

# **The Design of a Central Counterparty**

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September 2021

## **Summary**

This paper studies the benefits of central clearing and the design of a central counter-party (CCP) with an optimal contracting approach. Investors sign contracts to hedge an underlying exposure. There is counterparty risk because investors can default on the contract due to exogenous idiosyncratic shocks and moral hazard such as wrong-way risk taking. Mutualization of losses is thus on one hand useful to hedge against counterparty risk but on the other it is costly because it increases the expected liability for each investor, requiring costly collateral to alleviate the moral hazard problem.

We find that it is optimal to use loss mutualization, which requires central clearing, only when the cost of collateral is intermediate. If the collateral cost is low, counterparty risk is eliminated with cheap and safe collateral. If collateral is expensive, benefits from loss mutualization is dominated by its associated collateral cost. Furthermore, if monitoring effort is necessary to ascertain counterparty quality but is unobservable, loss mutualization engenders a free-riding problem that each investor's incentive to monitor his counterparty is

weakened. In this case, we show that a third-party CCP can emerge as a centralized monitor and is given a first-loss, equity tranche as incentive compensation. Our results endogenize key features of the default resolution process, known as “default waterfall”, in a CCP. Finally, we show that larger user base of a contract favours central clearing (over bilateral trading) and clearing with third-party CCP (over member-owned CCP).