

CCP Loss Allocation at the End of the Waterfall

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This paper is intended to reflect the consensus view of the ISDA Risk and Margin Regulatory Implementation Committee (“RIC”). The ISDA RIC has clearinghouse, buy-side and sell-side representation and is an industry forum with which policymakers can engage on the cross-industry aspects of CCP loss allocation rules. While the content is intended to represent the consensus view to the extent possible, it should not be regarded as the view of every individual member firm.

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Executive Summary

The introduction of mandatory central clearing for standard over-the-counter (“OTC”) derivatives will mean that central counterparties (“CCPs”) become the most systemically important market participants. As such, CCPs will be required to establish robust recovery and continuity mechanisms. Although the primary goal in a default situation should be recovery and continuity of the CCP, the need for resolution cannot be excluded and resolution mechanisms must also be in place.

Recovery, continuity and resolution must be addressed in relation to two situations, namely:

1. At the “end of the waterfall” – The “default waterfall” refers to the financial safeguards available to a CCP to cover losses arising from a clearing member (“CM”) default (“Default Losses”) and the order in which they would be expended, while end-of-the-waterfall refers to situations following the exhaustion of all such safeguards; and
2. Where there are non-default losses (“NDL”) that exceed a CCP’s financial resources above the minimum regulatory capital requirements, e.g. CCP operational failures.

Default Losses

For Default Losses, this paper advocates Variation Margin Gains Haircutting (“VMGH”) as a robust recovery and continuity mechanism which will operate as part of the default waterfall following the exhaustion of all other layers of the default waterfall. VMGH allows the CCP to distribute remaining losses by recourse to *pro rata* unpaid gains at the beneficial owner level. The CCP would impose a haircut on cumulative variation margin (“VM”) gains on the portfolio of trades of each beneficial owner which have accumulated over the days since the commencement of the default management process, i.e. day of the CM default giving rise to the Default Losses.

The sum of clearing participants’ cumulative VM gains since CM default would always be sufficient to cover the defaulter’s mark-to-market losses in the same period: in the remote circumstance that the CCP’s waterfall of resources, including haircutting cumulative VM gains since CM default, were insufficient to cover mark-to-market losses and the transfer cost implied in a portfolio auction process, or where the CCP were not able to determine a market clearing price for that portfolio, in the absence of a voluntary position taking and/or loss absorption, counterparty netting considerations dictate a full tear-up of all of the CCP’s contracts in the product line that has exhausted its waterfall and has reached 100% haircut of VM gains. It is imperative that the CCP specify the termination process in the rule book at the end of the waterfall as a prerequisite for regulatory and accounting netting. Further, if clearing participants know the alternative is a full tear-up, service closure will provide an additional incentivisation for all to participate in any reasonable voluntary process.

There should be no forced allocation, invoicing back, partial non-voluntary tear-up, or any other CCP actions that threaten netting, i.e. the ability of a regulated clearing participant to carry the CCP cleared derivatives on their balance sheet on a net basis. (A table comparing these alternatives is provided at section VIII.)

Where the CCP's default management is seen to be effective in managing down the risk and transferring the defaulter's hedged positions, resolution authorities should not be entitled to interfere with the CCP's loss allocation provisions, as prescribed by the CCP's rules (unless not doing so would severely increase systemic risk). CCP rules form the basis for clearing participants¹ being able to predict outcomes and thereby risk manage their exposure, and indeed, have the status of contract.

In order to mitigate moral hazard, we suggest, at a minimum that:

1. Any clearing participant's loss allocation in the form of VMGH create a proportionate share in the CCP's claim against the defaulted CM's estate;
2. The default waterfall mitigate moral hazard (arising from the CCP assuming that it will be protected from insolvency) by requiring the CCP to put additional significant portions of its capital at risk senior to CM contributions, but before the exercise of VMGH. Capital at risk would provide all clearing participants in the CCP with further assurance of the sufficiency of both margin and waterfall protections; and
3. Potentially, all clearing participants that bear losses from rebalancing the CCP through VMGH loss distribution be given the opportunity to receive new shares or some form of senior convertible debt instrument as consideration for the losses absorbed.

NDL

Whilst not the primary focus of this paper, we note that NDL should be viewed as a very different scenario from Default Losses – since the CCP is potentially insolvent but its clearing participants may all remain solvent – and further work must be undertaken to assess appropriate recovery / resolution measures. VMGH (or similar end-of-the-waterfall considerations) are not an appropriate or adequate resource for allocation of NDL. Even though VMGH mimics the economics of insolvency it would not guarantee the solvency of the CCP. There is no easy way to anticipate the size and nature of any such NDL and upon which entities they might fall, nor is there any obvious reason why such liability should be reallocated amongst CMs and other clearing participants in accordance with a VMGH mechanism, so other measures need to be considered to allocate losses appropriately. We

¹ Throughout this paper, we use the term “clearing participant” to capture the full range of entities who may have direct or indirect exposures to CCPs by virtue of their cleared positions. CMs are a subset of clearing participants each of whom, in addition, unconditionally guarantees the performance of those participants it has as clearing clients, and provides a limited guarantee in the form of default fund contributions that are highly expected to assure, but not guarantee unconditionally, the performance of other CMs and their respective client guarantees.

consider that losses resulting from NDL should accrue first through the CCP ownership and control structure, that is, it should be borne first by the holders of the CCP's equity and debt. Beyond this, other statutory resolution tools such as business transfers to transferee CCPs or bridge institutions might be considered. Some further thinking is presented below.

