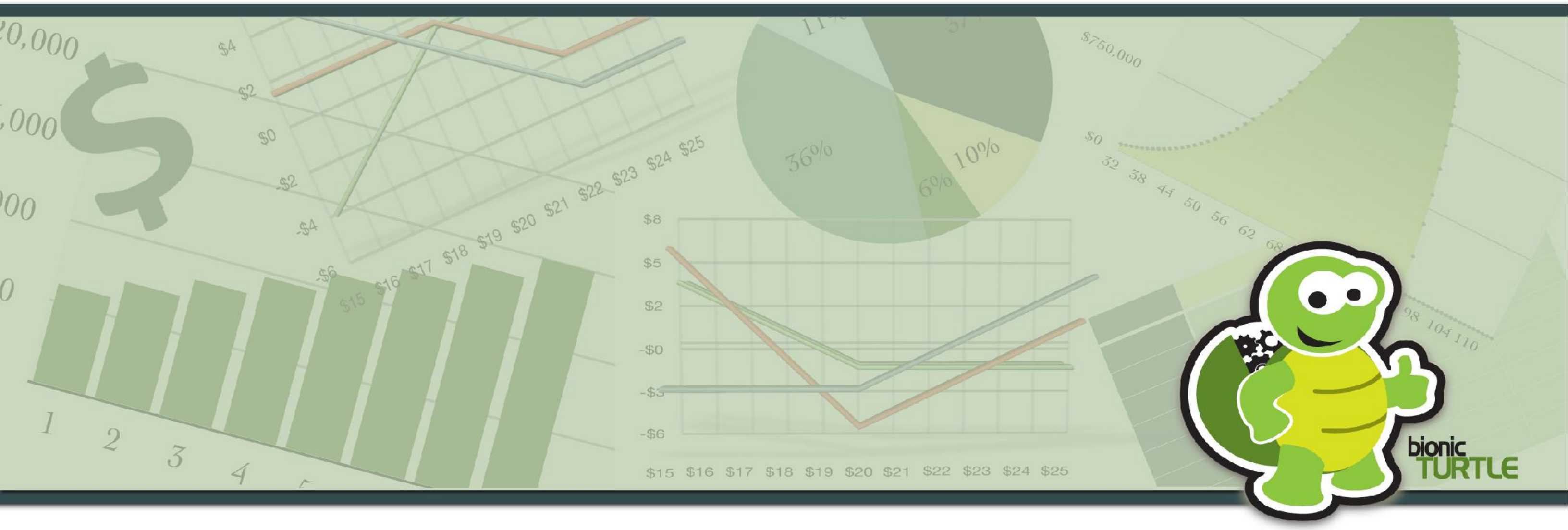

P2.T8. Liquidity and Treasury Risk Measurement and Management

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Bionic Turtle FRM Study Notes

Rose, Chapter 7. Risk management for Changing Interest Rates: Asset-Liability Management and Duration Techniques

Rose, Chapter 7. Risk management for Changing Interest Rates: Asset-Liability Management and Duration Techniques

- **Discuss how asset-liability management strategies can help a bank hedge against interest rate risk.**
- **Describe interest-sensitive gap management and apply this strategy to maximize a bank's net interest margin.**
- **Describe duration gap management and apply this strategy to protect a bank's net worth.**
- **Discuss the limitations of interest-sensitive gap management and duration gap management.**

Discuss how asset-liability management strategies can help a bank hedge against interest rate risk.

Interest rate risk refers to the effects a change in interest rates can have on the value of a bond or other fixed-income investment. When interest rates go up, the value of existing bonds goes down. Likewise, when interest rates go down, the value of existing bonds goes up. Financial institutions must be ever aware of interest rate risk and be able to hedge against adverse movements in interest rates. Banks accomplish this hedging through various asset-liability management strategies, detailed below.

