Basel III Final Standards: Capital requirement for bank exposures to central counterparties

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Part I – Executive Summary

Executive Summary

- The G20 Leaders, at their Pittsburgh summit in September 2009, agreed to a number of measures to improve the over-the-counter (OTC) derivatives markets, including creating incentives for banks to increase their use of Central Counterparties (CCPs)

- The Basel Committee on Banking Supervision (BCBS) has recently revised the "Interim Rules" for banks' exposures to Qualified CCPs[1] (QCCPs) published in July 2012
- "Final standards" will apply as of 1 January 2017. Until that time, the "Interim Rules" remain in effect
- Notable revisions to the framework include:
  - New simplified approach for determining the capital requirements for bank exposures to QCCPs
  - Introduction of a "*Standardized approach for measuring counterparty credit risk exposures*" (SA-CCR) aiming at overcoming limits of the "*Current Exposure Method"* (CEM)
  - Granularity and concentration adjustments – currently included in the "Interim Rules" – have been deleted

[1] In order to be deemed Qualifying, CCPs must comply with the CPSS-IOSCO Principles for Financial Market Infrastructures (PFMI)

Part II - Basel III Interim Rules

The Interim Rules: a General Overview

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Banks can choose between two methods to calculate their capital requirement:

Method 1:	2% RW against 'Trade Exposure' + Pre-funded Default Fund multiplied by 'C-Factor' (provided by CCP)
Method 2:	Minimum of: a) 2% RW against 'Trade Exposure' +1,250% RW against pre-funded Default Fund b) 20% RW against 'Trade Exposure'

- CCPs are required to calculate and publish "*on a monthly basis at a minimum*" a C-Factor so that Members can calculate their capital requirement under Method 1
- C-Factor is generated by measuring total default provisions of the CCP against "Hypothetical Capital" (K_{CCP}) calculated from trade data using the Current Exposure Method (CEM)
- **The CEM C-Factor has been shown to be inaccurate, particularly in relation to IRS**

Part III – Basel III Final Standards

Banks Exposures to CCPs

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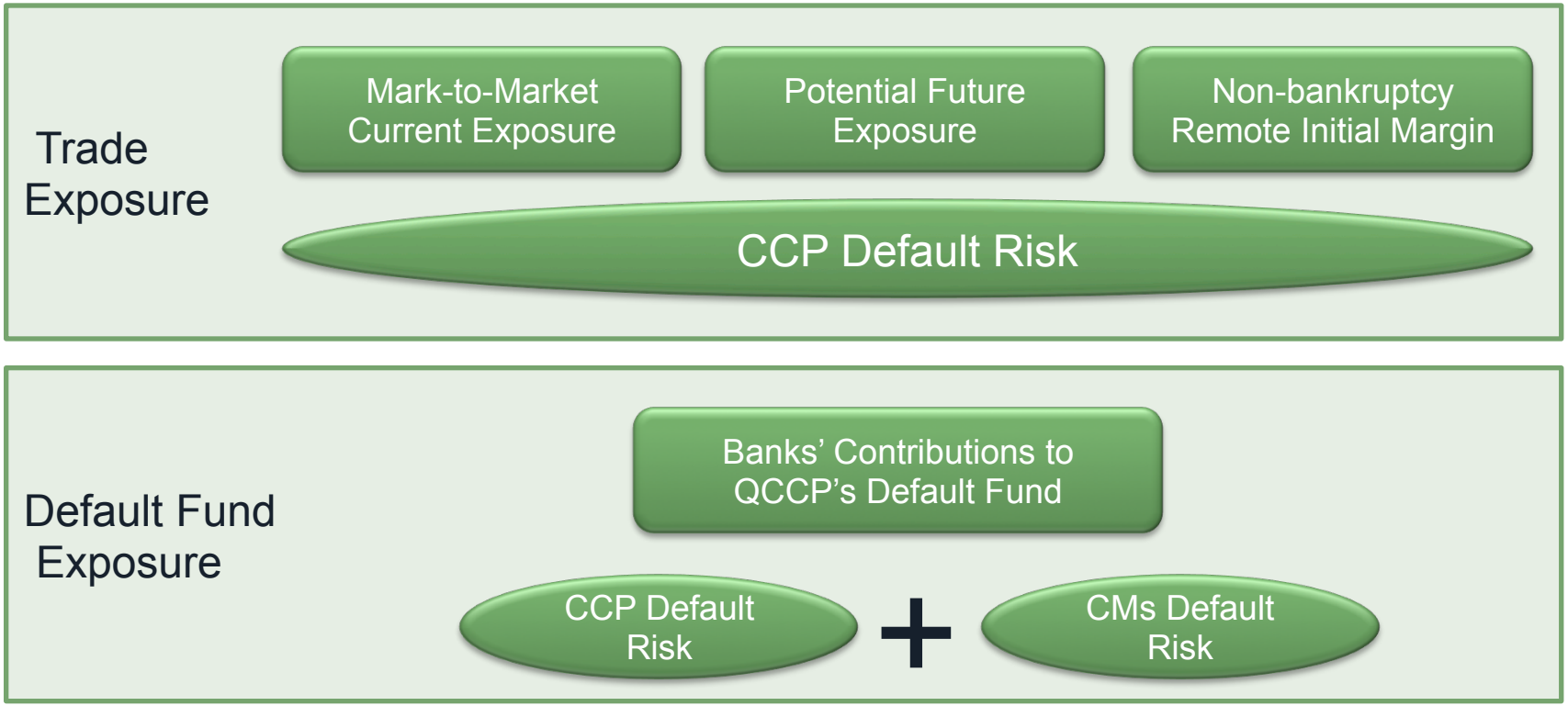
- The Basel Committee has identified two macro-types of banks' exposures to CCPs:



