



Developments around Basel II

International Finance Corporation
June 20-25, Moscow, Krasnodar, Ufa

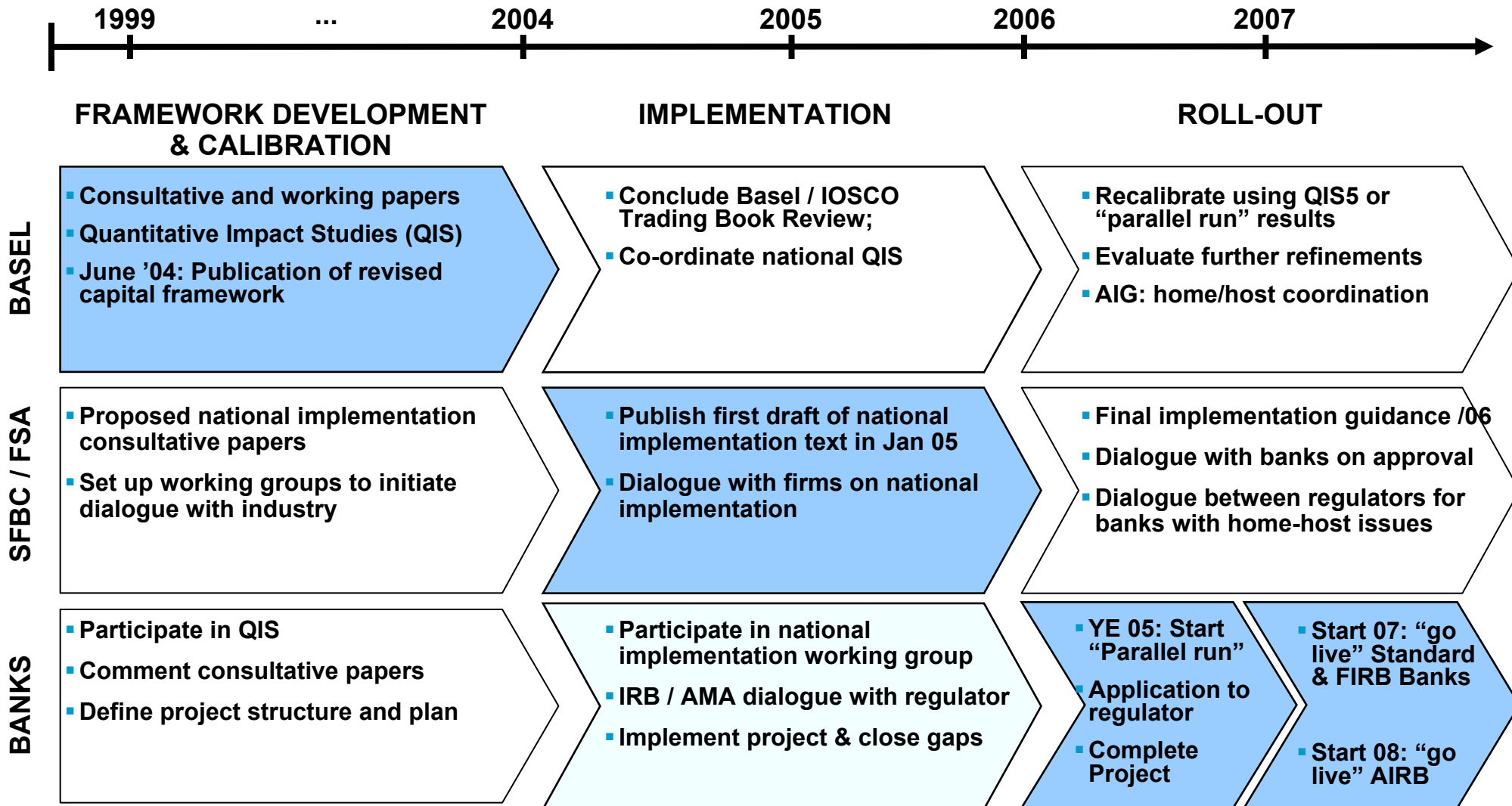
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BASEL II OVERVIEW TIMELINE



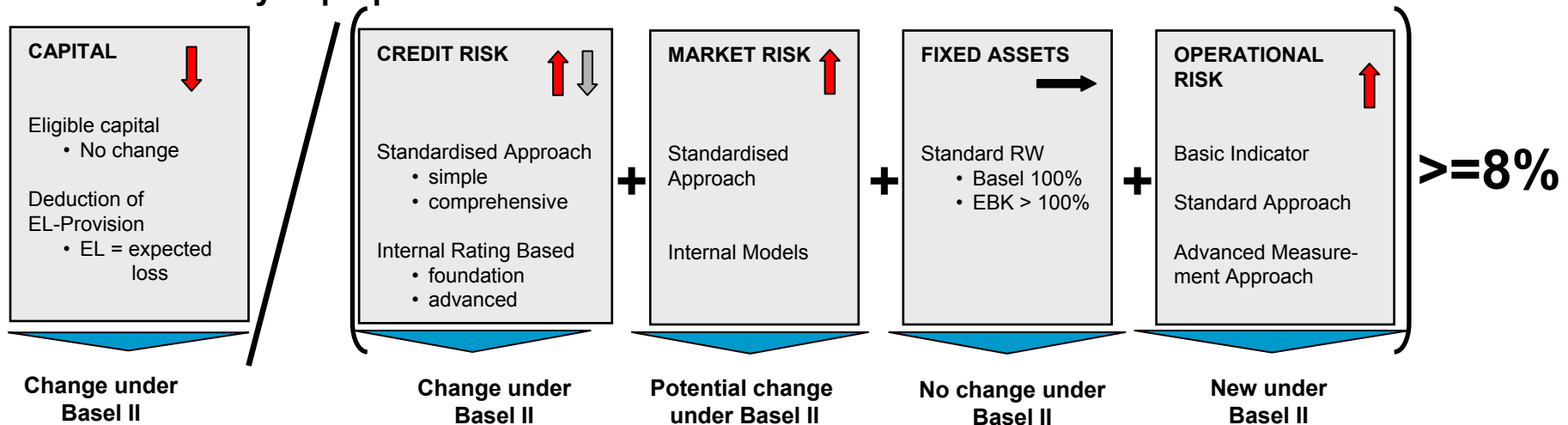
BASEL II OVERVIEW

AIMS AND BUILDING BLOCKS

■ Aims of Basel II reforms

- Radical overhaul of current, out-of-date regulatory regime
- Goal is to address known deficiencies in Basel I rules and reduce opportunities for arbitrage
- More ‘risk sensitivity’ for credit risk (i.e. lower ratings = higher charge) plus capital for Op Risk
- Roughly similar to Economic Risk Capital (ERC) style approach for capital calculations

■ Pillar 1 - Summary of proposals:



■ Pillar 2: Formalized requirements, esp. re: internal capital assessments

■ Pillar 3: Large increase in external disclosure, including heavy details about Basel II capital components

