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OFFICE OF THE SECRETARIAT
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October 14, 2010

VIA E-MAIL

Mr. David Stawick
Office of the Secretariat
Commodity Futures Trading Commission
Three Lafayette Centre
1155 21st Street, N.W.
Washington, DC 20581

RE: Rule Certification. Chicago Mercantile Exchange Inc. Submission #10-298: Notification of Amendments to CME Rule Book Chapters 8-G (Rules 8G01 through 8G975), 900 (Rules 90001 through 90007) and 901 (Rules 90101 through 90103); Manual of Operations for CME Cleared Interest Rate Swaps; and CME, CBOT and NYMEX Rules 403.A and 802.B

Dear Mr. Stawick:

Pursuant to Commission Regulations 39.4(c)(2), 40.2 and 40.6, Chicago Mercantile Exchange Inc. ("CME"), the Board of Trade of the City of Chicago, Inc. ("CBOT") and New York Mercantile Exchange, Inc. ("NYMEX") make this submission to the Commission with regard to plans of the CME clearing house ("CME Clearing"), a registered derivatives clearing organization ("DCO"), to accept for clearing certain interest rate swaps ("IRS") that are traded over the counter ("OTC") and not on a designated contract market or registered derivatives transaction execution facility. We are self-certifying amendments to the following CME rules: Chapters 8-G (Rules 8G01 through 8G975), 900 (Rules 90001 through 90007) and 901 (Rules 90101 through 90103), and the Manual of Operations for CME Cleared Interest Rate Swaps; and CME, CBOT and NYMEX Rules 403.A and 802.B. All rule amendments are attached hereto. CME, CBOT and NYMEX hereby certify that these rule amendments comply with the Commodity Exchange Act and regulations thereunder, and further certify that these rules comply with our understanding of the revised DCO core principles set forth in Section 725(c) of the Dodd-Frank Wall Street Reform and Consumer Protection Act. The rule amendments will become effective on October 18, 2010.

New CME rules with respect to cleared-only OTC IRS will be located in Chapters 8-G (Interest Rate Derivative Clearing), 900 (Interest Rate Swaps) and 901 (US Dollar Interest Rate Swaps) of the CME rule book, and in the Manual of Operations for CME Cleared Interest Rate Swaps. In addition, CME, CBOT and NYMEX Rule 403.A (Clearing House Risk Committee, Jurisdiction and General Provisions) is being amended to reflect the creation of a separate Risk Committee for OTC IRS. Finally, CME, CBOT and NYMEX Rule 802.B (Protection of Clearing House, Satisfaction of Clearing House Obligations) is being amended to reflect changes with respect to terms of the utilization of CME Surplus Funds for purposes of default management.

Initially, CME Clearing will offer clearing services for a limited number of US-dollar denominated, vanilla IRS. A brief description of these products, and their associated product codes, is as follows:

- USD3L1 – floating leg pays every 3 months, adjusted accrual period on the fixed leg
- USD3L2 – floating leg pays every 3 months, unadjusted accrual period on the fixed leg
- USD3L3 – floating leg pays every 6 months adjusted accrual period on the fixed leg
- USD3L4 – floating leg pays every 6 month, unadjusted accrual period on the fixed leg

Rules specific to clearing and settlement of OTC IRS products will be in Chapter 8-G of the CME rule book. CME Rule 8G04 addresses OTC IRS clearing member obligations and qualifications. In considering the question of appropriate requirements for IRS clearing membership, CME seeks to balance a number of policy objectives. Fundamentally, while encouraging diversity in clearing membership is a worthy goal, requirements for IRS clearing membership must also take into account certain qualitative (e.g., OTC execution and risk management capabilities) and quantitative (e.g., financial resources) standards that each IRS clearing firm must satisfy in order to fulfill its obligations as a clearing member, particularly in times of market stress (including but not limited to default-management scenarios). In evaluating the profile of firms that are potential IRS clearing member applicants, CME judges that an adjusted-net-capital threshold of \$1 billion strikes an appropriate balance, allowing a reasonable quantitative capital criteria against which to assess applicants, while also providing reasonable assurance that successful applicants will possess reasonable qualitative tools to comply with overall IRS clearing membership criteria.

CME Rules 8G02 and 8G807 establish a separate guaranty fund for OTC IRS products and call for utilization of a limited-recourse structure. Pursuant to these rules, clearing firm contributions to the existing, separate financial safeguards package for other CME-cleared products cannot be used to satisfy losses stemming from an OTC IRS default. In this separate-fund, limited-recourse design, it is contemplated that if performance bond collateral posted by a defaulting IRS clearing member to secure IRS commitments to CME Clearing were insufficient to cure the default, then after application of a specified CME contribution, IRS guaranty fund assets of non-defaulting IRS clearing firms would be utilized to cure the default. The IRS guaranty fund will be augmented by assessment powers specific to IRS clearing.

If these resources were insufficient to cure a default, then, in accordance with the limited-recourse structure, CME Clearing would terminate all open IRS contracts, collect mark-to-market funds from those clearing firms that owe monies to it, and make mark-to-market payments to non-defaulting clearing firms that would be haircut to reflect monies so collected plus any remaining portion of the IRS safeguards package. Each clearing firm that received haircut "collects" from CME Clearing would, in turn, haircut mark-to-market amounts due to individual customers on its own books.

In addition, as outlined in CME Rules 8G25 through 8G27, CME will establish a separate governance structure for our IRS clearing solution. A separate IRS Risk Committee will be formed, along with an IRS Advisory Committee and Default Management Committee. Consistent with CME Rule 300.C, the IRS Risk Committee will be a non-Board level committee and will be chaired by a CME Board member. It will assume responsibility for the Chapter 8-G rules and will provide guidance on risk-management matters relating to the clearing of OTC IRS products, including extension of clearing services to additional OTC IRS products, guaranty fund management, default management policy, and evaluation of IRS clearing membership

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applicants. The IRS Advisory Committee will be formed to take into account both buy-side and sell-side views regarding new product design. The Default Management Committee will oversee the development and ongoing administration of OTC IRS default-management practices and standards, and will be responsible for executing various elements of the default management program in the event of an actual IRS default.

Should you have any questions concerning these rule amendments, please contact the undersigned at (312) 338-2483.

