Part 22/LSOC

Principles and Implementations

LCH The Markets' Partner

SwapClear

LCH Limited
on behalf
of SwapClear
Bud Novin
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01. Summary

LCH Limited's ("LCH") SwapClear service has supported LSOC With Excess since November 13, 2012, ahead of the regulatory compliance deadline of November 14, 2012. SwapClear also offers LSOC With Excess, and has done so since Q1 2013. This document details both LSOC models.

(Please note that this document includes LCH's implementation of CFTC regulation Part 22 for the SwapClear clearing service, but does not necessarily represent the views or implementation plans for the other clearing services of LCH.)

SwapClear's LSOC Without Excess model does not require any reporting or certification from FCMs to LCH. The development required of FCMs to adhere to this model will be what is already required for all LSOC models at any CCP: the ability to perform the LSOC Compliance Calculation (Residual Interest Computation) described in "General LSOC Principles" below (further detail on Residual Interest can be found in the CFTC's Enhancing Customer Protection Rule as well as with the NFA's Joint Audit Committee). For LSOC With Excess, the fundamental distinction is the requirement for FCMs to provide LCH with a daily report that allocates the value of collateral at the DCO to individual customers.

02. Disclaimer

The contents of this paper do not, and do not seek to, constitute advice of any nature. In particular, nothing in this document constitutes legal advice. The contents of this paper are based on LCH's interpretation of various statutes, including the Commodity Exchange Act and CFTC regulation Part 22. This interpretation should not be relied upon, and readers should always take their own legal advice. There is no substitute for analyzing the rules and regulations of LCH. This paper should not be construed as a commitment by LCH to offer any particular product or service. This paper merely describes LCH's intentions at the date hereof, which are subject to change. References to 'Variation Margin' or 'VM' used herein are references to 'Variation Settlement' as defined in the FCM Rulebook.

03. Background

Segregation of customer assets in the existing U.S. futures model is governed by CFTC regulation § 1.20, or what is commonly known as the "gross omnibus" account structure. Under gross omnibus, the positions and collateral of one customer are legally and operationally segregated from the assets of the FCM, but are legally and operationally commingled with the assets of other customers of the FCM in the same omnibus client account.

In the event of a default under the gross omnibus structure, the assets in the FCM's house account may be used by the DCO in order to meet the obligations of the FCM's client account, but the assets in the client account cannot be used by the DCO to meet the obligations of the FCM's house positions. However, the DCO may utilize all assets in the omnibus client account to meet the obligations of any client of the FCM. As a result, in the event that a client's individual loss exceeds its available collateral, other clients may suffer losses. This dynamic is commonly referred to as fellow customer risk.

The introduction of the Legally Segregated Operationally Commingled model, or LSOC, is designed to protect customers from this risk. The rules covered in Part 22 of CFTC regulations ("LSOC rules") restrict DCOs and FCMs from utilizing the assets of one customer to meet the obligations of another. In addition to the protections provided by CFTC regulation § 1.20, LSOC requires the DCO to legally segregate the value of collateral associated with each individual customer, while continuing to allow a DCO (or FCM) to hold the collateral of all customers in an operationally commingled account. CFTC regulation § 22.15, "Treatment of Cleared Swaps Customer Collateral on an Individual Basis," specifically states that:

> *[E]ach derivatives clearing organization . . . receiving Cleared Swaps Customer Collateral from a futures commission merchant shall treat the value of collateral required with respect to the portfolio of rights and obligations arising out of the Cleared Swaps intermediated for each Cleared Swaps Customer . . . as belonging to such customer, and such amount shall not be used to margin, guarantee, or secure the Cleared Swaps or other obligations of the futures commission merchant or of any other Cleared Swaps Customer, Futures Customer, or Foreign Futures or Foreign Options Customer.*

To understand the new protections granted via LSOC, it is helpful to walk through a default scenario under both the gross omnibus and LSOC segregation models. For a detailed example, please refer to Appendix 1.

DCO DEFAULT WATERFALL: FUTURES VS. SWAPS

The primary difference between the gross omnibus and LSOC models is evidenced by the DCO default waterfall. The gross omnibus default waterfall utilized to cover the losses of any customer contains the initial margin of all fellow customers of the FCM. In practice, this means that if a loss associated with an individual client is large enough to deplete (1) the individual client's initial margin and (2) the defaulting FCM's initial margin and (3) the defaulting FCM's default fund contribution, then any additional loss will be satisfied with the collateral of the other clients of the defaulting FCM. LSOC is designed to remove this risk. Under LSOC, a client's collateral value at the DCO can be used only to cover losses relating to that client's own portfolio. A visual representation of each waterfall can be found in Exhibit 1 on the following page.

THE "VALUE OF COLLATERAL" THAT IS PROTECTED

CFTC regulation § 22.15 grants protection for a customer of the value of collateral associated with its portfolio of swaps. Further, CFTC regulation § 22.13, "Additions to Cleared Swaps Customer Collateral," extends this protection to the value of excess collateral belonging to individual customers if the DCO accepts excess customer collateral. Excess value is allocated via a daily FCM report, the Collateral Value Report (CVR), that stipulates the value of collateral that should be legally segregated for each customer. CFTC regulation § 22.13 states:

> *A futures commission merchant may transmit to a derivatives clearing organization any collateral posted by a Cleared Swaps Customer in excess of the amount required by the derivatives clearing organization if: (1) the rules of the derivatives clearing organization expressly permit the futures commission merchant to transmit collateral in excess of the amount required by the derivatives clearing organization; and (2) the derivatives clearing organization provides a mechanism by which the futures commission merchant is able to, and maintains rules pursuant to which the futures commission merchant is required to, identify each Business Day, for each Cleared Swaps Customer, the amount of collateral posted in excess of the amount required by the derivatives clearing organization.*

Collateral reporting is not required if the DCO does not accept excess customer collateral. In a model where the DCO is not receiving collateral value reporting from the FCM, the value of segregated collateral of an individual customer at the DCO will be dependent on a customer's initial margin requirement in accordance with regulation § 22.15. The practical implementation of this will be referred to as "LSOC Without Excess" and will be described in detail in the section titled "LSOC Without Excess." If an FCM is operating under the model where detailed collateral value reporting is provided to the DCO, a customer's legally segregated collateral value at the DCO, or a customer's Legally Segregated Value (LSV), will include both a customer's required and excess collateral value, as reported to the DCO by the FCM. As a result of collateral value reporting, excess customer funds could be delivered to the DCO. Although the practical application of each model is different, there are certain principles and rules that apply to both LSOC models. These common principles are described in the following section, "General LSOC Principles."

