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Risk Regulation and Basel III

A Practical Survey

FitchLearning

Agenda

- Definition of capital
- Evolution of Basel
- Basel III and market risk
  - Key provisions

Pre-Basel

Credit Risk

In 1974, G10 central bank governors created a forum to discuss and coordinate best practice in the **risk management and supervision of banks**.

The Bank for International Settlements (BIS) in Basel offered premises and facilities, hence the **Basel Committee on Banking Supervision (BCBS)** was set up.

Pre-1988, there were no minimal capital standards for banks which meant that capital losses arising from activities put deposit holders at risk.

In theory (if a bank had no capital at all), this could have happened:

- Bank borrows £100m from depositors
- Bank lends £100m to non-residential mortgage borrowers
- Common equity/Subordinated debt = 0
- Any mortgage losses beyond the extra interest charged (credit spread) would hit the depositors directly

What is Capital?

Capital is a (fairly) permanent source of funding for the bank which it can use to fund it's activities.

It also serves as primary **loss of absorbing capacity** in order to protect more senior liabilities which are **not classified as capital**, such as:

- Deposits
- Senior debt
- OTC derivative losses

Capital is ranked into Tier 1 and Tier 2 where the highest quality of capital – Core Tier 1 – has the following features:

- Perpetual
- Lowest ranked/First loss
- Non-contractual distributions (interest/dividends)

Therefore, **common equity is the highest quality** form of capital that exists.

Basel I

The original Basel accord (Basel I) was developed in 1988

- Focusing on **credit risk** and implemented in 1992
- Later amended in 1996 to consider **market risk**, implemented Jan 1998

This introduced the **total capital ratio of 8% (Cooke ratio)** where banks had to hold at least this amount of capital against their **Risk Weighted Assets (RWA)**.

The effect:

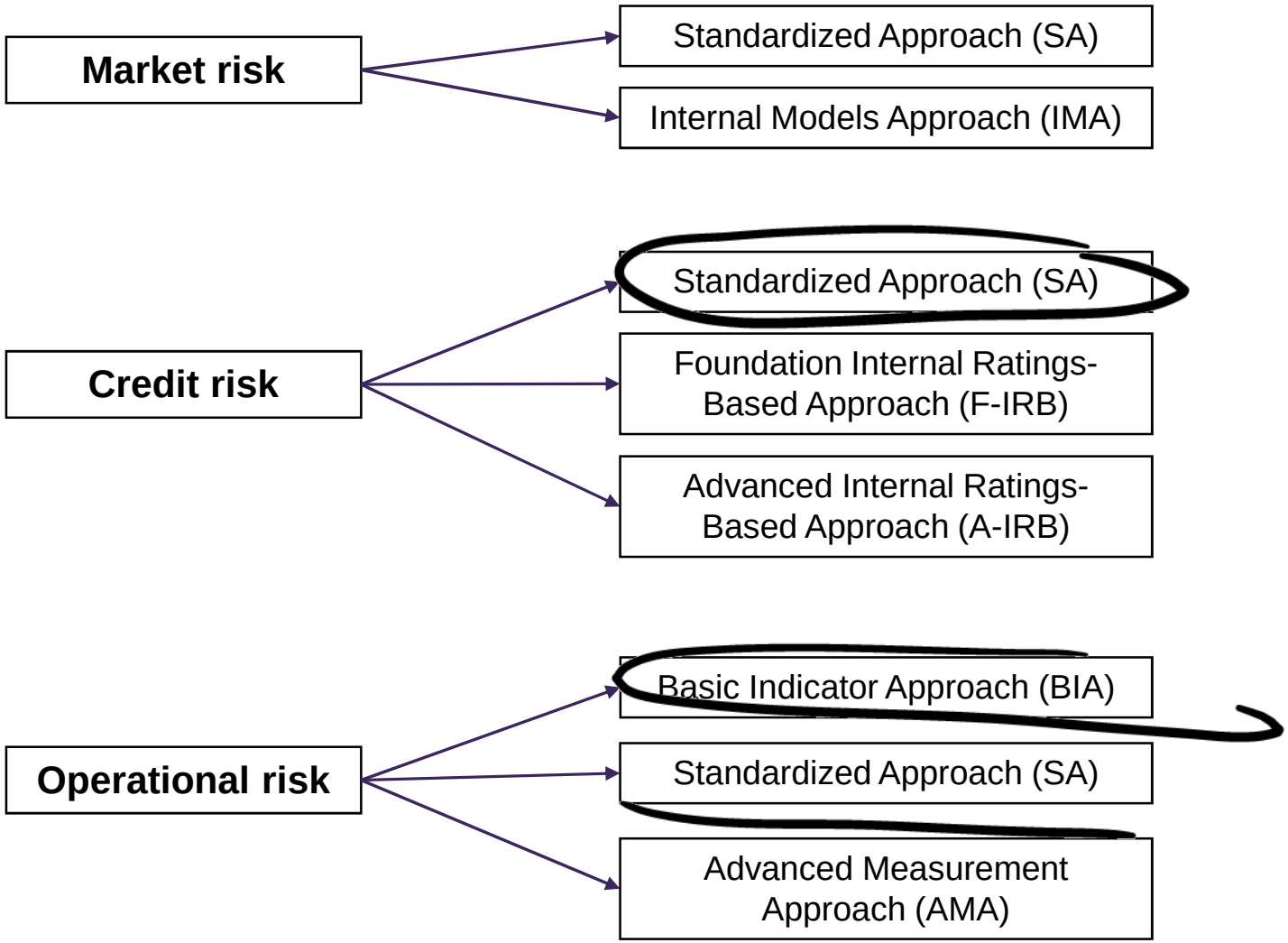
- Basel told banks to hold at least £8m in capital against these mortgages
- Bank borrows £100m from depositors
- Bank lends £100m to non-residential mortgage borrowers (100% risk weighting)
- **Common equity/Subordinated debt = £8m which it holds in cash (0% risk weighting)**
- Bank takes the first 8% in losses before depositors are affected

