



# Overview of GTS Clearing and Settlement Lines



# New Enhancements

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- Discussing Intraday usage with Clients who are working with us to better manage their operational flows. Talks have eliminated End of Day Overdrafts
- Reviewing all Intraday lines to reduce unnecessary line capacity – Project should be completed by August 15 (In conjunction with Risk)
- Redacted for Privilege**
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- Expanding our Intraday monitoring teams in Asia and Eastern Europe
- Seeking more Collateral where appropriate

# Summary



Regular extension of intra-day credit, though many mitigants in place

- \* Citi Direct Custody and Clearing facilitates international clearing and settlement of securities transactions:
  - Purchases: The receipt of securities for cash (e.g., RVP, or Receive Versus Payment)
  - Sales: The delivery of securities for cash (e.g., DVP, or Delivery Versus Payment)
- \* Citi may be obligated to pay out cash or transfer securities on behalf of clients, even if insufficient funds or securities are immediately available in client accounts. In this capacity, intraday (and occasionally overnight) credit is extended.
- \* Citi's commitment obligation and resulting clearing risk differs depending upon market characteristics:
  - For “off-exchange” or institutional settlements between clients and their counterparties, Citi's settlement obligation is typically triggered on matching or settlement date, resulting in single-day risk (SDR)
  - For “on-exchange” or street side settlements between Broker Dealers trading on exchanges or alternative venues (e.g., MTFs), Citi's settlement obligation is triggered on trade date, resulting in multi-day risk (BSR)
- \* Although nominal exposures are high, Citi has a number of risk mitigants in place:
  - For “off-exchange” settlements, Citi can typically cancel outstanding settlements, up to and often including, the actual settlement date. **Redacted for Privilege**
  - For “on-exchange” settlements, Citi has tight contractual rights of sale and cash set-off, alongside client margins. Further, Citi can unilaterally terminate its clearing relationships, effectively suspending client trading
- \* The current methodology for measuring credit does not offset incoming covering cash from Sales (DVP) against Purchase obligations (RVP), thereby resulting in a conservative measurement of clearing risk.

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# Cash Management

## Clearing Lines: Continuous Linked Settlement (CLS)/Third Party



Profile	<ul style="list-style-type: none"> <li>Third Party FX settlement, mostly FIs, some corporates</li> <li>Credit risk crystallizes when CITI releases the settled currency to the client before counterparties send cover to Citi</li> <li>Highest risk period is after Citi releases settled currency to client awaiting cover ~ 1:00-3:00 am and lowest risk period is 6:00 pm – 12:00 am where Citi can decide to withhold settled currency from client.</li> </ul>
Line Characteristics	<ul style="list-style-type: none"> <li>Lines contractually Advised but are Uncommitted and can be canceled at Citi's discretion</li> </ul>
Set-Off Rights	<p><b>Redacted for Privilege</b></p>
Risk Monitoring	<ul style="list-style-type: none"> <li>Credit limits monitored systematically. Excess credit requests require credit approval.</li> <li>Dedicated OPS monitoring units operate 24/5 in Dublin and India and actively alert risk to aberration in CLS flows.</li> </ul>
Risk Mitigation	<ul style="list-style-type: none"> <li>Prior to 6:00 pm New York time Citi has the option of not settling CLS transaction. After 6:00 pm Citi is irrevocably committed to settle. Informing CLS that Citi is not settling would be a market visible client event.</li> <li>Citi has the option of not releasing settled currency to client. This could cause cascading FX fails which again can result in client franchise risk.</li> <li>Line allocation being changed from peak transaction volume to average of 60-90 day volume to better control client exposure</li> </ul>
High Risk	<ul style="list-style-type: none"> <li>Settlement of client outstandings are highly dependent on counterparty repayments; this product does not have the benefit of in and out payment flows</li> <li>Product can expose the client and Citi to market visible franchise risk – should Citi decide not to settle the client's CLS transactions or decide not to release settled currency to the client prior to receiving cover.</li> </ul>

