

Regulation Guide: An Introduction



Banking regulations: an introductory framework



The Basel Committee's Role

Most of the global banking and insurance regulations have been initiated or inspired by the work of the Basel Committee on Banking Supervision and its so-called "Basel regulations". Read this section to understand what the Basel Committee is, what it aims to achieve, and its impact on the regulations your clients and prospects have to comply with today.

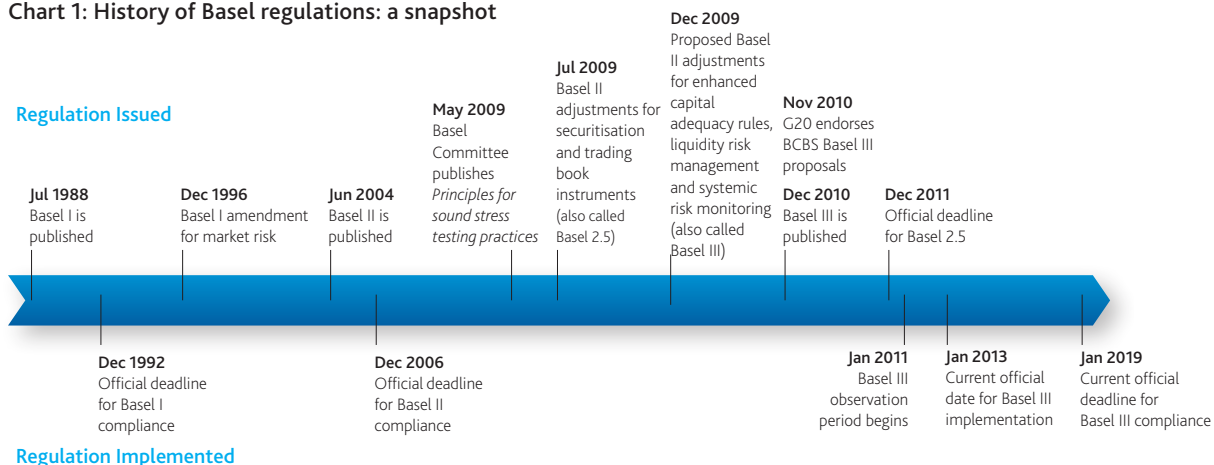
The Basel Committee on Banking Supervision (BCBS) was established in 1974 in response to a period of major disruptions in the international currency and banking markets (1971 collapse of the Bretton Woods Accord, 1973 stock market crash, 1974 oil price shock). BCBS members are drawn from 27 countries which are represented by their central banks and financial regulators. The Committee aims to *enhance understanding of key supervisory issues and improve the quality of banking supervision worldwide*. It achieves this partly through its role as a forum for cooperation and information sharing for national supervisors, and partly by issuing guidelines and standards. The Committee does not have formal supranational authority and its standards do not have legal force. Rather, it is expected that national supervisors incorporate these standards into their regulations, with which regulated institutions then have to comply.

Basel regulations are also adopted by non-member BCBS countries that see benefits both in the regulations themselves and also in being associated with conformity with Basel standards. The BCBS actively encourages contact and cooperation between its members and other banking supervisors. Whilst at different stages of implementation, many countries are now applying Basel guidelines.

In today's global business environment, international coordination has become increasingly important. Application of the same standards across countries allows for consistent comparisons by investors and creditors, thereby supporting market confidence. Whilst this can be particularly relevant for banks in emerging markets, the recent sub-prime and sovereign crises have highlighted the dependence of some of the largest industrialised economies on their banking systems and thus the importance of global coordination.

The BCBS is best known for its international standards on capital adequacy which have evolved from Basel I, issued in 1988, through Basel II issued in 2004, to its latest enhancements issued in 2010, commonly called "Basel III". Full compliance with Basel III is required by 1 January 2019.

Chart 1: History of Basel regulations: a snapshot



The Minimum Capital Adequacy Ratio

Through most of its regulatory guidelines and requirements, the BCBS aims to ensure that banks hold sufficient capital to meet their current and expected liabilities. To help achieve this, it has introduced a minimum capital adequacy ratio which measures the level of capital required according to the level of risks the bank takes. In this ratio the assets are weighted according to the level of risk they carry. For example, a loan secured by a letter of credit would be weighted riskier than a mortgage loan that is secured with collateral.

This minimum ratio forms the basis for the capital requirements promoted in Basel II. Most subsequent enhancements to Basel II relate to the composition of this ratio, as the regulators try to adjust capital requirements to better capture banking institutions' business models, product innovation and market evolution. It can help to think of these enhancements in the following way:

- » **Enhancements to the ratio** – when the minimum amount of capital that the bank is required to hold increases or decreases (for example from 8% in Basel II to 10.5% in Basel III);

$$\text{Minimal Capital Adequacy Ratio (CAR)} \leq \frac{\text{Capital - Adjustments}}{\text{Risk Weighted Assets}}$$

- » **Enhancements to the numerator** – when the definition of the capital changes (as in Basel 2.5 where hybrid capital is no longer considered eligible as regulatory capital);
- » **Enhancements to the denominator** – when the weighting or the process of assigning a risk weighting to assets evolves (e.g. in Basel III).

The CAR Ratio of Capital to RWA	Numerator the Capital
	Denominator the RWA

Basel Regulations' Pillars

Basel regulation has evolved to comprise three pillars concerned with minimum capital requirements (Pillar 1), supervisory review (Pillar 2), and market discipline (Pillar 3). Today, the regulation applies to credit risk, market risk, operational risk and liquidity risk.

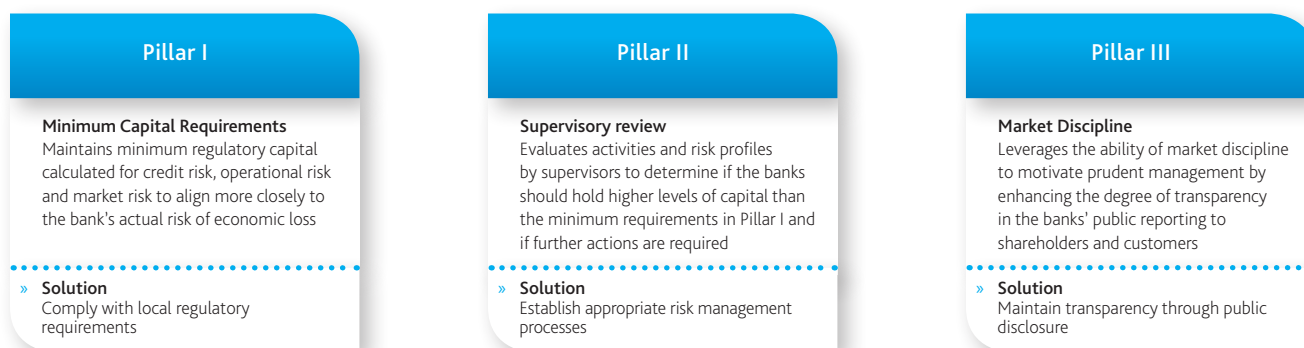
Capital by itself does not guarantee a bank's financial security. As highlighted in the most recent global financial crisis, a bank also needs to be able to meet its obligations in a timely manner. The most recent iteration of Basel regulation, Basel III, thus introduced liquidity ratios. With this enhancement, the BCBS' objective is to ensure that banks hold a sufficient amount of assets that can be easily and quickly converted to cash to meet liabilities over both short- and longer-term periods.

Basel banking regulations are not limited to quantitative requirements. In large part, Basel regulations promote the implementation of risk management best practice within banks. The ICAAP (internal capital adequacy assessment process) requirements under Pillar 2 and the more recent stress-testing guidelines are good examples of how the BCBS aims to achieve this objective.

