

Chapter Objectives

At the end of the topic, students should be able to understand the following:

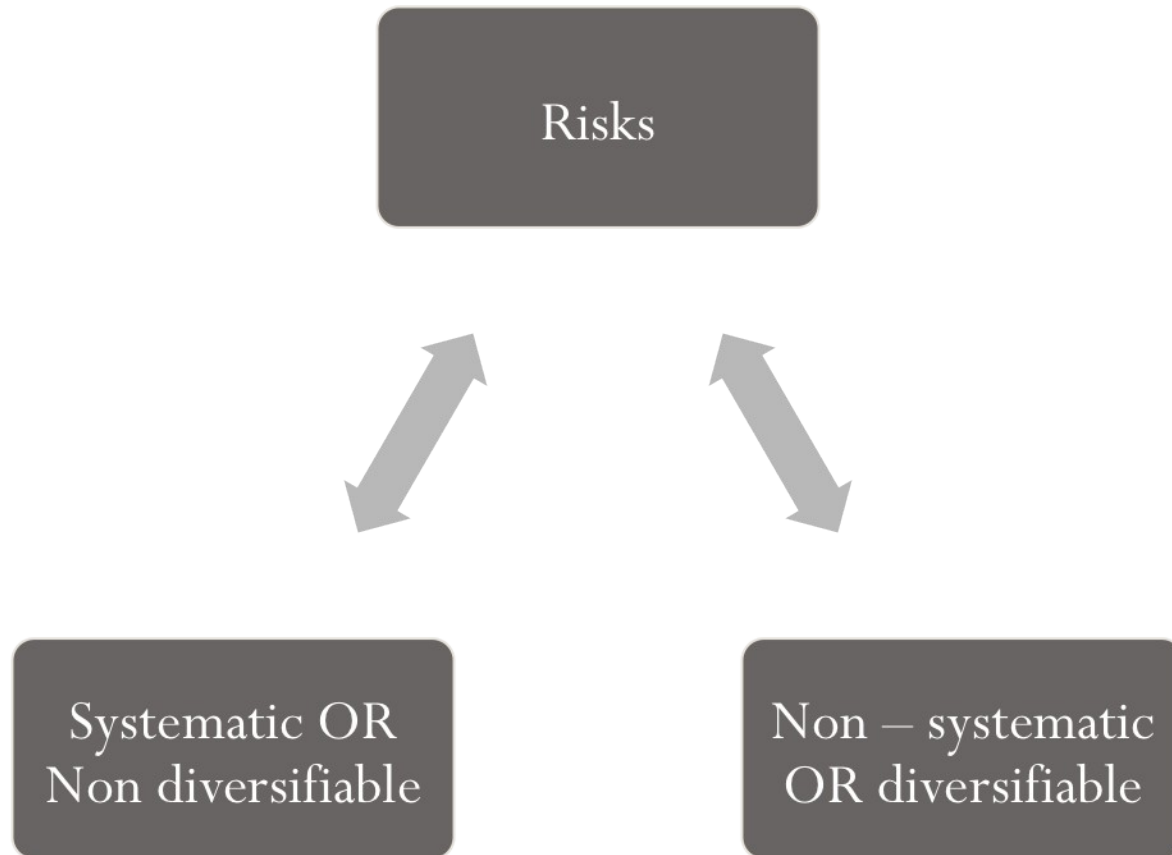
- Total Risk
- Risks Associated with Investments
- Risk Relationship Between Different Stocks
- Portfolio
- Diversification of Risk

TOTAL RISK

- The total variability in returns of a security represents the total risk of that security. Systematic risk and unsystematic risk are the two components of total risk. Thus

$$\text{Total risk} = \text{Systematic risk} + \text{Unsystematic risk}$$

Risks Associated with Investments



SYSTEMATIC RISK

- The portion of the variability of return of a security that is caused by external factors, is called systematic risk.
- It is also known as market risk or non-diversifiable risk.
- Economic and political instability, economic recession, macro policy of the government, etc. affect the price of all shares systematically. Thus the variation of return in shares, which is caused by these factors, is called systematic risk.

