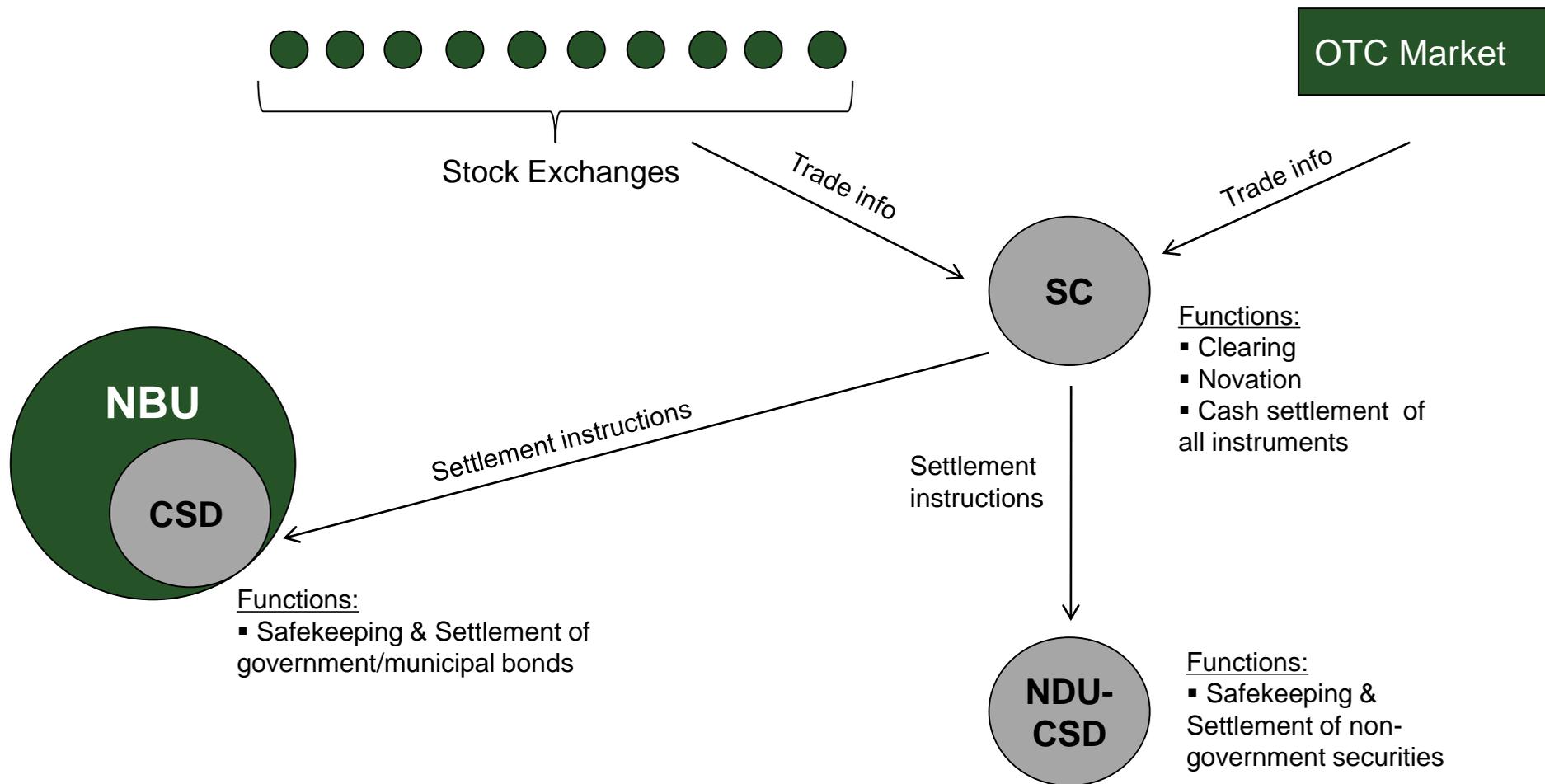


Development of Ukrainian Capital Markets Infrastructure (CMI)

