May 24th, 2019

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Executive Secretary
Attention: Comments/RIN 3064–AE80
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Legislative and Regulatory Activities Division
Office of the Comptroller of the Currency
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Re: Standardized Approach for Counterparty Credit Risk ("SA-CCR") - Addendum
Board: Docket No. R-1629
FDIC: RIN 3064-AE80,
OCC: Docket ID OCC-2018-0030

Dear Sir/Madam,

We appreciate the opportunity to provide further clarifications to our letter submitted to the Agencies on March 18th, 2019 (**"March Letter"**)[1] in relation to the above-referenced proposal (the **"Proposed Rulemaking"**).[2] Specifically, below we provide additional information and clarifications on our comments on the following aspects of the Proposed Rulemaking:

- Supervisory Factors (Commodities and Equities)
- Improving Risk-Sensitivity in SA-CCR Calculations Involving Commercial End Users ("**CEUs**")
- Netting Across a Single Qualifying Master Netting Agreement ("**QMNA**")
- Determination of the Adjusted Derivative Contract Amount

Supervisory Factors

Commodities:

[1] Letter from ISDA, ABA, BPI, SIFMA, and FIA to the Agencies (March 18, 2019), available at http://assets.isda.org/media/f65b78a9/ab3a9b4d-pdf/

[2] Standardized Approach for Calculating the Exposure Amount of Derivatives Contracts; Notice of Proposed Rulemaking, 83 Fed. Reg. 64,660 (Dec. 17, 2018)

Treatment of Commodity Indices (This section provides additional information with respect to the answer to question 12 in the March Letter):

The treatment of commodity indices under the Proposed Rulemaking is unclear. Often, commodity indices such as the Bloomberg Commodity Index ("**BCOM**") span over multiple commodity classes (e.g., energy, metal and agriculture) and therefore do not fit into the hedging set definition under Proposed 132(c)(2)(iii)(E). To address this, the Associations believe that SA-CCR should provide a different treatment for commodity indices similar to the treatment for credit and equity indices. Commodity indices should be assigned lower supervisory factors because, historically, such indices have experienced much lower volatilities than single commodities, as illustrated in the March Letter. As shown in the graph on page 41 of the March Letter, a well-diversified index, BCOM, shows volatility that is 50% lower than for a single commodity, solely as a result of the index's diversification.

The Associations have done further analysis to provide additional clarifications on the following:

- Calibration of a supervisory factor for a well-diversified commodity index;
- Minimum requirements to qualify as a well-diversified commodity index; and
- Incorporation of a well-diversified commodity index category into SA-CCR and treatment of indices that do not qualify for this treatment

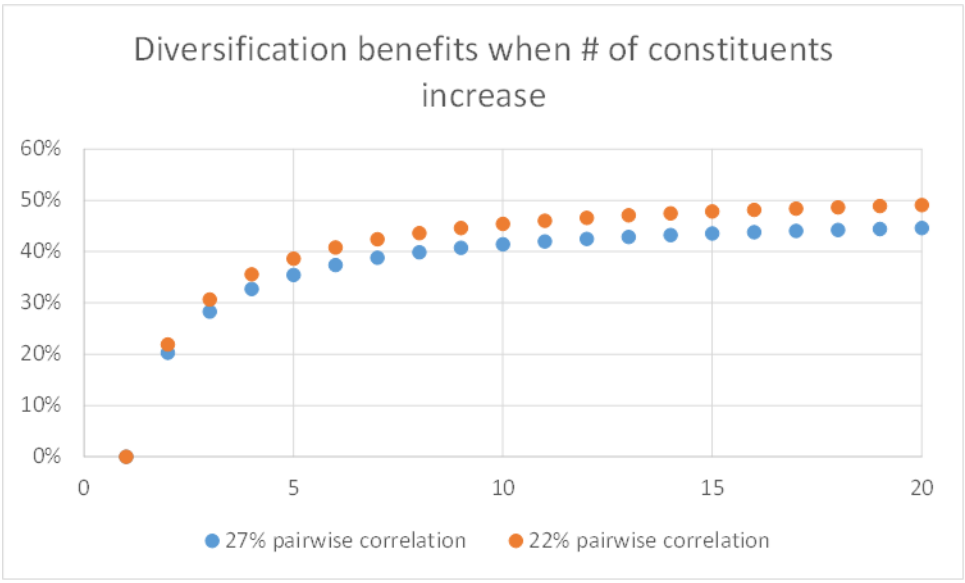
Based on a wide range of the 22 actively traded commodities listed in the tables in **Appendix 1**, the industry has conducted a correlation analysis from 2005 through 2019 and splits this timeframe into three (3) roughly similar time periods (i.e., 2005 – 2009, 2010 – 2013 and 2014 – 2019) (*see* **Appendix 1** for graphs). In order to determine the appropriate assumptions across the different correlations, we calculated the average pairwise correlation. The following table displays the average pairwise correlation across the different time periods:

	Full time horizon	2005-2009	2010-2013	2014-2019
Average pairwise correlation	22%	27%	23%	13%

The average pairwise correlation ranges from 13% to 27% across different time periods. Given this analysis, we believe that the pairwise correlation assumption used to estimate the diversification benefits of an index should not exceed 27%, the highest average value observed during the different time periods.

The following graph shows diversification benefits under the assumption of 27% and 22%[3] pairwise correlations when increasing the number of constituents in an equally-weighted index.

[3] 22% is the average correlation across the entire time horizon as per the above table



The 22% correlation (i.e., the orange dots) reflects the actual observed average correlations over the entire time period, and the 50% diversification benefit is consistent with what was previously shown in the diversification graph on page 41 of the March Letter. Based on these findings, the Associations believe that the supervisory factor for a well-diversified index should be at least 40% lower than the corresponding supervisory factor for single commodities. As shown in the above graph, the 40% diversification benefit is achieved with at least eight different commodities assuming 27% pairwise correlation (i.e., the blue dots) and at least six different commodities assuming 22% pairwise correlation. As a result, the Associations believe it is appropriate to set the minimum number of constituents in a diversified index as ten in order to ensure that the 40% diversification benefit is realized.

These ten constituents have to be distinct commodities that are not just different with respect to location, e.g., Brent and WTI crude oil would not be considered different constituents for this purpose consistent with the preamble to the Proposed Rulemaking[4]. In addition, to ensure that there is no significant concentration, we believe it is appropriate to limit the top two commodities to no more than 40%[5] contribution to the index. However, we do not believe it is necessary to set maximum allocation by broad commodity classes (e.g., energy, agriculture and metals) given that even within a class correlations are not necessarily higher. This is particularly the case for the agriculture class where individual commodities are less, or not at all, correlated (*see* **Appendix 1** for the analysis). Similarly within the energy class, the correlation between natural gas and crude oil is quite low.

