Investment Management

Objectives of Investment Portfolio

- A bank's investment portfolio differs markedly from a trading account, as investment securities are held to meet one of six general objectives:
  1. Safety or preservation of capital
  2. Liquidity
  3. Yield
  4. Credit risk diversification
  5. Help in managing interest rate risk exposure
  6. Assistance in meeting pledging requirements
- Securities with different return and risk features meet each objective differently- average portfolio varies in terms of composition and price sensitivity
- Banks generally hold these securities for longer periods of time than trading account securities

Compositions of Investment Portfolio

Money market instruments: **Banks hold significant amounts of government and corporate securities that mature within one year, labelled *money market instruments***	**Capital market instruments:** **Banks own a larger amount of longer-term taxable securities, labelled *capital market instruments***
Example: Treasury bills Large negotiable CDs Bankers acceptances Commercial paper Security Repos Tax and bond anticipation notes	**Example:** Long-term bonds Municipal bonds MBSs backed both by government and private guarantees Corporate bonds Foreign bonds Stocks Other asset-backed securities

Factors Affecting Choice of Investment Securities

The principal factors bearing on which investments are chosen include

1. **Expected rate of return**
2. **Tax exposure**
3. **Interest rate risk**
4. **Credit or default risk**
5. **Business risk**
6. **Liquidity risk**
7. **Call risk**
8. **Prepayment risk**
9. **Inflation risk**
10. **Pledging requirements**

Investment Strategies

- Investment strategies play an integral role in meeting overall asset and liability management goals regarding interest rate risk, liquidity risk, credit risk, the bank's tax position, expected net income, and capital adequacy
- What maturity of securities should the investing institution hold?
- Should it purchase mostly short term bills and notes, or only long term bonds, or combination of both?

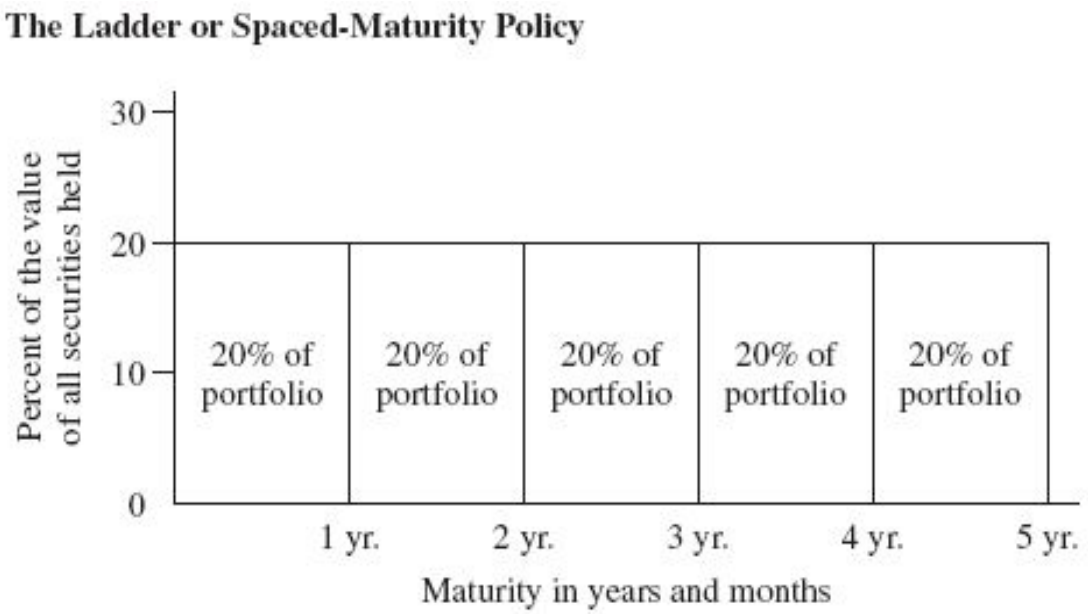
Types of Portfolio Management Strategies

- **Passive Strategy**
  - Strategy of holding a portfolio of securities without attempting to outperform other investors through superior market forecasting
- **Active Strategy**
  - Attempts to outperform a passive benchmark portfolio on a risk-adjusted basis

Buy and Hold Strategy

- Investors don’t trade actively to maximize the return
- Hold the bond with a maturity or duration close to their investment horizon
- Price risk elimination is the prime objective
- Return on security is controlled by coupon payments and reinvestment rate