Initial Margins posted to the CCP

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- If Initial Margin collateral is posted in a way that is **bankruptcy remote** (such that if the CCP defaults the Clearing Member does not lose its initial margin) a **0% risk weight** is applied
- If Initial Margin collateral is posted in a way that is **not bankruptcy remote, a 2% risk weight is applied**
- **Capital treatment of bank's trade exposures to a CCP** (including both the mark-to market current exposure and the potential future exposure to the CCP on the banks' cleared portfolio) is the same applied to Initial Margins posted to the CCP in a way that is not bankruptcy remote
- The use of unsegregated collateral is further discouraged in the Final Standards as it will be added to a member's trade exposure in most cases
- The Basel III Consultative Document does not provide a clear definition of **"bankruptcy remote"**
- If exclusively margin collateral posted in securities can be considered **"bankruptcy remote",** then a 0% Risk Weight may create distortive incentives for Clearing Members to deposit Initial Margins in securities rather than in cash → **Increase of Liquidity Pressure**

Same as the "Interim Rules"

Default Fund Exposures: K_{CCP}

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- The "Hypothetical Capital Requirement" of the CCP due to its counterparty credit risk exposures to all of its clearing members and their clients is equal to:

$$K_{CCP} = \sum_{CMi} EAD_i \cdot RW \cdot CR$$

Different from the "Interim Rules"

RW is a risk weight of 20%

CR is the capital ratio of 8%

EAD_i is the exposure amount of the CCP to CM_i, including both the CM_i's own transactions and client transactions guaranteed by CM_i, and all the collateral posted with the CCP against these transactions

- **For derivatives**, EAD_i is calculated as the bilateral trade exposure the CCP has against the CM_i using the "*Standardized approach for measuring counterparty credit risk exposures*" (SA-CCR). All collateral held by a CCP is used to offset the CCP's exposure to CM_i

- **For SFTs**, EAD_i is equal to $\max(EBRM_i\text{-}IM_i\text{-}DF_i;0)$; where $EBRM_i$ is the exposure value to CM_i before risk mitigation, IM_i is the initial margin posted by CM_i and DF_i is the prefunded default fund contribution by CM_i

Default Fund Exposures: K_{CMi}

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- Calculation of the "Capital Requirement for each Clearing Member"

$$K_{CMi} = \max\left(K_{CCP} \cdot \frac{DF_i^{pref}}{DF_{CCP} + DF_{CM}^{pref}}; 8\% \cdot 2\% \cdot DF_i^{pref} \right)$$

Different from the "Interim Rules"

DF_{CM}^{pref} is the total prefunded default fund contributions from clearing members

DF_{CCP} is the Skin in The Game of the CCP

DF_i^{pref} the prefunded default fund contributions provided by Clearing Member i

- The Concentration Factor - measuring the degree of concentration of clearing members positions at the CCP - is no longer applied. CC&G believes that a concentration factor should be restored in order to take into account that more granular and the less concentrated is a CCP, less punitive should be the allocation factor of the capital requirement

Part IV – The New Standardized Approach

The New Standardized Approach (SA-CCR)

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- The New Standardized Approach (SA-CCR) for measuring exposure at default (EAD) for counterparty credit risk (CCR), issued by the Basel Committee in April 2014, will replace both non-internal models approaches: the Current Exposure Method (CEM) and the Standardized Method (SM)
- Main objectives of the SA-CCR approach include:
  - Devise an approach suitable for a wide variety of derivatives transactions
  - Address known limits of the CEM and the SM
  - Minimize discretion used by National Authorities and banks
  - Improve the risk sensitivity of the capital framework