The **BCBS** itself has **no legal power** but makes recommendations which are implemented by **local regulators** (e.g. implemented in Europe by the **Capital Requirements Directive – CRD)**.

Basel II

- Basel II, **which improved the measurement of credit risk and included capture of operational risk**, was released in 2004 and was due to be implemented from year-end 2006. The implementation of Basel II was re-affirmed by the G20 Leaders, who committed to complete, where necessary, the adoption of Basel II by 2011.
- **Three pillars**
  - Pillar 1: Minimum capital requirements
    - Against credit risk, market risk and operational risk
  - Pillar 2: Supervisory review
  - Pillar 3: Market discipline
- Flexibility towards risk measurement through a **choice of approaches**:
  - Standard approaches – Easier to implement, but higher capital charge
  - Advanced approaches – Harder to implement but lower capital charge
- Emphasis on **internal processes** for managing and controlling risk
- Maintains the 8% total capital ratio (Cooke ratio) from Basel I: Total capital/total risk-weight assets for credit, market, operational risk

Risk Measurement Approaches



Minimum Regulatory Capital

Assets	Liabilities
Notes and coins	Deposits
Money markets funds	Sub-ord Debt ← Tier 2 capital
Securities (e.g. bonds)	Share capital ← Tier 1 capital
Loans	
Fixed assets	

Basel II capital: Example qualifying instruments/items

- **Tier 1** capital (core capital)
  - **Core Tier 1:** Paid-up share capital/common stock, disclosed reserves (e.g. retained earnings)
  - **Hybrid Tier 1:** Non-cumulative perpetual preference shares
- **Tier 2 capital** (supplementary capital)
  - Undisclosed reserves, asset revaluation reserves, general provisions/general loan-loss reserves, hybrid (debt/equity) capital instruments (e.g. redeemable cumulative preference shares and convertible bonds), subordinated debt
- **Note: Tier 3** capital (sub-supplementary capital) exists but can only be used against market risk.