I Introduction

With the introduction of mandatory central clearing for standard OTC derivatives, CCPs will become the most systemically important market participants. CCPs must establish robust recovery and continuity mechanisms, as set out in standards promulgated in the European Market Infrastructure Regulation (“EMIR”) and by the Committee on Payment and Settlement Systems and International Organisation of Securities Commissions (“CPSS-ISOCO”), to avoid CCP resolution (or insolvency). Once a CCP has approved recovery rules in place to cover specific sources of losses, such rules must be respected. To reduce the systemic risk arising from a CCP failure, CMs and other clearing participants must have the ability to measure and manage their risk to the CCP. For this to be assured, CCP rules relating to all stages of its lifecycle, including recovery and resolution, must be constructed with care.

The primary goal should be recovery and continuity, rather than resolution. Recovery arrangements (e.g. haircutting VM gains) should be used only as the final step on the “default waterfall” (described below). Although the rules a CCP makes in respect of recovery are a matter of contract between the CCP and its clearing participants, it is vital that regulators respect them up to the point of non-viability in order to provide clearing participants with necessary certainty and transparency.

Given CCP resolution may in certain circumstances be unavoidable, it is imperative that arrangements for this process are transparent and predictable in advance. However, resolution should be viewed as a last resort and everything reasonable done to prevent it.

We recognise the difficulty of achieving optimal CCP recovery and resolution settings, the fact that no loss allocation system can avoid allocating potentially significant losses to clearing participants and the genuine importance of this work to the safe implementation of mandatory central clearing for standard OTC derivatives. We also acknowledge that much work has been undertaken on this topic by policymakers.

We support the aim of policymakers to protect CCPs from resolution and agree that CCPs should have in place recovery plans and loss allocation rules to cover losses arising as the result of CM default or NDL (described below). We also acknowledge that service interruption for systemically important CCPs must be avoided. Accordingly, CCPs must have robust recovery plans that provide clear procedures setting out how to deal with losses that exceed a CCP’s financial resources above the minimum regulatory capital requirements.

This paper sets out ISDA’s proposal for a “best practice” approach to the CCP end-of-the-waterfall situation arising from CM defaults and NDL. It proceeds in seven parts:

1. Definition of “End-of-the-Waterfall” situations and NDL;
2. How VMGH works in practice and when resolution authorities should step in;
3. Voluntary partial tear-up;

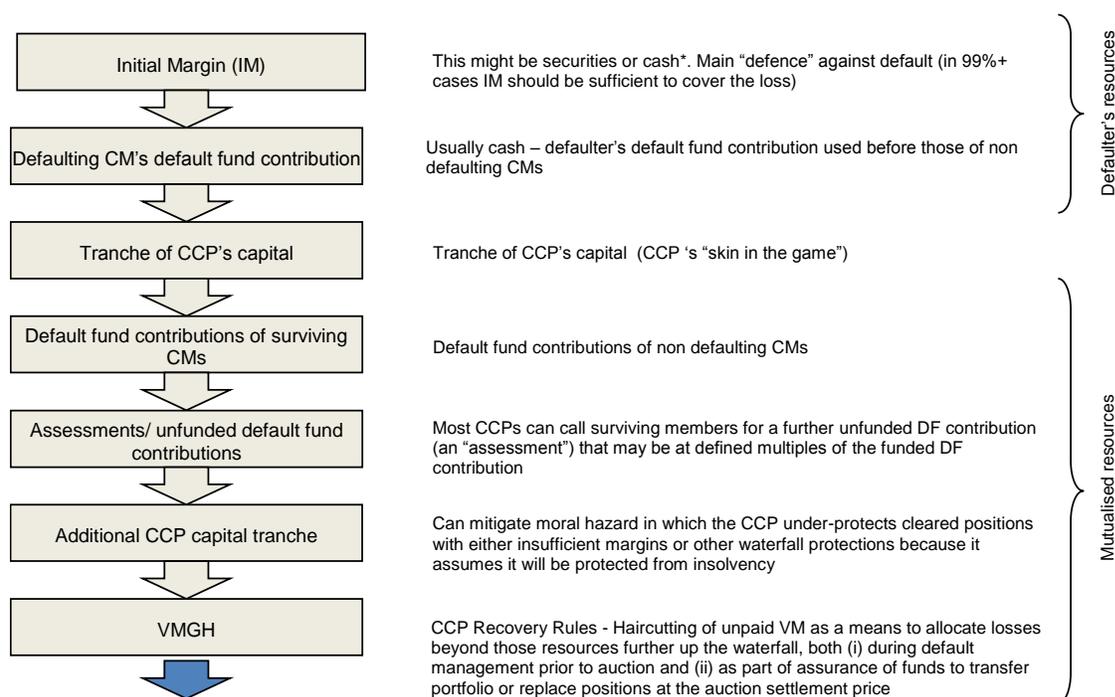
4. CCP moral hazard mitigants;
5. Additional “best practice” settings for CCPs;
6. VMGH - Frequently Asked Questions; and
7. Comparison between VMGH, from a systemic stability perspective, and other proposals for loss allocation.