Generally, commodity indices do not include commodities linked directly to electricity prices. As the Associations outlined in the March Letter, the SA-CCR calibration in the US should not exceed the

[4] See page 64671 of the proposed SA-CCR rules under 12 CFR 217 available at https://www.govinfo.gov/content/pkg/FR-2018-12-17/pdf/2018-24924.pdf

[5] Even with 40% of the index allocated to two commodities and the rest of the eight constituents equally weighted, the diversification benefit is still around 39% (assuming a 27% pairwise correlation). With a correlation assumption of 22%, on the other hand, the benefit is still 43% and thus exceeds the 40% benefit assumption

supervisory factors set by BCBS, where the applicable supervisory factor for any of individual commodities of the indices would not exceed 18%. Therefore, the Associations suggest an index supervisory factor that does not exceed 11% (18% x (1- 0.4))[6].

Furthermore, the Associations believe it is appropriate to create a separate hedging set for indices that would meet the criteria as set above. The correlation parameter for indices should be set at 80% consistent with the parameters used for credit and equity indices in SA-CCR.

For indices that do not meet the above criteria, banks should still have the option to decompose the index as per appendix 2.3 of the March Letter. Alternatively, a bank should be able to include the index in the existing commodity hedging sets (e.g., energy, agriculture, and metal) that most appropriately reflects the primary risk driver.

In summary, the Associations' proposal with respect to the supervisory factors for commodity indices includes:[7]

- Creation of a new supervisory factor for well-diversified commodity indices that is not higher than 11%. Such well-diversified indices should be included in a separate hedging set with a SA-CCR correlation parameter of 80%
- An index would qualify as well-diversified if:
    - It has at least ten distinct constituents; and
    - Top two constituents do not make up more than 40% of the index
- Indices that do not qualify as well-diversified should either be decomposed or be assigned to the single commodity class hedging set that is best representative of the risk

Equities:

Differentiation based on quality and risk:

As per part B of the March Letter, the Associations recommended the introduction of more granular supervisory factors for equities. Based on a volatility analysis across a wide range of equities, the Associations concluded that investment grade ("**IG**") versus non-investment grade ("**NIG**") and advanced markets versus emerging markets classifications are appropriate factors to differentiate between equities based on their riskiness. In support of this recommendation, the Associations performed additional analysis to show what portion of equity exposures are against entities that are rated IG versus NIG and similarly

[6] The Associations continue to believe that the supervisory factors for commodities should be recalibrated as outlined in the response to question 12 of the March Letter. To the extent such recalibration can be realized, it is important that the supervisory factor for the index is set 40% lower relative to this / these supervisory factors to maintain relative consistency between supervisory factors for individual commodities and the index

[7] We note that it is common to be long an index and short another index as part of the same derivative contract. The difference between these two indices could be slightly different weights to the constituents or just different delivery months with the same constituent weights. We would consider these derivatives contracts where the bank goes long an index and short another index a "basis derivative contract" as per section 2 of the proposed rule. Accordingly, banks would multiply the relevant supervisory factor as proposed in this letter by 50% consistent with other basis derivative contracts

against companies that are based in advanced markets versus emerging markets[8]. The following table provides this breakdown[9, 10]:

IG	NIG	Unrated	Advanced Market	Emerging Market
61%	29%	10%	95%	5%

As per the analysis shown in the March Letter, during periods of varying market stress, NIG equities are at least 30% more volatile than IG equities. Similarly, market data show that volatilities for equities based on issuers in emerging markets are at least 15% higher than volatilities for those based on issuers in advanced markets. Given that the majority of equity exposures as per above are either against IG **(61%)**[11] or advanced market companies **(95%)**[12], a lower supervisory factor for IG and advanced market companies would have a meaningful impact and would more appropriately align the SA-CCR exposure calculation with actual risk.

Improving Risk-Sensitivity in SA-CCR Calculations Involving Commercial End Users

The Associations have raised concerns regarding the potential impact of the Proposed Rulemaking on CEUs. The supplemental QIS conducted with participation from the Associations' member firms, demonstrates both the impact of SA-CCR on CEUs as well as the potential benefits of risk-sensitive, tailored approaches within SA-CCR for CEU transactions.

The results of the supplemental QIS show that the Associations' CEU-related recommendations would result in more moderate RWA outcomes that better correspond to banking organizations' underlying credit risk to CEUs. For example, applying an alpha factor of 1.0 to CEU transactions would result in a **5%**[13] decrease in exposure at default (**"EAD"**) and an **8%**[14] decrease in RWA (for both CEUs and non-CEUs) relative to the SA-CCR proposal, demonstrating that a tailored adjustment to alpha for CEUs would not materially change overall capital requirements for firms' derivatives portfolios, but would facilitate CEU access to derivatives markets.

Similarly, the modest expansion of financial collateral standards to include the undrawn value of LOCs for CEUs would result, if the alpha factor remained 1.4 in CEU transactions, in a **1%**[15] decrease in EAD and RWA for CEUs as compared to SA-CCR without including the undrawn value of LOCs.

The Associations encourage the Agencies to modify one or several of the SA-CCR calculation elements to more accurately reflect banking organizations' counterparty credit risk in derivative transactions with

[8] Classification follows section 21.75 of the FRTB definition, available at https://www.bis.org/bcbs/publ/d457.pdf
[9] Breakdown is based on delta adjusted gross notionals
[10] *See* Appendix 7, Quantitative Impact Study Results, Index Comp_01, Index Comp_02, Index Comp_03, Index Comp_04 & Index Comp_05
[11] *See* Appendix 7, Quantitative Impact Study Results, Index Comp_01
[12] *See* Appendix 7, Quantitative Impact Study Results, Index Comp_05
[13] S*ee* Appendix 7, Quantitative Impact Study Results, Index Comp_08
[14] S*ee* Appendix 7, Quantitative Impact Study Results, Index Comp_12
[15] S*ee* Appendix 7, Quantitative Impact Study Results, Index Comp_9a & Comp_13a

CEUs. We would welcome an opportunity to engage with the Agencies to discuss the QIS results in greater details.

Qualifying letters of credit ("LOCs")

The Associations prepared illustrative regulatory text to provide further recommendations on how LOCs could be incorporated into the SA-CCR framework in **Appendix 2**. The illustrative text incorporates longstanding elements of the regulatory capital rules and imposes additional features to ensure conservatism.

If adopted as drafted, the illustrative regulatory text would impose five key requirements:

1. A requirement that a LOC meet the existing "eligible guarantee" definition in the Agencies' regulatory capital rules,[16] which grounds the illustrative regulatory text in existing terms and concepts applied more widely in the capital regime.

2. A requirement that a LOC be issued by an "eligible guarantor," as defined in the Agencies' regulatory capital rules,[17] aligning with guarantee recognition principles in the Agencies' existing Standardized Approach.[18]

3. A requirement that the reference exposure of the LOC be a derivative contract, ensuring a direct, contractual linkage between the LOC and the banking organization's exposure subject to SA-CCR.