Basel II Risk Weightings – Standardised Approach

Credit rating	Sovereigns	Banks	Corporates
AAA to AA-	0%	20%	20%
A+ to A-	20%	50%	50%
BBB+ to BBB-	50%	50%	100%
BB+ to B-	100%	100%	100%
Below B-	150%	150%	150%
Unrated	100%	50%	100%

- These are the risk weights used under Pillar 1 **standardized approach** whereby banks utilize **external credit ratings** from the likes of S&P
- The foundation and advanced **Internal Ratings Based (IRB) approaches** allow a more sophisticated bank to use their **own empirical models to estimate probability of default** (and uses VAR concepts) but can only be used with the approval of the local regulator

Note: NB. retail products (e.g. credit cards, loans, overdrafts) RW = 75%, residential mortgages RW = 35%, commercial real estate loans RW = 100%, overdue loans (>90 days) other than residential mortgages RW = 100%-150%, cash = 0%, other = 100%

8% of 90 = 7.2

Basel II Example

A bank has a balance sheet as represented below and wants to **calculate its ratios with respect to credit risk only under the standardized approach**:

Assets	$m	RW%	$RWA	Financing	$m
Cash	5	0	0	Deposits	94
T-bonds	5	0	0	Sub-ord. debt	5
Corp bond (BB-)	60	100	60	Common Stock	1
Corp loans (unrated)	30	100	30		
	100		90		100

$$\text{Total capital ratio} = \frac{6}{90} = 6.67\% \qquad \text{Tier 1 and core Tier 1 ratios} = \frac{1}{90} = 1.11\%$$

The BIS capital ratio may be expressed as:

$$\text{Capital ratio} = \frac{\text{Total capital}}{\text{Risk weighted assets}} \Rightarrow 8\%$$

In other words, at least 8% of the bank's capital (Tier 1 + Tier 2) must be kept in secure, safe, non-risky assets:

- Minimum **core Tier 1 capital (CT1)** ratio = 2%
- Minimum **Tier 1 capital** ratio = 4%
- Minimum **Total capital** ratio = 8%

This means that the ratios we just calculated in our example would put the bank in serious trouble. They would need to reduce RWA or raise Capital.

Banking Book vs. Trading Book

Trading book

An accounting book which contains assets with are authorized for active trading, e.g. equity inventory used by the flow desk.

Trading book positions should be frequently and accurately valued by marking the positions to market (**MTM**), i.e. accounted for at fair value.

Banking book

An accounting book which includes all other assets which are not actively traded by the bank, rather they are **held until maturity**, e.g. customer loans.

Usually accounted for on an **accruals basis** with provisions.

Basel 2.5/Basel II.5/Basel II-plus

Basel 2.5 was developed by BCBS in 2009 in response to the financial crisis. It was to be implemented no later than Dec 2011.

Switzerland

- FINMA (regulator) implemented early, in Jan 2011, for **Systematically Important Financial Institutions (SIFIs)**

European Union (NB includes UK)

- Implemented Dec 2011 via CRD3 (Basel III will be CRD4)

Though Basel 2.5 did not increase the capital ratio limits themselves, it roughly **tripled Market Risk RWAs for large banks** with trading divisions.

Main elements:

- Stressed VaR (SVaR)
- New standardized charges for securitization and re-securitization positions
- Incremental Risk Charge (IRC)
- Comprehensive Risk Measure (CRM)