Exposure at Default under SA-CCR

- The exposures under the SA-CCR (*EAD*) consist of two components: Replacement Cost (*RC*) and Potential Future Exposure (*PFE*)

$$EAD = 1.4 * (RC + PFE)$$

- The PFE portion consists of a multiplier that allows for the partial recognition of excess collateral and an aggregate add-on, which is derived from add-ons developed for each asset class (interest rate derivatives, foreign exchange derivatives, credit and equity derivatives, commodity derivatives)
- A ”hedging set” under the SA-CCR is a set of transactions within a single netting set within which partial or full offsetting is recognized for the purpose of calculating the *PFE* add-on
- The SA-CCR will apply to OTC derivatives, exchange-traded derivatives and long settlement transactions

Pros and Cons of the SA-CCR

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Pros:

- Recognition of risk offsets (correlations) within an asset class and country
- Improved treatment of options and basis swaps
- More appropriate recognition of collateral as a risk exposure mitigant
- Recognition of reduced risk in a centrally cleared environment
- Recognition of correlations between underlying names and indices for equity and credit derivatives

Cons:

- Does not recognise differences in volatility between different country markets
- Volatility-based derivatives may be treated punitively
- Not clear if it will appropriately treat less common or new products and risk types

Part V – Final Standards: CC&G Sensitivity Analysis

Final Standards: CC&G Sensitivity Analysis

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- In order to evaluate the impact of the New Standardized Approach (SA-CCR), a sensitivity analysis has been conducted on CC&G Equity Derivatives asset class (data updated at 31 March 2014)
- The following key variables, influencing the shape of "Capital Requirement for each Clearing Member" (K_{CMi}), have been identified:
  - **Total Prefunded Default Fund** contributions from clearing members, DF_{CM}^{pref}
  - **Initial Margins** Amount, required for K_{CCP} calculation
  - **Skin in the Game** of the CCP, DF_{CCP}

$$K_{CMi} = \max\left(\underbrace{\frac{K_{CCP}}{DF_{CCP} + DF_{CM}^{pref}}}_{\text{Cap. Req. } K_{CCP}\text{- based}}; \underbrace{8\% \cdot 2\%}_{\text{Cap. Req. floor}}\right) \cdot DF_{i}^{pref}$$

