

FX Haircut on Collateral Assets – Analysis and Counter-Proposal

Executive Summary

The margin rules proposed by the European Supervisory Authorities (the "**ESAs**") include a haircut of 8% to be applied to the market value of collateral if the collateral currency is different to the settlement currency (the "**FX haircut**")¹. The International Swaps and Derivatives Association ("**ISDA**") agrees that the ESAs are correct to recognise that when collateral is denominated in a different currency to the underlying derivative, additional risk is created. This risk is manifested if foreign exchange ("**FX**") markets move between the time of the default and the close-out ("**cure period**"), exposing a difference in value between the derivative and the collateral.

However, ISDA suggests that applying an FX haircut to the collateral is not the optimal methodology to mitigate this risk. ISDA asserts that such an approach will materially accentuate, rather than mitigate, this cure period risk.

As proposed in the ISDA/SIFMA response² to the Consultation Paper we illustrate below, using a number of examples, the unintended consequences arising from the requirement to apply an FX haircut to the collateral. In addition, we recommend a revision to the Draft RTS which would successfully target the ESAs' stated objective to capture the FX risk introduced by a currency mismatch, and improve upon the solid foundations of the Draft RTS in its current form.

Summary of findings from the examples -

- FX moves during the cure period can create counterparty credit risk equally for both the collateral poster and the collateral recipient. The risk is symmetric and independent of which party is posting or receiving the collateral.
- The Draft RTS requires that additional collateral is made available only to one party (the collateral recipient). Because the additional collateral is not segregated, this requirement generates credit risk for the other party (the collateral poster) for the return of the excess collateral (rehypothecation risk).
- If both parties are subject to initial margin ("**IM**") requirements, any additional risk introduced due to currency mismatch between the collateral and the derivative should be mitigated by both parties posting collateral, in the form of additional segregated IM.

¹ Consultation Paper on the Draft regulatory technical standards (the "**Draft RTS**") on risk-mitigation techniques for OTC-derivative contracts not cleared by a CCP under Art. 11(15) of Regulation (EU) No 648/2012 (the "**Consultation Paper**") published by the European Securities and Markets Authority ("**ESMA**"), the European Banking Authority ("**EBA**") and the European Insurance and the Occupational Pensions Authority ("**EIOPA**"), and together with ESMA and EBA, the European Supervisory Authorities, the "**ESAs**") on 14 April 2014, p. 50, Annex II – Standard haircuts to the market value of collateral.

² ISDA and the Securities Industry and Financial Markets Association letter re: Consultation Paper, dated 14 July 2014, p. 21, end of Section (IV) (C).

