BFM — Module B

Regulation of Banking Industries

Necessities and Goals

BASEL III

Caiib updates → 8369494207

Why Regulation Matters

Regulations promote better definitions of risks and create incentives for developing improved methodologies for measuring those risks.

They form the backbone of a stable, trustworthy banking system.

Five Core Goals of Banking Regulation

Improving Safety

Imposing capital requirements aligned with bank risks

Levelling Competition

Setting common benchmarks for all players

Sound Practices

Promoting best business and supervisory standards

Systemic Risk Control

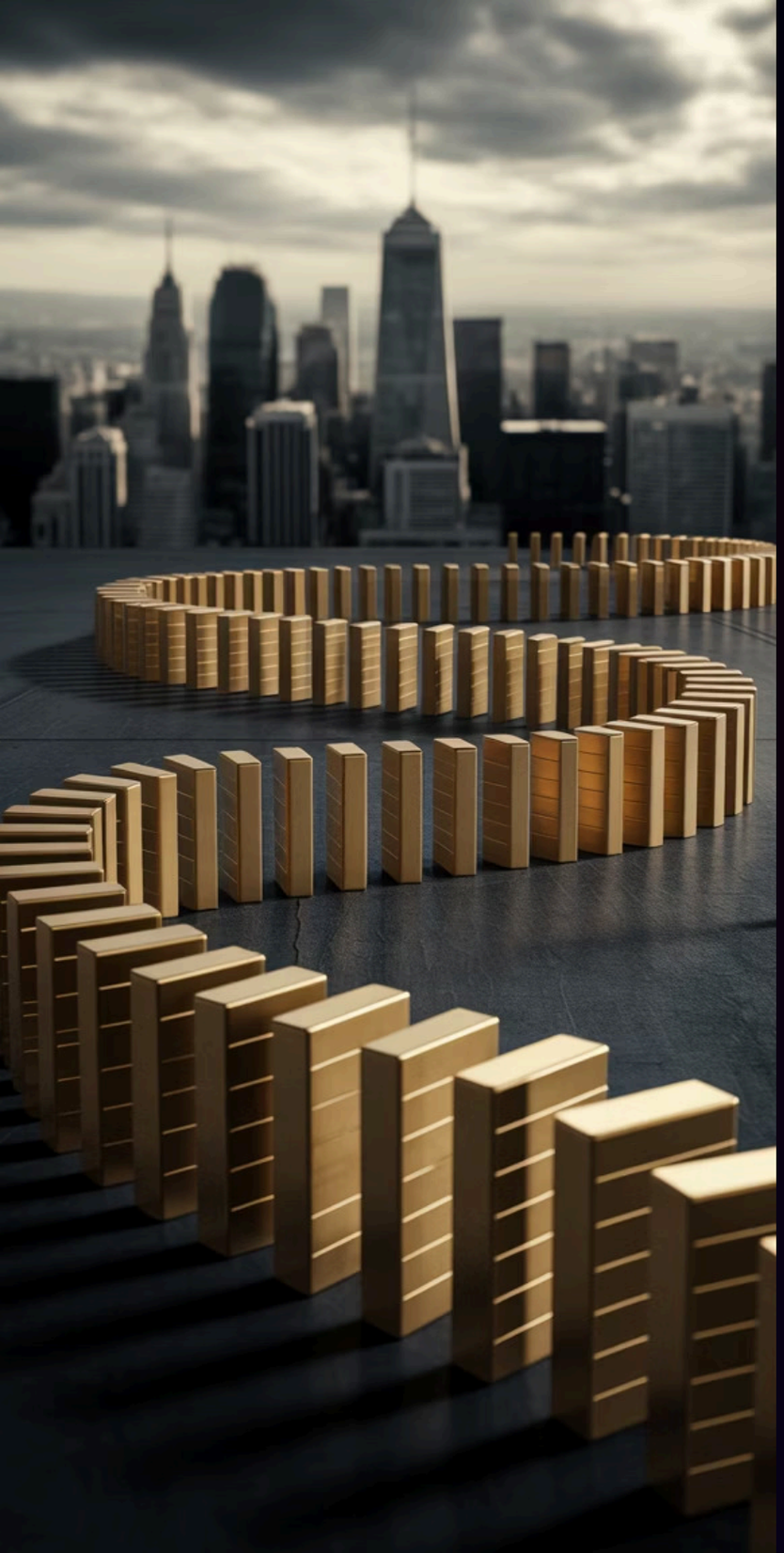
Monitoring interconnected banking failures

Depositor Protection

Safeguarding customer interests

Systemic Risk

The domino effect in banking



Understanding Systemic Risk

Systemic risk is the risk of failure of the entire banking system, not just individual institutions.

How Systemic Risk Develops

Interbank Relations

High interconnections through mutual lending and borrowing

Single Failure

One bank's collapse triggers ripple effects

Counterparty Risk

Receivables become unavailable, creating fund shortages

System Collapse

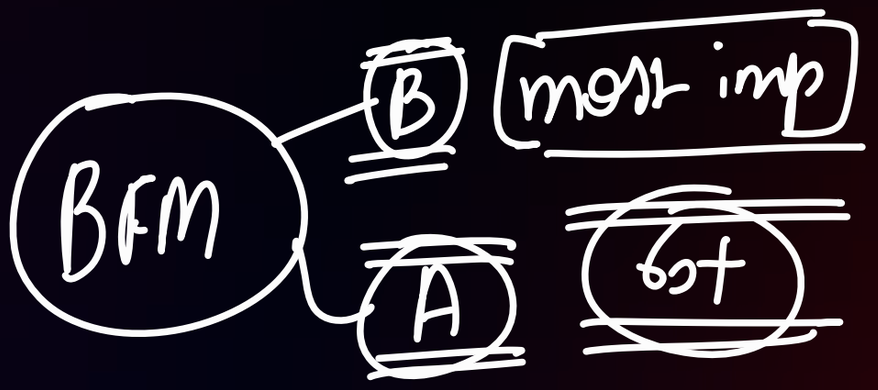
Cascading failures across the banking network