Sincerely,

/s/ Lisa Dunsky
Director and Associate General Counsel

cc: Ananda Radakrishnan (via e-mail)
John Lawton (via e-mail)
Sarah Josephson (via e-mail)
Steve Greska (via e-mail)

Attachments: Rule Amendments

CME CHAPTER 8-G (INTEREST RATE DERIVATIVE CLEARING)

8G01. SCOPE OF CHAPTER

This chapter sets forth the rules governing clearing and settlement of all IRS Products. In the event there is a conflict between a rule in this Chapter 8G and another rule in the Rulebooks, the Rule in this Chapter 8G shall supersede the conflicting rule with respect to IRS Contracts. Rules 8F02, 8F05, 8F06, 8F07, 8F14, 8F25, 802, 813, 816, 913, 930 and 975 shall not apply to IRS Contracts. Chapter 6 shall be modified for IRS Contracts as set forth below. The Clearing House shall adopt, establish, publish and amend from time to time a Clearing House Manual of Operations for CME Cleared Interest Rate Swaps (the "IRS Manual"). The IRS Manual shall contain, among other things, information and directions for preparing trade data, completing prescribed memoranda and meeting other Clearing House requirements for IRS Products. The IRS Manual and amendments thereto shall constitute part of the Rules. With respect to IRS Products, in the event of any conflict between the IRS Manual and the Clearing House Manual of Operations, the IRS Manual will govern.

8G02. DEFINITIONS

AFFILIATE

With respect to an IRS Clearing Member, any person or entity is an Affiliate of such IRS Clearing Member if such person or entity directly or indirectly, through one or more intermediaries, controls, owns, is controlled by or is under common control with such IRS Clearing Member.

IRS ADVISORY COMMITTEE

The IRS Advisory Committee shall be a committee having the powers set forth in Rule 8G26.

IRS DEFAULT MANAGEMENT COMMITTEE

The Default Management Committee shall be a committee having the powers set forth in Rule 8G25.

IRS RISK COMMITTEE

The IRS Risk Committee shall be a committee having the powers set forth in Rule 8G27.

Rule 8G03. [RESERVED]

8G04. IRS CLEARING MEMBER OBLIGATIONS AND QUALIFICATIONS

IRS Clearing Members shall be subject to the requirements for OTC Clearing Members set forth in Rule 8F04 and all relevant CME, CBOT and NYMEX Rules, the Clearing House Manual and the IRS Manual unless an exemption has been granted by the Clearing House Risk Committee or the IRS Risk Committee, as applicable. IRS Clearing Members must execute all agreements and documents required by the Clearing House.

In addition to such requirements,

(a) an IRS Clearing Member must satisfy one of the requirements set forth below:

1. An IRS Clearing Member that is not a bank must (a) maintain minimum adjusted net capital of \$1 billion or satisfy such other capital requirements established by the Clearing House and approved by the IRS Risk Committee or (b) provide a guaranty from its parent that the Clearing House determines to be satisfactory, provided that the IRS Clearing Member has less than \$1 billion adjusted net capital and its parent maintains minimum adjusted net capital of \$1 billion or satisfies such other capital requirements established by the Clearing House and approved by the IRS Risk Committee. Any IRS Clearing Member

meeting this requirement by providing a guaranty from its parent shall not be required to deposit the excess margin required pursuant to Rule 8F04.5.

2. An IRS Clearing Member that is a bank must maintain minimum Tier 1 Capital (as defined in accordance with regulation applicable to the relevant bank) of \$5 billion or satisfy such other capital requirements established by the Clearing House and approved by the IRS Risk Committee; and

- (b) each IRS Clearing Member shall comply with the requirements imposed on IRS Clearing Members in the Charters for the IRS Advisory Committee, the IRS Risk Committee and IRS Default Management Committee.

Rule 8G05. SUBSTITUTION

If an IRS Product or a portfolio of IRS Products (i) is submitted by IRS Clearing Members who are in good standing, (ii) was executed and submitted in accordance with the rules governing such IRS Product and (iii) does not exceed the credit limits established by the Clearing House for the IRS Clearing Member submitting such IRS Product or portfolio of IRS Products, then the Clearing House shall substitute itself as the counterparty to each party of each original transaction and there shall be two equal and offsetting contracts for each original transaction as follows: one between the original buyer and the Clearing House, as seller and one between the original seller and the Clearing House, as buyer.

The IRS Clearing Member shall be deemed the principal to the IRS Contract when cleared by such IRS Clearing Member for its own proprietary account and shall be deemed a guarantor and agent of the IRS Contract when cleared by such IRS Clearing Member for the account of an affiliate or customer of such IRS Clearing Member.

Rule 8G06. [RESERVED]

8G07. IRS FINANCIAL SAFEGUARDS AND GUARANTY FUND DEPOSIT

The Clearing House shall establish a financial safeguards package to support IRS clearing, and each IRS Clearing Member shall make an IRS Guaranty Fund deposit with the Clearing House. An IRS Clearing Member's deposit to the IRS Guaranty Fund and assessments against it pursuant to these Rules may be used to cover losses incurred by the Clearing House if a defaulted IRS Clearing Member's assets, including amounts available pursuant to any guarantee from an Affiliate of an IRS Clearing Member, available to the Clearing House are insufficient to cover such loss, regardless of the cause of default. The Clearing House shall calculate the requirements for the IRS financial safeguards package, which shall be composed of:

- (i) a funded portion, determined by the Clearing House using stress test methodology equal to the theoretical two largest IRS Clearing Member losses produced by such stress test or such other methodology determined by the IRS Risk Committee (such amount, plus any additional funds required to be deposited by IRS Clearing Members as a result of the minimum contribution requirement below, the "IRS Guaranty Fund"), and
- (ii) an unfunded portion, determined by the Clearing House using stress test methodology equal to the theoretical third and fourth largest IRS Clearing Member losses produced by such stress test (and assuming for purposes of the model that already-defaulted IRS Clearing Members will fail to contribute) or such other methodology determined by the IRS Risk Committee. Upon a default, after application of the IRS Guaranty Fund, each IRS Clearing Member (excluding any insolvent or defaulted IRS Clearing Member) shall be subject to assessment of its previously-assigned proportionate share of such amount (collectively the "IRS Assessments").

Each IRS Clearing Member's minimum contribution to the IRS Guaranty Fund shall be the greater of:

- (a) such IRS Clearing Member's proportionate share of the share of the theoretical two largest IRS

Clearing Member losses described in paragraph (i) above, each clearing member's relative portion being based on the 90-day trailing average of its aggregate performance bond requirements and average gross notional open interest outstanding at the Clearing House (or such other shorter time interval determined by the IRS Risk Committee); or

(b) \$50,000,000.

The Clearing House shall calculate the aggregate required IRS Guaranty Fund and IRS Assessments on at least a monthly basis, as well as each IRS Clearing Member's required contribution to the Guaranty Fund and its maximum IRS Assessment. The Clearing House may calculate such requirements more frequently than monthly should the risk profile of the top two largest net debtors change by more than 10% from the calculation for the prior period.

Following any recalculation the Clearing House shall provide a report to each IRS Clearing Member showing the detail of its required deposit to the IRS Guaranty Fund and its maximum IRS Assessment. The notice shall specify the amount of any required additional deposit or any excess in the then-existing deposit amount. An IRS Clearing Member shall make any required additional deposit within two business days after delivery of such report and any reported excess may be withdrawn.