Alternative Maturity Strategies for Managing Investment Portfolios



Ladder / Spaced-Maturity Policy

- Particularly popular among smaller institutions
- Choose a maximum acceptable maturity
- Invest in equal proportions of securities in each of several maturity intervals until maximum acceptable maturity is reached
- Strategy does not maximize investment income but has advantage of reducing income fluctuations
- Tends to build in investment flexibility
- Requires little management expertise

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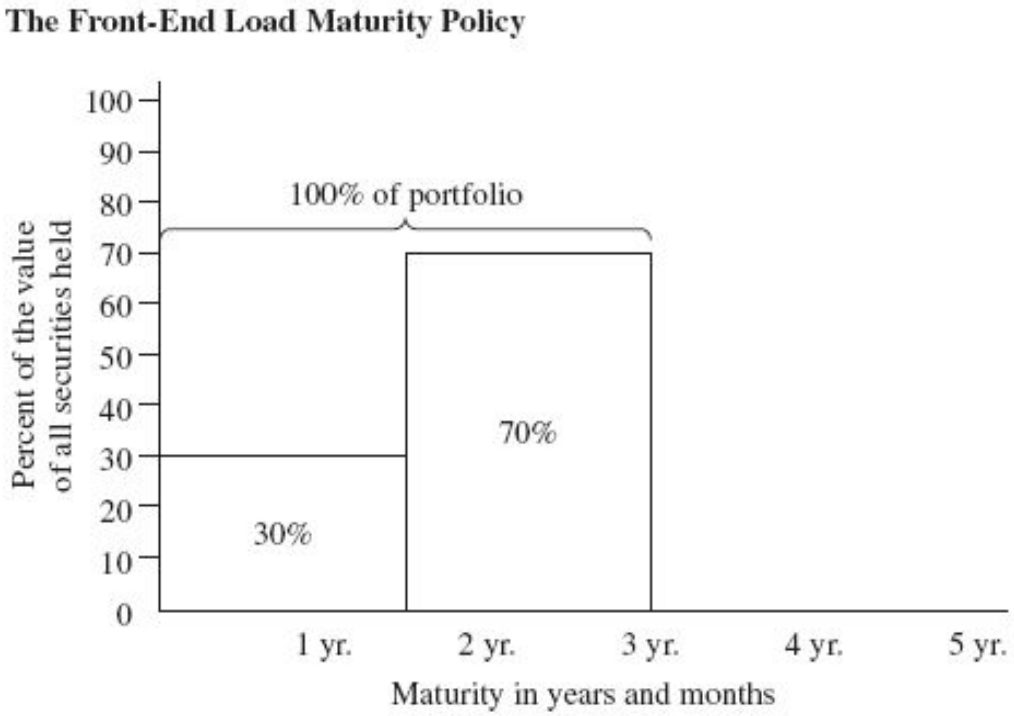
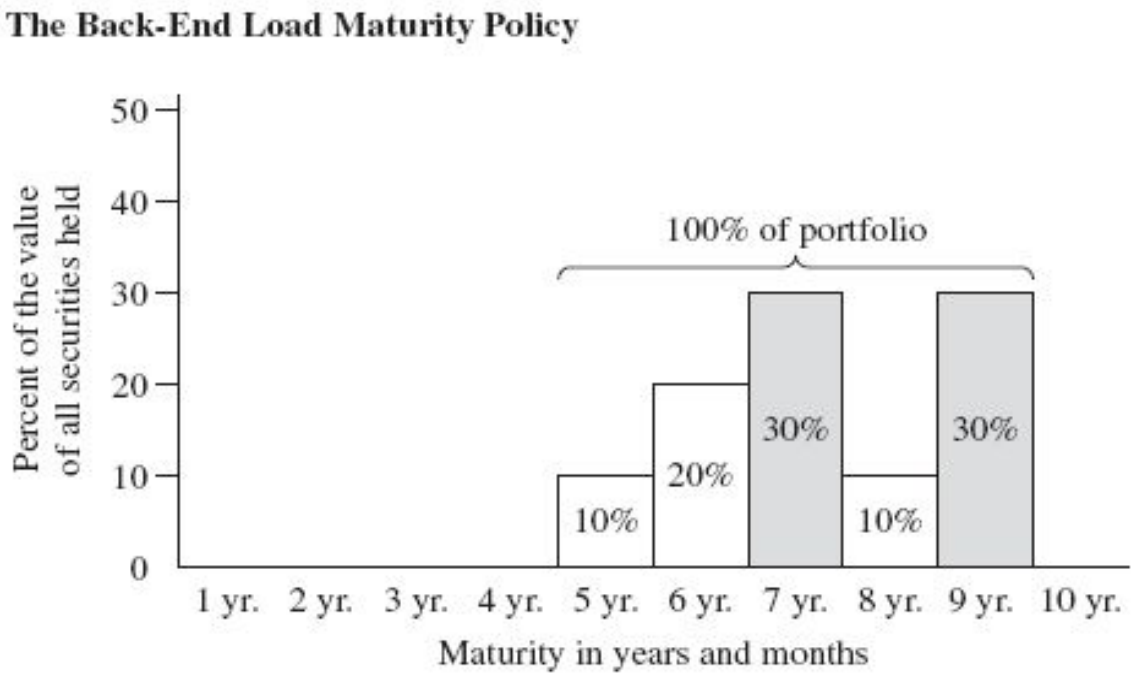