The Regulatory Challenge

Major Challenge for Regulators

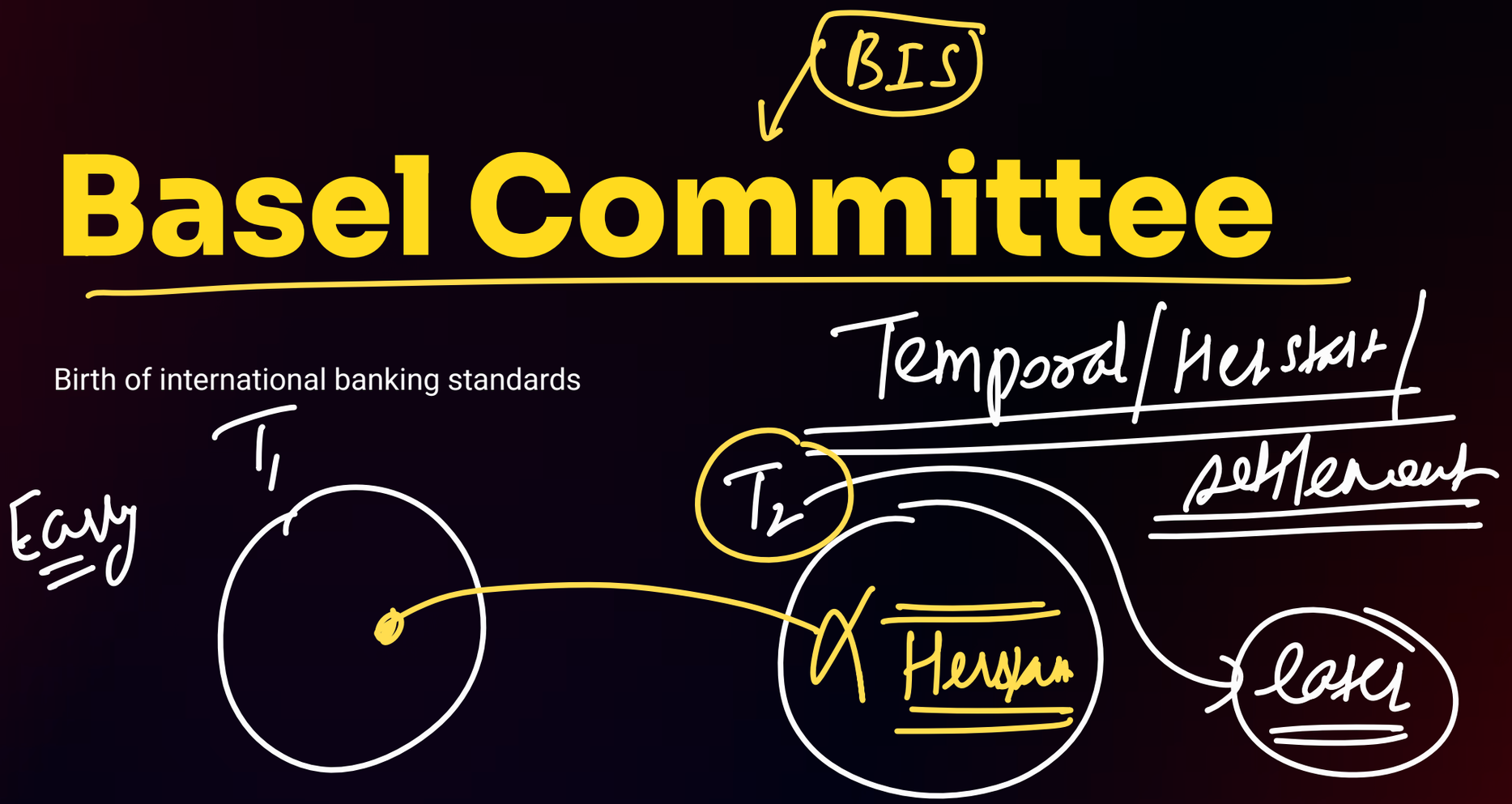
Systemic risk requires constant vigilance and sophisticated monitoring tools.

- Interconnected exposures difficult to track
- Rapid contagion potential
- Need for coordinated global response



Basel Committee

Birth of international banking standards



The Herstatt Incident: June 1974

1. **Morning in Frankfurt**
   Banks release Deutschmarks to Bank Herstatt
2. **Time Zone Lag**
   Dollar payments delayed due to New York time difference
3. **Liquidation**
   German regulators shut down Bank Herstatt mid-transaction
4. **Crisis**
   Counterparty banks left without dollar payments

Basel Committee on Banking Supervision

Formation: End of 1974

G-10 countries established the BCBS under the Bank for International Settlements (BIS)

- Central Bank Governors from participating countries
- Response to Herstatt crisis
- International coordination mechanism

Basel I

The 1988 Accord

Why Basel I Was Needed

Deregulation in 1988 inspired competition but significantly increased banking risks, necessitating a framework for capital adequacy.