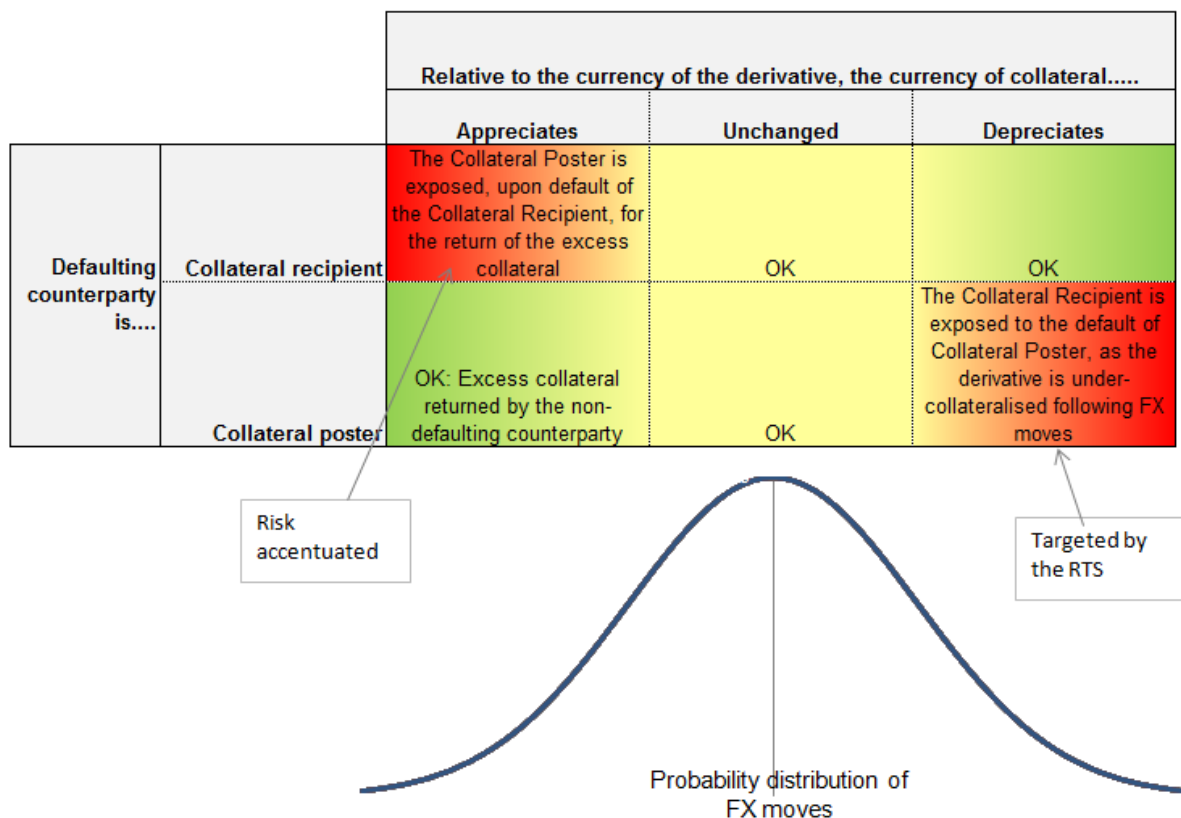
- The bilateral exchange of IM creates market scenarios where neither party is exposed to unsecured credit risk. By contrast, the FX haircut applied to the collateral dislocates the net risk profile, to the benefit of the collateral recipient and to the detriment of the collateral poster. In some instances, the collateral poster is exposed to unsecured risk even in unstressed market conditions.
- FX sensitivities at the trade level are routinely captured in the IM calculation. This methodology could be extended to capture the currency mismatch between the derivative portfolio and the collateral, by simulating the collateral as additional cashflows, for the calculation of the required IM.
- FX risk calculated for the purpose of the IM computation should be allowed to be netted across asset classes because the trade level market sensitivities that drive the aggregate amount of FX risk in each asset class are captured in the IM calculation.

Concept 1: Cure period risk, caused by a move in FX rates that generates a difference between the derivative MTM and the collateral value, is a risk for both the collateral poster and recipient. This risk is symmetric.

The key characteristic of cure period risk is that it can impact both parties to an equal extent. The Draft RTS only focuses on the scenario where an FX move results in a fall in the value of the collateral assets relative to the value of the derivative, exposing the collateral recipient to being under-collateralised. However, a rise in the value of the collateral assets presents the same problem, but this time for the poster of the collateral, specifically the risk that they have over-collateralised the exposure and are exposed for the return of any excess collateral. This is an equally likely scenario.

In addition, the risk targeted by the proposed FX haircut differs from the risk targeted by haircuts on securities posted as collateral. When there is broad market stress, the value of securities will generally decline and such a decline would impose risks on a recipient of collateral. In contrast, in times of financial market stress, currency exchange rates will not consistently decline and so do not impose the same risk on the collateral recipient.

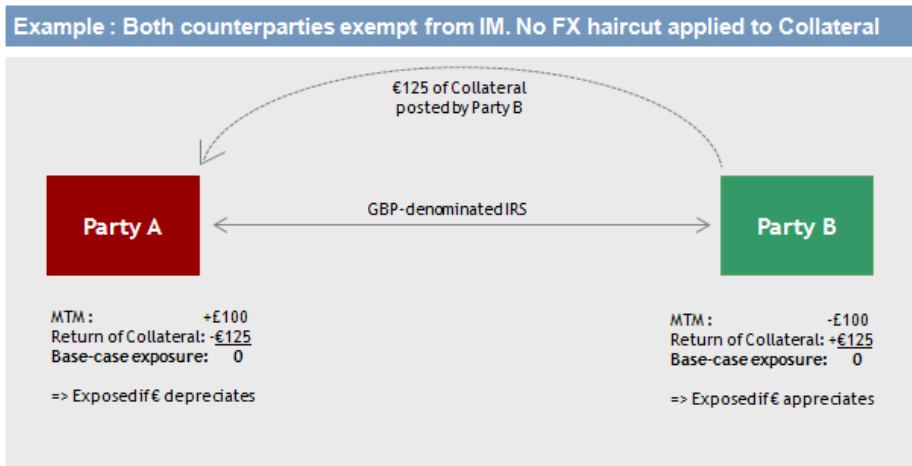
NO FX HAIRCUT APPLIED TO VM (ignoring other cure period risks)



Example 1a: GBP Interest rate swap, collateralised by a EUR credit support arrangement ("CSA"). No FX haircut.