# Cash Management

## Clearing Lines: DDA/Transaction Accounts



Profile	<ul style="list-style-type: none"> <li>* Provides intraday liquidity to facilitate payment flows</li> <li>* High value payments utilizing RTGs (Fedwire, Target II) and payment netting (Chip, EBA) systems.</li> <li>* Client Cover expected by day's end</li> <li>* Line size based on a combination of client's risk profile and expected daily volume thru-put</li> </ul>
Line Characteristics	<ul style="list-style-type: none"> <li>* Lines mostly unadvised. FI segment negative DOL availability</li> <li>* All lines are uncommitted and can be cancelled at Citi's discretion.</li> </ul>
Set-Off Rights	<p><b>Redacted for Privilege</b></p>
Risk Monitoring	<ul style="list-style-type: none"> <li>* Credit limits monitored systematically. Client cannot exceed their limit without prior credit approval.</li> <li>* Account activity has predictable payment patterns affording Citi the opportunity to spot aberrations in payment flows.</li> <li>* Unsettled intraday credit extensions resulting in overnight exposure is actively monitored and can provide an early warning of problem situations.</li> <li>* Line sizing parameters being changed from peak transaction volume to average of 60-90 day volume to better control intraday exposure.</li> </ul>
Risk Mitigation	<ul style="list-style-type: none"> <li>* We reduce clearing line or request collateral from stressed clients.</li> <li>* We exercise our contractual and statutory set-off rights.</li> <li>* We can claw back pending payment transaction submitted payment netting systems.</li> <li>* We can stop the release of payment transactions until cover is received.</li> </ul>
Low Risk	<ul style="list-style-type: none"> <li>* Utilizing our ability to unilaterally reduce or eliminate clearing lines, hold transaction for cover, exercise our set-off right or call for collateral makes this a low risk clearing product – Citi has never lost money on intraday credit.</li> </ul>

# Cash Management

## Clearing Lines: Automated Clearing House



Profile	<ul style="list-style-type: none"> <li>◦ Low value, high volume payment system.</li> <li>◦ Utilized for vendor payments, payroll, tax payments</li> </ul>
Line Characteristics	<ul style="list-style-type: none"> <li>◦ Credit lines are Unadvised and Uncommitted and are mainly used to facilitate processing flows for ACH. All financial settlements occur in the clients DDA. This product cannot operate without a DDA for settlement.</li> <li>◦ Citi becomes irrevocably committed to pay once transaction file is submitted to clearing house.</li> </ul>
Set-Off Rights	<ul style="list-style-type: none"> <li>◦ <b>Redacted for Privilege</b></li> </ul>
Risk Monitoring	<ul style="list-style-type: none"> <li>◦ Credit is systemically monitored. ACH file cannot process unless sufficient credit is available.</li> </ul>
Risk Mitigation	<ul style="list-style-type: none"> <li>◦ If insufficient ACH credit is available we can re-rely (?) on funds in DDA for cover.</li> <li>◦ Product can operate on a credit, Pre-fund or collateralized basis.</li> </ul>
Very Low Risk	<ul style="list-style-type: none"> <li>◦ Transactions will not process or be submitted to the clearing house unless sufficient credit is available to release the file – we have never had an ACH credit loss.</li> </ul>

