



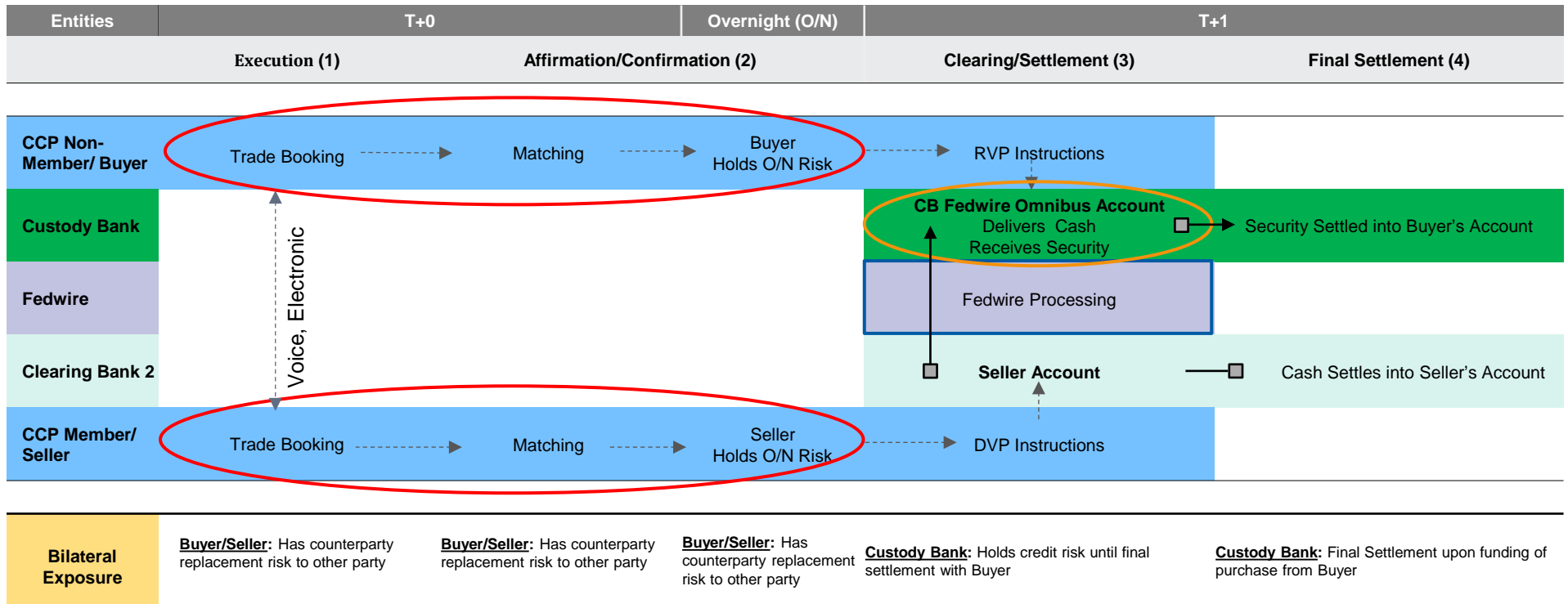
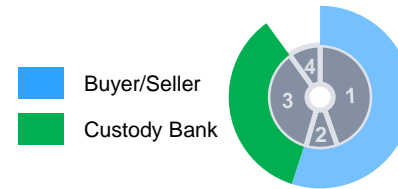
TMPG | Treasury Market Practices Group

