

The Deloitte logo, consisting of the word "Deloitte" in a white, bold, sans-serif font, followed by a small yellow dot.

# Basel II AIRB Implementation “Lessons in Progress”:

Commercial Credit Risk Data, Measurement and  
Technology Challenges

A silhouette of a golfer in mid-swing, holding a golf club, set against a bright blue sky and a green landscape with hills in the background.

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Principal  
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# Agenda

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Basel II – Overview and Current Status

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AIRB Credit Risk – Key Requirements / Implications

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Major Pain Points and Challenges

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Industry Impact

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Closing Remarks

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# Basel Overview & Current Status

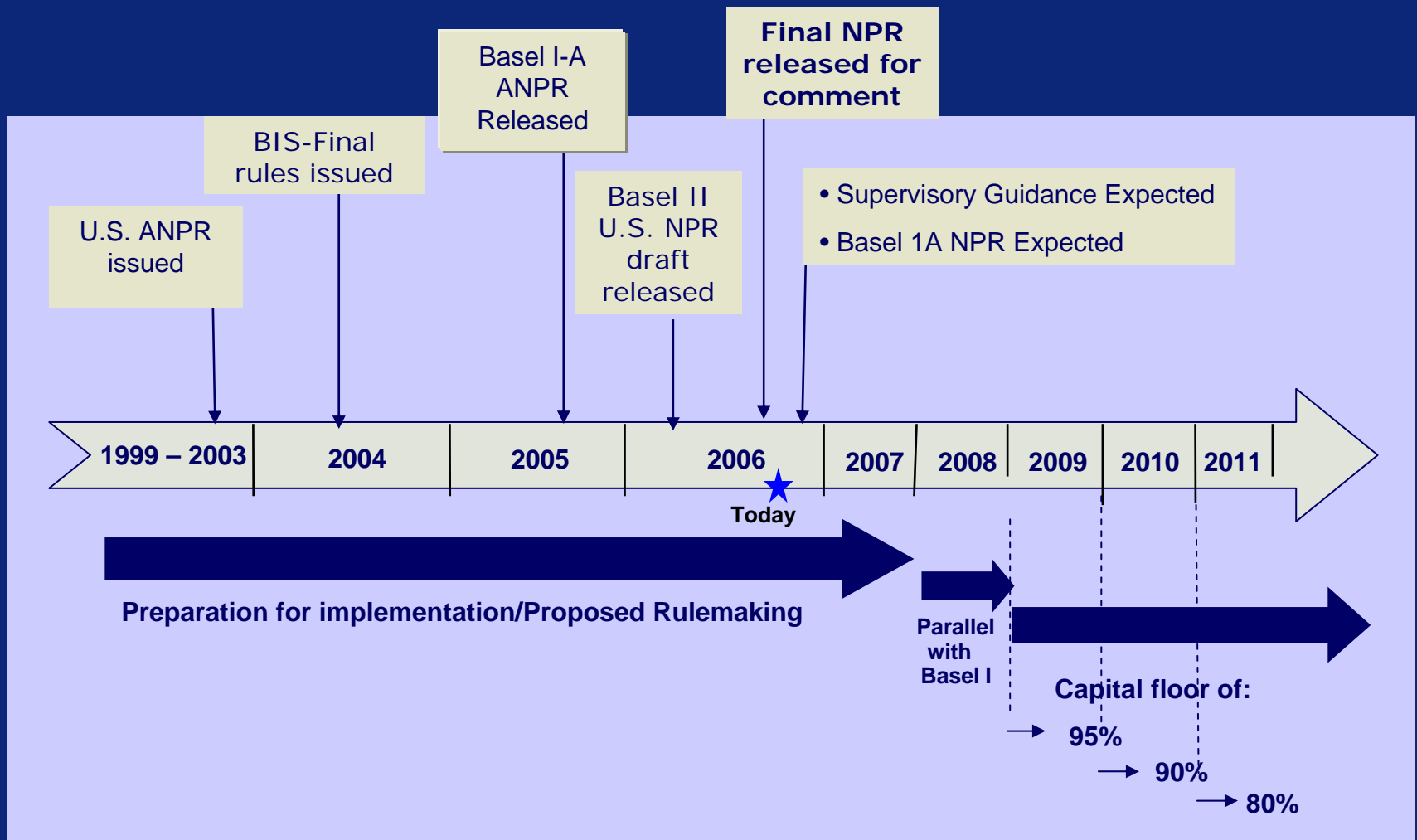


# Background on the Basel Accord

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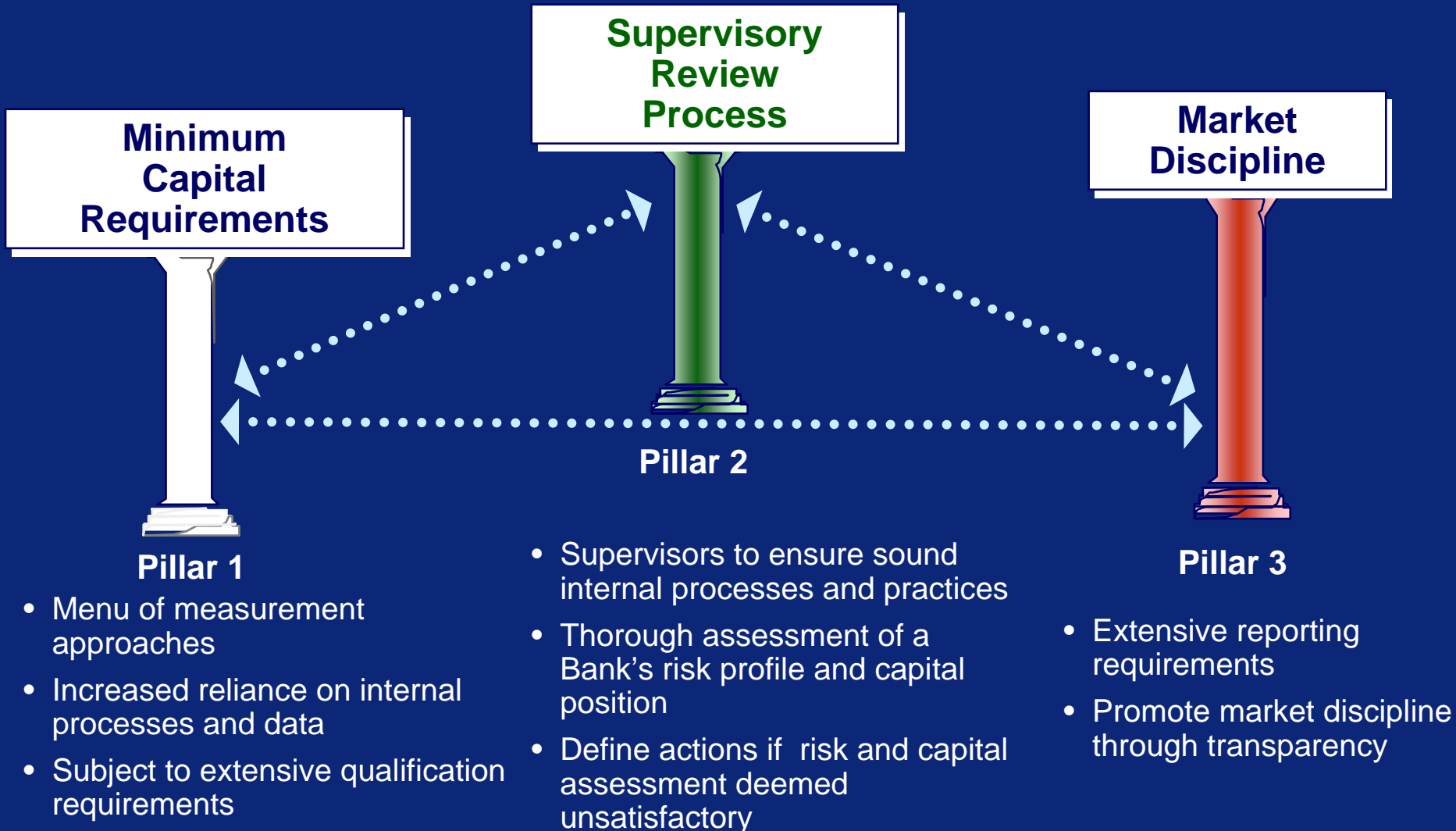
- The Basel Committee on Banking Supervision operates under the Bank for International Settlements located in Basel, Switzerland
  - It was established by the central bank Governors of the G10 countries at the end of 1974 and meets four times a year
- In 1988 the Basel Committee issued the first Basel Accord
  - It quickly became clear that this ‘one size fits all’ approach was inappropriate given the wide variety of banking institutions
- Market Risk Amendment introduced in 1996
- Significant regulatory capital arbitrage opportunities exist in Basel I

