Assessing Bank Capital Adequacy Through Stress Testing
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Agenda

• Bank Capital – Why Do We Care?
• What is Capital Adequacy, Anyway?
• How Did We Determine if a Bank is Adequately Capitalized?
• That Financial Crisis – What Did We Learn?
• How Do We Determine if a Bank is Adequately Capitalized?
• CCAR – Not Your Father’s Supervisory Exercise!
Banks are important

Banks are risky

Capital represents “skin in the game” for bank owners
So What’s Adequate Capital?

<table>
<thead>
<tr>
<th>Bank Risks</th>
<th>Risk Management</th>
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<tbody>
<tr>
<td>credit risk</td>
<td>loan surveillance</td>
</tr>
<tr>
<td>market risk</td>
<td>loan workout</td>
</tr>
<tr>
<td>interest rate risk</td>
<td>quantification</td>
</tr>
<tr>
<td>operational risk</td>
<td>internal audit</td>
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<tr>
<td>compliance risk</td>
<td>risk limits</td>
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1) How risky are the bank’s investments and activities?
2) How effective are the bank’s risk management capabilities?
3) How significant a ‘risk event’ should the bank be able to withstand?

Higher “Solvency Standard” For:

- large & interconnected banks
- banks with certain funding reliance
- banks with vital core operations
Capital Adequacy – The Way it Was

Regulatory Capital Approach

<table>
<thead>
<tr>
<th>PCA CAPITAL CATEGORY</th>
<th>Total Risk-Based Ratio</th>
<th>Tier 1 Risk-Based Ratio</th>
<th>Tier 1 Leverage Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well Capitalized (WCB)</td>
<td>≥ 10.0%</td>
<td>≥ 6.0%</td>
<td>≥ 5.0%</td>
</tr>
<tr>
<td>Adequately Capitalized (ACB)</td>
<td>≥ 8.0%</td>
<td>≥ 4.0%</td>
<td>≥ 4.0%*</td>
</tr>
<tr>
<td>Undercapitalized (UB)</td>
<td>&lt; 8.0%</td>
<td>&lt; 4.0%</td>
<td>&lt; 4.0%*</td>
</tr>
<tr>
<td>Significantly Under (SUB)</td>
<td>&lt; 6.0%</td>
<td>&lt; 3.0%</td>
<td>&lt; 3.0%</td>
</tr>
</tbody>
</table>

Bank’s Internal Measures

Creating measures requires lots of assumptions

Risk charges difficult to “calibrate”
A True Test of Capital Adequacy

The financial crises had its roots in excessive risk taking.

Risk/Regulatory measures failed to capture the scale of the losses.

As capital erodes, funding implodes!
Lessons From the Crisis

Severe stress to the banking sector and financial markets can spill over into the “real economy”.

Risk measures are often overly reliant on observed results from prior periods; often do not capture risks related to new products or activities.

Capital adequacy evaluations need to be more forward looking and directly linked to the financial performance of the bank.
2009 – A Turning Point

“Supervisory Capital Assessment Process” (SCAP)
Capital Adequacy – The Here and Now


Two part test (quantitative and qualitative), the consequences of which are significant for the banks that participate in the program.

The program involves an assessment of bank financial performance under a pre-defined set of macro-economic scenarios.

The program also involves a significant amount of examination work; banks have developed new models and supervisors are applying new expectations.
### A Seven Step Program to Sound Capital Planning

#### Figure 1. Seven principles of an effective capital adequacy process

**Principle 1: Sound foundational risk management**

The BHC has a sound risk-measurement and risk-management infrastructure that supports the identification, measurement, assessment, and control of all material risks arising from its exposures and business activities.

**Principle 2: Effective loss-estimation methodologies**

The BHC has effective processes for translating risk measures into estimates of potential losses over a range of stressful scenarios and environments and for aggregating those estimated losses across the BHC.

**Principle 3: Solid resource-estimation methodologies**

The BHC has a clear definition of available capital resources and an effective process for estimating available capital resources (including any projected revenues) over the same range of stressful scenarios and environments used for estimating losses.

**Principle 4: Sufficient capital adequacy impact assessment**

The BHC has processes for bringing together estimates of losses and capital resources to assess the combined impact on capital adequacy in relation to the BHC’s stated goals for the level and composition of capital.

**Principle 5: Comprehensive capital policy and capital planning**

The BHC has a comprehensive capital policy and robust capital planning practices for establishing capital goals, determining appropriate capital levels and composition of capital, making decisions about capital actions, and maintaining capital contingency plans.

**Principle 6: Robust internal controls**

The BHC has robust internal controls governing capital adequacy process components, including policies and procedures; change control; model validation and independent review; comprehensive documentation; and review by internal audit.

**Principle 7: Effective governance**

The BHC has effective board and senior management oversight of the CAP, including periodic review of the BHC’s risk infrastructure and loss- and resource-estimation methodologies; evaluation of capital goals; assessment of the appropriateness of stressful scenarios considered; regular review of any limitations and uncertainties in all aspects of the CAP; and approval of capital decisions.
Large bank capital levels have roughly doubled since 2009.

Whether this level of capital is truly “adequate” depends on whether we’re running the right test.

Having too little or too much capital at banks has negative consequences.
Questions

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