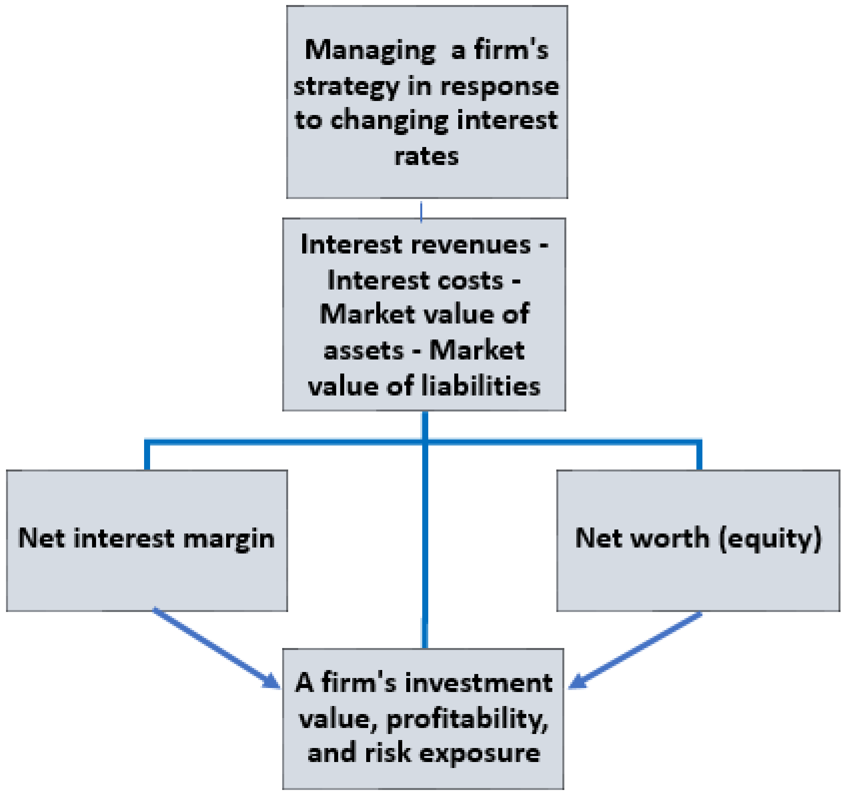
Asset Management Strategy

For much of the history of banking, managers held the view that the assets it held were largely dependent on customers' choices regarding where customers wanted to put their money, what type of accounts customers wanted to put their money in, and how much money they wanted in financial institutions. This **asset management** view of banking essentially sees sources of funds available to a financial institution as determined by the public. In recent years, this view has fallen out of favor because of deregulation of the industry. Today's banking has less regulatory control over rates a bank can offer, types of deposits a bank can accommodate, and the nondeposit sources of funds. Banking managers today have more discretion in shaping their sources of funds.

Liability Management Strategy

In recent decades, financial firms have met dramatic changes in asset-liability management strategies. With volatile interest rates and competition for funds, financial firms now devote a meaningful amount of attention to finding new sources of funding and ensuring that their mix of deposit and nondeposit liabilities are cost-competitive. This shift in strategy is referred to as liability management strategy. At its core, liability management attempts to control its sources of funds the way they control their assets. The key lever is the interest rate it offers depositors and other borrowers. If a lender needs loanable funds, they could simply raise the interest rate they offer customers to attract funds. On the other hand, if a financial institution has low loan demand and excess funds, it could simply lower the interest rate offered to depositors and watch deposits flow out of the firm.

The following figure depicts the flow in asset liability management.



Funds Management Strategy

The dominant approach to liability management among today's financial managers is a **funds management** approach. Seen as a more balanced approach to asset-liability management, this strategy addresses several key objectives:

1. To achieve the firm's financial goals, management should attempt to control as much as possible the mix, volume, and return on **both** assets and liabilities.
2. The move to control both sides of the ledger should be coordinated and ensure that the activities are internally consistent (not pulling against each other). When done effectively, the firm may see an improved effort to maximize the spread between revenues and costs while simultaneously minimizing risk exposure.
3. Both sides of the balance sheet generate revenues and costs. Management must adopt policies that attempt to maximize profits while controlling costs associated with services provided.

Today's financial world has shifted from the notion of financial firms only generating revenue from loans and investments to selling a *bundle of financial services*. In addition to loans, financial firms also provide credit, offer payment services, savings, investment and financial advice, and much more. Modern banks generate income from managing the liability side of their balance sheets just as much as they do their traditional revenue-generating activities. Most financial firms have asset-liability committees that derive strategies for generating higher spreads to benefit the firm's bottom line.

The Challenge to Management on Dealing with Interest Rate Risk

One of the toughest forms of risk a bank may face is interest rate risk. When interest rates change, the change affects loans, deposits, borrowings, bonds, net worth, and other assets and liabilities of the institution. Overall, changing interest rates affects not only the balance sheet, but also the income and expenses of banks and other financial firms.

Forces Determining Interest Rates

The importance of interest rates means financial firms must understand the forces driving changes in interest rates. All the most important forces are outside of the control of a given financial firm. Instead, interest rates are driven by the market. When firms have no control over the price of a product or, in this case, the market interest rates, the firm is said to be a *price taker*.

Financial firms often are on both sides – supply and demand – of the financial market:

Supply Side	Demand Side
When a lender offers credit, it is on the supply side in the international market for loanable funds	When a bank offers deposit services, to the public, it becomes a demander of loanable funds
When a lender buys certain instruments in the market and offers funds in return, it is increasing the supply of funds in the market	When a financial institution offers nondeposit IOUs to raise money for lending and investing, the firm is on the demand side for funds

When interest rates go up or down, financial firms face at least two key interest rate risks – *price risk* and *reinvestment risk*.

- **Price risk** captures the potential loss in net worth from rising interest rates. When interest rates rise, it makes the value of existing bonds and fixed-rate loans fall. If a financial institution were to go out on the market to sell their existing bonds and fixed-rate loans, the value of those loans would generate less revenue under a rising rate environment compared to status quo.
- **Reinvestment risk** stems from falling interest rates. When financial firms receive incoming funds from loans or other assets, they typically invest those funds in interest-earning assets. In a falling interest-rate environment, a financial firm would be investing those income funds at rates that are lower than what they were previously earning. This would cause a drop in anticipated earnings and would generally lower the net worth of the institution.

Price Risk

- Risk of risking interest rates, which lowers market value of fixed-rate loan products

Reinvestment risk

- When interest rates decline and force firms to reinvest earnings (from current assets) into assets with lower current yields; thus reducing anticipated future income