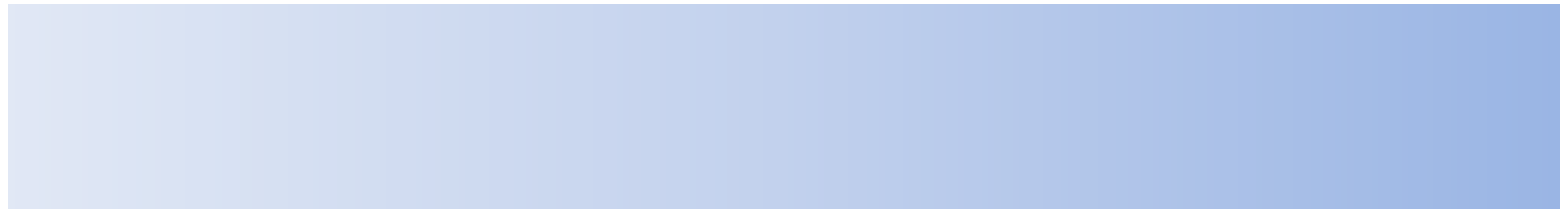
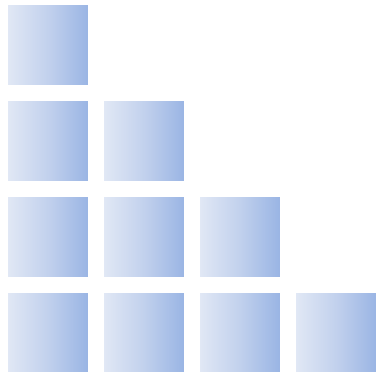

FRTB: Data Challenges and Impact on Infrastructure

Arthur Rabatin
Head of Market Risk Technology, BNY Mellon

London, November 2017



Disclaimer

The document author is Arthur Rabatin and all views expressed in this document are his own and not those of his employer.

All errors and omissions are those of the author

Arthur Rabatin, London, November 2017

TOPICS

- FRTB and the impact on infrastructure - storage and computational requirements
- Requirements on infrastructure for market risk and FRTB
- FRTB and legacy infrastructure - determining if your existing infrastructure will suffice
- Buy vs. build
- Responding quickly and becoming agile
- Developing a common data warehouse
- Examining the benefits of cloud based infrastructure as a solution