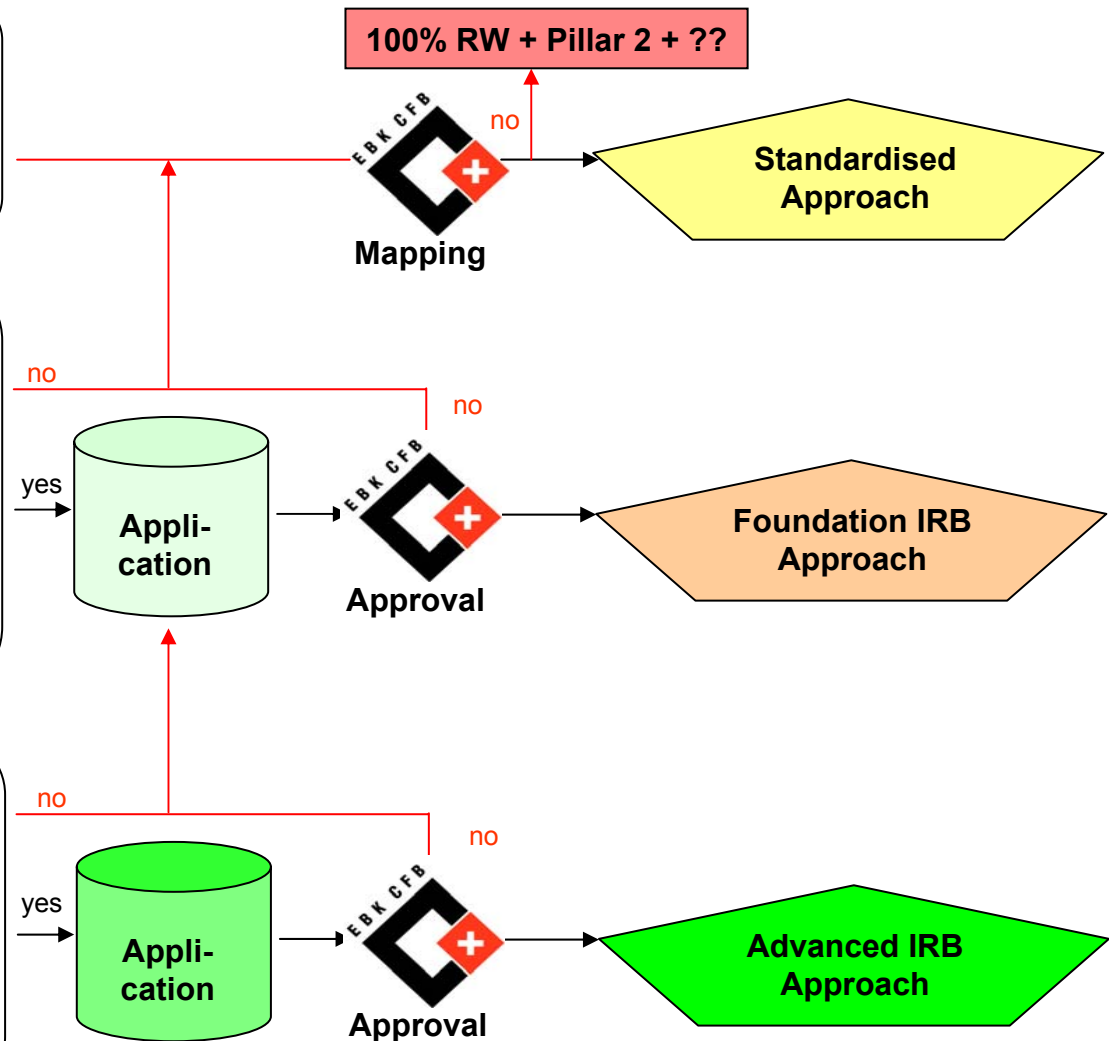
2. Credit Risk Guidance

CREDIT RISK OVERVIEW QUALIFYING CRITERIA

- Break-down exposures in Basel II asset classes
- Use recognized external rating agency/ies for counterparties in individual exposure classes
- Risk mitigation method used for accounting for collateral
- Limited qualitative requirements for risk mitigation

- Break-down exposures in B2 IRB asset classes
- Methodology to estimate long-term average probability of default (PD), preferably over a full economic cycle, by rating
- Margin of conservatism for possible errors e.g. correlation between PD and EAD
- At least 5 years historical default/ rating model data
- At least annual refresh of ratings
- Qualitative requirements: rating system / coverage, corporate governance, credit risk control, annual audit review; validation; use test, disclosure

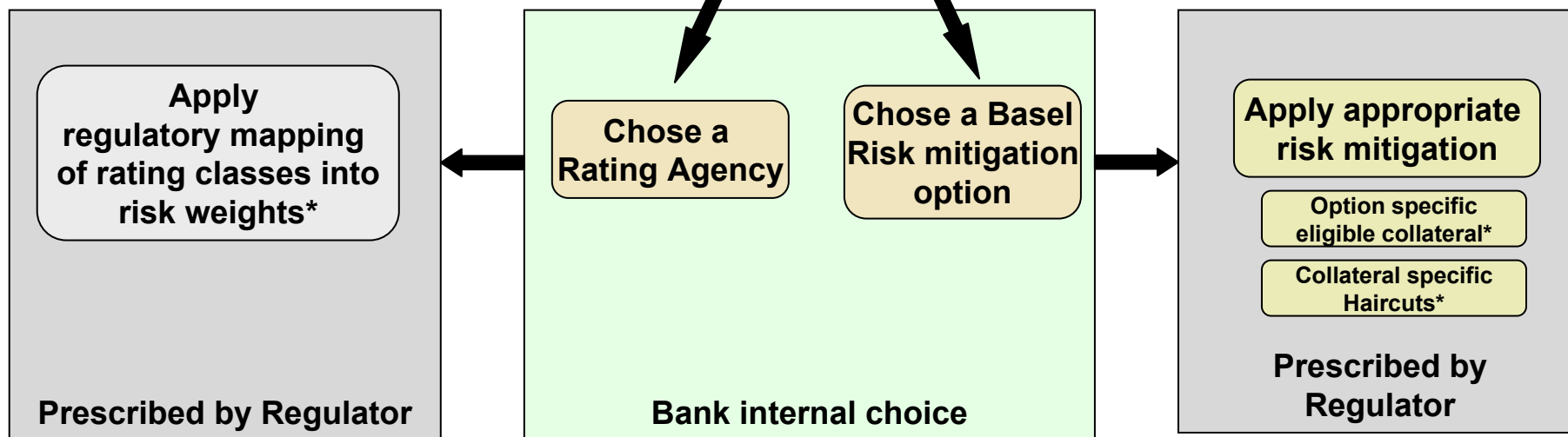
- Methodology to estimate long-run default-weighted average loss given default (LGD)
- Methodology to estimate long-run default-weighted average exposure at default (EAD)
- At least 7 years historical LGD & EAD model data
- Margin of conservatism for possible errors, e.g. down-turn LGD and for possible errors e.g. correlation between PD and EAD
- Additional qualitative and disclosure requirements to FIRB (e.g. collateral mgt, LGD refreshes etc.)



