Risk Management post Financial Crisis

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By Jinfeng Tang
What is Risk Management

- Risk is measurable uncertainty
- Risk management is defense, not offense

Risk Understanding

What can go wrong?
What impact is possible?
How likely is it to occur?

Foundation for Risk Assessment

<table>
<thead>
<tr>
<th>Historical Experience</th>
<th>Analytic Method</th>
<th>Knowledge &amp; Experience</th>
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</thead>
</table>
Risk Management Process

- A planned and systematic process consisting of 4 defined stages

1. Identification
   What are the risks?

2. Assessment
   What is the likelihood of the risk occurring?
   How severe will the risk impact be?

3. Control
   What can we do to reduce the impact of the risk?

4. Monitoring
   Has the situation changed?
   Are there new risks emerging?
Risk management has become more granular, as companies move to the enterprise risk management framework.
Financial Crisis 2007-2008

➢ "Great Recession"
  • Started as the subprime mortgage crisis in the US, and quickly expanded to the global financial market and economy

➢ Largest Government Bailouts

➢ Unprecedented Monetary Accommodations

Monetary Accommodations after Financial Crisis

- Total FED Assets
- Fed Funds Rate
- ECB Deposit Rate
Tougher Regulations

➢ **Basel Committee on Banking Supervision (BCBS)**
  • Basel III Accord: capital, liquidity and leverage
  • Revisions to the Basel II market risk framework
  • Interest rate risk in banking book

➢ **Dodd-Frank Wall Street Reform and Consumer Protection Act (USA)**
  • Stress Testing
  • Comprehensive Capital Analysis and Review (CCAR)
  • Comprehensive Liquidity Analysis and Review (CLAR)
  • Recovery and Resolution Plan (Living Will)
  • Volcker Rule
  • Enhanced Prudential Standards (EPS) - FED
  • Heightened Standards (HS) - OCC

➢ **Globally Systematically Important Financial Institutions (G-SIFIs)**
  • Published by the Financial Stability Board (FSB) since 2011
  • Asia: 7 (4 in China) Europe: 19 Americas: 8
  • Capital surcharge
  • Additional oversight and regulatory requirements
US banks have been reducing their balance sheet size since the financial crisis
• In contrast to the Chinese banks who have been dramatically growing their balance sheet
Lower Leverage

- US banks have dramatically lowered their leverage

![Leverage Ratio (Asset/Equity)]

<table>
<thead>
<tr>
<th>Bank</th>
<th>FY2007</th>
<th>FY2011</th>
<th>FY2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cigroup</td>
<td>19</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>GS</td>
<td>22</td>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td>ICBC</td>
<td>16</td>
<td>16</td>
<td>12</td>
</tr>
</tbody>
</table>
More Stable Revenue

- More revenue from stable sources (fees/commissions) and less from volatile sources (trading revenue)

Revenue Composition - Goldman Sachs

- FY2007
- FY2010
- FY2013

Net Interest Income:
- FY2007: 9%
- FY2010: 14%
- FY2013: 10%

Fees and Commissions:
- FY2007: 27%
- FY2010: 33%
- FY2013: 42%

Trading Income:
- FY2007: 65%
- FY2010: 53%
- FY2013: 48%
More Stable Funding Source

➢ NO MORE independent large investment bank in the US
Strengthening risk culture has become the top priority for board and senior management
- “Tone from Top” is critical in creating a strong risk culture

Balance between a sales-driven front-office culture and a risk-focused culture

Strong Risk Culture
“Everyone is a Risk Manager”

Tone from Top
Risk Appetite
Clear Roles & Responsibilities
Enforce Rules
Reinforce Continuously
Assess and Monitor

Long-term Commitment and Investment
Risk Governance

➢ Three Lines of Defense

- **1st Line of Defense**
  - Front Line Unit
  - Risk Owner
  - Manage Risks and P&L

- **2nd Line of Defense**
  - Risk Management
  - Risk Control
  - Oversight; Policies and Framework

- **3rd Line of Defense**
  - Internal Audit
  - Independent Assurance
  - Review Processes of 1st and 2nd LoD
Risk Governance

- Increasing focus of board and board risk committee in defining and managing risks

- Continue expansion and more stature, authority and independence of the risk management function
Non-Financial Risks

- Non-financial risks have become a top focus, given the huge losses recently from non-financial risks, especially for G-SIFIs
  - Bank litigation costs have exceeded $300B since the financial crisis

Total non-financial risk losses over the past three years

- G-SIFIs
- Non-G-SIFIs
- All

<table>
<thead>
<tr>
<th>Loss Range</th>
<th>G-SIFIs</th>
<th>Non-G-SIFIs</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>US$10b–US$20b</td>
<td>25%</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>US$5b–US$10b</td>
<td>0%</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>US$1b–US$5b</td>
<td>3%</td>
<td>17%</td>
<td></td>
</tr>
<tr>
<td>US$500m–US$1b</td>
<td>6%</td>
<td>7%</td>
<td>7%</td>
</tr>
<tr>
<td>&lt; US$500m</td>
<td>25%</td>
<td>65%</td>
<td>87%</td>
</tr>
</tbody>
</table>
For the first time, Basel III added additional requirements on bank’s liquidity ratios and leverage ratio.
Basel III

As compared to Basel II, Basel III greatly increased the minimum bank capital requirements

Additional capital ratio buffer (up to 2.5% CET1) for specified G-SIBs
Stress Testing

- Regulatory exercise to assess whether financial institutions have sufficient capital to survive during periods of economic and financial stress
  - Scenarios: baseline, adverse, and severely adverse
  - Comprehensive Capital Analysis and Review (CCAR)
  - Dodd-Frank Act Stress Testing (DFAST)

- An important tool for internal risk management and capital planning

Areas where stress testing is used

- Risk management: 96%
- Capital planning: 94%
- Risk appetite and risk limits development and management: 87%
- Recovery and resolution planning: 68%
- Business-unit planning: 34%
- Capital allocation to business units/entities: 30%
- Decisions on new products: 17%
- Decisions on acquisitions: 13%
Liquidity Management

- Regulators have much stricter requirements on bank’s liquidity management process

- Governance
  - US Risk Committee
  - US CRO
  - Independent Review

- Limits & Monitoring
  - Liquidity Limits
  - Cash Flow Projection
  - Collateral Management
  - Intraday Liquidity

- Stress Test & CFP
  - Liquidity Stress Testing
  - Contingency Funding Plans

- Liquidity Buffer
  - Buffer Calculation
  - Buffer Composition

Fed EPS Requirements
Risk Job: Key Qualifications

- **Knowledge about financial products**
  - Dependent on the complexity of business activities

- **Understanding of pricing and risk models**
  - Risk drivers and risk metrics
  - Assumptions and limitations

- **Technical and quantitative skills**
  - Programming languages, e.g. C/C++, SAS, etc.
  - Excel, SQL, and data management tools
  - Risk analytic systems, e.g. Risk Metrics, Aladdin, Yield Book, Polypaths, etc.

- **Capability to communicate and work with key stakeholders**
  - Front office, finance, treasury, IT, as well as regulators

- **Professional Certificate**
  - Financial Risk Manager (FRM)
  - Professional Risk Manager (PRM)
  - Chartered Financial Analyst (CFA)