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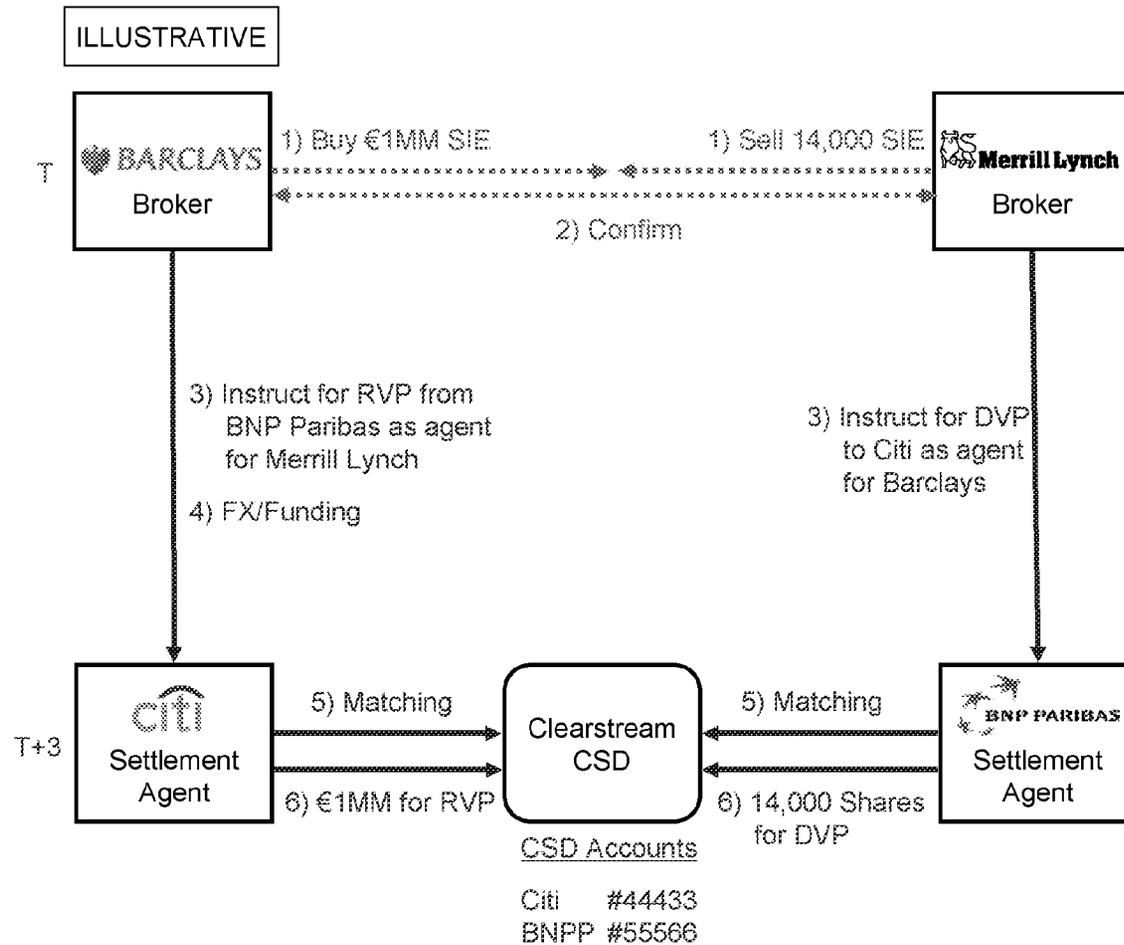
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# Process Flow – Off Exchange

Off-exchange transactions are settled trade-for-trade, with commitment typically on settlement date only