CREDIT RISK

STANDARDISED APPROACH RISK WEIGHTS: MECHANICS

$$RWA = 12.5 \times rw(\text{rating}) \times E$$



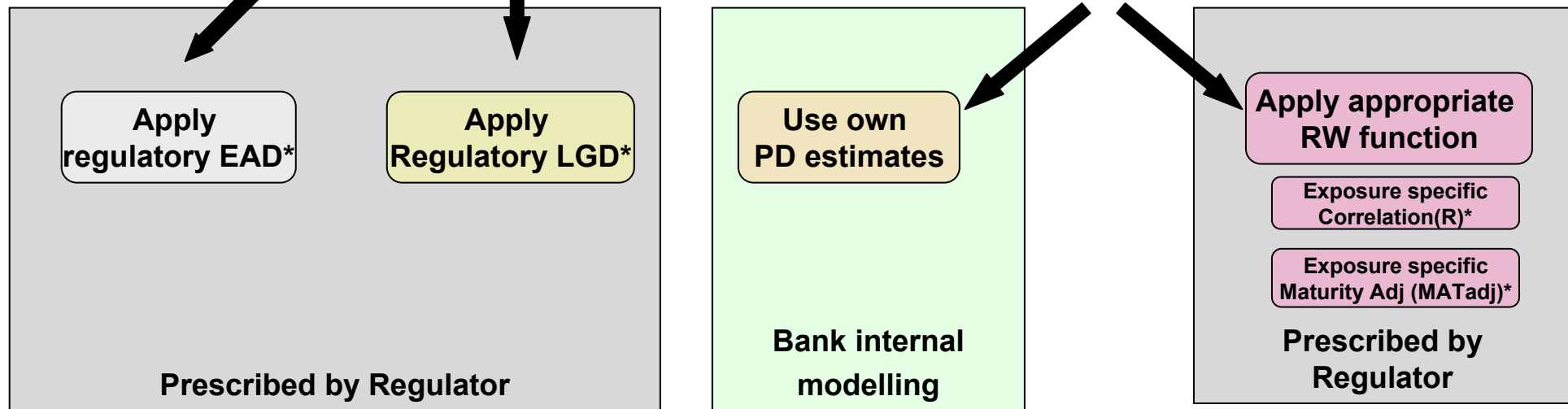
Note: RWA = Risk weighted asset amount; rw= regulatory risk mapping; E = exposure post risk mitigation; 12.5 = 1/8%

* See annex for regulatory mapping of rating classes into risk weights, eligible collateral and collateral haircuts.

CREDIT RISK

FOUNDATION IRB RISK WEIGHTS: MECHANICS

$$RWA = 12.5 \times EAD \times LGD \times \left[\mathcal{N} \left(\frac{\mathcal{G}(PD)}{\sqrt{1-R}} + \mathcal{G}(.999) \times \sqrt{\frac{R}{1-R}} \right) - PD \right] \times MAT_{adj}$$

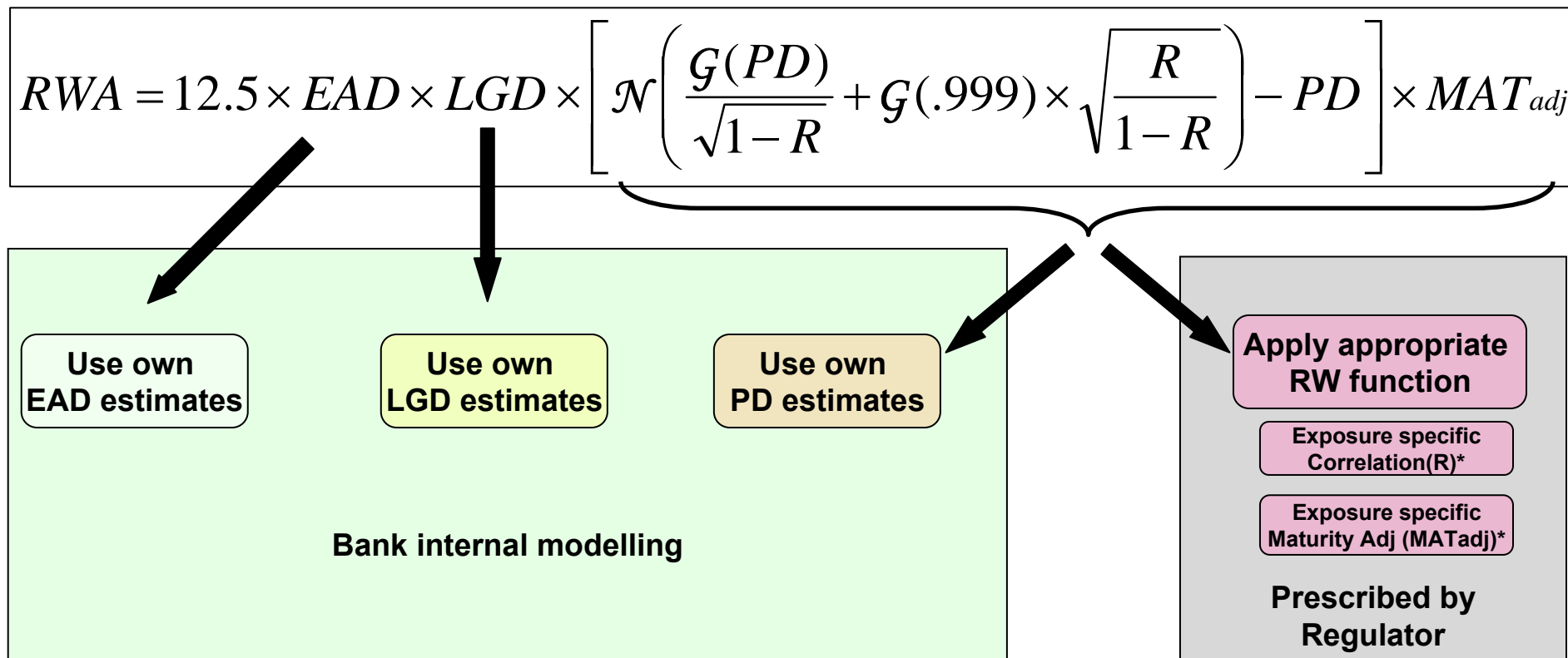


Note: $N(\cdot)$ = normal cumulative distribution function for a standard random variable;
 $G(\cdot)$ = inverse normal cumulative distribution function for a standard random variable;
 PD = probability of default;
 R = correlation. Correlation is a function of PD.
 Mat_{adj} = maturity adjustment. Maturity adjustment is a function of PD and effective maturity.