K_{CMi} Vs Total Prefunded Default Fund

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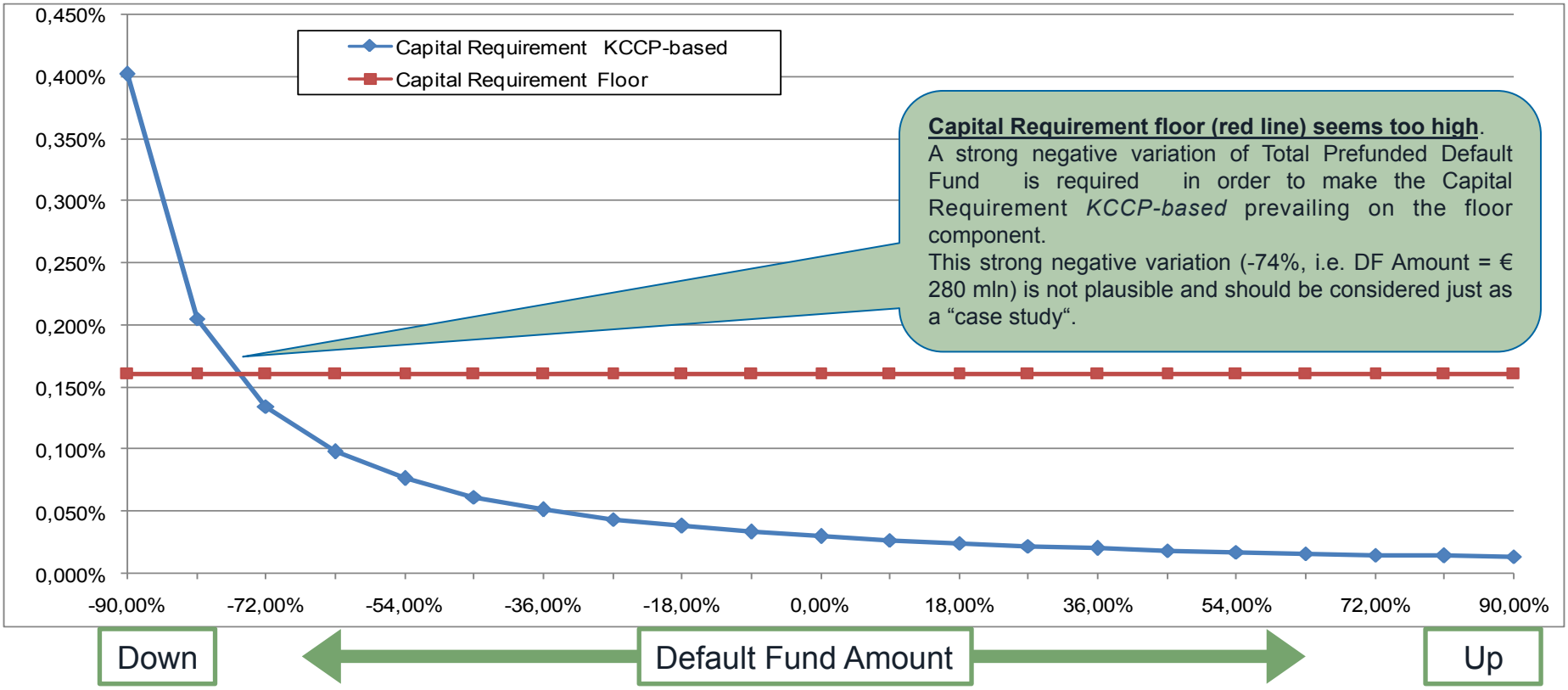
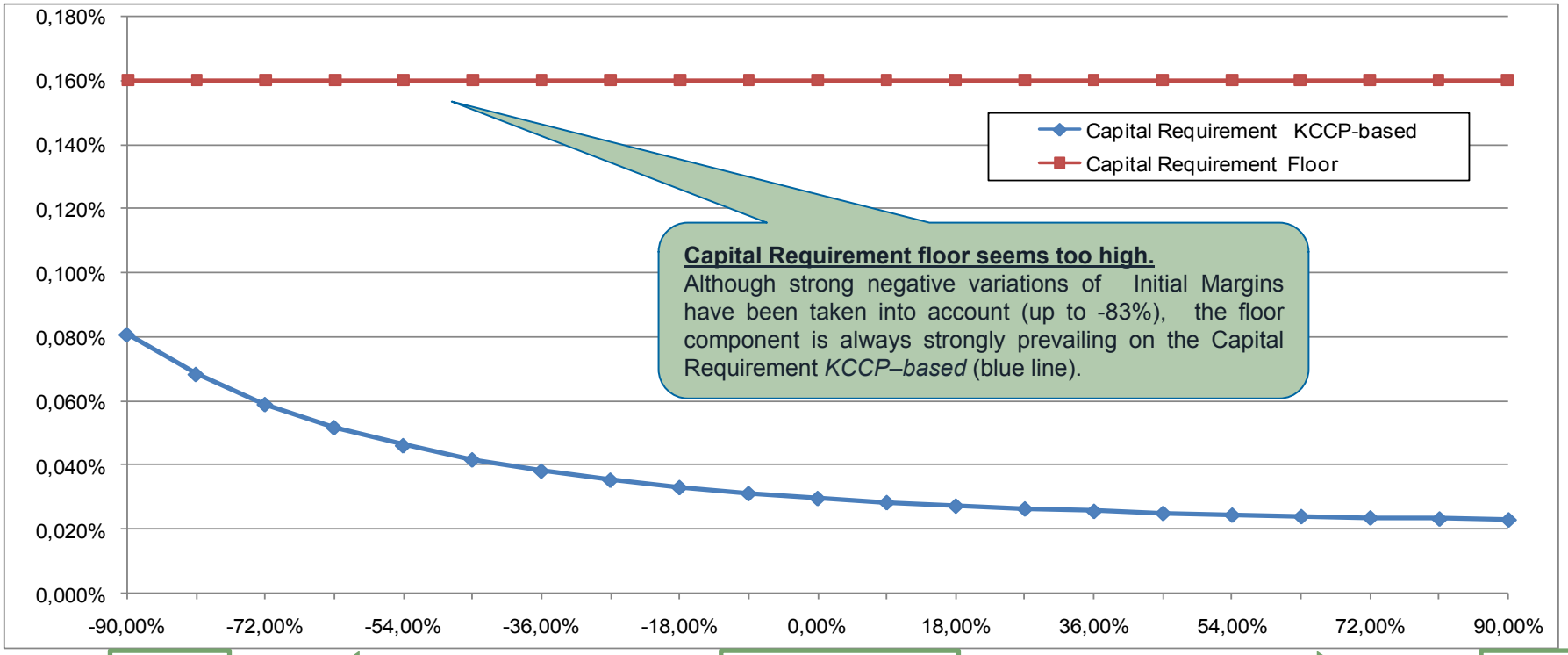
- Hp: 20 Different Scenarios for Total Prefunded Default Fund positive and negative variations
- Current amount of Total Prefunded Default Fund at 31 March was €1.6 bln