Default Waterfall for a Defaulting or Non-Porting Customer in a Member Default

Gross Omnibus	LSOC
Margin Requirement of the Customer	Legally Segregated Collateral of the Customer at the DCO
Defaulting Member's Initial Margin	Defaulting Member's Initial Margin
Defaulting Member's Default Fund Contribution	Defaulting Member's Default Fund Contribution
Remaining Initial Margin of all Customers of Defaulting FCM	LCH's Capital & Reserves
LCH's Capital & Reserves	Remaining Default Fund
Remaining Default Fund	Replenishment of Default Fund
Replenishment of Default Fund	Service Closure
Service Closure	

04. General LSOC Principles

INITIAL MARGIN MUST BE LEGALLY SEGREGATED

The CFTC regulation Part 22 requires that "Cleared Swaps Customer Collateral" be provided with legal segregation. Regulation § 22.15, "Treatment of Cleared Swaps Customer Collateral on an Individual Basis," states that:

> *[E]ach derivatives clearing organization and each Collecting Futures Commission Merchant receiving Cleared Swaps Customer Collateral from a futures commission merchant shall treat the value of collateral required with respect to the portfolio of rights and obligations arising out of the Cleared Swaps intermediated for each Cleared Swaps Customer . . . as belonging to such customer, and such amount shall not be used to margin, guarantee, or secure the Cleared Swaps . . . of any other Cleared Swaps Customer.*

This means that a DCO is prohibited from using the Cleared Swaps Customer Collateral of one customer to collateralize the risk of another customer before a default or use the collateral of one customer to cover the losses of another customer in the event of a default. The CFTC has made it clear that "Cleared Swaps Customer Collateral" is meant to refer only to assets delivered by a client as initial margin, and variation margin once it is actually paid to an FCM's account, therefore excluding unsettled variation margin from legal segregation.

In a default, the DCO is limited as to the amount of customer collateral that is available to it for covering losses arising from the Cleared Swaps Customer Account (legal segregation), but the only obligation that the DCO is exposed to is the unsettled net variation margin obligation across all customers, as is the case in the gross omnibus model. However, a DCO may elect to extend legal segregation to unpaid variation margin, in which case the DCO would be exposed to each individual client's variation margin gains and losses with only that client's individual collateral value available to meet its obligations. LCH has elected to extend legal segregation to unsettled VM, a protection we call "VM Seg".

THE LSOC SEGREGATION CALCULATION (RESIDUAL INTEREST COMPLIANCE COMPUTATION)

Under CFTC regulation Part 22, FCMs must ensure that their swaps customers are always provided legal segregation of their collateral at both the DCO and FCM. This requirement is apparent in CFTC regulation § 22.2(d), "Limitations of Use," which states that:

> *No futures commission merchant shall use, or permit the use of, the Cleared Swaps Customer Collateral of one Cleared Swaps Customer to purchase, margin, or settle the Cleared Swaps . . . of, any person other than such Cleared Swaps Customer.*

As the rule does not allow for any period of time when individual treatment may be forgone, in either LSOC model, it is the responsibility of the FCM to ensure that the information that the DCO is relying upon is accurate. In order to ensure compliance, to the extent that the collateral that a customer has provided to the FCM is less than the client's initial margin requirement, an FCM must fund the remaining required margin from its own capital and not the excess collateral of any other customer. This is necessary to ensure a customer's collateral is never used to "margin, secure, or guarantee" any other customer. A simple example is provided in Appendix 2.

UNALLOCATED EXCESS

In order to ensure that customers are receiving the protections required by LSOC, the FCM must always ensure that the DCO has an accurate and current record of the allocation of customer funds in its possession. If the DCO is unclear about the manner in which it should be segregating any of the value of customer collateral it holds, a DCO should not use this value to margin any customer. It is critical that the DCO behaves in this way, otherwise FCMs will not be able to ensure compliance with their obligation not to "permit the use" of the collateral of one customer to margin another customer, as required by CFTC regulation § 22.2.

If the DCO is not certain of the manner in which particular funds should be segregated, those funds must be treated as "Unallocated Excess." In the event that a default occurs while the DCO is holding Unallocated Excess, the DCO does not have the ability to rely on this value to meet any losses, and should instead return the Unallocated Excess to the Trustee. Just as a DCO is unable to rely on Unallocated Excess in a default, a DCO may not utilize Unallocated Excess to collateralize any customer. This is in line with the DCO's obligation under CFTC regulation § 22.15, "Treatment of Cleared Swaps Customer Collateral on an Individual Basis," not to use the collateral of one customer to "margin, guarantee, or secure" any other customer.

VARIATION MARGIN IS NOT REQUIRED TO BE SEGREGATED

CFTC regulation Part 22 indicates that the protection from fellow customer risk granted by LSOC applies to Cleared Swap Customer Collateral. Cleared Swap Customer Collateral, as defined by the CFTC, includes any property in the customer account belonging to swaps customers. Therefore, only once variation margin is paid to an FCM's swaps customer collateral account will it receive the protections granted under LSOC.

Although Gross Margining has been mandated by the CFTC pursuant to regulation § 39.13(g)(8), this requirement applies only to initial margin. DCOs are still permitted to settle the variation margin gains and losses of an FCM's underlying customers on a net basis, before and after a default. Because of this, customers receive a similar protection of variation margin that they have in the gross omnibus model. In the gross omnibus model, if an FCM defaults on a variation margin call from the DCO, the DCO is responsible only for fulfilling the obligations of the FCM to the DCO (and from the DCO to the FCM). This obligation is the net variation margin of all of an FCM's underlying customers. (To understand how the DCO is permitted to attribute a net variation margin loss across clients, in order to utilize customer collateral in the event of an FCM default, please refer to Appendix 3.) To be clear, LCH's rulebook does not permit it to net variation margin post-default; "VM Seg".

Therefore, without VM Seg, customers with variation margin loss across all customers have no recourse to the DCO for these gains. Instead, these customers maintain a claim over the estate of their defaulted FCM, which includes their variation margin gains from the margin run in which the FCM has defaulted up until the time at which a customer is either transferred to another FCM or liquidated. This equates to a minimum of two days and a maximum of eight days of mark to market (VM) gains. This is described in greater detail in Appendix 1.

The above description of a net variation margin settlement post-default describes the minimum requirements under CFTC regulations. Regardless of the minimum requirement, a DCO is able to elect to provide greater protection of variation margin gains for customers of an FCM post-default. SwapClear provides this additional protection to all customers, where in the event of a default, SwapClear will credit each customer with 100% of that customer's gains from the margin run in which the FCM defaulted up until the time at which the customer is transferred. This protection is limited only by the default resources available to the DCO (including the mutualized default fund, limited only upon Variation Margin Netting). An example of this protection is found in Appendix 1.

Please note that SwapClear is not able to pay customers for variation margin gains that were settled between the FCM and DCO prior to an FCM's default, but were not paid to a customer. For these gains, a customer will have a claim with the Trustee. The DCO has no visibility as to what has been settled between the FCM and its customers. Once a margin settlement is completed between the DCO and FCM, the DCO must assume that the FCM has completed the settlement with its underlying customers. The DCO is unable to manage risk on any other basis. Although a customer can limit this risk by requesting the return of any VM gains it is owed on a daily basis, there would be no way for the DCO to manage the risk of a customer who did not request VM each day and was owed more than one day of VM gains at the time of an FCM default. Should an FCM default, owing settled VM gains to a client, the customer would maintain a claim over the estate of the FCM for that amount (which was paid to the FCM by the DCO).

LEGAL SEGREGATION AT THE DCO IS BASED ON POST-HAIRCUT VALUE

As stated previously, the LSOC protection a customer is granted, at the DCO in LSOC Without Excess, is based on the "value" of the initial margin requirement associated with the customer's portfolio of rights and obligations, as determined by the DCO. All collateral delivered to the DCO is valued on a post-haircut basis, regardless of whether it is required initial margin or excess collateral. Therefore, the value that is segregated under LSOC for a customer at the DCO is based on the post-haircut value of a customer's collateral. The DCO does not have the information necessary to grant legal segregation on any other basis.

