



International Swaps and Derivatives Association, Inc.

OUTLINE OF (I) THE SETTLEMENT OF CERTAIN SWAPTIONS AND (II) THE ISSUES WHICH ARISE FROM THE PROPOSED ADJUSTMENT TO DISCOUNTING BY CERTAIN CLEARINGHOUSES

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1 Introduction

The settlement of a swaption is not, and the determination of the amounts payable or the obligations to be fulfilled upon settlement of a swaption is not, straightforward. This note is intended to provide a summary of what will be payable upon settlement of a swaption. It is not intended to describe the operational process of how a swaption should be exercised.

This note summarises the position under the 2006 ISDA Definitions, as published by ISDA and as have been supplemented from time to time (the “**2006 Definitions**”).¹ References in this note to “Sections” are to sections of the 2006 Definitions. It has been assumed that all relevant supplements to the 2006 Definitions have been incorporated into the confirmation of the relevant swaption (the “**Confirmation**”). This note also summarises how the conclusions would differ if not all of the supplements to the 2006 Definitions have been incorporated into the Confirmation.

The content of this note is not to be relied upon as legal advice and members should seek legal, tax and accounting advice and consult with any other adviser they deem appropriate as to the matters discussed herein.

The documentation of each individual swaption remains the responsibility of the parties concerned. Each party must satisfy itself as to any possible adverse consequences (including in relation to the potential transfer of economic value) which may occur as a result of any amendment to a swaption or an adjustment to a discount rate by a clearinghouse. Any such consequences should be considered in the light of the potential outcome if such amendment or adjustment were not to apply to that swaption.

2 Cash Settlement

2.1 Payment of the Cash Settlement Amount

Swaptions may either be cash settled or physically settled.

¹ A number of supplements to the 2006 Definitions are relevant in the context of swaptions. They include (i) supplement 28 published on 30 September 2011 (“**Supplement 28**”), (ii) supplement 48 published on 23 March 2016 (“**Supplement 48**”) and (iii) supplement 58 published on 21 November 2018 (“**Supplement 58**”).

Where cash settlement applies, following the exercise of a swaption, if the buyer of the swaption is in-the-money, the seller of the swaption will pay to the buyer the Cash Settlement Amount on a specified date (referred to as the “Cash Settlement Payment Date”).²

The Cash Settlement Amount³ will be:

2.1.1 the amount agreed between the parties; or

2.1.2 if there is no such agreement:

- (i) the amount determined in accordance with the elections made by the ISDA Settlement Matrix⁴ (which provides for, amongst other things, the default Cash Settlement Method that will apply to a swaption); or
- (ii) if the ISDA Settlement Matrix does not apply, an amount determined in accordance with the Cash Settlement Method specified in the Confirmation.⁵

2.2 Examples of determining the Cash Settlement Amount

This paragraph is not intended to be an exhaustive list of the currencies which may be relevant to swaptions or of how the parties to a swaption may have specified that any Cash Settlement Amount is to be calculated.

2.2.1 Swaptions denominated in US Dollars or Euros

Unless the parties to a swaption override the ISDA Settlement Matrix, for swaptions denominated in US Dollars or Euros and entered into on or after 21 November 2018 (i.e. post-publication of Supplement 58), the Cash Settlement Method will be “Collateralized Cash Price”.⁶

Collateralized Cash Price is defined in Section 18.3(g). In summary, it is the present value of an annuity equal to the difference between (a) the amounts that would be payable by the Fixed Rate Payer pursuant to the underlying swap if the Fixed Rate were the “Settlement Rate” and (b) the amounts payable by the Fixed Rate Payer pursuant to the underlying swap set out in the Confirmation.

(i) Determining the Settlement Rate

In addition to the ISDA Settlement Matrix, ISDA has published the ISDA Collateral Cash Price Matrix. Unless the parties to a swaption override the ISDA Collateral Cash Price Matrix, the Settlement Rate will be “ISDA Source”.⁷ This is defined as the par swap rate for swaps in the currency in which the underlying swap is denominated (for current purposes this will be US Dollars or Euros) for a period equivalent to the remaining term of the

² Section 18.1.

³ Defined in Section 18.2(a).

⁴ Section 19.1 contemplates that the default elections specified in the ISDA Settlement Matrix will apply unless specified otherwise. Parties to a swaption are free to override the ISDA Settlement Matrix and specify a Cash Settlement Method in the Confirmation (section 18.2(l)).

⁵ A list of possible Cash Settlement Methods is set out in Section 18.3.