II Definition of “End-of-the-Waterfall” situations and NDL

A “End-of-the-Waterfall” situations

The “default waterfall” refers to the financial safeguards available to a CCP and the order in which they would be expended in the event of a CM default, while “end-of-the-waterfall” refers to situations following the exhaustion of all such safeguards.

A Desirable CCP Default Waterfall:



* As an aside, whether securities collateral is likely to be capable of consideration as “bankruptcy remote” from the CCP remains uncertain and will depend on insolvency law and CCP-specific assessments; cash collateral is expected not to be “bankruptcy remote” from the CCP.

End-of-the-waterfall situations can arise where:

1. Mark-to-market losses on the CCP's open risk positions exhaust the resources in the default waterfall before the auction process can be completed and an auction settlement price determined.
2. An auction has been finalised so that the CCP determines a market-clearing auction settlement price for its open risk positions, but the price at which clearing participants would be willing to assume the CCP's open risk position exceeds the remaining resources in the default waterfall and aggregate VM gains haircut from the CM default.
3. The auction process fails, i.e. after repeated attempts, the CCP does not receive a bid and is unable to determine a market-clearing price for its open risk positions.

In situations 1 and 2, a market-clearing price can be determined. In situation 1, the CCP has exhausted the default waterfall of the relevant product silo, from which it is able to make cash payments to non-defaulting clearing participants with mark-to-market gains. In situations 1 and 2, we consider that *pro rata* haircutting of mark-to-market gains and cash distributions at the beneficial owner level (VMGH), is the most appropriate loss allocation mechanism. Because losses are always offset by gains, VMGH is always effective in situation 1.

In situation 2 also, VMGH is *almost always* bound to be a sufficient resource since it takes care of mark-to-market losses (generally multiples of them, but potentially only once, if all clearing participants are facing the defaulter on the other side of the trades), and the transfer risk premium should be less than the sum of all the other resources. However, there is the possibility that the market is very stressed, and the transfer risk premium exceeds available resources such that even where a market clearing transfer price has been determined, there are not sufficient resources (including VMGH) to pay the market transfer price.

In situation 3, in the event that the CCP's default management process has proven unable to resolve the risk arising from the defaulting CM's positions (for whatever reason – any one or more of a number may be the cause in particular circumstances), a service termination or a resolution event would be warranted depending on whether the service is limited recourse or not. Service closure incentivises CMs and other clearing participants to provide hedges and turn up and bid responsibly in any auction. Clearing participants must not be indefinitely compelled to take haircuts on VM gains where the CCP's risk management is unable to lower the risk on the defaulter's portfolio and to transfer it to other participants. At that point, clearing the product may only produce more losses, and recourse to complete contract tear-up/resolution must be available. Further discussion of prudent reaction to situations 1, 2 and 3 is provided in section III.

Under EMIR, the Risk Committee ("RC") and Default Management Committee ("DMC") have advisory functions only, and consequently would not be in a position to rule that a default management process has failed. In our view, legal responsibility for this decision must reside with the CCP management. However, the DMC or RC should have the right to

recommend that CCP management stop the default management process, based on clear criteria defined in the CCP's rule book. With such a DMC or RC recommendation, authorities should consider stepping in.

B Non-Default Losses

NDL are losses that exceed a CCP's financial resources above the minimum regulatory capital requirements, which are not the result of CM defaults e.g., CCP operational failures.² We consider that regulatory standards should be explicit that the losses resulting from NDL should accrue firstly through the CCP ownership and control structure. That is, NDL should be borne first by the holders of the CCP's equity and debt, and thus should only impact a clearing participant to the extent that the clearing participant has an equity or debt claim on the CCP's capital.

Unlike Default Losses, there is no way to *ensure* NDL can be covered by VMGH. Indeed the market may be very quiet and there may be little to no aggregate variation going at the time of the NDL. There is no easy way to anticipate the size and nature of any such NDL and upon which entities they might fall, nor is there any obvious reason why such liability should be reallocated in accordance with a VMGH mechanism. The default fund and other member-provided resources for CCPs are dedicated to absorb losses from CM defaults. It is equally inappropriate for clearing participants with VM gains to cover NDL. Instead, NDL exceeding the CCP's capital should be covered by a bail-in regime. The bail-in regime may be supplemented by insurance contracts that cover a limited quantum of losses in excess of a CCP's minimum regulatory capital requirements. However, an appropriate bail-in or insurance regime would take time to develop, agree and implement. Debt securities are common bail-in instruments for banks but are not commonly issued by CCPs. In the absence of bail-in, other statutory resolution such as business transfers to transferee CCPs or bridge institutions might be considered, but we have serious reservations as to whether such a transfer is practicable.

III How VMGH should work in practice and when resolution authorities should step in

A How VMGH should work in practice

First, it is important to bear in mind that CCPs are required to collect initial margin ("IM") from each clearing participant, directly from CMs, indirectly through CMs for indirect clearing participants, at a level that covers potential market movements over a period of not less than 5 business days (for OTC contracts), with a confidence level of at least 99%. In

² It is difficult to conceive of circumstances that would lead to such a catastrophic outcome. Possible scenarios include an extremely large credit or investment loss arising from unauthorised trading activities undertaken by a CCP's Treasury (or other large-scale fraud), or a breakdown in operational controls or business risks. It should be noted that these activities are subject to stringent regulation: CCPs are prohibited from entering into derivatives transactions (except for FX or to hedge a defaulted CM's exposures) and any unauthorised activities could in general be expected to be detected by internal controls, internal audits and regulators. In addition, the European Banking Authority has promulgated technical standards for CCP capital rules, which require CCPs to hold capital to cover costs for a certain time span while its activities are wound down.

addition, default funds must be large enough to ensure a significant increase in this confidence level under extreme but plausible market conditions. If IM and the default fund are sized conservatively in compliance with regulatory requirements, then the probability of a loss exceeding them is extremely small – even if we ignore the other resources in a CCP’s default waterfall. Nevertheless, in theory, any *finite* amount of financial resources may be insufficient to absorb a very large loss and avoid CCP insolvency.

