



The CCP-bank nexus

Előd Takáts

Workshop on Central Clearing Counterparties

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The views expressed in this presentation are those of the author and do not necessarily reflect the views of the Bank for International Settlements.

Motivation

- Central clearing became key feature of derivatives markets
 - after the financial crisis (Lehman failure)
 - (in part) due to regulatory reform agenda of G20
- Strong interlinkages between banks and CCPs
- We need to understand how central counterparties (CCPs) and (systematically important) banks interact through these interlinkages
- CCP-bank nexus: understanding stress scenarios
Faruqui, Huang and Takats: [The CCP-bank nexus](#),
BIS Quarterly Review, 2018 December

Roadmap

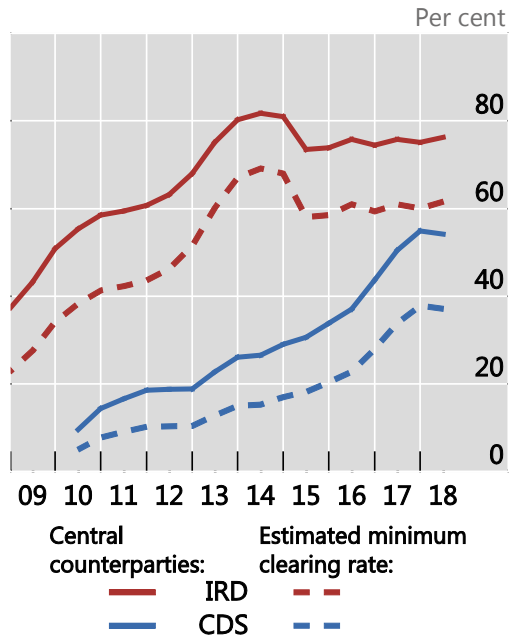
1. The market of central clearing
2. CCPs in derivatives clearing: balance sheet dynamics
3. CCPs are special: Understanding the waterfall
 - a) Case studies: CCPs at risk
4. CCP-bank nexus under stress
 - a) Medium stress: initial margin-at-risk
 - b) High stress: default fund-at-risk
 - c) Extreme stress: committed funds-at-risk
5. Conclusion

The market of central clearing: large exposures

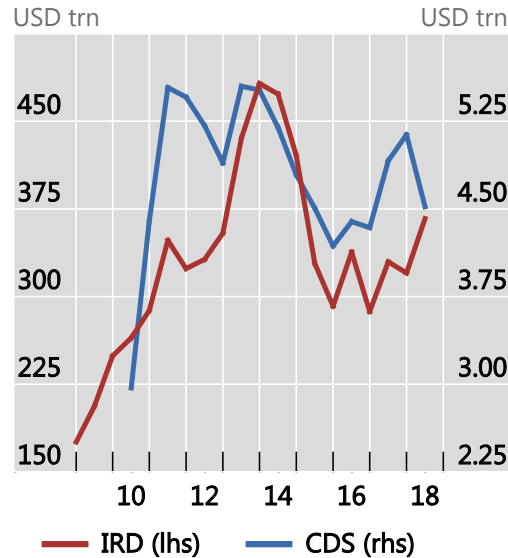
Banks and central counterparties (CCPs) have large exposures to each other

Graph 1

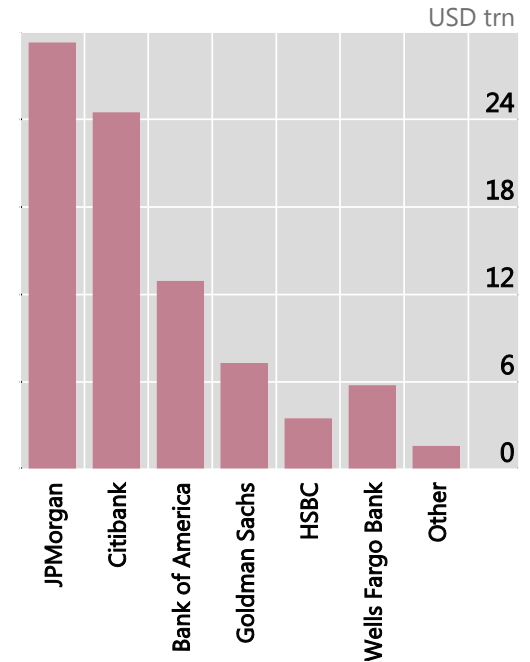
Central clearing rates in OTC derivatives markets^{1, 2, 3}