# Basel II Timeline for US Implementation



# Basel II Introduces a Three Pillar Approach

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# Economic Capital vs. Regulatory Capital

## Economic Capital

Businesses are assigned capital in proportion to economic risks they pose

Distinguishes risks for a counterparty, relationship or transaction

Risk orientation: comprehensive

Distinguishes risk by credit quality (risk ratings, EDFs and credit scores)

All risks are considered: credit, market, operational, ALM, country, etc.

Explicitly accounts for diversification

Customized to institution's risk tolerance

## Regulatory Capital (Basel I)

Minimum capital requirements (Tier I/Tier II) are based on broad system risk levels

Very limited risk sensitivity; broad brush structure

Asset orientation

No risk differentiation based on credit quality

Considers credit and market risks

Does not account for diversification

By definition, comparable across banks; limited value in the comparison

## Regulatory Capital (Basel II)

Capital definitions and minimum capital levels largely unchanged

Significantly increased risk sensitivity

Exposure orientation

Credit risk quality differences captured

Considers credit, market and operational risks

Accounts for average diversification with broad exposure categories

Applies same capitalization standard to all banks; hence comparable

Basel II is expected to lead to greater alignment between economic capital and regulatory capital

# AIRB Credit Risk – Key Requirements



# Qualification Requirements - Overview

## MINIMUM REQUIREMENTS

Overall - to Qualify for IRB Approaches in General

Specific, Separate – for LGD, EAD and Mitigants Under Advanced IRB

### RATING SYSTEM

- Separate Borrower Vs. Transaction Ratings
- Minimum of 8 grades
- Less than 30% of exposure in one grade
- Separate rating for legal entities
- Annual rating review
- Regulatory default definition
- Stress testing
- .....

Banks are required to develop a one year PD measure for each borrower grade

### 3 Acceptable PD Calibration Approaches:

- *Bank's internal historical default experience*
- *Mapping to external data (rating agency)*
- *Statistical default models (KMV EDFs / RiskCalc)*

### LGD

- LGD Rating Dimension
- Validation / Stress testing
- Use in Pricing Models
- Relationship w/ collateral
- .....

### EAD

- Specified by Facility Type
- Forward looking
- Consistent with experience
- .....

# Risk Mitigation Options

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- Collateral
  - Financial Collateral (cash, securities, equity, etc.)
  - Non-Financial Collateral (property, equipment, etc.)
- Guarantees and Credit Derivatives
  - Standby L/Cs, financial guarantees, etc.
  - Credit default swap (CDS), Nth to default CDS, etc.
- Netting
  - Master netting agreements (OTC derivatives, repos, etc.)
  - On-balance sheet deposit netting
- Securitization\*
  - Traditional, synthetic

# Portfolio Management – Regulatory Capital Relief via Credit Derivative Hedging

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- Types of eligible credit derivatives for capital relief
  - Single name CDS
  - N<sup>th</sup> to default CDS
  - Total Return Swaps (TRS)
- Credit Derivative eligibility requirements summary
  - Legal enforceability in the relevant jurisdiction
  - Explicit, irrevocable and unconditional contracts
  - Full or pro-rata coverage of contractual payments
  - Inclusion of relevant credit events (failure to pay, bankruptcy, etc.)
  - Net income/credit losses accounting requirements for TRS
  - Protection provider eligibility (e.g. highly rated financial firms for double default treatment)
  - Application of haircuts: currency, maturity, restructuring
  - Monitoring of wrong way, concentration and liquidity risks

# Portfolio Management – Regulatory Capital Relief via Credit Derivative Hedging

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- CDS Hedging Process and Data Implications
  - Assignment of CDS eligibility flags
  - Linkage to reference obligors and assets
  - Determination of net positions at reference obligor level
  - Identification and matching of internal and external hedges
  - Determination of qualifying capital hedges (PD substitution, double default, etc.)
  - Maximization of capital relief through ‘optimal’ allocation of hedges
  - Systematic identification and assessment of wrong-way, liquidity risks, etc.
  - Lack of systematic access to legal agreement information (e.g. legal enforceability flags, etc.)