If the haircuts applied by the DCO prove to be too liberal, and the proceeds of collateral liquidation are less than the post-haircut value of the DCO, the DCO will ratably reduce the amount available to cover the losses of each customer. Similarly, in the event that collateral is liquidated for more than the post-haircut value given by the DCO, the DCO is permitted to rely on this additional value. However, the proceeds of the liquidation must be ratably distributed to all customers and made available to the DCO on this basis for meeting individual customer losses in a default. This does not imply that property/claims change hands as a result of the DCO's assumed allocation of liquidation proceeds.

In either scenario, any improper distribution by the DCO will be corrected through the bankruptcy process. It is only where the DCO utilizes more collateral than it should have for a customer, and where this value cannot be recouped through the bankruptcy court, because that customer is itself bankrupt, that the risk of losses to non-defaulting customers exists as a result of fellow customer collateral. To be clear, for this to occur, the DCO must overallocate value to a customer while liquidating collateral, this value must be needed by the DCO to cover the losses of a given customer, and that customer must also be bankrupt, with the FCM's estate unable to recoup the amount from the estate of the customer, and the FCM's estate unable to cover the customer's loss.

THE FCM'S BUFFER MAY BE COMMINGLED WITH CUSTOMER FUNDS

CFTC regulation § 22.13, "Additions to Cleared Swaps Customer Collateral," allows for a portion of the customer collateral pool to be used to margin any customer. The rule states that:

> *[A]ny collateral deposited by a Futures Commission Merchant . . . which collateral is identified as such futures commission merchant's own property may be used by the derivatives clearing organization . . . to margin, guarantee, or secure the Cleared Swaps of any or all Cleared Swaps Customers.*

Because it is the responsibility of the FCM to identify the value of collateral that is the FCM's own contribution to the customer pool at the DCO, it is also the responsibility of the FCM to ensure that the amount the DCO is relying upon as the FCM's own value is always accurate, in accordance with regulation § 22.2 (Residual Interest Compliance).

Although regulations §§ 22.2(e)(3)(ii) and 22.3(c) imply that an FCM may not deposit its own funds into the Cleared Swaps Customer Account, the CFTC has made clear in regulation 1.23 that this is not an intended interpretation or requirement of the rule. To be clear, DCOs do allow FCMs to deposit their own funds into the Cleared Swaps Customer account at the DCO, but these funds must be separately identified to the DCO in order for them to be treated as such. These funds are referred to as FCM buffer, firm buffer, firm contributed assets, or residual interest.

POST-FCM DEFAULT PORTABILITY

The CFTC regulation Part 190 dictates that it is the responsibility of the DCO to "negotiate" for the transfer of as many customers as possible to potential transferee FCMs. While the CFTC can approve the transfer of customer positions without the consent of the Trustee or Bankruptcy Court, the DCO cannot transfer customer collateral without the consent of the Trustee. Under the U.S. Bankruptcy Code, only a court-approved distribution can effect the transfer of customer collateral away from an FCM that has filed for bankruptcy protection.

From the time an FCM defaults, the Trustee's role is to determine if a shortfall exists and if so, to estimate the extent of the shortfall. The Trustee will then present to the Bankruptcy Court what it estimates as each customer's claim relative to the total amount of customer assets available, as well as what the Trustee believes should be distributed to customers by the DCO as part of a bulk port of customers and their collateral. It is logical to assume that the Trustee will use the Legally Segregated Value figures of the DCO to determine what will transfer with each customer (for speed and simplicity). The Bankruptcy Court will look to approve a bulk collateral distribution based on two factors. The court will balance the need to distribute as much collateral as possible as quickly as possible, in order to limit disruption to the market, with protecting against the overdistribution of collateral. Once the Bankruptcy Court approves a bulk distribution, the DCO is free to distribute collateral in a single bulk transfer.

Customers that are not included in the bulk transfer have up to seven calendar days following the FCM default to port their positions to a new FCM. These customers may deliver individual transfer requests to the Trustee of the defaulted FCM as well as to potential transferee FCMs. The DCO will act on these individual transfer requests, but is permitted only to transfer those customers' positions, as distributions of collateral outside of a court-ordered bulk distribution are not permissible.

The amount of collateral that transfers with a customer will be determined by the Trustee and Bankruptcy Court. It is likely that the Trustee would use the Legally Segregated Value of the DCO as the basis of the distribution that it proposes to the court. For a customer with variation margin losses, this amount may be reduced, at most, by the amount of collateral that was used to meet that individual customer's variation margin obligation. If a DCO, such as LCH, is providing post-default variation margin segregation, a customer will also be ported with any variation margin gains related to the individual customer's portfolio from the time of default up until the time at which the customer is transferred. For a timeline of the events that ensue after an FCM default, please refer to Appendix 4.

PART 22 DOES NOT REMOVE PRO-RATA LOSS SHARING

The CFTC's stated intention in issuing the Part 22 rules is to remove the ability of a DCO to utilize a customer's collateral to meet the losses of another customer (fellow customer risk). However, a DCO utilizing fellow customer collateral to cover losses is not the only risk that exists in the gross omnibus model. There are other risks in the futures model that can result in a customer receiving less than its full value of collateral through the bankruptcy process in the event of an FCM default. These loss cases are mainly centered on Section 766(h) of the U.S. Bankruptcy Code. In the preamble to CFTC regulation Part 22, the CFTC notes that:

> *[S]ection 766(h) of the Bankruptcy Code ("Section 766(h)") subjects customers to mutualized risk by requiring that customer property be distributed "ratably to customers on the basis and to the extent of such customers' allowed net equity claims." This requirement, in turn, limits the Commission's flexibility in designing a model for the protection of customer collateral.*

Generally, Section 766(h) of the Bankruptcy Code and CFTC Part 190 state that all customers of a defaulted FCM should be given equal treatment in the distribution of collateral that remains in the event of a shortfall. All customers of an FCM are at risk of this type of loss sharing. As long as a client is considered to be a customer of the FCM, and the client's assets have been delivered to the FCM, DCO, or custodian on behalf of an FCM requirement, directly or via a Tri/Quad-Party relationship, this risk will remain.

05. LSOC Without Excess

CFTC regulation § 22.13 makes it clear that certain requirements must be met in order for excess customer funds to be provided to the DCO. The key requirement is that the FCM provide reporting to the DCO that allocates collateral value to each customer. This is necessary for the DCO to be able to appropriately segregate the value that is in excess of the DCO's requirement. Therefore, an FCM and DCO may operate in an LSOC-compliant model that does not allow for excess customer funds to be held at the DCO. In such a model, a customer's collateral value that is legally segregated at the DCO is dependent on a customer's initial margin requirement, as determined by the DCO. Regulation § 22.15 states that:

> *[E]ach [DCO] . . . and each [FCM] . . . shall treat the value of collateral required with respect to the portfolio of rights and obligations arising out of the Cleared Swaps intermediated for each Cleared Swaps Customer, and collected from the futures commission merchant, as belonging to such customer, and such amount shall not be used to margin, guarantee, or secure the Cleared Swaps or other obligations of the futures commission merchant or of any other Cleared Swaps Customer, Futures Customer, or Foreign Futures or Foreign Options Customer.*

The "value of collateral required" arising from a customer's "portfolio of rights and obligations," or swap portfolio, is a customer's initial margin requirement.