ПРОЕКТ ДО
ОБГОВОРЕННЯ

Kyiv,
31/08/2016

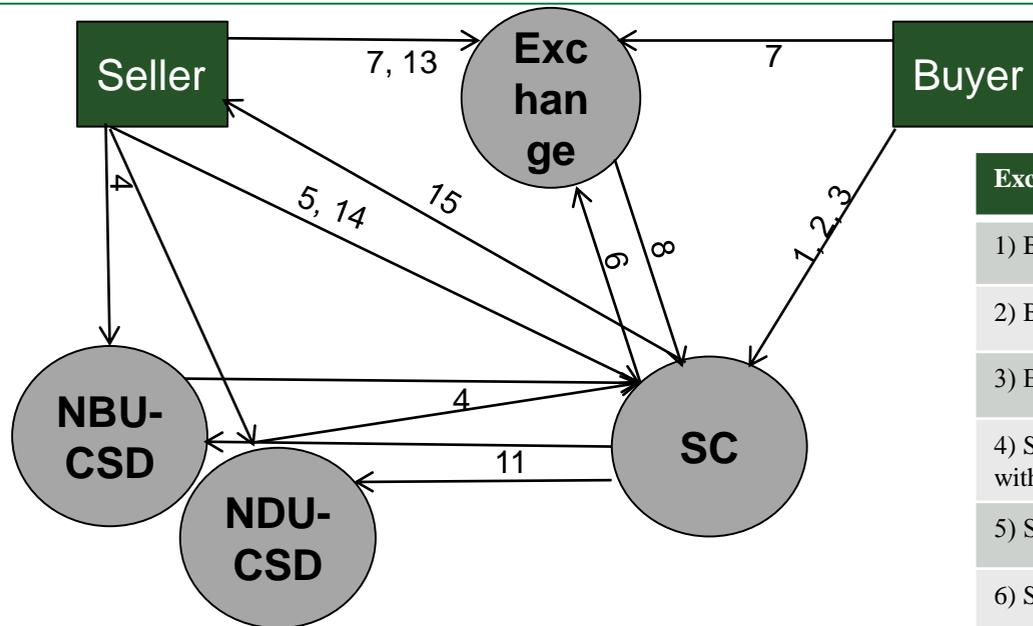
AS IS: General picture



Why should we change anything?

	AS IS:		TO BE:
Post-trade execution of deals guaranteed by	<p>100% pre-funding by both sides:</p> <ul style="list-style-type: none">- liquidity consuming (expensive)- does not work for T+N settlement / derivatives- required for all exchange deals, even “address”+ easy and reliable, thus no capital required		<p>Margin (substantially less than 100%, dedicated to cover possible price fluctuation) put with a CCP or an exchange:</p> <ul style="list-style-type: none">+ less expensive from liquidity point of view+ works for T+N / derivatives+ optional for “address” deals- more complicated and either less reliable or more capital consuming
DVP carried out by	<p>Settlement center:</p> <ul style="list-style-type: none">- complicated and time-consuming- theoretically expose participants to the additional risk of a commercial bank- operationally expensive and capital consuming		<p>CSD+NBU's RTGS</p> <ul style="list-style-type: none">+ less complicated and time-consuming+ in Central Bank's money+ cheaper (no need to keep Settlement center)- investments required to build interaction between CSD and NBU's RTGS
Government bonds serviced by	<p>NBU's CSD:</p> <ul style="list-style-type: none">+ close connection between NBU's CSD, RTGS, NBU's open market operations, NBU as payment and placement agent for the domestic government bonds- operationally more expensive- difficulties for custodians in recording of ownership for T-Bills		<p>CSD:</p> <ul style="list-style-type: none">- Investments required to build connection between CSD, RTGS, NBU's open market operations, NBU as payment and placement agent for the domestic government bonds+ operationally less expensive+ more understandable and easy for recording of ownership for T-Bills

AS IS: Execution guaranteed by 100% pre-funding



Exchange trading workflow:

- 1) Buyer transfers money to its cash account with SC
- 2) Buyer transfers money inside SC to its "clearing account" with SC
- 3) Buyer blocks money on "clearing account" for the Exchange
- 4) Seller blocks securities (via custodian and CSD) for its "clearing account" with SC
- 5) Seller blocks securities on "clearing account" for the Exchange
- 6) SC informs Exchange about blocked money/securities
- 7) Buyer and Seller trade on exchange
- 8) Exchange sends a list of deals to SC
- 9) SC clears the list of deals
- 10) SC performs settlement on "clearing accounts" (transfers cash to Seller and securities to Buyer).
- 11) SC sends settlement instructions to CSDs for execution of securities settlements finality in the books of CSDs and custodians
- 12) CSDs transfer securities to the Buyer's custodian account and custodian transfer securities to the Buyer's account and provide him with entitled statement
- 13) Seller unblocks money on Exchange (if needed)
- 14) Seller transfers money from "clearing account" to cash account with SC
- 15) Seller transfers money from SC to its bank

CMI participant:

Trading related functions:

NBU (as CSD)

Safekeeping & Settlement of government/municipal bonds

NDU-CSD

Safekeeping & Settlement of non-government securities

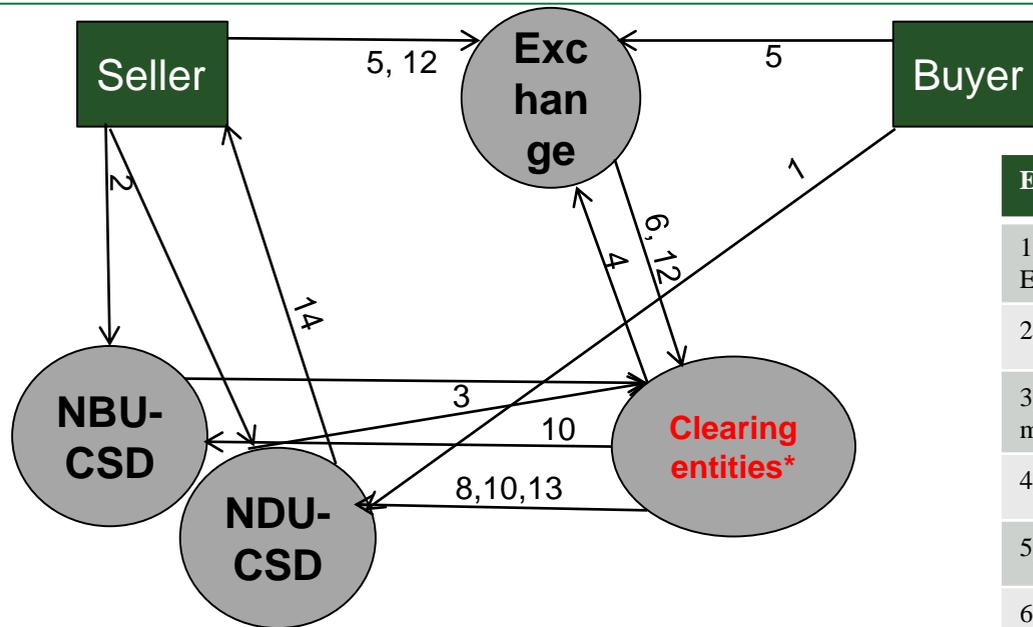
SC
(banking license)

- 1) Novation
- 2) Clearing
- 3) Cash settlement of all trades
- 4) Keeping of cash accounts
- 5) Keeping of "clearing accounts" mirroring securities and cash blocked for trading

Exchange

Generating list of deals

TO BE: Intermediary solution. Part 1 - Guaranteed execution



* Exchanges may act as Clearing entities themselves

Exchange trading workflow:

- 1) Buyer transfers money to its “clearing account” with NDU opened for the Exchange
- 2) Seller blocks securities (via custodian and CSD) for the Exchange
- 3) NBU-CSD and NDU informs Clearing entity about blocked money/securities
- 4) Clearing entity informs Exchange about blocked money/securities
- 5) Buyer and Seller trade on exchange
- 6) Exchange sends a list of deals to Clearing entity
- 7) Clearing entity clears the list of deals
- 8) Clearing entity sends cash settlement instructions to NDU
- 9) NDU transfers cash on “clearing accounts”
- 10) Clearing entity sends settlement instructions to CSDs for execution of securities settlements finality in the books of CSDs and custodians
- 11) CSDs transfer securities to the Buyer’s custodian account and custodian transfer securities to the Buyer’s account and provide it with entitled statement
- 12) Seller unblocks money on Exchange (if needed)
- 13) Clearing entity confirms to NDU unblocking of the money
- 14) NDU having received confirmation from Clearing entity transfers money from “clearing account” to the Seller’s cash account with its bank

CMI participant:

Trading related functions:

NBU (as CSD)

Safekeeping & Settlement of government/municipal bonds

NDU-CSD

- 1) Safekeeping & Settlement of non-government securities
- 2) Cash settlement of trades done via Clearing entity
- 3) Keeping of “clearing accounts” mirroring securities and cash blocked for trading

Clearing entities
(NO banking license)

- 1) Novation
- 2) Clearing

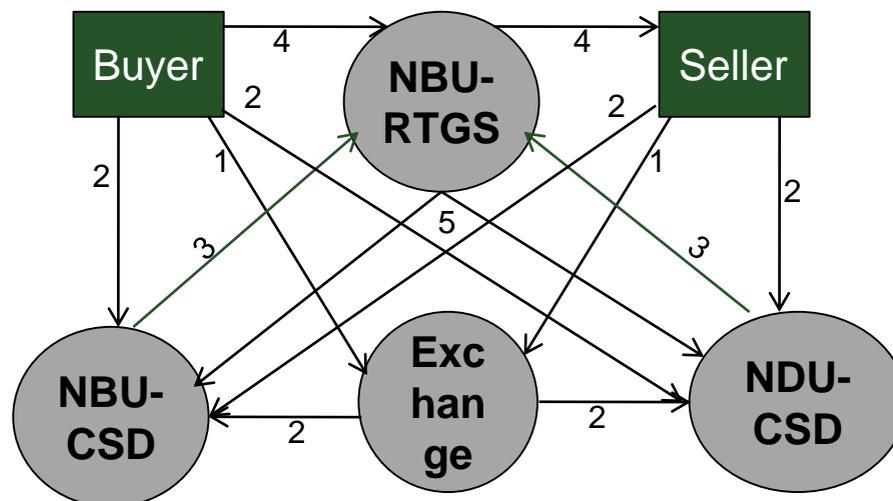
Exchange

Generating list of deals

CASH ACCOUNT OF NDU-CSD

- i. NDU-CSD will have direct UAH account with NBU (similarly as DGF).
- ii. Buyers will transfer money to this account for pre-funding of future trades (if guaranteed execution is required).
- iii. Issuers will pay money to this account for further transfer of coupons/dividends/redemptions of securities.
- iv. NDU-CSD will pay money from this account to Sellers (if Sellers like to withdraw money from “clearing accounts”).
- v. NDU-CSD will pay money from this account to Custodians (for further transfer to holders of securities).
- vi. NDU-CSD will be able to pay money to both banks and non-banks.

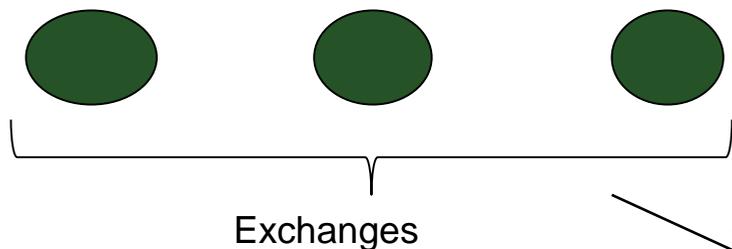
TO BE: Intermediary solution. Part 2 - DVP in NBU's RTGS



CMI participant:	Trading related functions:
NBU (as CSD)	Safekeeping & Settlement of government/municipal bonds, "limited clearing activity"
NDU-CSD	Safekeeping & Settlement of non government securities, "limited clearing activity"
Exchange	Generating list of "address" deals one-by-one
NBU (as RTGS)	Generation of payment requests to the banks and provide payment confirmation to NDU-CSD or NBU-CSD
SC/Clearing entities	NOT INVOLVED