Whilst much of the Basel Committee's focus has historically been on micro prudential supervision, the recent global financial crisis has alerted supervisors of the need to work together more closely and to facilitate the management of systemic risk.

Basel II regulations: an introduction

Basel II guidelines were originally published in 2004 with the objective of creating standards and regulations around how much capital banks must hold. The regulation is divided into three pillars concerned with minimum capital requirements, supervisory review and market discipline.



Pillar 1: Measure and report minimum regulatory capital requirements

Under Pillar 1, firms must calculate minimum regulatory capital for credit, market and operational risk.

- » **Credit risk** is the risk associated with bank's main assets, i.e. that a counterparty fails to repay the full loan. It is present in all banking book assets and off-balance sheet products as well as counterparty credit risk for banking and trading book derivatives and repos.
- » **Market risk** is the risk of losses (on- and off-balance sheet) due a decrease in the value of investments. It applies to all trading book products.
- » **Operational risk** is the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events.

Basel II mostly focuses on Credit Risk and Operational Risk as Market Risk was addressed in Basel I. Regulatory capital is calculated using the minimum capital adequacy ratio (CAR) which determines the minimum capital required to cover unexpected losses. The minimum CAR is defined as follows

$$\text{Capital Adequacy Ratio} \leq \frac{\text{Capital (Tier 1+Tier 2+Tier 3) - Adjustments}}{RWA_{\text{Credit Risk}} + RWA_{\text{Market Risk}} + RWA_{\text{Operational Risk}} + RWA_{\text{Concentration Risk}}}$$

Under Basel II, banks are required to maintain a total capital ratio (Tier 1 + 2 + 3) of minimum 8%.

- » Tier 1 capital is the main measure of a bank's financial strength from a regulatory point of view. It consists of core capital (common stock and disclosed reserves), but may also include non-redeemable, non-cumulative preferred stock. Banks must hold 4% of Tier 1 capital of which a minimum core capital ratio of 2%.
- » Tier 2 capital is regarded as the second most reliable form of capital from a regulatory point of view. It consists in capital that is redeemable at a given date in the future or that may be difficult to value. It includes undisclosed reserves, revaluation reserves, general provisions, hybrid instruments and subordinated term debt (with a minimum maturity of five years).

- » Tier 3 capital consists of short-term subordinated debt. A bank may only use this capital for covering market risk.
- » Risk-weighted assets comprise the total of all those assets held by the bank which are weighted for credit risk according to a formula determined by the regulator (e.g. commercial loans are 100% weighted, residential mortgage are 50% weighted, some other assets would be 20% etc..).

Pillar 2: Enforce and inspire globally consistent risk management best practices

Risk management best practices are at the heart of Pillar 2. Banks must undertake an ICAAP (Internal Capital Adequacy Assessment Process) that looks at all risks to which the bank is exposed. In turn, supervisors are required to assess banks' risk profiles and activities in order to determine whether their capital should exceed the minimum specified under Pillar 1. Stress testing has become a more significant aspect of Pillar 2 after the most recent financial crisis. New liquidity regulations have also introduced an ILAA (Internal Liquidity Adequacy Assessment) as part of Pillar 2..

Pillar 3: Bolster market discipline through public disclosure

Under Pillar 3, banks are required to disclose information regarding their capital structure and capital adequacy as well as their risk management. Pillar 3 includes a set of disclosure requirements which are intended to improve the ability of market participants to assess banks' risk management processes, capital structures, exposures and capital adequacy. This transparency is designed to incentivise banks to implement sound and robust risk management frameworks.

How do banks report to the regulators?

Banks are required to produce capital adequacy reports in each country where they have legal operations, on the basis of a defined frequency. These reports are examined by the regulator which will also often meet with the banks' management to discuss measures to achieve prudent capital adequacy levels and sound internal risk management.



The Standardised and Internal model-based approaches

Under Pillar 1, the BCBS wanted to provide a more risk-sensitive approach to measuring credit risk – and reward stronger and more accurate risk measurement – by offering banks the option of either using risk weighting that are tied to external credit measures or by using banks' own internally generated measures. These approaches are referred to as standardised and internal model-based.

Similarly, with operational risk, Basel II introduces the choice of a Standardised Approach or an Advanced Measurement Approach (AMA).

The two approaches for market risk are: the Standardised Approach which includes Interest Rate Risk, Equity Risk, FX Risk, Commodity Risk and Option Risk, and the Internal Model Approach (IMA) which uses VAR (Value at Risk).

Basel II — Pillar 1 : an introduction

- » Measuring credit risk
- » Standardised versus Internal ratings-based approach
- » Calculating and reporting capital adequacy ratio

Minimum capital requirements for Credit Risk

Basel II offers three compliance approaches for measuring credit risk: a Standardised Approach and two variations of the Internal Ratings- Based (IRB) approach, namely the Foundation and Advanced. The IRB is intended to provide the most capital-efficient approach, as it enables the bank to fine-tune its risk weightings according to more precise probability of default (PD) calculations than those set out by the regulator under the Standardised Approach.

Under the Standardised Approach, the banks are allowed to use credit ratings from rating agencies for estimating PDs from historical default experience, where available. Where external ratings are not available (e.g. retail exposure, small enterprises, most emerging markets), banks are required to use PD ratios prescribed by the regulators

Under the IRB approach, banks are allowed to differentiate borrowers based on risk. They must categorize their borrowers into corporates, banks, sovereigns, retail, specialized lending, and equity. The method is based on an internal estimation of probabilities of default (PD) for each borrower. IRB compliance also include estimation of the Loss Given Default (LGD) and the Exposure at Default (EAD) for each transaction. In addition, there are standards for treating risk mitigation vehicles such as guarantees and credit derivatives.

The IRB approach is much more complex to implement because it requires stronger quantitative modelling skills within the bank and access to historical default data. Banks need three years of default data to build a PD model. Under Advanced IRB, banks need five to seven years of data to build a LGD model. Foundation IRB uses regulatory LGD, whereas the Advanced IRB uses internal model LGD thus making the latter also a more complex project.

Calculating capital adequacy

Calculating CAR is a complex process. For instance, it requires banks to implement calculation engines able to accurately estimate EAD, effective maturity, risk-weighted assets, expected losses and capital deductions for all products and asset classes. These calculations require extensive data gathering across the banks and from external providers as well as auditors. Some of the other major challenges that banks face when producing the Basel II reports include aggregating results efficiently and effectively, and producing accurate and timely localised reports in local languages.

Timeline

The BCBS recommended timeline was 2007. However, a number of countries still are implementing or are yet to implement these guidelines.



The approach adopted by banks is guided by national regulators. However banks may choose to complement regulatory compliance requirements with more advanced approaches for specific portfolios in accordance with their own risk management needs. Whilst there are no strict rules, most industrialised economies generally aim to comply with the IRB, and developing economies tend to adopt the standardised approach at least initially.

Basel II — Pillar 2 for supervisory review

- » Assess capital adequacy against the bank's overall risk profile
- » Define and document risk management frameworks
- » On-going dialog with the regulator

Pillar 2 of the Basel II framework is concerned with banks' internal capital assessment and allowing efficient regulatory supervision.