Banks' outstanding notional cleared by CCPs^{1, 4}



US banks' OTC derivatives cleared by CCPs⁵

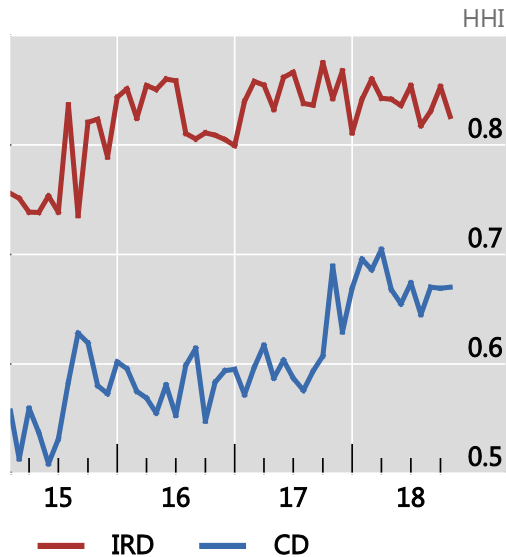


The market of central clearing: concentration

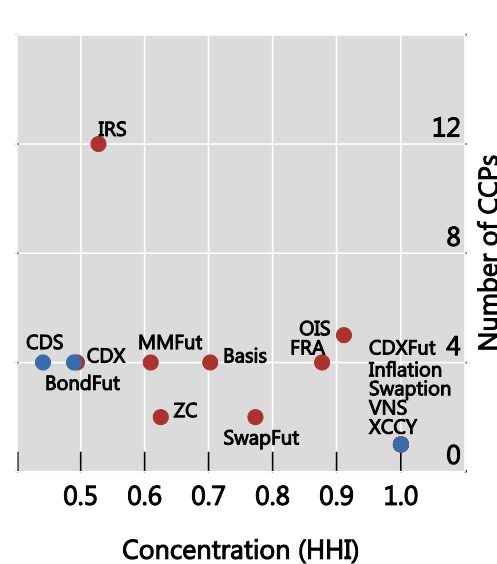
Central counterparties (CCPs) and clearing members are concentrated

Graph 2

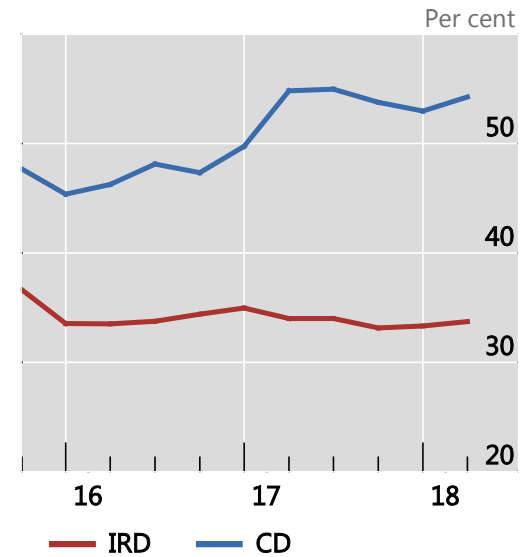
Concentration of CCPs in OTC derivative markets^{1, 2}



Concentration of CCPs in individual products^{1, 3}



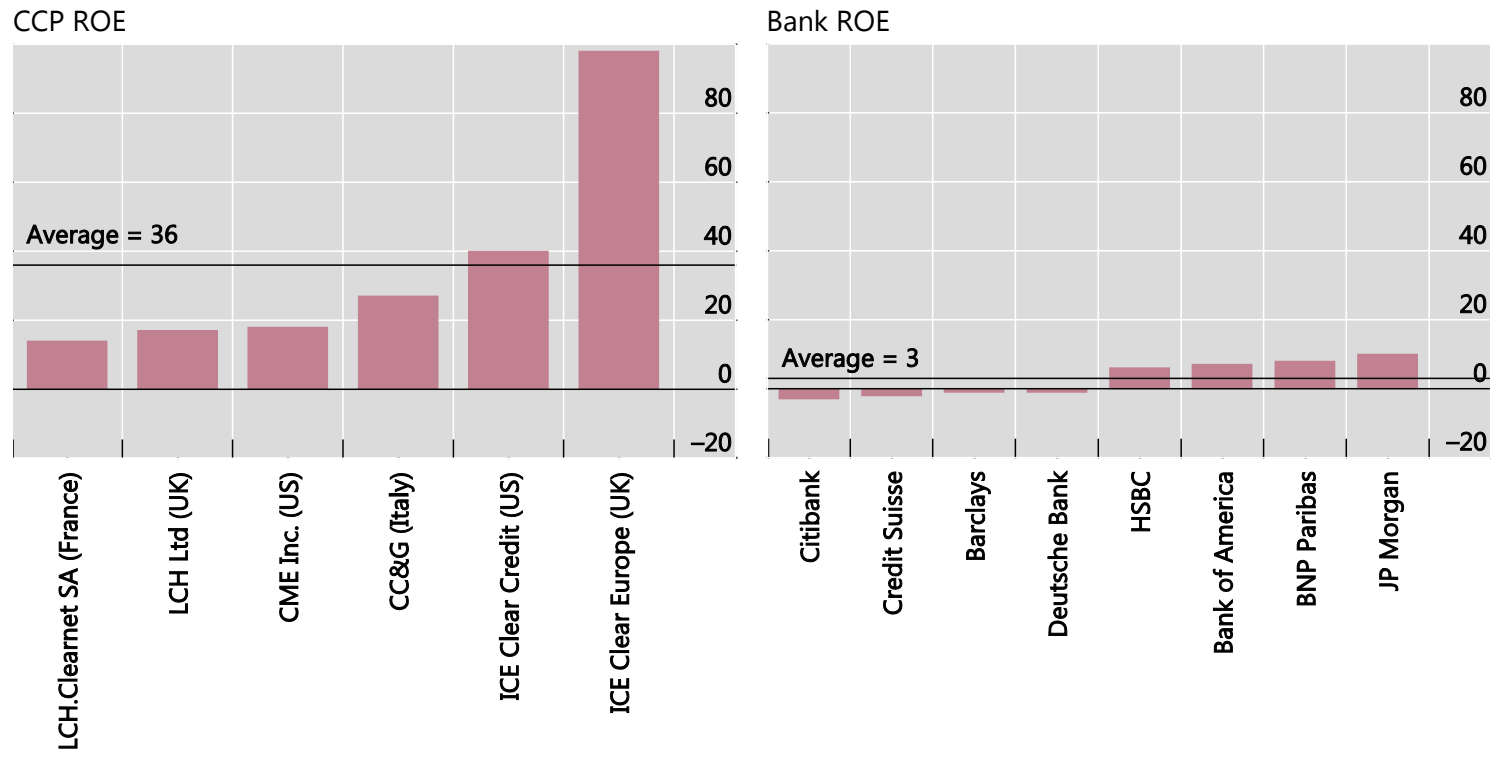
Contribution to CCP prefunded resources of top 5 clearing members²



