FRM Part 1

Book 3 - Financial Markets and Products

CENTRAL CLEARING

Learning Objectives

After completing this reading you should be able to:

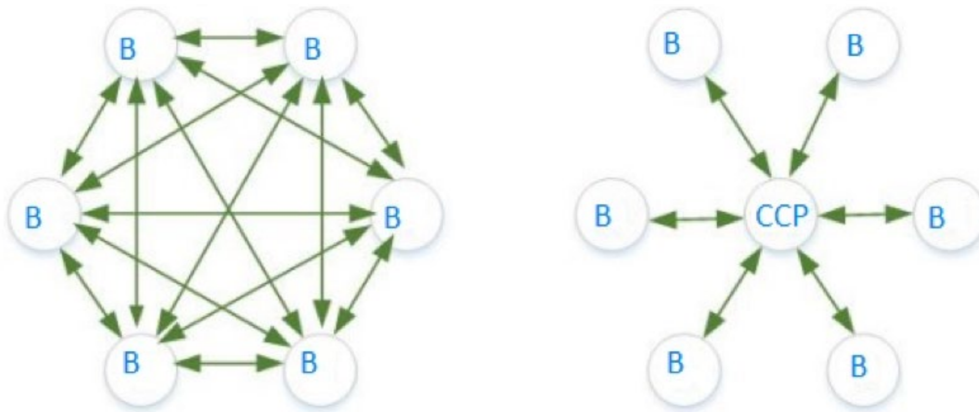
- ✓ Provide examples of the **mechanics of a central counterparty** (CCP).
- ✓ Describe the **role of CCPs** and distinguish between **bilateral** and **centralized clearing**.
- ✓ Describe **advantages** and **disadvantages** of central clearing of OTC derivatives.
- ✓ Explain regulatory initiatives for the OTC derivatives market and their impact on central clearing.
- ✓ Compare **margin requirements** in centrally cleared and bilateral markets and explain how margin can mitigate risk.
- ✓ Compare and contrast bilateral markets to the use of **novation** and **netting**.
- ✓ Assess the impact of central clearing on the broader financial markets.
- ✓ Identify and explain the types of **risks faced by CCPs**.
- ✓ Identify and distinguish between the **risks** to clearing members as well as non-members.

Mechanics of a Central Counterparty

- **Clearing** refers to the use of a central counterparty (CCP) to **mitigate risks associated with the default** of a trading counterparty.
- The central counterparty becomes the **legal counterparty** to each trading party,
  - It provides a guarantee that it will **honor the terms and conditions** of the original trade **even in the event that one of the parties defaults.**
- To be able to do this, the central counterparty **collects enough money** from each party which goes toward **covering potential losses.**

Mechanics of a Central Counterparty

- The following helps to show the **role played by CCPs** in trading.
  - Each of the six entities denoted B represents a **dealer bank**.



- Advantages:
  - A CCP **reduces the interconnectedness** within financial markets. This way, even if one of the dealers defaults, the impact on other participants is minimal.
  - There's **increased transparency** on the role and positions of each participant.
  - CCPs introduce **operational efficiency** by reducing the number of transactions to be settled.

Mechanics of a Central Counterparty

- **Contract novation** is the legal process by which a CCP interposes itself between the buyer and the seller.
  - The CCP becomes a buyer to every seller and a seller to every buyer.
- The initial contract between counterparties **ceases to exist**, and the counterparties **no longer have counterparty risk** with respect to one another.
  - It’s the CCP that bears the counterparty risk.
- However, the **CCP does not bear the net market risk**, which remains with the original parties to the trade.

Margining

- In order to have effective risk control over the trade, the CCP requires each party to **post collateral that can be seized in the event of default**.
- The **initial margin** must be posted when initiating the contract.
- If the equity in the initial margin account falls below the **maintenance margin**, the relevant party receives a margin call – a requirement to provide additional funds to **restore the margin account to the initial level**.
    - The amount payable to restore the initial margin to the required amount is called the **variation margin**.

Loss Mutualization

- Any loss over and above the resources contributed by the fallen (defaulted) member is **shared between CCP members**.
- CCP members contribute funds that are **deposited into a default fund**.
  - In the event that there's excess loss, funds are drawn from that account to **absorb the loss**.

- Loss mutualization encourages **more members** to enter the market.
- On the downside, however, it may lead to **moral hazard** and **adverse selection**.

Advantages and Disadvantages of Central Clearing of OTC Derivatives

Advantages:

- **Transparency** – The **CCP keeps an eye** on all members so that in case one has an extreme exposure, corrective measures can be taken to avert a potential crisis. Such measures may include imposing positional limits on the affected member.
- **Offsetting** – Central clearing makes it easier to **terminate positions** and **open new ones**.
- **Loss mutualization** – By **distributing among all members** any **excess loss** that cannot be absorbed by the defaulted member, the impact on any one member is unlikely to be felt.
- **Legal and operational efficiency** – **Margining** and **netting increase operational efficiency** and may also reduce legal risks by providing a centralization of rules and mechanisms.
- **Default Management** – **Auctions** ensure that market disruptions are kept at a minimum.
- **Improved market liquidity** – Trading is made **easier** for everyone.