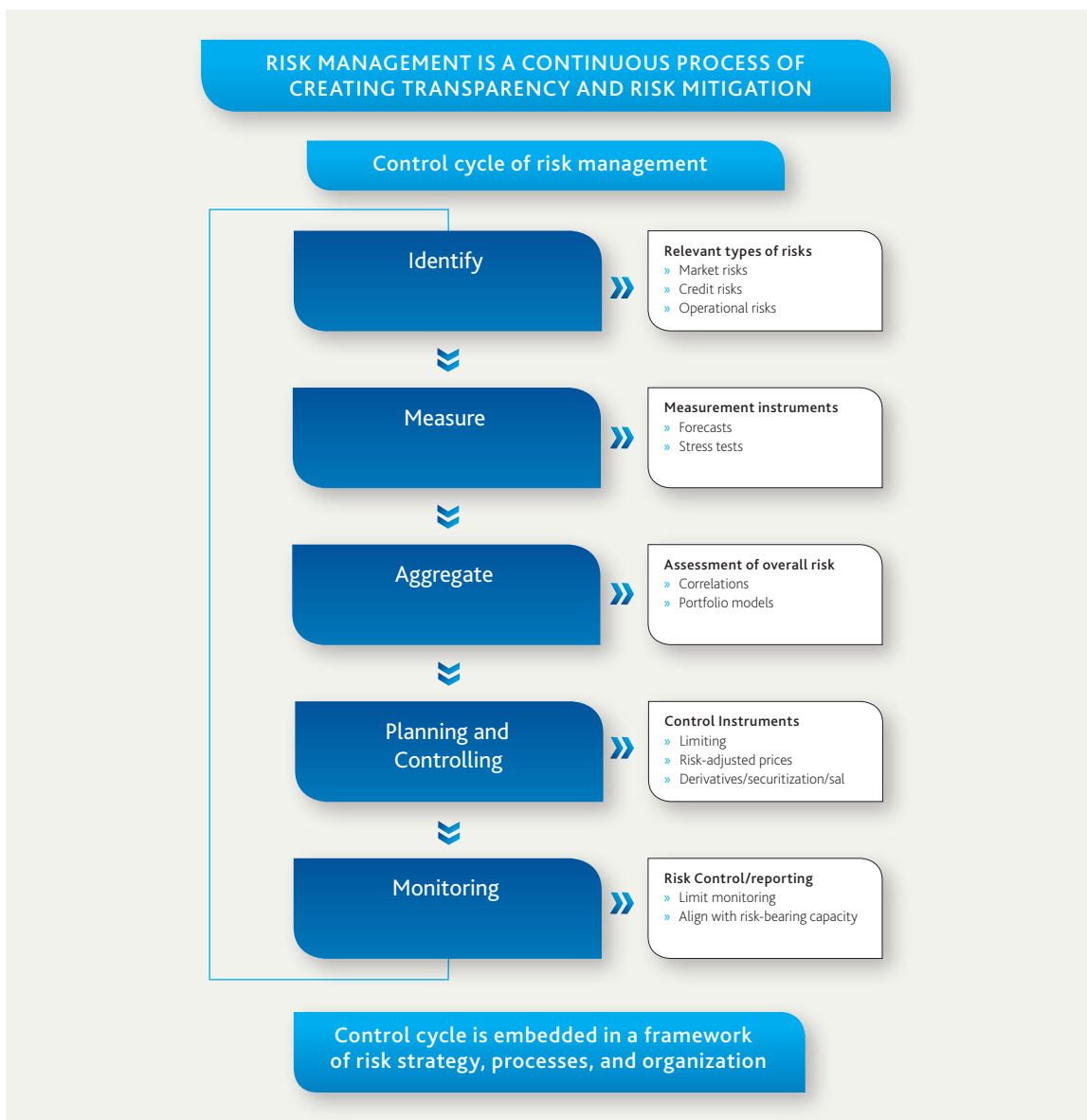
To comply with Pillar 2, banks are required to undertake an Internal Capital Adequacy Process or ICAAP. The ICAAP consists in designing and implementing a risk-adjusted management framework. This framework must ensure the bank constantly meets its regulatory capital requirements and manages risks beyond those captured in Pillar 1 (e.g. concentration risk, fraud or rogue trading, liquidity risk etc...). This process is documented into a report (ICAAP report) which needs to be approved by the board before being submitted to the regulator for review.

Common ICAAP steps

1. Assess all of the risks to which the bank is exposed
2. Calculate how much capital is required to offset each risk using adapted models
3. Apply stress tests to assess how this capital might be affected by changing business conditions
4. Define how much capital should be held. This capital is known as internal or economic capital and may be different to the regulatory capital it is required to hold
5. The board and senior management must demonstrate understanding of their roles and responsibilities, with full documentation and formalised approval process

Outcomes of supervisory reviews can include, for instance, a requirement to hold capital above regulatory capital levels calculated by the bank or to enhance risk management systems and controls. The supervisory review is an ongoing process as is the case for the ICAAP. The review needs to evolve constantly according to the bank's evolving risk profile, enhancements to regulations (i.e. stress testing), product innovation and changing market conditions.

Risk management is a continuous process of creating transparency and risk mitigation
(Control cycle of risk management)



Source: PWC

Basel II — 2009 enhancements / Basel 2.5

- » Better manage securitisation exposure
- » Meet new capital requirements for exposures in the trading book
- » Improve corporate governance

In April 2008, the Basel Committee on Banking Supervision (BCBS) announced a series of changes to the Basel II framework as an immediate response to the financial crisis. These enhancements – referred to as Basel 2.5 or as Basel II Enhanced, or CRD II/III in the EU – mostly affect the definition of the capital as well as the risk-weighting rules for credit, market risk and concentration risk (highlighted in blue below). Changes to Operational Risk remain minimal.

$$CAR \leq \frac{\text{Capital (Tier 1+Tier 2+Tier 3) - Adjustments}}{RWA_{\text{Credit Risk}} + RWA_{\text{Market Risk}} + RWA_{\text{Operational Risk}} + RWA_{\text{Concentration Risk}}}$$

Key enhancements

- » Within Pillar 1, the changes were designed to better take into account risks arising from securitisations, re-securitisations and complex financial instruments. To achieve this, higher risk weightings are being introduced and banks are required to conduct more rigorous analysis of securitisation exposures. To prevent arbitrage between the banking book and the trading book, securitisation exposure in the trading book is now subject to credit risk, i.e. treated as if it were in the banking book. In Europe, there are increased deductions for Hybrid capital in Tier 1 capital and strengthened rules on large exposures.
- » For market risk, there are important changes to risk weighting rules for debt, equity and correlation trading portfolios under the Standardised Approach. The Internal Model Approach now includes Stressed VAR and an Incremental Risk Charge (IRC). IRC is an additional capital charge for credit-related risk in the trading book.
- » As for Pillar 2, Basel 2.5 addresses firm-wide governance – especially compensation – and risk management, off-balance sheet exposures and securitisation and risk concentration. Pillar 3 requirements focus on adding transparency.

Timeline

- » The regulation was issued in July 2009. The BCBS has set out December 2011 as a deadline. However, most national supervisors outside of the EU have not yet confirmed their local implementation schedule.

Basel III regulations: a practical overview

- » Higher and better quality of capital
- » Tighter standards for liquidity risk measurement and monitoring
- » New rules to address forward-looking provisioning for credit losses
- » Additional measures to reduce systemic risk

Basel III is the Basel Committee on Banking Supervision's (BCBS) comprehensive response to the 2008 financial crisis – culminating in two years of regulatory reform including Basel 2.5. It introduces a new regulatory regime for capital, liquidity and banking supervision.

The BCBS identified several factors that contributed to the global financial crisis and therefore need addressing in the new regulations. Banks were too highly leveraged, held insufficient capital (specifically insufficient high-quality capital) and had inadequate liquidity buffers. The crisis was compounded by pro-cyclicality and the interconnectedness of systemically important 'too big to fail' financial institutions. Furthermore, individual banks had inadequate risk management and corporate governance processes and regulatory supervision was not strong enough. It is important to note that Basel II doesn't go away. Basel III introduces enhancements to the Basel II framework.