Basel I Framework: 1988

Publication

BCBS published minimal capital requirements for banks

Enforcement

Implemented by law in G-10 countries by 1992

Framework

Minimum capital requirement linked to credit exposure

India

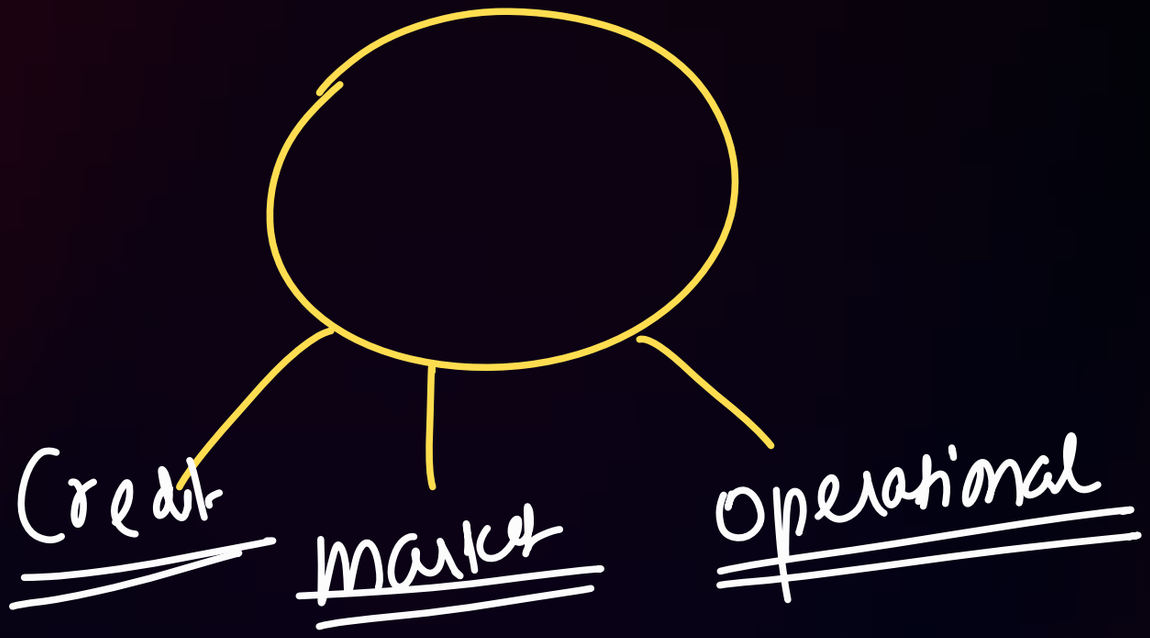
RBI implemented Basel I accords in 1992

1996 Amendment: Market Risk

Expanding the Framework

BCBS published amendment to provide explicit capital cushion for price risks, particularly from trading activities.

India: RBI issued guidelines in June 2004 on maintenance of capital charge for market risks.



Basel II

A necessary evolution

Why Basel I Needed Revision

Insufficient Risk Sensitivity

Credit risk assessment lacked granularity and precision

Regulatory Arbitrage

Promoted decisions based on constraints rather than economic opportunities

Risk Mitigants Ignored

Failed to recognise credit derivatives, securitisations, collaterals, guarantees

Operational Risk Gap

Did not account for operational risks of banks

Basel II Fundamental Objectives

01

Strengthen soundness and stability of international banking system

02

Avoid creating competitive inequality amongst internationally active banks

03

Promote adoption of stronger risk management practices industry-wide

Basel II: Released 26 June 2004

International Convergence of Capital Measurement and Capital Standards: A Revised Framework

Significant Features of Basel II

Risk-Sensitive Requirements

Capital requirements account for credit, market, and operational risks

Internal Systems

Greater use of banks' own risk assessments as inputs

Flexible Options

Range of approaches allowing banks to select most suitable methods

Supplementary Capital

Minimum requirements with provision for additional capital

Management Incentives

Capital benefits for superior risk management practices

Three Pillars

The foundation of Basel II

Basel II Architecture

Pillar 1 — CAR/CRAR

Minimum Capital Requirement

Pillar 2 — Residual

Supervisory Review Process — ICAAP + SREP

Pillar 3

Market Discipline — Transparency

Credit card

10 Lac → 12.5% (12.5%)

Pillar 1: Minimum Capital Requirement

Credit Risk

- Standardised Approach
- IRB Foundation
- IRB Advanced

Market Risk

- Standardised (Maturity)
- Standardised (Duration)
- Internal Models

Operational Risk

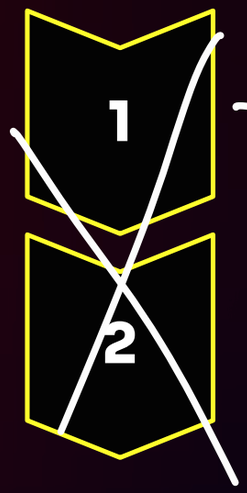
- Basic Indicator
- Standardised
- Advanced Measurement

$$CRAR/CAR = \frac{\text{Capital}}{\text{Total RWAs}}$$

BCBS → Min 8%

RBI → 9%

Capital Formula Evolution



Basel I Formula

Capital = 8% × (Credit Risk + Market Risk)

Basel II Formula

Capital = 8% × (Credit Risk + Market Risk + Operational Risk)

Basel III

Capital = 8% × (RWAs)

CAR = 8% = Cap. / RWAs.

India: RBI directives require banks to maintain minimum 9% CAR/CRAR

Credit Risk

Approaches and methodologies

Capital Charge for Credit Risk

1	**Standardised Approach** Fixed risk weights based on external ratings
2	**Internal Rating Based** Foundation and Advanced versions using internal assessments

IRB - F

IRB - A

Download App https://iibf.info/app

Standardised Approach

Key Features

- Fixed risk weights for supervisory categories
- Uses external credit assessments
- Observable characteristics of exposures
- Risk weights inversely related to counterparty rating

Internal Rating Based Approach

Foundation IRB

Banks estimate probability of default; supervisors provide other parameters

Advanced IRB

Banks provide own estimates for PD, LGD, EAD, and maturity

Based on banks' internal assessments, enabling substantially more risk-sensitive capital requirements.

IRB: Four Key Parameters

Probability of Default (PD)

Likelihood borrower will default over given time horizon

Loss Given Default (LGD)

Proportion of exposure lost if default occurs

Exposure at Default (EAD)

Amount of facility likely to be drawn at default

Maturity (M)