⁶ We understand that “Collateralized Cash Price” was used as the Cash Settlement Method for some cash settled swaptions prior to the November 2018 update of the Cash Settlement Matrix.

⁷ The ISDA Collateral Cash Price Matrix is applied pursuant to Section 18.3(g)(ii) and Section 19.1.

underlying swap. The rate is determined by reference to the rate which appears on the relevant ICESWAP screen page.⁸

(ii) **Determining present value**

(a) **Swaptions entered into pre-Supplement 58:** In respect of swaptions entered into prior to the publication of Supplement 58, the parties must determine the present value using the discount rate specified in the ISDA Collateral Cash Price Matrix, which for swaptions denominated in US Dollars is OIS (sourced from Reuters Screen FEDFUNDS1 Page) and for swaptions denominated in Euros is EONIA.

(b) **Swaptions entered into post-Supplement 58:** Unless otherwise agreed by the parties to the swaption, the discount curve to be used to determine a present value will depend on whether they have specified “Mutually Agreed Clearinghouse” in the Confirmation.

If Mutually Agreed Clearinghouse applies, the parties must use the discount rate that would apply if the underlying swap were cleared through the nominated clearinghouse.

If Mutually Agreed Clearinghouse does not apply, the parties must use the discount rate specified in the ISDA Collateral Cash Price Matrix, which for swaptions denominated in US Dollars is OIS (sourced from Reuters Screen FEDFUNDS1 Page) and for swaptions denominated in Euros is EONIA.

(iii) **Adjustments**

In respect of swaptions entered into post-Supplement 48⁹, if Mutually Agreed Clearinghouse applies, the Settlement Rate can be adjusted. In summary, the purpose of the adjustment would be to replace the Settlement Rate specified in the Confirmation (or the ISDA Collateral Cash Price Matrix) with the rate that would be payable for a corresponding swap as if it were cleared in the relevant clearinghouse.

2.2.2 Swaptions denominated in pounds sterling

Unless the parties to a swaption override the ISDA Settlement Matrix, for swaptions denominated in pounds sterling, the Cash Settlement Method will be “Par Yield Curve – Unadjusted”.

Par Yield Curve – Unadjusted is defined in a similar way to Collateralized Cash Price. However, the discount curve for determining the present value will be equal to the Settlement Rate (which is specified as the ICE Swap Rate for swaptions denominated in pounds sterling in the ISDA Settlement Matrix).

⁸ Previously ISDAFIX Page.

⁹ Or swaptions entered into pre-Supplement 48 that have been amended to incorporate Supplement 48. Market participants should refer to the agreements documenting each swaption (including any amendment agreements) to determine which supplement(s) have been incorporated into such swaption.

3 Physical Settlement and Cleared Physical Settlement

Where “Physical Settlement” applies, following the exercise of a swaption, the underlying swap transaction will be entered into between the seller of the swaption and the buyer.¹⁰

There is an additional concept of “Cleared Physical Settlement”, which was introduced by Supplement 28. In this case, if the swaption is exercised, the underlying swap transaction will be entered into and cleared through a clearinghouse.¹¹ The clearinghouse will either be specified in the Confirmation as the “Mutually Agreed Clearinghouse” (post-Supplement 48 only¹²) or agreed upon between the parties at the time of the exercise of the swaption (pre- or post-Supplement 48).

If (i) the parties are unable to agree on a clearinghouse for the underlying swap transaction at the time of exercise or (ii) (post-Supplement 48 only¹³) the agreed clearinghouse no longer accepts for clearing swaps with the terms of the underlying swap transaction, the swaption will terminate. Alternatively, if the underlying swap transaction fails to clear through the Mutually Agreed Clearinghouse and the parties to the swaption have not entered into any agreement relating to clearing, the underlying swap transaction will terminate. In either case, the amount payable will be an amount calculated by using the “Collateralized Cash Price” Cash Settlement Method.

4 Clearinghouses and changes to discounting

4.1 Consequence of discounting change

Some clearinghouses have announced an intention to transition price alignment and discounting for certain cleared transactions from the daily effective federal funds rate to SOFR (we refer to the relevant rate as the “discount rate”).¹⁴ Similar announcements have been made in respect of a transition from EONIA to €STR.¹⁵

If, following the effective date of a swaption but prior to the exercise date of the swaption, a related clearinghouse changes its discount rate, this may have an impact on the value of the swaption. If the swaption is cleared, the adjustment to the discount rate will alter the terms of any collateral arrangements required by the relevant clearinghouse, which will in turn affect the value of the swaption.

Possible scenarios based on the relevant Supplement(s) that apply to the swaption are discussed below.