4. A requirement that the obligated party on the LOC not be a "financial end user," as defined in the Agencies' regulatory margin rules,[19] thereby limiting application of this collateral recognition benefit to CEU transactions. We note that this condition also offers a partial solution to the tension created by CEU exemptions in the Agencies' margin rules with the greater emphasis on margining in SA-CCR.

5. A requirement that the banking organization conduct sufficient legal diligence to conclude that the LOC will be enforceable in the event of the bankruptcy or insolvency of the CEU obligor. This condition would provide the Agencies with assurance that collateral recognition is limited to resources that would be available to the banking organization in the event of counterparty default.

Courts have generally held that a LOC represents an agreement only between the issuing bank and the beneficiary, and is thus not subject to the automatic stay in a bankruptcy proceeding of the related counterparty.[20] An issuing bank's obligation to make a payment under the LOC is independent of any claims

[16] See 12 C.F.R. _.2 (definition of "eligible guarantee")
[17] See 12 C.F.R. _.2 (definition of "eligible guarantor")
[18] As a practical matter, the Associations expect that any qualifying LOC will be provided by a US or foreign bank, so the Agencies could further limit the scope of this element if the "eligible guarantor" standard is deemed to be over-inclusive
[19] *See* 12 C.F.R. § 45.2 (definition of Financial End-User)
[20] *See, e.g., Matter of P.A. Bergner & Co.*, 140 F.3d 1111 (7th Cir. 1998)

arising from the underlying transaction between the beneficiary to the LOC and the related counterparty.[21] Further, a LOC requires an issuing bank to fund any payment to the beneficiary out of the bank's own assets, not the assets of the counterparty obligor.[22] Accordingly, the relationship between an issuing bank and beneficiary under a LOC is contractually independent from the relationship between the beneficiary and the counterparty under the underlying transaction; the LOC and the proceeds thereof are thus generally considered separate and apart from the debtor's estate and are thus not subject to an automatic stay.[23] As a result, courts have generally concluded that a beneficiary may draw on a LOC after the default/bankruptcy of a counterparty; in fact, several courts have specifically recognized that delaying payment on a LOC due to the insolvency of the counterparty would defeat the purpose of the LOC, which is to substitute the credit-worthiness of the issuing bank for that of the counterparty.[24] Accordingly, a draw on the LOC can happen in a timely fashion and would not increase in any way the standard close-out period assumed for derivative transactions.

The illustrative regulatory text would incorporate this standard through recognition of a new defined term, "qualifying LOC." This defined term would then constitute a narrowly tailored exception to the definition of "financial collateral" that is only applicable in the SA-CCR framework. As a result, the illustrative regulatory text would recognize the undrawn value of a qualifying LOC as "collateral" in the SA-CCR "exposure minus collateral" calculation.

While we have provided draft illustrative regulatory text to show how letters of credit could be incorporated into the SA-CCR framework, we would welcome an opportunity to discuss this issue further and address any concerns the Agencies may have which may lead to a modified approach in a final rulemaking. *See* **Appendix 2** for the illustrative regulatory text related to letters of credit.

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[21] *See, e.g., In re Air Conditioning, Inc. of Stuart*, 845 F.2d 293, 296 (11th Cir. 1988) ("…a LOC is an undertaking between the issuing bank and the beneficiary, and is independent of the relationship between the bank and the account party.")

[22] *See, e.g., In re Clothes, Inc.*, 35 B.R. 487, 489 (Bkrtcy.N.D.1983) ("Cases decided since 1979 have been unanimous in the position that letters of credit represent an irrevocable obligation by the issuing bank to the beneficiary and that this obligation is an independent contractual obligation to pay the beneficiary from the bank's own assets."); *In the Matter of Compton Corp.*, 831 F.2d 586, 589 (5th Cir. 1987) ("It is well established that a LOC and the proceeds therefrom are not property of the debtor's estate. … When the issuer honors a proper draft under a LOC, it does so from its own assets and not from the assets of its customer who caused the LOC to be issued.")

[23] *See, e.g., In re Guy C. Long, Inc.*, 74 B.R. 939, 944 (Bankr.E.D. Pa. 1987) ("The obligation existing between the bank and the beneficiary is independent of the other agreements which may exist. … It is the independence of that agreement, by which the bank commits its own funds and then must look to its customer for reimbursement, which has caused virtually all courts, both under the present Bankruptcy Code as well as the former Bankruptcy Act, to conclude that payment of a LOC does not violate the automatic stay."); *In the Matter of Compton* at 589 ("a bankruptcy trustee is not entitled to enjoin a post-petition payment of funds under a LOC from the issuer to the beneficiary, because such a payment is not a transfer of debtor's property."); *In re Page*, 18 B.R. 713, 715 (D.D.C. 1982) ("…cashing the LOC will not divest the [debtor's] estate of property since neither the LOC nor its proceeds are property of the estate under the Bankruptcy Code.")

[24] *See, e.g., In re Page*, at 716 ("If payment on a LOC could be routinely delayed by the filing of a Chapter 11 petition the intended substitution of a bank for its less credit-worthy customer would be defeated.")

Qualifying derivative contract liens

The Associations have also prepared illustrative regulatory text to provide further recommendations on how liens could be incorporated into the SA-CCR framework in **Appendix 3**. As is the case with our qualifying LOC recommendation, the lien illustrative regulatory text incorporates longstanding elements of the regulatory capital rules and imposes additional features to ensure conservatism.

If adopted as drafted, the illustrative regulatory text would impose five key requirements:

1. A requirement that the banking organization must have a perfected, first-priority lien (or the legal equivalent thereof outside of the United States), ensuring that the banking organization has enforceable legal rights against the collateral in the event of counterparty default. This condition also implicitly incorporates the relevant features of the "eligible guarantee" standard[25] because, for example, a perfected security interest would require a written agreement.

2. A requirement that the collateral covered by the lien secure a derivative contract with a CEU, ensuring a direct, contractual linkage between the collateral and the exposure subject to SA-CCR, and limiting potential collateral recognition benefits to CEU transactions. As noted above, this condition also offers a partial solution to the tension created by CEU exemptions in the Agencies' margin rules with the greater emphasis on margining in SA-CCR.

3. A requirement that the banking organization conduct sufficient legal diligence to conclude that the lien will be enforceable in the event of the bankruptcy or insolvency of the CEU. This condition would provide the Agencies with assurance that collateral recognition is limited to resources that would be available to the banking organization in the event of counterparty default.