# Portfolio Management – Regulatory Capital Relief via Credit Derivative Hedging

- CDS Hedging Example – Capital Calculations under Basel II (double default approach)

Assumptions		<b>Exposure</b>	<b>Credit Derivative</b>
	PD	0.08%	0.02%
	ELGD	45%	40%
	Instrument Type	Term Loan	CDS
	Amount (USD)	1,500,000	1,500,000
	Term (yrs)	4	3
	Currency	USD	EUR
	Contract Terms	N/A	No restructuring Immediate Pay-out
Haircuts Application	CDS Notional	1,500,000	
	<i>Mat. Mism. Haircut</i>	27%	
	<i>Restr. Haircut</i>	40%	
	<i>CCY Mism. Haircut</i>	2%	
	<b>Haircut Adj. Notional</b>	<b>646,800</b>	
CDS Application		<b>Amount</b>	<b>RWA</b>
	<b>Exposure</b>	<b>1,500,000</b>	<b>596,368</b>
	<i>Covered Portion</i>	<i>646,800</i>	<i>46,001</i>
	<i>Uncovered</i>	<i>853,200</i>	<i>339,214</i>
	<b>Total</b>		<b>385,215</b>
	RWA Savings		211,153
RWA % Savings		35%	

# Synthetic Securitization / CLO considerations

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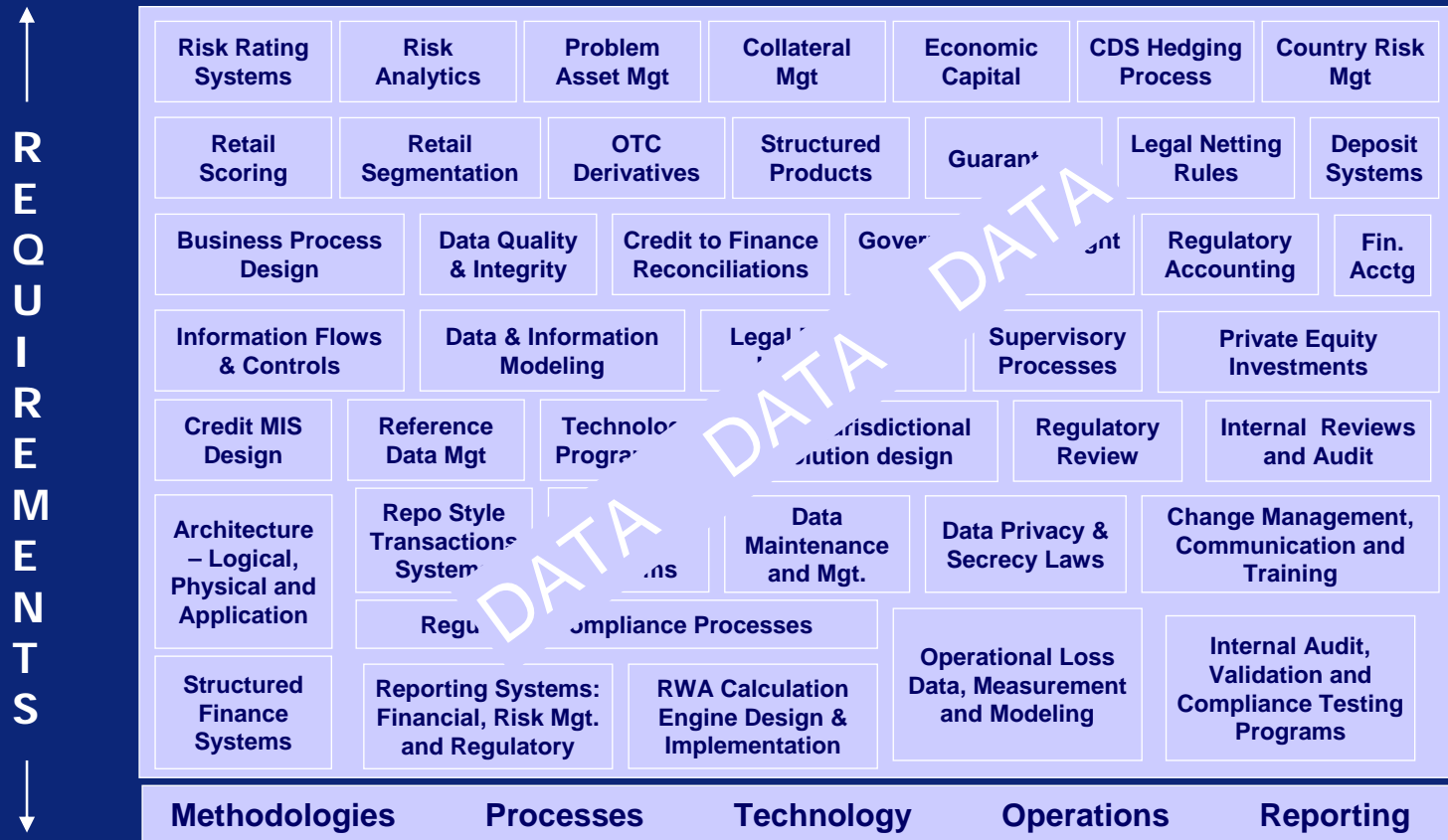
- Basel II securitization framework:
  - Identification of exposures that are not considered as ‘securitizations’ by the businesses but qualify per Basel II
  - Determination of the appropriate treatment requires consideration and understanding of several factors:

<b>Product Type</b>	<ul style="list-style-type: none"><li>• Internal Assessment Approach (IAA) is only available for ABCP conduits</li><li>• RBA can be used for investment securities of ABS, MBS, CMO; however most structured products are not rated therefore cannot use RBA.</li></ul>
<b>Eligibility</b>	<ul style="list-style-type: none"><li>• IAA requires the Bank's internal rating methodologies to meet a number of criteria; some products (e.g. Tender Option Bonds, Structured Investment Vehicles, etc.) can qualify as an ABCP program and can be eligible for IAA.</li></ul>
<b>Data Availability</b>	<ul style="list-style-type: none"><li>• If underlying loan level data is not available (or its quality is questionable), the Supervisory Formula cannot be used</li></ul>
<b>Materiality</b>	<ul style="list-style-type: none"><li>• The Bank can choose dollar-for-dollar deduction of unrated exposures that are immaterial in size rather than sourcing and maintaining the required data for SF approach.</li></ul>

# Major Pain Points & Challenges



# Complexity of Basel II Implementation is Compounded by a Multiple Touchpoints and Dependencies



BANK FUNCTIONS



# Basel II Enterprise Program Profile

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- Basel II program characteristics at core US and large global banks
  - Huge in scale, scope and complexity
  - Multiple threads and workstreams
  - Matrixed accountability structure
- Programs span diverse constituencies that do not often speak the same “language”
  - Challenging task to communicate the “implications” and “impacts” of requirements
- While Basel II will end up as a regulatory directive, investments in improved risk and business management are at the core of several requirements
- Implementation activity is accelerating within significant technology, change management involvement
  - IA is keeping a close watch

# Some Key Observations and Lessons to Date

- Largest banks (and experts) under estimated the complexity (and costs)
- Excessive focus on some narrow areas
- 80/20 solutions for Basel II will not work
- Current Risk to Finance reconciliation processes untenable under Basel II
- Limited applicability of vendor solutions
- Project Management – Single Biggest Challenge
  - Linear approach
  - Traditional PMO point of view or
  - Excessive reliance on Risk Analysts to drive PMO
- Limited success in leveraging Economic Capital systems for operational implementation

Surprise



## • **Project Management Lessons**

1. Top Down with an end to end view
  2. Structured Approach
    - Clear definition of ownership and accountability
    - Balance “Risk” vs. “Finance” roles
    - Detailed project planning
  3. Coordination and Communication
    - Front office, middle office and back office
    - Involvement of appropriate constituents
- **Integrity of the Information Architecture**
    - Credit MIS Design and Data Model
    - Qualification “data” vs. computation “data” attributes
  - **Operating Model - regulatory process and governance**
  - **Revisit short cuts from prior merger “integration” projects**