If the Clearing House determines that an additional deposit to the IRS Guaranty Fund is required from an IRS Clearing Member due to a material change in the business of such IRS Clearing Member (for example, but without limitation, changes pursuant to a merger or a bulk transfer of customer positions), where such change produces an increase in such IRS Clearing Member's aggregate performance bond requirements of 10% or greater, the Clearing House shall notify such IRS Clearing Member of the additional requirement and the IRS Clearing Member shall make any required deposit no later than the second business day following delivery of such notice.

Rules 8G08-13. [RESERVED]

8G14. MITIGATION OF IRS LOSS

In the event of a default by an IRS Clearing Member, all IRS Clearing Members shall work cooperatively with their customers, other IRS Clearing Members and the Clearing House to administer the mitigation of any losses that may occur as a result of such default and shall ensure that resources required to be provided by IRS Clearing Members to the IRS Default Management Committee are promptly made available.

In the event of a default by an IRS Clearing Member, the Clearing House shall work cooperatively with the IRS Risk Committee to convene the IRS Default Management Committee to manage the process of the liquidation and risk mitigation of such defaulted IRS Clearing Member's IRS Contracts. IRS Clearing Members shall work cooperatively with the Clearing House, the IRS Risk Committee and the IRS Default Management Committee to (i) mitigate any losses that may occur as a result of a default, (ii) liquidate the defaulted IRS Clearing Member's IRS Contracts, (iii) bid in an auction of the defaulted IRS Clearing Member's IRS Contracts and (iv) take any other action reasonably requested by the IRS Risk Committee.

Rules 8G15-16. [RESERVED]

8G17. IRS CLEARING SERVICE ACCESS

CME shall provide open access to its IRS Contract clearing services for any execution venue or trade processing or confirmation service that desires to facilitate the submission of IRS Product transactions to the Clearing House for clearing, subject to the Clearing House's normal operational requirements applied to all such third-party services, including the requirement, in this instance, that an IRS Clearing Member guaranty all transactions in IRS Products that are submitted to the Clearing House for clearing.

Rules 8G18-24. [RESERVED]

8G25. IRS DEFAULT MANAGEMENT COMMITTEE

In the event of a potential or actual default with respect to IRS Contracts, an IRS Default Management Committee shall be convened which shall be comprised of the President of the Clearing House, the Chairman of the IRS Risk Committee and representatives of such IRS Clearing Members as may be appointed by the Board. The purpose of this committee shall be to advise the Clearing House with respect to issues arising from the potential or actual default of an IRS Clearing Member and to manage the process of the liquidation and/or transfer of such IRS Clearing Member's portfolio of IRS Contracts. Such advice may include advice on hedging the risk associated with a defaulted IRS Clearing Member's portfolio, structuring the defaulted IRS Clearing Member's portfolio for liquidation or transfer, and administration of the default auction process.

8G26. IRS ADVISORY COMMITTEE

There shall be an IRS Advisory Committee which shall serve to provide advice to the Clearing House and the IRS Risk Committee on issues relevant to IRS Contracts and shall arbitrate and resolve disputes related to the submission of IRS Products for clearing and other matters relating to the clearing of IRS Products. The IRS Advisory Committee shall have the composition, responsibilities and other characteristics as set forth in its Charter.

8G27. IRS RISK COMMITTEE

There shall be an IRS Risk Committee which shall serve to provide guidance to the Clearing House on general matters relating to IRS Products including risk management policies and practices. The IRS Risk Committee shall have the composition, responsibilities and other characteristics as set forth in its Charter.

8G28. WIND UP OF IRS CLEARING OPERATIONS

The Exchange may wind-up clearing operations for IRS Products in the following situations:

- (a) As a result of a default in which the IRS financial safeguards package is exceeded, producing an IRS Termination Event, as defined in Rule 8G802.B.2. In such case, the Clearing House shall close out all open IRS Contracts in accordance with the provisions of Rule 8G802.B.3.
- (b) Following a default, during an IRS Cooling Off Period, as defined in Rule 8G802.H. In such case, the Clearing House shall provide such advance notice of termination as it determines to be reasonable and may establish other risk-reducing requirements, in both cases in consultation with the IRS Risk Committee. In such case, the Clearing House shall work with the IRS Risk Committee and IRS Clearing Members to provide for bulk porting of IRS Contracts and collateral to another clearing house that is willing to receive such positions, liquidation and/or termination of IRS Contracts, to the extent practicable under the circumstances. The final close-out of any open IRS Contracts on the termination date shall be conducted as set forth below.
- (c) Upon the determination of the Exchange to cease providing clearing services for IRS Products for any reason. In such case, the Clearing House shall provide not less than 90 days written notice to IRS Clearing Members and market participants of the final date of termination. The Clearing House shall work with IRS Clearing Members to ensure an orderly termination process, including providing for bulk porting of IRS Contracts and collateral to another clearing house that is willing to receive such positions, and liquidation and/or termination of IRS Contracts. The final close-out of any open IRS Contracts on the termination date shall be conducted as set forth below.

If clearing services for IRS Products are terminated pursuant to paragraphs (b) or (c) above, on the effective date of termination specified in the notice, the Clearing House shall fix a U.S. dollar amount (the "Close-out Value") to be paid to or received from the Clearing House in respect of all IRS Contracts to be terminated, by conducting a special settlement cycle to determine a final settlement price for all open IRS Contracts, as further detailed in the IRS Manual. Using such Close-out Value, the Clearing House shall determine for each IRS Clearing Member its total net pay obligation to, or net collect

expectation from, the Clearing House in respect of its terminated proprietary and customer positions in IRS Contracts, if any. The Clearing House shall make payment to each IRS Clearing Member with a net collect, and each IRS Clearing Member with a net pay shall pay such amount to the Clearing House. The Clearing House may require pays from IRS Clearing Members to be funded immediately prior to making payment on collects. If any IRS Clearing Member fails to make a final payment to the Clearing House pursuant to this Rule 8G28, it shall be declared in default and the Clearing House shall process the default in accordance with Rule 8G802 as part of the final termination process. Promptly following the termination of all open IRS Contracts pursuant to this Rule 8G28 the Clearing House shall release to IRS Clearing Members their contributions to the IRS Guaranty Fund.

Rules 8G29-599. [RESERVED]

8G600. DISPUTES RELATING TO IRS PRODUCTS

Neither the Clearing House nor any committee of the Exchange shall address disputes among IRS Clearing Members and/or IRS Participants relating to any matter regarding the execution of any IRS Contract or any IRS Product. A sub-committee of the IRS Advisory Committee shall be responsible for the arbitration of disputes and claims among IRS Clearing Members, clients and/or CME relating to the submission of IRS Products for clearing at the Clearing House and other matters related to clearing at the Clearing House. The Chairman of the IRS Advisory Committee shall have the discretion to determine whether the dispute is or is not arbitrable under these Rules.