CCPs are more profitable than banks

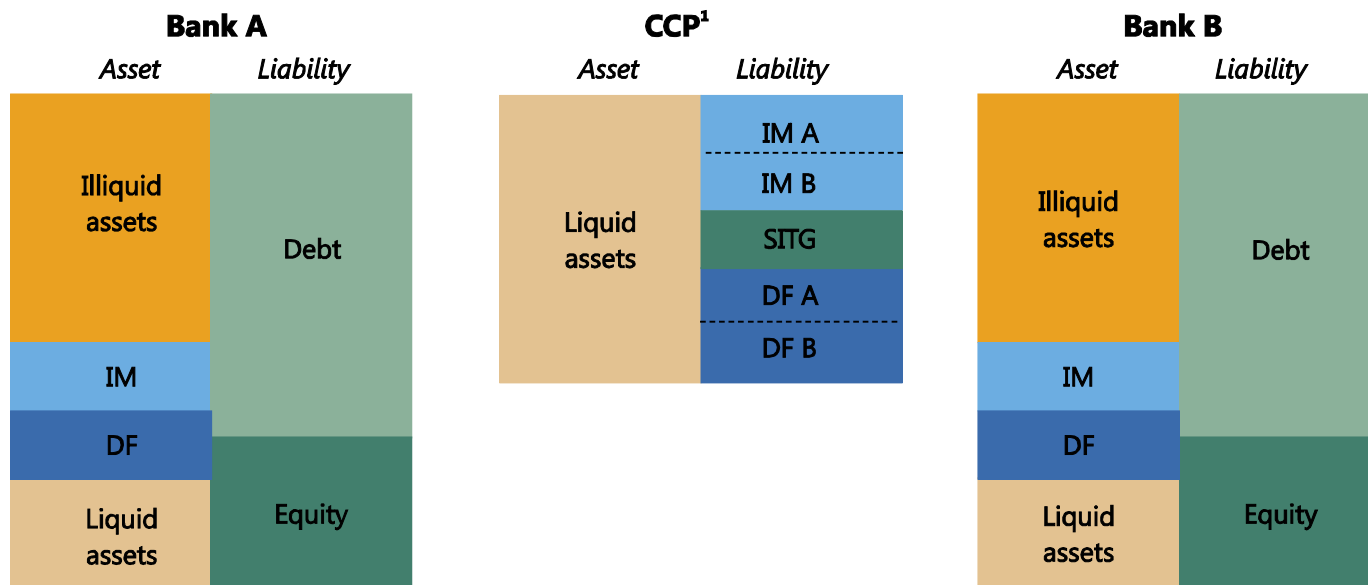
High profitability of CCPs is consistent with high concentration

Graph 3



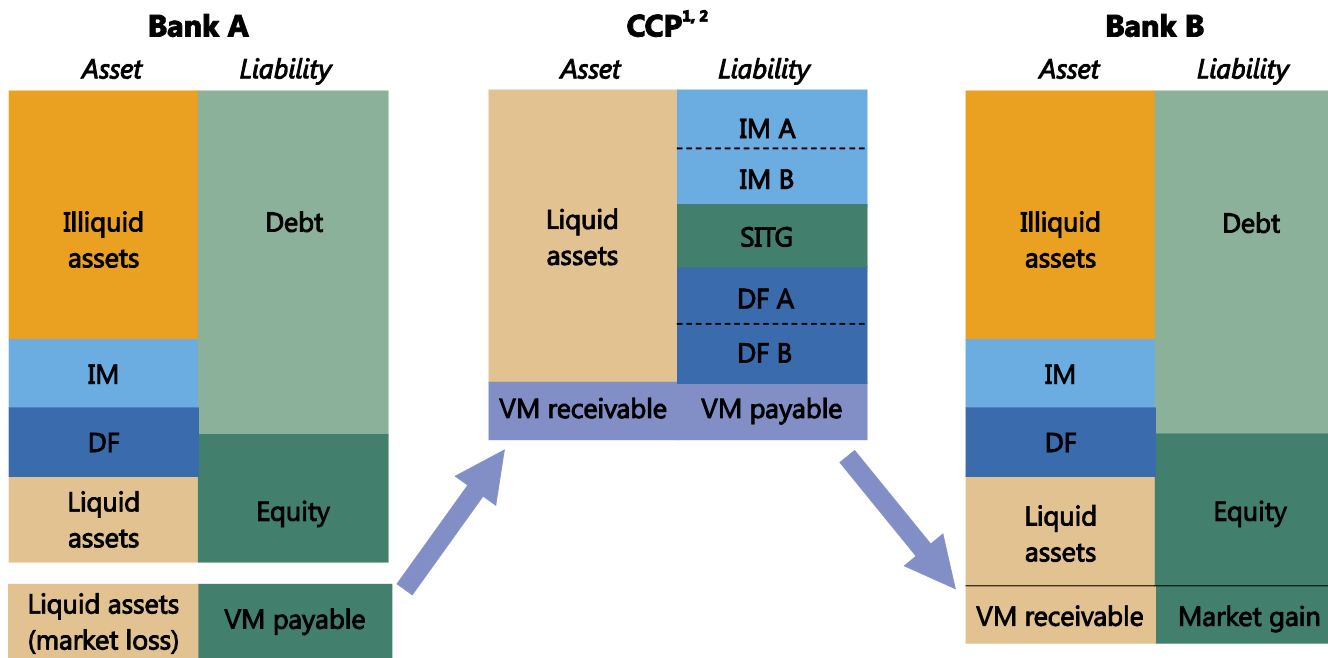
CCPs in derivatives clearing: balance sheet dynamics (1)