* See annex for regulatory EAD, LGD, correlations and maturity adjustments

CREDIT RISK

ADVANCED IRB RISK WEIGHTS: MECHANICS

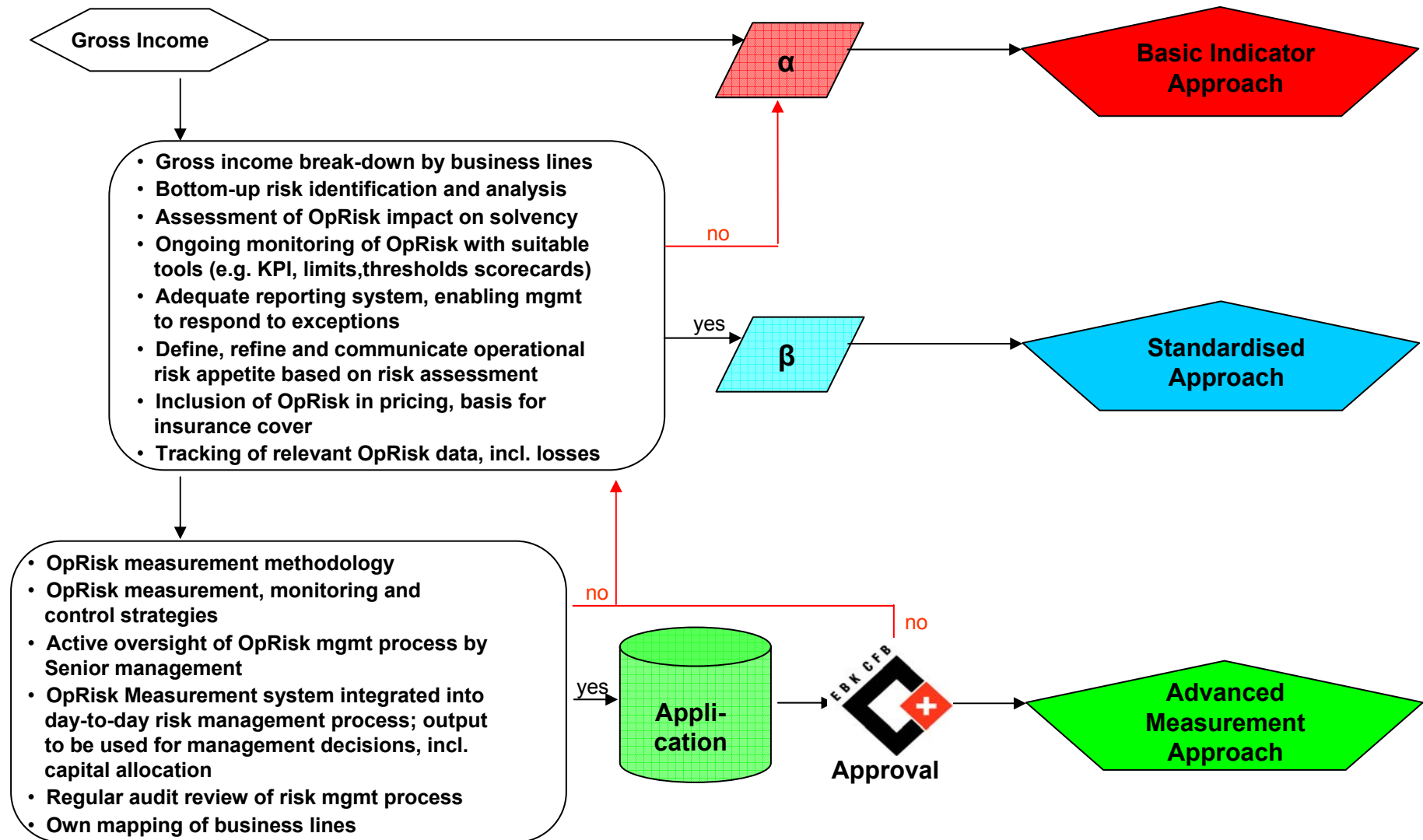


Note: see former slide

* See annex for regulatory correlations and maturity adjustments.

3. Operational Risk Guidance

OPERATIONAL RISK OVERVIEW QUALIFYING CRITERIA



OPERATIONAL RISK BASIC INDICATOR APPROACH

$$K = \alpha \cdot GI$$

K Operational risk capital requirement

α Multiplier set at 15%

GI Gross Income =
net interest income + net non-interest income

Assessment:

- very pragmatic but not risk sensitive; for small banks

OPERATIONAL RISK STANDARDISED APPROACH

$$K = \sum_{i=1}^n \beta_i \cdot BLI_i$$

β_i Multiplier for Business Line i

BLI_i Indicator for Business Line i

i	Business Line	Indicator	β -Factor
1	Corporate Finance	Gross Income	18%
2	Trading & Sales	Gross Income	18%
3	Retail Banking	Gross Income	12%
4	Commercial Banking	Gross Income	15%
5	Payment & Settlement	Gross Income	18%
6	Agency Services	Gross Income	15%
7	Asset Management	Gross Income	12%
8	Retail Brokerage	Gross Income	12%

Assessment:

- complicated and not risk sensitive; for medium sized banks

OPERATIONAL RISK

THE 4 ELEMENTS OF THE AMA QUANTIFICATION

- A bank's AMA OpRisk model must include the following 4 elements:
 - (1) Internal loss data
 - (2) External loss data
 - (3) Scenario analysis
 - (4) Business environment & internal control factors
- There are a number of practical implementation issues with each of these 4 elements:
 - Completeness; Accuracy; Auditability; Relevance

	Completeness	Accuracy	Auditability	Relevance
Internal loss data	LOW/MEDIUM ⁽¹⁾	HIGH	HIGH	LOW ⁽²⁾
External loss data	LOW ⁽³⁾	LOW ⁽³⁾	LOW/MEDIUM ⁽³⁾	MEDIUM
Scenario analysis	MEDIUM/HIGH	MEDIUM	LOW	HIGH
Business environment & internal control factors	LOW	LOW/MEDIUM ⁽⁴⁾	LOW/HIGH ⁽⁴⁾	HIGH

Conclusion

Some elements are auditable but not relevant & others are relevant but not auditable

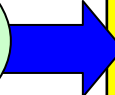
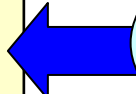
Notes

- (1) More difficult to ensure completeness for high-frequency, small-loss events "Minor" events; easier for "Major" events
- (2) Low rating as most firms unlikely to have suffered numerous "Major" events to provide sufficient data sample
- (3) Low/medium rating due to reporting bias and collection bias
- (4) High accuracy and auditability for factors that are countable but Low otherwise

OPERATIONAL RISK AMA

CSG'S FOCUS ON HIGH IMPACT-LOW FREQUENCY OpRISK

Goal of OpRisk management is to reduce the frequency & severity of large, rare events

	Small Losses	Large Losses
Low Frequency	<p>Focus of CSG</p> <p>Operational Risk Management:</p> <p>Escalation</p> 	<p>“MAJOR” events (Primary challenge)</p> <ul style="list-style-type: none"> • Can put banks (eg. Barings) out of business or severely harm reputation • Difficult to understand and prioritize in advance • Similar to issues faced in several other industries: aviation, healthcare, railways, chemical processing
High Frequency	<p>“MINOR” events (Secondary challenge)</p> <ul style="list-style-type: none"> • Generally not firm threatening, generates efficiency savings rather than reduce material risks • Can often be incorporated into pricing - “cost of doing business” (eg. credit card fraud losses) • Managed through budget process at the line level • Experience makes it easier to understand problems, to measure issues & to take relevant action 	<p>Focus of CSG</p> <p>Operational Excellence:</p> <p>Line Mgt</p> 

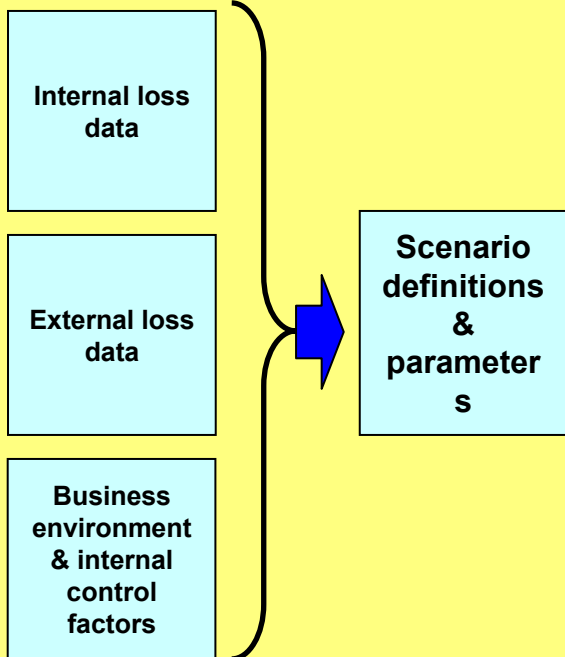
Note: Low frequency – high impact events have very different causal characteristics as high-frequency low-impact events: see annex