It follows that if the contributions to guarantee the default performance of CMs, made by all CMs, is to be a limited amount – and it must be, as the amount of default tail losses are beyond the control of surviving CMs – the tail losses exceeding the large but nevertheless limited resources provided (the “residual losses”) must be born somehow by somebody in some way. It is the view of this paper and its authors that the residual losses should be borne not by the taxpayer, nor by the surviving CMs who as guarantors have no control³ over these losses, but by all clearing participants with mark-to-market gains since the onset of the default. Such participants that have the means to control their risk, and by so doing help the CCP manage the losses on the opposing defaulter’s positions. The reasons are: (i) the losses fall to those clearing participants who may control their loss allocation by flattening or changing their trade positions; (ii) those clearing participants with gains at risk are also the clearing participants likely to have positions that would help the CCP risk manage and stem the default portfolio losses, and so the loss allocation creates the right incentives among clearing participants to assist in default management; and (iii) it is natural that, when the CCP runs out of resources, it fails to pay individual trading accounts a *pro rata* portion of their current gains: such a loss allocation mimics the economics of insolvency, in which gains are not paid, although a portion, net of legal and administrative costs, of the gains is eventually paid—which means VMGH is a better outcome for everyone relative to insolvency and contract tear-up.

We consider that a focus on VMGH is vital to reducing the systemic risk arising from a CCP failure by enabling clearing participants to manage and measure their risk to the CCP at any stage of the lifecycle of the CCP. Haircutting VM gains encourages all clearing participants to provide hedges to the CCP in its risk management of the defaulter’s positions, and to bid aggressively in default management auctions. It also avoids concentrating uncontrollable losses on any one category of clearing participant; indeed no participant faces uncontrollable loss of gains despite losses being essentially uncappable.

This wide allocation is not only desirable for managing the risk at the end-of-the-waterfall; it is also consistent with the Basel III capital requirements for bank exposures to CCPs:

1. The 2% to 5% risk weight applied by Basel rules to CCP exposures of clearing participants addresses the insolvency of the CCP and thus should also be appropriate to address VMGH, the economics of which are similar to and generally better than insolvency.

³ Prudence dictates no entity take on potentially unlimited risk it cannot control. For a financial entity (FE), unlimited performance guarantees can only be made where the FE has the ability to reduce its exposure to the source of potential loss at any time. For clearing members, default fund contributions and potential assessments must be limited to defined calculable amounts and the ability to wind down positions and right to withdraw their CCP membership may not be conditional.

2. Basel rules also hold that a CM will only be able to treat its client position exposures as against the CCP at a zero-value where the CM is not obligated to reimburse the client for any losses suffered due to changes in value of a transaction in the event that the CCP defaults. This suggests that CMs will in fact have to reserve the right as against their clients to pass on loss of unpaid gains, which VMGH does, or risk adverse capital treatment on their client account.

Our proposal therefore is that following the exhaustion of the traditional default waterfall, the CCP should have the right to impose a haircut at the beneficial owner level on cumulative VM gains which have accumulated over the days since the commencement of the default management process.

Practically, the CCP would need to adjust its margin calls with CMs for this purpose. However, CMs would have the right to adjust their own margin calls with customers, i.e. they could pass through VM haircuts to their customers. If CCP models for initial margin are broadly valid, the total haircut on the VM gains of relevant CMs and clients, expressed as an average across all CMs, is likely to be very small. This is because in most conceivable scenarios the overall VM amount should be sufficiently large that the CCP would need only adjust CMs' cumulative VM gains by a small fraction in order to allocate all losses (depending on the degree of concentration of positions amongst non-defaulting clearing participants).

It is also necessary to consider the "inconceivable" cases, including situation 2, above, where the CCP is able to determine a market clearing price but the resource waterfall inclusive of cumulative VM gains since default are insufficient, and situation 3, where the CCP is not even able to determine a market clearing price.

In these scenarios, the CCP requires the ability to continue to impose VM haircuts until the CCP and its CMs determine that the default management strategy is ineffective and no way is seen for the risk to be managed, or reduced. At that point, service closure must ensue, unless clearing participants voluntarily choose to tear up offending contracts.

In case of a failed default management process, where the CCP is unable to rebalance through auction, and no voluntary mechanism can be achieved with CMs, a full tear-up of all contracts within a segregated business line should be prescribed in the CCP rule book. The rule book should contain no forced allocation, invoicing back, partial non-voluntary tear-up, or any other actions that threaten the ability of banks to hold the cleared derivatives on a net basis.

Again, it should also be noted that pursuant to the EU's Capital Requirements Regulation, article 306(1)(c), a CM will likely have to be able to pass on the impacts of any such action to clients in order to attract the appropriate regulatory capital treatment for client positions at the CCP.