Key enhancements

New capital enhancements seek to improve both quality and availability of capital

- » At the individual firm level, Basel III seeks to improve the quality of capital that banks hold and make definitions of types of capital more transparent.
- » The amount of required regulatory capital has been increased, particularly in the trading book where increased capital allocations will be enforced for securitised and OTC derivatives products. Furthermore, counterparty risk must be taken into consideration.
- » On top of this a fixed conservation buffer has been introduced. Additional Core Tier 1 capital must be accrued in boom times in order to absorb losses of the core capital if the bank is under financial or economic pressure.

New liquidity ratios aim to address funding needs under stressed conditions

- » It is now widely acknowledged that increased levels of capital alone is not enough to prevent another crisis. Another objective of Basel III is therefore to ensure that banks have sufficient liquidity to withstand stressed liquidity scenarios. Two ratios have been introduced to tackle this: these ratios address both short-term liquidity coverage (30 days) and longer-term structural funding.
- » Meeting these new liquidity requirements will require a convergence of risk and finance systems which will be a key challenge for banks.

Strengthen the banking industry

- » Two new ratios (the leverage ratio and countercyclical ratio) have been introduced to better monitor systemic risk. In addition, measures aimed at Systemically Important Financial Institutions (SIFIs) are being devised.
- » **Leverage ratio:** The Committee is introducing a leverage ratio which simply measures the ratio of capital to total assets. The leverage ratio addresses the build-up of excessive leverage in the financial system. Through pro-active management, the BCBS hopes to avoid the destabilising effect of deleveraging during times of stress. This ratio includes both on- and off-balance sheet items and securitisations. It also serves as a “safety net”, to guard against any inaccuracies or unforeseen problems with risk weightings.
- » **Countercyclical ratio:** The countercyclical ratio addresses the problem of pro-cyclicality or ‘credit bubbles’. With this measure, the BCBS aims to protect banking systems against the risks involved with excess credit growth, which has proven to be lethal in many jurisdictions. It is the first time the regulatory community is availing itself of a “macro tool” that complements its traditional approach of measuring risk at individual institutions. Unlike the conservation buffer which is fixed, the countercyclical ratio is to evolve within a defined range. It is derived from the deviation from the long term trend credit /GDP and its calibration is left to national discretion.

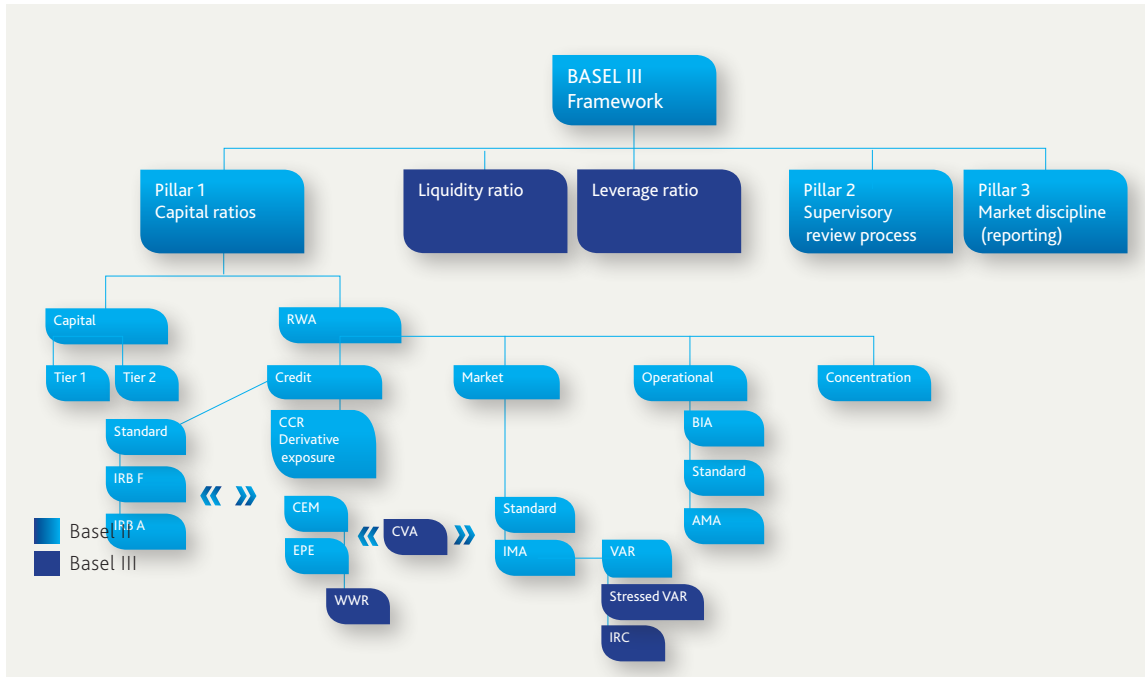
Timelines

Basel III has been ratified by G20 members. However, it is not clear if all of the G20 states will implement Basel III in its entirety. It is also unlikely that all members will implement it at the same time. Other BCBS countries are supposed to implement the Basel II framework as per the BCBS timelines. The US has pledged to implement this framework although it has not fully adopted Basel II. We expect leading emerging markets to also adopt Basel III, as already announced by some Asian states including China. It is notable that some countries, such as the UK and Australia, started to address these issues with local regulation in 2009 and 2010 (specifically liquidity and stress testing).

Basel III: Quantitative requirements and timelines

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Leverage Ratio	Supervisory monitoring		Parallel run 1 Jan 2013 –1 Jan 2017 Disclosure starts 1 Jan 2015					Migration to Pillar 1	
Minimum common equity capital			3.5%	4.0%	4.5%	4.5%	4.5%	4.5%	4.5%
Capital conservation buffer						0.625%	1.25%	1.875%	2.5%
Minimum common equity plus capital conservation buffer			3.5%	4.0%	4.5%	5.125%	5.570%	6.375%	7.0%
Phase-in deducting from core equity Tier 1				20.0%	40.0%	60.0%	80.0%	100.0%	
Minimum Tier 1 capital			4.5%	5.5%	6.0%	8.0%	6.0%	6.0%	
Minimum Total capital			8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	
Minimum total capital plus conservation buffer			8.0%	8.0%	8.0%	8.625%	9.250%	9.875%	10.50%
No longer qualifying non-core Tier 1 and 2 capital instruments			Phased out over 10-year horizon beginning 2013						
Liquidity coverage ratio	Observation period ends				Introduce minimum standard				
Net stable funding ratio		Observation period starts						Introduce minimum standard	

Basel II to Basel III: What is new?



Basel III capital enhancements: a practical overview

- » Upgrade regulatory capital calculation and reporting systems
- » Improve capital management strategies

Basel III introduces significant changes to the amount of capital banks need to hold and the quality of capital. These changes affect the risk-weighting rules for credit and market risk, the definition of the capital, and the minimum level of capital adequacy ratio itself (see blue highlights in the ratio definition below):

$$CAR \leq \frac{\text{Capital (Tier 1+Tier 2+~~Tier 3~~) - Adjustments}}{RWA_{\text{Credit Risk}} + RWA_{\text{Market Risk}} + RWA_{\text{Operational Risk}} + RWA_{\text{Concentration Risk}}}$$

The regulation increases capital requirements for counterparty credit with the objective of expanding the coverage of the capital base.

