Partial Tear-Up: Comparison to other rebalancing tools and how the tool could evolve

Introduction

Under business-as-usual conditions, the CCP is the seller to every buyer and buyer to every seller and therefore has a matched book: For every position/contract with a member there is an equal and opposite position/contract with another member. This means the CCP has no market risk. If a member of a CCP defaults, this member cannot service its positions anymore and the CCP has no longer a matched book and consequently now is exposed to market risk with every market move, the CCP will have to pay or receive variation margin on behalf of the defaulter.

The CCP will, as part of its default management process (DMP), try to sell the defaulter's positions/contracts. This can be done either via a central limit order book, by using a broker, by a direct sale, by running an auction, or by a combination of these approaches. Under all these options, the positions/contracts in the defaulter's portfolio will be sold and a market price established.

The CCP may find it difficult to re-establish a matched book for a number of reasons, for instance:

- The defaulter's portfolio might include illiquid positions/contracts.
- Market conditions during the DMP are stressed.
- The CCP might not be able to find a buyer for other reasons.

In this very extreme situation, there are a number of possible tools for derivatives the CCP can use to restore a matched book: Partial Tear-Up (PTU) and Forced Allocation (FA), Invoicing Back and possibly Cash Settlement.

This paper describes the tools to restore a matched book and reviews these tools against some key principles and criteria:

- Impact on financial stability
- Risk reduction
- Equitable risk distribution
- Incentives for participants

We conclude that PTU is the fairest tool with the best incentive structure. We however believe that depending on the asset class, PTU could be adapted and improved and propose these potential improvements.

Please note that the considerations in this paper need to be evaluated based on the nuances of specific products such as physically settled repos, cash equities, FX, swaps subject to compression as well as market depth, market liquidity, open interest, maturity of products etc.

Forced Allocation

Forced Allocation (FA) is a position liquidation tool by which a clearinghouse divides up the unsold portfolio of a defaulted member and allocates portions of it to the remaining non-defaulting clearing members, either in lieu of a default auction or after such auction has been deemed to have failed. In most cases, the clearinghouse has ultimate discretion to determine the counterparties who would be allocated such trades and the price at which the portfolio is allocated.

Forced Allocation: Worked example of a forced allocation

Let us assume the following positions/contracts in a given currency with the same currency, underlying, maturity date and quarterly fixing.

ID	Cpty		P/R	Notional	Coupon
A1	A	5Y	Receive	50	3%
B1	B	2Y	Receive	80	3%
C1	C	10Y	Receive	100	3%
D1	D	5Y	Receive	50	5%
E1	E	2Y	Receive	80	5%
F1	F	10Y	Receive	100	5%

ID	Cpty		P/R	Notional	Coupon
H1	H	5Y	Pay	50	3%
I1	I	2Y	Pay	80	3%
K1	K	10Y	Pay	100	3%
H2	H	5Y	Pay	50	5%
I2	I	2Y	Pay	80	5%
K2	K	10Y	Pay	100	5%

Positions/contracts on the same line are the original transactions. E.g. the positions/contracts with the IDs A1 and H1 are the views of counterparties A and H on the same trade. After novation they face the CCP and the original counterparty becomes irrelevant. The list of trades shows that the CCP has a balanced book.

Now assume counterparty A has defaulted and the position/contract A1 could not be auctioned off. When employing forced allocation, the CCP could allocate position/contract A1 of the defaulter A to

- Any one of counterparties H, I or K, whose risk would decrease after the allocation (unless their positions/contracts were hedging a risk outside the CCP).
- Any one of counterparties B, C, D, E, F, whose risk will increase after allocation.
- A counterparty M, who does not even trade products with this reference rate or underlying risk and would struggle to manage the risk.

As such, when exercising FA, depending on the way it is structured, the CCP can technically allocate the affected positions/contracts in an arbitrary way to one of more other clearing participants (clearing members and their clients, albeit it is likely for forced allocation to affect mostly clearing members). Unlike PTU, whereby clearing participants would 'lose' their existing cleared positions, forced allocation could technically require clearing members to take on new positions at the CCP. Where members are not active in the product class or tenor of trades that are allocated, they may not be suited to risk manage such positions in extreme market conditions (e.g. positions in products that such clearing participants intentionally do not transact), and could therefore have a negative impact on financial stability.