Remaining economic maturity of exposure

IRB Approach Mechanics

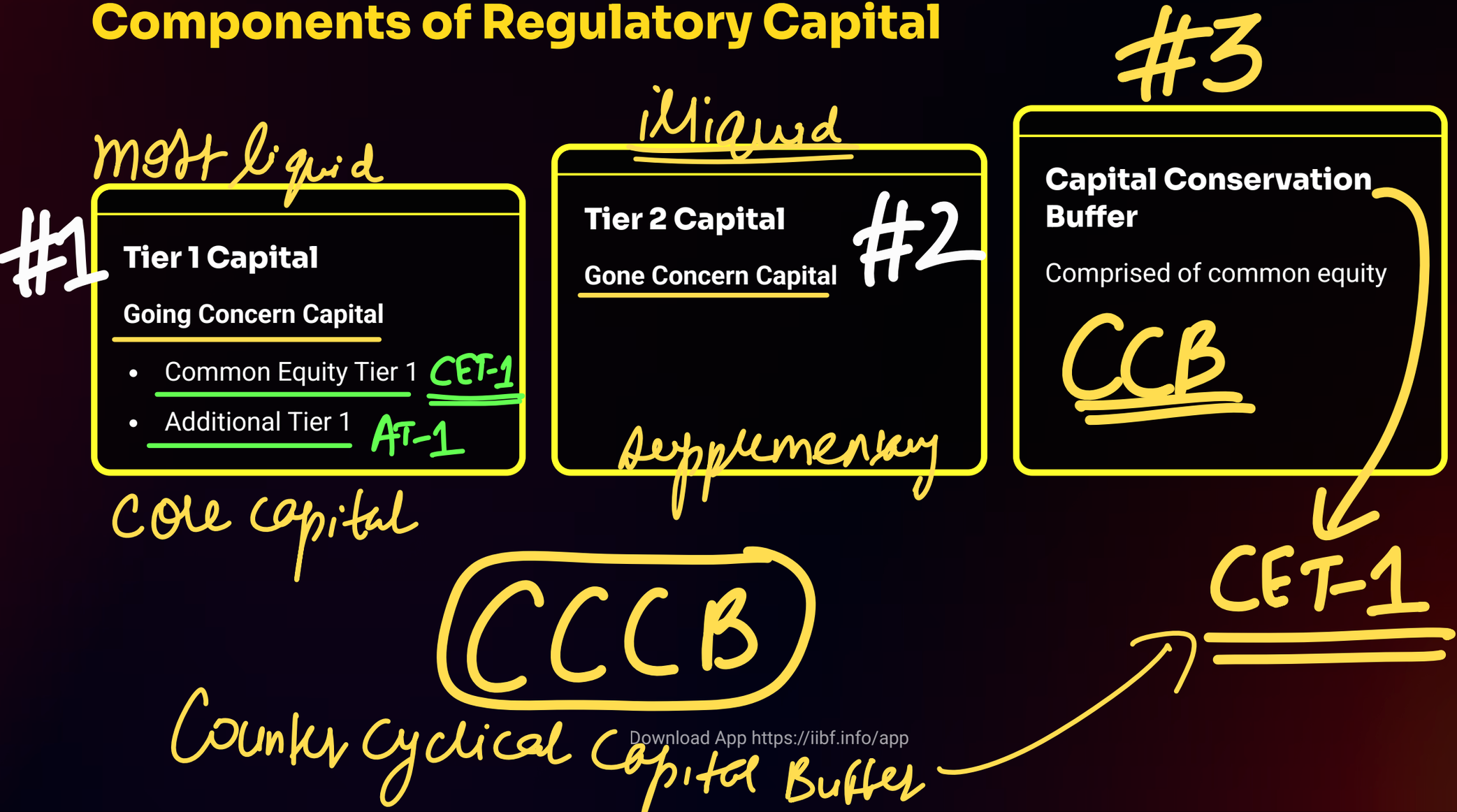
> Capital charges determined through combination of quantitative inputs from banks and formulae specified by the Committee.

Banks provide internal assessments; supervisors provide formulae and some parameters.

Regulatory Capital

Components and structure

Components of Regulatory Capital



RWAs → CR + MR + OR → 900 × 4.5% → 40.50 min

Capital Requirements: BCBS vs India

Component	BCBS (%)	India (%)
Min CET-1	4.5	5.5
Additional Tier 1	1.5	1.5
Total Tier 1	6.0	7.0
Tier 2	2.0	2.0
Min Total Capital	8.0%	9.0
CCB	2.5	2.5
Min CET-1 + CCB	7.0	8.0
Min Total Capital + CCB	10.5	11.5

T-1 (Min CET-1)

T-1 (Additional Tier 1) [max]

8%

9%

RBI

4.5 + 2.5

5.5 + 2.5

Capital Ratio Formulae

CET-1 Capital Ratio

$$\text{CET-1 Ratio} = \frac{\text{CET-1 Capital}}{\text{Risk Weighted Assets}} \times 100$$

Tier-1 Capital Ratio

$$\text{Tier-1 Ratio} = \frac{\text{Tier-1 Capital}}{\text{Risk Weighted Assets}} \times 100$$

CAR/CRAR

$$\text{CAR} = \frac{\text{Capital Funds}}{\text{Risk Weighted Assets}} \times 100$$

CAR/CRAR $= \frac{12050}{90000} \times 100 = 13.38\%$

Control/Skill → 0/20

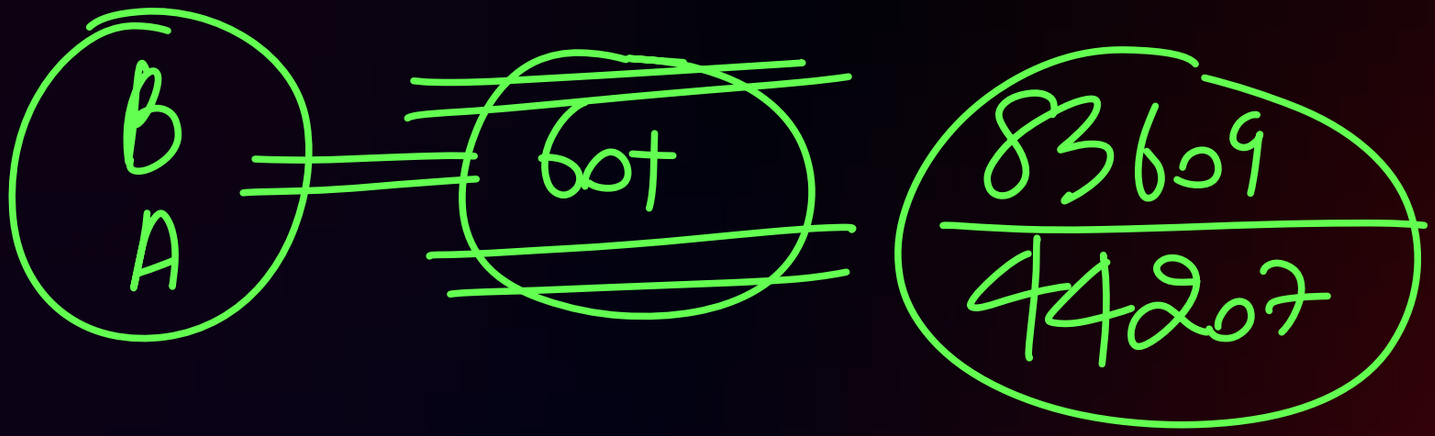
RBI → 0%

IB → 20%

Risk Weighted Assets (RWAs)

RWAs = RWA for Credit Risk + Market Risk + Operational Risk

The denominator in all capital ratio calculations, representing total risk exposure.