Trading workflow:
1) Buyer and Seller trade OTC or on Exchange
2) Buyer and Seller (if traded OTC) or Exchange send settlement instructions to NBU-CSD (for government securities) or NDU-CSD (for non-government securities)
3) NBU-CSD or NDU-CSD blocks Seller's securities (if available) for transfer and sends payment instruction via NBU-RTGS to the Buyer's bank
4) Buyer pays money (if available) to Seller via NBU-RTGS under special payment request (&P)
5) NBU-RTGS having seen the payment under payment request sends confirmation to NBU-CSD or NDU-CSD
6) NDU-CSD or NBU-CSD having received the confirmation transfers securities to the Buyer's custodian account for execution of securities settlements finality in the books of custodians and providing of Buyer with entitled statement

Almost final model (A): Full-scale CCP + DVP in NBU's RTGS



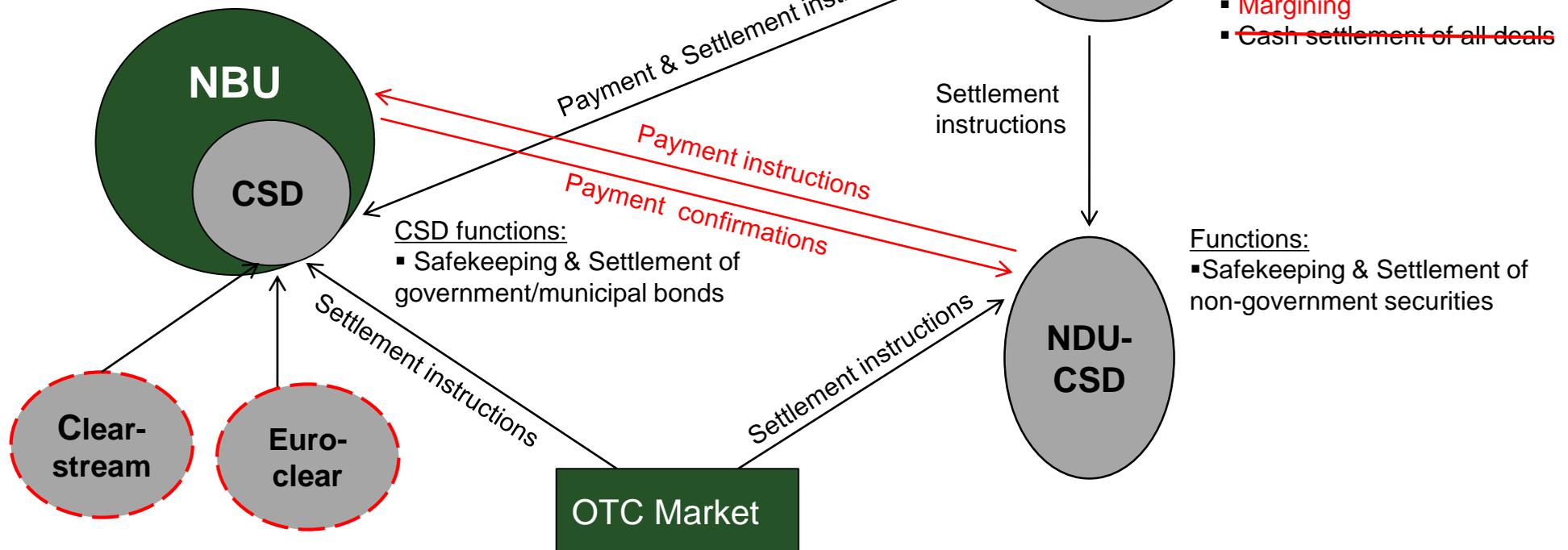
Changes:

- 1) Cash settlement of all deals in NBU's RTGS
- 2) Development of a full-scale CCP
- 3) Open accounts for ICSDs in NBU's CSD

* Exchanges may act as CCPs themselves

NBU-RTGS functions:

- Cash settlement of all instruments



Almost final model (B): Collateral Pool + DVP in NBU's RTGS

Changes:

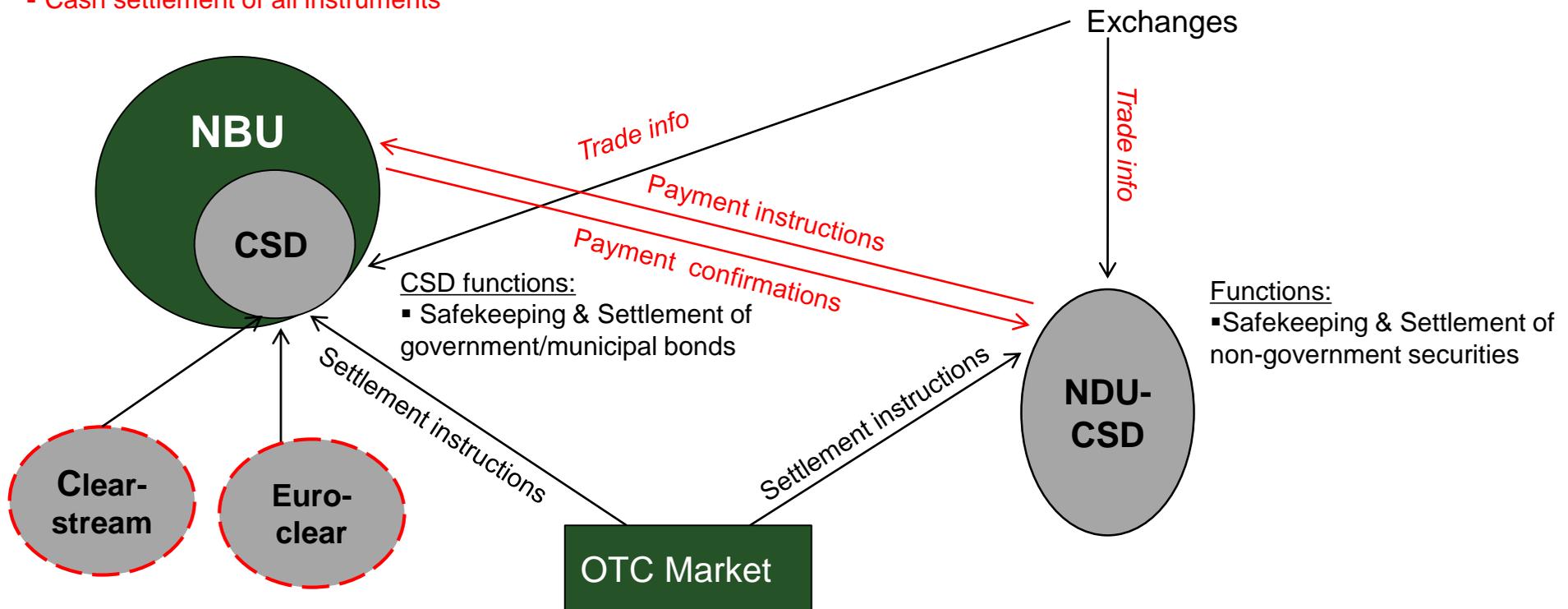
- 1) Cash settlement of all deals in NBU's RTGS
- 2) **No post-trade anonymity**
- 3) An exchange manages a pool of collateral to secure deals' execution, **but has no obligations regarding execution of any deal**
- 4) Open accounts for ICSDs in NBU's CSD

Functions:

- Clearing
- **Managing pool of collateral**

NBU-RTGS functions:

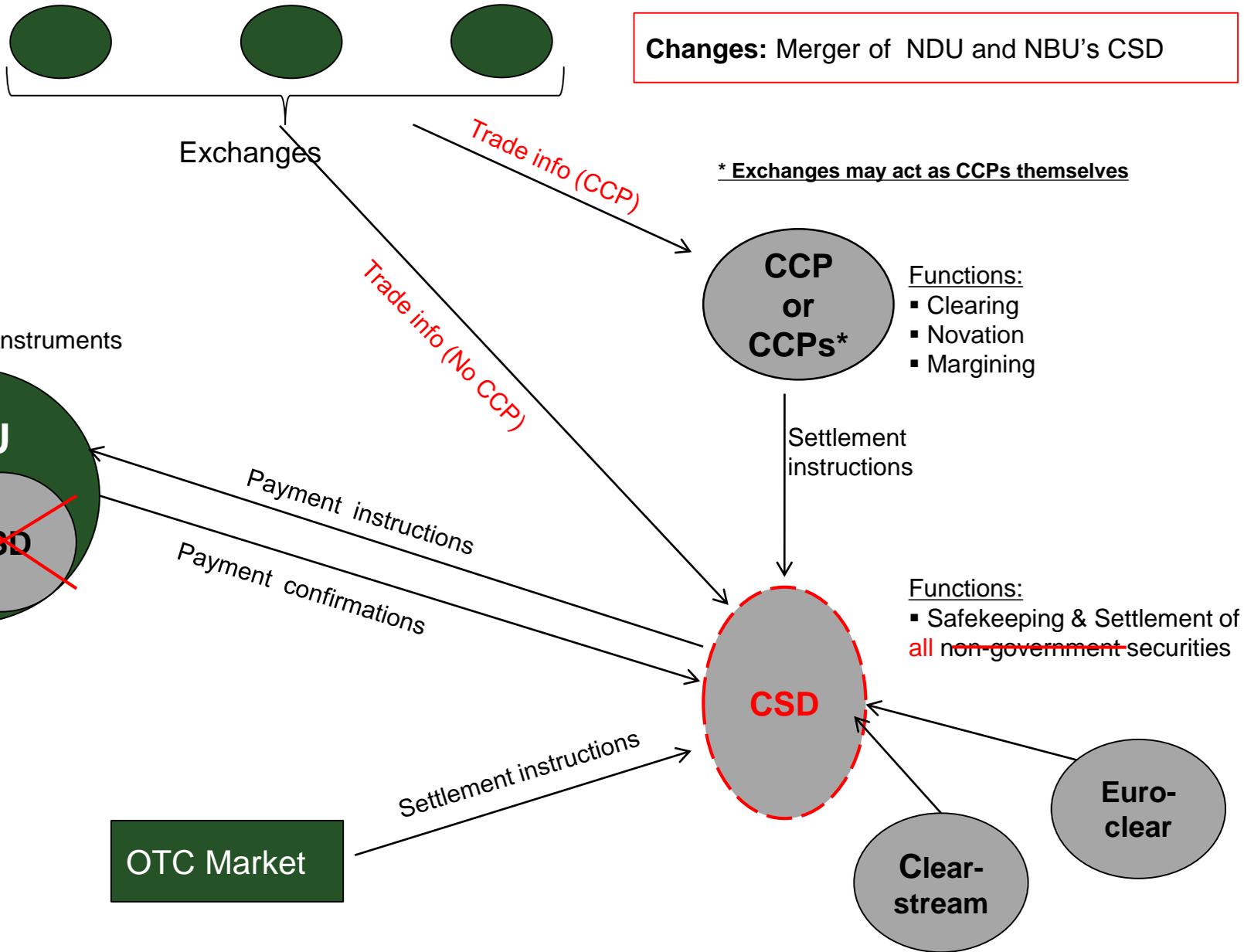
- **Cash settlement of all instruments**



Comparing model A to model B

	Model A	 Model B
Guarantee of execution	Execution is guaranteed by the CCP. If margins/other funds collected from clearing members are not enough to cover losses then CCP's capital should be used to cover the remainder.	Residual losses stay with trading members. If collateral pool is not enough to cover losses then trading members stay with claims to the defaulted one. Exchange's capital is not at risk.
Anonymity	Both pre-trade and post trade.	Only pre-trade, no post-trade anonymity.
Contribution to "collateral"/margins pool	Real-time, related to present open positions and volatility of underlying.	From time to time (for example, monthly), based on past figures (like trading turnover), not connected to present open positions

Final model: merger of 2 CSDs



NBU functions:

- Cash settlement of all instruments

Time schedule for start of A19 implementation