At trade initiation (t=0)

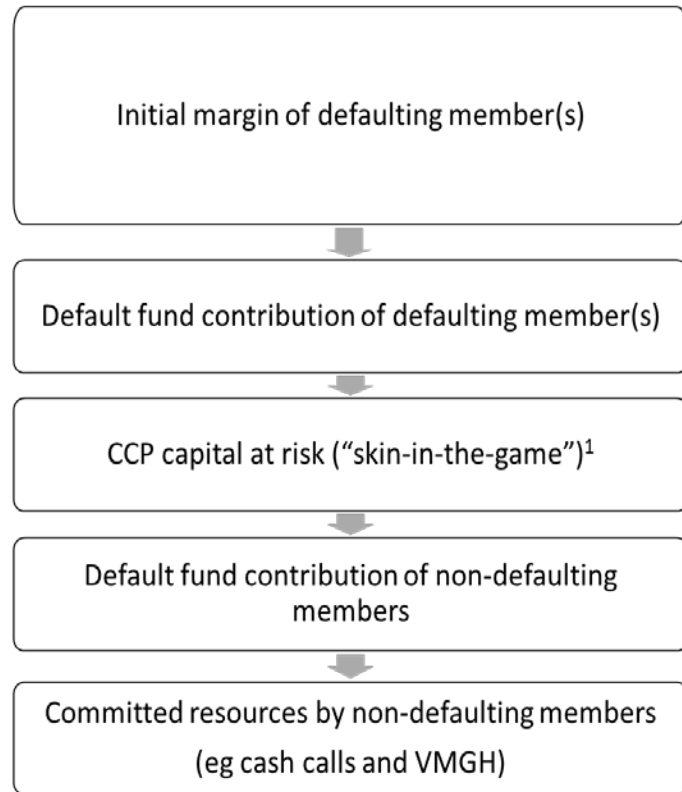
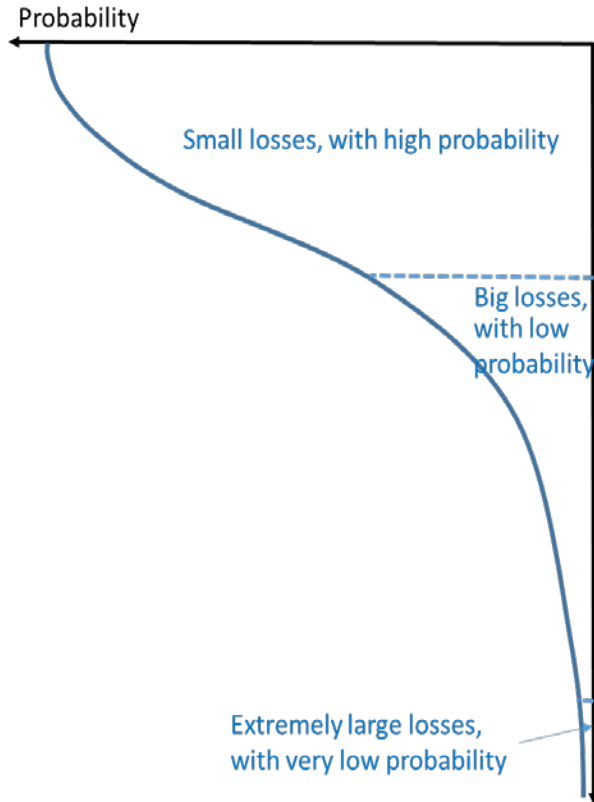


CCPs in derivatives clearing: balance sheet dynamics (2)

After market price move (t=1)