BCBS → 4.5% min

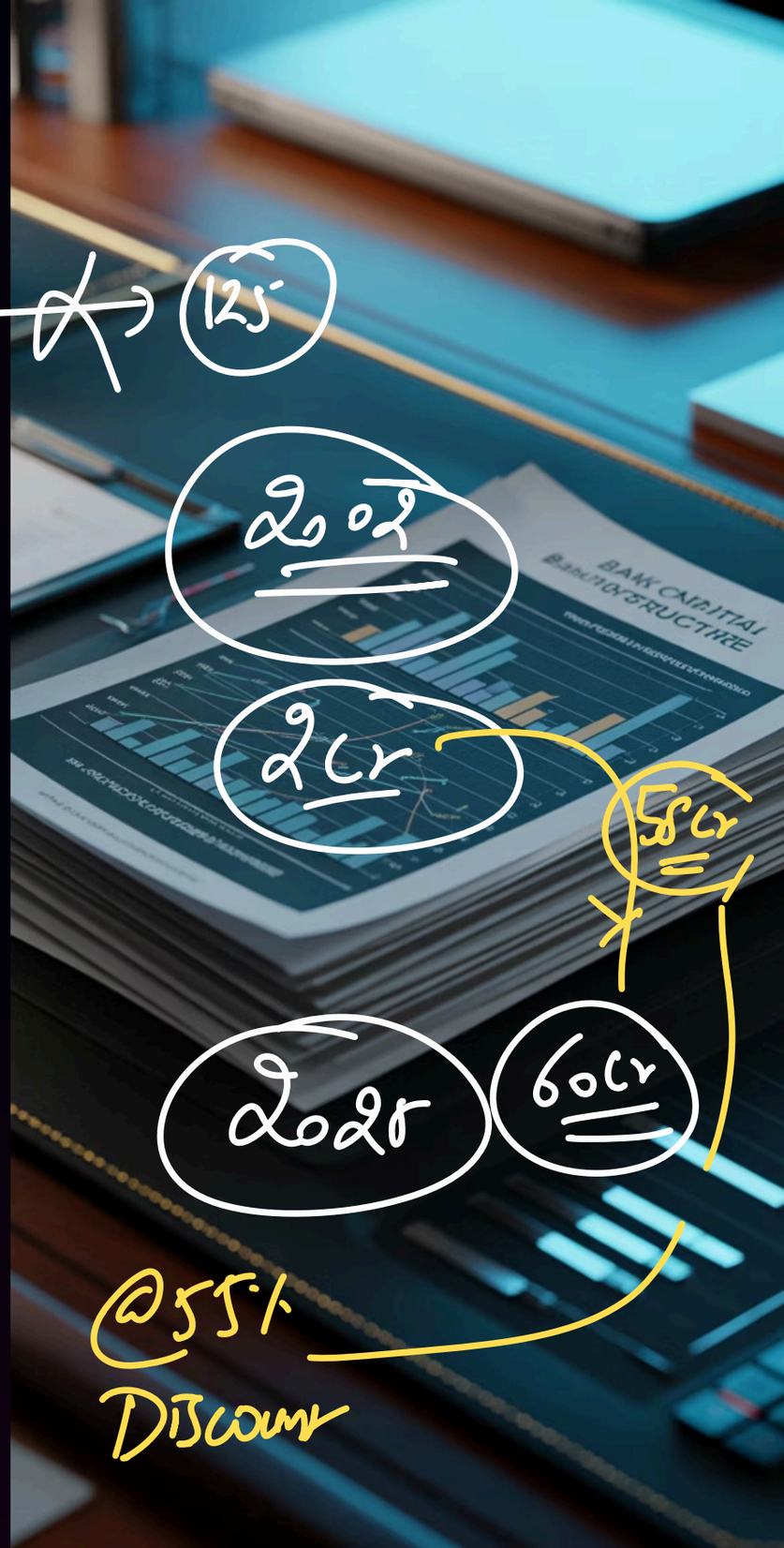
RBI → 5.5% min

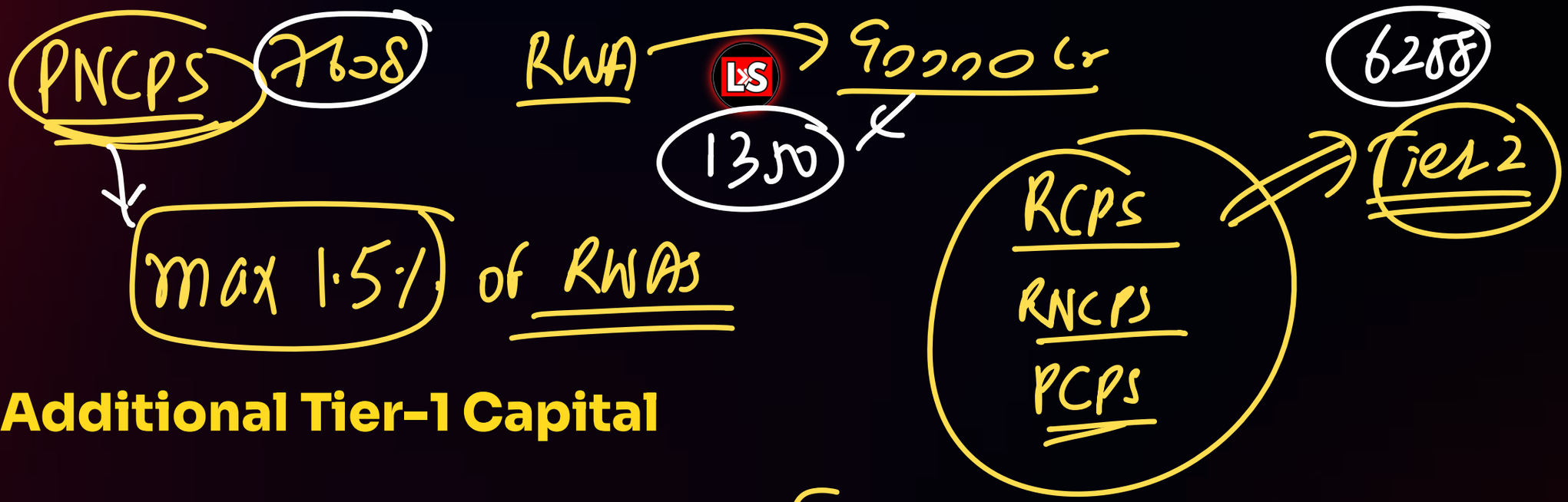
Components of CET-1 Capital

1. Paid-up equity capital
2. Statutory reserves
3. Other disclosed free reserves
4. Capital reserves from asset sales
5. Stock surplus (share premium)
6. P/L account balance

1. Current year profits (quarterly basis)
2. Revaluation reserves (55% discount)
3. Foreign currency translation reserves (25% discount)
4. Deferred tax assets

96.1 Cr





Additional Tier-1 Capital

PNCPS

Perpetual Non-Cumulative Preference Shares