Rules 8G601-801. [RESERVED]

8G802. PROTECTION OF CLEARING HOUSE

8G802.A. Default by IRS Clearing Member

The Clearing House shall establish a separate guaranty fund for IRS Contracts (the "IRS Guaranty Fund"). Each IRS Clearing Member shall contribute to the IRS Guaranty Fund in accordance with the requirements of Rule 8G07. A non-defaulted IRS Clearing Member's deposit to the IRS Guaranty Fund may be applied by the Clearing House in accordance with this Rule 8G802 to mitigate any loss to the Clearing House attributable to IRS Contracts and will not be applied to losses in any other product classes.

1. Default by IRS Clearing Member

- a. If an IRS Clearing Member fails to promptly discharge any obligation to the Clearing House, such IRS Clearing Member shall be in default. If an Affiliate of an IRS Clearing Member fails to discharge any obligation to the Clearing House and the Clearing House determines that the default by such Affiliate is likely to cause a default of the IRS Clearing Member, the Clearing House may declare such IRS Clearing Member to be in default. Upon a default, the Clearing House shall take all actions permitted by this Rulebook in the event of a default. The Clearing House may engage in any commercially reasonable transaction to eliminate or reduce the risk created by the default and all obligations, costs and expenses incurred thereby shall be an obligation of the defaulted IRS Clearing Member to the Clearing House.
- b. Defaults by different IRS Clearing Members will each be considered a separate default event. After an IRS Clearing Member has been declared in default, subsequent failures by such defaulted IRS Clearing Member to discharge any obligation shall be considered part of the same original default and shall not be considered separate default events, unless and until the original default has been fully resolved and such IRS Clearing Member has been restored to good standing or is no longer an IRS Clearing Member.
- c. The Clearing House shall act promptly to mitigate any loss caused by a default. It may hedge, liquidate in the ordinary course, or sell all or any portion of the portfolio of the defaulting firm and its customers, if applicable. The defaulted IRS Clearing Member shall not take any action that would interfere with the ability of the Clearing House to mitigate the loss or to apply the

assets of the defaulted IRS Clearing Member to offset any loss. The defaulted IRS Clearing Member shall not file any action in any court seeking to stay the actions of the Clearing House with respect to the default.

- d A defaulted IRS Clearing Member shall immediately make up any deficiencies in its IRS Guaranty Fund deposit resulting from such default and in any event no later than the close of business on the banking day following demand by the Clearing House.

2. *Application of Defaulted IRS Clearing Member's Collateral; Rights and Obligations of Clearing House*

Upon the default of an IRS Clearing Member, all assets of such IRS Clearing Member that are available to the Clearing House, including without limitation IRS Guaranty Fund deposits including any excess amounts, IRS Assessments, performance bond amounts for IRS Contracts including any excess amounts, any partial payment amounts or settlement variation gains in respect of IRS Contracts, membership requirements relating to IRS Contracts pursuant to 8F04.7 and any other amounts on deposit with the Clearing House for IRS Contracts but *excluding* amounts carried in any customer account class (collectively, the "IRS Collateral") shall be applied by the Clearing House to discharge any loss to the Clearing House associated with such default (an "IRS Loss") in accordance with and subject to this Rule 8G802. An IRS Loss shall include, but shall not be limited to, costs associated with the liquidation, transfer and managing of IRS Contracts of the defaulted IRS Clearing Member, hedging costs and other costs incurred by the Clearing House related to managing the risk surrounding the default of the IRS Clearing Member.

An IRS Loss arising in the defaulted IRS Clearing Member's proprietary account class shall be satisfied from the IRS Collateral. An IRS Loss arising in the defaulted Clearing Member's customer account class shall be satisfied by application of performance bond, excess performance bond and settlement variation gains ("IRS Customer Collateral") held in the customer account class in which the IRS Loss is generated, if such IRS Loss must be satisfied prior to finalization of IRS Losses in the defaulted clearing member's proprietary account and the determination whether any IRS Collateral remains that may be used to satisfy such IRS Loss.

During the clearing cycle in which the default occurs and any subsequent clearing cycles in which the Clearing House is managing and/or liquidating open positions in respect of the defaulted IRS Clearing Member, the Clearing House shall satisfy any settlement variation payment obligations related to IRS Contracts owed by the defaulted IRS Clearing Member to the Clearing House, or other realized losses of or expenses to the Clearing House with respect to the default only from the IRS Collateral, IRS Customer Collateral or other assets allocated to IRS Contracts, unless and until assets from other product classes become available pursuant to the rules governing default management for such other product classes.

After finalizing the IRS Loss of the defaulted IRS Clearing Member's proprietary account, the Clearing House shall reserve any excess IRS Collateral that remains *first*, to satisfy any IRS Loss arising in the defaulted IRS Clearing Member's customer account class for IRS Contracts, and *second*, to satisfy any losses to the Clearing House arising in other product classes, provided however that such excess IRS Collateral shall not be applied to an IRS Loss arising from the customer account class until after application of IRS Customer Collateral held in such customer account class or a determination is made by the Clearing House that such IRS Collateral will not be required to satisfy any other losses to the Clearing House.

Any gains or excess performance bond or other collateral within the defaulted IRS Clearing Member's customer account class following final resolution of the defaulted clearing member's IRS Loss in such customer account class shall remain in such customer account class, where it may be used to satisfy losses to the Clearing House arising in such account class with respect to other product classes. Such assets shall not be added to the defaulted IRS Clearing Member's collateral generally. For the avoidance of doubt, as set forth in 8G802.G, the Clearing House shall not use performance bond amounts or other collateral in any

customer account class of the defaulted IRS Clearing Member to satisfy a payment obligation to the Clearing House in respect of the defaulted IRS Clearing Member's proprietary account.

Should an IRS Loss continue to exist after application of the amounts above, any remaining deficiency shall be satisfied pursuant to the procedures in Rule 8G802.B. Any such amount shall continue to be a liability of the defaulted IRS Clearing Member to the Clearing House, which the Clearing House may collect from any other assets of such clearing member or by process of law.

