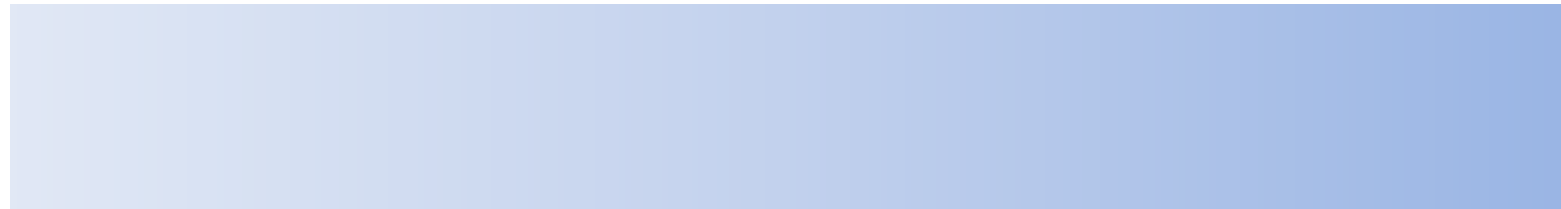
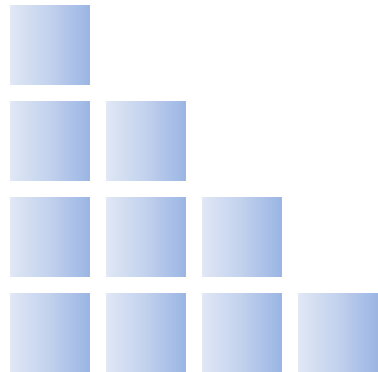

Overcoming Operational and Technology Challenges: xVA and Margining

Arthur Rabatin

Head of Counterparty and Funding Risk Technology,
Deutsche Bank AG

Initial Margin and Funding Conference

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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, June 2016

Topics

- A changed Regulatory and market structure Environment
- Focus on
 - Uncleared OTC Margining Implementation
 - CSA Discounting and Collateral Technology Impact
 - Synergy between collateralised risk and CVA Technology
- How can we create an approach to
 - Reduce costs
 - Reduce operational risk
 - Increase commercial benefits ?

Intersection of Market Structure and Regulatory Change

- **Market Changes**

- CSA based Discounting
- Inclusion of default risk (CVA/ DVA) and Funding VA
- Valuation of Collateral

- **Regulatory Changes**

- Mandated Clearing
- Margining of Bilateral OTC
- Faster pace of regulatory change from BCBS: Basel II, Basel III, FRTB
 - capital hurdle pricing becomes more relevant

Almost all change happened in last 7 years

1994	<ul style="list-style-type: none">• ISDA defines Credit Support Annex (CSA)
2004	<ul style="list-style-type: none">• Basel II framework defined
2008	<ul style="list-style-type: none">• Lehman Default• Goldman Sachs and Morgan Stanley become bank holding companies
2009	<ul style="list-style-type: none">• G20 Leaders Statement (Pittsburgh)
2010	<ul style="list-style-type: none">• Dodd-Frank Act• London Clearing House stops using Libor, moves to OIS discounting
2011	<ul style="list-style-type: none">• G20 Leaders Meeting (Cannes) mandates Margining for Uncleared OTC Derivatives
2012	<ul style="list-style-type: none">• EMIR (European Market Infrastructure Regulation)• First consultative paper on FRFTB
2013	<ul style="list-style-type: none">• Basel III phase-in starts• CVA for Capital and Accounting (IFRS 13)
2014	<ul style="list-style-type: none">• First draft of SA-CCR published

Don't address changes in isolation ...

... an effective Technology and Operational Change program will need to look at **all challenges** holistically.

