INTRODUCTION TO BANKING

THIRD EDITION

BARBARA CASU
CLAUDIA GIRARDONE
PHILIP MOLYNEUX

Pearson

Introduction to Banking

Table 7.9 Components of regulatory capital

Tier 1	Common equity Tier 1 (CET1)	Sum of common shares (equivalent for non-joint stock companies) and stock surplus, retained earnings, other comprehensive income, qualifying minority interest and regulatory adjustments	CET1 $>$ 4.5%
	Additional Tier 1 (AT1)	Sum of capital instruments meeting the criteria for AT1 and related surplus, additional qualifying minority interest and regulatory adjustments	CET1 + AT1 $>$ 6%
Tier 2		Sum of capital instruments meeting the criteria for Tier 2 and related surplus, additional qualifying minority interests, qualifying loan loss provisions and regulatory adjustments	CET1 + AT1 + Tier 2 $>$ 8%

Basel III reforms have been integrated into the consolidated Basel Framework, which comprises all of the current and forthcoming standards of the Basel Committee on Banking Supervision.

7.11.2 Basel III liquidity standards

The introduction of liquidity ratios is one of the main innovations of Basel III. Specifically, the new regulations propose a liquidity coverage ratio (LCR) and a net stable funding ratio (NSFR).

Liquidity coverage ratio (LCR)

The LCR is designed to ensure that sufficient **high-quality liquid assets** (HQLA) are available for one-month survival in case of a stress scenario. HQLA are defined as cash or assets that can be converted into cash at little or no loss of value in private markets to meet a bank's liquidity needs for a 30 calendar day liquidity stress scenario.

The LCR has two components: (a) the value of the stock of HQLA and (b) the total net outflows, and it is expressed as:

$$LCR = \frac{Stock\ of\ HQLA}{Total\ net\ outflows\ over\ the\ next\ 30\ calendar\ days} \geq 100\%$$

In order to qualify as HQLA, assets should be liquid in markets during a time of stress and, ideally, be central bank eligible. Assets are considered to be HQLA if they can be easily and immediately converted into cash at little or no loss of value. The liquidity of an asset depends on the underlying stress scenario, the volume to be monetised and the timeframe considered (BCBS, 2019c). According to the BIS definition, HQLA comprise Level 1 and Level 2 assets.[9] Level 1 assets are typically of the highest quality and the most liquid, and generally include cash, central bank reserves and certain marketable securities-backed by sovereigns and central banks, among others. Level 2 assets are comprised of certain government securities,

[8] The EU text was formally published in the Official Journal of the EU on 27 June 2013 (note that the Regulation has also been subject to a subsequent corrigendum). The majority of the rules contained in the legislation are applicable from 1 January 2014.

covered bonds and corporate debt securities. Level 2 assets may also include lower-rated corporate bonds, residential mortgage-backed securities and equities that meet certain conditions (these latter are known as Level 2B assets). Level 2 assets may not in aggregate account for more than 40 per cent of a bank's stock of HQLA. Level 2B assets may not account for more than 15 per cent of a bank's total stock of HQLA.

The total net outflows (over the next 30 days) are defined as:

$$\text{Total net cash outflows} = \text{Total expected cash outflows} - \text{Min (total expected cash inflows; 75 per cent of total expected cash outflows)}$$

The Basel III standard requires that, in normal conditions, the value of the LCR be no lower than 100% (that is, the stock of HQLA should at least equal total net cash outflows). During periods of financial stress, however, banks may use their stock of HQLA, thereby temporarily falling below 100 per cent.

The net stable funding ratio (NSFR)

The NSFR is designed to promote resiliency over longer-term time horizons by creating additional incentives for banks to fund their activities with more stable sources of funding on an ongoing structural basis. In addition, the NSFR aims to limit over-reliance on short-term wholesale funding during times of buoyant market liquidity and encourage better assessment of liquidity risk across all on- and off-balance-sheet items.

