

CHAPTER 12

Liquidity Risk



Overview

- Causes of liquidity risk
- Methods of measuring liquidity risk
- Consequences of liquidity risk
- Financial Crisis
- Regulatory mechanisms

FIs and Liquidity Risk Exposure

- High exposure
 - Depository institutions
 - Loss of confidence in bank-to-bank lending affects liquidity in other markets
- Moderate exposure
 - Life insurance companies
- Low exposure
 - Mutual funds, hedge funds, pension funds, and property-casualty insurance companies
 - ◆ Typically low, does not mean zero
 - ◆ Bear Stearns Funds

Causes of Liquidity Risk

- Liability-side liquidity risk when depositors or policyholders cash in claims
 - With low cash holdings, FI may be forced to liquidate assets too rapidly
 - ◆ Faster sale may require much lower price
- Asset-side liquidity risk can result from loan commitments
 - Liquidity requirements from take down of funds can be met by running down cash assets, selling liquid assets, or additional borrowing

Liability-side Liquidity Risk for DIs

- Reliance on demand deposits
 - Core deposits
 - Depository institutions need to be able to predict the distribution of *net* deposit drains
 - ◆ Seasonality effects in net withdrawal patterns
 - ◆ 2008 problem with low rates: Finding suitable investment opportunities for the large inflows
 - Managed by:
 - ◆ Purchased liquidity management
 - ◆ Stored liquidity management

Purchased Liquidity Management

- Federal funds market or repurchase agreement market
- Managing the liability side preserves asset side of balance sheet
- Borrowed funds likely at higher rates than interest paid on deposits
- Deposits are insured but borrowed funds not necessarily protected
- Regulatory concerns:
 - ◆ During financial crisis, wholesale funds were difficult and sometimes impossible to obtain

Stored Liquidity Management

- Liquidate assets to meet withdrawals
 - In addition to reserve requirements, banks tend to hold excess reserves
 - Downsides:
 - ◆ Opportunity cost of holding excessive cash or other liquid assets
 - ◆ Decreases size of balance sheet
 - ◆ Requires holding excess low return or zero return assets
- Combine *purchased* and *stored* liquidity management

Asset Side Liquidity Risk

- Risk from loan commitments and other credit lines
 - Met either by borrowing funds and/or by running down reserves
- Current levels of loan commitments are dangerously high
 - Commercial banks in particular have been increasing commitments over the past few years, presumably believing commitments will not be used
 - In 1994, unused commitments equaled 529%. In 2008, 1,015%. Fell back to 609% during the crisis.

Investment Portfolio & Asset Side Liquidity Risk

- Interest rate risk and market risk of the investment portfolio can cause values to fluctuate
- Arguments that technological improvements have increased liquidity in financial markets
 - Some argue that “herd” behavior may actually reduce liquidity

Measuring Liquidity Exposure

- Net liquidity statement:
 - Sources of liquidity: (i) Cash type assets, (ii) maximum amount of borrowed funds available, (iii) excess cash reserves
 - ◆ With liquidity improvements gained via securitization and loan sales, many banks have added loan assets to statement of sources
 - Uses of liquidity
 - ◆ Borrowed or money market funds already utilized
 - ◆ Any amounts already borrowed from the Fed

Other Measures

- Peer group comparisons: Usual ratios include borrowed funds/total assets, loan commitments/total assets, etc.

- Liquidity index:

Weighted sum of “fire sale price” P_i , to fair market price, P_i^* , where the portfolio weights are the percent of the portfolio value formed by the individual assets

$$I = \sum w_i (P_i / P_i^*)$$

Measuring Liquidity Risk

- Financing gap and the financing requirement
- Financing gap = Average loans - Average deposits, or financing gap + liquid assets = financing requirement
- The gap can be used in peer group comparisons or examined for trends within an individual FI

BIS Approach

- Liquidity coverage ratio

Stock of high-quality liquid assets/
(Total net cash outflows over the
next 30 calendar days) $\geq 100\%$

- Net stable funds ratio

Available amount of stable funding/
Required amount of stable funding
 $> 100\%$

Other Liquidity Risk Control Measures

- Contractual maturity mismatch
- Concentration of funding
- Available unencumbered asset
- LCR by significant currency
- Market-related monitoring tools

Web Resources

- For further information on the BIS, visit:
Bank for International Settlements
www.bis.org

Liquidity Planning

- Make funding decisions *before* liquidity problems arise
- Lower the cost of funds by planning an optimal funding mix
- Minimize the need for reserve holdings

Liquidity Planning (continued)

- Delineate managerial responsibilities
 - Identify who responds to regulatory agencies, who discloses information to the public, etc.
- Detailed list of funds providers, important to anticipate the expected pattern of withdrawals in a crisis
 - Example: Mutual funds/pension funds more likely to withdraw than correspondent banks and small businesses
 - Allow for seasonal effects

Liquidity Planning (continued)

- Identify size of potential deposit and fund withdrawals over various future time horizons
 - Identify potential alternative sources to meet the liquidity needs within these horizons
- Set internal limits on subsidiaries' and branches' borrowings and limits on risk premiums for funding sources
- Plan the sequence of asset disposal to meet liquidity needs

Bank Runs

- Can arise due to concern about:
 - Bank solvency
 - Failure of a related FI
 - Sudden changes in investor preferences
- Demand deposits are first come, first served
 - Depositor's place in line matters
- Bank panic: Systemic or contagious bank run

Alleviating Bank Runs

- Measures to reduce likelihood of bank runs:
 - Discount window
 - FDIC
 - Direct actions such as TARP (2008-2009)
 - Fed lending to investment banks in the crisis
- Not without economic costs
 - Protections can encourage DIs to increase liquidity risk

Web Resources

- For information about the Federal Reserve Bank, visit:

Federal Reserve Bank

www.federalreserve.gov

Liquidity Risk for Life Cos.

- Life cos. hold reserves such as government bonds as a buffer to offset policy cancellations
- The pattern is normally predictable
- Solvency concerns can still generate runs on the life insurance company
- Led to limits on ability to surrender policies

Liquidity Risk for PC Insurers

- Problem is less severe for PC insurers since assets tend to be shorter term and more liquid
- However, spikes in claims can be problematic
 - Hurricane Andrew and Hurricane Katrina precipitated severe liquidity crises for many insurers
- Near failure of giant insurer, AIG (2008)
 - Credit default swaps
 - Restructuring and government bailout

Investment Funds

- Mutual funds, hedge funds
 - Net asset value (NAV) of the fund is market value, so the incentive for runs is not like the situation faced by banks
 - Asset losses will be shared on a *pro rata* basis, so position in line does not matter
 - But, MMFs faced liquidity risk at beginning of the crisis
- Hedge funds implicated in some severe liquidity crises
 - Example: Bear Stearns

Pertinent Websites

Bank for

International

Settlements

www.bis.org

Federal Reserve

www.federalreserve.gov

FDIC

www.fdic.gov