Stock Surplus

Share premium from issuance

Debt Instruments

Debt capital instruments

PNCPS plus Perpetual Debt Instruments restricted to 1.5% of RWAs; excess included in Tier 2

TRWA → 90000

1787

Tier-2 Capital Components

1125

- General provisions and loss reserves (max 1.25% of RWAs)
- Debt capital instruments
- PCPS: Perpetual Cumulative Preference Shares
- Redeemable preference shares
- Stock surplus (share premium)
- Perpetual Debt Instruments (PDI)

PCPS / RNCPS / RCPS

PDI
Residual Maturity

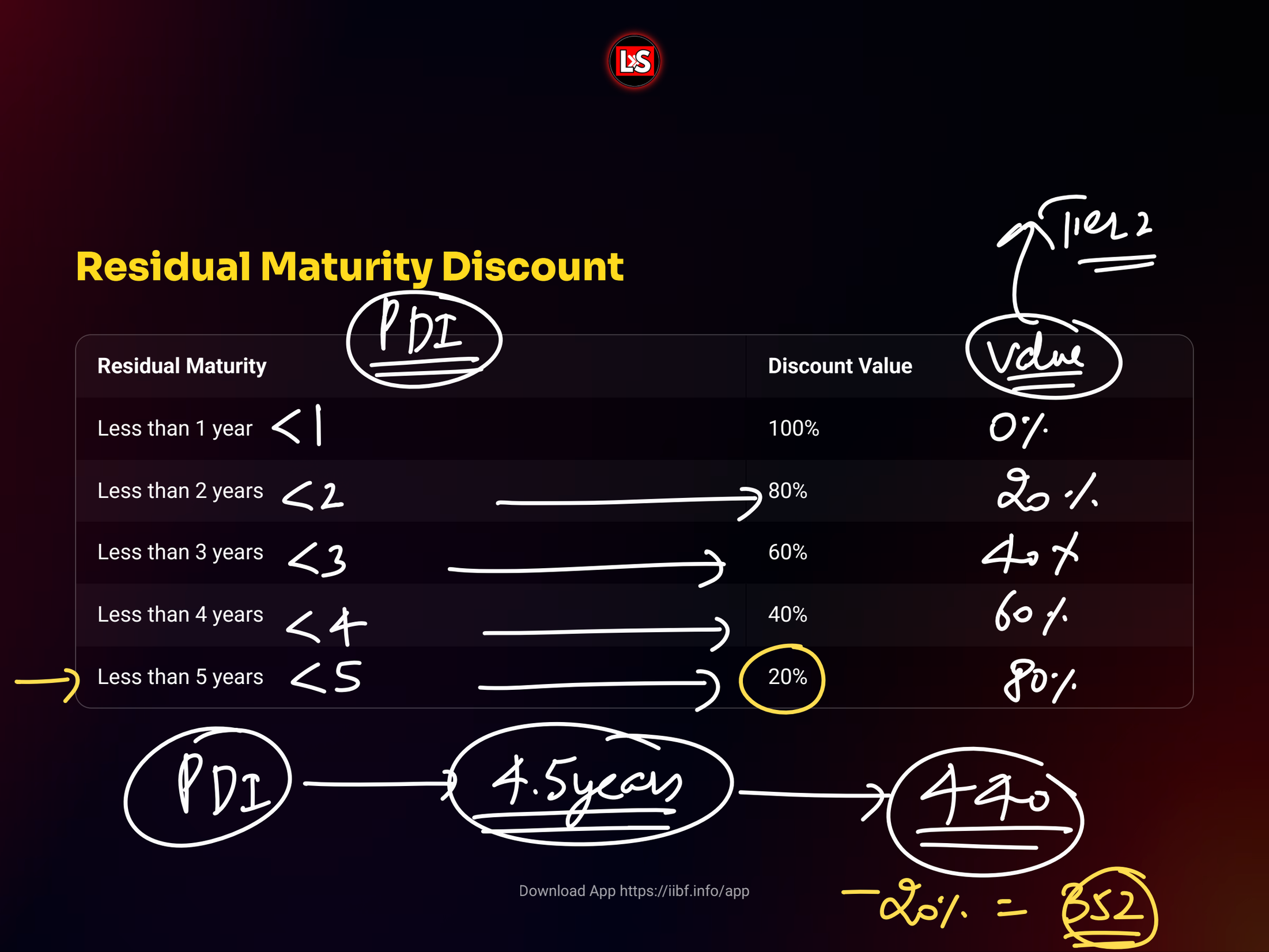
Perpetual Debt Instruments (PDI)