Clearing and Settlement in the Secondary Market for U.S. Treasury Securities

Trade Flow Mapping

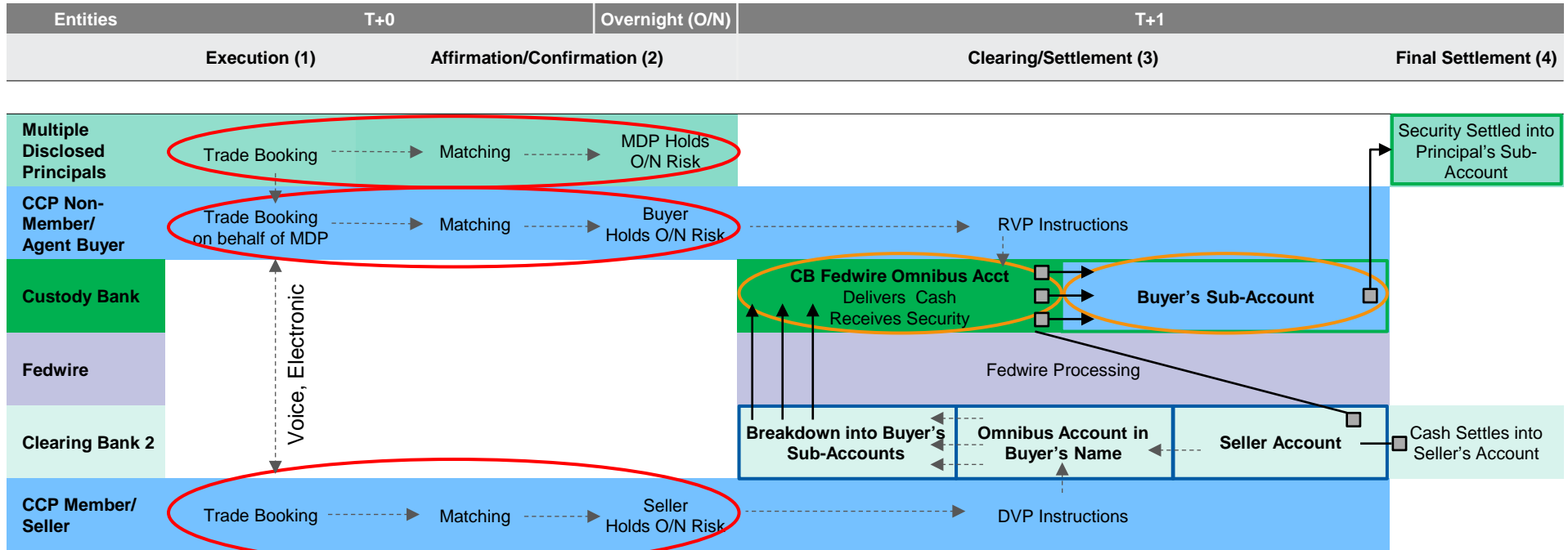
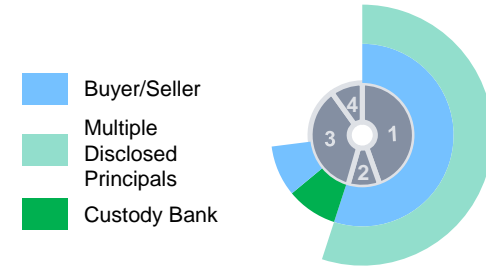
July 2018

Figure 1A: Bilateral Clearing (no IDB)
 CCP member selling to CCP non-member; bilateral clearing



Indicator	Description	Indicator	Description	Indicator	Description	Indicator	Description
	Counterparty Credit Risk		Centrally Cleared Credit Risk		CCP Counterparty Risk		Credit Extension Risk
	Two Way Information Flow		One Way Information Flow		Security Movement		Cash Movement

Figure 1B: Bilateral Clearing (Multiple Disclosed Principals)
 CCP member selling to CCP non-member; bilateral clearing on behalf of multiple disclosed principals