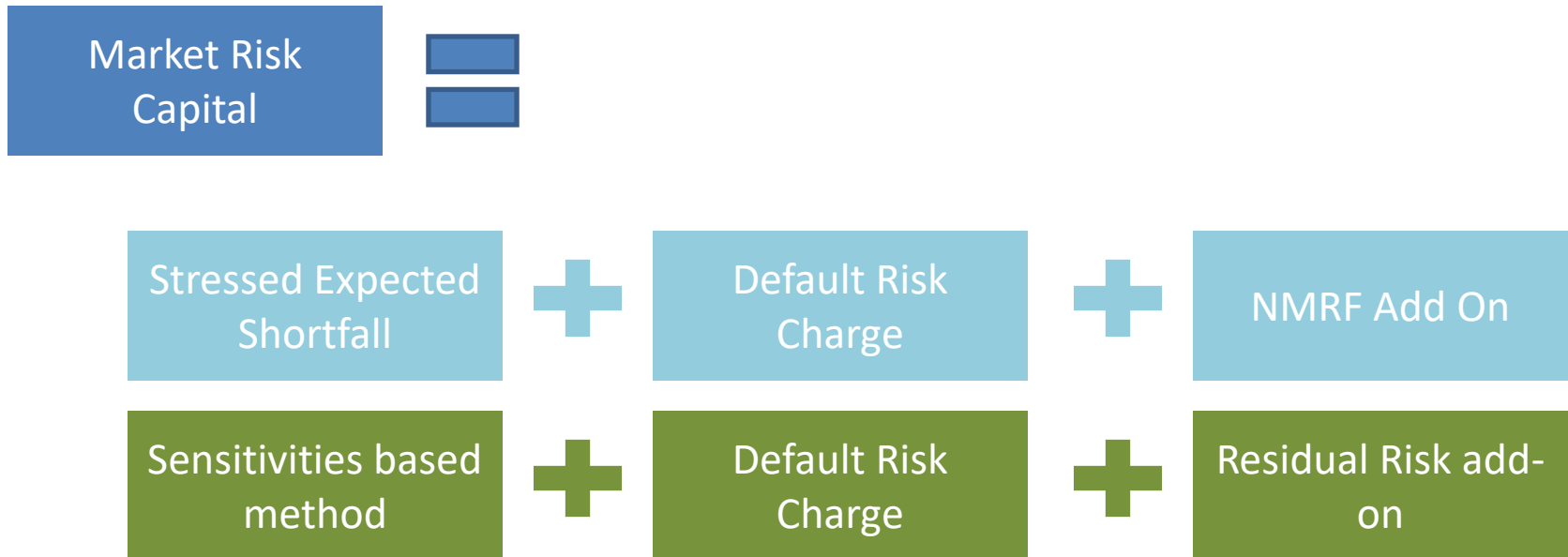
FRTB: The Regulatory Objective

- Clear Trading Book / Banking Book boundary clarity
- More risk sensitive Standardised Approach
- Remediation of patchy risk capture in internal models of liquidity risk, pro-cyclical calibration
- Enforceability by credible threat to remove internal model permission
- Clearer, desk level accountability for FRTB compliance (backtesting requirement)

FRTB Implementation Framework

- Desk Model
 - Volcker desks as starting point
 - Legal Entities, Modellability of risk factors in book may impact changes
- Risk Factor Governance
 - Strong governance of risk factors required
 - Alignment between Front Office and Market Risk required
 - Backtesting will drive IMA eligibility and NMRF add-on
- P&L Attribution Test
 - Alignment market risk and front office remains key
- Dependency on other regulations
 - BCBS239, SA-CCR, SIMM