Key Features

- Can be issued in forex up to 25% of total amount
- Minimum maturity: 10 years
- No put option
- Call option after 5 years

Residual Maturity Discount

Residual Maturity	Discount Value
Less than 1 year	100%
Less than 2 years	80%
Less than 3 years	60%
Less than 4 years	40%
Less than 5 years	20%

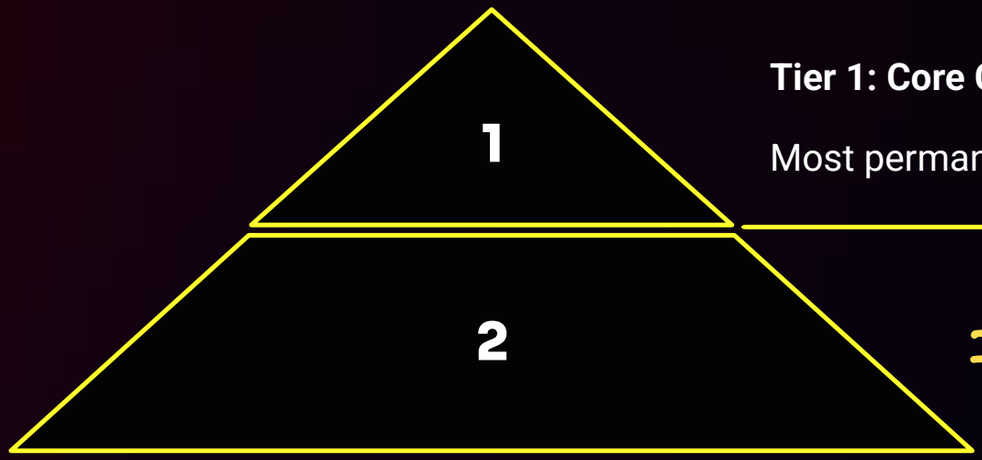


Capital Hierarchy Principles

going concern

CET-I

AT-I



Tier 1: Core Capital

Most permanent, readily available

Tier 2: Supplementary

Less permanent in nature

going concern capital

Important

Tier 2 Capital Constraints

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Caiib updates

50% of Total Capital

Tier 2 cannot exceed 50% of total capital at any point

100% of Tier 1

Tier 2 cannot exceed 100% of Tier 1 capital at any point

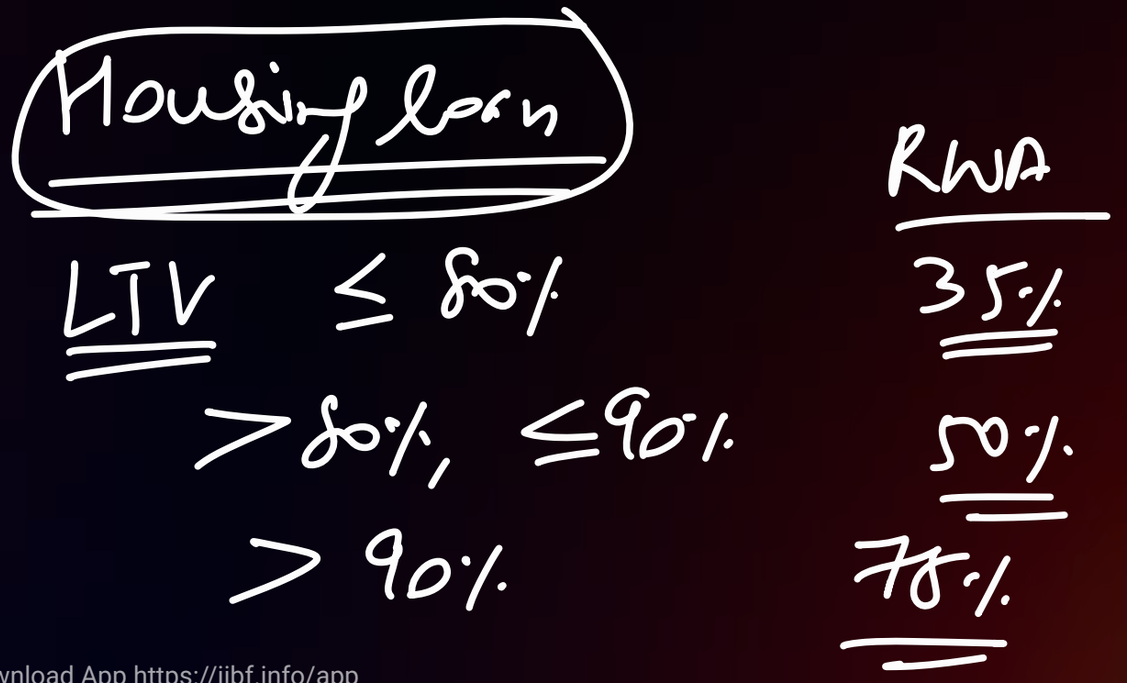
Total Capital 30000

Tier 2

≠ 15000

Risk Weights

Asset classification system



PSU → 100%
CRE → 100%
Cr. Card → 125%

Personal Consumer → 125%
VC → 150%
Retail loan [≤ 5Cr] → 75%

Risk Weight Categories

Asset Type	Risk Weight %
Cash balance with RBI, balance with other banks	0%
Loans guaranteed by Central/State Government	0/20%
Secured loans to staff (mortgage/superannuation)	20%
Other staff loans	~~20%~~
Loans up to ₹1 lakh against gold/silver ornaments	50%

0% 20%

Other staff loans → Unsecured → 75%

Education → 75%
Gold (1 Lakh) → 50%

Risk Weights: Corporate and Retail

Asset Type	Risk Weight %
Central/State Government guaranteed advances	0/20%
Loans to PSUs	100%
Corporates (un-rated), NBFCs-ND-SI, Commercial Real Estate/SEZ	100%
Loans guaranteed by ECGC	20%
SSI advances under CGTMSE/DICGC guarantee	0%
Regulatory retail loans (excl. housing) (≤ 5)	75%

Higher Risk Categories

Asset Type	Risk Weight %
Advances against term deposits, LIC policies, NSCs	0%
Consumer credit/credit cards/capital market exposures	125%
Venture capital funds	150%

CRE – RH

Commercial Real Estate – Residential Housing

CRE-RH: Separate Sub-Sector

Carved out due to lesser risk and volatility than general CRE

- Loans to builders/developers for residential housing
- **Risk weight:** 75%
- **Standard asset provisioning:** 0.75%

Compared to general CRE: 100% risk weight and 1.00% provisioning

LTV Ratios and Risk Weights

35%

LTV ≤ 80%

Lowest risk weight

50%

LTV 80–90%

Moderate risk weight

Loan-to-Value ratios inversely correlated with risk weights for housing finance.