B Preservation of netting sets and other regulatory capital considerations

It is crucial that CCP recovery arrangements in no way interfere with prudentially regulated clearing participants', including CMs', ability to calculate risk weighted asset amounts for

their cleared transactions based on their net (direct or indirect) exposures to CCPs and present those exposures on a net basis in their financial statements. Otherwise, such clearing participants will be required to gross up their trade exposures to CCPs, leading to, among other things, potential breaches of single counterparty credit limits.

Recovery measures such as segment closure and VMGH should not present challenges to the ability of clearing participants to net exposures. We believe, however, that forced allocation, invoicing back or partial non-voluntary tear-up provisions as default loss management mechanisms raise real and novel concerns from a regulatory capital/accounting perspective because they would frustrate a clearing participant's ability to determine with the requisite level of confidence the population of transactions constituting a netting set.

In considering whether its outstanding transactions with a CCP constitute a netting set, a clearing participant will have to conclude, based on a written, well-reasoned legal opinion, the transactions are subject to an enforceable netting arrangement that provides that upon the CCP's default or insolvency, the clearing participant's positions will be closed, the close-out values netted and collateral applied/set off. If the CCP's bylaws or rulebook embeds a close-out netting right for clearing participants on the CCP's default or insolvency, one would expect that it would be possible to obtain such a legal opinion, which would analyse whether the CCP's close-out netting provisions would be enforceable against it in insolvency such that the population of the clearing participant's transactions then outstanding would be closed out and netted in accordance with the terms of such provisions. We do not believe that any of the recovery measures discussed herein – segment closure, VMGH, forced allocation, invoicing back or mandatory partial tear-up – should impede a clearing participant from obtaining a close-out netting opinion. These are all recovery measures designed to prevent a CCP from defaulting and if they accomplish that goal, the CCP's close-out netting provisions would never be triggered, but the close-out netting provision on its face should still be a provision of the sort which is legally enforceable in principle.

However, we believe a clearing participant's determination that any transactions constitute a netting set requires the clearing participant to reach two conclusions. The first, as noted above, is that all its transactions outstanding upon the CCP's insolvency would be subject to enforceable close-out netting, which is a legal conclusion that would be supported by a netting opinion. The second conclusion is that the transactions outstanding as of the date of any regulatory capital determination would be the transactions that would be outstanding as of the date of the CCP's insolvency. This second conclusion is a factual one, and the netting opinion would not speak to it.

Arguably, the ability of a clearing participant to satisfy itself as to this second conclusion would not be compromised if a CCP's utilisation of features such as forced allocation, invoicing back and tear-ups were limited to instances of rare and extraordinary situations such as force majeure and illegality events. If, however, those features become ones that a CCP could utilize whenever a CM defaults, there is a real concern that the ability of an entity to satisfy itself as to this second conclusion with the confidence sufficient to support a regulatory capital determination would be undermined. Stated differently, if the clearing participant cannot confidently assume its portfolio of cleared transactions outstanding as of

any given date will be the same as of the point of a CCP's insolvency (i.e. that certain transactions cannot simply be extinguished prior to such netting process by mandatory or CCP-discretionary provisions regarding forced allocation/invoicing back), the entity's certainty with respect to its legal rights in the CCP's insolvency may well not be enough to support a netting set conclusion.

It is worthwhile noting that this "uncertainty principle" with respect to knowing what trades would or would not constitute a netting set is one of the reasons that features such as forced allocation, invoicing back and mandatory partial tear-up frustrate the ability of a clearing participant to risk manage a portfolio of cleared transactions. Whether it is a risk weighted assets determination or a hedging decision, the clearing participant must have confidence about the population of transactions in the portfolio, and the presence of such recovery measures undermines this confidence.

In addition to the netting set concerns discussed above, problematic recovery measures such as invoicing back and mandatory partial tear-up, or forced allocation of positions offsetting existing cleared positions, when used in the default management process, are inconsistent with the concept of a "central counterparty" as the term is defined in the Basel III rules. The BCBS July 2012 rules define a "central counterparty" as a clearing house that "interposes itself" between counterparties "thereby ensuring the future performance of open contracts". The problematic recovery measures run counter to the notion that trading counterparties are substituting a CCP's credit risk for that of one another.⁴

We would also add that we are not aware that utilization of problematic recovery measures as a default management tool is an element of the CCP exposure analysis that the Basel committee had in consideration when setting a 2% to 5% risk weight for qualifying CCP exposures. We would observe that promoting recovery measures that were not considered in formulating the Basel III treatment of cleared exposures – and that, we would argue, are inconsistent with such treatment – would be an anomalous result, in the context of responsible standards-setting.

C At what point resolution authorities should step in

Certain situations unrelated to Default Losses could justify the intervention of resolution authorities, e.g. NDL, or insolvency of the corporate entity that owns the assets needed to provide clearing services (as discussed above, such assets should be shielded from the outcome of the default management process).