8G802.B. Satisfaction of Clearing House Obligations

1. Application of Clearing House and non-defaulting IRS Clearing Member contributions

If the IRS Collateral and the IRS Customer Collateral, as described in Rule 8G802.A, is insufficient to cover the IRS Loss produced by the default, the Clearing House shall cover, or reduce the size of, such IRS Loss by applying the following funds to such losses in the order of priority as follows: (the "IRS Priority of Payments"):

First, The corporate contribution of CME for IRS Products (the "CME IRS Contribution"), which shall equal \$100,000,000;

Second, the IRS Guaranty Fund (excluding the contribution of the defaulted IRS Clearing Member), which shall be applied pro rata to each non-defaulted IRS Clearing Member's deposit to the IRS Guaranty Fund in accordance with Rule 8G07;

Third, IRS Assessments against all IRS Clearing Members (excluding any defaulted IRS Clearing Members), which shall be assessed against each non-defaulted IRS Clearing Member pro rata in proportion to their required contributions to the IRS Guaranty Fund in accordance with Rule 8G07. Assessments against non-defaulted IRS Clearing Members shall be subject to a maximum of the maximum IRS Assessment assigned to such IRS Clearing Member pursuant to Rule 8G07 at the time of the default, and also subject to the limits set forth in Rule 8G802.H in the case of multiple successive defaults.

Non-defaulted IRS Clearing Members and their customers shall not take any action that would interfere with the ability of the Clearing House to collect and apply assets and proceeds in accordance with this Rule 8G802.B, including, but not limited to, attempting to obtain a court order. Determinations under this Rule 8G802.B that are based upon an IRS Clearing Member's IRS Guaranty Fund deposit and/or IRS Assessment requirement shall be based upon the requirement in effect at the time of the default.

2. IRS Product Limited Recourse

If a default occurs, IRS Collateral, IRS Customer Collateral and the IRS Priority of Payments shall be the sole source of payments to cover the IRS Loss until the default is fully and finally resolved. In the event the IRS Collateral, IRS Customer Collateral and the IRS Priority of Payments are insufficient to cover the IRS Loss, IRS Clearing Members and the holders of IRS Contracts shall have no recourse to any other funds or any other entity, including without limitation the guaranty funds that support clearing of other products, CME, CME Group Inc. or any of its affiliates. If at any time following a default: (a) the Clearing House is unable to cover a settlement variation payment obligation when due and has no expectation of accessing funds to permit it to cover such payment obligation (for example through access to credit lines or assessment funds), (b) the Clearing House determines (after consultation with the IRS Risk Committee) that the available IRS Collateral and the IRS Priority of Payments will be insufficient to satisfy auction bid results for the defaulted IRS Clearing Member's portfolio, or (c) the Clearing House otherwise determines (after consultation with the IRS Risk Committee) the IRS Loss will exceed the available IRS Collateral and IRS Priority of Payments (each an "IRS Termination Event"), then all IRS Contracts shall be terminated and the IRS Collateral and IRS Priority of Payments shall be distributed in accordance with Rule 8G802.B.3 below. If the IRS Customer Collateral in any customer account class of the defaulted IRS Clearing Member is sufficient to satisfy the IRS Loss in respect of such account class, the IRS Customer Collateral shall be so applied and any remaining IRS Customer

Collateral shall remain in such customer account class for application to satisfy other losses arising in such account class. If the IRS Customer Collateral in any customer account class is insufficient to satisfy the IRS Loss to the Clearing House arising in such account class, then such IRS Customer Collateral shall be applied to the termination process set forth in Rule 8G802.B.3 below.

No IRS Clearing Member and no customer of an IRS Clearing Member shall institute against, or join any other person in instituting against, the Exchange any bankruptcy, reorganization, arrangement, insolvency, moratorium, liquidation or examinership proceedings, or other similar proceedings under U.S. federal or state bankruptcy laws or other applicable law arising out of any claimed default by the Clearing House on an IRS Contract as a result of the termination of such IRS Contract and related payments in accordance with these Rules.

3. Termination of IRS Contracts; Netting and Offset

If an IRS Termination Event occurs as described in Rule 8G802.B.2, all IRS Contracts shall be closed promptly and the Clearing House shall determine the amount to be paid to or collected from each non-defaulted IRS Clearing Member as follows:

- (i) The net obligation of the Clearing House to a non-defaulted IRS Clearing Member (a "collect"), or the net obligation of a non-defaulted IRS Clearing Member to the Clearing House (a "pay"), shall be determined separately for (a) its proprietary positions in IRS Contracts and (b) the positions of each of its customers in IRS Contracts using the Close-Out Value (as defined in Rule 8G802.B.4 below) for such IRS Contracts. The sum of all of the Clearing House's obligations to IRS Clearing Members so determined shall be the "Aggregate Collects".
- (ii) The Clearing House shall determine the amount of each non-defaulted IRS Clearing Member's remaining payment obligations, if any, in respect of IRS Assessments (which, together with the CME IRS Corporate Contribution and any remaining IRS Guaranty Fund amounts and any IRS Assessments previously funded, constitute the remaining IRS Priority of Payments). The sum of any such remaining IRS Assessments plus any pays owed to the Clearing House from IRS Clearing Members under paragraph (i) above shall be the "Aggregate Pays".
- (iii) The Clearing House shall add any remaining IRS Collateral; IRS Customer Collateral (if applicable as described in Rule 802.B.2. above) and IRS Priority of Payments to the Aggregate Pays, and deduct the amount of any uncovered IRS Loss. The Clearing House shall allocate the resulting sum among each IRS Clearing Member for the net collect owed on its aggregate proprietary positions, if any, and net collects owed on the aggregate positions of each customer of such IRS Clearing Member, if any, with the allocation being pro rated relative to the size of the net collects owed, but not in excess of the amount of the net collects. Such calculated payment amounts (the "Allocated Collects") shall reflect a pro rata haircut if the available resources are less than the Aggregate Collects.
- (iv) In the event that the available resources exceed the sum of the Aggregate Collects, the Clearing House shall calculate reimbursements of the excess funds, in reverse order of the IRS Priority of Payments.
- (v) The Clearing House shall net payments as follows:
 - A. The sum of the Allocated Collects for each customer account class of each non-defaulted IRS Clearing Member plus any initial margin funds held in such account class shall be netted against the sum of the pays owed to the Clearing House in respect of positions in such customer account class, producing a "Customer Account Collect" or a "Customer Account Pay".
 - B. The sum of the Allocated Collects for the proprietary account class of each IRS Clearing Member plus any initial margin funds held in such account class shall be netted against the sum of the pays in respect of positions for such proprietary account

class plus any amounts owed by such non-defaulted IRS Clearing Member pursuant to paragraph (ii), producing a "Proprietary Account Collect" or a "Proprietary Account Pay".

- C. Customer and Proprietary Account Collects and Pays shall be netted to produce a "Final Collect" or "Final Pay" in respect of terminated IRS Contracts for each non-defaulted IRS Clearing Member.
 - D. The Clearing House shall make payment to each non-defaulted IRS Clearing Member with a Final Collect, and each non-defaulted IRS Clearing Member with a Final Pay shall pay such amount to the Clearing House. The Clearing House may require Final Pays to be funded immediately prior to making payment on Final Collects, such that the Clearing House may adjust payments as necessary to account for the default of any non-defaulted IRS Clearing Member in failing to pay a Final Pay.
- (vi) Upon the completion of payments, all IRS Contracts shall be extinguished, and the Clearing House shall have no further access to funds or collateral in respect of IRS Contracts or IRS clearing activity of a non-defaulting IRS Clearing Member. IRS Clearing Members, their Affiliates and their customers shall have no claim against any other guaranty fund established by the Exchange, CME Group Inc. or any of its affiliates with respect to losses suffered as a result of the application of this Rule 8G802.B, nor shall any beneficial holder of an IRS Contract have any claim against its non-defaulting IRS Clearing Member as a result of the application of this Rule 8G802.B.