ESTABLISHING A CUSTOMER'S LEGALLY SEGREGATED VALUE (LSV)

Each morning when a DCO is required to meet its Gross Margining Requirement, if the FCM meets its margin call with the DCO, the DCO will assume that the collateral meeting the margin requirement of each customer belongs to that customer. In reality, the FCM may be meeting a margin call with its own capital. Of course, the FCM is not permitted, under LSOC, to meet the margin requirement of a customer with the excess collateral of another customer. So, the collateral meeting a call either does belong to the customer generating the call or is a loan to the customer from the FCM. In LSOC Without Excess, the DCO has insufficient information to differentiate between cases where a customer has provided funds and where an FCM has made a loan to the customer, so all collateral that is used to meet the start of day IM call will be treated as belonging to the customer. Once an FCM meets its margin obligation at the DCO as part of the start of day margin cycle, the DCO will adjust the LSV of each customer to equal a customer's initial margin requirement.

This will be the only time that the DCO will ever decrease a customer's LSV without the express consent of the FCM. This will occur for those customers whose initial margin requirements have decreased from the start of the prior day where its LSV was fixed at the previous, and higher, initial margin requirement. When a customer's LSV is decreased, the resulting excess will be treated as Unallocated Excess and thus is not at risk of being utilized to margin any other customer.

In the event of a default, a DCO is permitted to use customer collateral to cover the losses relating to customer positions. However, under LSOC, the DCO can use an individual customer's LSV only to meet the loss arising from that customer's swap portfolio. Once porting can be arranged, the aim is that a customer be transferred with its LSV (pending Trustee approval). If a customer had actually deposited more than its LSV with its FCM, the customer's excess beyond its LSV should not be at the DCO, and therefore is not at risk of being utilized to meet the losses of another customer. This excess should likely be at the FCM, not the DCO, and although it may not be available for porting, it would be returned through the bankruptcy process.

THE TREATMENT OF EXCESS IN "LSOC WITHOUT EXCESS"

As a result of the nature of clearing, funds may become excess without an explicit excess deposit. This will be evident in cases where a customer's margin requirement decreases or the value of the swaps customer collateral pool increases. In such cases, the DCO is limited in how it is able to treat this excess value. If detailed collateral value reporting were available, the DCO would know how to treat excess created from customer requirement decreases. For example, if it were reported that a customer's collateral value at the DCO were $100 and the customer's requirement decreased from $100 to $50, the DCO would know that the $50 of excess that was created belonged to that customer alone. Alternatively, if it were reported to the DCO that a customer's initial margin requirement was being met with $50 of the customer's own funds at the DCO and $50 of the FCM's own capital at the DCO, and the requirement decreased to $50, the DCO would know that the $50 of excess created, as a result of the initial margin decrease, belonged to the FCM and could be used to meet the requirement of any customer.

In a model where the DCO does not have collateral value reporting from the FCM, the DCO will be unaware of whether an FCM has met a margin call on behalf of a customer or if the customer has actually prefunded, and the collateral meeting that customer's requirement at the DCO belongs to that individual customer. As a result of the ambiguity that exists in LSOC Without Excess, when a customer's requirement decreases, creating excess, the DCO may not presume such excess to be FCM buffer. This excess must be treated as Unallocated Excess in order to ensure compliance with regulation § 22.15, "Treatment of Cleared Swaps Customer Collateral on an Individual Basis." Regulation § 22.15 states that the collateral of one customer cannot be used to "margin, guarantee, or secure the Cleared Swaps . . . of any other Cleared Swaps Customer." As long as the discussed ambiguity exists, the DCO cannot use those unallocated funds to meet the requirement of any customer with certainty that it is not in breach of the individual treatment requirement.

This leaves the DCO with limited options for the treatment of "Unallocated Excess," which will exist at the start of each day when LSVs are reset in the LSOC Without Excess model. What is clear is that the DCO is not permitted to unilaterally decide to cover the margin requirement increase of any customer using Unallocated Excess. A DCO may collateralize initial margin increases only by using FCM buffer or the excess collateral specifically allocated to the customer with the requirement increase. If these amounts are insufficient, a DCO must call for additional funds. If a DCO does not call for additional funds, it is in breach of its Gross Margining Requirement defined in regulation § 39.13(g)(8).

FCM LODGED EXCESS

In LSOC Without Excess, an FCM is permitted to deposit excess funds with the DCO for the purposes of meeting any customer's requirement in the future, but these funds may only consist of the FCM's buffer. Thus, these funds are required to be of no greater value than the FCM's capital contribution to its swaps customer segregation pool in order to constitute "Residual Financial Interest" as stipulated in CFTC regulation § 22.2. CFTC Staff has stated that FCMs may also deposit excess customer funds with the DCO, but in LSOC Without Excess, the DCO must consider this amount to be Unallocated Excess (UE), not freely available to the DCO to meet the future requirement of any customer. This Unallocated Excess must be separately accounted for, and given different treatment than the value of customer collateral that is firm buffer. SwapClear will allow FCMs to post FCM buffer, but will not allow FCMs to post customer-specific excess that is treated as unallocated unless an FCM is using LSOC With Excess. Even though an FCM is not permitted to deliver UE in LSOC w/o Excess, an FCM may elect to leave UE created as part of the EOD at the DCO. As of November 2016, SwapClear provides FCMs with the ability to notify LCH that UE is actually FCM buffer.

MARGINING

Initial Margin

Each time the DCO wishes to perform an initial margin settlement with the FCM, or collateralize the increase in requirements of individual customers, the DCO should not assume that it can offset this amount against those customers with initial margin decreases. Instead, SwapClear will base its call on the total amount by which customers' requirements have increased in aggregate. This amount may be reduced by the firm's buffer deposited at the DCO. IM shortfalls cannot be offset by net variation margin gains on the customer account and thus must be settled separately.

Variation Margin

The variation margin settlement each day will be handled separately from the initial margin settlement described above. By separating the two, the DCO will ensure that it is not using the variation margin gains of a specific client to meet the initial margin obligation of another. Conversely, not separating the decrease in initial margin requirements from the variation margin losses of specific customers would be analogous to the DCO using Unallocated Excess without the consent of the FCM to meet a variation margin call. Therefore, SwapClear separates initial margin and variation margin settlements. The collection of initial margin must occur before the variation margin settlement, as the DCO would never pay out a variation margin gain until it is certain that an FCM is not in default. However, SwapClear allows the lesser of FCM buffer and USD cash on deposit to be used to cover EOD USD VM. (Prior instruction required.)

SUMMARY OF THE SWAPCLEAR MODEL

Start of Day Margin Settlement

At the start of each day, SwapClear will ensure that it has the additional collateral necessary to collateralize any customer whose initial margin requirement has increased above the customer's LSV. This aggregate amount will be reduced by the amount of FCM buffer at the DCO. The remainder will generate an initial margin call. Once this call has been met, the DCO will pay any variation margin owed to the FCM. Once the morning margin settlement is complete, SwapClear will set the LSV of each customer equal to the customer's initial margin requirement. For customers whose LSV was reduced, the resulting value will be treated as unallocated excess.