4. A requirement that the value of the collateral should be positively correlated with the banking organization's credit risk exposure to the counterparty. This condition would incorporate a "right-way risk" element into the lien standard. For example, it would allow a banking organization from recognizing a qualifying derivative contract lien where the banking organization has long exposure on a natural gas swap with a natural gas producer that is collateralized by natural gas reserves of the producer, because the banking organization's credit risk exposure to the producer in this example is positively correlated with the collateral value. Conversely, a short exposure on a natural

[25] See 12 C.F.R. _.2 (definition of "eligible guarantee"). The "eligible guarantee" definition does not appear applicable in all respects to lien-secured transactions. For example, a lien does not give the beneficiary a direct claim against the protection provider ("eligible guarantee" definition element 4), but instead a direct claim against assets covered by the lien. Similarly, a qualifying derivative contract lien would require the beneficiary to take legal action to enforce its claims (element 7). However, the illustrative regulatory text for qualifying derivative contract liens would incorporate, in substance, the applicable features of the "eligible guarantee" definition: a written agreement (element 1) that is unconditional (element 2) and covers a portion of payments owed by the obligated party (element 3) without being unilaterally cancelable (element 5). Also, a qualifying derivative contract lien would be legally enforceable against relevant assets (element 6), would not increase the cost of the beneficiary's credit protection (element 8), and would not be provided by an affiliate, since lien recognition is limited to CEUs (element 9)

gas swap collateralized by natural gas reserves would not meet this condition because in the event the swap is in a receivable position from the banking organization's perspective, and the producer is unable to meet its obligations under the swap, the value of the collateral would have simultaneously decreased.

5. A requirement that, if the banking organization ultimately takes possession in the future of the collateral secured by the lien, it does so pursuant to the terms and conditions of debt previously contracted ("**DPC**") or as a merchant banking investment. This condition incorporates long-standing principles governing banking organizations' receipt or involvement in assets or operations that are outside of their normal businesses or activities, including holding period restrictions and, in the case of merchant banking investments, independent third-party operator requirements. We believe this condition would impose conservative and appropriate limitations on banking organizations' potential involvement in, or exposure to, lien-covered assets and provide a framework for answering the question of how banking organizations would handle, in practice, the enforcement of their legal rights under liens.

The illustrative regulatory text incorporates these requirements through establishing new defined term, "qualifying derivative contract lien" which would constitute a narrowly tailored concept applicable only in the SA-CCR framework.

While we have provided draft illustrative regulatory text to show how liens could be incorporated into the SA-CCR framework, we would welcome an opportunity to discuss this issue further and address any concerns the Agencies may have which may lead to a modified approach in a final rulemaking.

The draft illustrative regulatory included in **Appendix 3** describes how a lien recognition standard might work in practice but does not specifically address the mechanics for how lien recognition would operate in the SA-CCR calculation. In practice, a banking organization's legal rights to enforce first-priority security interests in liens may be subject to bankruptcy stays, which complicates recognition of lien values in arrangements subject to a qualifying master netting agreement. Given the substantial differences in credit risk profiles between lien-secured right-way risk transactions and otherwise unsecured / unmargined wrong-way risk transactions, however, SA-CCR might incorporate qualifying derivative contract liens through tailored adjustments to the alpha factor or collateral values.

Netting Across a Single QMNA

Treatment of Settled-to-Market Transactions

The Associations would like to clarify their position with respect to the netting of transactions across STM and CTM trades subject to the same QMNA, as highlighted in appendix 2.2 of the March Letter. Below we explain how such treatment, which can be achieved through appropriately recognizing STM trades as margined in SA-CCR, is consistent with the treatment of STM trades under the CEM and the supplementary leverage ratio ("**SLR**").

For risk-based and leverage-based capital purposes, variation margin exchanged through STM transactions is treated as legal settlement of the exposure; while variation margin exchanged through CTM transactions is treated as collateralization of the exposure. Because the variation margin payments exchanged through

STM transactions are settlement of the outstanding exposure and reset the fair value of the transaction to zero, the remaining maturity of STM contracts is equal to the time until the next exchange of variation margin. This treatment was affirmed by the Agencies in SR 17-7 / OCC Bulletin 2017-27 / FIL 33-2017.[26]

Moreover, the Agencies have already recognized that, for risk-based and leverage-based capital purposes, collateral and settlement payments are both types of variation margin that reduce exposure amounts in an economically equivalent manner, even though collateral payments secure a fair value exposure and settlement payments extinguish a fair value exposure. Specifically, in SR 17-7 / OCC Bulletin 2017-27 / FIL 33-2017, in connection with describing how the exposure amount for certain cleared derivatives should be calculated under CEM, the Agencies noted that, under a CTM transaction, "*variation margin* transferred to cover the exposure that arises from marking cleared derivative contract netting sets to fair value is considered collateral pledged by one party to the other, with title to the collateral remaining with the posting party."[27] For STM transactions, the Agencies observed that, "*variation margin* for certain cleared derivative contract netting sets is considered a settlement payment for the exposure that arises from marking the cleared derivative contract netting sets to fair value, with title to the payment transferring to the receiving party."[28] The Agencies further recognized that "for both types of contracts, the amount of variation margin is based on the change in fair value of the cleared derivative contract netting sets since the previous exchange of variation margin."[29] Thus, the Association's proposal to treat STM trades as margined in SA-CCR is consistent with how STM trades are treated currently for CEM and SLR and acknowledgements the US Agencies have already made with regard to STM trades being subject to variation margin payments.[30]

In the Proposed Rulemaking, the Agencies correctly recognize that daily settlement payments are not exchanges of collateral and the Associations do not suggest otherwise. Because settlement payments extinguish, rather than secure, the mark-to-market exposure of a derivative transaction, settlement payments would be directly incorporated into the variable V in the calculation of replacement cost ("**RC**") and the potential future exposure ("**PFE**") multiplier, and the variable C would only include any Net Independent Collateral Amount. However, for purposes of determining the maturity factor and establishing sub-netting sets in the calculation of PFE, the Agencies currently treat STM transactions as equivalent to unmargined transactions in the Proposed Rulemaking. While daily payments to settle the mark-to-market exposure are not payments of collateral, settlement payments are nevertheless variation margin payments. STM transactions should therefore be viewed as margined transactions rather than as unmargined transactions for these purposes. Such treatment would be consistent with the Agencies' recently expressed views in SR 17-7 / OCC Bulletin 2017-27 / FIL 33-2017 that cleared CTM and STM transactions can both be characterized as margined.

In addition, the Agencies' proposed treatment of STM transactions would artificially increase regulatory capital exposure amounts for netting sets that include both STM and CTM transactions by prohibiting netting across such transactions, and therefore fundamentally separating risk-management and regulatory capital exposure amounts for netting sets that include cleared CTM and STM transactions. The two

[26] https://www.federalreserve.gov/supervisionreg/srletters/sr1707a1.pdf
[27] https://www.federalreserve.gov/supervisionreg/srletters/sr1707a1.pdf
[28] https://www.federalreserve.gov/supervisionreg/srletters/sr1707a1.pdf
[29] https://www.federalreserve.gov/supervisionreg/srletters/sr1707a1.pdf
[30] We note that while the variation margin payments are settlement payments rather than pledges of collateral, the STM contract is in fact margined by virtue of being subject to variation margin payments

scenarios below demonstrate the unnecessary gross-up of exposures that results from inaccurately treating STM trades as unmargined.