# Exploring role of Economic Capital systems/processes in Basel II Implementation

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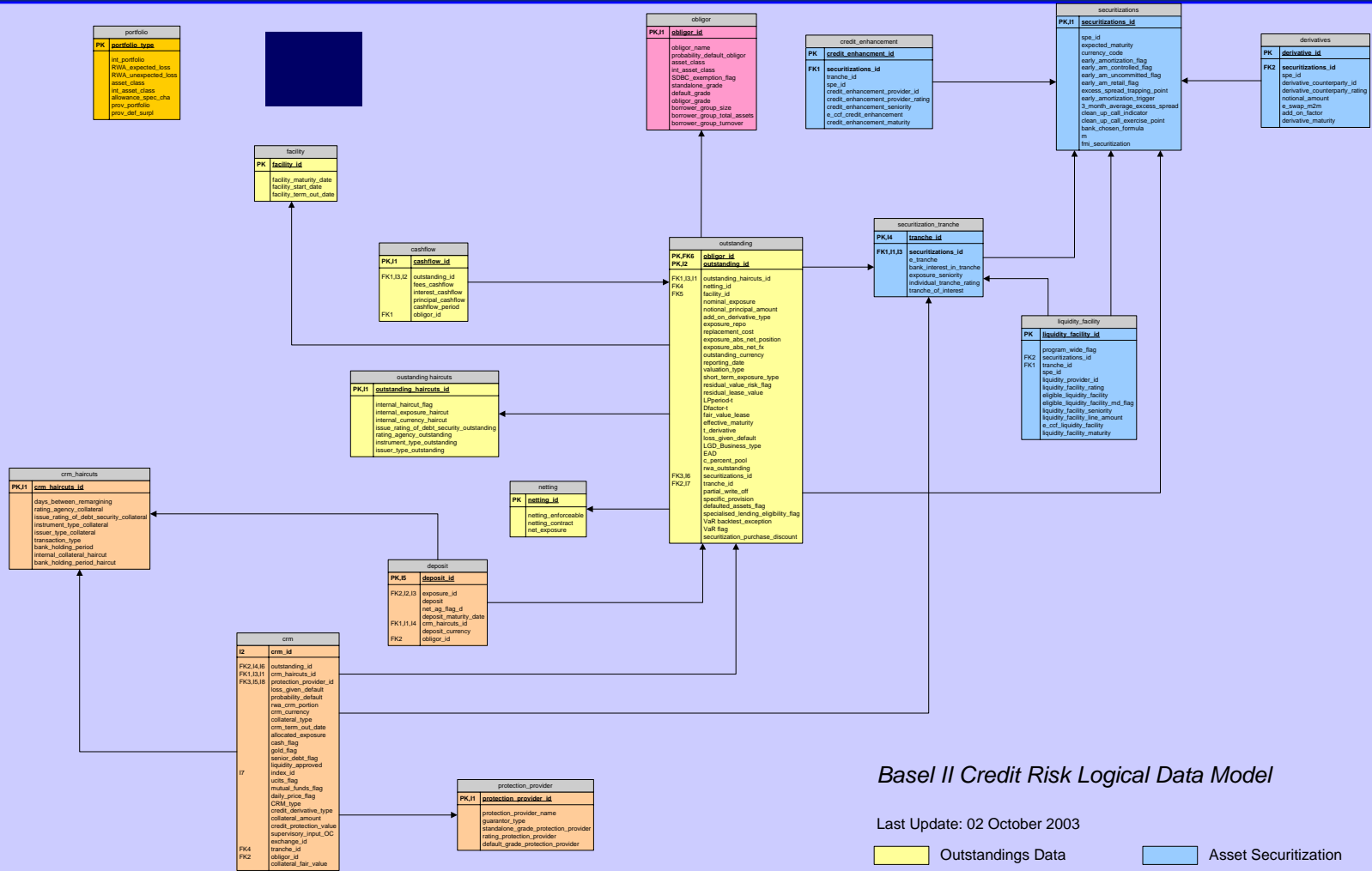
- Role and Contribution of Economic Capital Systems
  - Drives consistency in risk definitions and risk measurement approaches
    - Create a level playing field to assess businesses and activities affected by different risk forms
  - Incorporates Bank's risk tolerance objectives in capital measure
  - Brings focus and attention to “first order” data elements required for quantification
  - PD, LGD, EAD data histories and calibration
    - Have proven very valuable starting point for Basel II
- Serves as the foundation for RAROC, value based performance management and strategic decision support
  - Primary role is management reporting
- The 80/20 rule works for economic capital
  - Provides directionally correct and reasonably consistent results to support key decision making