The NSFR is expressed as a ratio that must equal or exceed 100 per cent. More specifically, the NSFR is the ratio between the amount of available stable funding (ASF) relative to the amount of required stable funding (RSF):

$$\text{NFSR} = \text{ASF}/\text{RSF}$$

The ASF comprises weighted liabilities reflecting their contractual maturity and is defined as the portion of capital and liabilities expected to be a reliable source of funding over the one-year time horizon considered by the NSFR. The broad characteristics of an institution's funding sources, and their assumed degree of stability are the basis for determining ASF. ASF factors range from 100 per cent – meaning that the funding is expected to be still fully available in more than a year – to 0 per cent – reflecting that funding from this source is unreliable. The RSF of a specific bank is a function of the liquidity characteristics and residual maturities of the various assets held by that institution as well as those of its OBS exposures (BCBS, 2014). These range from 100 per cent to 0 per cent. An RSF factor of 100 per cent means that the asset or exposure needs to be entirely financed by stable funding because it is illiquid. However, an RSF factor of 0 per cent applies to fully liquid and unencumbered assets. The ASF and RSF are calibrated to reflect the presumed degree of stability of a bank's liabilities and liquidity of a bank's assets. The weights for assets and liabilities range from 0 per cent to 100 per cent; these are primarily the result of internationally agreed definitions and calibrations. For example, the NSFR is generally calibrated such that longer-term liabilities are assumed to be more stable than short-term liabilities and that short-term retail deposits are more stable than wholesale funding of the same maturity from other counterparties.

The NSFR became a minimum standard applicable to all internationally active banks on a consolidated basis on 1 January 2018, although national supervisors may also apply it to

[9] The updated definitions of HQLA and LCR can be found in BCBS (2019c) 'LCR liquidity coverage ratio LCR30: High-quality liquid assets', Version effective as of 15 December 2019.

any subset of entities of large internationally active banks or to all other banks (BIS, 2018). Banks must meet the NSFR requirement on an ongoing basis and report on a quarterly basis. Because of its impact on maturity transformation, and since its implementation may have unintended consequences, the NSFR is subject to an observation period which started in 2011. Following this agreement, there has been some discussion – both among policy makers and academics – on whether the two requirements are indeed complementary, and whether both of them are needed to ensure sound liquidity profiles and management (Cecchetti and Kashyap, 2018; Behn *et al*., 2019).

7.11.3 Basel III leverage ratio

In addition to the solvency ratio, Basel III introduced a 'simple, transparent, non-risk-based' leverage ratio. This measure intends to restrict the build-up of leverage in the banking sector and reinforce the risk-based requirements with a simple, non-risk-based 'backstop' measure (BIS, 2017). The main theoretical justification for the leverage ratio lies in the fact that risk-based ratios cannot completely prevent the undervaluation of certain risks in the denominator. It must be noted that the leverage ratio remains controversial and there remains ambiguity about certain aspects of the exact mechanics. According to the BIS, a leverage ratio is intended to:

- restrict the build-up of leverage in the banking sector to avoid destabilising deleveraging processes that can damage the broader financial system and the economy; and
- reinforce the risk-based requirements with a simple, non-risk-based 'backstop' measure.

The Basel Committee is of the view that a simple leverage ratio framework is critical and complementary to the risk-based capital framework and that a credible leverage ratio is one that ensures broad and adequate capture of both the on- and off-balance-sheet leverage of banks. The proposed leverage ratio, expressed as a percentage, is defined as:

$$\text{Leverage ratio} = \frac{\text{Capital measure}}{\text{Exposure measure}}$$

The capital measure is the Tier 1 capital as defined by Basel III. The exposure measure, in addition to on-balance-sheet exposures; will consider derivative exposures, securities financing transaction (SFT) exposures and other off-balance-sheet exposures. The minimum requirement is set at 3 per cent, where it will remain until the BCBS finalises the calibration and makes any necessary adjustments to the definition of the exposure measure. The related public disclosure requirements have been in effect since 1 January 2015.