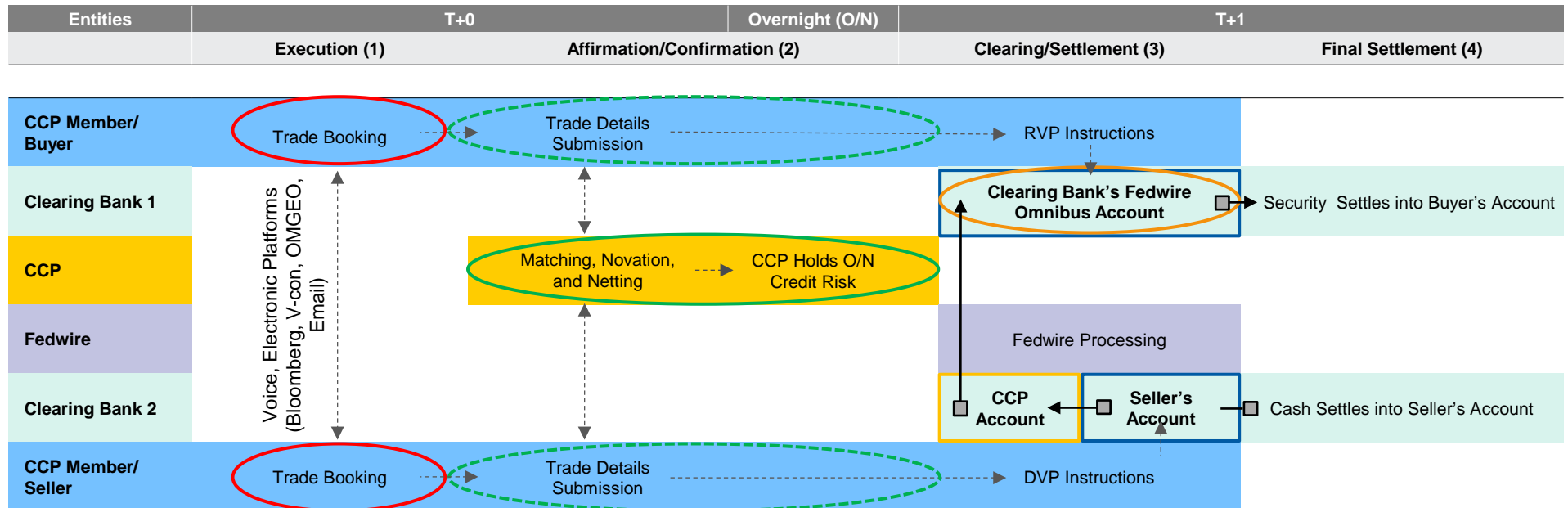
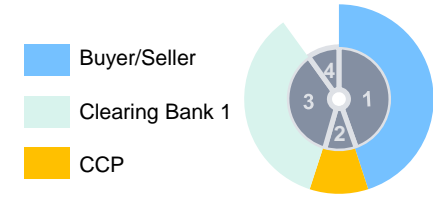


Bilateral Exposure	MDP/Buyer/Seller: Has counterparty replacement risk to other party	MDP/Buyer/Seller: Has counterparty replacement risk to other party	MDP/Buyer/Seller: Has counterparty replacement risk to other party	Custody Bank: Holds credit risk until transfer to Buyer's Sub-Accounts Buyer: Holds credit risk until final settlement with Multiple Disclosed Principals	Custody Bank: Final Settlement upon funding of purchase from Buyer
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Indicator	Description	Indicator	Description	Indicator	Description	Indicator	Description
	Counterparty Credit Risk		Centrally Cleared Credit Risk		CCP Counterparty Risk		Credit Extension Risk
	Two Way Information Flow		One Way Information Flow		Security Movement		Cash Movement

Figure 2: Central Clearing (no IDB)