4. Valuation of IRS Contracts

As promptly as reasonably practicable, the Clearing House shall, in a manner that is consistent with the requirements of the Commodity Exchange Act and the regulations adopted thereunder (including, without limitation) Part 190 of the Regulations, if applicable, fix a U.S. dollar amount (the "Close-out Value") to be paid to or received from the Clearing House in respect of all IRS Contracts to be terminated by conducting a special settlement cycle to determine a final settlement price for all open IRS Contracts, as further detailed in the IRS Manual.

5. Fedwire and Satisfaction of IRS Assessments

All amounts assessed by the Clearing House against an IRS Clearing Member pursuant to this Chapter and any advance assessments pursuant to Rule 8G802.C where notice of such assessment is delivered to an IRS Clearing Member during the hours in which the Federal Reserve's wire transfer system (Fedwire) is in operation shall be paid to the Clearing House by such IRS Clearing Member prior to the close of the Fedwire on such day; provided, however, that where notice of such assessment is delivered to an IRS Clearing Member within one (1) hour prior to the close of Fedwire or after the close of Fedwire shall be paid to the Clearing House within one (1) hour after Fedwire next opens.

Any IRS Clearing Member that does not satisfy an assessment shall be in default. Any loss that occurs as a result of such default shall itself be assessed by the Clearing House to non-defaulted IRS Clearing Members pursuant to Rule 8G802.A and 8G802.B.

After payment of an IRS Assessment pursuant to Rule 8G802.B, an IRS Clearing Member shall charge other clearing members for whom it clears contracts or carries positions on its books to recover their proportional share of the assessment. Such other clearing members shall promptly pay the charge.

6. Details of Implementation

While adherence to the provisions of this Rule 8G802.B shall be mandatory, the detailed implementation of the process of finalizing an IRS Loss with respect to a default, including the liquidation, auction or sale of positions or assets of the defaulted IRS Clearing Member, shall be conducted by the Clearing House in consultation with the IRS Risk Committee.

8G802.C. Limited Advance Assessment Authority

If a default occurs and the collateral for IRS Contracts of the defaulted IRS Clearing Member held by the Clearing House (after taking into account settlement variation payment obligations) is less than 50 percent of the initial performance bond requirement for IRS Contracts at the time of default, the Clearing

House may issue an advance assessment demand to non-defaulted IRS Clearing Members to contribute capital up to a maximum of the amount that would be necessary to bring the collateral of the defaulted IRS Clearing Member to 100% of the relevant requirement. Any such assessment shall be subject to any cap on assessments pursuant to Rule 8G802.B and shall be made pro rata among IRS Clearing Members on the same basis as assessments under Rule 8G802.B.

8G802.D. Restoration of Funds Following Final Determination of Losses

If, after the default of an IRS Clearing Member is finally resolved, the Clearing House determines that collateral of the defaulted IRS Clearing Member, surplus funds, IRS Guaranty Funds, IRS Assessments, other guaranty fund contributions, or assessment powers were employed in a manner different from what would have occurred had all assets been secured and liquidated immediately and the IRS Loss finalized simultaneously, then the Clearing House shall make distributions or rebalancing allocations to non-defaulted IRS Clearing Members and/or the guaranty funds, as appropriate.

8G802.E. Rights of Clearing House for Recovery of Loss

Losses caused by the default of an IRS Clearing Member are amounts due to the Clearing House from such IRS Clearing Member and shall remain legal obligations thereof notwithstanding the Clearing House's recourse to the loss-mutualization provisions of this Rule 8G802 and Rule 802, which amounts the Clearing House shall take commercially reasonable steps to recover (including claims submitted in bankruptcy court). If a loss for which IRS Clearing Members IRS Guaranty Fund deposits and any IRS Assessments is subsequently recovered by the Clearing House in whole or in part, the net amount of such recovery shall be credited to such IRS Clearing Members (whether or not they are still IRS Clearing Members at the time of recovery) in reverse order of the IRS Priority of Payments and in proportion to the IRS Clearing Member's IRS Guaranty Fund deposit and IRS Assessments.

If an IRS Clearing Member clears contracts or carries positions for other clearing members and such other clearing members were required to pay an assessment pursuant to Rule 8G802.B, such IRS Clearing Member shall return to such other clearing members, a pro rata share of any recoveries received by such IRS Clearing Member, which shall be calculated on the basis of the assessed amount paid by the other clearing member relative to the total assessment paid by the IRS Clearing Member.

8G802.F. IRS Guaranty Fund Contributions to be Restored

In the event it shall become necessary to apply all or part of the IRS Guaranty Fund to meet obligations to the Clearing House pursuant to this Rule 8G802, IRS Clearing Members shall restore their deposits to the IRS Guaranty Fund to previously required level prior to the close of business on the next banking day after notice that such amount is due from the Clearing House, subject to the maximum obligations to contribute to the IRS Guaranty Fund and to fund IRS Assessments set forth in 8G802.H.

8G802.G. Default Management Across Account Classes

The procedures set forth in 8G802.A and 8G802.B shall be conducted separately by the Clearing House with respect to open positions and associated performance bond deposits for different product classes and account classes. Upon a default, the Clearing House may act immediately to attempt to transfer to alternate IRS Clearing Members all customer positions and associated performance bond collateral with respect to any customer account class in which there is no default on payment obligations in accordance with applicable law. The Clearing House shall not apply IRS Customer Collateral to any payment obligations or realized loss or expense of the defaulted IRS Clearing Member arising from a default in any proprietary account or any other customer account class. If a default occurs in the IRS Clearing Member's customer account class, the Clearing House has the right to liquidate and apply toward the default all open positions and customer performance bond deposits in such customer account class of the defaulted Clearing Member. Accordingly, positions and performance bonds deposited by customers not causing the default are at risk if there is a default in the applicable customer account class of their Clearing Member. If the Clearing House liquidates positions and/or collateral in a customer account class, funds associated with the liquidation of positions in or collateral supporting IRS Contracts shall be applied first to satisfy the IRS Loss attributable to the applicable customer account class. After IRS Loss attributable to the applicable customer account class are fully resolved, any remaining funds may be applied to satisfy losses to the Clearing House associated with positions in other product classes that are held in the same customer account class. Any collateral remaining after all losses to the Clearing House in respect of such account class have

been satisfied shall be reserved to such customer account class in order to satisfy the claims of non-defaulted customers in accordance with applicable law.