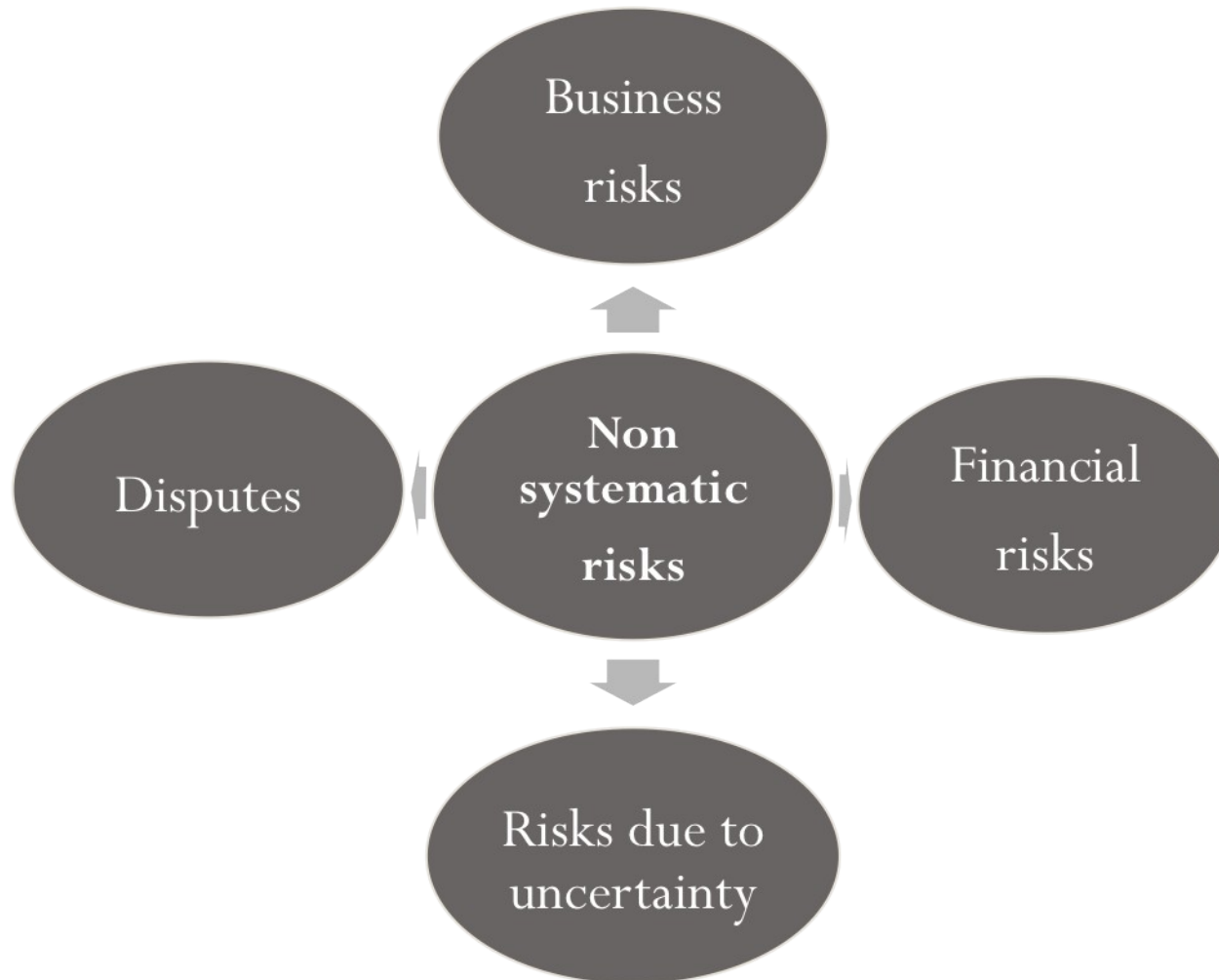
Systematic Risks



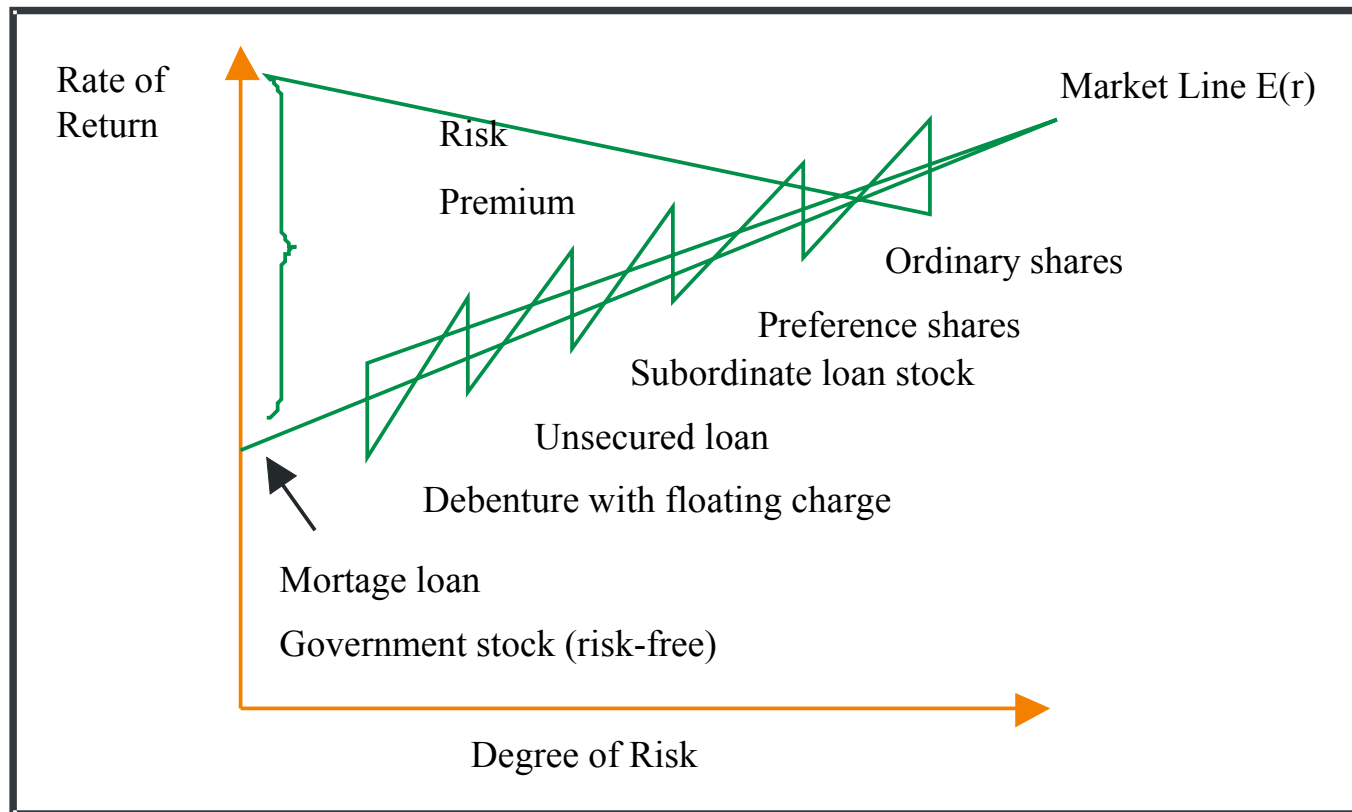
NON - SYSTEMATIC RISK

- The return from a security sometimes varies because of certain factors affecting only the company issuing such security. Examples are raw material scarcity, Labour strike, management efficiency etc.
- When variability of returns occurs because of such firm-specific factors, it is known as unsystematic risk.

Non – Systematic Risks



RISK RETURN RELATIONSHIP OF DIFFERENT STOCKS



Risk return relationship of different stocks

Risk

- Risk refers to dispersion of a variable.
- It is measured by variance or SD.
- Variance is the sum of squares of the deviations of actual returns from average returns .
- **Variance** = $\sum (R_i - \bar{R})^2$
- **SD** = $(\text{variance}^2)^{1/2}$

Expected Rate of Return

- It is the weighted average of all possible returns multiplied by their respective probabilities.
- $E(R) = R_1P_1 + R_2P_2 + \dots + R_nP_n$
- $E(R) = \sum_{i=1}^n R_iP_i$

Where R_i is the outcome i , P_i is the probability of occurrence of i .

DIVERSIFICATION OF RISK

- We have seen that total risk of an individual security is measured by the standard deviation (σ), which can be divided into two parts i.e., systematic risk and unsystematic risk
- Total Risk (σ) = Systematic Risk + Unsystematic risk