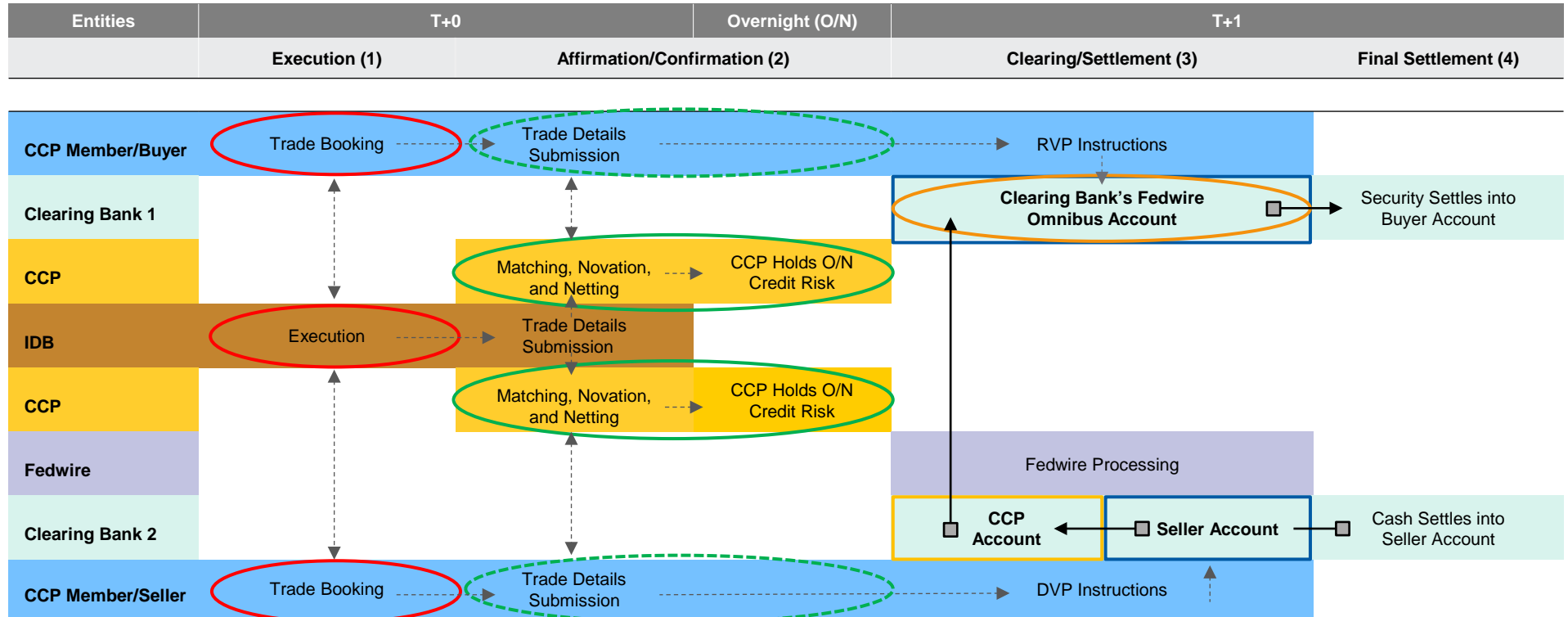
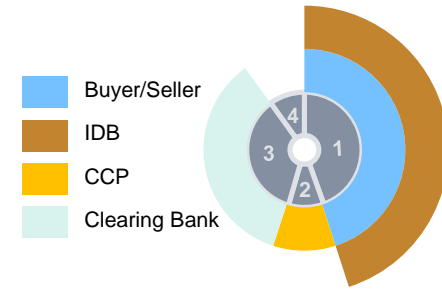
Two CCP members trade; central clearing



Bilateral Exposure	Buyer/Seller: Has counterparty replacement risk to other party until successful matching at CCP	Clearing Bank 1: Holds credit risk until final settlement with Buyer	Clearing Bank 2: Final Settlement upon funding of purchases from Buyer
Clearing Exposure	CCP: Holds Credit Risk on behalf of CCP Members until delivery to clearing bank	CCP: Holds Credit Risk overnight until delivery to clearing bank	

Indicator	Description	Indicator	Description	Indicator	Description	Indicator	Description
	Counterparty Credit Risk		Centrally Cleared Credit Risk		CCP Counterparty Risk		Credit Extension Risk
	Two Way Information Flow		One Way Information Flow		Security Movement		Cash Movement