Default waterfall



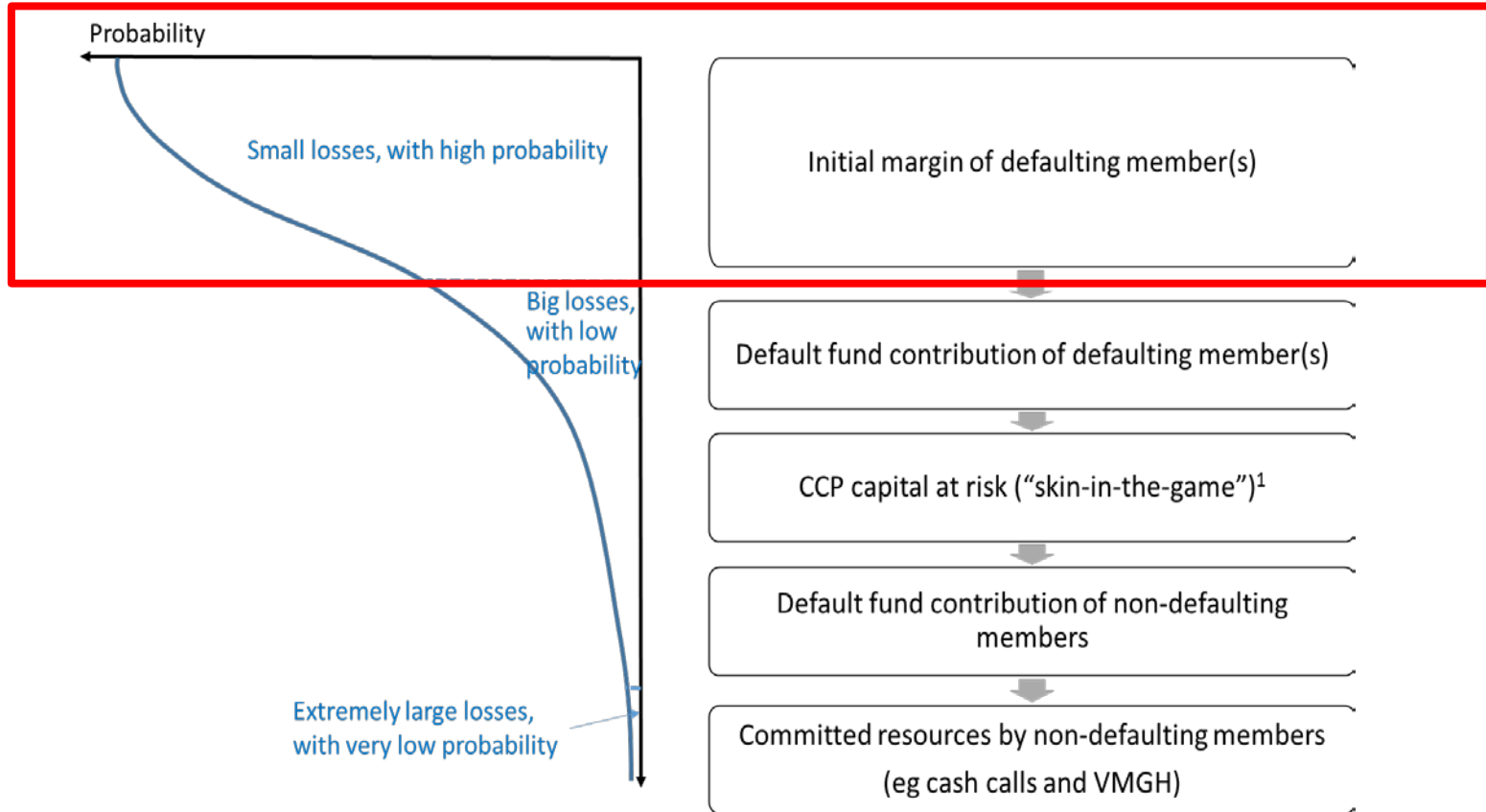
Material risks remain

- CCP performed well during the financial crisis
 - Lehman bankruptcy clear up
- Yet, there is a (short) history of clearinghouse failures
 - Caisse de Liquidation des Affaires et Marchandises (1974)
 - Kuala Lumpur Commodity Clearing House (1983)
 - Hong Kong Futures Guarantee Corporation (1987)
- And near failures
 - Chicago Mercantile Exchange (1987)
 - Options Clearing Corporation (1987)
 - BM&F CCP (Brazil) (1999)
- And severe stress even under benign conditions
 - Korean CCP (2013)
 - Nasdaq AG (2018 September)