IT Challenges: Uncleared OTC Margining

- First time significant bilateral reconciliation of trade sensitivities (not just PV). Exposes internal processes.
- Requires detailed understanding of
 - trade types (required to define compliance scope)
 - counterparties (incl LE definition)
 - Sensitivity definitions
- Cross business view of counterparty risk
- Potential significant re-papering of CSA agreements
- New Collateral Management requirements

IT Challenges: CSA Discounting

- Accurate understanding of CSAs in place
- Change of CSAs needs to be controlled process due to P&L impact
- Optionality of Collateral and Rating dependencies need to be captured and priced
- Cooperation of Sales, Trading and Collateral Management critical

IT Challenges: xVA Implementation

- Strong dependency on accurate CSA information and CSA change workflow
- Significant computation costs for accurate hedging and pre-deal pricing
- Complex P&L Process due to complexity of ‘final number’ – large number of inputs and calculations
- Accurate understanding of trade processing, counterparty agreements and own Legal Entities required

What is a holistic approach?

- The Technology challenge has moved from a purely 'computing' challenge to a data challenge
- The best investment is in clean
 - Trade data / Trade booking
 - Client and Legal Agreement Data
 - Instrument Data
- Front Office Risk / Capital Risk requirements will merge. Capital risk calculation will be required pre-deal depending on counterparty exposures
- Cross Asset class calculation will become critical

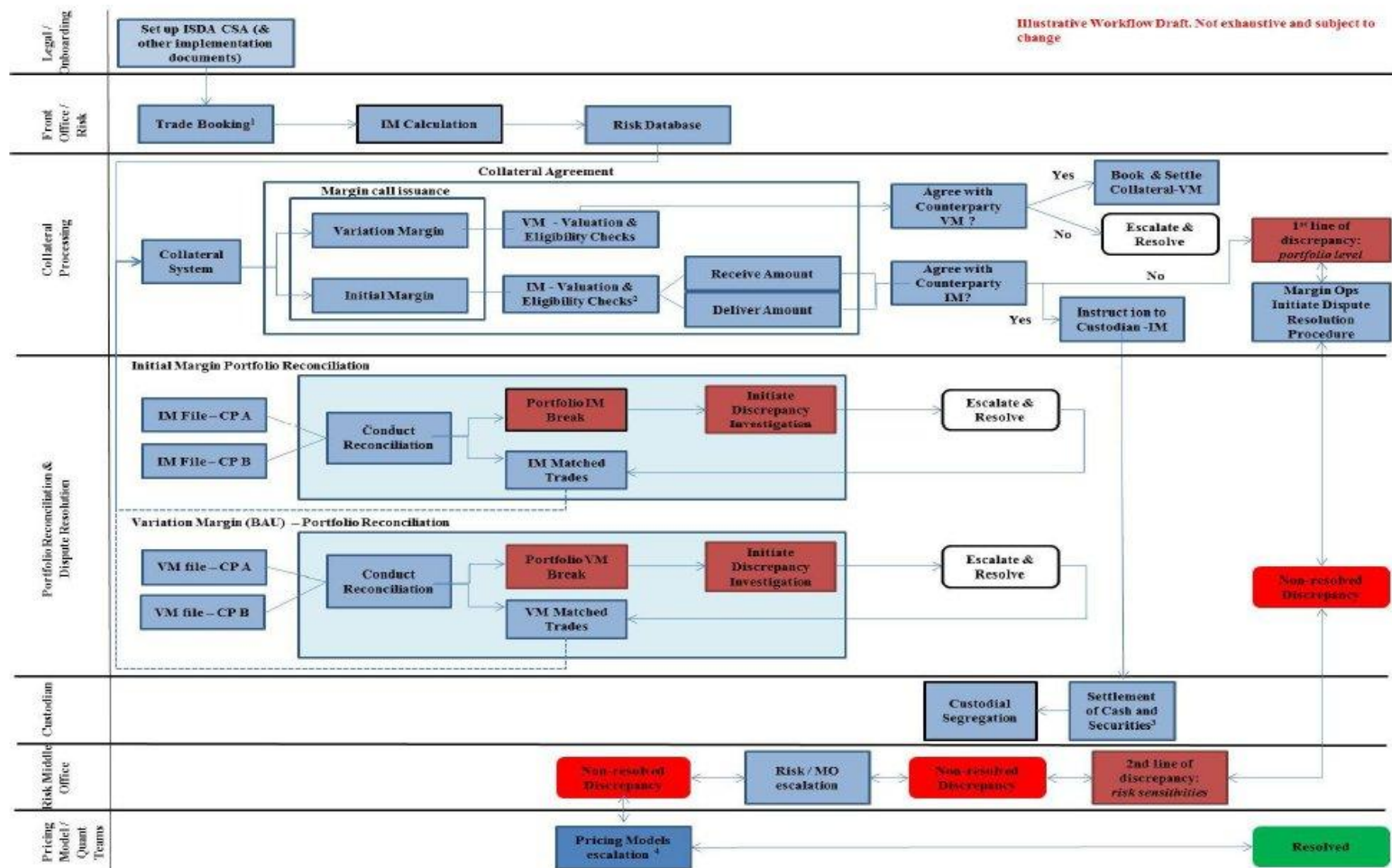
Good news: Data Ownership and Good Tech will ...