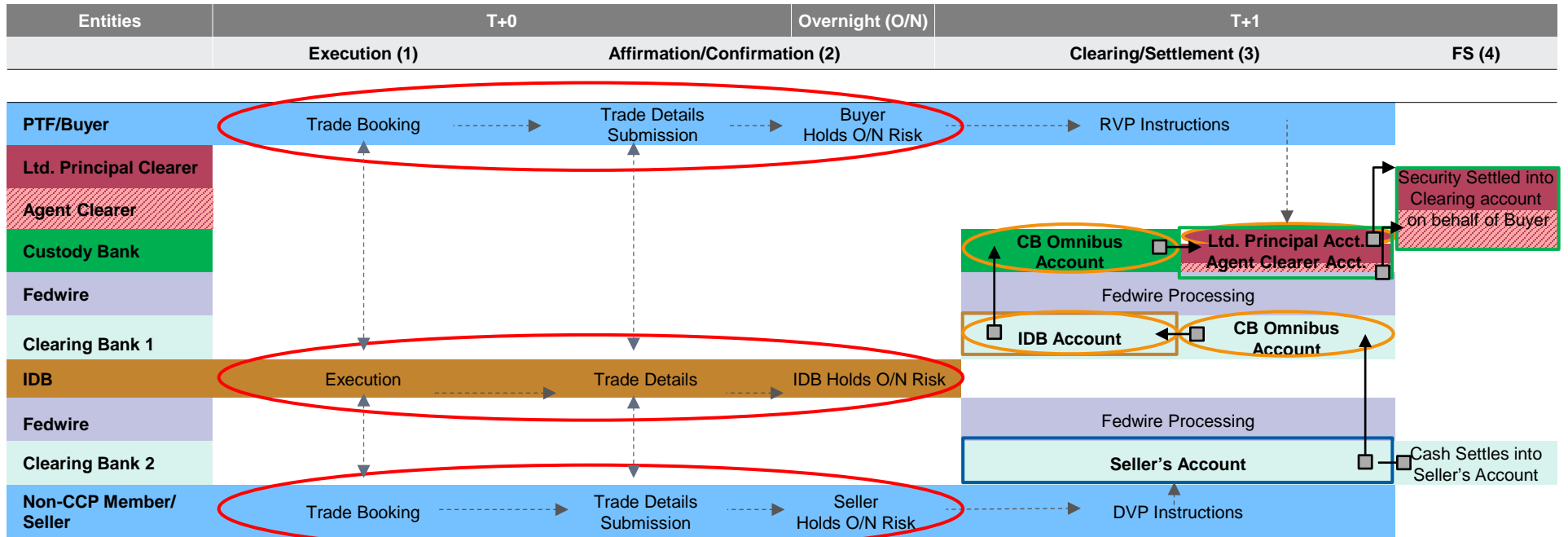
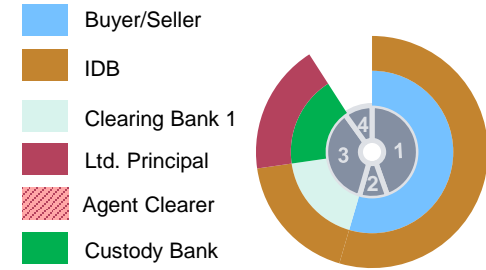
Figure 3: Central Clearing (IDB)
Two CCP members trade via IDB; central clearing



Bilateral Exposure	Buyer/Seller/IDB: Replacement Risk exists between Buyer, Seller, and IDB until successful match at CCP	Clearing Bank 1: Holds credit risk to Buyer from receipt of USTs until Buyer funds account	Clearing Bank 1: Final Settlement upon funding from Buyer
Clearing Exposure	CCP: Holds Credit Risk until delivery to Clearing Bank	CCP: Holds Credit Risk Overnight until delivery to Clearing Bank	

Indicator	Description	Indicator	Description	Indicator	Description	Indicator	Description
	Counterparty Credit Risk		Centrally Cleared Credit Risk		CCP Counterparty Risk		Credit Extension Risk
	Two Way Information Flow		One Way Information Flow		Security Movement		Cash Movement

Figure 4: Bilateral Transaction (IDB)
Two CCP non-members trade via IDB; bilateral clearing



Bilateral Exposure	Buyer/Seller/IDB:	Buyer/Seller/IDB:	Buyer/Seller/IDB:	Clearing Bank 1:	IDB:	Custody Bank:	Limited Principal/Agent Clearer:
		Counterparty/Replacement Risk exists between Buyer, Seller, and IDB until clearing IDB: IDB may act as a full or limited principal to the PTF based upon third party credit support (e.g. LoC)	Counterparty/Replacement Risk exists between Buyer, Seller, and IDB until clearing IDB: IDB may act as a full or limited principal to the PTF based upon third party credit support (e.g. LoC)	Counterparty/Replacement Risk exists between Buyer, Seller, and IDB until clearing IDB: IDB may act as a full or limited principal to the PTF based upon third party credit support (e.g. LoC)	Holds credit risk against IDB until FS	IDB: IDB may act as a full or limited principal to the PTF based upon third party credit support (e.g. LoC)	Holds credit risk against Clearer until FS

