MPF_RRFI - Lecture 06

Basel I, Basel II, and Solvency II (Chapter 15)

- the reasons for regulating banks $\implies$ systemic risk

Bank Regulation Pre-1988

- on the country level
- ratio of capital/total assets
- banks started competing globally $\implies$ international regulation

The 1988 BIS Accord

- the Cooke ratio $\implies$ it is based on what is known as the bank's total risk-weighted assets

Credit risk exposures can be divided into three categories:

1. Those arising from on-balance sheet assets (excluding derivatives)
2. Those arising for off-balance sheet items (excluding derivatives)
3. Those arising from over-the-counter derivatives

- The Accord required banks to keep capital equal to at least 8\% of the risk-weighted assets (Tier 1 and Tier 2)

Netting

- The word *netting* refers to a clause in the master agreement, which states that in the event of a default all transactions are considered as a single transaction.

The 1996 Amendment

- *Marking to market* is the practice of revaluing assets and liabilities daily using a model that is calibrated to current market prices. It is also known as *fair value accounting*.
- The big banks were allowed to use an *internal model-based approach* for setting market risk capital.
- 10-day VaR, 99\%

Basel II

- The Basel II capital requirements applied to *internationally active* banks.
- The Basel II is based on three *pillars*:

1. Minimum Capital Requirements
2. Supervisory Review
3. Market Discipline

- credit risk $\Longrightarrow$ standardized vs. internal rating based approach
- requires banks to keep capital for operational risk

Solvency II

- no international standards for the regulation of insurance companies
- The long-standing regulatory framework in the European Union, known as Solvency I, was replaced by Solvency II in 2016.
- Whereas Solvency I calculates capital only for underwriting risks, Solvency II considers investment risks and operational risks as well.
- Solvency II has many similarities to Basel II (three pillars)

Basel II.5, Basel III, and Other Post-Crisis Changes (Chapter 16)

Basel II.5

- It was perhaps unfortunate for Basel II that its implementation date coincided,at least approximately, with the start of the worst crisis that financial markets had experienced since the 1930s.
- During the credit crisis, it was recognized that some changes were necessary to the calculation of capital for market risk.
  1. The calculation of a stressed VaR;
  2. A new incremental risk charge; and
  3. A comprehensive risk measure for instruments dependent on credit correlation.
- $\Longrightarrow$ increase of the regulatory capital for banks

Basel III

- first published in December 2009 $\Longrightarrow$ final version in December 2010 $\Longrightarrow$ gradual implementation 2013-2019
- There are six parts to the regulations:
  1. Capital Definition and Requirements
  2. Capital Conservation Buffer
  3. Countercyclical Buffer
  4. Leverage Ratio
  5. Liquidity Risk
  6. Counterparty Credit Risk

Contingent Convertible Bonds

- They automatically get converted into equity when certain conditions are satisfied.
- Typically, these conditions are satisfied when the company is experiencing financial difficulties.

Use of Standardized Approaches

- In December 2017, the Basel Committee announced that, starting in 2022, it would require the implementation of a standardized approach for all capital calculations.
- A bank’s total capital requirement will be the maximum of (a) that calculated as before using approved internal models and (b) a certain percentage of that given by the standardized approaches.
- The percentage will be 50% in 2022, rising to 72.5% in 2027.

Regulation of the OTC Derivatives Market (Chapter 17)

- Before the 2007–2008 credit crisis, the OTC market was largely unregulated.
- Since the crisis, the OTC market has been subject to a great deal of regulation.

Clearing in OTC Markets

- bilateral vs. central clearing (CCP - central counterparty)
- initial vs. variational margin
- netting

Post-Crisis Regulatory Changes

- 3 main major changes:

  1. A requirement that all standardized OTC derivatives be cleared through CCPs.
  2. A requirement that standardized OTC derivatives be traded on electronic platforms.
  3. A requirement that all trades in the OTC market be reported to a central trade repository.
- About 25\% of OTC transactions were cleared through CCPs pre-crisis and the remaining 75\% were cleared bilaterally.

- As a result of the new rules, these percentages have flipped.
- More collateral required in general $\implies$ cash or government securities
- *Rehypothecation* restricted.
- OTC markets converge to exchange-traded markets

Fundamental Review of the Trading Book (Chapter 18)

- FRTB is a major change to the way capital is calculated for market risk.
- After 20 years of using VaR with a 10-day time horizon and 99% confidence to determine market risk capital, regulators are switching to using ES with a 97.5% confidence level and varying time horizons.
- The time horizons, which can be as high as 120 days,are designed to incorporate liquidity considerations into the capital calculations.
- Standardized approach and internal models approach specified.
- Even when the use of the internal models approach is allowed, banks must also implement the standardized approach.
- Regulatory capital under the standardized approach is based on formulas involving the delta, vega, and gamma exposures of the trading book.
- Regulatory capital under the internal models approach is based on the calculation of stressed expected shortfall.
- Calculations are carried out separately for each trading desk.