7.11.4 Basel III and G-SIFIs

The Basel III regulations affect all banks; however, the impact may differ across bank type and size. Most banks will be impacted by the increase in quantity and quality of capital, liquidity and leverage ratios, amended Pillar 2 and capital preservation. The more sophisticated banks will be affected by the amended treatment of counterparty credit risk, more robust market risk framework and, to some extent, the amended treatment of securitisations. **Systemically important financial institutions (SIFIs)** and global systemically important financial institutions (**G-SIFIs**) will have to cope with higher capital requirements or be subject to additional

supervision. The terms SIFI, G-SIFI and **G-SIBs** (global systemically important banks) are used to define banks or financial institutions that are deemed too big to fail. The Financial Stability Board has provided a tentative definition as well as a list of the financial institutions considered SIFIs.

G-SIFIs are defined as:

> Financial institutions whose distress or disorderly failure, because of their size, complexity and systemic interconnectedness, would cause significant disruption to the wider financial system and economic activity. To avoid this outcome, authorities have all too frequently had no choice but to forestall the failure of such institutions through public solvency support. As underscored by this crisis, this has deleterious consequences for private incentives and for public finances.
>
> (Financial Stability Board, 2011b)

The FSB and BCBS identified an initial group of 29 G-SIBs in 2011 (Financial Stability Board, 2011b). The bucket approach was updated by the Basel Committee document 'Global systemically important banks: Updated assessment methodology and the higher loss absorbency requirement' in 2013. The additional loss-absorbency requirements will initially apply to those banks identified in November 2014 as globally systemically important by the FSB using the BCBS methodology. The methodology used to define the buckets is based on an 'indicator-based' measurement approach. The selected indicators (which include the size of banks, their interconnectdness, lack of readily available substitutes or financial institution infrastructure for the services they provide, their global (cross-border) activity and their complexity) are chosen to reflect the different aspects of what generates negative externalities and makes a bank critical for the stability of the financial system.

In July 2018, the BCBS published a revised version of its assessment methodology, replacing the July 2013 version. The revised assessment methodology will take effect in 2022, and the resulting higher capital buffer requirement will be applied in January 2024.[10] The group of G-SIFIs is updated annually and published by the FSB each November – Table 7.8 illustrates the 2012 and 2020 list. There are a few changes from the original list: compared with the initial group of G-SIBs published, EU banks have either moved to a lower bucket or have been removed from the list. Meanwhile, Chinese banks have either moved to a higher bucket or joined the G-SIB list in more recent years, together with the two largest Canadian banks (Royal Bank of Canada and Toronto Dominion). No bank was allocated to the first two buckets in 2020. The changes in the allocation of the institutions to buckets reflect the effects of changes in underlying activity of banks.

The G-SIBs are subject to more intensive supervision, including stronger supervisory mandates, resources and powers, and higher supervisory expectations for risk management functions, data aggregation capabilities, risk governance and internal controls. Capital requirements for G-SIFIs and G-SIBs will need to have additional loss-absorption capacity tailored to the impact of their default, rising from 1 per cent to 2.5 per cent of risk-weighted assets (with an empty bucket of 3.5 per cent to discourage, in the words of the FSB, further '*systemicness*' which is how much the failure of one bank can impact on the rest of the financial system), to be met with common equity.

[10] Details of the indicator-based measurement approach can be found in BCBS (2011c) 'Global systemically important banks: Assessment methodology and the additional loss absorbency requirement'. The revised framework can be found in BCBS (2018b) 'Global systemically important banks: Revised assessment methodology and higher loss absorbency requirement'.