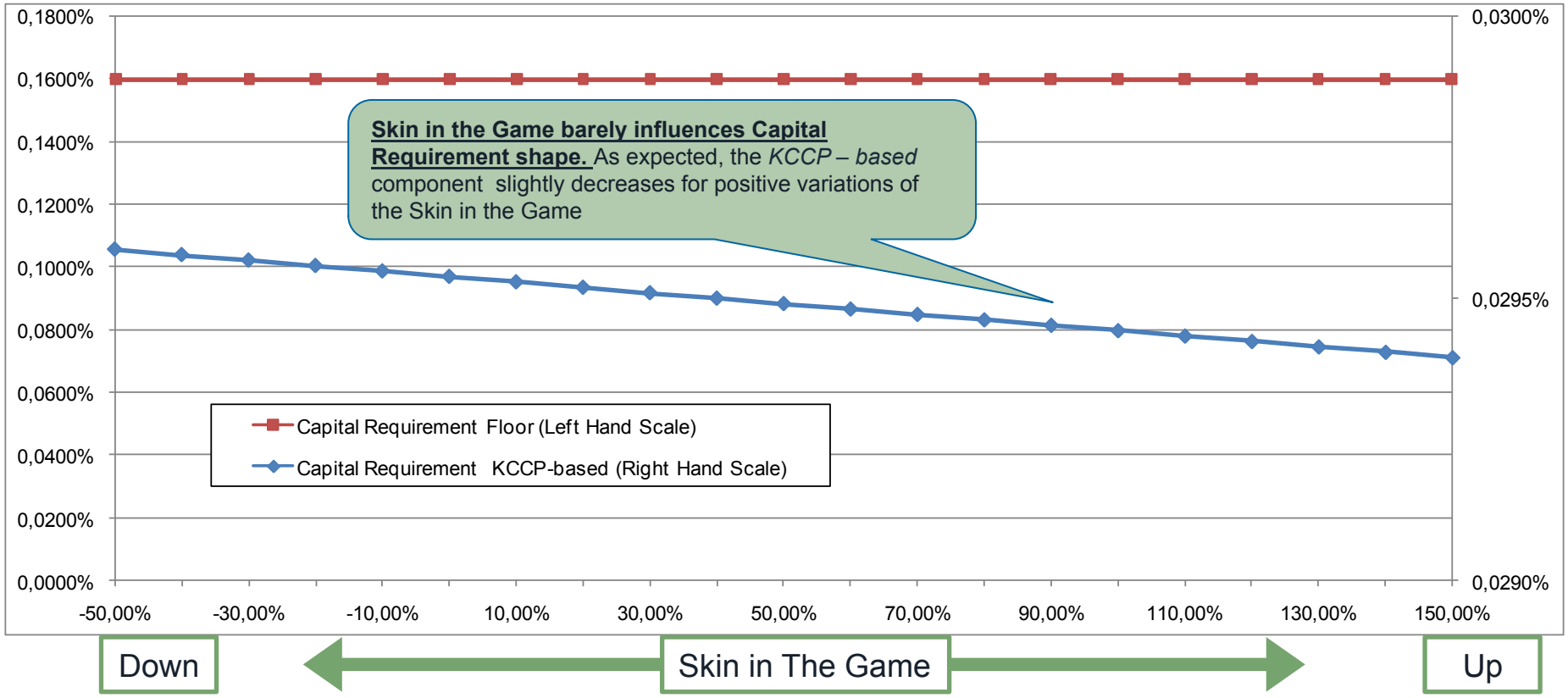
K_{CMi} Vs Initial Margins

- Hp: 20 Different Scenarios for Initial Margins positive and negative variations
- Current amount of Total Initial Margins at 31 March was €3.0 bln