Moreover, any application of forced allocation that attempts to allocate positions to those clearing members that CCP management or the resolution authority perceive could 'bear them' would be completely inequitable. Any decision about which clearing members could 'bear' positions would be arbitrary at best and, at worst, could be made in a way that intentionally favors certain classes of clearing participants over others.

Pro	Con
• Operational ease: The CCP can allocate defaulter's positions that could not be sold in a flexible (for the CCP) way.	• Allocation can be arbitrary. • Allocation is likely to be unequitable. • Firms might get additional risk allocated. • Firms might not be able to risk manage the allocated positions or pay in margin associated with the allocated positions. • Allocation likely only to clearing members. • No incentive for firms to restrict risk to the CCP – in fact, prudent firms might be allocated more because they "can take it".

For the above reasons we believe that a CCP should in no event in recovery, or a resolution authority in resolution, be able to apply forced allocation structured with the above characteristics to non-defaulting clearing members. We note in this regard that both the EU co-legislators in the CCP Recovery & Regulation framework and the UK Treasury in their proposed "Expanded Resolution Regime for Central Counterparties" have excluded FA.

Invoicing Back

"Invoicing back" is when the defaulter's position is allocated to the original counterparty. This tool was used in the past, particularly in the context of commodities products subject to physical settlement where there may have been a delivery failure. To the extent that this is being extrapolated and used in other products/ circumstances, it has severe shortcomings:

- Invoicing back affects one counterparty and does not spread the positions/contract across more market participants, as other position rebalancing tools like PTU would do.
- Given invoicing back is contingent on identifying the original trading counterparty, notwithstanding the risk shift to the CCP, it is likely to affect hedge accounting and netting for regulatory capital requirements.[1]
- Where sophisticated compression techniques are used, it is quite possible that the original counterparty is no longer holding the risk associated with the trade or, in fact, that the opposing risk is made up from a number of aggregated positions. Given this, it is possible that the parties to whom the risk should be invoiced back are difficult to identify.

[1] Please see the accounting whitepaper "Consideration of Accounting Analysis for CCP Recovery and Continuity Tools" which can be found at https://www.isda.org/a/LEiDE/isda-accounting-committee-ccp-recovery-tools-white-paper-oct-13-2015-final.pdf

Pro	Con
• None	• No distribution of the allocated risk. • Unequitable. • It is not always clear who the original counterparty is, especially if compression is used. • Will affect netting and can affect hedge accounting.

We believe that invoicing back should not be used as a position rebalancing tool.

Cash Settlement

For physically settled products where a participant fails to deliver, invoicing back or cash settlement by the CCP is a common and generally accepted practice (CCP not in business of sourcing commodities or securities).

Pro	Con
• Only possible option if a commodity or security cannot be sourced at delivery.	• Narrow conditions where the tool can be used.

While cash settlement can have its uses in very narrow circumstances, we do not believe that this tool should be used as a position rebalancing tool.

Partial Tear-Up

When applying PTU, a CCP (or a resolution authority in resolution) identifies equal and opposite positions/contracts[2] that can offset the positions/contracts of the defaulting clearing member that could not be sold to other clearing participants. These positions/contracts will then be allocated pro-rata to the equal and opposite positions/contracts of non-defaulting members (or their underlying clients), offsetting some of their cleared risk.[3] Nevertheless, such tear-up can potentially be risk increasing for the participants given not all contracts of a member/ client are cleared at a single CCP.

The forms of PTU could be:

- Proportional partial tear-up of positions/contracts opposite the defaulters' remaining positions/contracts.

[2] The criteria for identifying equal and opposite positions/contracts is the same (but opposite) cash flows over the remaining life of a position/contract. All other attributes equal, a 10-year swaps can be torn up with a 2-year swap if the 10-year swap has started 8 years earlier with the same maturity date.
[3] Where the torn-up positions/contracts of the non-defaulting member with the CCP represent a hedge to other risk exposures outside the CCP, this non-defaulting member might want to replace the torn-up positions/contracts by new ones.