OPERATIONAL RISK AMA

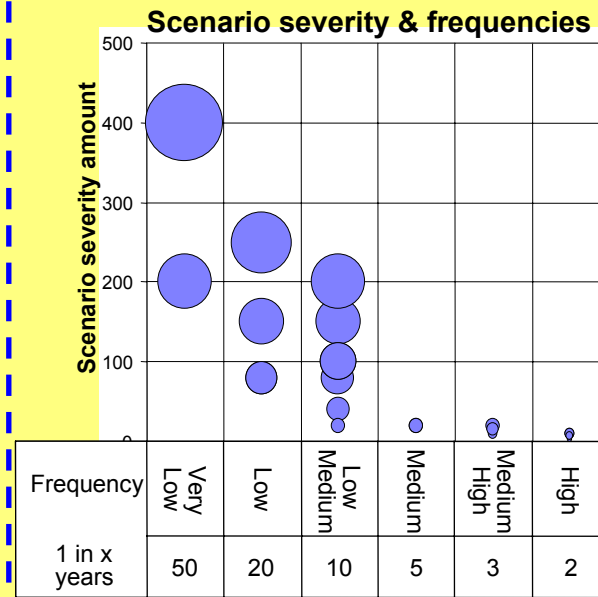
COMPONENTS OF CSG's SCENARIO ANALYSIS

Expert judgment based: transparent documentation

4 elements
of the AMA

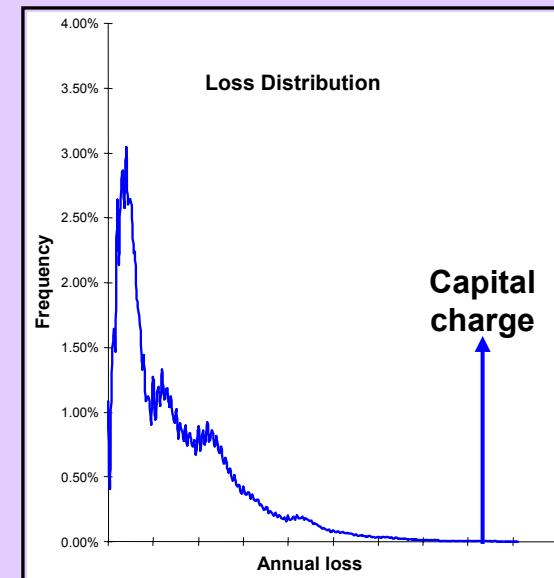


Qualitative inference of
loss severity and frequency
for scenarios



Mechanical

Aggregation of
scenarios using
OpRISK⁺



4. Basel II Implications

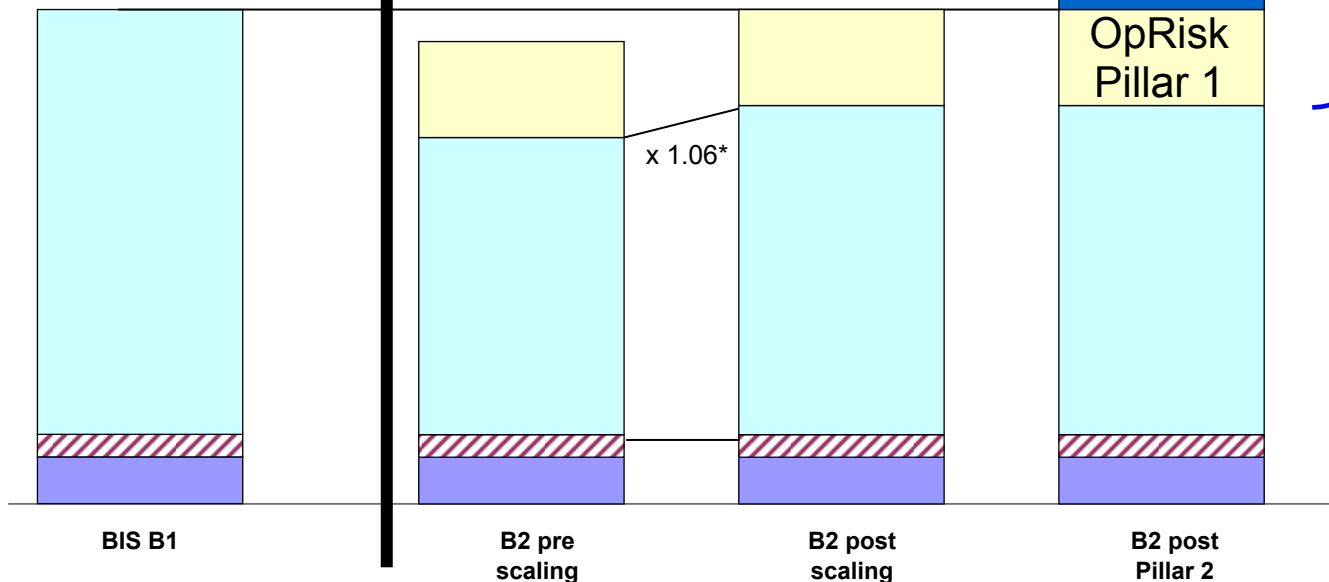
BASEL II IMPLICATIONS

CAPITAL IMPACT GOES BEYOND PILLAR 1 CREDIT RISK

ILLUSTRATIV

Basel I
Total Capital
Requirements

Basel II
Total Capital
Requirements



Ignoring OpRisk
& Pillar 2 leads to
underestimating
regulatory
capital requirements