Front-End Load Maturity Policy

- Purchase only short term securities and place all investments within a brief interval of time
- Approach stresses using investment portfolio primarily as a source of liquidity rather than a source of income
- Avoids large capital losses if market interest rate rises

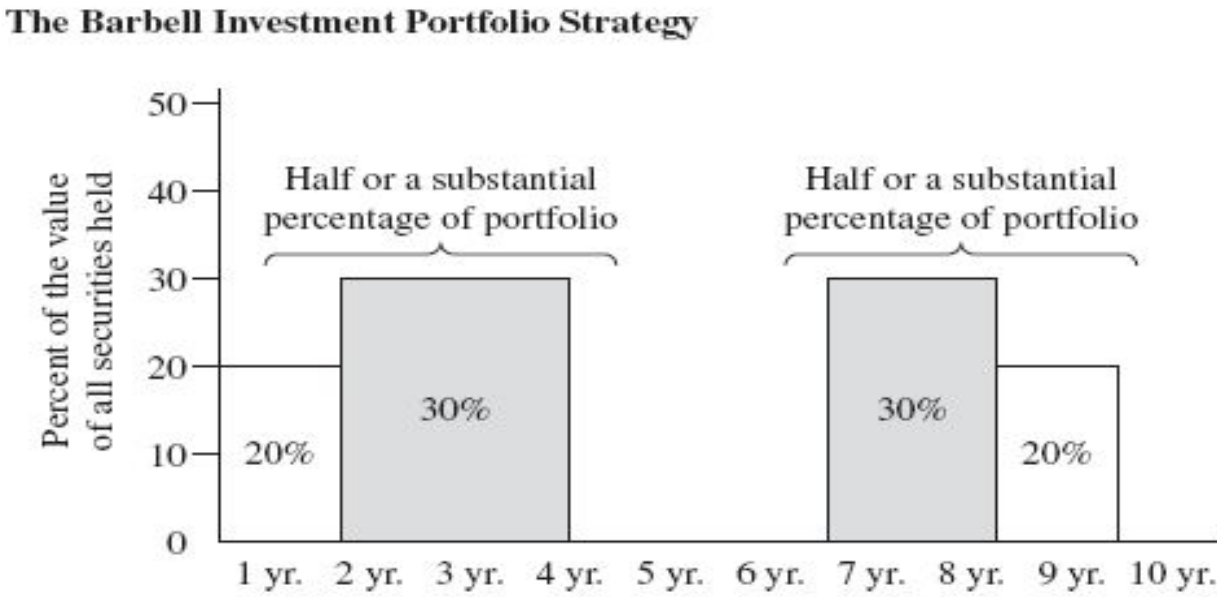
Alternative Maturity Strategies for Managing Investment Portfolios



Back-End Load Maturity Policy

- Purchase only long term securities and place all investments within range of 5 to 10 years maturity range
- Rely heavily on borrowing in money market to help meet liquidity requirements
- Approach maximizes income potential from security investment if market interest rate falls

Additional Maturity Strategies for Managing Investment Portfolios



Barbell Strategy

- Combination of front end and back end approach
- Investing institution places most of its fund in short term portfolio of highly liquid securities at one extreme and in a long term portfolio of bonds in the other extreme; minimal investment holding in intermediate maturities
- Short term portfolio provides liquidity; long term portfolio designed to generate income

Indexing Strategy

- The objective is to construct a portfolio of bonds that will equal the performance of a specified index
- Performance is measured in terms of total return realized over the investment horizon
- Factors affecting the Selection of the Index
  - Investor’s Risk tolerance
  - Objectives
  - Constraints imposed by the regulator