Advantages and Disadvantages of Central Clearing of OTC Derivatives

Disadvantages:

- **Moral hazard** – Presence of a **third party** that promises to **assume all the counterparty risk** can easily result in reduced risk awareness among members. Participants have little incentive to monitor each other's credit quality or actions.
- **Adverse selection** – A **CCP is essentially an insurer** of some sort. It may attract more "bad risks" than good risks, effectively raising the specter of financial strain.
- **Bifurcations between cleared vs. non-cleared** – This may result from the requirement to clear standard products.
- **Procyclicality** – A positive dependence on the **state of the economy** may emerge in financial markets.
    - For example, the **margin requirement may be increased during a crisis period**.

Bilateral Markets vs. Netting and Novation

- Suppose that parties X and Y are trading bilaterally, and there are two distinct trades between them, each with its own cash flows.
- Bilateral trading can lead to **several problems**:
  - **Settlement risk** – **Frequent exchange** of gross amounts gives rise to settlement risk.
  - **Close-out** – When one party defaults on a trade, the **surviving party** will most likely have to **terminate all other trades** with the defaulted party, even if the fallen trade offsets all the others.
- **Bilateral markets have over the years developed netting methods.** These include:
  - **Payment netting** – where cash flows occurring **on the same day are netted**. This way, only the member whose account is negative makes a payment.
  - **Close-out netting** – Allows **termination of all contracts between insolvent and solvent counterparty**, together with the offsetting of all transaction values.

Types of Risks Faced by CCPs

Default risk:

- A clearing member **may default** on one or more transactions.
- Following a default event, a **host of other problems may come up**. These include:
  - Default or increased distress of other members because of **high default correlation**
  - **Failed auctions**, leaving the CCP with no choice but to impose losses on members
  - **Resignations** because initial margins and default funds have to be returned to resigning members, the loss could be felt by other members
  - A worsening reputation – a default event would also injure the **reputation of other members with close ties** to fallen members

Types of Risks Faced by CCPs

Non-default events:

- Such events include:
  - Internal/external fraud
  - Operational losses
  - Investment losses
  - Losses due to litigation

Note that that **non-default** and **default losses** may be **correlated**. The default of a member might cause **market disturbance** and increase the likelihood of **operational** or **legal problems**.

Model Risk

- CCPs are exposed to model risk because of the use of a **range of margining methods**.
  - Of note is the fact that there **isn't a reliable, dependable platform** on which OTC derivatives can be observed.
- Valuation models may use **subjective assumptions**.

Liquidity Risk

- A CCP faces liquidity risk due to the large cash flows frequently transacted.
- In addition, the CCP must also choose its investments wisely so that it does not inadvertently create **a shortage of cash** necessary for day-to-day running.

Operational and Legal Risk

- Centralization of various functions fosters efficiency, but on the downside, it creates a fertile ground for **operational bottlenecks**.
- ***Example***
  - The CCP may have to contend with **frequent system failures** due to heavy traffic.
  - What's more, segregation and the movement of margin and positions through a CCP is prone to **legal risk**, depending on jurisdiction.

- Other risks include:
  - Custodian risk
  - Wrong-way risk
  - Foreign exchange risk
  - Concentration risk
  - Sovereign risk

Risks to Clearing Members and Non-members

Risks to members:

- There are several ways through which a clearing member can experience CCP-related losses:
  - Forced allocation
  - CCP failure
  - Auction costs
  - Default fund utilization
  - Rights of assessment
  - Tear-up

Risks to Clearing Members and Non-members

Risks to members:

- **Prior to gaining membership**, there are several mechanisms through which a prospective member can assess the **risks faced** by a member of the CCP.
- Such mechanisms may involve scrutinizing:
  - The membership criteria
  - Investment policies
  - Default management policies
  - Operational capacity
  - Capital requirements
  - The number of alternative CCPs and their credit ratings
  - Initial margin and default fund contributions

Risks to Clearing Members and Non-members

Risks to non-clearing members:

- Non-clearing members who **clear indirectly through a CCP** are usually faced with different risks, most of which may closely resemble those of clearing members.
- However, non-clearing members may have an **additional layer** of protection:
  - If a clearing member defaults, **clients may be safe** provided their clearing member is in compliance with the CCP's requirements and in good financial health.
  - If a clearing member defaults, the CCP may safeguard the interests of non-clearing members through **margin segregation and portability**.
  - Since non-clearing members **do not contribute toward the default fund**, their exposure to the CCP is **indirect**.

Lessons Learned from Prior CCP Failures

- In the last four decades, we've had several high-profile CCP failures and near-failures. Common sources of these failures include:
  - **Insufficient margins** and **default funds**
  - Large movements in the price of the underlying
  - The **failure to update initial margin** requirements to reflect changing market conditions
  - **Operational problems** associated with large price moves and system-crushing trade volumes
  - Liquidity strains

Lessons Learned from Prior CCP Failures

- Some of the **lessons we can learn** from these past failures include:
  - **Operational risk** must be **mitigated** at all costs.
  - Failure to act is never an option. Variation margins should be **recalculated frequently.** CCPs should have access to external sources of liquidity.
  - They can easily default, not because they are insolvent but simply because they are **illiquid in the short-term**.
  - CCPs should endeavor to **monitor positions continuously** and **act quickly** whenever there are large moves.

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