The Evolution of Regulatory Capital Planning, Measurement and Management

Deriving Business Benefits From Risk-Based Capital Adequacy Regulations
## Contents

Drivers of Regulatory Change................................................................. 1  

The Ever-Changing Regulatory Expectations on Capital Adequacy....... 2  
  Basel II: Setting New Standards............................................................. 2  
  Basel 2.5: Focusing on Market Risk....................................................... 2  
  Basel III: Increasing Bank Resilience .................................................... 3  
  Basel IV: Reading the Tea Leaves .......................................................... 4  
  Capital Calculations: Defining a New Standard.................................... 5  

Comparing the Regulations ........................................................................ 6  
  Types of Risks Covered........................................................................ 6  

Implementing a Capital Adequacy Project .............................................. 6  
  Establishing a Governance Structure and Steering Committee .......... 7  
  Defining the Anticipated, Steady-State Process.................................... 8  
  Designing the End-State Architecture ................................................ 8  
  Creating a Data and Reporting Infrastructure ...................................... 9  

Conclusion............................................................................................... 10  

References............................................................................................... 10
Drivers of Regulatory Change

The global financial crisis of 2008 was unprecedented in terms of its scale and spread, given the quantity of losses and number of countries and financial markets affected. Many banks and financial institutions failed, or very nearly did. This event also brought to light the highly contagious nature of markets, as a problem in one jurisdiction quickly spread to other jurisdictions and spiraled out of control.

Governments and regulators responded to this crisis by shifting their focus to finding ways to prevent future problems that could disrupt market stability. This required identifying drivers of the financial crisis and proactively mitigating them. Key drivers identified included instances where banks:

- Heavily relied on liquidity in the marketplace.
- Chased lower-quality assets.
- Implemented incentive structures that lead to risky behavior.
- Experienced so-called “black swan” events, which are rare and can have unpredictable impacts on markets.

Experts agreed that better governance structures, robust risk management practices and more effective measures of capital adequacy could have uncovered and addressed these drivers of the global financial crisis – and thus substantially softened its impact. So regulators began churning out new regulations.

As a result, banks and financial institutions have faced a slew of new regulations since 2008, focused on ensuring capital adequacy. For example, the Basel Committee on Banking Supervision (BCBS) initiated a series of reforms to strengthen risk, capital and liquidity rules across banks. Among the important regulatory changes are new rules for calculating Tier I and Tier II capital and the inclusion of additional risk measurement components for market risk, liquidity risk and counterparty risk.

But despite these reforms, the Basel framework had a key drawback: its singular focus on historical capital adequacy. While useful, this perspective does not help regulators assess the impact of stress events on banks from an ex-ante, or future, basis. So regulatory agencies in several jurisdictions have mandated new rules requiring banks to define a forward-looking capital plan that incorporates stress scenarios.

As explored in this paper, while there are many commonalities between the new Basel capital adequacy rules and the forward-looking capital planning rules (for example, in terms of risk modeling and data infrastructure), there are substantial differences in terms of:

- The goals of these regulations.
- The types of risks covered.
- The specific nuances of each jurisdiction.
Furthermore, these regulations can have a substantial impact on the growth and profitability of banks.

Compliance with both sets of these risk-based capital adequacy regulations can be a daunting task. To do it effectively, banks will need the right strategy, solutions architecture and IT systems, as well as proper governance in place to manage this process. But the value of these investments goes beyond compliance; banks can use new capabilities to simultaneously bolster their risk management systems and derive various business benefits from these regulations.

The Ever-Changing Regulatory Expectations on Capital Adequacy

The series of reforms implemented by BCBS are designed to strengthen data management, model risk management, and capital and liquidity rules across banks. Their broader objective is simple: improve the ability of the banking sector to absorb financial and economic stress, thereby reducing the risk of spillover (via contagion) into the larger economy.