Significant changes are proposed to the composition of capital: Tier 1 capital is composed of common equity. Tier 1 ratio increases from 4% to 6%. Within the Tier 1 ratio, the minimum Core Tier 1 ratio increases from 2% to 4.5% to reflect the higher quality requirement. Tier 2 capital is harmonised and simplified, and Tier 3 capital is being abolished altogether.

Including the additional conservation buffer and countercyclical buffers, regulatory capital requirements for banks rise from a minimum of 8-10.5% depending on the size of countercyclical buffer (including the countercyclical buffer it could go up to 13%).

The leverage ratio is an alternative measure to the risk-weighting process and aims to guard against the build-up of excessive leverage in the banking system.

Timeline

According to the Basel Committee on Banking Supervision's (BCBS) guidance, the requirements are to be phased in by 2019 with the first phase of compliance required by 2013 and an observation phase starting January 2011. However, in common with previous regulations, the final implementation schedule is determined by national supervisors.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Regulation issued	◊									
Observation period										
Phased in Capital Requirements										
Phased in Leverage ratio										
Phased in conservation buffer										

Basel III: new liquidity requirements

- » Calculate and manage liquidity requirements under normal and stressed conditions
- » Additional reporting to regulators

Basel III introduces new liquidity regulations which aim to ensure banks have sufficient liquidity over both the short and the longer term. The global financial crisis highlighted the problem that banks did not maintain sufficient levels of liquid assets. When the crisis hit, some banks were unable to meet their obligations and governments had to step in and provide liquidity support. One striking example of this was Northern Rock in the UK.

To reduce the risk of this happening again, banks will now have to comply with two new ratios:

- » The **Liquidity coverage ratio (LCR)** is designed to improve banks' resilience to short-term liquidity shortages by ensuring that they have sufficient liquid reserves to cover net cash outflows over a 30-day period (i.e. to **withstand an acute stress scenario lasting one**

$$\text{LCR} \geq \frac{\text{Stock of liquid high quality assets}}{\text{Net cash outflow over 30 days}} \geq 100$$

month). Cash and central bank eligible securities are considered liquid reserves for this purpose.

- » The **Net Stable Funding Ratio (NSFR)** is designed as an incentive for banks to improve the longer-term structural funding of their balance sheets, off-balance sheet exposures and capital markets activities.

$$\text{NSFR} = \frac{\text{Available stable funding}}{\text{Required stable funding}} \geq 100$$

The effects of the LCR and NSFR could be significant. In its November 2010 review, McKinsey estimates that the LCR would lead to the European banking industry needing to raise approximately €1.3 trillion in liquid assets, and the effect of the NSFR would be an additional €2.3 trillion. In the US, the banking industry would see a shortfall in short-term liquidity of \$800 billion, and long-term funding of \$3.2 trillion.

Banks will need to consolidate, calculate, test and report their liquidity position to the regulators on a regular basis, and in some cases at frequent intervals. Beyond the challenges of producing timely reports in the standardised regulatory formats, banks will also face difficulty in the areas of stress testing and, of course, data gathering and auditing ("I can stress test as much as my data allows me to, unfortunately not enough" said a CRO at a BBA event in London in June 2010). Another key challenge for banks is the integration of liquidity risk management across its Treasury, ALM and risk management functions. Most banks still follow a silo type organisation today.

Timelines

Under the Basel Committee on Banking Supervision's (BCBS) guidance, the requirements are being phased in by 2019. As always with Basel regulation, there will be significant variation in timelines across countries. The countries that have started to implement some form of the liquidity regulation are the UK, Australia, and Bahrain.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Regulation issued	◊									
LCR - Observation period										
LCR Implementation										
NSFR – Observation period										
NSFR Implementation										

What is liquidity risk? — A basic definition



Source: Australian regulator

Basel III: market risk requirements

- » Calculate new capital charges that take better consideration of counterparty credit risk
- » Additional reporting to regulator

Basel III introduces new requirements under both the Standardised Approach and the Internal Model Approach for market risk. With these new enhancements, the BCBS intends to address forward-looking provisioning for credit losses via better consideration of counterparty risk exposures.

$$\text{CAR} \leq \frac{\text{Capital (Tier 1+Tier 2+Tier 3) - Adjustments}}{\text{RWA}_{\text{Credit Risk}} + \text{RWA}_{\text{Market Risk}} + \text{RWA}_{\text{Operational Risk}} + \text{RWA}_{\text{Concentration Risk}}}$$

- » Under the Standardised Approach, the regulations introduce new capital charges for mark-to-market losses through credit valuation adjustments (CVA) for securitised exposures, correlation trading portfolio and equities.
- » Under the Internal Model Approach, the regulations also introduce a requirement for banks to calculate Expected Positive Exposure (EPE) to counterparties under stressed market conditions. This will increase the risk weightings of Counterparty Credit Risk (CCR). The regulation also seeks to address wrong-way risk, whereby creditworthiness of counterparties is positively correlated to market risk factors. Note that these enhancements are in addition to the introduction of the Incremental Risk Charge and Stressed VAR (under Basel 2.5), of which the objective is to address the effects of default and migration risk in the trading book.

New market risk capital requirements



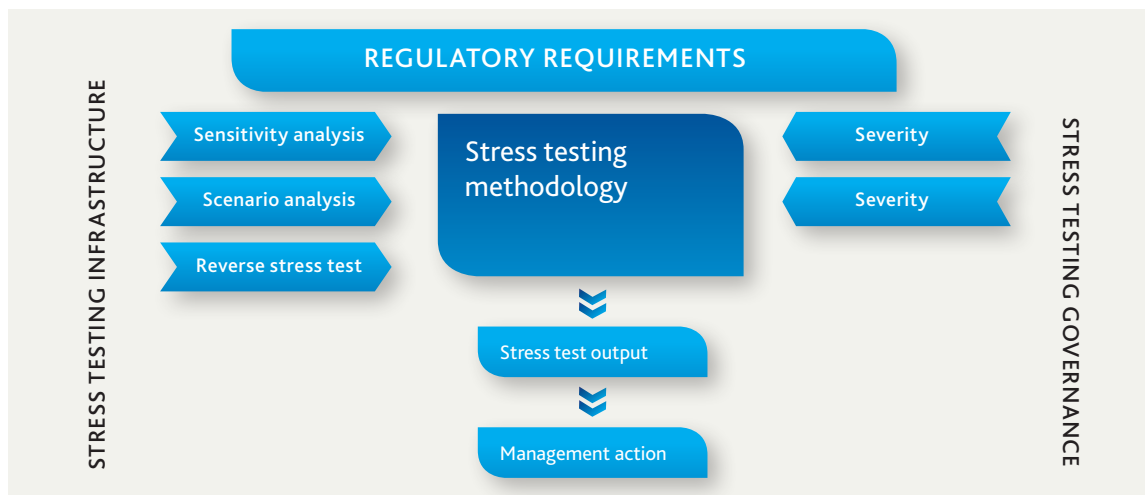
Stress testing regulations

- » Define plausible stress scenarios
- » Calculate capital and liquidity requirements under stressed conditions
- » Define, document and report risk appetite framework to regulators

Increased stress-testing requirements are a regulatory response to the recent financial crisis. The Basel Committee on Banking Supervision (BCBS) introduced stronger stress-testing guidelines in 2009 with the objective of ensuring firms are able to meet capital and liquidity needs under stressed conditions.

Under these new guidelines, banks are required to define and implement both in-house stress scenarios and regulator-defined stress scenarios which are severe but plausible in nature. Regulators also impose system-wide stress-testing exercises as part of their systemic analysis. There is increased emphasis on senior management engagement in order to ensure the results of stress tests are well understood and incorporated in business management.