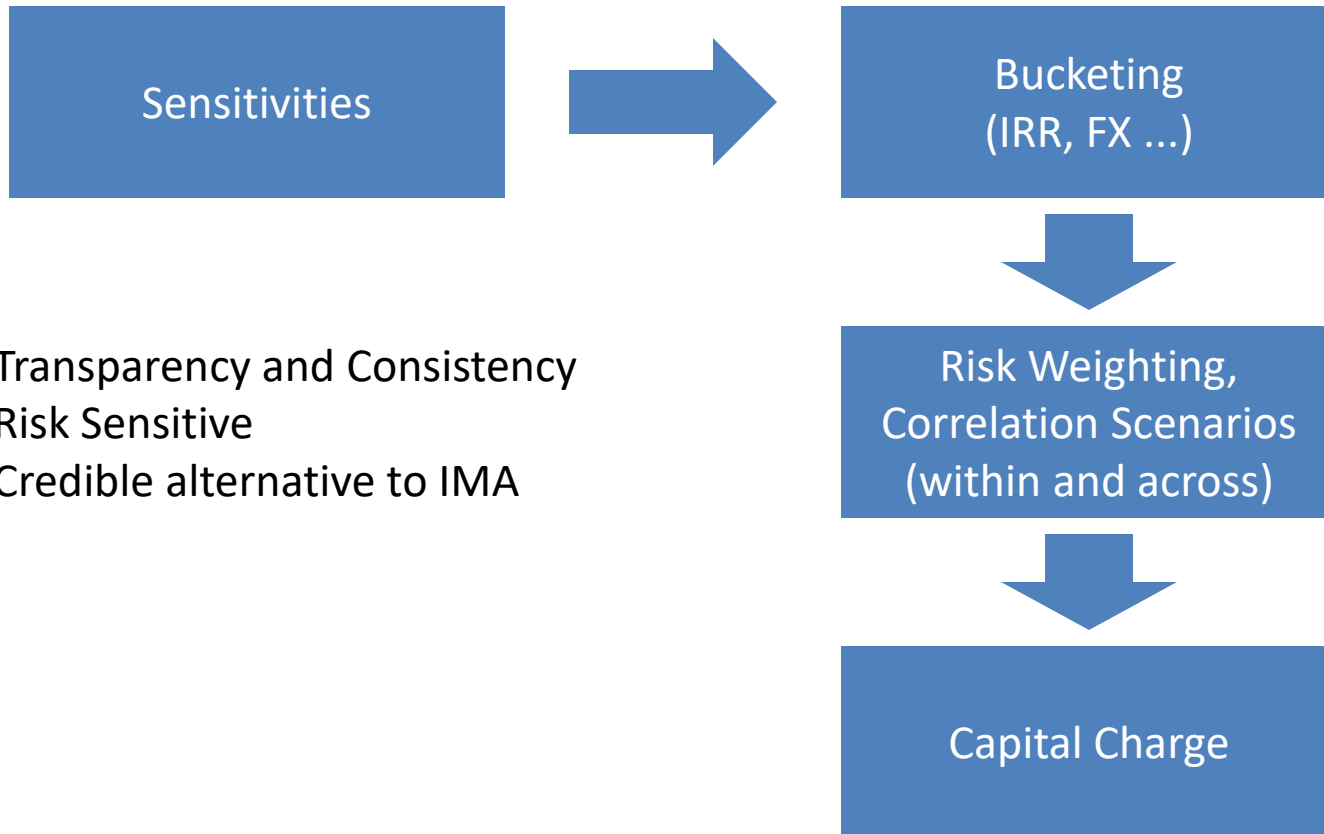
Calculation Approach



IMA

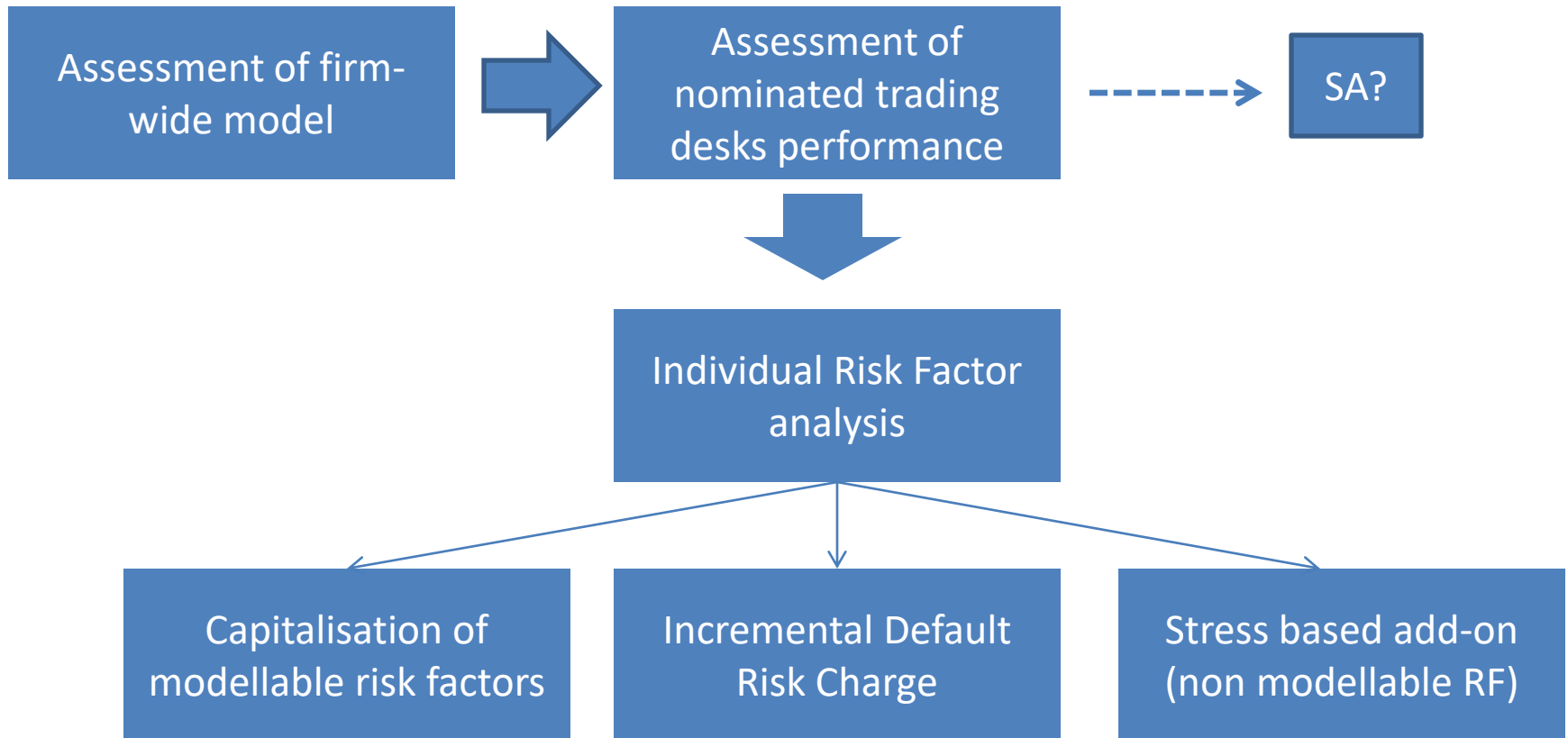
Standardised approach

Standardised Approach



- Transparency and Consistency
- Risk Sensitive
- Credible alternative to IMA

Revised Internal Model Approach



Front Office / Market Risk Calculation Infrastructure Challenge

- IMA / Standardised Approach Decision
- Separation of Front Office and Second-Line Risk production: from advantage to hindrance:
 - *Increase in computational need for backtesting*
 - *Where is regulatory compliance accountability?*
- Current Infrastructure Capabilities – support for desk-level backtesting?
- Regional Variants of FRTB?

From Calculation to Data Driven Methodology

- What is Risk Factor governance?
 - Identification of underlying market data
 - Identification of risk factors explained through market data
 - Consistency of risk factor use across front office and second line
- Modellable Risk Factors –
 - Sufficient set of representative transactions to show historical time series
- Reference Data Hygiene discipline
 - Identification of instrument drives capital methodology (for SA even more than IMA)
 - Book Structure / Legal Entity structure critical to correct aggregation

Enterprise Implementation Approach

- Regulatory Direction of Travel:
 - Data Standardisation
 - Enterprise Wide consistency
 - “Standardised Approach” component of credit and market risk regulation gaining in momentum