Basel III Key Concepts

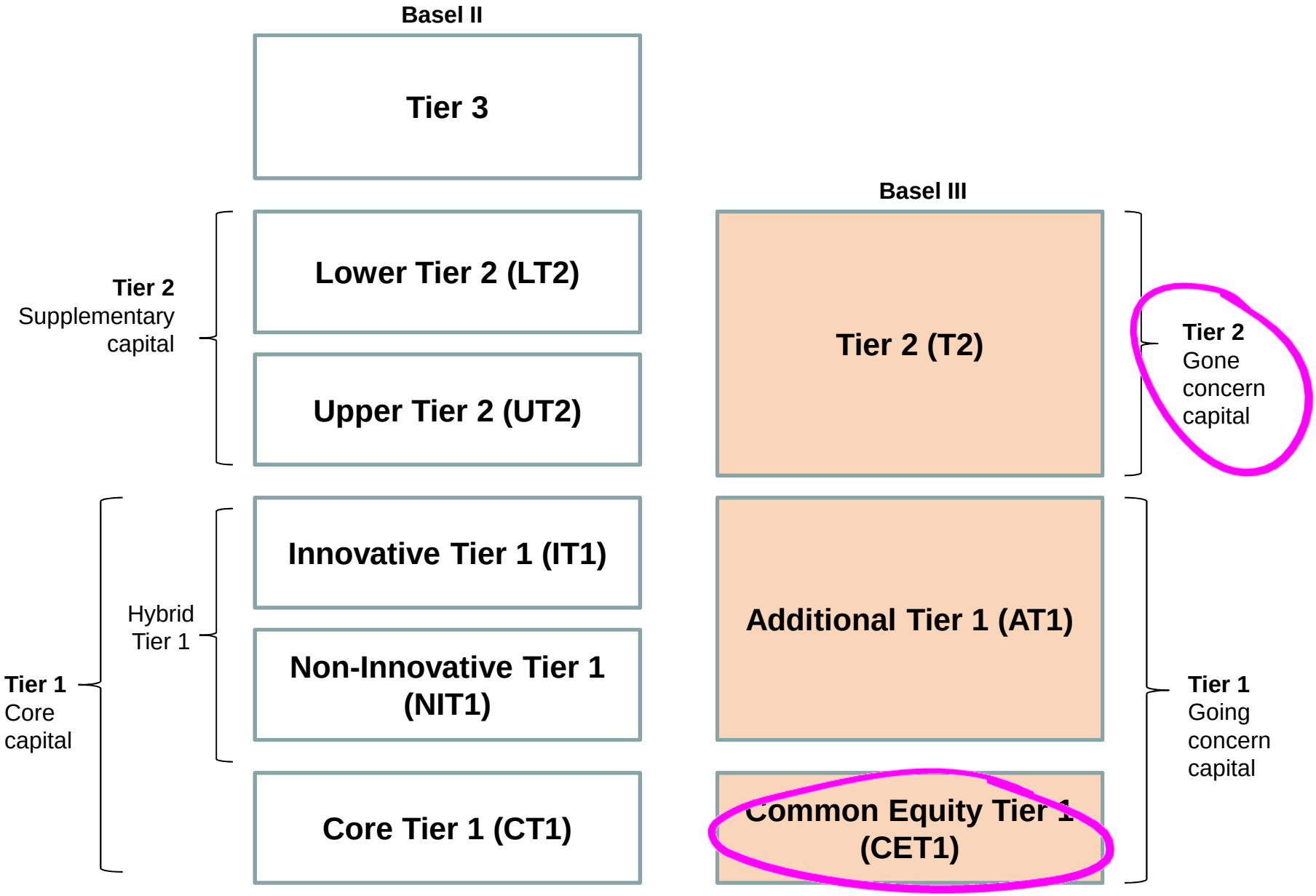
CREDIT SUISSE

Basel III: Capital

Basel III builds upon the regulatory framework adopted by Basel II and Basel 2.5, which now form integral parts of the Basel III framework.

- Quality and level of required capital increased
  - Tier 3 (softer forms of capital) eliminated, non-qualifying, non-core Tier 1 and 2 capital phased out over ten years
  - Greater focus on ordinary (common) equity, minimum to be raised to 4.5% of risk-weighted assets, after deductions
- Capital loss absorption at point of non-viability
  - Issuance of capital instruments that will be written off or converted to equity, contingent upon stressed scenarios, e.g. co-co bonds
- Capital conservation buffer
  - Additional 2.5% capital rule, bringing total to 7%
  - Allows supervisors to restrict bonus/dividend payments
- Countercyclical buffer
  - Range of 0-2.5%
  - Discretion by supervisors, to be imposed in case of excessive credit expansion