Scenario 1: Current SA-CCR Proposal

Position	STM/CTM	Delta adjusted notional amount	Maturity / MPOR	Maturity factor	Supervisory factor	Adjusted derivative contract amount	Aggregate AddOn
Option position	CTM	100	5	0.21	0.20	4.24	4.24
Futures position	STM	-90	10	0.20	0.20	-3.60	3.60
AddOn Total							**7.84**

Scenario 2: Associations Proposal

Position	STM/CTM	Delta adjusted notional amount	Maturity / MPOR	Maturity factor	Supervisory factor	Adjusted derivative contract amount	Aggregate AddOn
Option position	CTM	100	5	0.21	0.20	4.24	
Futures position	STM	-90	5	0.21	0.20	-3.82	
AddOn Total							**0.42**

Accordingly, for purposes of determining the maturity factor and the establishment of sub-netting sets in the calculation of PFE, the Agencies should amend the Proposed Rulemaking to state that STM transactions are subject to a variation margin agreement (see **Appendix 4** for draft illustrative regulatory text). This would reflect the fact that both STM and CTM trades in the same netting set are ultimately subject to the same close-out horizon.

Determination of the Adjusted Derivative Contract Amount

To Be Announced ("TBAs"):

As discussed in part H of the March Letter, the Associations propose to replace the simple notional amount of a TBA with a time-weighted notional amount that reflects the amortization schedule as outlined in **Appendix 5** of this letter. In support of this recommendation, the Associations have performed an additional impact assessment. The following table shows the increase in EAD and RWA caused by the replacement of CEM with SA-CCR for TBA portfolios using a simple notional versus the industry recommendation of a time-weighted notional[31, 32]:

[31] For the purpose of this impact, time-weighted notional is only used for the SA-CCR calculation. The PFE calculation under CEM is still based on the simple notional

[32] *See* Appendix 7, Quantitative Impact Study Results, Index Comp_26, Index Comp_27, Index Comp_28 & Index Comp_29

	EAD	RWA
Simple Notional	514%	646%
Time-weighted Notional	314%	389%

Using the time-weighted notional would still result in a significant increase for TBAs of over **300%** for EAD and RWA, but would constitute a considerable reduction in impact compared to using a simple notional. While a time-weighted notional combined with the supervisory duration is still a conservative proxy for the actual duration of TBAs, it would more closely align SA-CCR with the actual exposure of TBAs compared to using a simple notional.

Index Decomposition

In the March Letter, the Associations recommended that banks should have the option to decompose equity, credit and commodity indices in order to more appropriately represent the risk of long and short positions in related indices, such as a derivative on the S&P 500 and one on the SPDR S&P ETF. In support of this recommendation, the Associations have conducted an impact assessment[33]. With respect to equities, decomposition would reduce EAD by **3.9%**[34] and RWA by **4.4%**[35] under SA-CCR. With respect to credit, decomposition would reduce EAD by **5.3%**[36] and RWA by **8%**[37]. We would note that the decomposition impact would be different if the Agencies were to allow more granular supervisory factors for single name equity (see response to question 12 in the March Letter) and credit derivatives (see response to question 13 in the March Letter). In such a case, decomposition would be even more important in order to properly reflect the potentially different supervisory factors associated with the constituents. In addition, we would emphasize that for certain businesses and strategies, decomposition is very critical (e.g., the listed option market where long and short positions in related indices are common). Unfortunately, not a sufficient number of banks were able to decompose commodity indices in this short period of time. However, we continue believe that decomposition for commodity indices is important in order to better reflect the associated diversification benefits (see the commodities section of this letter as well as appendix 2.3 of the March Letter.

Besides the impact analysis outlined above, we would like to address some concerns about the appropriateness of decomposition and whether there is empirical data supporting such treatment. While there are differences in values between a derivative on the index and derivatives on its constituents, a high correlation between the two can be observed. For example, the rolling one year correlation of 10 day returns of the S&P 500 index which is the exact replication of the underlying constituents and the future on the index has not dropped to less than 99% over the past 10 years. Further, within the commodities asset class, there is 100% correlation between single commodity excess return indices and comparable OTC swaps referencing the same future point, and high correlation with prevailing nearby futures (see **Appendix 6**).

[33] For the purpose of this impact, banks have treated decomposed constituents as single names derivatives with the corresponding correlation and supervisory factors as prescribed in the Proposed Rulemaking
[34] *See* Appendix 7, Quantitative Impact Study Results, Index Comp_15a
[35] *See* Appendix 7, Quantitative Impact Study Results, Index Comp_17a
[36] *See* Appendix 7, Quantitative Impact Study Results, Index Comp_19a
[37] *See* Appendix 7, Quantitative Impact Study Results, Index Comp_21a

Decomposing indices would therefore enhance consistency, efficiency, and coherence with the broader regulatory framework.

In addition to the observations above, the Associations want to highlight that decomposing indices into their underlying constituents across asset classes is a technique that is consistent with current and international capital regulations and thus would not be unique to SA-CCR. As per the preamble to the US Basel 2.5 market risk rule, the Agencies explicitly allowed decomposition of CDS indices for the purpose of calculating standardized specific risk charges under section 210:

> A commenter indicated that the agencies should permit banks to use a look-through approach for untranched indices that would allow netting at the individual issuer level of index positions against individual issuer credit derivative exposures. **The agencies believe such treatment is appropriate in this case as netting of exposures between the individual issuer level and the index is possible, as changes in the market value of certain components of an index can be matched with individual issuer exposures.** (Emphasis added).[38]

As the Agencies correctly note, decomposition should be allowed because the value changes of the index can be matched to that of the change in market values of the underlying constituents. Similarly, FRTB also allows banks to decompose indices as the most appropriate way to capitalize risks in a standardized framework.[39] There are also other applicable rules where decomposition is allowed or required, including non-significant investments in financial institutions[40] and equity exposure to an investment fund in the banking book[41].

While differences exist across the various frameworks, the common theme is that decomposition is an established tool to increase risk sensitivity in a standardized framework. Accordingly, we recommend that the Agencies permit decomposition under SA-CCR consistent with other capital rules.

We appreciate the opportunity to submit our comments in response to the Proposed Rulemaking. If you have any questions please reach out to Lisa Galletta (lgalletta@isda.org) and Panayiotis Dionysopoulos (pdionysopoulos@isda.org).

[38] See page 53074 of the preamble to the Basel 2.5 market risk rules under 12 CFR 208 available at https://www.govinfo.gov/content/pkg/FR-2012-08-30/pdf/2012-16759.pdf

[39] *See* Basel Committee on Banking Supervision, Minimum Capital Requirements for Market Risk, ¶ 21.31 – 21.34 (re. Feb. 2019), available at https://www.bis.org/bcbs/publ/d457.pdf

[40] See page 62179; Section 22(h)(2) under 12 CFR 217 available at https://www.govinfo.gov/content/pkg/FR-2013-10-11/pdf/2013-21653.pdf

[41] See pages 62198 / 62243; Sections 53 / 154 under 12 CFR 217 available at https://www.govinfo.gov/content/pkg/FR-2013-10-11/pdf/2013-21653.pdf

Appendix 1: Commodities Indices

The following graphs show correlations based on daily returns across different liquid commodities. Green shows pairwise correlations of less than 27% while red marks pairwise correlations of equal or greater than 27%.