Indexing Methodologies

- To minimize the tracking error
- Causes of Tracking Error
  - Transaction costs in construction of the index
  - Differences in the composition of the indexed portfolio and the index itself
  - Discrepancies between prices used by the organization constructing the index and the transaction prices paid by the index manager

Immunization Strategy

- A portfolio manager may decide that the optimal strategy is to immunize the portfolio from interest rate changes
- The immunization techniques attempt to derive a specified rate of return during a given investment horizon regardless of what happens to market interest rates
- When a bond's duration is equal to the liability's duration, the direct interest-on-interest effect and the inverse price effect exactly offset each other.
- As a result, the total return rate from the investment (TR) or the value of the investment at the horizon or liability date does not change because of an interest rate change.

Example

1. A Bank has a *single* liability of Rs. 1,352 due in 3.5 years, D_L = 3.5 years

2. A current investment to cover the liability of Rs. 968.30
   - Note: Rs. $968.30(1.10)^{3.5}$ = Rs. 1,352

3. The current relevant yield curve is flat at 10%

4. There is 4-year, 9% annual coupon trading at YTM of 10% for P_0 = Rs. 968.30. This bond has a Macaulay duration of 3.5.

Example Cont…

- *Immunization Strategy*: Buy bond with Macaulay's duration of 3.5 years to match the duration liability of 3.5 years

  - Buy 4-year, 9% annual coupon at YTM of 10% for P_0 = Rs. 968.30.
  - This bond has both a duration of 3.5 years and is worth Rs. 968.50, given a yield curve at 10%.
  - If the investor buys this bond, then any parallel shift in the yield curve in the very near future would have price and interest-on-interest rate effects that exactly offset each other.
  - As a result, the cash flow or ending wealth at year 3.5, referred to as the *accumulation value* or *target value*, would be exactly Rs. 1,352.

Example (Duration-Matching)

- **Ending Target Values at 3.5 Years Given Different Interest Rates for 4-Year, 9% Annual Coupon Bond with Duration of 3.5**

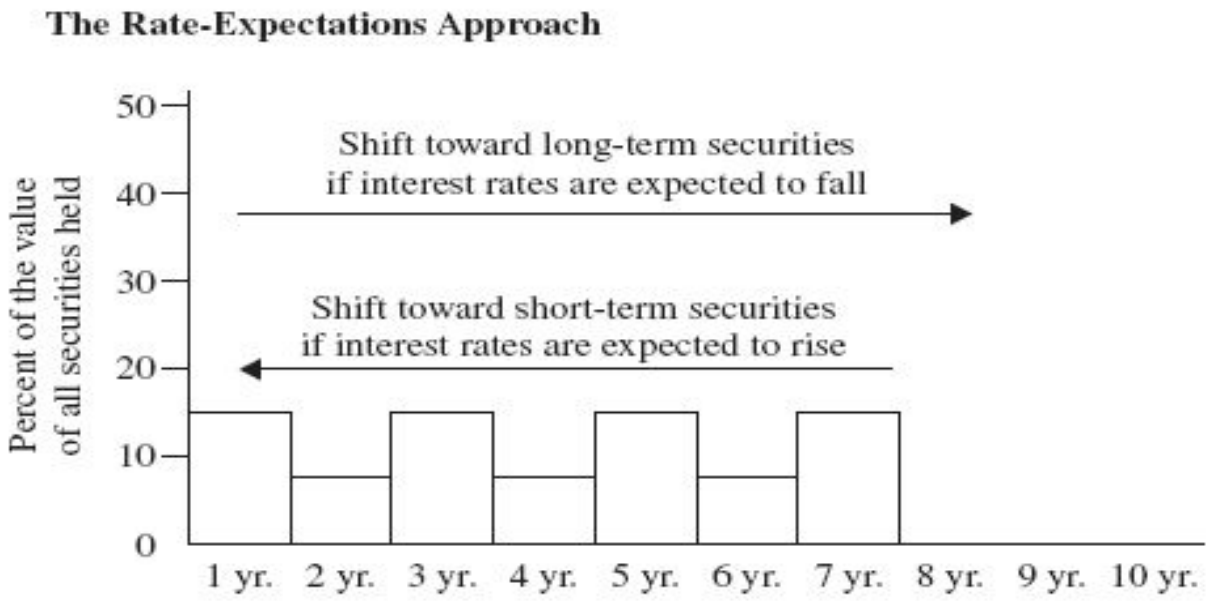
Duration = 3.5			
Time (yr)	6%	10%	11%
1	Rs. $90(1.06)^{2.5}$ = Rs. 104.11	Rs. $90(1.10)^{2.5}$ = Rs. 114.21	Rs. $90(1.11)^{2.5}$ = Rs. 116.83
2	$90(1.06)^{1.5}$ = Rs. 98.22	$90(1.10)^{1.5}$ = Rs. 103.83	$90(1.11)^{1.5}$ = Rs. 105.25
3	$90(1.06)^{.5}$ = Rs. 92.66	$90(1.10)^{.5}$ = Rs. 94.39	$90(1.11)^{.5}$ = Rs. 94.82
3.5	$1090/(1.06)^{.5}$ = Rs. 1058.70	$1090/(1.10)^{.5}$ = Rs. 1039.27	$1090/(1.11)^{.5}$ = Rs. 1034.58
Target Value	Rs. 1,352	Rs. 1,352	Rs. 1,352
Total Return	10%	10%	10%