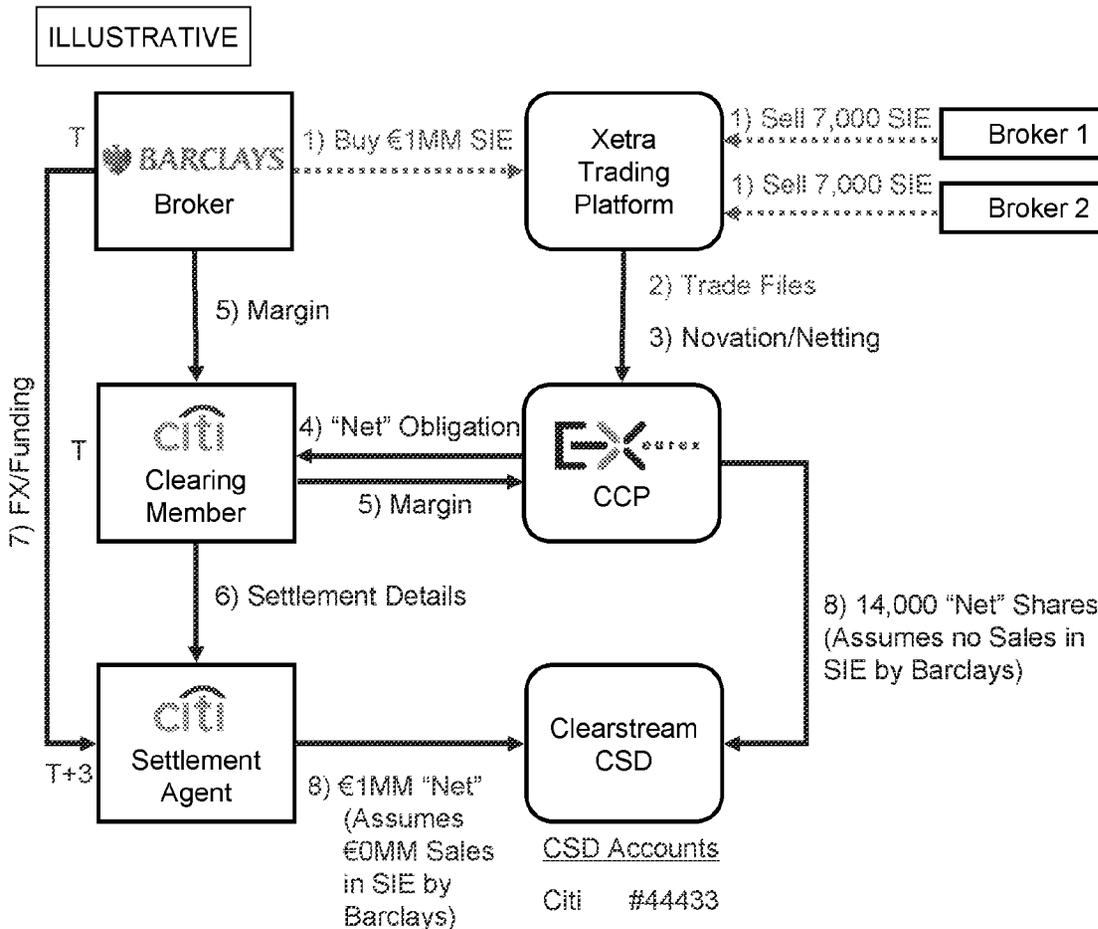


- In a standard “off-exchange” settlement, each transaction is settled trade-for-trade
- There are 2 basic settlement types:
  - Purchases / RVP (Receive Versus Payment)
  - Sales / DVP (Deliver Versus Payment)
- Settlements are completed between settlement agents in the Central Securities Depository (CSD), not between the trading counterparties themselves
- The trading counterparties instruct settlement details (values, volumes) and are expected to provide necessary FX/funding or securities inventory
- At the point the settlement is “matched” in the market (T+3), there can be an irrevocable commitment for the settlement agents to provide cash or securities
- If clients have not funded the purchase (on an RVP) or are short securities (on a DVP), the settlement agent will extend credit to facilitate settlement
- Alternatively, the settlement agents can fail the transaction, although this is forbidden in some markets and/or is highly visible to market players

..... Transaction  
 — Clearing & Settlement

# Process Flow – On Exchange

On-exchange transactions are settled on an aggregated or net basis, with commitment typically multi-day



- \* In an "on-exchange" settlement, obligations are typically settled on an aggregate or net basis (thereby compressing amounts of buys and sells)
- \* Central Counterparties (CCPs) novate obligations, becoming the buyer and seller of all transactions.
- \* CCPs require trading members to appoint Clearing Members to serve as counterparty to the settlement. The Clearing Member, not the trading member itself, becomes contractually required to settle obligations
- \* Clearing Members receive "net" obligations from the CCP and post margin. The obligations trigger on T and are irrevocable, resulting in multi-day exposure
- \* On settlement date (T+3), the Settlement Agent (typically also the Clearing Member) is responsible for providing securities or cash to the CCP through accounts at the CSD
- \* If clients have not funded the net purchase obligation or are short securities on a net delivery obligation, the settlement agent will extend credit to facilitate settlement
- \* To mitigate risk, contracts include tight security interests

..... Transaction  
 — Clearing & Settlement

# Clearing Risk

Credit exposure and related mitigants vary depending upon market type and Citi's role

- ✱ Credit is counted from commitment through settlement (single- or multi-day)
- ✱ For “Off Exchange” business and “On Exchange” clearing without a Central Counterparty (CCP), credit is currently measured as the gross of all commitments to receive (RVP). For “On Exchange” clearing through a CCP that nets obligations, exposure is measured as the net of RVPs and DVPs (as calculated by the CCP)

✱ **Redacted for Privilege**

- ✱ A number of mitigants would materially reduce exposure in the event of client distress, ranging from cancelling future-dated settlements (and possibly same-day settlements) to invoking security interests over client assets and cash

Market	#	Role	Trigger	Tenor <sup>1</sup>	Risk Measurement	# Mkts	Mitigants <sup>2</sup>
Off Exchange	1)	Settlement Agent	Matching	Single-Day (S)	• Gross RVPs	All (50+)	1) Ability to cancel future settlements 2) Lien over assets 3) Right of sale <i>where available</i> 4) Right of cash set-off <i>where available</i>
On Exchange	2)	Settlement Agent (No CCP)	Trade	Multi-Day (T to T+3)	• Factored Gross RVPs	5	1) Lien over assets 2) Right of sale 3) Right of cash set-off 4) Ability to suspend client trading 5) Netting <i>where available</i> (#3, #4) 6) Margin <i>where available</i> (#4)
	3)	Settlement Agent (With CCP)	Trade	Multi-Day (T to T+3)	• Factored Net RVPs	10	
	4)	Settlement Agent & General Clearing Member	Trade	Multi-Day (T to T+3)	• Factored Net RVPs	15	