- Tear-up of all open positions/contracts within a range of a particular product, or of a particular product as a whole or of a combination of products.

PTU tries to evenly distribute risk and exposure across clearing participants with equal and opposite positions/contracts and as such is risk reducing in relation to the cleared transactions. It does not require any clearing participants to clear new positions and/or contracts, which the clearing participant in question is not able to risk manage.

PTU affects only clearing participants who are already clearing positions/contracts that would be subject to such tools and as such ensures their ability to risk manage the resultant risk and does not impact participants who only access a different subset of the products offered by a CCP. PTU therefore enables a CCP to minimize the impact of a failure, specifically to the market sub-segment in which the defaulter has positions and avoids impacting a properly functioning market as a whole.

It is worth noting that, wherever the CCP is able to impact the positions of its non-defaulting members, there are some accounting requirements that have to be met to not endanger netting. More information can be found in a whitepaper on "Consideration of Accounting Analysis for CCP Recovery and Continuity Tools".[4]

Partial tear-up: Worked Example of positions being torn up

We assume the same situation as in the example on forced allocation above, i.e. a set of positions/contracts in a given currency with the same currency, underlying, maturity date and quarterly fixing.

ID	Cpty		P/R	Notional	Coupon		ID	Cpty		P/R	Notional	Coupon
A1	A	5Y	Receive	50	3%		H1	H	5Y	Pay	50	3%
B1	B	2Y	Receive	80	3%		I1	I	2Y	Pay	80	3%
C1	C	10Y	Receive	100	3%		K1	K	10Y	Pay	100	3%
D1	D	5Y	Receive	50	5%		H2	H	5Y	Pay	50	5%
E1	E	2Y	Receive	80	5%		I2	I	2Y	Pay	80	5%
F1	F	10Y	Receive	100	5%		K2	K	10Y	Pay	100	5%

Positions/contracts on the same line are the original transactions. E.g. the positions/contracts with the IDs A1 and H1 are the views of counterparties A and H on the same trade. After novation they face the CCP and the original counterparty becomes irrelevant. The list of trades shows that the CCP has a balanced book.

Please note that these transactions have different original maturities (see column 3 in the table). This does not matter as long as the remaining cash flows are the same.

We assume again that counterparty A has defaulted and the position/contract A1 could not be auctioned off. To come back to a balanced book, the CCP needs to tear up position/contract A1. The CCP now identifies all equal and opposite positions/contracts. As described in footnote 2, these positions/contracts might have started at different time but have the same remaining maturity[5]. What counts is the remaining cash flows, which also means that all positions/contracts effectively have the same maturity date. The following table shows the defaulters trade and the equal and opposite position/contract in red italics:

[4] https://www.isda.org/a/LEiDE/isda-accounting-committee-ccp-recovery-tools-white-paper-oct-13-2015-final.pdf

[5] In this example we assume cash flow/coupon payments as the basis for allocation of positions, opposite to some other techniques used for portfolios where compression is used (see below).

ID	Cpty		P/R	Notional	Coupon
A1	*A*	*5Y*	*Receive fixed*	*50*	*3%*
B1	B	2Y	Receive fixed	80	3%
C1	C	10Y	Receive fixed	100	3%
D1	D	5Y	Receive fixed	50	5%
E1	E	2Y	Receive fixed	80	5%
F1	F	10Y	Receive fixed	100	5%

ID	Cpty		P/R	Notional	Coupon
H1	*H*	*5Y*	*Pay Fixed*	*50*	*3%*
I1	*I*	*2Y*	*Pay Fixed*	*80*	*3%*
K1	*K*	*10Y*	*Pay Fixed*	*100*	*3%*
H2	H	5Y	Pay Fixed	50	5%
I2	I	2Y	Pay Fixed	80	5%
K2	K	10Y	Pay Fixed	100	5%

Position/contract A1 will now be torn up pro-rata with positions/contracts H1, I1 and K1. As these positions/contracts have different sizes (notional values), position/contract A1 is allocated pro-rata as follows:

ID	Cpty		P/R	Notional	Weight	Torn-up	Remaining
H1	*H*	*5Y*	*Pay Fixed*	*50*	22%	10.87	39.13
I1	*I*	*2Y*	*Pay Fixed*	*80*	35%	17.39	62.61
K1	*K*	*10Y*	*Pay Fixed*	*100*	43%	21.74	78.26
H2	*H*	*5Y*	*Pay Fixed*	*50*			
I2	*I*	*2Y*	*Pay Fixed*	*80*			
K2	*K*	*10Y*	*Pay Fixed*	*100*			

For each equal and opposite position/contract a part of the defaulter position/contract will be torn up, depending on the notional in relation to the sum of the notional amounts of all equal and opposite positions/contracts. After tear-up, the CCP is left with the following positions/contracts:

ID	Cpty		P/R	Notional	Coupon
B1	B	2Y	Receive fixed	80	3%
C1	C	10Y	Receive fixed	100	3%
D1	D	5Y	Receive fixed	50	5%
E1	E	2Y	Receive fixed	80	5%
F1	F	10Y	Receive fixed	100	5%

ID	Cpty		P/R	Notional	Coupon
H1	*H*	*5Y*	*Pay Fixed*	*39.13*	*3%*
I1	*I*	*2Y*	*Pay Fixed*	*62.61*	*3%*
K1	*K*	*10Y*	*Pay Fixed*	*78.26*	*3%*
H2	H	5Y	Pay Fixed	50	5%
I2	I	2Y	Pay Fixed	80	5%
K2	K	10Y	Pay Fixed	100	5%

Note that the notional amounts of positions/contracts B1, C1 sum up to the same amount as the notional amounts of positions/contracts H1, I1 and K1.

Please refer to the appendix of how PTU would affect, for example, an equity-style option where VM is not paid out on a daily basis.

Pro	Con
• Equitable allocation of positions. • Positions are equally split between all counterparties who have trades on the opposite side of the defaulter's positions. • Risk of firms with torn-up positions decreases (at least in the CCP) • Incentives: only firms that deliberately cleared positions that turn out to be difficult to sell get positions torn up.	• Potential issues in conjunction with compression (solvable, but with added operational complexity) • Impact on netting and hedge accounting in certain cases.

While PTU works well for most products, it can create challenges for specific products like OTC IRS where cleared products have different coupons and maturities. Should the CCP employ sophisticated compression techniques (such as blended coupons), there might not be any equal and opposite

positions/contracts left. Positions/contracts that originally had the same coupon as the defaulter's position/contract might, in the meantime, have been compressed with other positions/contracts to new ones with a different coupon.

Partial Tear-up: Worked Example of the impact of compression

We use the same positions/contracts as in the example above:

ID	Cpty		P/R	Notional	Coupon
A1	A	5Y	Receive fixed	50	3%
B1	B	2Y	Receive fixed	80	3%
C1	C	10Y	Receive fixed	100	3%
D1	D	5Y	Receive fixed	50	5%
E1	E	2Y	Receive fixed	80	5%
F1	F	10Y	Receive fixed	100	5%

ID	Cpty		P/R	Notional	Coupon
H1	H	5Y	Pay Fixed	50	3%
I1	I	2Y	Pay Fixed	80	3%
K1	K	10Y	Pay Fixed	100	3%
H2	H	5Y	Pay Fixed	50	5%
I2	I	2Y	Pay Fixed	80	5%
K2	K	10Y	Pay Fixed	100	5%

In this example, no counterparty that receives fixed has more than one swap in this segment. The counterparties paying fixed however have two positions/contracts each. Counterparty H compresses positions/contracts H1 and H2 to one single position/contract with the sum of the notional amounts and a blended coupon. Similar, counterparties I and K do the same for positions/contracts I1 and I2 respective K1 and K2.