# Limited success in leveraging economic capital systems for Basel II “operational” implementation

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- From a **process and controls** perspective, most bank economic capital systems would be considered “**immature**” or **ad hoc**
  - Systems were not designed and developed with a view to support external or regulatory reporting
  - Focus has been on methodology, analytics and assumptions, not so much on controls, review, reconciliation and documentation
  - “data” was considered good enough for risk modeling
- **Minimum Basel II qualification** criteria were never focus of economic capital systems
  - Risk ratings systems, corporate governance and oversight, credit process and policies, etc.
- Basel II **regulatory view of risk** continues to differ from economic capital view in several areas
  - Securitizations, repo-style transactions, credit hedging, OTC derivatives
  - In many aspects, regulatory model would be a simplification of EC model
- Pillar II (**supervisory review**) and Pillar III (**reporting/disclosure**)

# Transition From Logical Model to Physical Model.....



## Basel II Credit Risk Logical Data Model

Last Update: 02 October 2003

- Outstandings Data
- Obligor
- Credit Risk Mitigation
- Asset Securitization
- Provisions

This diagram illustrates attribute groupings and high-level relationships. These will be fully defined in the Analyse Phase.

# ...is Uncovering Significant Credit Data Issues

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- Linkage of Facilities to Borrowers
- Multi Borrower Facilities
- Multiple Ratings for Same Borrower
- Borrower Legal Hierarchies
- Credit Product to Account Mappings
- Consistent Product Hierarchies
- Legal Hierarchies vs. LOB Hierarchies
- Collateral, Guarantees and Hedges
- Identification of Structured Finance Facilities
  - ABCP Conduits
  - Credit Support
  - Standby Letter of Credit
  - Tax driven securitization structures etc
- Risk Mapping of the Balance Sheet

# Some sample implementation pain points

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- Internal Historical Data, especially LGD and EAD
- CDS Hedging Process for Qualification and Application of Rules
- Structured Finance / Securitization Products
  - ❑ Securitization Data Infrastructure
- Banking Book vs. Trading Book (overlaps)
- Collateral data capture and reporting
- Repo-Style Transaction Data Capture / Netting Rules etc.
  - Transitioning information from front office to risk data repositories
- Credit MIS to General Ledger Reconciliations
- Legal Entity Reporting in different jurisdictions
- Future state operating model for regulatory reporting
- Data Quality (in risk MIS and Finance)
- End to end testing



# Industry Impact



# Basel II vs. Basel I – Winners and Losers

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## Lower Capital Charges

Retail banking, and secured residential real estate lending, esp. residential mortgages

Investment-grade corporate lending

Lending against financial assets and collateralized lending

Short-term lending – i.e. trade finance

Hedged (CDS) or guaranteed credit exposures

## Higher Capital Charges

Non-investment grade corporate lending, sub-prime retail lending, project finance and lease finance

Lending to emerging markets (perhaps excluding “advanced” ones)

Significant equity investments; equity investments to hedge funds

Operationally intensive businesses – asset management, clearing, trust and custody

Prime brokerage (business with hedge funds)

Credit card ABS programs or conduit facilities

# Potential trends

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- Greater alignment between EC and Regulatory capital
  - Some unintended consequences are possible
  - Possible integration for management reporting
  - Fewer opportunities for capital arbitrage
- Data Quality improvement
  - Reduced noise in credit data
  - Consistency
  - Greater objectivity in credit assessment
- Improved AQ and Concentration reporting
- Streamlined regulatory reporting process

# Competitive Landscape

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- A-IRB banks vs. Basel 1A banks
- Banks vs. unregulated finance companies
- US vs. European banks
  - Leverage ratio requirement
  - Adoption timing differences
- Impact on average capital levels for banks
  - 1. Markets
  - 2. Markets
  - 3. Markets
  - 4. Rating agencies
  - 5. Regulatory minimum requirements

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