- Notes: 1) Reflects typical tenor. Over 80% of markets have single-day tenor off-exchange, most markets have T+3 tenor on-exchange  
2) Liens and rights dependent on local market regulations, documentation (ETSA, DCSA, MCA)

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# Top 25 Relationships by Clearing Facility (\$MM)



**Redacted for Responsiveness**

LEHMAN BROTHERS HOLDINGS, INC	LEHMAN BROTHERS HOLDINGS INCORPORATED	3	IA	5,809	349	6,157
	LEHMAN BROTHERS INCORPORATED	3	IA	2,607	3,150	5,757
	LEHMAN BROTHERS INTERNATIONAL (EUROPE)-HEAD OFFICE	3	IA	1,166	440	1,606
	LEHMAN BROTHERS JAPAN INCORPORATED	3	IA	1,016		1,016
	OTHERS	3 - 5+	IA	290	70	360
<b>LEHMAN BROTHERS HOLDINGS, INC Total</b>				<b>10,888</b>	<b>4,009</b>	<b>14,896</b>

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# Enhancements



Issue	Enhancement	Status
<p>● <b>Crisis Management Team</b></p>	<p>Formalize the ad-hoc crisis management teams at the GTS, ICG and Corporate levels. Establish dedicated bridge lines. Include sales and trading members for ICG.</p>	<p>GTS and ICG teams formalized.</p>
<p>● <b>Execution Teams</b></p>	<p>Establish formal operations and sales execution teams across the GTS and Sales and Trading, including Risk. Teams shall include single regional contact and country level teams that can reduce lines and manually execute transactions.</p>	<p>Done</p>
<p>● <b>Drills</b></p>	<p>Conduct drills across GTS operational teams (Coordinate with Sales and Trading and Regional Risk Units.) Establish annual drill process.</p>	<p>Done</p>
<p>● <b>Product Enhancements</b></p>	<p>Re-establish key risk mitigants within product documentation. Key mitigants include lien language, guarantees, and confirmation of non-confirmed and unadvised nature.</p> <p style="text-align: center;"><b>Redacted for Privilege</b></p>	<p style="text-align: center;"><b>Redacted for Privilege</b></p>
<p>● <b>Documentation Warehouse</b></p>	<p>Need to establish Centralized Document Warehouse, ideally, electronic. In short term, need to create central location for all documents on risk-based basis.</p>	<p>Underway. Key existing product documentation collected for large broker-dealers as part of Project Nile review. New documents to be collected and stored as part of Nile. Electronic Warehouse sketched as part of IBM Document Project.</p>

# Enhancements (continued)



Issue	Enhancement	Status
<ul style="list-style-type: none"> <li>● <b>Revise Line Establishment Methodology</b></li> </ul>	<p>Current line setting process – establish line at estimated “peak clearing levels” – must be changed. Two step process should be followed on risk-based basis: (1) Average volumes should be primary proxy for cash lines; (2)</p> <p><b>Redacted for Privilege</b></p>	<p>Underway. <b>Redacted for Privilege</b></p> <p>Review of cash volumes underway (US substantially completed).</p>
<ul style="list-style-type: none"> <li>● <b>Line Reduction – Excess Capacity /Improved Client Management</b></li> </ul>	<p>Review all cash lines for actual usage volumes, Remove any excess line capacity. Meet with monoline broker dealers to review intraday usage and develop plan to reduce excess usage.</p>	<p>Underway. US lines fully reviewed and excess capacity reduction identified (based on 16 week sample). Preliminary estimates are a reduction of \$10Bn across top six broker dealer clients. After meetings with Lehman and Merrill, clients have reduced their intraday usage and awarded us additional payment flows.</p>
<ul style="list-style-type: none"> <li>● <b>Collateral</b></li> </ul>	<p>Seek collateral from stressed broker dealers and develop an industry wide strategy for collateralizing lines across the board.</p>	<p>Underway. Collateral conversations with Lehman continue. Merrill being assessed. Industry wide discussions initiated.</p>
<ul style="list-style-type: none"> <li>● <b>Strengthen IMU</b></li> </ul>	<p>Expand IMU capabilities into Europe and select countries in Asia.</p>	<p>Underway. Project plan established.</p>
<ul style="list-style-type: none"> <li>● <b>Eliminate Day Loans</b></li> </ul>	<p>Eliminate committed intraday facilities (BS, Merrill, Freddie/Fannie) as a product. Strengthen collateral positions.</p>	<p>Underway. BS facility reduced. Merrill conversations ongoing. Freddie/Fannie collateral strengthened.</p>