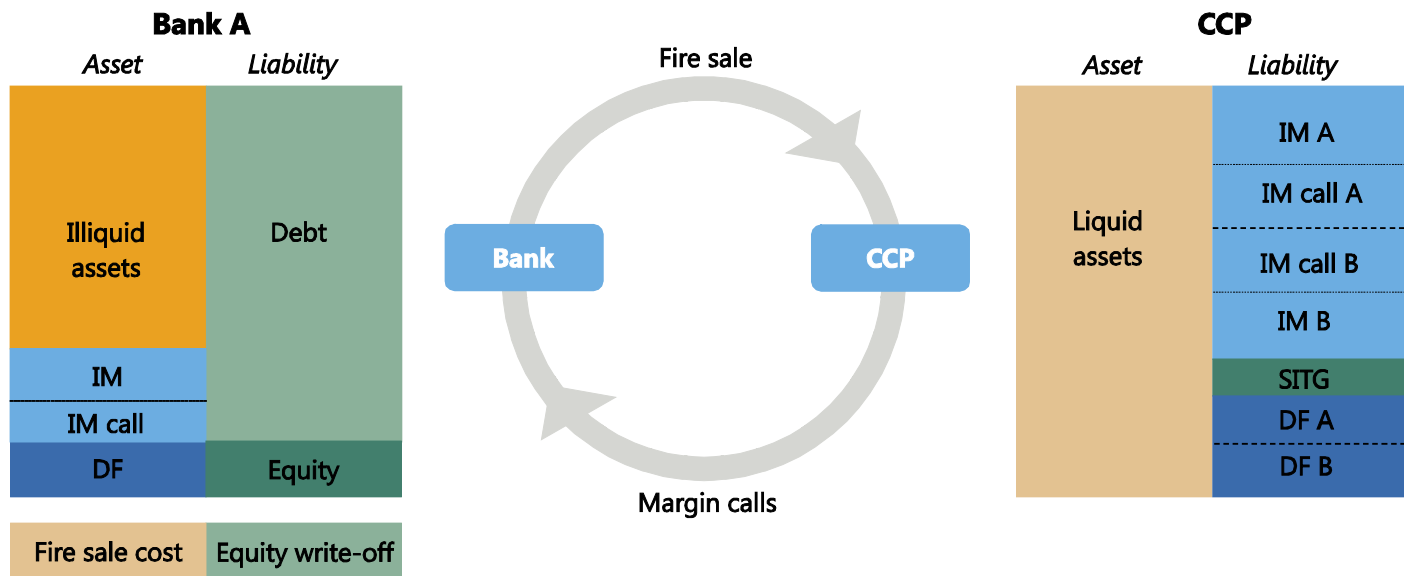
CCP-bank nexus under stress

- Medium stress: initial margin-at-risk
- High stress: default fund-at-risk
- Extreme stress: committed funds-at-risk