Intraday Margin Settlement

Throughout the day, SwapClear will not update the Legally Segregated Value of any customer as initial margin requirements change, notwithstanding a call for additional collateral. Therefore, if a customer's initial margin requirement decreases below the customer's LSV, the excess that results will be treated as belonging to that customer. Conversely, if a customer's initial margin requirement increases above that customer's legally segregated value, SwapClear will collateralize the resulting requirement via the FCM's specifically identified buffer, then using the tolerance granted to the FCM. In the event that this is insufficient, an initial margin call will be generated. Intraday calls are also generated three times per day to replenish any credit tolerance being utilised.

In the event that a call is met intraday, SwapClear will increase the LSVs of the customers who generated the call. The LSVs will be increased for these customers, pro-rata, based on the amount by which these customers were undermargined. At the time that an intraday call is delivered to the FCM, SwapClear will generate a new LSOC report for the FCM (86c). This report will provide the FCM with the information necessary to ensure the maintenance of the LSOC Segregation calculation (Residual Interest).

FCM Buffer

In order to remove the need for the reporting requirement necessary in LSOC with Excess, SwapClear will allow FCMs to operate in a model where all excess delivered outside of a margin call, specifically as excess, will be treated as firm buffer ("FCM buffer"). This will be enforced through the SwapClear Rulebook.

EXAMPLE OF MARGIN CALL PROCESS

Day	Description	IM Required	VM
Start of Day 1	Client 1	$100	
	Client 2	$100	
	Collateral at LCH	$200	
End of Day 1	Client 1	$95	$2
	Client 2	$105	$(3)
	IM Call	$(5)	
	VM Call	$(1)	
9am GMT	EOD IM and VM Calls Met		
Start of Day 2	Unallocated Excess Returned	$5	
	Client 1	$95	
	Client 2	$105	
	Collateral at LCH	$200	
End of Day 2	Client 1	$75	$1
	Client 2	$105	$(4)
	VM Call	$(3)	
9am GMT	VM Call Met		
	Unallocated Excess Returned	$20	

INTRADAY EXCESS RETURN

Although SwapClear will be recalculating initial margin requirements throughout the day as a customer's portfolio changes, we will update LSVs once a day after the start of day margin settlement is completed. Therefore, those customers whose initial margin requirements go down throughout the day will have their Legally Segregated Values lowered to equal their initial margin only after the morning settlement is complete. This will create unallocated excess that can either be returned or allocated by the FCM to FCM buffer.

Throughout the day, if a customer's initial margin is less than its LSV, then LCH will treat the excess collateral created as customer-specific. If the FCM wants to remove this excess prior to the following morning, the FCM must first allocate the value to UE or FCM buffer.

In LSOC without Excess, customer-specific excess can be allocated to FCM buffer, but only to the extent that a customer had value allocated to it as part of an intraday call. Since, in many cases, it is the FCM who is using its funds to meet an intraday call, SwapClear provides FCMs with the ability to notify LCH that the collateral value allocated to all customers, since the start of day, was actually FCM buffer. With this instruction, SwapClear will allocate the value called intraday to FCM buffer. As part of this process, SwapClear is also decreasing each customer's collateral value to equal its start of day LSV. As such, this process is referred to as "LSV reset".

06. LSOC With Excess

As previously mentioned, CFTC regulation Part 22 states that if a DCO is going to accept excess customer funds from an FCM, the FCM must report to the DCO, at least once per day, the value of collateral belonging to each individual customer. The model of LSOC in which an FCM is providing daily collateral value reporting to the DCO is referred to as LSOC With Excess. This section will describe the manner in which the DCO will operate and require FCMs to operate, and how this will impact legal segregation.

ESTABLISHING A CUSTOMER'S LEGALLY SEGREGATED VALUE

The key difference between LSOC With Excess and LSOC Without Excess is the determination of a customer's Legally Segregated Value (LSV). In LSOC Without Excess, a customer's LSV is the "value of collateral required" arising from a customer's "portfolio of rights and obligations," or a customer's initial margin requirement. In LSOC With Excess, this is not the case. Instead, a customer's LSV is based on the reporting provided by the FCM.

In LSOC With Excess, the FCM is required, at least once per day, to provide the DCO with a report that stipulates how much of the collateral value at the DCO belongs to each customer. In turn, the DCO will base each customer's LSV on the amount of collateral allocated to the customer via the FCM's most recent Collateral Value Report (CVR).

The treatment provided to a customer's LSV is the same as it is in LSOC Without Excess. A customer's LSV is used only to meet the initial margin requirements of that customer, and can be used to cover the losses of that customer only in the event of a default. Similarly, the amount of collateral that will port with a customer in LSOC With Excess will likely be based on a customer's LSV, not just the customer's initial margin. The LSV of a customer may at times be less than a customer's initial margin requirement as it is based on the collateral value reporting provided to the DCO, independent of DCO initial margin requirements.

THE COLLATERAL VALUE REPORT

CFTC regulation Part 22 requires that FCMs operating in LSOC With Excess provide a Collateral Value Report ("CVR") to the DCO at least once each day. The CVR will list a single USD value for each individual customer of the FCM. The DCO will implement this number as the LSV for each customer. As the protection provided to swaps customers under CFTC law and the U.S. Bankruptcy Code is based on value, and all collateral at a DCO is carried based on post-haircut values, so too will the CVR be based on post-haircut value.

In order to determine if a CVR that an FCM has delivered is compliant, the DCO will calculate the sum of all customer LSVs as reported by the FCM. This total must be no greater than the post-haircut value of all customer collateral delivered by the FCM, at that time, to the DCO. Essentially, the DCO determines the post-haircut value that it will give the FCM's customers for the entire amount of collateral that has been provided, and it is up to the FCM to allocate that value to its clients. If an FCM has allocated more collateral to clients than it has actually delivered to the DCO, the report will be rejected. (FCMs are permitted to provide an updated CVR to the DCO at any time, and as many times as they wish throughout the day.)

In addition to being required to report the LSV of each client at least once per day via the CVR, FCMs are also required to report to the DCO in the CVR, the value of the FCM's buffer. This is made clear in the preamble section of CFTC regulation Part 22, IV., "Section by Section Analysis: Regulation Part 22," which states that:

> *The Commission also notes that, to the extent the DCO permits the FCM to post "excess" collateral, the DCO must, through its own rules, require that the FCM separately account for the separately identified "buffer collateral" (which originated from the FCM's own capital) and the collateral attributed (at the DCO) to the FCM's Cleared Swaps Customers (which belongs to those customers).*

This "buffer" amount must always be less than or equal to the amount of the FCM's own assets that it has placed into segregation. As stated above, the DCO has a compliance check that ensures that the sum of customer LSVs is not greater than the post-haircut value of all customer collateral of the FCM at the DCO. The FCM's buffer reported in the CVR is not included in this specific compliance check.

After checking to see that a CVR passes the first compliance check, the DCO will determine the amount of value that has not been allocated to any customer. The DCO will then check to see that the amount of firm buffer reported by the FCM in the CVR is less than or equal to that residual amount. As long as the firm buffer value reported in the CVR is less than or equal to that amount, the DCO will use the buffer value reported by the FCM. However, unlike a customer LSV, which is never altered by the DCO to force the CVR into compliance, the DCO will decrease the firm buffer amount reported by an FCM in the event that the reported amount is greater than the residual value that had not been allocated to any customer. (This is a service provided to the FCM so that reconciliation to the penny is not required when the FCM provides sufficient buffer.)