Full time horizon: 2005 – 2019:

	Crude oil (WTI)	Heating oil	Natural Gas	Gaso-line	Gasoil	Wheat	Corn	Cotton	Soy-bean	Soy-bean Meal	Soy-bean Oil	Coffee	Cocoa	Sugar	Live Cattle	Lean Hogs	Alumi-nium	Gold	Silver	Nickel	Zinc	Copper
Crude oil (WTI)	100%																					
Heating oil	80%	100%																				
Natural Gas	19%	21%	100%																			
Gasoline	70%	74%	16%	100%																		
Gasoil	56%	64%	11%	49%	100%																	
Wheat	21%	20%	8%	18%	12%	100%																
Corn	24%	22%	11%	21%	16%	63%	100%															
Cotton	21%	20%	5%	17%	16%	23%	24%	100%														
Soybean	30%	29%	11%	25%	20%	43%	58%	27%	100%													
Soybean Meal	17%	17%	7%	14%	12%	34%	49%	21%	84%	100%												
Soybean Oil	43%	42%	15%	37%	33%	39%	47%	29%	67%	38%	100%											
Coffee	22%	19%	8%	16%	16%	19%	18%	19%	22%	15%	25%	100%										
Cocoa	21%	18%	6%	15%	17%	11%	12%	15%	15%	10%	18%	20%	100%									
Sugar	22%	19%	7%	16%	15%	19%	21%	20%	21%	16%	22%	27%	15%	100%								
Live Cattle	12%	10%	3%	7%	8%	5%	7%	7%	8%	5%	12%	6%	4%	6%	100%							
Lean Hogs	5%	4%	2%	3%	6%	6%	4%	3%	7%	7%	2%	3%	5%	4%	11%	100%						
Aluminium	32%	30%	10%	25%	27%	15%	19%	21%	24%	16%	29%	19%	16%	18%	8%	9%	100%					
Gold	24%	23%	6%	18%	19%	15%	17%	13%	18%	12%	26%	17%	18%	14%	5%	-1%	27%	100%				
Silver	31%	30%	9%	24%	27%	19%	22%	18%	26%	18%	34%	23%	22%	19%	9%	2%	35%	81%	100%			
Nickel	28%	26%	6%	24%	24%	13%	15%	21%	21%	14%	27%	18%	16%	16%	6%	4%	43%	22%	29%	100%		
Zinc	26%	26%	7%	22%	26%	13%	14%	19%	22%	15%	28%	18%	15%	17%	6%	3%	51%	28%	34%	63%	100%	
Copper	41%	37%	9%	33%	33%	21%	24%	25%	31%	21%	39%	22%	20%	23%	13%	5%	58%	36%	47%	54%	60%	100%

First partial time horizon: 2005 – 2009:

	Crude oil (WTI)	Heating oil	Natural Gas	Gaso-line	Gasoil	Wheat	Corn	Cotton	Soy-bean	Soy-bean Meal	Soy-bean Oil	Coffee	Cocoa	Sugar	Live Cattle	Lean Hogs	Alumi-nium	Gold	Silver	Nickel	Zinc	Copper
Crude oil (WTI)	100%																					
Heating oil	79%	100%																				
Natural Gas	28%	34%	100%																			
Gasoline	73%	80%	26%	100%																		
Gasoil	50%	59%	18%	48%	100%																	
Wheat	32%	30%	10%	27%	19%	100%																
Corn	36%	33%	15%	31%	25%	62%	100%															
Cotton	29%	29%	12%	28%	20%	33%	34%	100%														
Soybean	44%	43%	19%	40%	29%	46%	63%	39%	100%													
Soybean Meal	28%	26%	14%	25%	17%	36%	51%	32%	86%	100%												
Soybean Oil	55%	55%	22%	52%	40%	47%	58%	39%	78%	51%	100%											
Coffee	30%	29%	11%	25%	23%	27%	28%	34%	33%	26%	35%	100%										
Cocoa	27%	23%	8%	20%	20%	18%	20%	21%	24%	16%	28%	28%	100%									
Sugar	30%	29%	17%	27%	22%	25%	27%	27%	29%	21%	31%	28%	24%	100%								
Live Cattle	18%	17%	3%	14%	16%	12%	14%	14%	14%	9%	18%	13%	10%	10%	100%							
Lean Hogs	6%	4%	2%	5%	8%	10%	7%	5%	5%	4%	6%	4%	9%	1%	17%	100%						
Aluminium	33%	34%	14%	30%	28%	18%	23%	24%	28%	20%	33%	25%	19%	23%	12%	7%	100%					
Gold	33%	32%	12%	27%	25%	21%	26%	19%	25%	16%	34%	20%	26%	21%	6%	3%	31%	100%				
Silver	35%	36%	16%	29%	31%	27%	32%	24%	34%	26%	41%	27%	31%	27%	14%	6%	36%	81%	100%			
Nickel	27%	26%	9%	27%	23%	15%	17%	23%	23%	16%	28%	24%	19%	19%	13%	1%	38%	23%	27%	100%		
Zinc	26%	28%	9%	24%	27%	16%	17%	22%	22%	16%	27%	23%	20%	20%	8%	1%	46%	30%	35%	66%	100%	
Copper	45%	43%	13%	41%	35%	28%	32%	30%	37%	27%	45%	29%	25%	29%	20%	3%	59%	41%	48%	51%	56%	100%

Second partial time horizon: 2010 – 2013:

	Crude oil (WTI)	Heating oil	Natural Gas	Gaso-line	Gasoil	Wheat	Corn	Cotton	Soy-bean	Soy-bean Meal	Soy-bean Oil	Coffee	Cocoa	Sugar	Live Cattle	Lean Hogs	Alumi-nium	Gold	Silver	Nickel	Zinc	Copper
Crude oil (WTI)	100%																					
Heating oil	82%	100%																				
Natural Gas	10%	8%	100%																			
Gasoline	68%	77%	3%	100%																		
Gasoil	61%	72%	3%	53%	100%																	
Wheat	21%	20%	15%	20%	11%	100%																
Corn	21%	18%	12%	17%	10%	66%	100%															
Cotton	21%	17%	-3%	12%	18%	18%	17%	100%														
Soybean	26%	27%	5%	20%	18%	47%	57%	18%	100%													
Soybean Meal	17%	17%	5%	12%	12%	39%	53%	12%	89%	100%												
Soybean Oil	38%	40%	4%	31%	32%	48%	44%	26%	69%	46%	100%											
Coffee	24%	21%	8%	17%	19%	20%	16%	15%	19%	14%	22%	100%										
Cocoa	24%	22%	7%	17%	24%	9%	10%	15%	15%	12%	14%	20%	100%									
Sugar	22%	18%	8%	9%	13%	21%	21%	19%	21%	16%	21%	27%	11%	100%								
Live Cattle	12%	9%	0%	10%	2%	10%	12%	5%	12%	7%	13%	9%	4%	12%	100%							
Lean Hogs	2%	3%	3%	1%	2%	5%	0%	2%	8%	7%	1%	2%	6%	7%	16%	100%						
Aluminium	46%	38%	7%	33%	41%	20%	20%	21%	29%	22%	35%	26%	25%	21%	11%	6%	100%					
Gold	32%	28%	4%	22%	26%	16%	14%	9%	19%	14%	26%	21%	14%	12%	9%	-5%	36%	100%				
Silver	42%	38%	6%	34%	35%	19%	19%	15%	24%	17%	34%	26%	19%	17%	10%	-3%	44%	82%	100%			
Nickel	41%	39%	3%	32%	40%	21%	18%	24%	24%	18%	31%	24%	21%	24%	7%	4%	62%	29%	38%	100%		
Zinc	42%	37%	3%	30%	39%	19%	16%	20%	27%	20%	35%	25%	23%	20%	7%	3%	72%	34%	43%	64%	100%	
Copper	52%	45%	4%	37%	43%	21%	18%	23%	30%	22%	39%	31%	25%	25%	14%	2%	70%	42%	54%	64%	74%	100%

Third partial time horizon: 2014 – 2019:

	Crude oil (WTI)	Heating oil	Natural Gas	Gaso-line	Gasoil	Wheat	Corn	Cotton	Soy-bean	Soy-bean Meal	Soy-bean Oil	Coffee	Cocoa	Sugar	Live Cattle	Lean Hogs	Alumi-nium	Gold	Silver	Nickel	Zinc	Copper
Crude oil (WTI)	100%																					
Heating oil	81%	100%																				
Natural Gas	11%	12%	100%																			
Gasoline	67%	66%	11%	100%																		
Gasoil	62%	67%	7%	48%	100%																	
Wheat	7%	6%	2%	5%	5%	100%																
Corn	11%	11%	3%	10%	9%	61%	100%															
Cotton	12%	12%	2%	10%	11%	13%	17%	100%														
Soybean	13%	13%	4%	8%	10%	32%	53%	18%	100%													
Soybean Meal	5%	6%	1%	2%	5%	27%	42%	15%	77%	100%												
Soybean Oil	27%	26%	9%	19%	24%	17%	32%	15%	47%	12%	100%											
Coffee	14%	9%	4%	7%	9%	12%	11%	10%	13%	7%	17%	100%										
Cocoa	13%	11%	2%	8%	10%	4%	0%	5%	1%	-1%	5%	12%	100%									
Sugar	14%	10%	-5%	7%	8%	11%	11%	9%	11%	10%	9%	27%	9%	100%								
Live Cattle	9%	6%	3%	0%	4%	-5%	-2%	2%	2%	-1%	6%	1%	0%	0%	100%							
Lean Hogs	6%	4%	2%	2%	5%	3%	6%	2%	9%	9%	0%	4%	2%	6%	6%	100%						
Aluminium	21%	20%	6%	14%	19%	3%	8%	14%	11%	6%	17%	6%	3%	6%	3%	15%	100%					
Gold	5%	6%	-1%	3%	7%	2%	3%	5%	3%	1%	9%	11%	9%	7%	0%	-3%	9%	100%				
Silver	17%	16%	1%	10%	17%	4%	6%	11%	13%	6%	22%	17%	11%	9%	3%	1%	21%	79%	100%			
Nickel	25%	21%	4%	16%	18%	4%	9%	15%	16%	7%	23%	10%	7%	6%	-1%	7%	41%	13%	27%	100%		
Zinc	19%	17%	3%	13%	18%	0%	7%	12%	17%	9%	23%	10%	-1%	8%	2%	8%	43%	14%	25%	51%	100%	
Copper	28%	22%	5%	19%	24%	5%	11%	17%	20%	10%	25%	10%	5%	10%	4%	10%	43%	15%	35%	55%	57%	100%

Appendix 2: Illustrative Regulatory Text for LOCs

Financial collateral means collateral:

(1) In the form of:

(i) Cash on deposit with the [BANK] (including cash held for the [BANK] by a third-party custodian or trustee);

(ii) Gold bullion;

(iii) Long-term debt securities that are not resecuritization exposures and that are investment grade;

(iv) Short-term debt instruments that are not resecuritization exposures and that are investment grade;

(v) Equity securities that are publicly traded;

(vi) Convertible bonds that are publicly traded; or

(vii) Money market fund shares and other mutual fund shares if a price for the shares is publicly quoted daily; and

(2) In which the [BANK] has a perfected, first-priority security interest or, outside of the United States, the legal equivalent thereof, (with the exception of cash on deposit; and notwithstanding the prior security interest of any custodial agent or any priority security interest granted to a CCP in connection with collateral posted to that CCP).

(3) For purposes of 12 C.F.R. § _.132(c), financial collateral includes the effective notional amount of a qualifying letter of credit, as that term is defined in 12 C.F.R. § _.132(c) (2).

12 C.F.R. § _.132(c) (2)

(2) *Definitions.* For purposes of this paragraph (c), the following definitions apply:

* * *

(iv) *Qualifying letter of credit* means a letter of credit:

(A) That is an eligible guarantee;

(B) That is provided by an eligible guarantor;

(C) In which the reference exposure is a derivative contract;

(D) In which the obligated party is not a "financial end user," as that term is defined in 12 C.F.R. § [PRUDENTIAL MARGIN RULE] _.2; and

(E) With respect to which the [BANK] has conducted sufficient legal review to conclude with a well-founded basis (and maintained sufficient written documentation of that legal review) that in the event of a legal challenge (including one resulting from a default or receivership, insolvency, liquidation, or similar proceeding of the obligated party) the relevant court and administrative authorities would find a claim by the [BANK], as the beneficiary, to enforce the effective notional amount of the letter of credit to be legal, valid, binding and enforceable under the law of the relevant jurisdictions.