The example below illustrates that both parties are equally exposed to moves in FX rates, when there is a mismatch between the derivative and the collateral currency. The risk is entirely symmetric.

- Single GBP-denominated Interest Rate Swap ("**IRS**") between Party A and Party B.
- Mark to market ("**MTM**") is £100 in Party A's favour.
 - 99% 10-day VaR due to GBP IRS is £3.
- Swap governed by zero-threshold CSA where the eligible asset is EUR cash.
- Both parties are below the IM threshold.
- Spot FX is 1.25, thus Party B posts €125 of variation margin ("**VM**") to Party A.



Base case: EUR/GBP FX rate unchanged at 1.25; GBP interest rates unchanged

- Neither Party A or Party B has an uncollateralised exposure

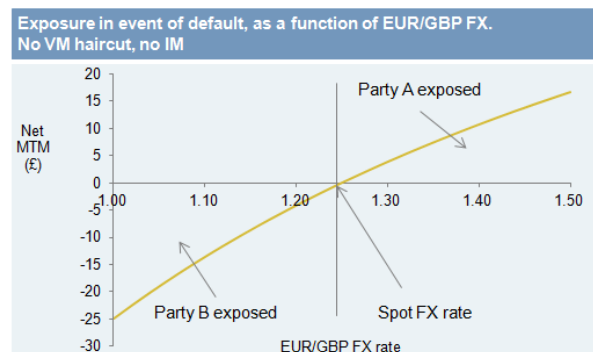
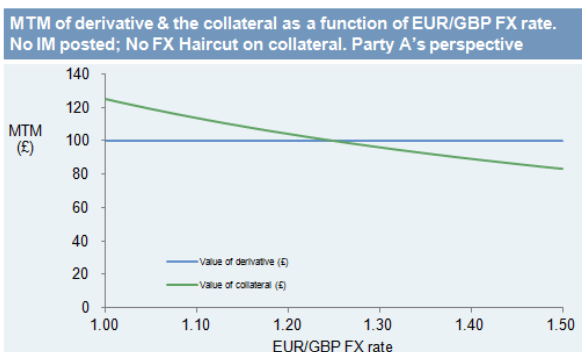
EUR appreciation: EUR/GBP FX rate = 1.20; GBP interest rates unchanged

- €125 of collateral is now worth £104.17
- Party B has over-collateralised by £4.17 and will suffer a loss should Party A default

EUR depreciation: EUR/GBP FX rate = 1.30; GBP interest rates unchanged

- €125 of collateral is now worth £96.15
- Party A is under-collateralised by £3.85 and will suffer a loss should Party B default

The graphs below illustrate the derivative and collateral MTM (in £) and each Party's net exposure as a function of EUR/GBP FX rates. The risk is symmetric.

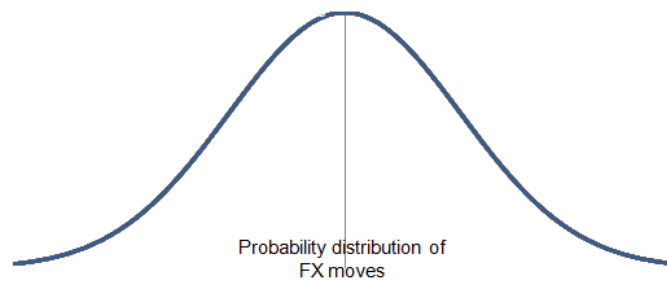


Concept 2: Introduction of an FX haircut on the collateral. The requirement to post an additional 8% of VM exposes the poster of collateral to additional credit risk.

Though successfully reducing counterparty credit risk in the scenario where the collateral currency depreciates and the collateral poster defaults, the Draft RTS proposal to require a haircut on posted collateral accentuates the credit risk for the poster of collateral. Specifically, the posting counterparty is exposed to the risk that the collateral recipient fails to return the required excess collateral in the event of their default.