⁴ We acknowledge that CCPs have, in many instances, had longstanding provisions in their rulebooks permitting invoicing back in certain circumstances and, in certain cases, forced allocation of positions as against non-defaulting participants. These provisions have always presented challenges for participants in terms of risk measurement and legal certainty. In very broad terms, invoicing back is a power that has been reserved by CCPs, and described by CCPs to CMs in terms, that are intended to be used in circumstances of force majeure, illegality or market-wide disruption, e.g. in the event that a particular contract type became illegal. Importantly, they have not generally been embedded explicitly as a means of default loss management (though we note that some CCPs may reserve the power). Forced allocation is a power that has generally been included in the case of particular asset classes as part of an auction process and with particular checks, balances and limits. In those cases, its use has been restricted to equal or pro rata position allocation, i.e. without regard to existing cleared positions, and only to protect the CCP's viability. It is also noted that some CCPs have recently moved to limit these powers further to make clear that they are not intended to act as a default loss management tool.

In all default loss circumstances, we consider that authorities should not interfere with the CCP's default management process before the end of the waterfall is reached, even once it becomes apparent that the waterfall will not be sufficient to cover all losses. In fact, this is the situation in which the loss allocation mechanism through VM haircutting is most needed.⁵

It has been suggested that general contract tear-up might offer a better solution, in other words the tearing up of all contracts in a siloed segment, with limited recourse provisions, or close-out netting of all CCP contracts connected with its default and liquidation. We disagree; while tear-up might spare some CMs losses on their default fund contribution, it would interfere with the market mechanism, potentially leading to significant market disruption. In our view, it is crucial to ensure the outcome and potential losses to all clearing participants are as transparent and predictable as possible, while not providing incentives for any clearing participants to try to "run" from the CCP.

Consequently, we consider that resolution authorities should not interfere with the loss allocation of the VM haircutting mechanism as defined in the CCP rule book, unless implementation of this loss allocation would demonstrate an increased systemic risk. If the loss allocation mimics the economic outcome of a bankruptcy case, this should create the certainty and predictability required in order to prevent a "run" on the CCP.

While the CCP's default risk management is working, then, whether or not the default waterfall has been exhausted, we believe authorities should allow the CCP to continue to operate according to its rules, including its default loss rules. However, once it is clear that the CCP's default management is not working—that it is unable to obtain hedges, stem losses, and obtain a price for the defaulter's positions—authorities should consider stepping in.

IV Voluntary partial tear-up

We consider that solutions that involve partial tear-up by agreement between direct and indirect clearing participants for a limited period of time (during which the CCP could continue to haircut VM gains) should not be excluded.

We are comfortable with provision for voluntary partial tear-up in the following areas:

1. Any CM may voluntarily contribute as much as they wish over and above their mandated amounts.
2. Any direct or indirect clearing participant may offer to tear up, with the approval of the DMG and CCP, a subset of his portfolio of contracts with the CCP that would help the CCP to rebalance.

⁵ On the other hand, if the CCP's default management is not working, if it unable to reduce the risk and stem losses, and if no participant is willing to place a price on the risk, then authorities should consider stepping in immediately.

If the CCP is able, based on voluntary contributions of additional financial resources and/or voluntary offers to tear up contracts, to close all of its remaining open risk positions from defaulted CMs' portfolios, it implies a more favourable outcome to full contract tear-up. The purpose of allowing for voluntary partial tear-up by a subset of direct and indirect clearing participants is to avoid the need to expose clearing participants to unpredictable and unquantifiable risks through mandatory partial tear-up. Thus, clearing participants should be permitted to agree a solution involving voluntary partial tear-up. Note that we are not advocating that clearing participants should have a right to tear up contracts voluntarily, since the result would be the same as if the clearing participant had defaulted. If no agreement can be reached, the CCP's rulebook should clearly state that termination of all trades and service closure will take place and the process by which the CCP will implement this termination event. As explained above, this mechanism is important for clearing participants to be able to obtain independent legal opinions and take the view with confidence that the clearing participant's exposure to the CCP can be calculated on a net, rather than gross basis under Basel III rules.

In our view, voluntary partial tear-up should only be permissible after the CCP has determined a market-clearing price that exceeds the resources of the default waterfall. At that time, and concurrently with VMGH, clearing participants on the other side of defaulters' trades, whose transactions are likely to incur VM gains haircuts, may reduce their exposure through voluntary tear-ups and simultaneously provide hedges to the CCP. Again, provision of hedges is incentivised by VMGH as by the provision, gains-associated losses are foregone. (The gains may be retained by re-establishing the position's risk in a non-cleared context or via another CCP.)

V CCP moral hazard mitigants

We acknowledge the regulatory intention to run CCPs as private sector institutions, but also note their often systemic position. In this context, it is critical that policymakers consider moral hazard on the part of the owners of CCPs and their agents.

We have yet to finalise our view on how CCP owners ought to be treated after VMGH. At a minimum:

1. Any clearing participant's losses (in the form of a waterfall contribution or a loss allocation from VMGH) should create a proportionate share in the CCP's claim against the defaulted CM's estate;
2. The default waterfall ought to mitigate moral hazard arising from a CCP assuming it will be protected from insolvency and thus under-protecting cleared positions with insufficient margins or waterfall provision. Accordingly, we propose that the CCP be required to put significant portions of its capital at risk: a) after the use of a defaulting CM's IM and default fund contribution, and before default fund contributions of surviving CMs; and b) after default fund contributions and further assessments of surviving CMs, but before loss allocation. This capital at risk would provide all clearing participants with further assurance of the sufficiency of both margin and waterfall protections.

If a private sector solution is desired in order to rebalance the CCP, all clearing participants that bear losses from the rebalancing through VMGH loss allocation should be given the opportunity to receive new shares or senior convertible debt instruments, backed by revenues and claims on the defaulter's estate. The CCP board should consider the CMs' advice regarding the need for any change in CCP management.