Example of stress-testing framework: UK FSA 2010 guidelines



The most prescriptive local regulations can be found in the UK. EU countries have been issued with guidelines by the EBA (European Banking Authority) to incorporate into their national regulation. Stress-testing guidelines are enhancements to Pillar 2 (ICAAP) and have been mostly incorporated in Basel III. High level stress-testing requirements can also be found in the Dodd-Frank Act in the United States.

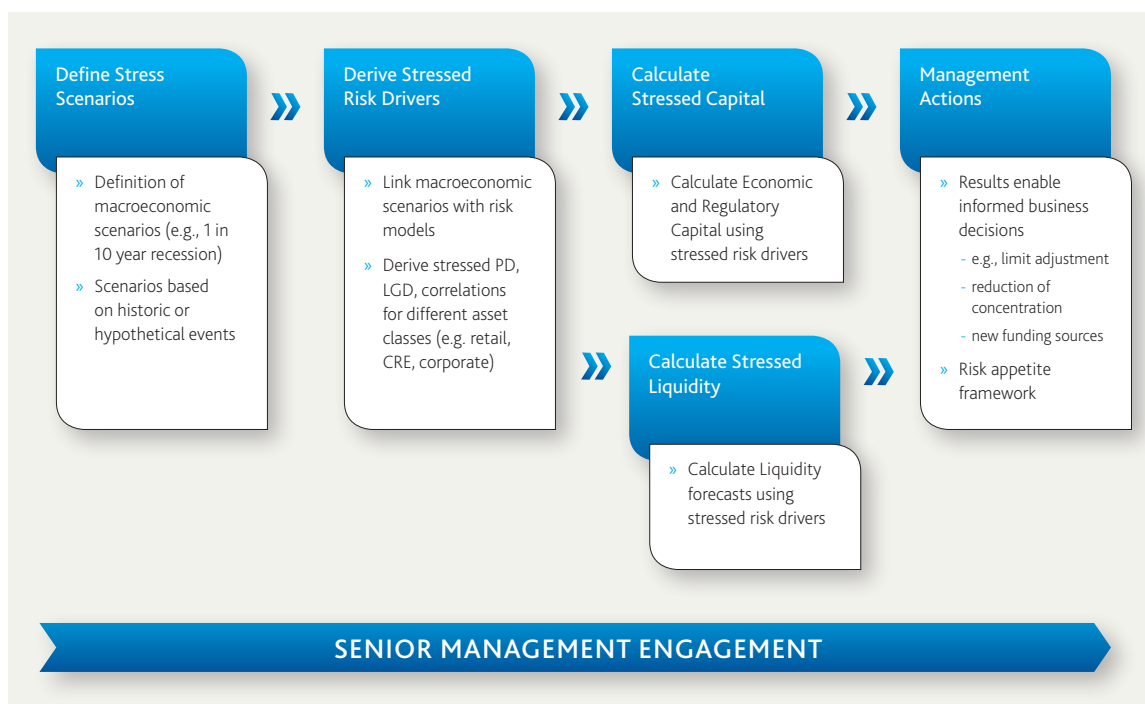
It is now widely recognized that beyond complying with regulatory requirements, effective implementation of stress testing can also help banks to better understand their risk appetite and promote improved business discipline. As such, stress testing is an important element of all firms' risk management and control policies, limit setting and external communication.

Timeline

The BCBC issued stress-testing guidelines in 2009. These were followed by more prescriptive guidelines from the EBA for implementation by EU countries by 2012. However, as always, local timelines will vary.

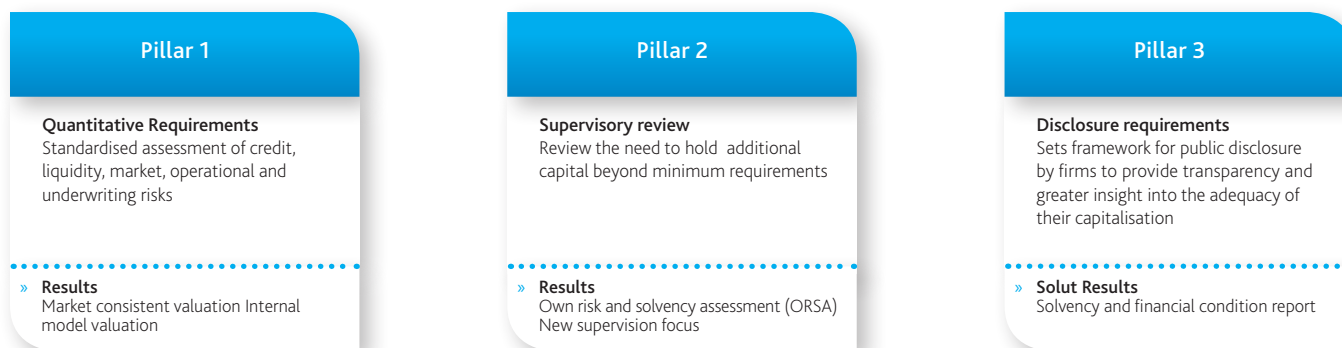
EU countries	UK	US	Other Basel III countries
December 2011	December 2010	January 2012 (est.)	2013/2018

MA's holistic approach to stress testing



Solvency II regulations

Insurance regulations are currently dominated or influenced by the EU-based regulatory framework, Solvency II. With Solvency II, regulators aim to improve both risk measurement and capital planning in the insurance industry which hasn't undergone regulatory reform since 2006 when Solvency I was implemented. The regulation consists of three pillars: quantitative requirements, supervisory review and market disclosure.



Under Solvency II, Insurance companies will have to comply with minimum capital requirements and be required to calculate two solvency ratios. As well as disclosing capital and risk frameworks, they are also required to demonstrate how the regulations' principles are embedded into their business.

Insurance firms have the choice of two approaches:

- » The Standardised Approach which captures the risk profile of an average insurance company or
- » The Internal Model Approach which is tailored to the specific risk profile of their company. The Internal Model Approach offers incremental benefits in terms of capital allocation savings, competitiveness and robustness of risk management processes.

The objectives of Solvency II capital requirements include:

- » Reducing the risk of an insurer failing to meet claims
- » Reducing the risk of policy holders incurring losses in the event of a firm being unable to meet claims
- » Providing better information and oversight to the regulatory bodies
- » Increasing confidence in the insurance sector

How does Solvency II differ from Basel II regulations?

Whilst the structure of the framework is very similar to that of Basel II regulations, Solvency II requirements are very specific to the Insurance industry.

The regulation covers five risks:

- » Investment Risk which includes **Credit Risk** and **Market Risk**
- » Underwriting Risk which includes **Insurance Risk** (Life, Health, Property & Casualty)
- » Non-financial Risk which includes **Operational Risk** and **Business Risk**

The above-mentioned risks are generally relevant to a given insurance company according to its business model. Insurance firms are usually involved in three types of business: life insurance, non-life insurance, and banks.

Impact for insurance firms

Firstly, due to the scale of the changes, planning and preparation are of paramount importance. Firms need to have the right resources in place to support and deliver the changes.

Secondly, Solvency II places demands on firms to improve their risk management and governance frameworks. This implies needs for enhanced enterprise technology architecture, data management processes, business intelligence and analytics capabilities.

Thirdly, firms will also need to report more information, more frequently.

Finally, according to the industry press, the IT challenge is even greater than it was for banks when implementing Basel II as most insurance companies currently rely on outdated IT infrastructures and systems, including multiple data sources.

Timeline

The European insurance regulator IEOPA requires fully compliance by its members by 2013. Timelines may vary across countries.