FX HAIRCUT APPLIED TO VM (ignoring other cure period risks)

		Relative to the currency of the derivative, the currency of collateral.....			
		Appreciates	Unchanged	Depreciates (less than 8%)	Depreciates (more than 8%)
Defaulting counterparty is....	Collateral recipient	The Collateral Poster is exposed, upon default of the Collateral Recipient, for the return of the excess collateral			OK
	Collateral poster	OK: Excess collateral returned by the non-defaulting counterparty			The Collateral Recipient is exposed to the default of Collateral Poster, as the derivative is under-collateralised following FX moves

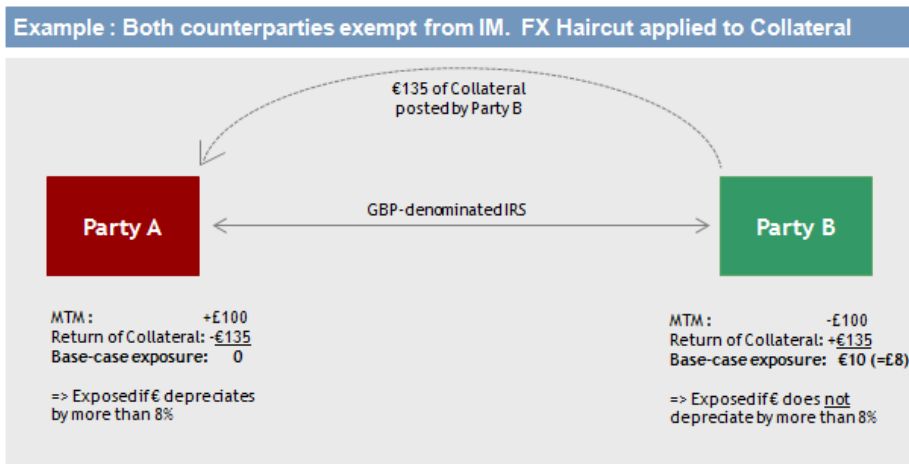


In summary, requiring an over-posting of collateral of 8% has the effect of biasing the risk in the favour of the collateral recipient (Party A), but introducing additional risk to the poster (Party B).

Example 2a: GBP Interest rate swap, collateralised by a EUR CSA. 8% FX haircut. No IM.

The example below illustrates the effect of the introduction of the FX haircut and the bias it introduces in the net risk exposure in favour of the collateral recipient.

- Single GBP-denominated Interest Rate Swap between Party A and Party B.
- MTM is £100 in Party A's favour.
 - 99% 10-day VaR due to GBP IRS is £3.
- Swap governed by zero-threshold CSA where eligible asset is EUR cash.
- Both parties are below the IM threshold.
- Spot FX is 1.25, thus, including an 8% FX haircut, Party B posts €135 of VM to Party A.



Base case: EUR/GBP FX rate unchanged at 1.25; GBP interest rates unchanged

- Party B has over-collateralised by €10 (=£8), and is exposed to a loss upon a default of Party A

EUR appreciation: EUR/GBP FX rate = 1.20; GBP interest rates unchanged

- €135 of collateral is now worth £112.50
- Party B has over-collateralised by £12.50, and will suffer a loss (greater than without the FX haircut) in the event Party A defaults

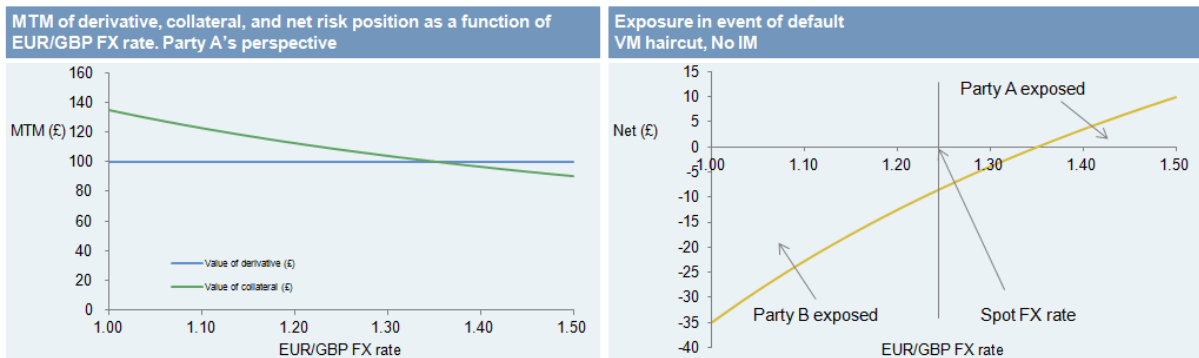
EUR depreciation: EUR/GBP FX rate = 1.30; GBP interest rates unchanged