¹⁰ Section 15.1.

¹¹ Section 15.2.

¹² Or swaptions entered into pre-Supplement 48 that have been amended to incorporate Supplement 48.

¹³ Or swaptions entered into pre-Supplement 48 that have been amended to incorporate Supplement 48.

¹⁴ For example, see the announcements by (i) the CME Group at <https://www.cmegroup.com/education/articles-and-reports/sofr-price-alignment-and-discounting-proposal.html> and (ii) LCH at https://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=2ahUKewiK4ufJ_bHIAhVAUBUIHZ8LCOcQFjAAegQIARAC&url=https%3A%2F%2Fwww.cftc.gov%2Fmedia%2F2421%2FMRAC_LCHSOFRDiscountingLetter090919%2Fdownload&usg=AOvVaw2oOH6Dv4clVgCMt-Rv4Lg9.

¹⁵ For example, see the announcement by LCH at <https://www.lch.com/membership/ltd-membership/ltd-member-updates/transition-eustr-discounting-swapclear>.

4.1.1 Uncleared cash settled swaptions:

- (i) **Swaptions entered into post-Supplement 58:** Where the Cash Settlement Amount is determined using the “Collateralized Cash Price” Cash Settlement Method, the adjustment to the discount rate may affect the Cash Settlement Amount that will be payable at the time of exercise. As discussed in paragraph 2.2.1(ii) above, where “Mutually Agreed Clearinghouse” is specified in the Confirmation, the present value calculation will reference the prevailing discount rate of a clearinghouse.
- (ii) **Swaptions entered into pre-Supplement 58:** Where the Cash Settlement Amount is determined using the “Collateralized Cash Price” Cash Settlement Method, the change to the discount rate by the clearinghouse will have no impact on the Cash Settlement Amount that will be payable at the time of exercise. As discussed in paragraph 2.2.1(ii)(a) above, the present value calculation will be determined by reference to the discount rate set out in the ISDA Collateral Cash Price Matrix (i.e. EONIA for Euro swaptions and OIS (sourced from Reuters Screen FEDFUNDS1 Page) for US Dollar swaptions).
- (iii) Where the Cash Settlement Amount is determined using a cash settlement method other than Collateralized Cash Price, one would generally expect the valuation of the swaption to be unaffected.

4.1.2 Uncleared physically settled swaptions:

- (i) **Swaptions entered into pre-Supplement 28:** These swaptions cannot apply Cleared Physical Settlement. As the underlying swap transaction is not intended to be cleared, one would generally expect the valuation of the swaption to be unaffected.
- (ii) **Swaptions entered into post-Supplement 28 and pre-Supplement 48:**¹⁶
 - (a) Where Cleared Physical Settlement does not apply, the underlying swap transaction is not intended to be cleared and one would generally expect the valuation of the swaption to be unaffected.
 - (b) Where Cleared Physical Settlement applies, the underlying swap transaction is intended to be cleared through a clearinghouse. Mutually Agreed Clearinghouse as a concept was not included at this time and the parties have to agree to the relevant clearinghouse at the time of exercise of the swaption.¹⁷ If the parties cannot agree on a clearinghouse in the relevant notice of exercise, the parties agree that Cash Settlement shall apply to the swaption and the Cash Settlement Amount will be an amount calculated by using the “Collateralized Cash Price” Cash Settlement Method.

¹⁶ For the avoidance of doubt, excluding swaptions that have been amended to incorporate Supplement 48.

¹⁷ Section 15.2 (as inserted by Supplement number 28) reads as follows (emphasis added):

*“If “Cleared Physical Settlement” is specified in the related Confirmation ... ; provided, however that the Relevant Swap Transaction is cleared through **a mutually agreed upon clearinghouse, agreed by both parties that accepts cash denominated in the same currency as the Relevant Swap Transaction as Eligible Collateral for margining purposes and pays interest on that cash at the Discount Rate specified in the ISDA Collateral Cash Price Matrix.**”*

If there is no available clearinghouse (because no clearinghouse house discounts at the same rate as that specified in the ISDA Collateral Cash Price Matrix), then it is strictly not possible for the parties to agree on a clearinghouse within the meaning of Section 15.2. Consequently, the final paragraph of Section 15.2 will apply. This provides for cash settlement of the swaption using Collateralized Cash Price, which itself uses the Discount Rate in the ISDA Collateral Cash Price Matrix (i.e. EONIA for Euro swaptions and FedFunds for US Dollar swaptions). One would generally expect the valuation of these swaptions to be unaffected by the change of the clearinghouse's discount rate.