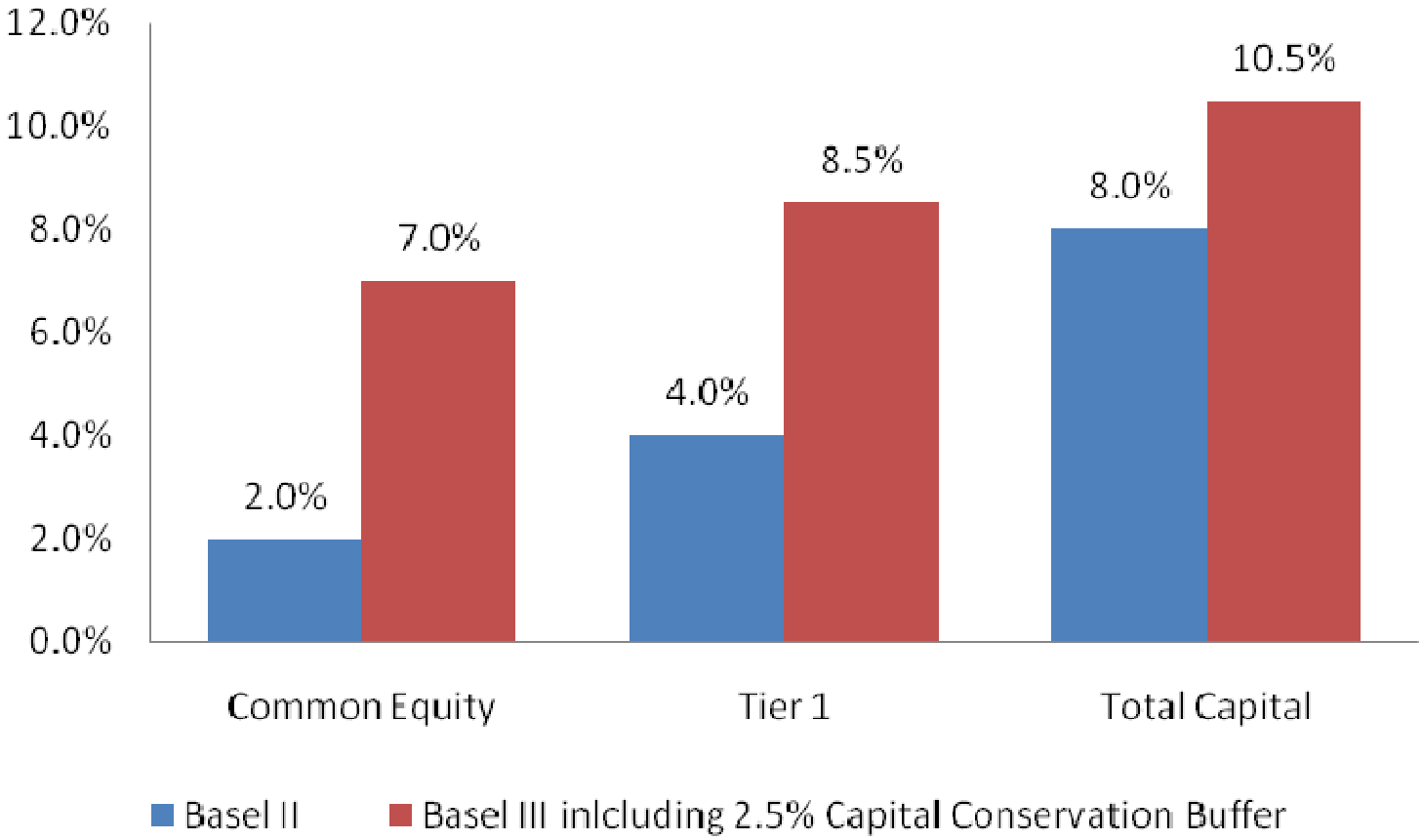
Changes in Capital Classification



Basel II vs. Basel III

Basel III will be **phased in between Jan 2013 and Jan 2019.**

Once Basel III has been fully implemented, banks will have to hold a lot more, higher quality, capital.



Basel III: Leverage

Accounting non-risk-based **Leverage Ratio (LR):**

$$LR = \frac{\text{Tier 1 capital}}{\text{Total exposure (on + off balance sheet)}} \geq 3\%$$

- **Objective:** Constrain the build up of excessive leverage in the banking system
- **Reported quarterly** as the simple average of each month in the quarter
- Tier 1 min 3% of un-weighted assets (therefore, max leverage = 33x)
- Off balance sheet items include future counterparty risk on OTC derivatives and credit commitments
- Being tested Jan 2013-Jan 2017, banks disclose figures from Jan 2015, **implementation Jan 2018**

Basel III: Global Liquidity Standards

Liquidity Coverage Ratio (LCR):

$$\text{LCR} = \frac{\text{Stock of high quality unencumbered liquid assets}}{\text{Total net cash flows due out over next 30 days}} \geq 100\%$$