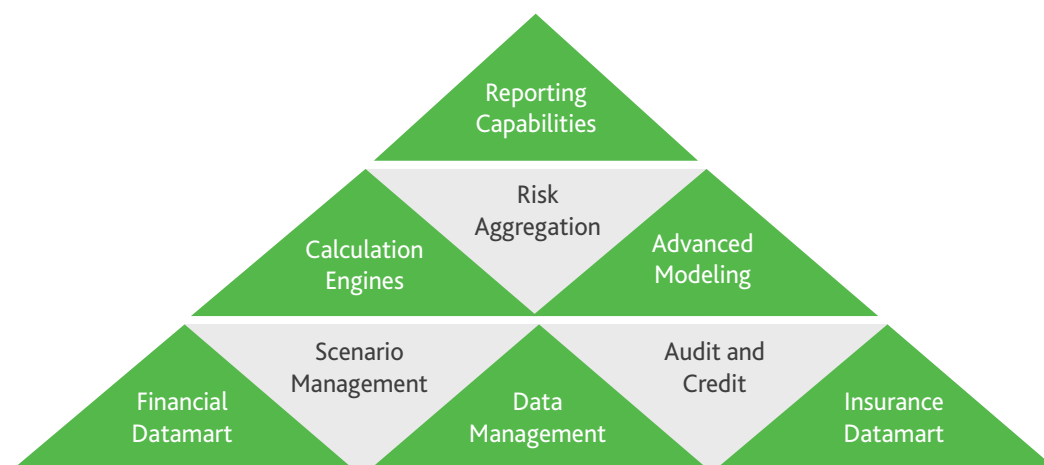
E.U.	Mexico*	Australia*	Israel*	U.S.*	UK	South Africa*	Japan*	China*
2013	2011	2012	2012	2013 (est.)	2013	2014	2015	2015

* Countries implementing a similar regulation to Solvency II according to their own timeline

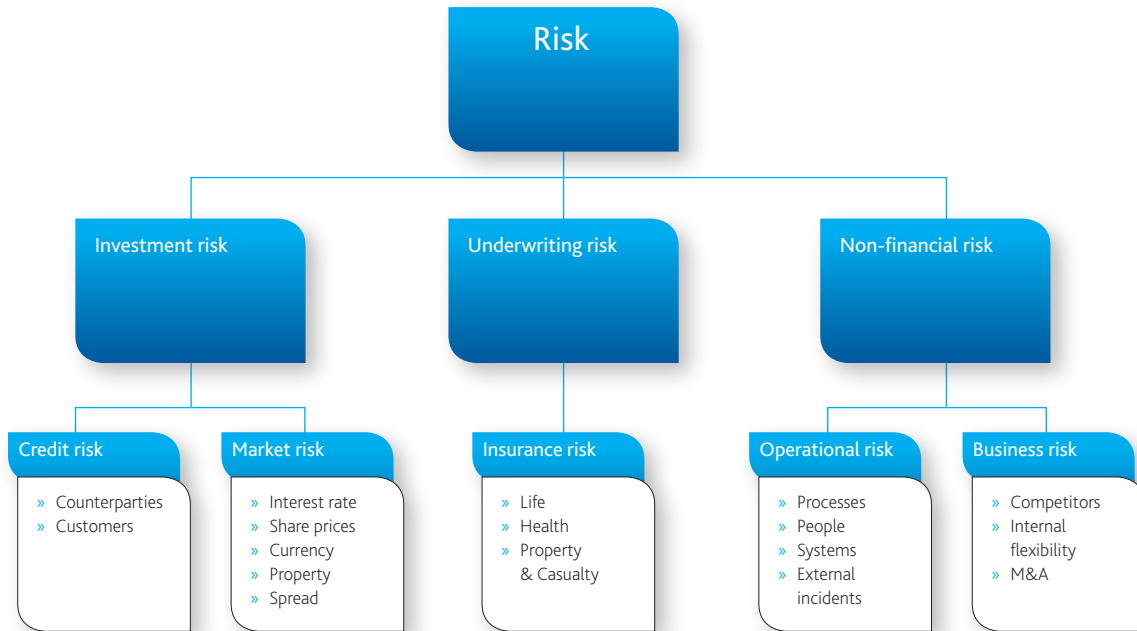
References you can leverage

BNP Paribas Assurance in France (2010) and AXA MPS in Italy (2010) are customers of Fermat Solvency II.

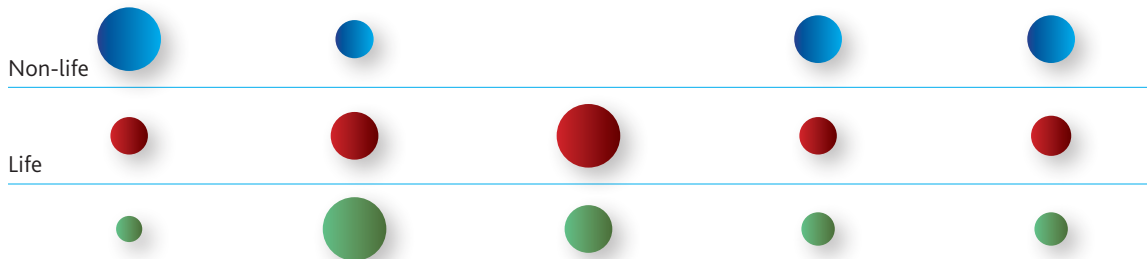
Best-in-class risk management approach



The significance of risks for insurers



Banking



Dodd-Frank Act: regulations overview



The Dodd-Frank Act, passed in July 2010, forms the basis of the U.S. government regulatory response to the financial crisis. Many consider it one of the most sweeping overhaul of financial regulation in the recent U.S. history. More formally known as the Dodd-Frank Wall Street Reform and Consumer Protection Act, it attempts to fix many of the perceived short-comings of the U.S. financial system and its regulatory regime that came to light during the financial crisis.

The law aims to address the following issues:

- » More stringent capital adequacy requirements for banks and bank holding companies
- » Enhanced prudential supervision regulations, especially for systemically important financial institutions (SIFIs)
- » Reform of the credit rating agencies
- » Reform of the regulatory bodies
- » Regulations on securitization activities
- » Creation of new consumer protection bureau
- » Regulations on OTC derivatives
- » Regulation of municipal advisors
- » Limitations on proprietary trading
- » Corporate governance and executive compensation

How does Dodd Frank differs from Basel regulations?

Dodd-Frank differs from the Basel regulations in both applicability and scope. First, it only applies to U.S. institutions and not to the foreign institutions unless they conduct business in the U.S.

Second, while the Basel regulations are focused on banks, Dodd-Frank covers not only banks but almost all other types of financial institutions such as asset managers, insurance companies (etc...) as well as credit rating agencies.

At the same time, there is overlap between the two regulations that would require the regulators to reconcile them while implementing. For example, since both Dodd-Frank and Basel have regulations regarding bank capital adequacy, the regulators will need to be consistent in their requirements to U.S. banks. One approach might be to require banks to comply with the most stringent of the two rules.

Which institutions are impacted by the new law?

As mentioned above, Dodd-Frank provides regulations that affect all types of financial institutions including banks as long as the U.S. regulators have jurisdiction over them, meaning they are either U.S. companies or have operations in the U.S. Each provision within Dodd-Frank has its own definitions and rules as to whom it applies.

Regarding its capital adequacy and enhanced prudential supervision regulations, however, one can make some generalizations. These rules generally do not apply to banks and bank holding companies with assets less than \$500 million. Nor do they apply to any non-bank financial companies with assets less than \$10 billion. Also, there are some special rules that apply only to systemically important financial institutions. Banks and bank holding companies are deemed to be systemically important if they have assets over \$50 billion. Non-bank financial companies fall under this category only if they are specifically named by the newly created Financial Stability Oversight Council which has not yet named these companies as of this writing.