(Tier-I)

AUM → 5000

CET-1 Paid up → 3000

CET-1 Statutory reserves → 2250

PNCPS → 2000 AT-1

PNCPS prem — 200 AT-1

DCI (3.5 yrs) → 200 T-2

GPLR → 1600 T-2

(1.25%)

CET-1 Revaluation Reserve → 2500 Total → 90000

T-1
CET-1 AT-1

3000 + 2250 + (2500 − 55%)
CET-1 = 6375

AT-1 → 2000 + 200 = ~~2200~~ 1350

T-1 → 6375 + 1350 = 7725 / 90000 %

8.58%

Off-Balance Sheet

Credit conversion factors

AT-1 surplus + GPLR + DCI

Tier-2 → (9900 − 1350) + 1125 + (800 − 40%)

= 850 + 1125 + 480 = 2458

DCI	
< 1	100
< 2	80
< 3	60
< 4	40%
< 5	20

T-2% = 2455 / 90000

= 2.72%

Off-Balance Sheet Items

Credit equivalent amount = Contracted amount × Credit Conversion Factor (CCF)

Resultant amount multiplied by risk weight of counterparty or purpose (whichever higher).

Credit Conversion Factors

Instrument	CCF %
Direct credit substitutes, guarantees, standby L/Cs, acceptances	100
Performance bonds, bid bonds, warranties, indemnities	50
Short-term self-liquidating trade L/Cs	20
Sale and repurchase agreements with recourse	100
Note issuance facilities, revolving underwriting	50

Take-Out Finance CCF

Unconditional

100% CCF

Conditional

50% CCF

Credit Rating Agencies

Domestic Agencies

- Brickwork Ratings
- CARE (Credit Analysis and Research)
- CRISIL
- ICRA
- India Ratings and Research
- SMERA

International Agencies

- Fitch
- Moody's
- Standard & Poor's

Rating Symbols and Risk Weights

Long-Term Basis

Symbol	RW %
AAA	20
AA	30
A	50
BBB	100
BB, C, D	150
Unrated	100

Short-Term Basis

Symbol	RW %
A1+	20
A1	30
A2	50
A3	100
A4, D	150
Unrated	100

Basel III Framework Amendments

01

Revaluation Reserves: From Tier 2 to CET-1 (55% discount)

02

Foreign Currency Translation Reserves: Included in CET-1 (25% discount)

03

Deferred Tax Assets: Recognised as CET-1 up to 10% of CET-1 capital

Case Study

Capital requirement calculations

Practical Application

Following slides demonstrate practical calculation of:

- Common Equity Tier 1 (CET-1)
- CET-1 Capital Ratio
- Additional Tier 1 (AT-1)
- AT-1 Ratio
- Tier 2 Capital
- Total Capital Required
- Capital Adequacy Ratio (CAR/CRAR)

Key Questions to Address

1 **Calculate CET-1**

Identify and sum all CET-1 components

2 **Calculate CET-1 Ratio**

Divide CET-1 by RWAs and multiply by 100

3 **Calculate AT-1**

Identify Additional Tier 1 components

4 **Calculate AT-1 Ratio**

Divide AT-1 by RWAs and multiply by 100

Further Calculations

Tier 2 Capital

Sum all eligible Tier 2 components, apply constraints

Total Capital Required

Add Tier 1 and Tier 2, ensure compliance with minimums

CAR/CRAR

Total capital divided by RWAs, check against 9% India minimum

Regulatory Compliance Framework

> Effective capital management requires understanding not just the calculations, but the regulatory intent behind each requirement.

Banks must continuously monitor capital ratios, anticipate regulatory changes, and maintain buffers beyond minimum requirements.

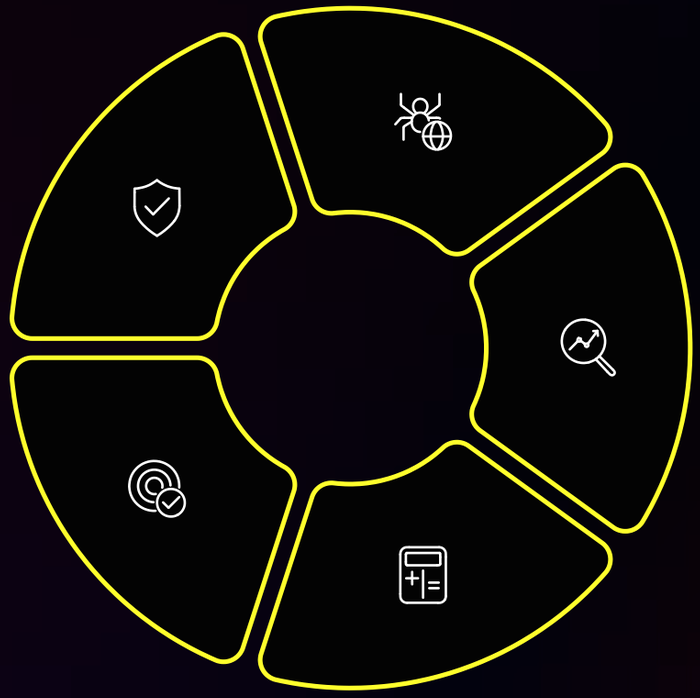
Summary: Banking Regulation Essentials

Safety

Capital requirements protect system stability

Compliance

Meeting regulatory minimums and best practices



Standards

Basel frameworks provide international consistency

Evolution

From Basel I to III, increasing sophistication

Application

Practical calculation of capital ratios