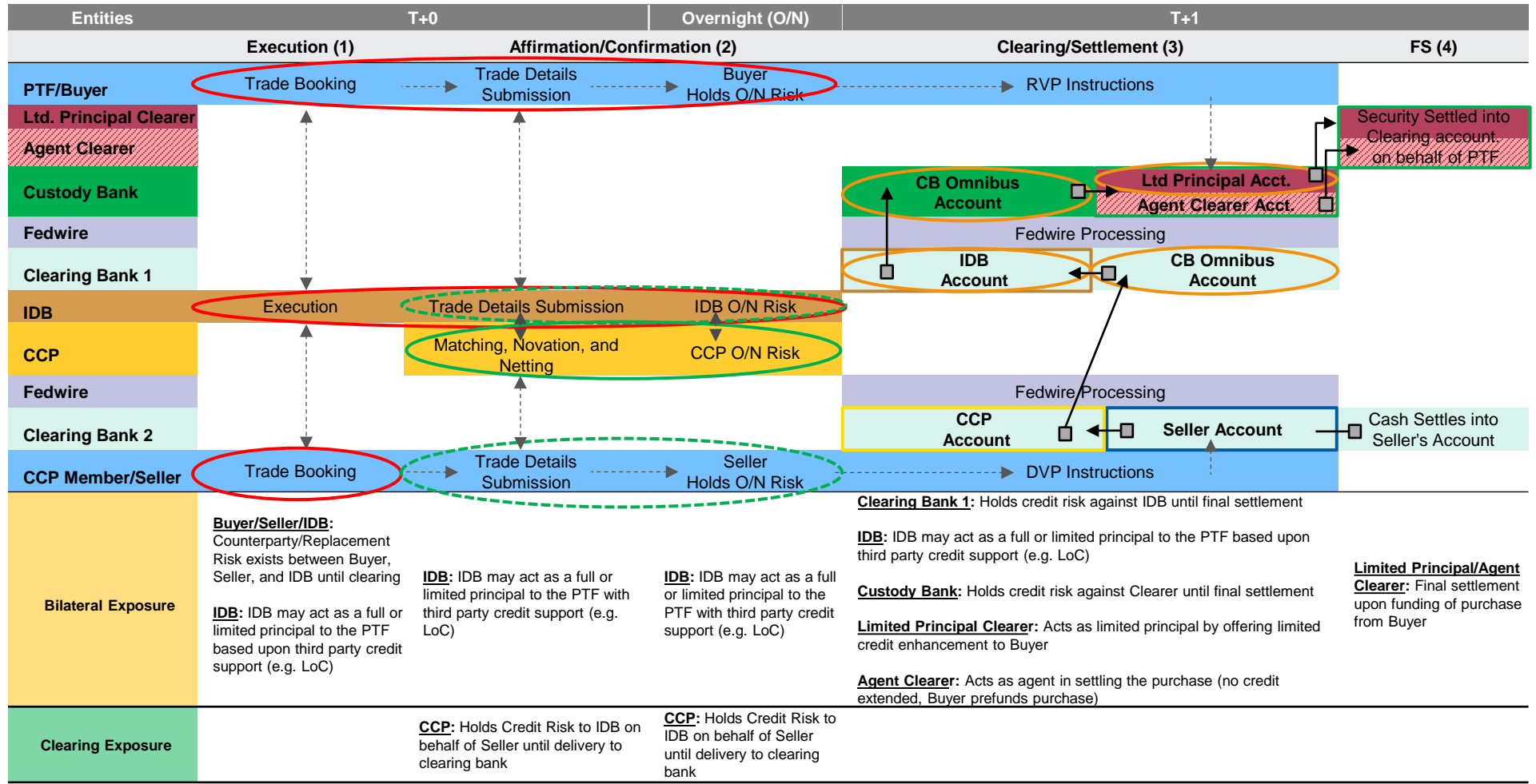
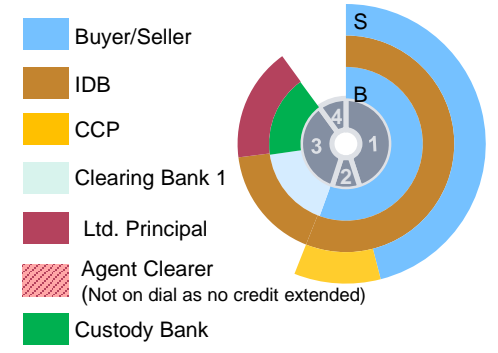
Additional roles:

- Limited Principal Clearer:** Acts as limited principal by offering limited credit enhancement to Buyer
- Agent Clearer:** Acts as agent in settling the purchase (no credit extended, Buyer pre-funds purchase)

Indicator	Description	Indicator	Description	Indicator	Description	Indicator	Description
	Counterparty Credit Risk		Centrally Cleared Credit Risk		CCP Counterparty Risk		Credit Extension Risk
	Two Way Information Flow		One Way Information Flow		Security Movement		Cash Movement