ID	Cpty		P/R	Notional	Coupon
A1	*A*	*5Y*	*Receive fixed*	*50*	*3%*
B1	B	2Y	Receive fixed	80	3%
C1	C	10Y	Receive fixed	100	3%
D1	D	5Y	Receive fixed	50	5%
E1	E	2Y	Receive fixed	80	5%
F1	F	10Y	Receive fixed	100	5%

ID	Cpty		P/R	Notional	Coupon
H3	H	5Y	Pay Fixed	100	4%
I3	I	2Y	Pay Fixed	160	4%
K3	K	10Y	Pay Fixed	200	4%

There would be no equal and opposite position/contract left with which position/contract A1 of defaulting counterparty A could be torn up with.

Some CCPs solve this issue by tearing up not just the defaulter's positions/contracts, but a whole segment of the market. This could be a combination of currency, reference rate and maturity band, or a particular underlying asset for futures. In the example above, all trades in the table would be torn up together (and maybe others with maturity dates in a similar range). However, this has the potential of increasing stress and volatility in the market as a greater number of trades will now have to be re-hedged by its members.

Others analyze the cash flows of affected transactions and adapt the cash flows of the compressed but otherwise equal and opposite positions/contracts accordingly. In this situation a CCP could, for example, look at portfolios across non-defaulting members to identify positions with the same characteristics as the defaulter's positions. In particular, to conduct a targeted tear-up, a CCP would identify positions of non-defaulting members that match the terms of the defaulter's positions (e.g., currency, swap type, and floating rate index, among other characteristics), with the exception of the cash flows. After identifying this population, the CCP could amend the notional of certain positions of non-defaulting members on a pro-rated basis to offset the cashflows of the defaulter.

Please see below a proposal (Partial Risk Offset) that solves this situation in a very straightforward manner.

For the benefit of ongoing and possible future development of default management processes and recovery tools it may be worthwhile to leave open the characteristics of position rebalancing tools and allow that a CCP may structure its rulebook in consultation with industry participants to reflect select features of the tool – i.e., the number of trades to be impacted, the breadth of participants to be affected, the risk metrics to be used in determining the positions to be altered to ensure it can be predicted/risk managed, the price at which positions are rebalanced and the need to incorporate incentive enhancing features (for instance weighting or ordering all or part of a PTU to first affect participants who have not fulfilled their obligations in the default management process) – and institute appropriate governance arrangements in determining the various decisions that are involved in ensuring that it is equitable and appropriate for the relevant product and market.

A CCP may also agree and draft its rulebook with its participants and authorities to perform PTUs that terminate opposing exposure based on risk metrics instead of purely opposing open interest or outstanding notional. For instance, in OTC Interest Rate Swaps (IRS) markets, it may be the case that participants prefer a reflection of DV01 or a range of maturity buckets to determine opposing and equal contracts, to avoid specificities of the defaulters' portfolio leading to an undue concentration of the effect of the PTU. Please see also under Partial Risk Offset below.

PTU might also have an impact of hedge accounting if a position that forms part of a balance sheet hedge is torn up.

Significance of price

For derivatives where mark-to-market changes are exchanged via variation margin (VM), the intention of position allocation tools like PTU is not to directly allocate losses but allocate the position/risk to other members. The best way to execute positional allocation tools is to use prevailing market prices and an appropriate time is expected to directly be after a VM settlement run, as at this time all changes in value (mark-to-market) so far have been settled via VM and contracts have zero value (mark-to-market). Under such circumstances, use of these tools will not lead to allocation of losses.

However, position allocation or tear-up tools can also allocate losses if there are no prevailing market prices or the VM settlement run is not performed at market values. For instance, if the CCP cannot observe prices in the market, the CCP likely uses proxies (for instance if the products also trade in OTC markets) or falls back on previous settlement runs or uses its discretion in determining prices. If the CCP falls back on previous settlement prices, it is highly likely that the positions will have a different actual market value, even if quantification of this actual market value will be difficult. Even the use of a settlement price mechanism could result in losses as the impacted member’s trades would be torn up at the mid-price while such member would incur costs at the bid/offer while re-establishing positions. While the differential may not be material during normal market conditions, the spreads could be significant during stressed periods and therefore would need to be considered while setting the relevant price.

If positions have been allocated based on stale settlement prices, or if the allocation does not happen directly after a VM settlement run, the position allocation will lead to a loss once market prices become observable again. Allocation of losses through the re-establishment of a matched book should be avoided.