Dodd-Frank Act: minimum capital requirements

The Dodd-Frank Act requires banking regulators to revise and/or establish the minimum leverage and risk-based capital requirements for bank holding companies and systemically important nonbank finance companies. These groups will now have to comply with the standards that are already in place for banks. In the future, new standards for risk based capital and leverage ratio cannot be set any lower than the requirements that were in force in July 2010 when the Dodd-Frank Act was passed.

At present the requirements are categorized as 'well capitalized' and 'adequately capitalized'. Banks which conduct plain vanilla banking activities only need to be classified as 'adequately capitalized' while banks which engage in more complex activities such as securities trading need to be 'well capitalized' to reflect the additional risk undertaken.

		To be considered 'well capitalized'	To be considered 'adequately capitalized'
Minimum risk-based capital ratios	Tier 1 capital ratio	6%	4%
	Total capital ratio	10%	8%
Minimum leverage ratio		5%	4%

As well as increasing the amount of capital held, the Dodd-Frank Act also aims to increase the quality. Hybrid capital and Trust Preferred Securities are eliminated from Tier 1 capital.

The formula for risk-based capital requirement must include:

$$\text{Capital Adequacy Ratio} = \frac{\text{Regulatory Capital}}{\text{Risk Weighted Assets}}$$

Formula for leverage requirements must include:

$$\text{Leverage Ratio} = \frac{\text{Regulatory Capital}}{\text{Average Total Assets}}$$

The Dodd-Frank Act has a lot in common with the capital and leverage requirements outlined in Basel III as they seek to address similar risks and counter similar deficiencies exposed in the financial crisis. The U.S. has signed up to Basel III despite not fully adopting Basel II. However, with regard to minimum capital requirements, Dodd-Frank minimum ratios would take precedent over those in Basel III or any future Basel regulation.

Regulations must be issued no later than January 2012. There are phase ins and grandfathering for the exclusion from Tier 1 capital for hybrid debt or equity instruments issued before May 19, 2010.

Dodd-Frank Act: enhanced prudential supervision for systemic risk

Enhanced prudential supervision for systemic risk is a key outcome of the Dodd-Frank Act. Regulation is defined for systemically important bank holding companies (those with assets in excess of \$50bn) and systemically important nonbank finance companies (criteria to be defined) in order to address risk to the financial stability of the US posed by this category of institutions.

The regulation includes:

- » Inclusion of off-balance sheet activities in computing capital requirements
- » Limits on credit exposure to non-affiliates - the regulation prohibits credit exposure to any unaffiliated company that exceeds 25% of the capital stock. Reports must be submitted to the Fed, Council and FDIC detailing credit exposure to other "significant" nonbank financial companies and "significant" bank holding companies
- » Living wills (resolution plans) including details of ownership structure, assets, liabilities, contractual obligations, affiliates and counterparties
- » Significant counter-party credit exposure reports
- » Enhanced public disclosures
- » Short-term debt limits
- » Annual stress testing by Federal Reserve and semi-annual internal stress testing. In addition institutions with assets in excess of \$10bn must conduct internal annual stress tests
- » Risk committees must be established for bank holding companies with assets in excess of \$10bn
- » Early Remediation – remedial actions can be taken by the Fed if a company is in financial distress. These will increase in strength if the company's financial condition deteriorates. They are intended to minimize the possibility insolvency.

Financial institutions impacted by this law

- » Banks and bank holding companies with assets over \$50bn and systemically important nonbank finance companies
- » For risk committees, bank holding companies with assets over \$10bn
- » For stress testing, banks and bank holding companies with assets over \$10bn and nonbank finance companies with assets over \$10bn

Dodd-Frank Act: changes in the use of credit ratings?

The Dodd-Frank Act (DFA) contains many provisions aimed at credit rating agencies as regulators attempt to address the perceived shortcomings of credit ratings to accurately reflect the riskiness of complex structured products during the financial crisis. The provisions address various aspects of the governance, procedures, methodologies, management of conflict of interest and legal liability of credit rating agencies.

One of the most relevant provisions is the DFA's requirement that the U.S. regulators reduce their reliance on credit ratings. Specifically, DFA requires that certain statutory references to credit ratings be removed and that regulations be modified to remove references to or reliance upon credit ratings while substituting an alternative standard for creditworthiness.

Selected current use of credit ratings by the U.S. regulators

Regulator	Use of credit ratings	Affected institutions
SEC	Minimum quality investment standards for money market funds (Regulation 2(a)-7)	Money market funds
SEC	Net capital requirements for broker-dealers including OTC derivative dealers	Broker-dealers
Banking agencies	Risk-based capital adequacy guidelines (Basel I). The use of ratings is mostly on computing risk weights for off balance sheet items.	All banks other than those subject to Basel II and/or the Market Risk Amendment
Banking agencies	Market risk capital guidelines (Market Risk Amendment)	Banks with trading assets and liabilities in excess of 10% of total assets or \$1 billion
Banking agencies	Risk-based capital adequacy guidelines for Basel II advanced approaches	11 core banks and opt in banks

Timeline

The timelines appear to be very aggressive given the complexity involved in weaning the entire regulatory system off of the credit ratings. Moreover, there is significant industry (banks and asset managers) and even regulatory push back against the rule. As of this writing, it is not at all clear when and how the regulators plan to remove ratings from their regulations. One potential outcome may be the watering down of the provision to permit or require alternative standards of credit measures in addition to credit ratings. Most of the references to credit ratings are in the regulations.

Removal of references from regulations*	July, 2011
Removal of statutory references	July, 2012

The timelines appear to be very aggressive given the complexity involved in weaning the entire regulatory system off of the credit ratings. Moreover, there is significant industry (banks and asset managers) and even regulatory push back against the rule. As of this writing, it is not at all clear when and how the regulators plan to remove ratings from their regulations. One potential outcome may be the watering down of the provision to permit or require alternative standards of credit measures in addition to credit ratings.

*Most of the references to credit ratings are in the regulations.

Dodd-Frank Act: reform of regulatory bodies

The Dodd-Frank Act (DFA) created several new regulatory agencies, shifted responsibilities among many existing agencies and eliminated the Office of Thrift Supervision. As a result, many financial institutions will be regulated by new regulators and the related, presumably more stringent, regulations

The Financial Stability Oversight Council (FSOC) is one of the newly created regulators is the FSOC, composed of 15 council members from various regulating agencies, which reflects the desire to enhance the oversight of the financial system as a whole and to guard against the kinds of systemic risks of the recent crisis . The FSOC acts through another newly created agency, the OFR, to gather the necessary information and perform analysis to monitor risks in firms and markets.

The Office of Thrift Supervision (OTS) is eliminated and thrifts will be regulated by other banking agencies. This is because the OTS is being held responsible for several large bank failures such as Countrywide, Indymac and WaMu during the financial crisis.

The thrifts will be regulated by the Federal Reserve, OCC or FDIC depending on their charter as follows:

Charter	New regulator
Thrift holding companies	Federal Reserve
Federal thrifts	OCC
State thrifts	FDIC

Timeline

FSOC / OFR	Although there are no specific deadlines for the OFR with respect to its information gathering requirements, most of the rules regarding the oversight of systemically important financial institutions under the DFA must be in place by December 2011
Office of Thrift Supervision Transition	Transfer of power from the OTC to the FRB, OCC and FDIC must occur by July 2011 (may be extended to December 2011)