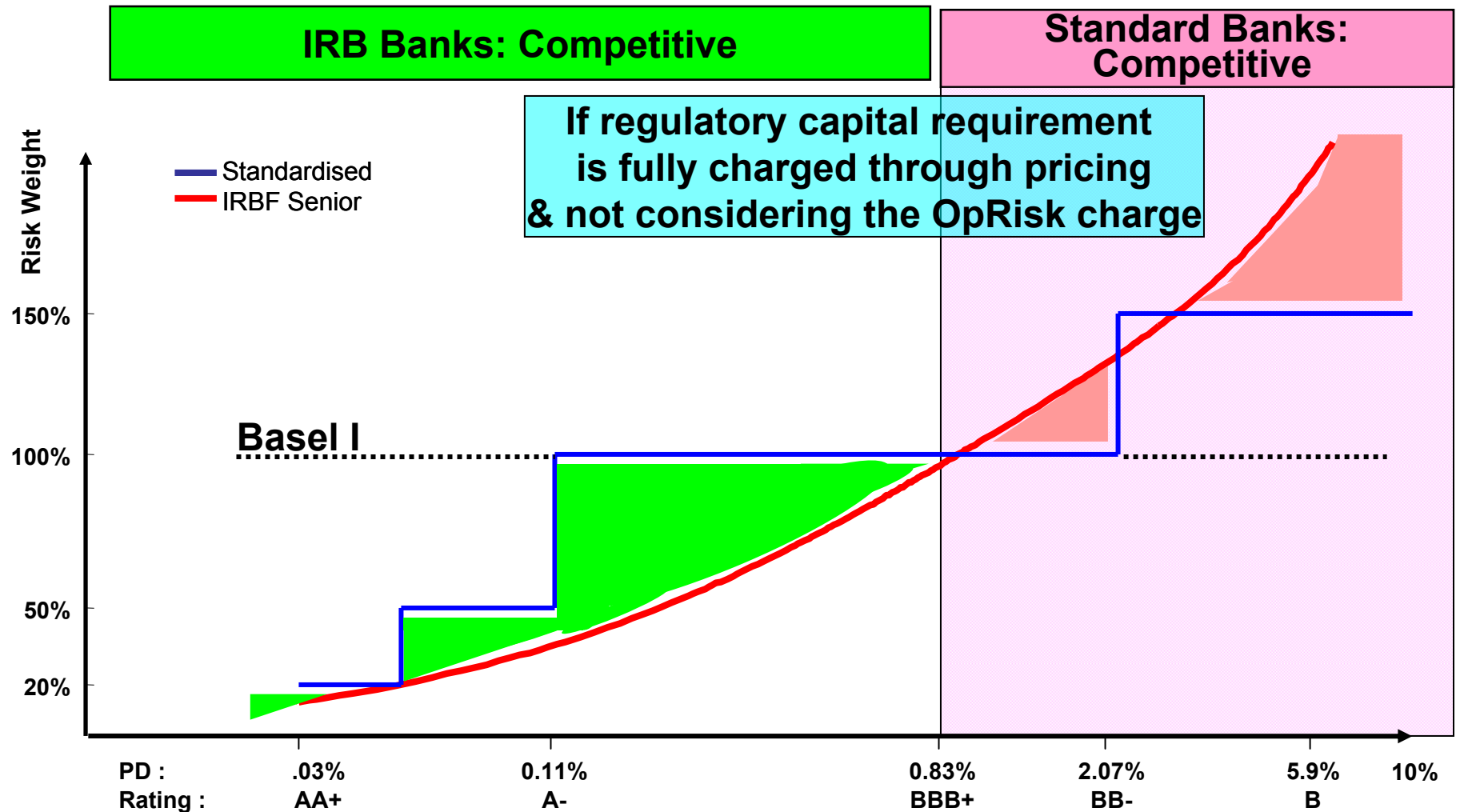
* Preliminary factor, subject to change on the basis of QIS5 / or economic downturn LGDs calibration

■ Market risk ■ Credit risk ■ Operational risk ■ Fixed assets / non counterparty related risk ■ Pillar 2 add on

BASEL II IMPLICATIONS

PILLAR 1 AND COUNTERPARTY SELECTION FOCUS

IRBF Risk Weights for Corporates (senior, 3y)



BASEL II IMPLICATIONS

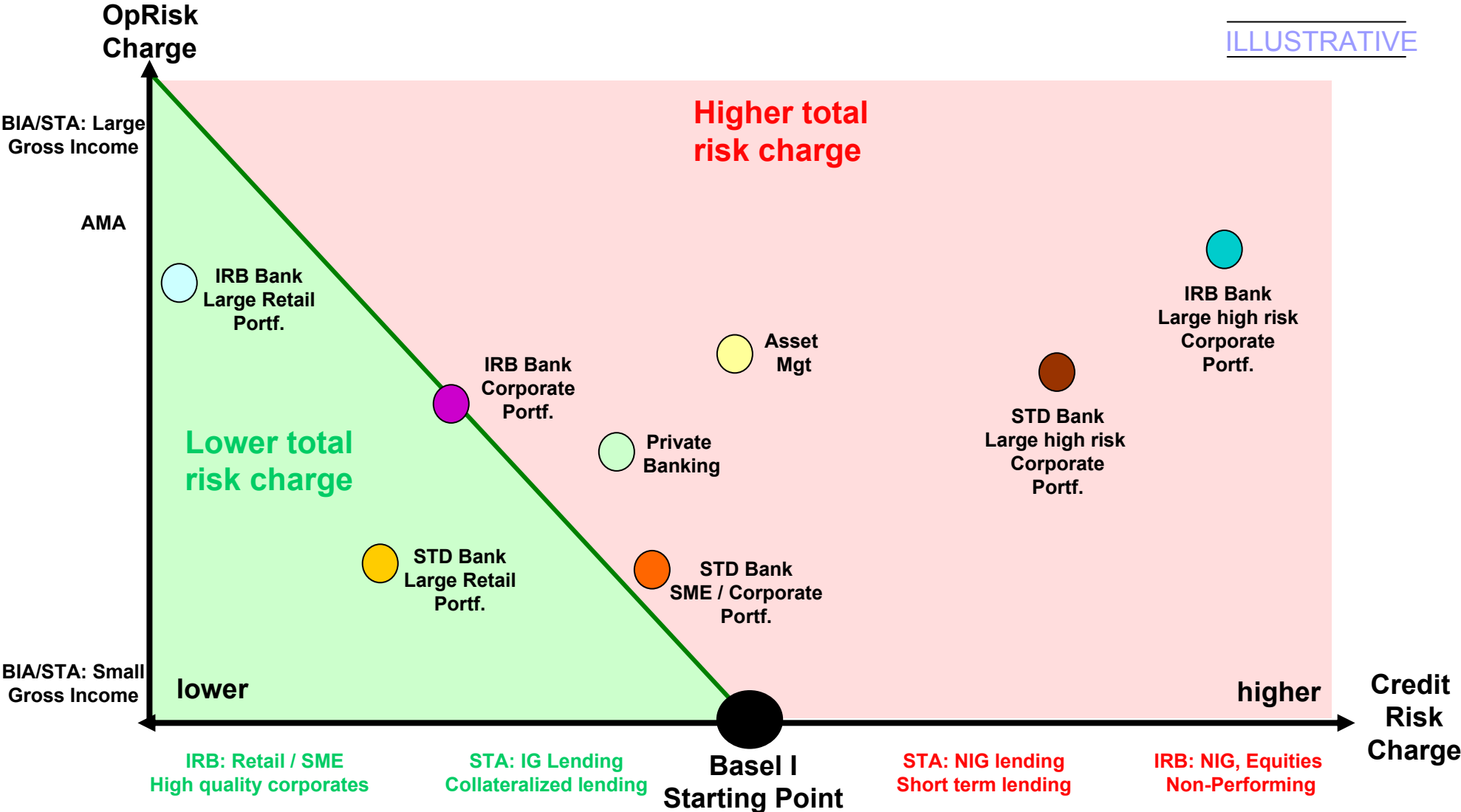
PILLAR 1 AND PRODUCT MIX FOCUS

Basel II Risk Weight vs. Basel I		<u>ILLUSTRATIVE</u>	
		Higher	Unchanged-Lower
Standardised	<ul style="list-style-type: none"> • Short-term financing (CCF 0% abolished) • Commitments (<1 year) and LCs (CCF=20%) • Commodity financing • Securities lending (e.g. bonds<BB-/unrated) • Past due loans (prov<20%) • Low quality securitization • Low quality (below BB-) corporate lending 	<ul style="list-style-type: none"> • High quality (better than A) corporate lending • SME & Retail (resid. mortgages) lending • Unconditionally cancellable commitments • Commercial NIG / EMG lending • Collateral lending as in para 145 • Guarantees and credit derivatives • Fixed assets & intangibles (100%) 	
IRB	<ul style="list-style-type: none"> • Short-term financing (interbank, treasury) • Commitments and LCs • NIG / EMG lending • Loans with longer maturities • FX counterparty exposures • NIG securitization • Other (e.g. Specialized Lending; equity...) 	<ul style="list-style-type: none"> • Retail: residential mortgages, revolving, other • SME lending (except for non-performing) • Securities lending (e.g. repos with blue chips) • Derivatives for IG • IG securitization • Fixed assets & intangibles (100%) 	

Note: LC = letter of credit; NIG = non investment grade; IG = investment grade; SME = small & medium sized enterprise

BASEL II IMPLICATIONS: PILLAR 1 WINNERS AND LOSERS: WHAT TO DO?