8G802.H. Multiple Defaults

The provisions set forth in Rule 8G802.A and 8G802.B shall apply with respect to each default by an IRS Clearing Member. If more than one IRS Clearing Member default occurs at a time or in close sequence, including a default that occurs by reason of an IRS Clearing Member's failure to satisfy an assessment demand, the Clearing House shall manage the defaults separately. Upon a default, non-defaulted IRS Clearing Members shall be subject to a maximum obligation to contribute to the IRS Guaranty Fund and to fund IRS Assessments equal to the aggregate amounts set forth in Rules 8G07 and 8G802. This maximum shall apply from the date of the original default until the later of (i) the 20th Business Day thereafter and (ii) if another clearing member is in default during the 20 Business Days following the initial or any subsequent default, the 20th Business Day following the last default (the "IRS Cooling Off Period"), regardless of the number of defaults that occur during such IRS Cooling Off Period.

The maximum does not limit IRS Clearing Members' obligations to restore their IRS Guaranty Fund contributions as set forth in Rule 8G802.F, except that if the IRS Clearing Member's required IRS Guaranty Fund contribution would exceed the maximum, the IRS Clearing Member's IRS Guaranty Fund requirement shall be reduced accordingly for the remainder of the IRS Cooling Off Period. Following an IRS Cooling Off Period, the Clearing house shall notify each IRS Clearing Member of its IRS Guaranty Fund deposit obligation.

The aggregate maximum contribution for the IRS Cooling Off Period shall be based upon each IRS Clearing Member's IRS Guaranty Fund requirement and IRS Assessments in effect at the time of the original default, provided that if an IRS Clearing Member's IRS Guaranty Fund requirement and IRS Assessments is increased during the IRS Cooling Off Period due to material changes in its own business creating a material shortfall as to the requirement (as described in Rule 8G07) then the maximum shall be based on the revised requirement. For the avoidance of doubt, if IRS Guaranty Fund requirements and IRS Assessments are revised for all IRS Clearing Members (as described in Rule 8G07) during the IRS Cooling Off Period, then the new requirements shall be used by the Clearing House to determine the relevant portions under Rule 8G802.A and Rule 8G802.B of each IRS' Clearing Member's IRS Guaranty Fund contribution that is used or assessed IRS Assessments, but IRS Clearing Members' maximums during the remainder of the IRS Cooling Off Period shall not be impacted by the new requirements.

The CME IRS Contribution shall be limited to an aggregate maximum of \$100,000,000 during the Cooling Off Period, regardless of the number of defaults that occur during such Cooling Off Period.

Rules 8G803-812. [RESERVED]

8G813. IRS SETTLEMENT PRICE

Settlement prices for IRS Contracts shall be determined each Business Day pursuant to one or more of the procedures set forth below.

1. The Clearing House shall determine settlement prices for such IRS Contracts based upon a consideration of relevant market data, including, but not limited to, trading activity, pricing data obtained from IRS Contract market participants, the settlement prices of related products and any other pricing data from sources deemed reliable by the Clearing House.
2. Notwithstanding the above, if a settlement price in any IRS Product, as derived by the normal methodology used for that IRS Product, is inconsistent with trades, bids or offers in other months/ strikes during the closing range, or other relevant market information, or if there is no relevant market activity, a Clearing House official may establish a settlement price that best reflects in its reasonable judgment the true market valuation at the time of the close.
3. Notwithstanding the above, in the case of inaccuracy or unavailability of a settlement price, or if a settlement price creates risk management concerns for the Clearing House, the Clearing House reserves the right to calculate settlement variation using an alternate price determined by the Clearing House.

Rules 8G814-823. [RESERVED]

824. ADDITIONAL IRS PERFORMANCE BOND

Whenever, in the opinion of the IRS Risk Committee, the President of the Clearing House or, in his absence, his delegate, unstable conditions relating to one or more products exist, they may from time to time, call for additional performance bond collateral from IRS Clearing Members. Such additional performance bond calls may be as much as or more than the original performance bond collateral. The performance bond collateral thus called for may be for one or more contract(s) from one or more IRS Clearing Member(s) and on long positions, short positions or both.

In the event market conditions and price fluctuations at any time shall cause the IRS Risk Committee or the President of the Clearing House or, in his absence, his delegate, to conclude that additional performance bond collateral is required to maintain an orderly market or to preserve fiscal integrity the IRS Risk Committee or the President of the Clearing House or his delegate may call for additional performance bond collateral to be deposited with the Clearing House during the next banking hour after demand therefor, or at such times as may be specified. Such additional performance bond collateral may be called from the longs or the shorts or from both.

When the IRS Risk Committee or the President of the Clearing House or, in his absence, his delegate, shall be of the opinion that any IRS Clearing Member is carrying commitments or incurring risk in its proprietary, customer and/or cross-margin accounts, that are larger than is justified by the financial condition of that IRS Clearing Member, then the IRS Risk Committee, the President of the Clearing House or, in his absence, his delegate, may require additional performance bond collateral of such IRS Clearing Member which shall be deposited with the Clearing House during the next banking hour after demand therefor, or at such time as may be specified, or a portion of the open positions of such IRS Clearing Member may be required to be transferred to the books of another IRS Clearing Member.

Rules 8G825-912. [RESERVED]

8G913. WITHDRAWAL FROM IRS CLEARING MEMBERSHIP

8G913.A. Voluntary Withdrawal

An IRS Clearing Member may withdraw from clearing membership for IRS Products upon approval of Clearing House staff, and ratification by the IRS Risk Committee. An IRS Clearing Member may withdraw from serving as an IRS Clearing Member without withdrawing as a CME, CBOT, NYMEX or COMEX clearing member, if applicable. Clearing House staff shall approve a withdrawal promptly after the IRS Clearing Member liquidates or transfers to an appropriate IRS Clearing Member all of its open customer and house positions in IRS Contracts. Following ratification of the withdrawal by the IRS Risk Committee, the Clearing House shall post a notice of the IRS Clearing Member's withdrawal. Withdrawal shall be effective on the date of ratification by the IRS Risk Committee. An IRS Clearing Member may withdraw from clearing IRS Products without withdrawing as a clearing member for other product classes.