Basel II: Setting New Standards

The Basel II prescriptive formula for computing capital, risk-weighted assets (RWA) and capital adequacy ratio (CAR), is outlined in the document titled, “Basel II: International Convergence of Capital Measurement and Capital Standards: A Revised Framework,” published in November 2005. According to Basel II, banks need to maintain a CAR of 8 percent, of which at least 4 percent has to be from Tier I capital. Further, under the Tier I capital, equity has to be at least 2 percent. As per the Basel II rules, the CAR is defined as follows:

\[
\text{Capital Adequacy Ratio} = \frac{\text{Total Capital (Tier I + Tier 2 + Tier 3)}}{\text{RWA (Credit Risk) + RWA (Market Risk) + RWA (Operational Risk)}}
\]

Basel 2.5: Focusing on Market Risk

In July 2009, BCBS published its first set of amendments to Basel II after the financial crisis. Titled “Revisions to the Basel II Market Risk Framework,” the amendments are popularly referred to as “Basel 2.5.” These additional rules, which focus on supplementing the RWA calculation for market risk, include four key elements:

- An incremental risk charge to account for default and credit migration risk in the trading book.
- A stressed value-at-risk (SVaR) model, in addition to the VaR-based capital requirements for the trading book under Basel II. SVaR is intended to capture the potential consequences of more volatile market conditions than those encountered historically.
- An additional charge (using a standardized approach) for securitization and re-securitization positions.
- A comprehensive risk capital charge for correlation between trading positions.
The deadline recommended by the BCBS for Basel 2.5 implementation was Dec. 31, 2010. However, many countries are still in the process of adopting these guidelines.

In the US, the Agencies¹ introduced an amendment similar to Basel 2.5 through a Notice for Proposed Rulemaking in the document titled “Regulatory Capital Rules: Advanced Approaches Risk-Based Capital Rule; Market Risk Capital Rule.” Released in June 2012, the rules will apply to US banks with aggregated trading assets and liabilities of at least $1 billion, or 10 percent of total assets.

Basel III: Increasing Bank Resilience

In June 2011, BCBS finalized its second set of amendments to Basel II in the document titled “Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems.” (See Figure 1 for the timeline required for Basel III implementation.)

The key changes outlined under Basel III can be classified in four broad categories:

1. Raising the quality, consistency and transparency of the capital base.

Examples of some of the new measures include:

- Raising the requirement for Tier I capital ratio from 4 percent to 5.5 percent as of Jan. 1, 2014, and 6 percent from Jan. 1, 2015.
- Raising the requirement for the Tier I common equity requirement from 2 percent to 3.5 percent as of Jan. 1, 2014, and 4 percent from Jan. 1, 2015.
- Eliminating Tier III capital while calculating capital adequacy.
- Requiring a capital conservation buffer and a countercyclical buffer as part of the capital requirements that increase in a phased manner. These additional buffers are a fundamental and important shift in the way capital adequacy is viewed. This buffer can be used by banks during periods of stress, thereby allowing banks to maintain a lower CAR during such periods. Further, regulators may restrict dividend payouts if the above mentioned buffers fall below a defined threshold.

Figure 1: Timelines for a Basel III implementation.

1 The Office of the Comptroller of the Currency, Treasury (OCC); the Board of Governors of the Federal Reserve System (Fed); and the Federal Deposit Insurance Corporation (FDIC) are collectively referred to as the Agencies.
2. Adding additional charges for counterparty risk assessment.

Basel III introduces an additional charge for counterparty credit exposures arising from banks’ derivatives, repo and securities financing activities. The capital charge for counterparty risk should include a credit value adjustment charge to factor any deterioration in counterparty asset quality and an estimate of wrong-way risk to account for correlations among financial institutions. In addition, there are recommended measures for an integrated management of market and counterparty credit risk and increased incentives (in the form of a lower capital charge) for moving to qualified central counterparties.

3. Supplementing the risk-based capital requirement with a leverage ratio.

Under the Basel II rules, the capital adequacy of a bank was measured purely in terms of a capital adequacy ratio, defined as total capital/RWA. However, under Basel III rules, the capital adequacy is also measured using an additional ratio: the leverage ratio. The leverage ratio is defined as Tier I capital/exposure, where the exposure would comprise balance-sheet items and loan equivalent measures for off-balance-sheet items. The leverage ratio would be a disclosure requirement as part of the Pillar 2 process until January 2017. Subsequently, from January 2018, this ratio would be suitably included to compute the capital adequacy of a bank under the Pillar 1 process.

4. Funding liquidity risk assessment.

Apart from changes to the calculation of CAR, Basel III has also introduced two liquidity risk ratios. The first ratio, liquidity coverage ratio, checks whether a bank has sufficient, high-quality liquid assets to survive a significant stress scenario that lasts 30 calendar days. The second measure, net stable funding ratio, checks the stability of funding sources from a one-year perspective.