The final compliance check for the CVR is to ensure that the report would not generate a margin call. The intention of the report is not for the FCM to indicate that it would like to increase or reduce the amount of collateral at the DCO. The core purpose of the CVR is for the FCM to notify the DCO of how collateral should be legally segregated at the DCO. Therefore, the DCO will ensure that for any customers whose LSV, as reported in the CVR by the FCM, is less than the customer's initial margin requirement, there is sufficient buffer at the DCO to cover this shortfall. Any value that is not allocated to a customer or the firm buffer is treated as Unallocated Excess.

DELIVERY AND REMOVAL OF EXCESS COLLATERAL

A DCO is never permitted to make assumptions with respect to the allocation of customer funds at the DCO. Funds must be allocated either to the FCM's buffer or to an individual customer based on instructions provided to the DCO. Therefore, funds that are delivered to the DCO, but are yet to be allocated by the FCM, will be treated as Unallocated Excess. As discussed in LSOC Without Excess, the only thing that a DCO can do with Unallocated Excess is return it to the FCM (or allocate it to FCM buffer at the FCM's request). This is not the case in LSOC With Excess. Instead, the FCM has the ability to allocate Unallocated Excess via the CVR to specific clients or FCM buffer.

When an FCM wants to increase the amount of collateral at the DCO, for one or more individual clients or its buffer, the FCM will begin by delivering the additional collateral. The DCO will immediately treat the additional collateral value as Unallocated Excess. As the FCM is permitted to deliver a new CVR at any time, once the FCM delivers a report with increased allocations, it will be implemented immediately by the DCO. There is no limit as to the length of time that funds may remain Unallocated Excess, but the value will not be implemented into the DCO margining process until it has been allocated by the FCM. Of course, FCMs may deliver a new CVR immediately after delivering the additional collateral.

FCMs may withdraw Unallocated Excess at any time, but an FCM is not able to withdraw excess from a customer's LSV without first notifying the DCO of a reduction in that customer's LSV. In order to remove customer-specific excess from the DCO, the FCM must first deliver a CVR that creates Unallocated Excess. If an FCM wishes to withdraw more collateral than what is being treated as Unallocated Excess, it may do so, but only to the extent that there is unencumbered FCM buffer, as the DCO will never unilaterally reduce the LSV of any client or allow an FCM to become undercollateralised.

MARGINING

Any time the DCO wishes to collateralize risk (initial margin settlement), it will rely on the most recent CVR that it has received from the FCM. To determine if a margin call is required, the DCO will compare a customer's LSV to the customer's initial margin requirement. The DCO will calculate the total deficit of all customers whose LSV is less than the customer's margin requirement. To the extent that customers are undermargined, the DCO will look to collateralize this residual risk via the FCM's buffer.

When initial margin is collected as part of a call, it must be immediately available to the DCO for covering losses in a default, even before a CVR has been provided. Therefore, the amount of margin called by the DCO will need to benefit from an assumed allocation until a CVR is provided by the FCM. The assumed allocation is necessary so that the DCO is able to use the called amount in the event that an FCM were to default prior to delivering a new CVR. The assumed allocation will be tracked separately from a customer's LSV so that there is no confusion in the DCO's records, on behalf of DCO or Trustee, in the event that a CVR has not been received prior to an FCM's default.

The called amount will be allocated ratably to undermargined customers, and may be re-allocated immediately by the FCM via delivery of a CVR. Until the FCM updates the CVR, the DCO will treat the called amount allocated to each customer as "assumed customer collateral." In the event of a default, the called amount could be used only to cover that customer's losses. An example of the Allocation of Called Margin can be found in Appendix 5.

SUMMARY OF THE SWAPCLEAR MODEL

Start of Day Margin Settlement

Each morning, SwapClear will base its end of day Margin Settlement on the last Collateral Value Report that was received from the FCM. At the end of the day, SwapClear will review each customer's LSV, as determined by the last CVR, and compare it to the customer's current initial margin requirement. SwapClear will then calculate the sum of all customers whose initial margin is greater than their LSV. To the extent that this sum is less than the FCM buffer, SwapClear will make an initial margin call. The margin that is called will be treated as belonging to the clients that generate the call. A client's LSV will be increased by the DCO only to the extent of the margin called. The amount allocated to the FCM's buffer will not change, and no client will ever have its LSV decreased unilaterally by the DCO in LSOC with Excess.

The margin that is collected via a call will need to be allocated by the FCM in the next CVR received by the DCO. FCMs are required to deliver a CVR to the DCO at least once a day, and that is when the called margin will be properly allocated. Of course, the FCM is required to always ensure that the behavior of the DCO is not causing a breach of the FCM's LSOC requirement. FCMs will be encouraged to deliver a CVR by 10am EST each day in order to limit the amount of time that the DCO's assumptions about called margin are reflected. Of course, the temporary assumed allocation would never harm a customer, but to the extent an FCM has met a call with its own funds, it is in the best interest of the FCM to correct the allocation as soon as possible.

Intraday Margin Settlement

Throughout the day, the DCO will monitor to ensure that all customers are fully collateralized by either their own LSV, firm buffer, or the tolerance provided to the FCM. To the extent that a customer is undercollateralised with insufficient tolerance available, the DCO will make a call, treating the called margin in the same manner as it is treated in the morning call. This assumption will need to be corrected by the FCM in the next delivered CVR. As is the case in LSOC Without Excess, at the time an FCM is notified of an intraday call, the DCO will provide the FCM with the appropriate reporting necessary to maintain LSOC segregation calculations. (Residual Interest Compliance)

While FCMs are not required to deliver more than one CVR per day, anytime the FCM wishes to deliver and receive credit for additional excess or remove excess from the DCO, the FCM will be required to deliver a CVR. For these transactions, the FCM may not be required to deliver a full CVR restating the value for unaffected clients, but may do so. Of course, the FCM is permitted at any time to deliver an updated CVR to the DCO. If an updated CVR reduces the total allocated value, the remainder will be treated as unallocated excess. This unallocated excess is the amount that the FCM will be able to have returned to it at any time.

The format of the file FCMs are required to use to communicate the value of collateral associated with each client is detailed in the document "LSOC Part 22 Collateral Value Reporting Compliance." An example of the margin call process in "LSOC With Excess" can be found on the following page.

EXAMPLE OF MARGIN CALL PROCESS (DAY 1–DAY 2)

Day	Sub Account	Sub Acct. Value	IM Requirement	Excess
Start of Day 1: Collateral Value Report: Received on Day 1 at 10am EST	Client 1	$100		
	Client 2	$50		
	Client 3	$250		
	FCM Buffer	$100		
	Total	$500		
	Tolerance	$50		
End of Day 1	Client 1	$100	$50	$50
	Client 2	$50	$100	$(50)
	Client 3	$250	$100	$150
	Total Deficits	$(50)		
	FCM Buffer	$100		
	Tolerance	$50		
Start of Day 2	IM Call Required	$-		
	Collateral Value Report Delivered – No Change			
End of Day 2	Client 1	$100	$150	$(50)
	Client 2	$50	$125	$(75)
	Client 3	$250	$200	$50
	Total Deficits	$(125)		
	FCM Buffer	$100		
	Tolerance	$50		
	EOD Tolerance Utilisation		$25	

EXAMPLE OF MARGIN CALL PROCESS (DAY 3)

Day	Sub Account	Sub Acct. Value	IM Requirement	Excess
Start of Day 3	IM Call	$(25)		

	Sub Account	Starting Value	Allocation Basis	Additional Value	New Sub Acct. Value
LSOC Report: Delivered to FCM showing the allocation of called margin	Client 1	$100	$(50)	$10	$110
	Client 2	$50	$(75)	$15	$65
	Client 3	$250			$250
	FCM Buffer	$100			$100
	Total	$500		$25	$525

CVR	Sub Account	Value
New Collateral Value Report: Delivered sometime after the completion of the Start of Day Settlement	Client 1	$100
	Client 2	$50
	Client 3	$250
	FCM Buffer	$125
	Total	$525

07. Appendix 1. Default Scenario: Gross Omnibus Model vs. LSOC

The following example compares an FCM default in the futures model and under the CFTC regulation Part 22 LSOC rule.