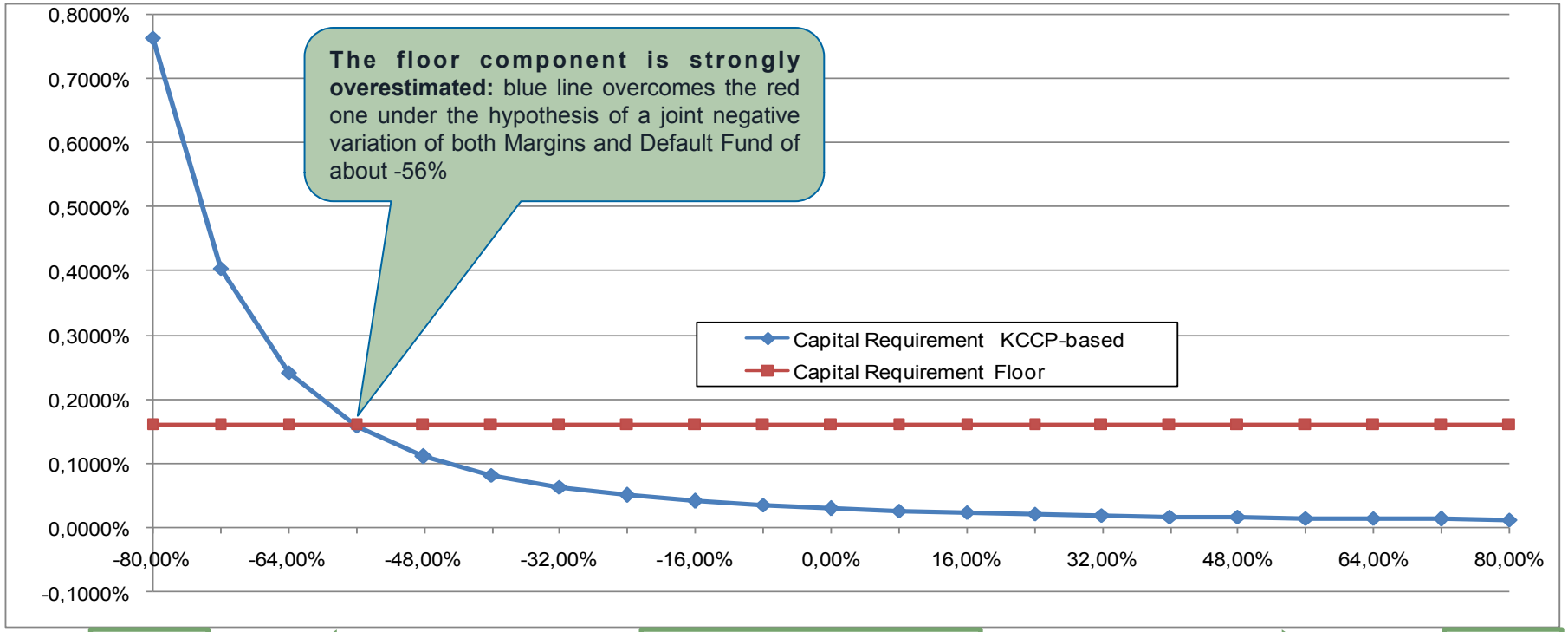
K_{CMi} Vs Skin in the Game

- Hp: 20 Different Scenarios for CC&G's Skin in the Game negative and positive variations
- Current Skin in the Game quota for the Equity Derivatives asset class at 31 March was €5.3 mln