If maturity will be 3.5 years then Target value and Total return will vary

Active Strategies

- Rate expectation approach
- Reading the yield curve
- Valuation Analysis
- Credit Analysis
- Bond Swaps

Rate Expectation Approach



- Most aggressive of all management strategies
- Continually shifts maturities of securities in line with current forecasts of interest rates and the economy
- Calls for shifting of investments toward the short end of maturity spectrum when interest rates are expected to rise and towards the long end when interest rates are expected to fall
- Offers potential for large capital gains but also increases chances of substantial loss

Maturity Management Tools: The Yield Curve

- **Picture of how market interest rates differ across various maturities**
- **Yield curve contains an *implicit forecast of future interest rate changes*- their shapes have critical implications for investment decision**
  - ✔ **Positive sloped yield curves reflect the average expectation in the market that future short term interest rates will be higher than they are today; upward interest rate movement expected**
  - ✔ **Often translate this expectation into action; shift investment holdings away from longer term securities**
  - ✔ **Downward sloping yield curve points to investor expectations of declining short term interest rate; consider lengthening portfolio maturity since interest rates will fall and potential for substantial capital gains**

Maturity Management Tools: The Yield Curve Cont..

- **Provides information about under and over priced securities**
  - ✔ A security whose yield lies above the curve represents a tempting *buy* position; yield is temporarily too high and therefore price too low
  - ✔ Security whose yields lie below the curve represents a possible “sell” or “do not buy”; yield too low for maturity and price too high
- **Provides information about the risk-return trade-off**
  - ✔ Yield curve shape determines how much additional yield the investment officer can earn by replacing short-term securities with long-term securities and vice versa

Valuation Analysis

- Select the bonds on the basis of their intrinsic values
- What are the factors which affect the bond's intrinsic values?
- Bond's Rating, call feature etc
- Buy the under valued bonds and sell the over valued bonds

Credit Analysis

- It involves detailed analysis of the bond issuer to determine expected changes in its default risk
- What are the internal and external factors which affect the credit rating of the company?

Bond Swap

- It involves liquidating a current position and simultaneously buying a different issue in its place with similar attributes but having a chance for improved return.
- The main purpose of the bond swap is portfolio improvement.
- Different Types of Bond Swap
  - Pure Yield Pickup Swap
  - Substitution Swap
  - Tax Swap

Pure Yield Pickup Swap

- It involves swapping out of a low-coupon bond into a comparable higher coupon bond to realize an automatic and instantaneous increase in current yield and yield to maturity.
- <u>Advantages:</u>
  - No need for interest rate speculation
  - No need to analyze prices or overvaluation or under valuation
  - No specific work-out period needed because the investor is assumed to hold new bond to maturity
- <u>Disadvantages:</u>
  - Increased risk of call in the event interest rate decline
  - Reinvestment risk is greater with higher coupon bonds.

Substitution Swap

- It is generally short-term
- It relies heavily on interest rate expectations
- It is subject to more risky than pure yield pickup swaps
- The procedure assumes a short-term imbalance in yield spreads between issues that are perfect substitutes
- The imbalance in yield spread is expected to be corrected in near future
- Advantage:
  - Realization of Capital Gain by switching out of your current position into higher yielding obligation
- Disadvantages:
  - Yield spread thought to be temporary in fact be permanent thus reducing capital gains advantages.
  - The market rate may change adversely.

Tax Swap

- It does not involve any interest arte projections.
- The investor enters into tax swaps due to tax laws and realized capital gains in their portfolio.