- €135 of collateral is now worth £103.85
- Party B has over-collateralised by £3.85 and will suffer a loss (greater than without the FX haircut) in the event Party A defaults.
- Party A is over-collateralised and thus adequately covered in the event of a default of Party B.

EUR further depreciation: EUR/GBP FX rate = 1.40; GBP interest rates unchanged

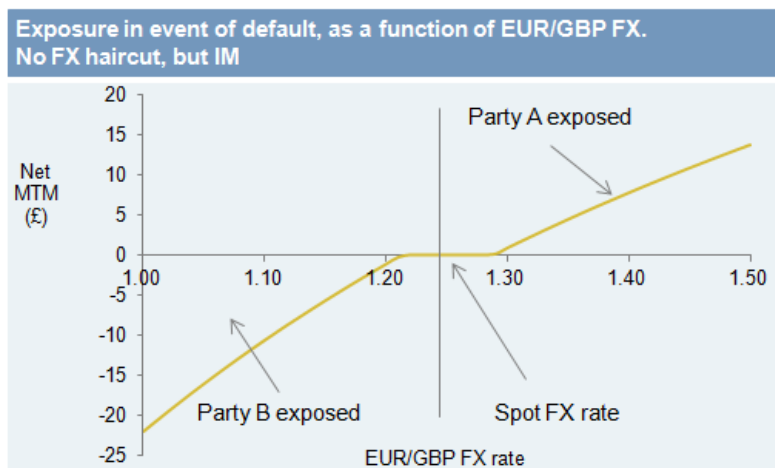
- €135 of collateral is now worth £96.43
- Party A is under-collateralised by £3.57 and will suffer a loss should Party B default.
- Party B is not exposed in the event of Party A's default in this situation.

The graphs below illustrate the derivative and collateral MTM (in £) and each Party's net exposure as a function of EUR/GBP FX rates. In summary, the FX haircut on the collateral assets results in the Collateral Poster (Party B) being exposed to additional, unsecured credit risk to the Collateral Receiver (Party A), even in the base case scenario of no significant moves in FX rates. Specifically, the Collateral Poster (Party B) is exposed to the return of the 8% of the VM (i.e. £8) in the base case.

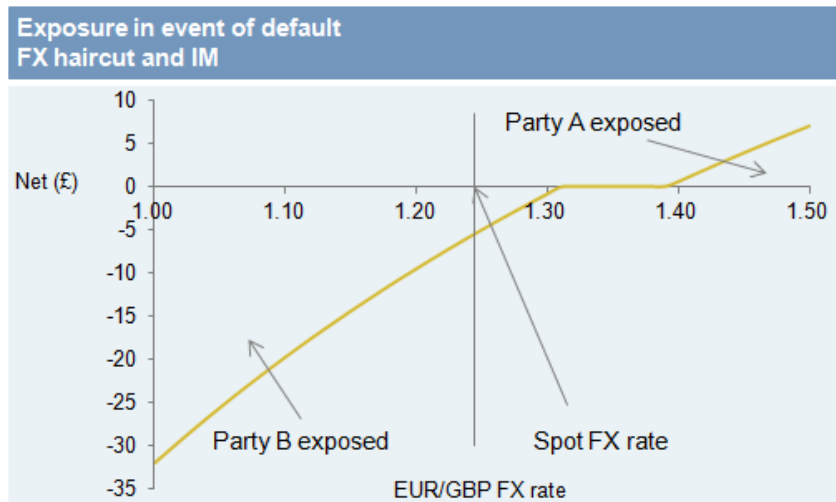


Example 2b: Addition of IM.

The bilateral exchange of IM (without an FX haircut for collateral) creates a corridor of market scenarios where neither party is exposed to unsecured credit risk. This reflects the variability in the MTM of the derivative portfolio (in this instance driven by GBP Interest rates, i.e. £3) but does not capture any net MTM risk generated from moves in FX rates that could affect the value of the collateral relative to the derivative portfolio.