- (iii) **Swaptions entered into post-Supplement 48:**¹⁸ Supplement 48 introduced the concept of Mutually Agreed Clearinghouse. This allowed parties to a swaption to agree upon a clearinghouse at the trade date, rather than having to agree at the time the swaption is exercised. If parties did not specify a Mutually Agreed Clearinghouse in the Confirmation, they are to agree upon the clearinghouse at the time of exercise of the swaption.¹⁹

Section 15.2 provides that if a Mutually Agreed Clearinghouse has not been specified in the Confirmation, the parties must agree upon a clearinghouse that pays interest on cash collateral at the Discount Rate in the Collateral Cash Price Matrix applies. Consequently, if a Mutually Agreed Clearinghouse has not been specified in the Confirmation, the position is as under Supplement 28 (pre-Supplement 48), as described in sub-paragraph (ii)(b) above.

If a Mutually Agreed Clearinghouse has been specified upfront, the underlying swap is cleared through that Mutually Agreed Clearinghouse. The adjustment to the discount rate of such Mutually Agreed Clearinghouse will alter the terms of any collateral arrangements required by the relevant clearinghouse in relation to that underlying swap transaction. This will result in a mismatch between (a) the price the parties attributed to the underlying swap when the swaption was entered into and (b) the price determined in accordance with the clearinghouse's discount curve at the time of settlement.

Where Cleared Physical Settlement applies but the underlying swap transaction is not cleared (as described in paragraph 3 above), there will be

¹⁸ For the avoidance of doubt, including swaptions entered into pre-Supplement 48 that have been amended to incorporate Supplement 48.

¹⁹ Section 15.2 (as amended by Supplement number 48) reads as follows (emphasis added):

If "Cleared Physical Settlement" is specified in the related Confirmation for a Swaption, [...] provided, however that the Relevant Swap Transaction is cleared through the Mutually Agreed Clearinghouse or, if Mutually Agreed Clearinghouse is not specified in the related Confirmation, a mutually agreed upon clearinghouse, agreed by both parties in the relevant notice of exercise, that accepts cash denominated in the same currency as the Relevant Swap Transaction as Eligible Collateral for margining purposes, and pays interest on that cash at the Discount Rate specified in the ISDA Collateral Cash Price Matrix. [...]

If the parties have not specified a Mutually Agreed Clearinghouse in the related Confirmation and cannot agree on a clearinghouse in the relevant notice of exercise, the parties agree that Cash Settlement shall apply to the Swaption and the Cash Settlement Amount will be an amount calculated by using the "Collateralized Cash Price" Cash Settlement Method.[...]

a fallback to cash settlement with the Cash Settlement Amount determined on the basis of the “Collateralized Cash Price” Cash Settlement Method.

- (a) **Swaptions entered into pre-Supplement 58:** The Cash Settlement Amount will be determined using the Discount Rate specified in the ISDA Collateral Cash Price Matrix and accordingly one would generally expect the valuation of these swaptions to be unaffected by the change to the discount rate of the clearinghouse (see paragraph 2.2.1(ii)(a) above).
- (b) **Swaptions entered into post-Supplement 58:** As discussed in paragraph 2.2.1(ii)(b) above:
 - (I) if “Mutually Agreed Clearinghouse” is specified in the Confirmation, the present value calculation will reference the prevailing discount rate of a clearinghouse. The change to the discount rate of the clearinghouse may affect the valuation of the swaption, as compared to the value attributed to it at the time of entry into of the swaption; and
 - (II) if “Mutually Agreed Clearinghouse” is not specified in the Confirmation, the present value calculation will be determined using the Discount Rate in the ISDA Collateral Cash Price Matrix. One would generally expect the valuation of these swaptions to therefore be unaffected by the change of the clearinghouse’s discount rate.

4.2 Possible solutions

No provisions in the 2006 Definitions expressly contemplate the consequences described in paragraph 4.1 above. For completeness, we note that, for cash settled swaptions where the Cash Settlement Amount is determined using the “Collateralized Cash Price” Cash Settlement Method, there is a concept of an “Adjustment Amount” in the definition of Collateralized Cash Price. However, this provision is designed to adjust the Settlement Rate, rather than the discount rate used to determine a present value.