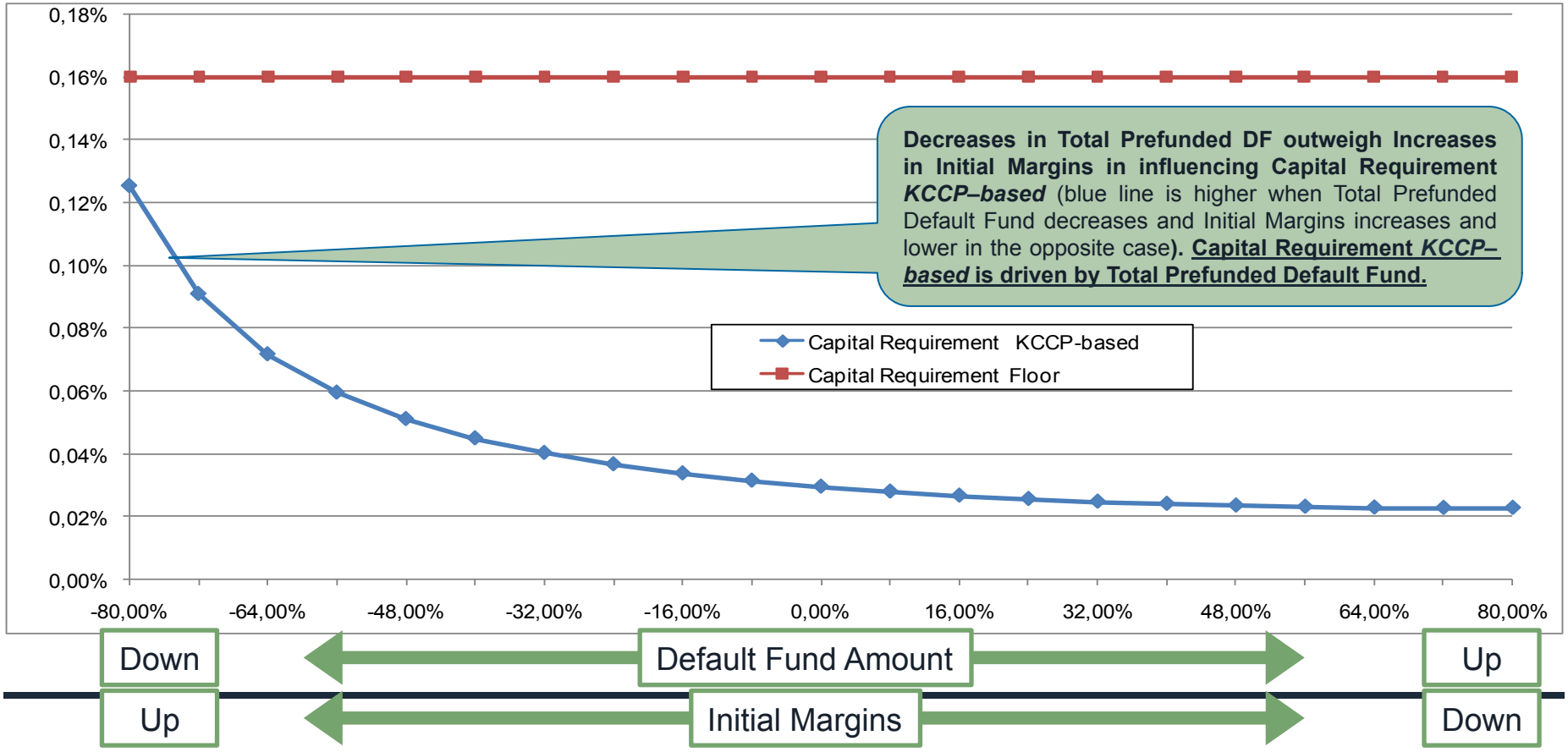
K_{CMi} Vs Margins↓+Default Fund↓

- Hp: 20 Different Scenarios for Initial Margins and Total Prefunded DF negative and positive variations
- Initial Margins and Total Prefunded DF variations in the **same direction** (both increase or both decrease)



K_{CMi} Vs Margins↑+Default Fund↓

- Hp: 20 Different Scenarios for Initial Margins and Total Prefunded DF negative and positive variations
- Initial Margins and Total Prefunded DF variations in the **opposite direction** (one up; the other down)



Sensitivity Analysis - Summary

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Effects on K_{CCP}-based Capital Requirement		
Key Variable	**Down**	**Up**
Total Prefunded Default Fund	**Strong dependence**. Cap. Req. KCCP-based results higher than Cap.Req. Floor if a -74% variation occurs	**Weak dependence**. Higher increases imply weak decreases of Cap.Req. KCCP-based
Initial Margins	**Medium dependence**	**Weak dependence**
Skin in the Game	**Very weak dependence**	**Very weak dependence**
Margins↓+Default Fund↓	**Very strong dependence**. As expected, a joint decrease makes the Cap.Req KCCP-based overcome Floor component sooner if compared with case a)	**Weak dependence**
Margins↑+Default Fund↓	**Strong dependence**. Cap.Req. trend is driven by Default Fund Amount	**Weak dependence**

KEY MESSAGE:

Capital Requirement Floor overshadows K_{CCP}-based Capital Requirements
Is this a proper incentive towards prudent Risk Management at CCP level?

Part VI – Conclusions

SWOT Analysis

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- **Strengths**
  - Creating incentives to increase banks use of CCPs
  - Increases safety by favoring CCP Clearing for OTC Derivatives
  - Encouraging CCPs to satisfy the CPSS-IOSCO Principles
- **Weaknesses**
  - SA-CCR Approach shows structural weaknesses if applied to some types of derivatives
  - A concentration factor - taking into account that the less concentrated is a CCP, less punitive should be the allocation factor of the aggregate capital requirement - should be taken into account
- **Opportunities**
  - OTC Business is attractive for CCPs
  - Can attract new actors to CCP Clearing
- **Threats**
  - Capital Treatment of Margin Exposures may incentivize clearing members to deposit margins in securities rather than in cash
  - ***The rules appear to implicitly favour CCP with lower Risk Management Standards***

Conclusions

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- **<u>In conclusion, the Basel III Capital Requirement Regime should ensure that:</u>**
  - Prudence in setting Default Fund Amount is not hindered
  - The preferable nature of Prefunded Contributions to Default Funds rather than Committed ones is recognized
  - Efficient CCPs, that have a lower capital requirement, are not penalized
  - SA-CCR Calibration is such that the G-20 target is hit, providing incentives towards CCPs Clearing rather than Bilateral Clearing
  - Cash Margin Contributions are not unduly discouraged

Appendix – Technicalities on the New Standardized approach

Background

- The Basel II Counterparty Credit Risk (CCR) Framework for derivatives capitalises against the risk of losses due to counterparties defaulting before meeting all their contractual obligations on bilateral transactions

- The new Standardized Approach (SA-CCR) will replace both current non-internal methods approaches – the Current Exposure Method (CEM) and the Standardized Method (SM) – for measuring exposure at default (EAD) for Counterparty Credit Risk (CCR)

- The CEM has been criticized for several limitations mainly related to the following aspects:
  i. non distinction between margined and non margined transactions,
  ii. the supervisory add-on factors do not incorporate high level of volatilities,
  iii. the recognition of hedging and netting benefits is too simplistic

