Enhancing Risk Management and Governance in the Region’s Banking System to Implement Basel II and to Meet Contemporary Risks and Challenges Arising from the Global Banking System

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Session 4.1

Capital Adequacy Standards and the Role of Bank Capital

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Outline

- What is capital, what role does it play?
- How is capital measured?
- How much capital is desirable?
- How does capital influence bank behaviour?
Bank Capital: Alternative Perspectives

- For the Owner
  - Wealth tied up (measured as share market value)
  - Require adequate return as risk compensation
  - Provides control

- For Customers/Counterparties and Regulator
  - Buffer to absorb risk
    - providers of capital rank below liabilities to customers
    - buffer could consist of equity / subordinated debt / guarantees

Bank Capital: Alternative Perspectives

- For the Bank Manager
  - Funds provided to operate business (accounting value)
    - But must manage “to” stock market value
  - Return on capital achieved is performance measure
  - “Capital risk“ is a risk to manage
    - meeting regulatory capital requirements
    - having adequate capital to get desired rating (AA etc) from ratings agencies
    - being able to pursue attractive expansion opportunities
Capital Measurement

- Capital is a balance sheet “residual”
  - difference between value of assets and other liabilities (and allowing for off-balance sheet/contingent liabilities)
- Alternative measurement approaches
  - Book value/historical cost
  - Mark to market/model
  - Stock market value

Example

- NewBank set up with $10 equity (10 x $1 shares) and $90 deposits, buys $100 of CDO’s
- Subsequently
  - Stock market price of shares = $1.50
  - Market for CDO’s freezes, and mark to model value is $80
- Size of bank’s capital is
  - (a) $10; (b) $15; (c) -$10; (d) other?
- Valuation technique matters for measuring capital
  - How does the Basel Accord calculate capital?
  - How do International Accounting Standards calculate capital?
Capital Measurement Problems

• Bank Failures often involve sudden recognition of long standing, but unrecorded, losses
  – Write down of asset values to “true” value
  – Corresponding write down of capital

• US Examples
  – The Farmers Bank & Trust of Cheneyville
    • Closed December 17, 2002, fraudulent loans
    • Reported assets $35.4 m, liabilities $32.9 m
    • Cost to FDIC $11 m
  – The Bank of Alamo
    • Closed November 8, 2002, Poor lending, insider abuse
    • Reported assets $59.8 m, liabilities $56.5 m
    • Cost to FDIC $ 8 m

How Much Capital?

• Regulatory Capital requirements: one or both of
  – Minimum Capital/Assets (leverage / gearing)
  – Minimum Capital/(Risk Weighted Assets) – Basel
    • Relate capital required to riskiness of activities

• May allow some non-equity liabilities as capital
  – Rank behind, and provide protection to, depositors

• Measurement by a mix of book and mtm value
How Much Capital?

• Economic Capital
  – Banks determine economic capital based on preferred risk tolerance/appetite
  – Choose “acceptable” probability that losses over one year could exceed equity capital and lead to bankruptcy
    • Major banks appear to operate to risk tolerance of less than 1 in 500 (99.5% confidence interval)
    • Based solely on equity capital
  – Actual capital level may be higher to meet ratings agency requirements for target rating.

What Drives the Capital Structure?

Shareholders ➔ Lowest Cost of Capital
Rating Agencies ➔ Target Rating Level
Regulator ➔ Tier 1 and Total Capital
Components of the Capital Structure

- Tier 1
  - Paid-up capital
  - Retained earnings
  - General reserves
  - Hybrid capital

- Tier 2
  - ARR + Provision for Doubtful Debts
  - Perpetual sub-debt
  - Dated sub-debt

Balancing the Competing Requirements

- Tier 1
  - Economic Capital
  - Rating Agency Capital
  - Regulatory Tier 1 Capital
  - Subordinated Debt

- Tier 2
  - Regulatory Capital
  - Hybrid Capital
  - Common Equity
Tier 1 Capital Mix

- Hybrid Capital
  - Generally provides funding gap between ratings and regulatory capital
  - Provides increased capacity for LT2 capital
  - Minimal cost differential between hybrid T1 and UT2.

Adjusted Common Equity ("ACE")
- Paid-up Capital
- Retained Earnings
- General Reserves
- less Deductions

Determining Economic Capital: Example

- Consider a bank making a loan of $100 to be repaid with interest in one year at an interest rate of 10% p.a.
  - Funded by $90 of deposits and $10 of equity
- Promised repayment = $110, but
  - Assume probability of default = 10%
  - Recovery if default = $80
- Expected repayment = 0.1x$80 + 0.9x$110 = $107
- “Expected (Average) Loss” = $3
  - Possibility that loss could be greater or less
    - 10% chance of $30 and 90% chance of $0)
Bank Balance Sheet Effects

• Depend on accounting practices, for example:
  • Assets
    – Loan (less provision) = 100 – 3 = 97
  • Liabilities
    – Deposits = 90
    – Equity (less provision) = 10 – 3 = 7
• Note:
  – Expected losses should be “absorbed” by provisions and by loan pricing
  – Accounting values differ from economic values
  – Equity capital (after provisions) is the buffer to absorb unexpected losses – referred to as economic capital or capital at risk

Loss Function and Economic Capital

$E = \text{Expected Loss}$

$X = \text{Loss which has 0.1% probability of being exceeded}$

0.1% = “tolerance level”
Capital and Bank Behaviour

- Capital constrains size of balance sheet
  - Current crisis situation: Losses reduce capital, low equity prices make equity raisings difficult, lead to restriction of loans
- Capital is costly, loan pricing reflects cost of capital (and of deposits)
  - Current crisis situation: high cost of equity capital (low bank share prices)

Conclusions

- Bank Capital Management involves managing both economic and regulatory capital
- Capital planning is critical
- Measurement and management of capital position requires correct accounting and valuation processes