- Data ***ownership*** is a business challenge not (only) a technology challenge
- Data ***access*** is a technology challenge and requires new enterprise solutions for many organisations
- Reference Data Hygiene underpins any successful strategy
- Blockchain might well be a transformational technology, but it requires collaborative adoption. Blockchain is interesting for any data shared between counterparties.

Q&A

Appendix

Illustrative Workflow – Initial Margin Implementation



Sources:

- ISDA, Minimum Considerations for Uncleared Margin Future State Workflow, March 2015

Basel Framework Implementation Timetable (Status May 2016)

Regulation	Status	2015	2016	2017	2018	2019
Basel III Capital: Capital Conversation Buffer	Implemented agreed 2013		Phase-in	Phase-in	Phase-in	Fully Effective Jan 1st
Basel III Capital: Countercyclical Buffer	Implemented agreed 2013		Phase-in	Phase-in	Phase-in	Fully Effective Jan 1st
Basel III Capital: Banking Book Equity Investments Capital Requirements	Final Standard issued Dec 2013			Effective Jan 1st		
Basel III Capital: SA-CCR	Final Standard issued March 2014			Effective Jan 1st		
Basel III Capital: Securitisation Framework	Revisions issued December 2014				Effective Jan 1st	
Basel III Capital: Central Counterparty Exposure	Final standard issued April 2014			Effective Jan 1st		
Leverage Ratio	Framework issued January 2014	Reporting to National Supervisors only	Public Disclosure/Review	Public Disclosure/Review	Fully Effective Jan 1st	
Liquidity Coverage Ratio (LCR)	Revised standard issued January 2013	Transitional Arrangements	Transitional Arrangements	Transitional Arrangements	Transitional Arrangements	Fully Effective Jan 1st
Net Stable Funding Ratio (NSFR)	Final standard issued October 2014				Effective Jan 1st	
G-SIB Framework	Updated framework published July 2013		Phase-in	Phase-in	Phase-in	Fully Effective Jan 1st
D-SIB Framework	Principles issues 2012 (Should mirror G-SIB Framework domestically)		Phase-in	Phase-in	Phase-in	Fully Effective Jan 1st
Pillar 3 Disclosure	Final standard issued January 2015		Effective with Year-End Financial Reports			
Large Exposure Framework	Final standard issued April 2014					Effective Jan 1st
Minimum capital requirements for market risk ("FRTB")	Revision issued January 2016					Effective Jan 1st

Sources:

- Tenth progress report on adoption of the Basel regulatory framework (<http://www.bis.org/bcbs/publ/d366.pdf>) (April 2016)
- Revised framework for market risk capital requirements (<http://www.bis.org/bcbs/publ/d352.pdf>) (January 2016)