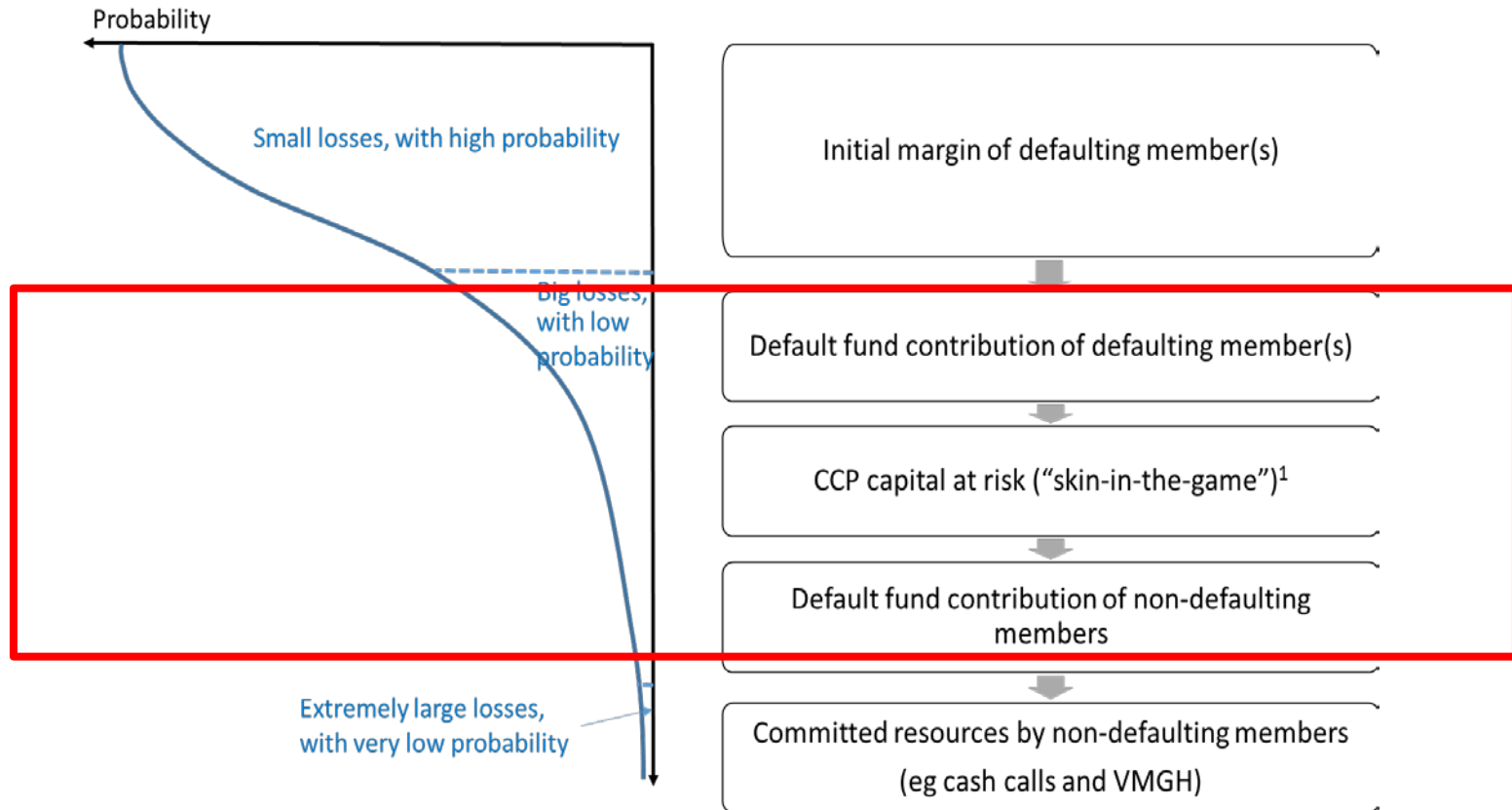
Medium stress: initial margin-at-risk



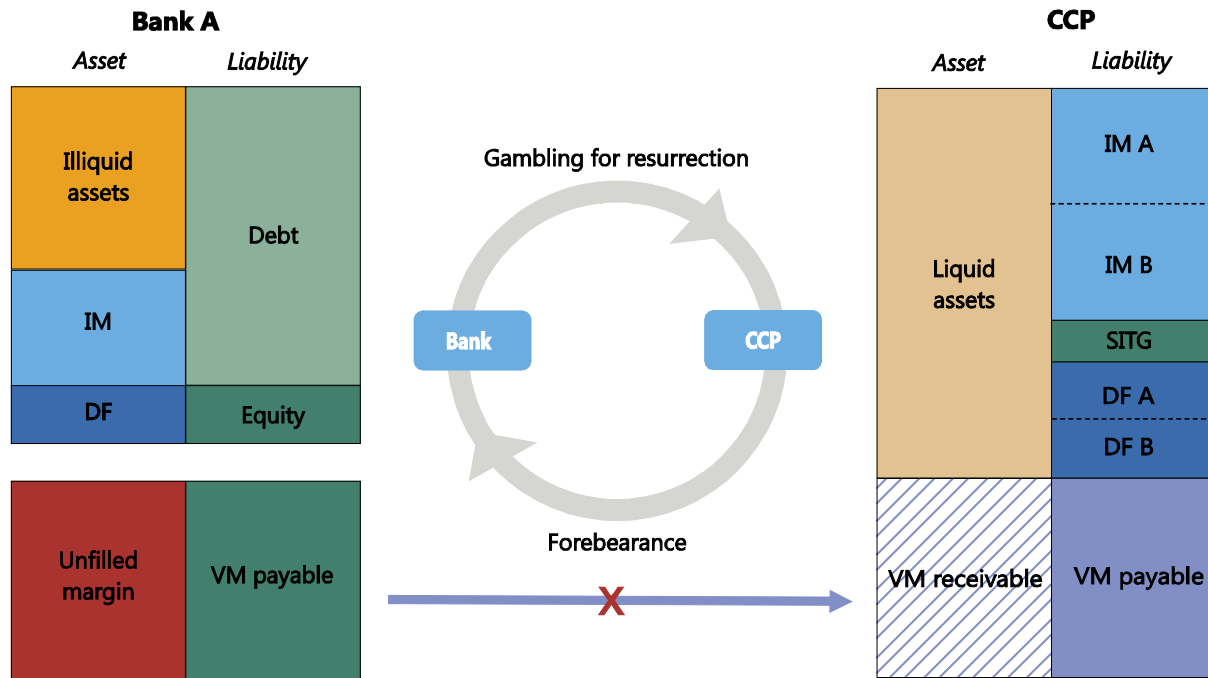
Medium stress: initial margin-at-risk



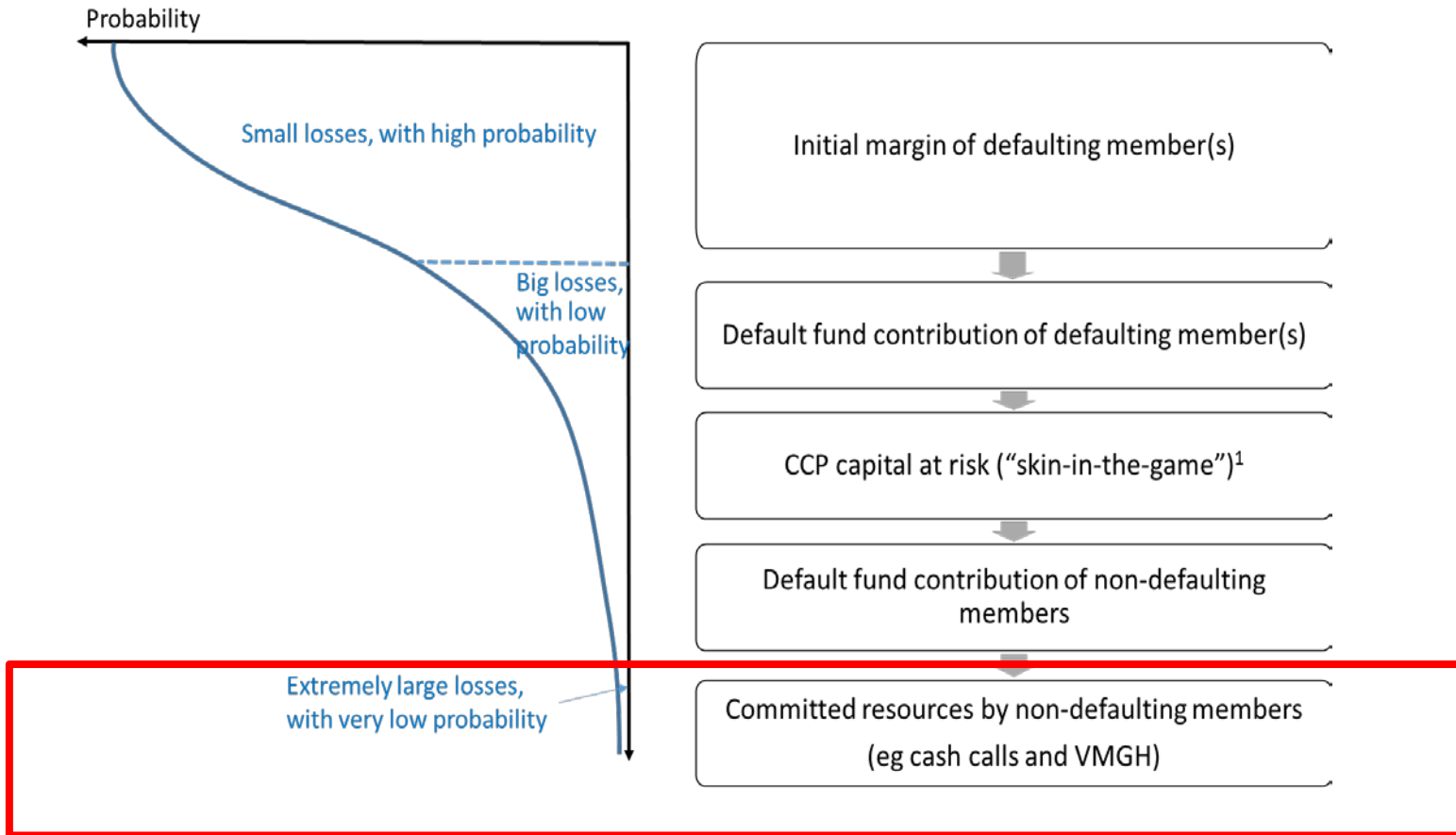
High stress: default fund-at-risk



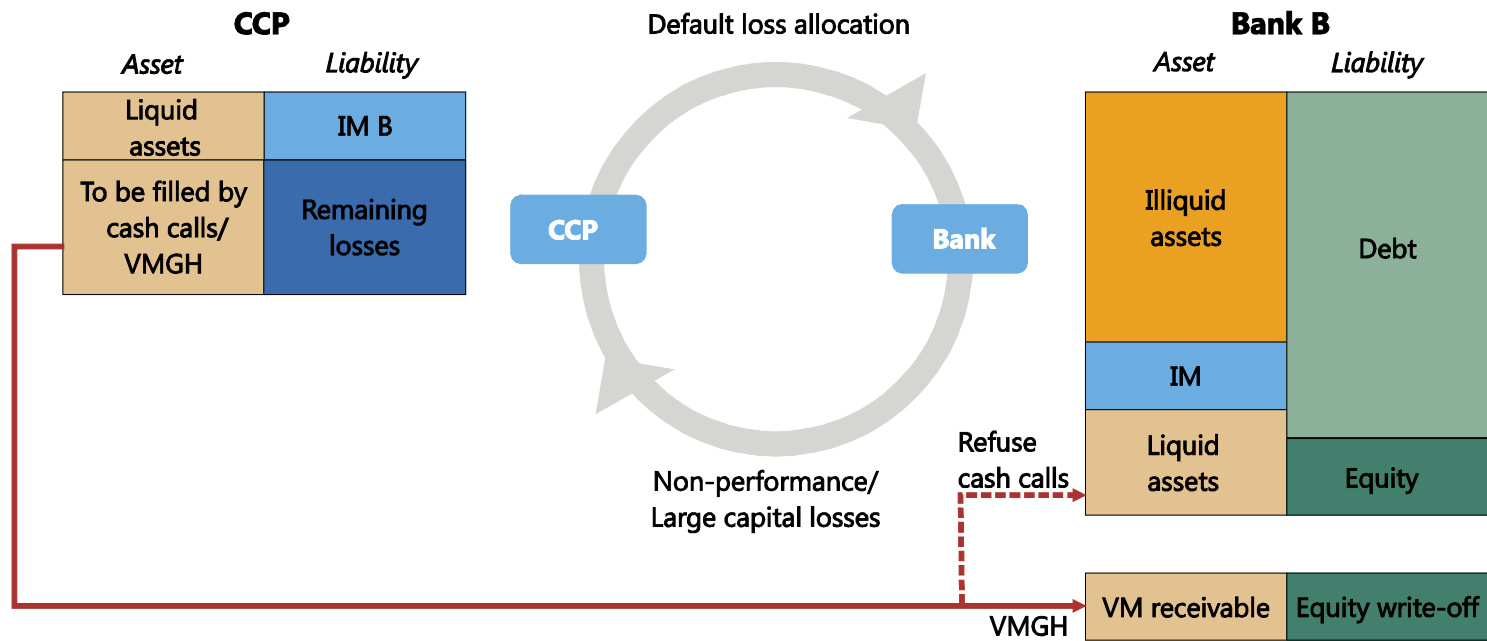
High stress: default fund-at-risk



Extreme stress: committed funds-at-risk



Extreme stress: committed funds-at-risk



Conclusion

- Potential destabilising feedback loop between banks and CCPs
- Need to think about bank and CCP risk jointly, rather than in isolation
- Risk is dynamic and endogenous not static and exogenous
- There is some awareness of these issues in regulation, but full incorporation is demanding
- We hope this article is helpful for policymakers, regulators, the financial industry and academics interested in central clearing