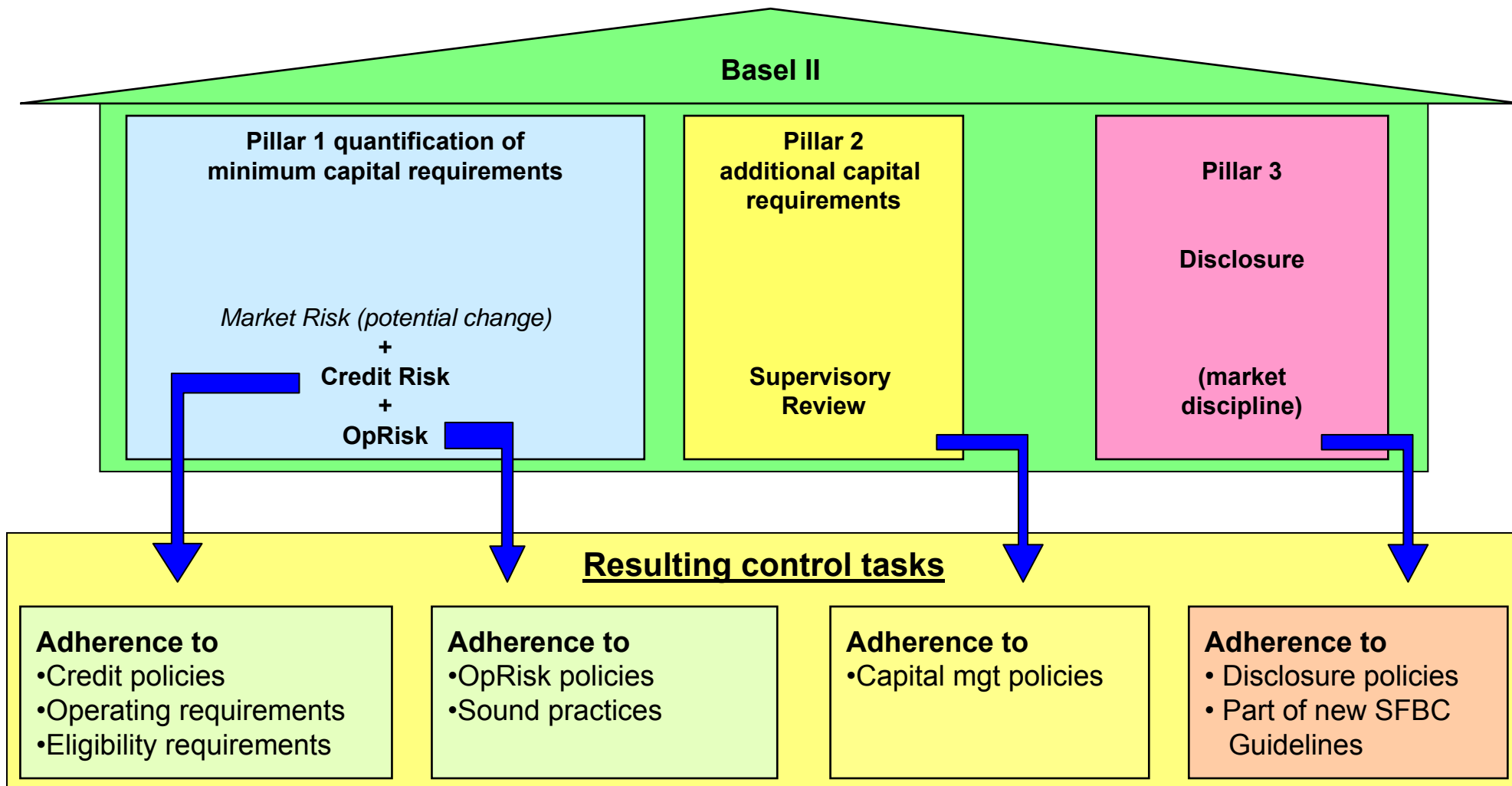
ILLUSTRATIVE



5. Basel II and Governance

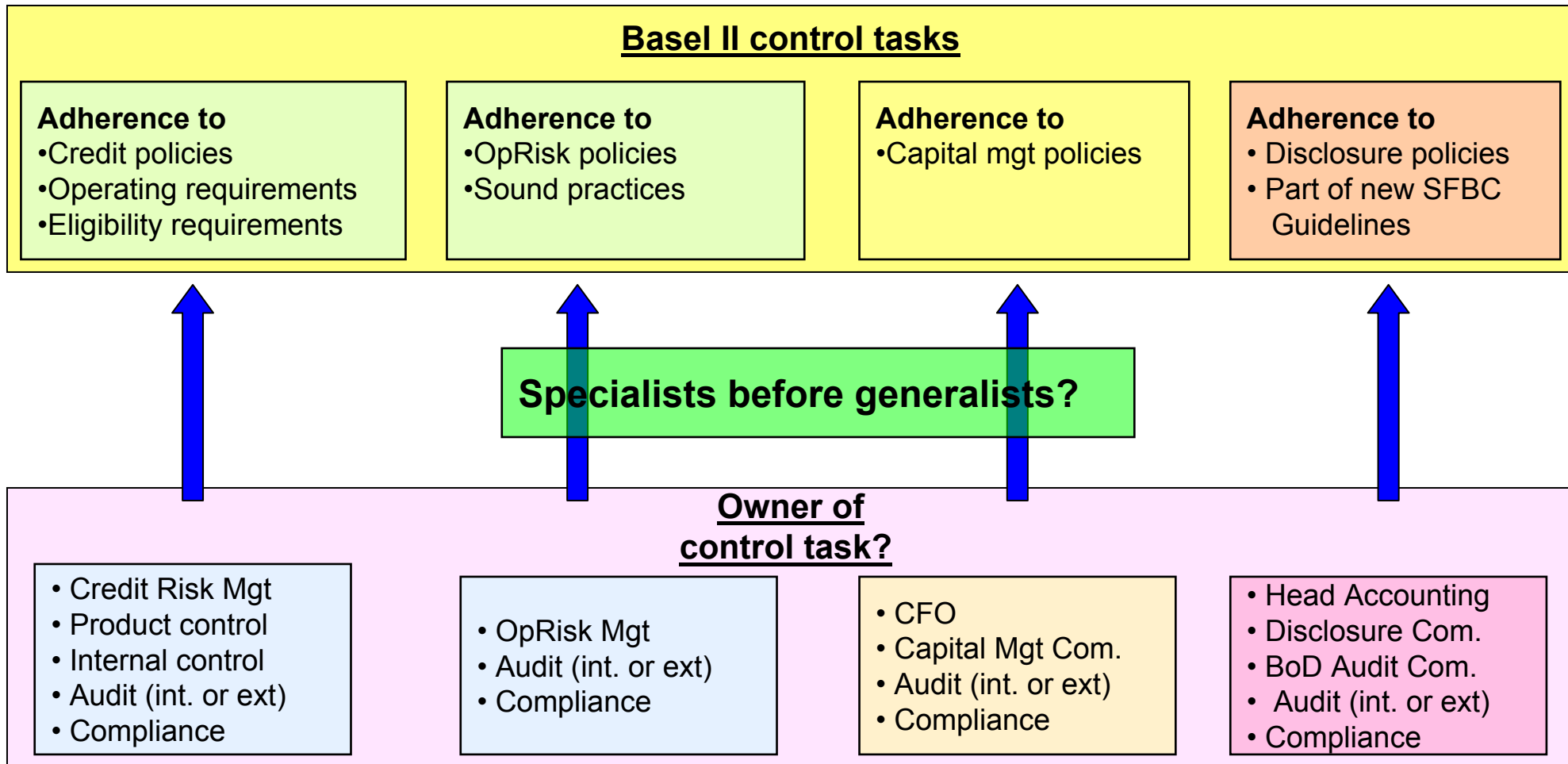
BASEL II AND GOVERNANCE

SYSTEMATIC CONTROL TASKS REQUIRED



BASEL II AND GOVERNANCE

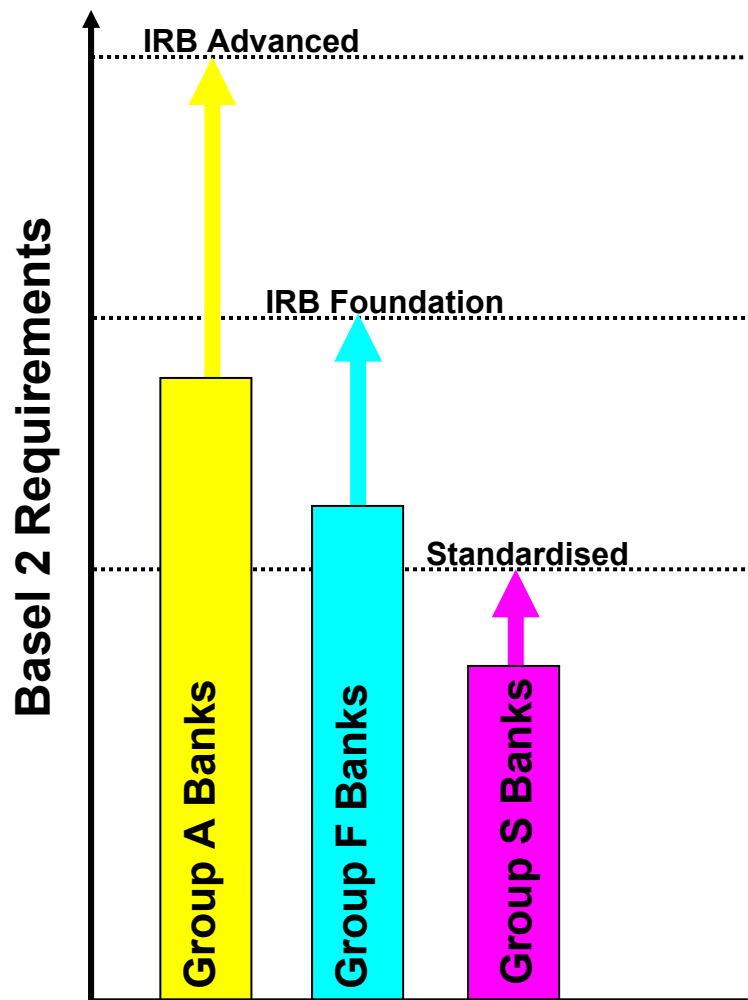
BANK SPECIFIC ORGANISATION OF CONTROL TASKS



6. Basel II costs

BASEL II COSTS

ALL BANKS LIKELY TO FACE A GAP TO CLOSE



State in 2005

Typical Profile for aiming at:

IRB Advanced in 2008: 0.1% of banks (Group A)

	Methods	Processes	Systems	Data
Rating	✓	✓	✓	✓
Risk Mitigation	✓	✓	✓	✓
Parameters	?	✓	✓	?
OpRisk	?	?	?	?
Reporting	✓	✓	✓	?

IRB Foundation in 2007-8: 9.9% of banks (Group F)

	Methods	Processes	Systems	Data
Rating	?	✓	✓	?
Risk Mitigation	?	✓	✓	?
Parameters	?	✓	✓	?
OpRisk	X	?	X	X
Reporting	✓	?	✓	?

Standardised in 2007: 90% of banks (Group S)

	Methods	Processes	Systems	Data
Rating	?	?	?	X
Risk Mitigation	?	?	?	X
Parameters	X	X	X	X
OpRisk	X	X	X	X

Note: ✓ = existing for all material portfolios; ? = existing for some portfolios; X = not existing for most material portfolios

BASEL II COSTS

CRITICAL COST DRIVERS FOR BASEL II COMPLIANCE

Large institutions in G10 countries (IRB/AMA banks)

1. System complexity
2. Requirements on data quality (the devil lays in the detail)
3. Frequency and detail of review
4. Disclosure

Small institutions in G10 countries (standardised banks)

1. Minimal changes vs. today
2. Extent of Pillar II review

7. Conclusion & Outlook

CONCLUSION AND OUTLOOK

WHAT CAN BANKS AND THEIR STAFF DO?

■ At organisation level