- Avoiding the Silo Trap:
 - “Implementation Program per Regulation” (SIMM, FRTB, SA-CCR, BCBS 239)
 - Duplication of Effort
 - Increased implementation and operational cost
 - Increased implementation timeline

Deciding on Infrastructure Overhaul

- Fit-For-Purpose Decision to be made
 - Desk Level Backtesting
 - FO / Market Risk Alignment
 - Data Governance
- Build vs Buy:
 - Easier for Standardised Approach Banks
 - “Buy” Decision does not remove responsibility for data governance
 - Data Governance is the hard bit!
- Data warehousing upstream / downstream – developing enterprise wide strategic assets

Benefits/Challenges of Cloud Infrastructure

- Benefits
 - Time-to-Market for Compute Capability
 - Try-before-you-buy implementation optionality
- Challenges
 - “Cloud” is too broad a term to have an exact benefit case (from dynamic provision of virtual hardware to component based, API based capacity)
 - Charging model can be extremely complex and unpredictable
 - Cloud infrastructure benefits calculation intensive processes more than data intensive processes (less benefit of upscale/downscale of capacity)

Benefits of FRTB driven Re-Architecture

- Rationalised Front Office / Market Risk Infrastructure
- Enterprise-wide market data operations
- Opportunity to access new technologies
- Platform simplification underpins a more economic risk management framework and greater cost transparency for individual business units