Mean</u>	<u>Std. Dev.</u>
100 / 0	6.00%	10.00%
90 / 10	6.60%	9.47%
80 / 20	7.20%	9.12%
70 / 30	7.80%	8.98%
60 / 40	8.40%	9.04%
50 / 50	9.00%	9.31%
40 / 60	9.60%	9.78%
30 / 70	10.20%	10.40%
20 / 80	10.80%	11.16%
10 / 90	11.40%	12.04%
0 / 100	12.00%	13.00%



Blending Portfolios



Efficient Portfolios





Review

- In Volume III, Investments
 - see Exhibit 27 – The Efficient Frontier, on page 117
 - Exhibit 28 – The Capital Market Line, on page 119
 - Review problems 137, 138 and 140



Portfolio Beta

- Weighted average of the betas of the individual assets in the portfolio
- Usefulness depends on how well it explains relative return fluctuations.
- Coefficient of Determination (R^2)
 - percentage of the change in the return on an individual security explained by the market return.
 - ranges from 0 to 1.0.



Review

- Review problems 164 and 167 in Volume III, Investments



Constructing a portfolio

- requires a review of
 - investor characteristics,
 - investor objectives,
 - portfolio objectives and policies.



Investor characteristics and objectives

- Things to consider...
 - risk exposure should never exceed ability to bear the risk
 - Risk of income streams (employment)
 - Tax ramifications
 - Experience and age



Portfolio objectives and policies

- Consider...
 - Current income needs.
 - Is capital preservation important to the investor, or are losses acceptable?
 - Capital growth objectives often imply taking on increased risk and a reduced level of current income.



Asset Allocation

- Typical approaches
 - Fixed weightings
 - predetermined, fixed percentage of the portfolio is allocated to each asset class.
 - Flexible weightings
 - weights for each asset category are adjusted periodically based on market or technical analysis.
 - Tactical asset allocations
 - use stock-index futures and bond futures to change a portfolio's asset allocation.



Asset Allocation

- For any of the three approaches, conservative, moderate, or aggressive portfolios can be constructed.
- Asset allocation mutual fund
 - seeks to reduce variability of returns by investing in the right assets at the right time
 - emphasizes diversification and relatively consistent performance rather than the potential for spectacular gains.