The BCBS allows banks to comply with Basel III rules in a phased manner, starting in January 2013, with full compliance by January 2019.

Basel IV: Reading the Tea Leaves

Despite the substantial regulatory revisions made with Basel III, the regulators later proposed additional changes in a paper titled Revisions to the Standardised Approach to Credit Risk. Popularly referred to as “Basel IV,” these changes are pending adoption (see Figure 2).

Although not stated explicitly, the changes reflect how regulators are skeptical of the internal models developed by banks, as well as the ratings from the rating agencies. So it’s not surprising that the salient features of Basel IV include:

- Risk weights based on risk drivers such as interest coverage, which will help reduce variability in a bank’s risk-weighted assets.
- A standardized approach to calculating credit risk, which will serve as a floor for banks that use the advanced approaches.
Capital Calculations: Defining a New Standard

The Basel committee also revised the capital calculation methodology for market risk by introducing a new, standardized approach calculation for traded instruments. The first step is to define the boundary between the banking book and trading book that will limit the potential for regulatory arbitrage. Subsequent to classifying an exposure in the trading book, banks can compute the capital charge based on an internal model or a sensitivity-based charge. The internal models will be subject to regulatory scrutiny and require approval from regulators at the desk level.

The Basel Committee has also prescribed rules to measure the interest rate risk in the banking book (IRRBB) as part of Pillar II. These rules are designed to quantify the impact of macroeconomic changes on the net interest income and net economic value of a bank. In addition, the committee also discusses the credit spread risk in the banking book (CSRBB) that banks need to monitor over and above the IRRBB. The CSRBB has components of both credit and market risk, and it is a measure of spread risk associated with credit-risky instruments. The boxes in blue in Figure 3 indicate the bank areas of risk that require additional attention as a result of these rules. Banks need to be prepared to discuss each of them in depth with regulators.

Basel IV tries to address the limitations seen in many of the earlier approaches to measuring capital adequacy, such as use of internal ratings, ratings assigned by rating agencies and value at risk. The new, standardized approach will rely less on rating agencies and internal ratings, and ultimately result in more consistency across banks in terms of how they measure capital adequacy.

The CSRBB will help banks measure interest rate risk more holistically by including credit risk.
Comparing the Regulations

The additional requirements under Basel III and the capital planning exercise are complex due to both the additional elements they introduce and the enterprisewide nature of their impact. There are significant commonalities and differences between these regulations when viewed from three different perspectives:

- The types of risks they cover.
- Their applicability based on bank size.
- Their regulatory requirements (US versus EU).

Let’s take a closer look at the regulations from these perspectives.

Types of Risks Covered

Figure 4 compares the regulations from the perspective of types of risks covered. A key area where the capital planning regulations differ is noninclusion of liquidity risk measurement. Under Basel III, banks must assess the funding liquidity risk from a short-term and long-term perspective. Additionally, the Basel requirements are on a historical basis, while the capital planning requirements are on a forward-looking basis.

<table>
<thead>
<tr>
<th>Description</th>
<th>Credit Risk</th>
<th>Market Risk</th>
<th>Operational Risk</th>
<th>Stress Testing</th>
<th>Liquidity Risk</th>
<th>Stressed VaR</th>
<th>CVA/Wrong Way Risk</th>
<th>Specific Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basel I and 1996 Amendment</td>
<td>✔</td>
<td>✔</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Basel II</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>Historical Basis</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Basel 2.5 and Basel III</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>Historical Basis</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Capital Planning</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
</tbody>
</table>

Figure 4: A comparison of regulations from a risk perspective.

Anecdotal evidence suggests that most risk management and compliance projects are prone to cost overruns, delays and suboptimal architecture, which stifle future expansion. For these reasons, end-state vision, project planning and focused execution are keys to the success of a capital adequacy project.