In the context of clearinghouses transitioning price alignment and discounting from (i) the daily effective federal funds rate to SOFR and (ii) EONIA to €STR, certain clearinghouses have announced an intention that, to the extent a swap transaction is directly cleared with that clearinghouse at the time, cash payments will be made or additional basis swaps will be entered into to neutralise the value transfer that would otherwise occur as a result of the change to the discount rate used by such clearinghouse.²⁰

The provision of compensation for transactions which are already cleared does not resolve the concern for uncleared swaptions which have an exercise date falling after the clearinghouse’s transition date. Again, at least one clearinghouse has announced an intention to facilitate a compensation mechanism for parties to uncleared swaptions.²¹

²⁰ See links in footnotes 10 and 11 above.

²¹ See the announcements by (i) the CME Group at <https://www.cmegroup.com/education/articles-and-reports/sofr-price-alignment-and-discounting-proposal.html>

How any such compensation is (i) calculated, (ii) agreed to by the parties to any affected transaction and (iii) paid or delivered, will be a question for each clearinghouse to discuss with its members.

If a compensation mechanism for uncleared physically settled swaptions is established by a clearing house and set out in the rules of that clearinghouse, this would only apply to swaptions where the underlying swap is subsequently cleared through that clearinghouse. This mechanism could be used as a guide for any eventual compensation payment in respect of the cash settled swaptions considered in paragraph 4.1.1(i) above, however any such compensation payment would need to be agreed bilaterally between the parties to the swaption and the mechanism established by the clearinghouse would not bind either party.

ISDA is contemplating the following possible solution in respect of new transactions.

4.2.1 Update to the ISDA Collateral Cash Price Matrix:

ISDA could update and bifurcate the ISDA Collateral Cash Price Matrix to provide for:

- (i) the discount rate that would apply to all swaptions having an Expiration Date prior to the relevant date proposed by the clearinghouse for transition to discounting using the RFR (the “**CCP Transition Date**”)²². For EUR transactions this would be EONIA and for USD transactions this would be FedFunds; and
- (ii) the discount rate that would apply to all swaptions having an Expiration Date on or after the CCP Transition Date. For EUR transactions this would be €STR and for USD transactions this would be SOFR.

As a result of this bifurcation, new swaptions entered into after the date of publication of the updated ISDA Collateral Cash Price Matrix with an Expiration Date after the CCP Transition Date would use the relevant clearinghouse discount rate for discounting. Any swaptions with an Expiration Date on or prior to the CCP Transition Date would continue to use EONIA or FedFunds for discounting.

This would address those transactions described in paragraphs 4.1.1(i) and 4.1.2(iii)(b)(I) above that are entered into after the publication of the updated ISDA Collateral Cash Price Matrix.

4.2.2 Supplement to provide for an upfront discount rate

ISDA could publish a supplement to the 2006 Definitions providing for parties to specify an “Agreed Discount Rate” upfront. If parties specify a Mutually Agreed Clearinghouse and an Agreed Discount Rate, and as at the exercise date of the swaption the discount rate of the Mutually Agreed Clearinghouse differs from the Agreed Discount Rate, the parties would either (i) agree upon the compensation amount payable to reflect the difference in discount rate, or (ii) cash settle the swaption in accordance with the Collateralized Cash Price Cash Settlement Method using the agreed discount rate to calculate the Cash Settlement Amount.

²² CME and LCH have announced a transition date of 16 October 2020 for USD transactions for the change from the daily effective federal funds rate to SOFR discounting, with SOFR applying for discounting/PAI from the business day following 16 October 2020. LCH has also announced a transition date of 22 June 2020 for EUR denominated transactions for the change from EONIA to €STR discounting

This would address those transactions described in paragraph 4.1.2(iii) (i.e. swaptions that apply Cleared Physical Settlement and specify a Mutually Agreed Clearinghouse in the Confirmation).

5 Consequences of novation

If an uncleared swaption is novated, the new transaction would typically have identical terms to the old transaction, which would include applying the same version of the 2006 Definitions. However, the outcome will depend on the novation agreement entered into between the transferee and the remaining party and what this says as to the incorporation of the 2006 Definitions and its supplements with respect to the new transaction. For example: (i) did the transferee and the remaining party sign a new confirmation that specifically incorporates the 2006 Definitions as at the novation date, (ii) did they use the old confirmation which specifically incorporates the 2006 Definitions as at the trade date of the original transaction or (iii) did they sign a document that is silent on the incorporation of the 2006 Definitions?

Assuming the parties provided in their novation agreement that the new transaction is to have identical terms as the old transaction (as per the 2002 ISDA Novation Agreement) and they do not override this by documenting a new confirmation that incorporates the 2006 Definitions as at the novation date, then the new transaction should incorporate the same version of the 2006 Definitions as the old transaction.

The conclusion will have to be assessed on a case by case basis, having regard to the terms of each relevant novation agreement.