Improvements to PTU

Due to the fact that PTU's can generally only be torn up against trades with the same maturity date and coupon, the subset of PTU eligible participants in swap transactions, is significantly smaller compared to futures and options (daily expiries versus quarterly expiries). In extreme cases there could be only the original counterparty left and PTU becomes invoicing back (see below). This could raise questions whether this is an equitable distribution of defaulter's trades among participants and therefore equitable distribution of risk.

PTU also could result in a very specific and narrow group of members being impacted. Such members only coincidentally have positions with cash flows offsetting the defaulter. As such the tool may be somewhat random, difficult to predict and impact members' ability to risk manage to minimize the impact of the tool. It may be worth noting that some of these challenges may be product specific.

Partial Tear-up: Worked Example of Challenges:

To illustrate this issue, we consider the above examples, but with slightly different maturity dates. We assume that all other cash flows diverge in a similar way, i.e. are a few days later.

ID	Cpty		Maturity	P/R	Notional	Coupon
A1	*A*	*5Y*	Sep 15th	*Receive*	*50*	*3%*
B1	B	2Y	Sep 16th	Receive	80	3%
C1	C	10Y	Oct 5th	Receive	100	3%
D1	D	5Y	Oct 5th	Receive	50	5%
E1	E	2Y	Sep 15th	Receive	80	5%
F1	F	10Y	Sep 17th	Receive	100	5%

ID	Cpty		Maturity	P/R	Notional	Coupon
H1	*H*	*5Y*	Sep 15th	*Pay*	*50*	*3%*
I1	*I*	*2Y*	Sep 16th	*Pay*	*80*	*3%*
K1	*K*	*10Y*	Oct 5th	*Pay*	*100*	*3%*
H2	H	5Y	Oct 5th	Pay	50	5%
I2	I	2Y	Sep 15th	Pay	80	5%
K2	K	10Y	Sep 17th	Pay	100	5%

In this example, if counterparty A defaults, there would be only transaction H1 be available for PTU. With only one counterparty on the other side, PTU would morph into invoicing back, with the negative consequences listed above, especially issues with netting accounting.

Partial Risk Offset (PRO)

As a solution to address such a situation, it may be worth leveraging some of the principles of partial tear-up and exploring alternate approaches that would achieve the similar economic results and ensuring the CCP book rebalancing is shared among those active in these instruments, while addressing market concerns and broadening the scope of participants. Instead of dealing with the operational challenge of tearing up portions of transactions, the CCP or RA could apportion the defaulter's positions pro rata to clearing participants which have equal and offsetting transactions, yet not only to those with the exact same maturity date or coupon. The CCP would define upfront risk parameters and thresholds it would use to identify the subset of participants who would be impacted by such apportionment. The CCP could also include considerations like month-ends and other significant dates in the determination of the date tolerance. In this way the impact of the default would also be shared with those participants which have transactions that are near to the maturity date or cash flow dates of the transactions that need to be rebalanced. For instance, for a trade that matures in 2 years, participants with transactions within a week of the maturity date of the defaulted transactions, will be in scope for this apportionment.

This would allow a more equitable and less random distribution of the residual defaulter's trades, without the significant downside of having to tear up a whole segment of the CCP. Note that the position transfer would apply up to the end user level.

Partial risk offset: Worked Example

Going back to the example with slightly diverging maturity dates:

ID	Cpty		Maturity	P/R	Notional	Coupon
A1	A	5Y	Sep 15th	Receive	50	3%
B1	B	2Y	Sep 16th	Receive	80	3%
C1	C	10Y	Oct 5th	Receive	100	3%
D1	D	5Y	Oct 5th	Receive	50	5%
E1	E	2Y	Sep 15th	Receive	80	5%
F1	F	10Y	Sep 17th	Receive	100	5%

ID	Cpty		Maturity	P/R	Notional	Coupon
H1	H	5Y	Sep 15th	Pay	50	3%
I1	I	2Y	Sep 16th	Pay	80	3%
K1	K	10Y	Oct 5th	Pay	100	3%
H2	H	5Y	Oct 5th	Pay	50	5%
I2	I	2Y	Sep 15th	Pay	80	5%
K2	K	10Y	Sep 17th	Pay	100	5%

Illustrating the proposal above, the CCP would identify transactions with a maturity date and cash flow dates near to the defaulter's transactions. In the example, the tolerance was picked as a few days, so September 16th and September 17th qualify, but not October 5th.