- **Objective**: Ensure solvency during stressed environment
- **Reported monthly** (with the operational capacity to increase the frequency to weekly or even daily in stressed situations)
- High quality liquid assets include **cash and transferable assets of high liquidity and credit quality** which are not issued by the institution and which are listed on a recognized exchange
- Total net cash flows out are calculated under a **stress scenario**
- Minimum ratio of 60% **introduced Jan 2015,** rising by 10% per year to 100% by Jan 2019

Net Stable Funding Ratio (NSFR):

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

- **Objective**: Encourage longer term rather than shorter term funding
- **Reported quarterly** (at least)
- Available Stable Funding (ASF) = financing multiplied by an ASF factor. For example:
  - Equity and all borrowings > =1y = 100%
  - 'Stable' demand deposits <1y = 90%, where 'less stable' = 80%
  - Wholesale funding <1y = 50%
- Required Stable Funding (RSF) = assets multiplied by an RSF factor.

For example:

- Cash, interbank loans <1y, unencumbered securities <1y = 0%
- Unencumbered corporate bonds rated AA- of higher >=1y = 20%
- Gold, large cap equities = 50%
- Unencumbered retail/SME loans <1y = 85%, >=1y = 100%

- Minimum standard expected to apply from **Jan 2018**

Basel III: Phase In

(shading indicates transition periods - all dates are as of 1 January)

	2011	2012	2013	2014	2015	2016	2017	2018	As of 1 January 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 Ratio			3.5%	4.0%	4.5%	4.5%	4.5%	4.5%	4.5%
Capital Conservation Buffer						0.625%	1.25%	1.875%	2.50%
Minimum common equity plus capital conservation buffer			3.5%	4.0%	4.5%	5.125%	5.75%	6.375%	7.0%
Phase-in of deductions from CET1 (including amounts exceeding the limit for DTAs, MSRs and financials)				20%	40%	60%	80%	100%	100%
Minimum Tier 1 Capital			4.5%	5.5%	6.0%	6.0%	6.0%	6.0%	6.0%
Minimum Total Capital			8.0%	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%	9.25%	9.875%	10.5%
Capital instruments that no longer qualify as non-core Tier 1 capital or Tier 2 capital			Phased out over 10 year horizon beginning 2013						
Liquidity coverage ratio	Observation period begins				Introduce minimum standard				
Net stable funding ratio	Observation period begins							Introduce minimum standard	

Source: BIS

Leverage Ratio

Pillar 1

Minimum Standards of Adoption

Basel rules are only ever **minimum** standards. Regulators are free to adopt more conservative measures, and many do.

Switzerland

- By Jan 2019, FINMA requires SIFIs to raise:
  - Common equity + conservation buffer to 10% (higher than the 7% required)
  - Total capital to 19% (higher than the 10.5% required)

European Union (includes UK)

- By June 2012, European Banking Authority (EBA) requires European banks to raise:
  - Common equity + conservation buffer to 9% (higher than 7% required)
  - Tier 1 to 11% (higher than the 8.5% required)

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UK

The Independent Commission on Banking (ICB) proposed the 'Vickers Report' at its final report Sep 2011 and hopes it will be implemented latest Jan 2019:

- UK ring-fenced retail banks raise
  - Common equity + Buffer to 10%
    - 4.5% common equity + 2.5% conservation buffer + 3% ring-fence buffer
  - Total capital to 17%
    - Common equity + buffer + 1.5% additional Tier 1 + 2% additional Tier 2 + 3.5% bail-in bonds*
- UK G-Sib** investment banks raise
  - Common equity + buffer to 9.5%
    - 4.5% common equity + 2.5% conservation buffer + 2.5% G-Sib surcharge buffer
  - Total capital to 20%
    - Common equity + buffer + 1.5% additional Tier 1 + 2% additional Tier 2 + 4% bail-in bonds + 3% resolution buffer***

* Designed to combat 'Too Big to Fail', bail-in bonds are bonds where the investor is forced to share equity losses ('Burden share') in the event that the bank is otherwise going to need a bailout by tax payers.

**G-Sibs are Global Systemically Important Banks.

***Resolution buffer is held to cover the cost of orderly wind-down of a bank. The wind-down process is to be outlined in the bank's resolution plan (aka living will).