Bank Capital Adequacy: Where to Now?

Kevin Davis
Professor of Finance, University of Melbourne
Research Director, Melbourne Centre for Financial Studies
kevin.davis@melbournecentre.com.au
03 9666 1001
Outline

• What is bank capital?
• A brief history of bank capital
• Bank capital experiences during the GFC
• Capital lessons from the GFC
• Proposals for bank capital requirements
The Concept of Bank Capital

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>Deposits</td>
</tr>
<tr>
<td>Loans</td>
<td>Debt</td>
</tr>
<tr>
<td>Securities</td>
<td>Equity</td>
</tr>
</tbody>
</table>

Capital = a residual

- Asset/Liability valuation critical to measuring capital
  - Loan loss provisioning also matters
- Regulatory capital includes other items
  - subordinate to deposits and a buffer to absorb loss
- Stock market value of capital differs – and important
A Brief History of Bank Capital

• Bank equity/assets
  – 1800’s > 50% in USA; 20% in UK
    • Some situations of unlimited/double liability
  – 1900’s – declined to around 5-8% in 1970s
    • Other industries have equity/assets of 30-40%
• Basel Accord, 1988
  – 8% risk weighted capital requirement (why 8% ?)
    • Tier 1/Tier 2 include non-equity liabilities
    • Risk weighted capital ratios tended to stabilize
  – But 21st century decline in equity/assets
    • Very low levels for European & US investment banks
A Brief History of Bank Capital

Source: Bank of Canada
A Brief History of Bank Capital

• Basel II Accord – 2006
• Three Pillars: Capital requirements; supervision; disclosure
• *Standardized* and *Internal Ratings Based* approach
  – Use of ratings agencies and bank credit models
• Changes to the risk weights
• Capital requirement for operational risk
• Provision for capital requirements for interest rate risk in the banking book
• Calibration of overall requirements - no planned change in aggregate capital requirements for the banking sector as a whole.
## Bank GFC Capital Experiences


<table>
<thead>
<tr>
<th>Region</th>
<th>Estimated Holdings</th>
<th>Estimated Writedowns</th>
<th>Implied Cumulative Loss Rate (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Banks</td>
<td>12,561</td>
<td>1,025</td>
<td>8.2</td>
</tr>
<tr>
<td>U.K. Banks</td>
<td>8,369</td>
<td>604</td>
<td>7.2</td>
</tr>
<tr>
<td>Euro Area Banks</td>
<td>22,901</td>
<td>814</td>
<td>3.6</td>
</tr>
<tr>
<td>Other Mature Europe Banks</td>
<td>3,970</td>
<td>201</td>
<td>5.1</td>
</tr>
<tr>
<td>Asia Banks</td>
<td>7,879</td>
<td>166</td>
<td>2.1</td>
</tr>
</tbody>
</table>

*Source: IMF*
Bank GFC Capital Experiences

Bank GFC Capital Experiences

Source: Financial Times
Some GFC Bank Capital Lessons

• Inadequacy of Value at Risk (VAR)
• Incorrect risk weights
• Liquidity risks not adequately captured
• Asset valuation problems
• Significance of collateralised financing
• Systemic problems from complex interdependencies due to bilateral exposures
• Market reactions inhibit capital conservation measures
• Inadequacy of core capital
• Ratings and model inadequacies
Current Proposals (1) Increased capital levels

- General agreement on need for higher levels
- How high?
  - Greenspan (2010) gives ballpark estimate of 14 per cent equity/assets ratio required for US Banks
    - Based on CDS spread sensitivity to leverage
- What regulatory minimum?
  - Geneva Report (2009) emphasizes need for ladder of requirements with associated regulatory responses prescribed
Current Proposals (2) a “bigness” capital charge

• Rationale (a) – TBTF
  – Competitive advantage
  – Taxpayer subsidy
• Rationale (b) – systemic risk
  – Large institutions create systemic externalities due to risk concentration
    • Failure involves many counterparties
    • Scramble for liquidity creates pecuniary externalities
• How to determine the appropriate capital charge?
Current Proposals (3) contingent capital

• Requirements for banks to issue hybrid securities which convert automatically into equity if some “trigger point” is reached
  – Restores core capital
  – Market discipline through monitoring by investors
• Reduces likelihood of government injections of equity in crisis or provision of guarantees (which is essentially equivalent)
Current Proposals (3) contingent capital

• Some examples
  – Flannery – reverse convertible debentures (like converting preference share structure)
  – Squam Lake Group – conversion requires both regulatory declaration of systemic problems and issuing bank having inadequate capital
  – Kashyap, Rajan, and Stein – Catastrophe insurance
  – Hart & Zingales – CDS spreads as trigger for required new equity issuance
Current Proposals (3) contingent capital

- Lloyds Bank (and others) have issued (Nov 09) CoCo’s
  - How will markets react if trigger point is approached?
    - “death spiral convertibles”?
- Would partly-paid shares be an alternative?
  - A return to pre limited liability arrangements?
Current Proposals (4) Regulatory Risk weight changes

- **Basel II (July & Dec 2009)**
- Increase in the relative counterparty risk weights for financial institutions versus corporates
- Increased capital requirements for counterparty risk on derivatives, repo and securitization transactions.
- Lower relative risk weights for counterparty derivatives exposures to CCCPs versus bilateral exposures.
- Use of “downturn” PD estimates (and “downturn” LGD)
- “Stressed” VAR in determining capital requirements
- Reduced reliance on ratings agency assessments
- Expected loss provisioning.
Current Proposals (5) a leverage ratio

• A complement to risk weighted capital ratio
  – Limit to balance sheet expansion
  – Offset to model risk, incorrect risk weights
  – Used in USA, Canada, Switzerland
    • Bank of Canada study suggests it has value

• Problems
  – Dealing with off-balance sheet activities
  – Downgrades role of risk weighting

• Australian banks and regulators not supporters
  – But introduction may change behaviour
Risk Weighted Ratios and Leverage

Source: IMF
Ratings Agencies Estimates

Alternative capital ratios: Major Australian Banks 2009a

<table>
<thead>
<tr>
<th>Bank</th>
<th>S&amp;P RAC</th>
<th>Basel II Tier 1</th>
<th>Leverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAB</td>
<td>6.9</td>
<td>8.3</td>
<td>4.5</td>
</tr>
<tr>
<td>CBA</td>
<td>6.3</td>
<td>8.1</td>
<td>3.3</td>
</tr>
<tr>
<td>ANZ</td>
<td>6.1</td>
<td>8.2</td>
<td>4.8</td>
</tr>
</tbody>
</table>

(a) Figures for CBA are June 2009, and for NAB and ANZ are March 2009

Source: S&P (2009b)
Current Proposals (6) improved quality of capital

• Basel Committee
  – Larger share of Tier 1 capital to be shareholders funds (common equity and retained earnings)
  – Stricter requirements for hybrids (perpetual, discretionary non-cumulative dividends/coupons)
  – Calibration to occur following an impact assessment study

• How to incorporate contingent capital?
Current Proposals (7) procyclical capital requirements

• Inherent procyclical nature of banking
  – In downturn, loan losses reduce capital and prompt lending restraint
• Higher minimum capital requirements in upswing and lower in downswing
  – In good times build up of capital buffers for use in poor times
• Rules v Discretion?
Conclusions

- Significant changes to bank capital requirements in progress
- Overall consequences far from obvious
  - What proposals will be implemented?
  - How will they interact?
- Increase in cost of bank financial intermediation?
  - What was the social cost of pre-GFC bank intermediation?