- Prepare risk management processes & systems for Basel II compliance
- Substantial changes in oversight & governance of those processes
- Closer integration of risk management & financial control functions
- Closer integration of risk & capital management, e.g. capital allocation by product/counterparty

■ At the risk-MIS level

- Correct/timely capture of all transactional and counterparty dimensions
- Correct exposure measurement a) for internal purposes and b) regulatory purposes
- Pricing systems more integrated with risk assessments (use test)

■ At the individual risk staff level

- Work on making data/rating more appropriate, timely and of sounder quality
- Trades are entered correctly in the MIS

CONCLUSION AND OUTLOOK

BASEL II IN GENERAL

- **Substantial benefits from aligning regulatory and economic capital**
 - Improved acceptance of capital allocation
 - Enhanced market perception, process efficiency and risk-based pricing
 - Increase number of variables to influence capital requirements

- **New balancing of strategies**
 - Drive to expand retail business likely to increase competition (e.g. retail, mortgages, SME's)
 - Drive to reduce non-investment grade business likely to increase specialization
 - Drive to push corporate/bank clients to enhance governance/disclosure set-up
 - Potential of consolidation for banks focused on corporate, SL, SF business

- **The industry/supervisory dialogue must go on ... to Basel III?**
 - Build a common understanding
 - Clarification of interpretation issues
 - Concrete examples and suggestions