VI Additional "best practice" settings for CCPs

A Limited vs. full recourse clearing service structure

A CCP may limit the risk of contagion between cleared product lines through a limited or full recourse clearing service structure.

Under a limited recourse structure, the same legal entity serves as the CCP for all product lines, but each product is "ring-fenced" from the other products in such a way that losses arising from the default of a CM clearing a given product cannot result in the CCP's default and insolvency.

A CCP that employs this structure would establish a financial resources package, including a default fund, CCP contribution and waterfall, dedicated to a single cleared product (e.g., CDS). The package would then be available only to cover losses resulting from the default of a CM clearing that particular product. If the package were insufficient to cover the losses, then the contracts of all the clearing participants participating in that product would be terminated and their termination values netted to determine, for each clearing participant, a termination amount payable to or by the CCP. Net termination amounts collected by the CCP would be aggregated with the CCP's remaining financial resources for the product, including default fund assessments and the CCP's contribution amount, to satisfy the net termination amounts payable by the CCP to relevant clearing participants. If the aggregate amount of such funds were insufficient to cover the net termination amount due to clearing participants, the amount would be subject to a haircut on a *pro rata* basis. Once the CCP had paid the final termination amounts to relevant clearing participants, its payment obligations would be extinguished and no clearing participant that participates in the product would have further recourse in respect of those obligations to the CCP or any of its assets. Thus, there could be no CM default that could provide the basis for closing out the CCP's positions across all product lines pursuant to the close-out netting provisions in the CCP's rules.

Under a full recourse structure, a separate legal entity would be established for each product and would clear only that product. It would be possible for losses arising from the default of a CM clearing a product to result in the default of the CCP for that product and for the default to trigger the close-out of all the CCP's positions pursuant to its close-out netting rules. However, the default would be contained to the relevant legal entity and would not result in the default or insolvency of any of the entities acting as CCPs for other products.

We consider that a CCP that clears a number of different products and that employs a limited recourse structure for each product should nevertheless provide for close-out netting that would be triggered by the CCP's insolvency or other default. Otherwise, clearing

participants subject to Basel III would be unable to calculate trade exposures to the CCP using net exposure amounts. Under Basel III, a clearing participant will be allowed to net exposures of transactions only where they are subject to a “netting agreement,” defined as an agreement that provides for close-out of those transactions in the event the CCP “fails to perform” due to “default, bankruptcy, liquidation or similar circumstances.” The presence of close-out netting provisions that match the requirements of “netting agreement” or “qualifying master netting agreement” is key. If a CCP provides for ring-fenced products but not for close-out netting, clearing participants would not be able to obtain a close-out netting opinion.

Importantly, both limited and full recourse structures provide a well-defined process for the dissolution of a product on a given CCP that is either contractually or legally segregated from other clearing activities. This is particularly desirable for systemically important CCPs because tearing up all of a large CCP’s contracts is likely to cause an unnecessarily large market disruption and destruction of value. Resolving products individually would ensure that the CCP could continue to function and would thus minimise systemic impact. In our view it is critical that end-of-the-waterfall situations do not spill over to the CCP’s other product lines, other CCPs or the broader markets.

B Recapitalisation of the default fund following successful recovery or resolution

If VMGH, as described above, allows a CCP to cover losses to the point where a resolution authority determines that it is reasonable to resume the clearing service, then CMs should be obliged to replenish the default fund, following a cooling-off period. CMs that wish to withdraw their membership should be given the opportunity to do so at the end of the cooling-off period (assuming that they have closed all of their positions and met all of their other obligations, and that no further defaults have occurred).

VII VMGH – Frequently Asked Questions

In the course of advancing VMGH, concerns have been raised for our comment. Below we list these concerns and set out our response underneath.

A Is VMGH about liquidity risk management rather than loss absorption? If so, could that be handled more effectively?

This concern assumes that VMGH is related to liquidity management as much as loss absorption and in that context suggests that liquidity management might be better provided by the CCP having a dedicated liquidity facility, rather than haircutting outflows. In particular, haircutting appears to transfer liquidity strain to CMs, and CMs will face uncertainty as to what money they will receive during the period for which VMGH is in effect. While some CMs will be able to control this to some extent, others may not.

VMGH helps to ensure that the CCP does not become insolvent due to Default Losses. The primary purpose of VM haircutting is to allocate losses in a way that mimics formal

insolvency proceedings.

B Will risk management tools such as Tri-optima's "tri-balance" negatively affect any stabilising effect of VMGH?

This concern is that products such as tri-balance could speed up a clearing participant's ability to flatten its market risk and therefore avoid a haircut; this would negatively impact the additional resources available to the CCP via VMGH.

The concern fails to understand that VMGH is based on cumulative VM gains taken from the start of the default management process. Also, clearing participants that flatten their market risk will reduce overall risk in the CCP and therefore be a welcome side-effect of trade compression.

C Does VMGH expose participants to unlimited loss?

A CM's liability for mutualising losses is strictly limited to the amount in the CCP default waterfall. VM haircuts occur exclusively on each clearing participant's positions and mirror the impact of a bankruptcy event. Thus there would be a haircut on VM gains even at the time of tear-up, albeit with the incremental impact of market disruption. To the extent that VMGH prevents a winding down of a product segment, clearing participants are not subject to the incremental contract replacement costs.