ASSUMPTIONS

01. There is no change in positions on the day before the default.
02. Both clients were completely settled up with their FCM prior to the FCM default.
03. The FCM has no buffer or guarantee funds.
04. There is $200 in client collateral at the DCO, all of which is cash.
05. The FCM defaults on a net variation margin call of -$150.
06. Client 2 is also in default and will not be ported.
07. The DCO is able to close any client out at no additional cost.

FCM CLIENT ACCOUNT

	Client 1	Client 2
Position	Long $2B 5Y	Short $1B 10Y
Collateral Value	$100	$100
VM	+$150	-$300

*Please note that the variation margin moves in this example have been exaggerated for simplicity.

FUTURES MODEL DEFAULT

The DCO makes a net variation margin call to the FCM of -$150. The FCM is unable to pay the DCO and is put into default. In order to meet the obligations of the defaulting FCM, the DCO utilizes $150 of client collateral. $50 of client collateral remains in the client account of the defaulted FCM. The DCO immediately liquidates the positions of Client 2 at no cost. The DCO will then attempt to port Client 1 to a surviving FCM, but there is only $50 available to do so and Client 1's initial margin requirement is $100. Client 1 may need to prefund $50 to its new FCM in order to transfer its portfolio.

Total DCO Loss: $0

Assuming Client 1 is ported with $50, then Client 1's claim made to the defaulted FCM's estate is:

01. IM Loss: $50
02. VM Loss: $150
03. Total Claim: $200

LSOC MODEL DEFAULT
(BASELINE LSOC WITHOUT VARIATION MARGIN SEGREGATION)

The DCO makes a net variation margin call to the FCM of -$150. The FCM is unable to pay the DCO and is put into default. In order to meet the obligations of the defaulting FCM, the DCO is able to utilize client collateral. Only $100 of client collateral is available to the DCO in order to meet the net variation margin loss on the client account of -$150. $100 of swaps customer collateral remains in the client account. The DCO is forced to utilize $50 from its default waterfall in order to cover the net loss beyond the available collateral. The DCO will immediately liquidate the portfolio of Client 2, and does so at no additional cost. The DCO will now look to port Client 1 and $100 is available to do so. As all of the necessary initial margin is available to port Client 1, this should not be difficult and Client 1 should not need to put up any additional funds in order to transfer.

Total DCO Loss: $50

Assuming Client 1 is ported with $100, then Client 1's claim made to the defaulted FCM's estate is:

01. IM Loss: $0

02. VM Loss: $150

03. Total Claim: $150

LSOC MODEL DEFAULT (WITH VARIATION MARGIN SEGREGATION)

The DCO makes a net variation margin call to the FCM of -$150. The FCM is unable to pay the DCO and is put into default. To provide post-default variation margin segregation to Client 1, SwapClear will ignore the fact that it made a net variation margin call to the defaulted FCM and instead disaggregate Client 1 and Client 2. Since Client 2 has defaulted, the DCO will first manage the losses resulting from Client 2's portfolio. In order to meet the $300 in variation margin losses from Client 2's portfolio, the DCO has at its disposal $100 of Client 2's collateral. In order to cover the remaining $200 of residual losses, the DCO may not use any of Client 1's initial margin or variation margin gains, and must instead go to its default fund. The DCO now has $100 of Client 2's collateral and $200 of its own default resources available to meet the net call of $150. The remaining $150 is credited to client 1 to cover its VM gain of $150. Therefore, the DCO is now able to port Client 1 with not only $100 of Client 1's collateral, but also with $150 of Client 1's variation margin gains. Client 1 can thus be ported with $250, covering both its initial margin and VM.

Total DCO Loss: $200

Assuming Client 1 is ported with $250, then Client 1's claim made to the defaulted FCM's estate is:

01. IM Loss: $0

02. VM Loss: $0

03. Total Claim: $0

08. Appendix 2. LSOC Segregation Calculation

Please note that this is an oversimplified example. It is meant only to convey the general idea of the calculation (Residual Interest Compliance).

ASSUMPTIONS

All collateral is in the form of cash.

START OF DAY 1

	Account	Deposited with FCM
Client Collateral	Client 1	$100
	Client 2	$200
	Total	$300
FCM Buffer		$100
Total FCM Client Account	Total	$400
DCO IM Requirements	Client 1	$100
	Client 2	$100
	Total	$200
Collateral Deposited with DCO	Total	$200

EXAMPLE 1

At the end of day 1, the only change is the IM Requirement of Client 2. Client 2's new IM Requirement is $250. Since the DCO does not have any excess, it will call for the full amount of the increase, $150. Prior to meeting the initial margin call the following morning, the FCM should perform the LSOC Segregation Calculation to ensure that it will be LSOC-compliant when it meets the call the following morning.

Calculation: for each client (Collateral Deposited – IM)

Client 1: $100 - $100 = $0
Client 2: $200 - $250 = -$50

Add up all negative clients.

Total: $-50

Therefore, the FCM buffer must be at least $50.
FCM buffer is greater than $50.
The FCM is LSOC-compliant.

EXAMPLE 2

At the end of day 1, the only change is the IM Requirement of Client 1. Client 1's new IM Requirement is $250. Since the DCO does not have any excess, it will call for the full amount of the increase, $150. Prior to meeting the initial margin call the following morning, the FCM should perform the LSOC Segregation Calculation to ensure that it will be LSOC-compliant when it meets the call. (Residual Interest Compliance)

Calculation: for each client (Collateral Deposited – IM)

Client 1: $100 - $250 = -$150
Client 2: $200 - $100 = $100

Add up all negative clients.

Total: -$150

Therefore, the FCM buffer must be at least $150.
The FCM buffer is only $100.
The FCM must deposit an additional $50 into segregation prior to meeting the call in order to be LSOC-compliant.

EXAMPLE 3

End of Day 1 IM Requirements:

Client 1: $250
Client 2: $50

Calculation: for each client (Collateral Deposited – IM)

Client 1: $100 - $250 = -$150
Client 2: $200 - $50 = +$150
Total: -$150

Therefore, the FCM buffer must be at least $150.
The FCM buffer is only $100.
The FCM must deposit an additional $50 into segregation in order to be LSOC-compliant.

09. Appendix 3. Attribution of a Net Variation Margin Loss

The below examples detail how a DCO determines the amount of swaps customer collateral that it may use in order to cover the loss resulting from an FCM defaulting on its net variation margin obligation. The example covers the minimum CFTC LSOC requirement and does not describe the VM Seg protection provided by SwapClear.

The principle of the attribution methodology is to protect a customer's IM from the losses of another customer.