Figure 5A: Hybrid Clearing (IDB)

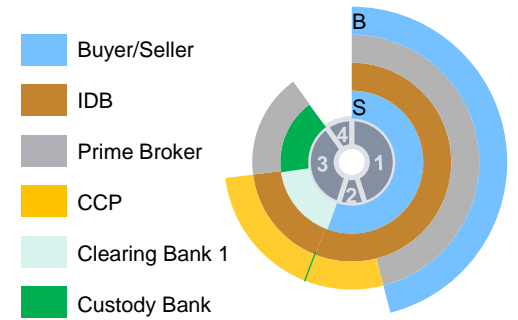
CCP member and CCP non-member trade via IDB; bilateral and central clearing



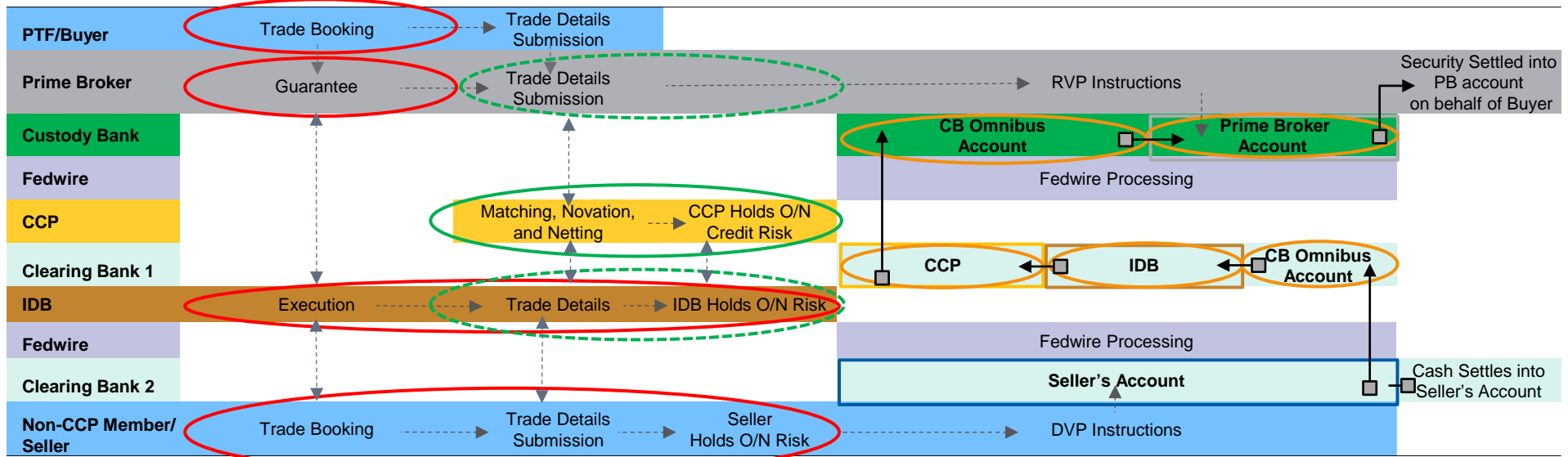
Indicator	Description	Indicator	Description	Indicator	Description	Indicator	Description
	Counterparty Credit Risk		Centrally Cleared Credit Risk		CCP Counterparty Risk		Credit Extension Risk
	Two Way Information Flow		One Way Information Flow		Security Movement		Cash Movement

Figure 5B: Hybrid Clearing (IDB facing PB)

Two CCP non-members trade via IDB and prime broker; bilateral and central clearing



Entities	T+0	Overnight (O/N)	T+1
	Execution (1)	Affirmation/Confirmation (2)	Clearing/Settlement (3)



Bilateral Exposure	Buyer/Seller/IDB/Prime Broker: Replacement Risk exists between Buyer, Seller, and IDB until clearing	Seller/IDB: Replacement Risk exists between Seller and IDB until clearing	Seller/IDB: Replacement Risk exists between Seller and IDB until clearing	Clearing Bank 1: Holds credit risk against IDB until FS	IDB: Holds credit risk against CCP until final Settlement	Custody Bank: Holds credit risk against Prime Broker until FS	Prime Broker: Final Settlement upon funding of purchase from Buyer
	Clearing Exposure	CCP: Holds Credit Risk to IDB on behalf of Prime Broker until delivery to Clearing Bank	CCP: Holds Credit Risk to IDB on behalf of Prime Broker until delivery to Clearing Bank	CCP: Holds credit risk against Custody Bank			