In terms of clearing participants generally, there is a difference between liability stemming from the market risk of a given participant's derivatives contracts, and uncontrollable unlimited liability through CCP mutualisation or other methods for dealing with default (e.g., forced allocation, invoicing back, partial tear-up). No regulator would allow a regulated participant to accept uncontrollable, unlimited and unquantifiable liability.

In the past, some CMs have sought a cap on the losses they accept through haircuts to VM gains. However, it is worth noting that VMGH without a cap is similar to bilateral credit risk on an uncleared swap trade. On the default of its swap counterpart, a firm's losses will appear as a loss of recent mark-to-market gains, and its claim on the estate will result in an eventual rateable haircut to claimed gains. If a cap on VMGH were imposed, residual losses would be realised at the time contracts were torn up. Participants would also be subject to replacement costs on their trades.

The benefit of a wide loss allocation, once the CCP's limited member resources are exhausted, is that cleared swap contracts are not torn up and do not need replacement, and market disruption, with its potential follow-on effects to other participants and market infrastructures, is avoided.

While we agree that a cap specified as a monetary amount is undesirable, VM haircutting should end when both the default management process and the course of action recommended by the RC or DMC, and approved by CCP management, have failed.

D What happens if the product market has become totally illiquid – there would appear to be no VM movement and so nothing to haircut? Does the CCP 'make up' prices?

This concern describes the end-of-the-waterfall scenario 3, above, where VMGH does not solve the problem because no market-clearing price can be found i.e., losses are not quantifiable. In this scenario we recommend moving directly to voluntary partial tear-up or full tear-up, irrespective of whether the default waterfall has been exhausted.

E How does VMGH comply with segregation requirements?

To the extent that VMGH provides incremental resources to the CCP, it effectively protects IM and therefore strengthens segregation. VM gains for all clearing participants are at risk only in extreme tail risk scenarios, which occur from the time of the default, should the CCP's default waterfall be exhausted.

VIII Comparison of VMGH, from a systemic stability perspective, to other proposals for loss allocation

Note: Recovery and resolution arrangements should in no way interfere with CMs' close-out netting and set-off rights in the event of CCP insolvency or product segment wind-down.

End of Waterfall solution	Pros	Cons
VMGH	<ul style="list-style-type: none"> • VMGH spreads loss widely • The economics of VMGH are at least as good as insolvency for all clearing participants • Participants can manage the haircut risk by reducing their positions as desired - VM gain haircutting encourages them to do so • Positions may be entered into with CCP to assist it in flattening its inherited portfolio 	<ul style="list-style-type: none"> • Creates uncertainty for clearing participants as to whether a hedge is as effective during the default management process – which is to say, during the default management process a clearing participant would be required to pay out on the other side of a hedge, while gains in the CCP receive a haircut
Initial Margin Haircutting	<ul style="list-style-type: none"> • IM haircutting would allocate the loss to more clearing participants (VM gainers and losers alike would contribute to IM and therefore face a haircut), giving the 	<ul style="list-style-type: none"> • IM haircutting would distort segregation and “bankruptcy remoteness”, which are embedded in many aspects of the new regulatory regimes. CCP

End of Waterfall solution	Pros	Cons
	<p>impression that this mechanism would be fairer</p>	<p>default management tools that would impact the sanctity of IM would have significant regulatory capital implications</p> <ul style="list-style-type: none"> • It might create disincentives for general participation in default management
<p>Forced allocation; forced partial tear-up; compulsory invoicing back</p>	<ul style="list-style-type: none"> • A CCP could avoid default 	<ul style="list-style-type: none"> • A CCP's ability to avoid default would be at the cost of clearing participants. Where capable of being exercised on a partial basis, losses might also fall in an arbitrary and unbalanced manner across clearing participants • CMs may well have to pass impact on to clients • Potential prejudice to clearing participant ability to treat CCP exposures on net basis - requires novel analysis of regulatory capital treatment • There is no known market clearing price at which to allocate positions; this proposal increases systemic risk by increasing the likelihood of further CM defaults • Because the loss cannot be quantified <i>ex ante</i>, it would be difficult to conform to the principle of aligning capped liability to risk control

End of Waterfall solution	Pros	Cons
General tear-up (tear-up of all the contracts in a siloed segment in connection with its limited recourse provisions or the tear-up that's part of the liquidation of a CCP as a result of its default and the triggering of its close-out netting provisions)	<ul style="list-style-type: none"> • Unavoidable in certain situations • Risk can be quantified <i>ex ante</i> • Possible outcome may incentivise parties to arrive at voluntary solutions 	<ul style="list-style-type: none"> • Extreme market dislocation • Contract replacement costs
EMIR requires cash calls on CMs to be limited, but central banks tend to favour such calls because they are comfortable about their ability to assess the risks as the banks' supervisors.	<ul style="list-style-type: none"> • Looks like an easy fix 	<ul style="list-style-type: none"> • Pro-cyclical and entails contagion risk • Risk for CMs cannot be measured, therefore discourages firms to provide clearing services
Shareholder bail-in	<ul style="list-style-type: none"> • It makes sense to wipe out shareholders where the CCP would default anyway • Mimics the economics of an actual default 	<ul style="list-style-type: none"> • Usually not enough capital to guarantee that this toll can cover all losses, especially losses stemming from a CM default