Table 7.10 G-SIBs and additional capital requirements

Bucket		G-SIBs in alphabetical order within each bucket	
		2012	2020
5	3.50%	(empty)	(empty)
4	2.50%	Citigroup Deutsche Bank HSBC JPMorgan Chase	(empty)
3	2.00%	Barclays BNP Paribas	Citigroup HSBC JPMorgan Chase
2	1.50%	Bank of America Bank of New York Mellon Credit Suisse Goldman Sachs Mitsubishi UFJ FG Morgan Stanley Royal Bank of Scotland UBS	Bank of America Bank of China Barclays BNP Paribas China Construction Bank Deutsche Bank Industrial and Commercial Bank of China Limited Mitsubishi UFJ FG
1	1.00%	Bank of China BBVA Groupe BPCE Group Crédit Agricole ING Bank Mizuho FG Nordea Santander Société Générale Standard Chartered State Street Sumitomo Mitsui FG Unicredit Group Wells Fargo	Agricultural Bank of China Bank of New York Mellon Credit Suisse Goldman Sachs Groupe BPCE Group Credit Agricole ING Bank Mizuho FG Morgan Stanley Royal Bank of Canada Santander Société Générale Standard Chartered State Street Sumitomo Mitsui FG Toronto Dominion UBS Unicredit Group Wells Fargo

FSB member authorities apply the following requirements to G-SIBs:

- *Higher capital buffer*: since the November 2012 update, G-SIBs have been allocated to buckets corresponding to higher capital buffers than they are required to hold by national authorities in accordance with international standards.
- *Total Loss-Absorbing Capacity (TLAC)*: G-SIBs are required to meet the TLAC standard, alongside the regulatory capital requirements set out in the Basel III framework. The TLAC standard has begun being phased-in from 1 January 2019 for G-SIBs identified in the 2015 list that continued to be designated as G-SIBs.
- *Resolvability*: these include group-wide resolution planning and regular resolvability assessments. The resolvability of each G-SIB is also reviewed in a high-level FSB

resolvability assessment process (RAP) by senior regulators within the firms' crisis management groups.

- *Higher supervisory expectations*: these include supervisory expectations for risk management functions, risk data aggregation capabilities, risk governance and internal controls.

7.12 Finalising Basel III

In December 2017, the BCBS published the final instalments of its reforms for the calculation of risk-weighted assets (RWA) and capital floors. While Basel III focused on the reform of regulatory capital, Basel IV changes the approaches for the calculation of RWA, regardless of risk type and irrespective of whether standardised approaches or internal models are used. The 2017 reforms aim to restore credibility in the calculation of RWA and improve the comparability of banks' capital ratios (BIS, 2017). According to the BIS, the reforms were necessary to address any remaining weaknesses in the regulatory framework and increase its credibility. They should also allow for the use of internal models while minimising regulatory arbitrage. The reforms introduce constraints on the estimates banks make when they use their internal models for regulatory capital purposes and, in some cases, remove the use of internal models. The 2017 reforms also introduce a streamlined treatment of operational risk, replacing the existing four approaches with a single standardised approach. Finally, the 2017 reforms introduce a leverage ratio surcharge for the largest banks (G-SIBs), set at 50 per cent of their risk-based capital buffer. For example, a bank with a 2 per cent risk-based buffer will have a 1 per cent leverage ratio buffer and therefore it will be expected to maintain a leverage ratio of at least 4 per cent. The BIS argues that the leverage ratio buffer is necessary to make sure that the leverage ratio continues to act as an appropriate backstop to the risk-based requirements for G-SIBs. The implementation of the next-generation of reforms creates a remarkable challenge for the banking sector, but banks will have some time to

Table 7.11 Finalising Basel III: a roadmap

2017 reforms	Implementation date
Revised standardised approach for credit risk	1 January 2022
Revised internal ratings-based framework for credit risk	1 January 2022
Revised credit-valuation adjustment framework	1 January 2022
Revised operational risk framework	1 January 2022
Revised market risk framework	1 January 2022
Leverage ratio	Revised exposure definition: 1 January 2022
	G-SIBs buffer: 1 January 2022
Output floor	1 January 2022: 50%
	1 January 2023: 55%
	1 January 2024: 60%
	1 January 2025: 65%
	1 January 2026: 70%
	1 January 2027: 72.5% (steady-state calibration)