Appendix 3: Illustrative Regulatory Text for Liens

12 C.F.R. § _.132(c)(2).

* * *

(2) *Definitions.* For purposes of this paragraph (c), the following definitions apply:

* * *

(v) *Qualifying derivative contract lien* means an arrangement:

(A) In which a [BANK] has a perfected, first-priority security interest or lien or, outside of the United States, the legal equivalent thereof in collateral that is not financial collateral;

(B) In which the collateral secures the [BANK]'s credit exposure in a derivative contract with a counterparty that is not a "financial end user," as that term is defined in 12 C.F.R. § [PRUDENTIAL MARGIN RULES] _.2;

(C) With respect to which the [BANK] has conducted sufficient legal review to conclude with a well-founded basis (and maintained sufficient written documentation of that legal review) that in the event of a legal challenge (including one resulting from a default or receivership, insolvency, liquidation, or similar proceeding of the derivative contract counterparty) the relevant court and administrative authorities would find the first-priority security interest or lien of the [BANK] to be legal, valid, binding and enforceable under the law of the relevant jurisdictions;

(D) In which the value of the collateral is positively correlated with the [BANK]'s credit risk exposure to the derivative contract counterparty; and

(E) With respect to which collateral, if acquired in the future by the [BANK], would be held as, and in conformance with the conditions applicable to, either:

(i) assets acquired, by foreclosure or otherwise, in the ordinary course of securing or collecting a debt previously contracted in good faith; or

(ii) a merchant banking investment as permitted for financial holding companies under section 4(k)(4)(H) of the Bank Holding Company Act (12 U.S.C. 1843(k)(4)(H)).

Appendix 4: Illustrative Regulatory Text for STM

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§_.132 Counterparty credit risk of repo-style transactions, eligible margin loans, and OTC derivative contracts.

* * *

(c) *EAD for derivative contracts*

* * *

(9) *Adjusted derivative contract amount*

(iv) *Maturity factor*.

* * *

(C) For purposes of paragraph (c)(9)(iv) of this section, derivative contracts with daily settlement are treated as derivative contracts subject to a variation margin agreement under which the counterparty is required to post variation margin and daily settlement does not change the end date of the period referenced by the derivative contract.

* * *

(11) *Netting set subject to multiple variation margin agreements or a hybrid netting set*

* * *

(ii) *Calculating potential future exposure*.

* * *

(B) * * *

((*3*) For purposes of paragraph (c)(11)(ii)(B) of this section, derivative contracts with daily settlement are treated as derivative contracts subject to a variation margin agreement under which the counterparty is required to post variation margin.

* * *

Appendix 5: TBA calculations

For the purpose of calculating the PFE for TBAs under the Proposed Rulemaking and more specifically the proposed supervisory duration, a bank would have to determine which pass-through security is expected to be delivered, the so-called "cheapest to deliver". For the supervisory duration, the bank would set the end date to the last scheduled cash flow date of the selected pass-through security, while the start date would be set to the settlement date of the TBA. The adjusted notional amount would simply be the TBA notional amount. The Associations propose to replace the simple notional amount with a time-weighted notional

amount that reflects the amortization schedule. This amount would be determined based on the following steps:

- The supervisory duration would be determined as outlined above. However, to calculate the time-weighted notional a bank would have to determine the principal amortization schedule:
  - the fixed monthly payments are determined based on the average interest paid on the mortgages underlying the pass-through security and the original maturity; and
  - the outstanding principal amount per month is projected based on the fixed monthly payments (not considering prepayments) and the pool factor[42].
- The time-weighted notional is the average outstanding principal amount per month scaled up by the pool factor.

[42] The pool factor is defined as the ratio of the current notional and the original notional at origination

Appendix 6: Commodity Correlations

The majority of banks' exposures to commodities are deferred and not the first nearby contract, so the final column is most representative of the correlation of the single name indices to the underlying commodities. The nearby future column presented below is the correlation to the prevailing nearby future relative to performance of the relevant single commodity excess return index of that single commodity.[43]

[43] The correlation is for the period of Jan 2010 to May 2019

Commodity Name	Correlation of Single Commodity Excess Return Index to the prevailing relative Nearby Contract of that Single Commodity	Correlation of Single Commodity Excess Return Index to the prevailing Futures Contracts referenced in the Single Commodity index
WTI Crude Oil	99.44%	100.00%
Brent Crude Oil	99.38%	100.00%
Low Sulfur Gas Oil	97.69%	100.00%
RBOB Gasoline	97.53%	100.00%
ULS Diesel	97.56%	100.00%
Natural Gas	97.29%	100.00%
LME Aluminium	99.42%	100.00%
LME Nickel	99.99%	100.00%
LME Zinc	99.65%	100.00%
COMEX Gold	99.99%	100.00%
COMEX Silver	99.99%	100.00%
Wheat	99.37%	100.00%
HRW Wheat	99.64%	100.00%
Corn	98.38%	100.00%
Soybeans	96.31%	100.00%
Coffee	99.83%	100.00%
Sugar	98.37%	100.00%
Cotton	93.97%	100.00%
Lean Hogs	83.35%	100.00%
Live Cattle	97.25%	100.00%
COMEX Copper	99.71%	100.00%
Soybean Oil	99.76%	100.00%
Soybean Meal	93.61%	100.00%

Appendix 7: Supplementary Quantitative Impact Study Results

Index	Description of the Ratio	% change, ratio or bps[44]	
COMP_01	Investment Grade Equity Exposure to Total Equity Exposure	61%	
COMP_02	Non-Investment Grade Equity Exposure to Total Equity Exposure	29%	
COMP_03	Unrated Equity Exposure to Total Equity Exposure	10%	
COMP_04	Emerging Markets Equity Exposure to Total Equity Exposure	5%	
COMP_05	Advanced Markets Equity Exposure to Total Equity Exposure	95%	
COMP_08	Change in EAD under SA-CCR with 1 alpha compared to EAD under SA-CCR based on NPR	-5%	*
COMP_09a	EAD from CEUs under SA-CCR with undrawn LOC values recognized as margin to EAD from CEUs under SA-CCR with 1.4 alpha	-1%	*
COMP_12	Change in RWA under SA-CCR with 1 alpha compared to RWA under SA-CCR based on NPR	-8%	*
COMP_13a	RWA from CEUs under SA-CCR with undrawn LOC values recognized as margin to RWA from CEUs under SA-CCR with 1.4 alpha	-1%	*
COMP_26	Change in EAD for TBA under SA-CCR compared to EAD from TBA under CEM	514%	
COMP_27	Change in EAD for TBA under SA-CCR with time-weighted maturity adjustment compared to EAD from TBA under CEM	314%	
COMP_28	Change in RWA for TBA under SA-CCR compared to RWA from TBA under CEM	646%	
COMP_29	Change in RWA for TBA under SA-CCR with weighted maturity adjustment compared to RWA from TBA under CEM	389%	
COMP_15a	Change in EAD for Equities under SA-CCR with decomposition compared to EAD from Equities under SA-CCR	-3.9%	
COMP_17a	Change in RWA for Equities under SA-CCR with decomposition compared to RWA from Equities under SA-CCR	-4.4%	
COMP_19a	Change in EAD for Credit under SA-CCR with decomposition compared to EAD from Credit under SA-CCR	-5.3%	
COMP_21a	Change in RWA for Credit under SA-CCR with decomposition compared to RWA from Credit under SA-CCR	-8.0%	

[44] Ratios with (*) were calculated as a weighted average, the remainder of ratios were calculated using a simple mean as the weighted average was not available