However, adding the FX haircut to the collateral introduces a one-sided dislocation to the net risk profile, which reduces the protection available to the collateral poster. In some cases, this could leave the collateral poster exposed to unsecured risk even in the base case market scenario.



This highlights why a collateral assets based solution, rather than an IM based solution, biases the protection in one direction, in favour of the collateral recipient but at the expense of the collateral poster.

An IM based solution would respect the symmetry of the FX risk in the VM, and could continue to centre the net risk around the base-case scenario, with the IM sized to capture the net risk for each counterparty, inclusive of the collateral, and not just the derivative portfolio in isolation.

Concept 3: The FX sensitivity of a derivative portfolio is independent of the net MTM, but is faithfully captured in IM sensitivities.

The example below attempts to illustrate how the FX sensitivity of a derivative portfolio (either outright or relative to the collateral) is not a function of the net MTM or VM amount. Given the randomness of the relationship, it should be evident that applying a fixed haircut to mitigate the FX risk is ineffective. In the example below, the net MTM under-represents the risk but in other situations it could equally over-state it. Net MTM is fundamentally the wrong metric, and the proposed methodology will randomly over- or under-estimate the risk. However, the FX risk of the derivative portfolio is faithfully captured in the IM calculation, and this approach could be extended to include the FX risk of the collateral assets.

Example 3: Offsetting MTMs derived from trades denominated in different currencies.

- Party A and Party B have a portfolio of 2 derivatives.
 - CHF- denominated IRS, with MTM of CHF 100 in Party A's favour
 - JPY- denominated IRS, with MTM of JPY 9,000 in Party B's favour
- Both swaps are governed by a zero-threshold CSA, where the eligible asset is USD cash
- Both parties are below the IM threshold.
- Spot FX rates are 0.90 for CHF and 105 for JPY
- Party B will post to Party A collateral of: $\$ \{(100*0.90) - (9,000/105)\} = \4.29
 - The additional 8% FX haircut would be \$0.34.

The variability of the net risk in this derivative portfolio, consistent with an 8% move in FX rates, is approximately \$14³; this is far in excess of the \$0.34 FX haircut computed under the Draft RTS. The reason for the difference is because the portfolio-level net MTM comprises offsetting MTMs which obscures the magnitude of each currency in isolation and the realistic cure period risk driven by FX.

However, if the counterparty were in scope for IM, this sensitivity would be faithfully captured in the calculation, and this observation is instructive in guiding improvements to the design – namely to compute the FX risk, relative to the collateral assets, via the IM formula.

³ $(8\% * \{(100*0.90) + (9,000/105)\})$ being a cumulative 8% move of the MTM on both trades.

Concept 4: For the IM calculation, FX risk should be fungible across asset classes. Ignoring netting of FX across asset classes can significantly overstate the risk.

Example 4:

- Party A and Party B have portfolio of 3 derivatives
 - GBP-denominated Interest Rate Swap, with MTM GBP 1,000 in Party A's favour
 - 10 day 99% VaR of £3
 - GBP- denominated Equity Swap, with MTM GBP 1,000 in Party B's favour
 - 10 day 99% VaR of £5
 - EUR-denominated Commodity Swap, with MTM of EUR 0.1 in Party A's favour
 - 10 day 99% Var of €100
- Swap governed by zero-threshold, CSA where the eligible asset is EUR cash.

In the above example, the portfolio is substantially an offsetting GBP 1,000 loan and a GBP 1,000 deposit, combined with an on-market EUR-denominated commodity swap, all collateralised in EUR. As such, there is little net FX risk in the portfolio relative to the collateral currency, yet the IM calculation, as prescribed in the Draft RTS, would reference the FX risk on the two GBP-denominated swaps despite their near perfect offset.

ISDA would strongly recommend allowing dealers, where they have an approved IM model, to reallocate FX risk in the IM calculation back into the FX and Interest Rates asset class. Failure to allow this practise will misrepresent risk (either over or under) and will encourage re-striking/re-couponing of trades in each asset class to arbitrage the treatment, which is symptomatic of the shortcomings in the approach.

Proposed solution: Currency risk introduced by the mismatch in collateral currency vs. derivative portfolio is similar to adding an FX trade into the portfolio.