- The SM was also criticized for several weaknesses

The SA-CCR Approach

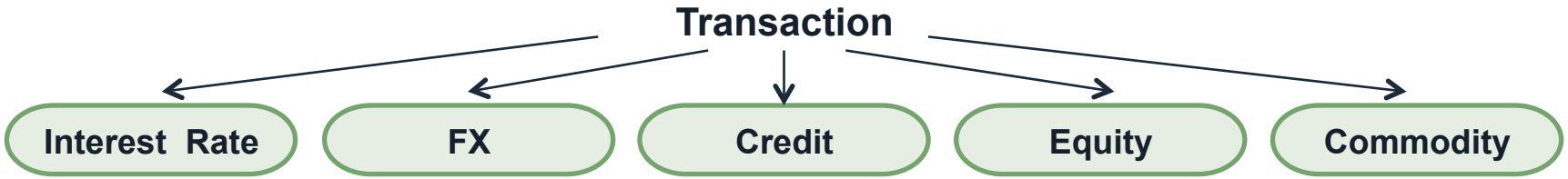
- The SA-CCR overcomes the limitations of the CEM and of the SM, being calibrated on a stress period and recognizing the benefit of collateral and legal netting arrangements
- SA-CCR is suitable for a wide variety of derivatives transactions (margined and non, as well as bilateral and cleared)
- The Exposure At Default under the SA-CCR is function of the Replacement Cost (RC) and of the Potential Future Exposure (PFE)
- The PFE portion consists of a multiplier that allows for the partial recognition of excess collateral and an aggregate add-on which is derived from add-ons calculated for five main asset classes: Interest Rate, Foreign Exchange, Credit, Equity and Commodity Derivatives
- The Replacement Cost (RC) is calculated at the netting set level, whereas PFE add-ons are calculated for each asset class within a given netting set and then aggregated; both are calculated differently for margined and non margined transactions

The PFE

- The PFE add-on consists of two components:
  - a multiplier that allows for the recognition of excess collateral or negative mark to market for the transactions
  - an aggregate add-on component, which consists of add-ons calculated for each asset class

$$PFE = multiplier * AddOn_{aggregate}$$

- The *AddOns* are calculated at *asset class level* and then aggregated. For each derivative transaction the primary risk factor is determined and attributed to one of the 5 asset classes:



PFE: the AddOns

- For each asset class, specific *AddOns* depending on the different offsetting benefits of the specific asset class are calculated

- However the *AddOns* formulas have a number of common features and in particular the following steps are performed:
  - an *Adjusted Notional Amount* based on actual notional or price is calculated at trade level. For interest rate and credit derivatives the Adjusted Notional Amount also incorporates a supervisory measure of duration (Black-Scholes option delta formula)
  - a *Maturity Factor* reflecting the time horizon appropriate for the type of transaction is calculated at the trade level and applied to the adjusted notional
  - a *Supervisory Delta Adjustment* is made, based on the directionality of the position and on the linearity/non linearity of the trade
  - a *Supervisory Factor* is then applied *to r*eflect the volatility of the primary risk factor of each asset class
  - finally, an *Aggregation Method* is applied to aggregate trade-level *AddOns* to asset-class level *AddOns*, applying a correlation parameter for credit, equity and commodity derivatives

- The $AddOn_{aggregate}$ is obtained summing up the asset class level *AddOns* without allowing any diversification benefit across asset classes

- The SA-CCR foresees different time risk horizons for margined and non margined transactions, envisaging shorter time horizon for centrally cleared margined transactions

PFE: the Multiplier

- Over-collateralization should reduce capital requirement for counterparty credit risk: this risk-reducing property of the excess of collateral is taken into account in the PFE component of the Exposure At Default under the SA-CCR

- In particular the *multiplier* applied to the PFE *AddOn* component decreases as excess collateral increases (floored at 5%)

- The *multiplier* is also activated when the current value of the derivative transactions is negative, in fact out-of-the money transactions do not currently represent an exposure and have less chance to go back in-the-money

The Replacement Cost

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- For Non Margined Transactions, the *RC* can be defined as the largest between zero and the current market value of the derivative contracts (*V*) minus net haircut collateral held by the bank (*C*):

$$RC = \max(V - C; 0)$$

- For Margined Transactions, the *RC* can be defined as the largest between (*V* - *C*) and the largest net exposure including all collateral held that would not trigger a collateral call

$$RC = \max(V - C; Th + MTA - NICA; 0)$$

where:

C includes also the collateral balance due to past variation margin payments

Th is the positive threshold before the counterparty must send the bank collateral

MTA is the minimum transfer amount applicable to the counterparty

NICA is the net independent collateral amount, i.e. the amount of collateral (other than variation margins) that a bank may use to offset its exposure on the default of the counterparty (NICA does not include collateral that a bank has posted to a segregated, bankruptcy remote account)

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Thank you!!

Questions?