ID	Cpty		Maturity	P/R	Notional	Coupon
A1	A	5Y	Sep 15th	Receive	50	3%
B1	B	2Y	Sep 16th	Receive	80	3%
C1	C	10Y	Oct 5th	Receive	100	3%
D1	D	5Y	Oct 5th	Receive	50	5%
E1	E	2Y	Sep 15th	Receive	80	5%
F1	F	10Y	Sep 17th	Receive	100	5%

ID	Cpty		Maturity	P/R	Notional	Coupon
H1	H	5Y	Sep 15th	Pay	50	3%
I1	I	2Y	Sep 16th	Pay	80	3%
K1	K	10Y	Oct 5th	Pay	100	3%
H2	H	5Y	Oct 5th	Pay	50	5%
I2	I	2Y	Sep 15th	Pay	80	5%
K2	K	10Y	Sep 17th	Pay	100	5%

The CCP would apportion the defaulter's transaction pro-rata to the equal and opposite transactions and the ones that satisfy the predefined tolerance in cash flow dates and coupons such that the risk held by the non-defaulting participants is partially offset:

ID	Cpty		Maturity	P/R	Notional	Weight	Allocated
H1	H	5Y	Sep 15th	Pay	50	16%	8.06
I1	I	2Y	Sep 16th	Pay	80	26%	12.90
K1	K	10Y	Oct 5th	Pay	100		
H2	H	5Y	Oct 5th	Pay	50		
I2	I	2Y	Sep 15th	Pay	80	26%	12.90
K2	K	10Y	Sep 17th	Pay	100	32%	16.13

This would result in the following (apportioned transactions in blue):

ID	Cpty		Maturity	P/R	Notional	Coupon
B1	B	2Y		Receive	80	3%
C1	C	10Y		Receive	100	3%
D1	D	5Y		Receive	50	5%
E1	E	2Y		Receive	80	5%
F1	F	10Y		Receive	100	5%

ID	Cpty		Maturity	P/R	Notional	Coupon
H1	H	5Y	Sep 15th	Pay	50.00	3%
H3	H	2Y	Sep 15th	Receive	8.06	3%
I1	I	2Y	Sep 16th	Pay	80.00	3%
I3	I	2Y	Sep 15th	Receive	12.90	3%
K1	K	10Y	Oct 5th	Pay	100.00	3%
H2	H	5Y	Oct 5th	Pay	50.00	5%
I2	I	2Y	Sep 15th	Pay	80.00	5%
I4	I	2Y	Sep 15th	Receive	12.90	3%
K2	K	10Y	Sep 17th	Pay	100.00	5%
K3	K	10Y	Sep 15th	Receive	16.13	3%

Pro	Con
• Increases the number of transactions to rebalance against the defaulter's transactions. • Provides for smaller risk for firms subject to PTU as more firms are affected due to the wider tolerances. • Mutualizes effects of default more equitable among a larger subset of market participants. • Economically similar to impact of PTU as it results in an offset of risk, albeit partially. • Reduces concerns around challenges to netting given the broad number of transactions that are impacted. • Compression with blended coupons will not reduce the number of equal and opposite transactions.	• Transactions are not torn up – clearing participants on the other side receive new transactions that, while net to a lower risk, might introduce basis risk. • Some participants, for instance asset managers who have to match hedges against payment schedules of underlying instruments, might not be able to accept new transactions with different maturity dates.

Conclusion

In case an auction has failed for parts of the defaulter's portfolio, the Associations believe that, depending on the product and the basis used for allocation, PTU has the potential to be the more equitable and fairer tool to allocate remaining positions to other surviving clearing members and their clients alike. FA, as currently structured, could lead to clearing participants having to manage positions they are not equipped to risk manage. The Associations recommend that FA should not be permitted under any circumstances. Invoicing back is an equally undesirable tool.