Indicator	Description	Indicator	Description	Indicator	Description	Indicator	Description
	Counterparty Credit Risk		Centrally Cleared Credit Risk		CCP Counterparty Risk		Credit Extension Risk
	Two Way Information Flow		One Way Information Flow		Security Movement		Cash Movement

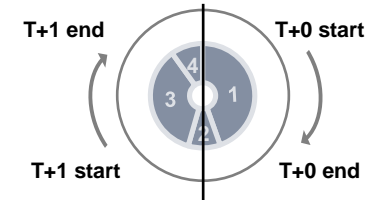
Figure 6: Comparison of risks held through the trade life cycle

The grey inner circle denote stages of the transaction life cycle, namely:

- 1. Execution
- 2. Affirmation/Matching
- 3. Clearing/Settlement
- 4. Final Settlement

Counterparties may run adjacent on the dials as they move through time. This reflects simultaneous risk exposure to multiple parties during the settlement life cycle.

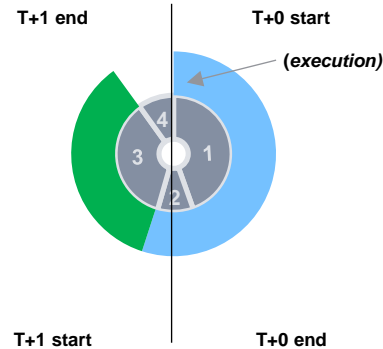
Represented Processes



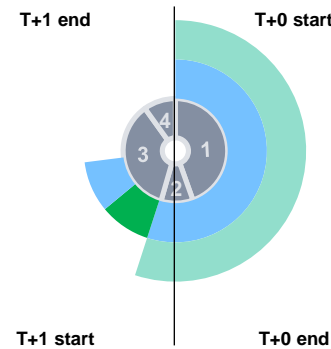
Represented Entities

- Buyer/Seller
- Custody Bank
- Clearing Banks
- Agent Clearer
- CCP
- Ltd. Principal
- IDB
- Prime Broker
- Multiple Disclosed Principals (MDP)

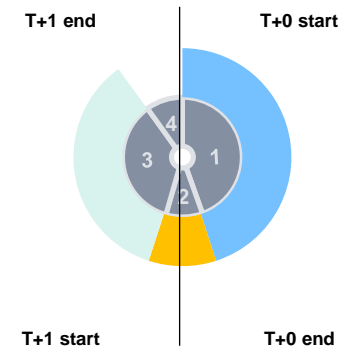
1A. CCP member trades with CCP non-member



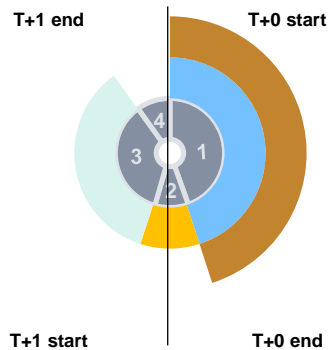
1B. CCP member trades with CCP non-member on behalf of MDP



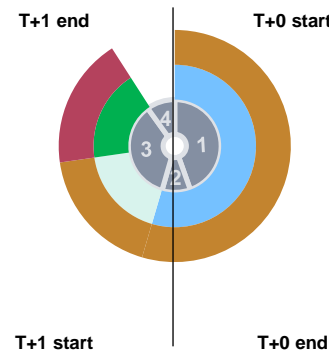
2. Two CCP members trade



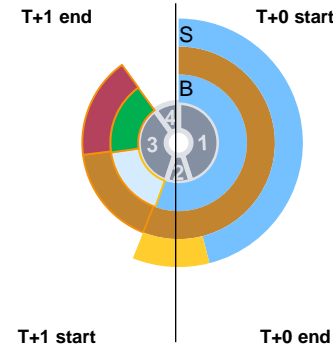
3. Two CCP members trade via IDB



4. CCP non-members trade via IDB



5A. CCP member and CCP non-member trade via IDB



5B. Two CCP non-members trade via IDB and PB