When a default happens, the DCO must determine how much collateral is available to cover a net variation margin call on the FCM's customer account. In the gross omnibus model, the DCO could use all collateral available to cover the net variation margin call. Under LSOC, the DCO must perform a calculation to determine how much margin is available to it to meet the FCM's net variation margin call, prior to using any customer margin to satisfy the obligation of the FCM's customer account. This calculation is provided and explained below.

For each customer, the DCO can use a maximum amount of collateral equal to the customer's individual variation margin loss, limited by the customer's Legally Segregated Value. If this total amount is insufficient to cover the net variation margin call to the FCM's customer account, then the DCO cannot use any further customer collateral. Instead, the DCO must go to the next level of its waterfall, protecting customers from fellow customer risk.

EXAMPLE 1: THE FCM DEFAULTS ON A NET VARIATION MARGIN CALL OF $25

	VM	Legally Segregated Value	Collateral Available to the DCO to Cover VM
Customer 1	6	5	N/A
Customer 2	-12	5	5
Customer 3	3	5	N/A
Customer 4	-4	5	4
Customer 5	-3	5	3
Customer 6	2	5	N/A
Customer 7	-7	5	5
Customer 8	-9	5	5
Customer 9	3	5	N/A
Customer 10	-4	5	4
Net	-25	50	26

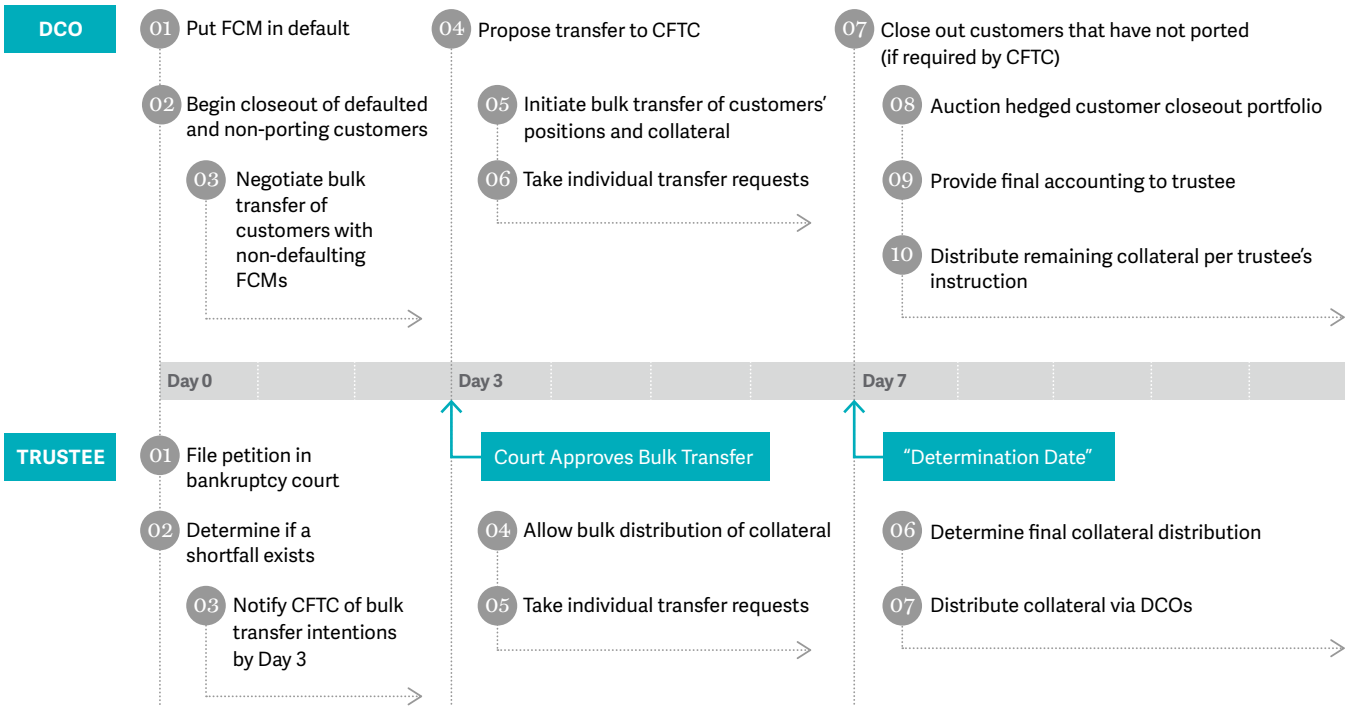
Here, there is a net loss of -$25 with $26 of customer collateral available to the DCO to cover the call. the DCO does not have to go to its default fund to cover the loss.

EXAMPLE 2: THE FCM DEFAULTS ON A NET VARIATION MARGIN CALL OF $30

	VM	Legally Segregated Value	Collateral Available to the DCO to Cover VM
Customer 1	1	5	N/A
Customer 2	-12	5	5
Customer 3	3	5	N/A
Customer 4	-4	5	4
Customer 5	-3	5	3
Customer 6	2	5	N/A
Customer 7	-7	5	5
Customer 8	-9	5	5
Customer 9	3	5	N/A
Customer 10	-4	5	4
Net	-30	50	26

Here, there is a net loss of -$30 but $26 of collateral available. Therefore, $0 remains to be distributed to customers and the DCO must rely on its default waterfall to cover the remaining $4 of the net variation margin loss.

10. Appendix 4. Post-FCM Default Timeline



11. Appendix 5. Allocation of Called Margin

The following example demonstrates how the DCO will temporarily allocate called margin prior to receiving an updated CVR from an FCM.

Each time the DCO initiates an initial margin settlement, it will base the need for a call on the most recently received CVR. In the example below, the DCO does just that.

01. The example begins by showing the CVR that was most recently delivered by the FCM to the DCO. Please note that the example is assuming that the CVR delivered by the FCM was compliant. This means that at the time the CVR was delivered, the amount of firm buffer needed to cover undermargined customers was less than or equal to $25.

02. At some later time, customers enter into risk-increasing trades. The buffer is no longer sufficient. The example shows the DCO records of customer IM requirements and the calculation used to determine the amount of the call.

03. After the call is made, the DCO must assume the allocation of the called margin until a new CVR is received. This shows how the DCO determines the assumed allocation.

04. The FCM now sends a new CVR, which allocates the called margin. The FCM notifies the DCO, via the CVR, that all of the margin called was firm buffer.

05. The DCO can now send updated reporting to the FCM that reflects its own records.

1. MOST RECENT CVR

Customers	Amount
A	125
B	300
C	50
FCM	25

2. DCO RECORDS AT THE TIME OF INITIAL MARGIN SETTLEMENT

Customers	IM	LSV	Excess	Client Deficit	Total Deficits	Firm Buffer	Margin Call
A	95	125	30		-125	25	-100
B	325	300		-25			
C	150	50		-100			

3. TEMPORARY ALLOCATION OF CALLED MARGIN

Customers	Client Deficit	Margin Call	Allocation
A		-100	
B	-25		-20
C	-100		-80

4. UPDATED CVR

Customers	Amount
A	125
B	300
C	50
Firm Buffer	125

5. UPDATED DCO RECORDS

Customers	IM	LSV	Excess	Client Deficit	Total Deficits	FCM Buffer	Margin Call
A	95	125	30		-125	125	0
B	325	300		-25			
C	150	50		-100			

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