ISDA supports the ESAs' objective to recognise the potential FX risk introduced in the CSA, but would respectfully suggest that the Draft RTS could be significantly improved. An improved solution would:

- Capture the FX risk introduced by a currency mismatch between the derivative portfolio and the collateral assets
- Reflect that cure period risk is symmetric, and avoid creating additional credit risk for the collateral poster
- Be sensitive to cases where the net MTM obscures the quantum of the risk, and
- Allow for netting FX risk across asset classes

Fundamentally, the need to recognise the symmetrical nature of the risk requires that the solution is centred around IM rather than a haircut on the collateral assets. Specifically, ISDA's proposal is to add the collateral cashflows to the derivative portfolio, as if they were transaction cashflows. The consequence of this amendment is that the IM calculation would compute the net exposure for each party not just of the derivative portfolio outright, but relative to the value of the posted or received collateral. This approach would represent the true net close-out risk for both parties, and capture cases where all the market sensitivities of the collateral (and not just FX, but also credit and interest rates) could accentuate the net cure period risk.

To illustrate, in Example 1a above, the additional trade would have Bank A paying Bank B €125 on T+2. With the addition of this collateral cashflow, the IM calculation will capture the sensitivity of the total exposure, namely the risk to both GBP interest rates and to the GBP/EUR FX rate.

Further, as IM is segregated, any additional collateral required does not create unsecured credit risk for the poster, nor does it provide a funding benefit for the receiver.

For counterparties without an approved model, because of the credit risk increasing characteristics of the Draft RTS proposal illustrated above, ISDA would recommend removing the FX haircut altogether as it is counter-productive, and would suggest relying upon the inherently conservative nature of the Standardised Method⁴ to capture the risks sufficiently.

⁴ Consultation Paper, Annex IV.

Additional concerns around the Draft RTS: Disincentive to clear trades & introduction of significant technological costs.

In addition to the limitations described above, the proposed FX haircut on collateral assets would likely disincentivise the backloading (clearing) of legacy trades. Under the Draft RTS, the collateral recipient benefits from receiving excess collateral which, because it is not segregated, creates a funding benefit. At the same time, the collateral poster is exposed to additional credit risk to the collateral recipient, in addition to increased funding costs. Therefore backloading is not an economically neutral exercise for both parties, and consequently the Draft RTS have introduced an economic incentive for one party to oppose such requests.

Finally, the proposed rule would introduce significant operational and technological challenges to calculate the additional credit and funding costs resulting from the over-posting. As the cost/benefit "flips" between counterparties as the portfolio level MTM changes sign, the computation is a highly complex, portfolio level calculation. In contrast, adoption of an IM-based solution to mitigate the FX risk introduced by having collateral in a different currency to the derivative presents less computational challenges because the calculation would be agnostic to the directionality of the gross MTM and would therefore be less path-dependent.

The calculation is further complicated for multi-currency CSAs, where the collateral poster has optionality over the currency of collateral to post. In some circumstances the posting counterparty may be incentivised to post in a currency that accentuates the mismatch introducing additional credit risk, if the funding differential is the dominant factor.

Conclusion and Recommendations

Due to the symmetry of cure period risk, the Draft RTS would add to, rather than mitigate, a significant amount of counterparty credit risk. Additionally, it would also increase funding costs, require considerable technology investment, and create disincentives to clear – all of which would be inconsistent with the ESA's stated objectives.

We submit the following conclusions and recommendations:

1. VM should be clean of any adjustment with respect to potential exposure to FX rates or denomination of portfolio or collateral.
2. FX risk from IM and VM should be incorporated into the IM requirement, which should be holistic, reflecting the netting of FX risk across all portfolio trades (regardless of their trade types) and collateral. If FX risk is incorporated in the IM model, there should be no FX haircut applied to the IM collateral.
3. If IM is not required to be exchanged, no FX haircut on VM should be required; and for parties using the standardized method for IM rather than an IM model, no FX haircut on VM or IM should be required.

By making relatively simple amendments to the Draft RTS in accordance with these conclusions and recommendations, the ESAs would meet their stated objectives, as well as reducing operational and technological burdens for all impacted market participants.

ISDA would strongly urge the ESAs to adopt this change.

For any questions on this paper, please feel free to contact Athanassios Diplas (adiplas@isda.org) or Roger Cogan (rcogan@isda.org).