When designing PTU or any similar position rebalancing tool, regardless of whether in recovery or resolution, it is important that positions/contracts are torn up at the current market price so that balancing tool is fair, transparent and will not lead to loss allocation. CCPs should demonstrate to their participants and regulators their approach to PTU and other position balancing tools to ensure that the pool of non-defaulting market participants is, typically, sufficiently wide to distribute the risk on an as equitable and fair basis as possible, amongst the participants who brough the risk to the CCP in the first place. CCPs or resolution authorities could tailor PTU using PRO as discussed above. Implementations of PRO have to be focused at a basic or principle level to determine:

- the number of trades that will have to be impacted and the breadth of participants to be affected[6].
- the risk metrics used to determine how to redistribute risk and to select the participants to be impacted.
- the effect of the measures taken on the market as a whole.

while at the same time ensuring the process

- is predictable and transparent.
- aids in risk management.
- does not become cumbersome from an operational perspective.
- keeps the impact on the affected participants as small as possible.
- minimizes impact on the market as a whole.

In any case, given the considerations around the price and the impact on market participants, position rebalancing should be done under the supervision of the relevant authority, both in recovery and in resolution.

[6] These cannot necessarily be determined ex-ante and would be subject to the portfolio at the time of the default. As such, work done will have to focus on risk metrics although the uncertainty around its implementation can be addressed to some extent through robust governance arrangements.

Appendix: PTU and equity-style options

Equity style options do not have VM flows like most futures and OTC derivatives, where at each VM settlement run the CCP passes through VM from the counterparty whose side of the trade loses value to the counterparty with the winning side. In equity-style options, the CCP collects/requests collateral for the Net Liquidation Value (NLV, the current market price of the option) from the seller but does not pay out/collateralize the NLV to the buyer. The CCP might, however, take the NLV into account when calculating initial margin (by reducing the buyer's IM by the NLV). If the NLV increases, the seller has to pay/collateralize the difference to the CCP; if the NLV decreases, the seller's NLV driven collateral requirement also decreases. Initial margin is charged on top of NLV.

Worked Example:

We assume a party buys an option at 100. The buyer will pay the premium to the seller. The seller pays the NLV to the CCP, which credits the buyer's NLV but does not pay out.

We assume the NLV increases over the next two days:

Day	NLV	Buyer	Amount	Buyer's NLV Credit	Seller	Amount
t	100	Pays Premium	100	100	Receives Premium	100
					Pays NLV	100
t+1	102			102	Pays NLV	2
t+2	110			110	Pays NLV	8

This example shows that the CCP at all times has collected the full NLV of the option on top of initial margin, which is not shown in this example.

Please note that there will also be an initial margin requirement, which is not shown here as this is usually calculated on a portfolio basis. The buyer of the option will, however, not have to post the full initial margin but can use the NLV credit to reduce the initial margin requirement by the amount of the NLV.

This position/contract can be torn up simply by paying out the NLV to the buyer of the option. As the buyer has paid the premium of the option to the seller on the outset of the position/contract, the current NLV minus the paid premium is the money made or lost since inception of the position/contract.[7]

CCPs will likely tear up a whole product, i.e. all contracts with the same underlying, as this would also deal with spread positions and would not require allocation of tear-ups between house and client positions.

As options and futures are often used as hedges for each other, CCPs and the resolution authorities should consider treating such hedges together, both in the auction process and when tearing up.

[7] This is usually called a cash-settlement at current market prices - some CCP also have / had "early exercise" in their rulebooks as a tool which amounts to the same thing.

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Since 1985, ISDA has worked to make the global derivatives markets safer and more efficient. Today, ISDA has over 950 member institutions from 76 countries. These members comprise a broad range of derivatives market participants, including corporations, investment managers, government and supranational entities, insurance companies, energy and commodities firms, and international and regional banks. In addition to market participants, members also include key components of the derivatives market infrastructure, such as exchanges, intermediaries, clearing houses and repositories, as well as law firms, accounting firms and other service providers. Information about ISDA and its activities is available on the Association's website: www.isda.org. Follow us on Twitter, LinkedIn, Facebook and YouTube.

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