Implementing a Capital Adequacy Project

Armed with an understanding of the impact of the regulatory changes, banks must decide on a project plan. But there are many challenges facing banks as they move forward. The new regulatory requirements can be very daunting for any bank or financial institution to implement. Additionally, these regulations necessitate the tighter integration of risk and finance departments within a bank. This could pose a challenge, as most banks have historically managed risk and finance separately.
One approach is to take a divide-and-conquer strategy that organizes various projects into four separate work streams:

- Basel III: Pillar 1 risk measurement and changes to capital definition.
- Basel III: Liquidity risk assessment.
- Data infrastructure.

To comply with all of the new regulations, most banks are also having to redesign their risk modeling, data infrastructure and technology components. To succeed, banks will also need a well-orchestrated and centrally coordinated implementation program that includes:

- Establishing a governance structure and steering committee.
- Defining the anticipated steady-state process for compliance, complete with the existing regulation and appropriate metrics to enable better decision making by senior management.
- Designing the end-state architecture in a way that is flexible (for future modernization) and facilitates compliance.
- Creating a data and reporting infrastructure that meets compliance and business requirements.

Let’s take a closer look at each of these key elements.

**Establishing a Governance Structure and Steering Committee**

Banks embarking on a capital adequacy or capital planning program should first set up a governance structure and steering committee focused on ensuring implementation activities achieve the goals of the regulations. The cross-functional steering committee should have senior representatives from each line of business, such as treasury, group risk, finance, operations and information technology. Based on the complexity and preparedness of the bank, the steering committee can design the end state and define the implementation program.

The governance framework should address the following:

- Initiating awareness and training programs.
- Establishing a communication channel with regulators to keep them abreast of the developments and challenges.
- Communicating objectives and strategies to all the key stakeholders.
- Determining if an external consulting or advisory firm is necessary in some areas to supplement the existing team.
Defining the Anticipated, Steady-State Process

Given the complexity of compliance efforts and involvement of multiple business units, defining the steady-state process is a valuable exercise. An example of a steady-state process for capital planning is highlighted in Figure 5. Outlining this process helps identify the connections between various business lines. Participants in this effort work together to state the business specifications and functional specifications, identify data gaps, and design an appropriate technology architecture.

Figure 5: Process for forward-looking capital planning.

Designing the End-State Architecture

The next step is to define the end-state architecture in such a way that it meets current regulatory needs and is flexible enough to meet new requirements resulting from new legislation. The design of the end state should also help protect existing investments and enable banks to analyze the key additional modules required to complete the system. Figure 6 illustrates an end-state architecture with core components highlighted in light blue.
Creating a Data and Reporting Infrastructure

Depending on the number of existing risk and finance systems and the current state of data management within a given bank, creating the right data and reporting infrastructure may prove to be the most tedious step in the implementation process. In addition to focusing on risk model checks, regulators should be concerned about ensuring data quality. Furthermore, the capital adequacy regulations demand data at a level of granularity that is often not readily available in the data management systems used by banks. This necessitates going back to the source systems, where data may not be available in required formats.

Most banks have already created a data infrastructure as part of their Basel II implementation. However, in most cases, these data infrastructures were designed solely to meet the immediate challenges of Basel II requirements; on the whole, they are inadequate to support the new deluge of regulations discussed in this paper. For example, many of the new regulations require more granular data (such as asset, liability and off-balance-sheet items for liquidity risk) and forecasted data (for stress testing).

To address some of these challenges, the Basel Committee on Banking Supervision (BCBS) introduced a set of principles around risk data aggregation and reporting (widely known as BCBS 239). The principles are structured around four broad areas: governance, data aggregation, risk reporting and supervisory requirements. Because of their broad scope and business impact, BCBS 239 principles have helped to catapult data management discussions from the IT department to the boardroom.
Conclusion

The regulatory burden on banks is growing and will likely continue to do so. Banks must respond by putting in place solutions that meet today’s regulatory requirements and yet are flexible enough to meet future demands. This will mean redesigning their risk modeling, finance systems, data infrastructure and technology infrastructure to meet regulatory requirements while simultaneously enabling tighter integration between their risk and finance departments.

Ideally, banks can use this investment as an opportunity to bolster their risk management systems. Banks that demonstrate better ability to measure and manage risk can derive business benefits from these regulations. And by doing so, they will emerge as winners.

References


Annual Stress Test, FDIC, January 2012.


Status of Basel II, Basel 2.5 and Basel III adoption: links to domestic implementation documents, BCBS, bis.org/publ/bcbs/b3prog_dom_impl.htm.