8G913.B. Release of Guaranty Fund Deposit, Membership and Assignments

When an IRS Clearing Member withdraws from clearing membership for IRS Products (whether voluntarily or involuntarily), its IRS Guaranty Fund deposit or any other deposits required by the Clearing House, and any remaining assets available to the Clearing House associated with IRS Products will be released when Clearing House staff determines that the following has occurred: (1) all contracts and obligations with the Clearing House relating to IRS Products have been settled and paid, (2) all sums owing to the Clearing House relating to IRS Products have been paid, (3) all obligations to other members and customers arising out of claims directly related to IRS Contracts have been paid or otherwise provided for, (4) all obligations to other members and customers arising out of other

arbitration claims relating to IRS Products filed pursuant to Chapter 6 or Rule 8G600 have been paid or otherwise provided for, and (5) the requisite liquidity providers for the Clearing House have released the security interest in such IRS Clearing Member's "assets" associated with the clearing of IRS Products in accordance with the terms of the liquidity facility described in Rule 817; provided, however, that in the event that Clearing House staff determines that all of the foregoing other than (4) have occurred, the IRS Risk Committee may in its discretion authorize the release of such property.

Generally, no such property shall be released prior to the 60th day following the effective date of the IRS Clearing Member's withdrawal. Notwithstanding the above, Clearing House staff may grant an exemption to the above restriction for good cause shown. Further, for purposes of the paragraph above, if the withdrawing IRS Clearing Member will not remain a clearing member in any other capacity with the Exchange, all obligations of the withdrawing IRS Clearing Member to the Exchange, of whatever nature or kind, shall be accelerated and become due and payable upon the effective date of withdrawal. If the IRS Clearing Member will remain a clearing member for other product classes other than IRS Products, the foregoing sentence shall apply only to obligations related to the clearing of IRS Products.

For purposes of Rule 8G802, (i) the IRS Guaranty Fund contributions of a non-defaulted IRS Clearing Member that has withdrawn shall not be accessible by the Clearing House to satisfy any losses in respect of the default of another IRS Clearing Member where such default occurred after the IRS Cooling Off Period as of which the withdrawing IRS Clearing Member had liquidated or transferred all of its open customer and house positions in IRS Products and (ii) after the effective date of its withdrawal, a non-defaulted IRS Clearing Member that has withdrawn shall not be subject to IRS assessments or obligations to restore its Guaranty Fund Deposits pursuant to Rule 8G802.FI.

8G913.C. Customer Positions of Withdrawing Clearing Member Following a Default;

If, following a default that causes mutualized losses under Rule 8G802.B, an IRS Clearing Member notifies the Clearing House during the applicable IRS Cooling Off Period of its intent to withdraw from status as an IRS Clearing Member, the IRS Clearing Member shall promptly notify its customers in writing of such decision. The notice shall specify that customers must close out or transfer to another IRS Clearing Member their affected open positions, and that the withdrawing IRS Clearing Member shall have the right to liquidate any customer positions that remain open on its books after 10 business days have passed from the customers' receipt of such notice. If any customer fails to close out or transfer to another IRS Clearing Member during such 10 business day period, the IRS Clearing Member shall have the right to liquidate any such customer position that remains open on its books. The IRS Clearing Member shall cooperate with customers and with the Clearing House on any proposed transfer of customer positions, and shall include in its notice to customers such information as the Clearing House may require at the time regarding other IRS Clearing Members that may receive transfers of customer positions. With respect to customer positions in products that are listed for electronic trading on any exchange for which the Clearing House provides clearing services, the IRS Clearing Member shall liquidate such positions in the open market unless otherwise agreed with the customer. With respect to customer positions in IRS products that are not so listed for electronic trading, the IRS Clearing Member may liquidate such positions by submitting to the Clearing House for clearing an offsetting trade executed at a commercially reasonable price reflecting the clearing member's side of the market (*i.e.*, the bid side if liquidating a long position and the offer side if liquidating a short position), taking into account any pricing information that is available to it in the market at the time, which pricing information shall be shared with the Clearing House and the customer. Each IRS Clearing Member will promptly provide to its customers reasonable detail of how it determined the liquidation amount for any liquidation effected pursuant to this Rule 8G913.C.

Rules 8G914-929. [RESERVED]

8G930. IRS PERFORMANCE BOND REQUIREMENTS

8G930.A. Performance Bond System

A Performance Bond System will be adopted by the Exchange and specified in the IRS Manual.

Performance bond systems other than the Exchange adopted system may be used to meet Exchange performance bond requirements if the IRS Clearing Member can demonstrate that its system will always produce a performance bond requirement equal to or greater than the CME Clearing performance bond requirements.

8G930.B. Performance Bond Rates for IRS Products

Exchange staff shall determine initial and maintenance performance bond rates used in determining Exchange performance bond requirements.

8G930.C. Acceptable Performance Bond Deposits for IRS Products

IRS Clearing Members may accept from their account holders as performance bond cash currencies of any denomination, readily marketable securities (as defined by SEC Rule 15c3-1(c)(11) and applicable SEC interpretations), money market mutual funds allowable under CFTC Regulation 1.25, bank-issued letters of credit, and "London Good Delivery" gold, as defined by the London Bullion Market Association.

IRS Clearing Members shall not accept as performance bond from an account holder securities that have been issued by the account holder or an affiliate of the account holder unless the IRS Clearing Member files a petition with and receives permission from Clearing House staff.

Bank-issued letters of credit must be in a form acceptable to the Clearing House. Such letters of credit must be drawable in the United States. IRS Clearing Members shall not accept as performance bond from an account holder letters of credit issued by the account holder, an affiliate of the account holder, the clearing member, or an Affiliate of the clearing member.

All assets deposited by account holders to meet performance bond requirements must be and remain unencumbered by third party claims against the depositing account holder.

Except to the extent that Clearing House staff shall prescribe otherwise, cash currency performance bond deposits shall be valued at market value. All other performance bond deposits other than letters of credit shall be valued at an amount not to exceed market value less applicable haircuts as set forth in SEC Rule 240.15c3-1.

8G930.D. Acceptance of Positions

IRS Clearing Members may accept positions for an account provided sufficient performance bond is on deposit in the account or is forthcoming within a reasonable time.

For an account which has been subject to calls for performance bond for an unreasonable time, IRS Clearing Members may only accept positions that reduce the performance bond requirements of existing positions in the account.

Clearing members may not accept positions for an account that has been in debit an unreasonable time.

8G930.E. Calls for Performance Bond

1. IRS Clearing Members must issue calls for performance bond that would bring an account up to the initial performance bond requirement: a) when performance bond equity in an account initially falls below the maintenance performance bond requirement; and b) subsequently, when performance bond equity plus existing performance bond calls in an account is less than the maintenance performance bond requirement.

Such calls must be made within one business day after the occurrence of the event giving rise to the call. IRS Clearing members may call for additional performance bond at their discretion.

Notwithstanding the foregoing, an IRS Clearing Member is not required to call for or collect performance bond for day trades.

2. IRS Clearing Members shall only reduce a call for performance bond through the receipt of performance bond deposits permitted under subsection C. of this rule. IRS Clearing Members may cancel a call for performance bond through: a) the receipt of performance bond deposits permitted under subsection C. of this rule only if such deposits equal or exceed the amount of the total performance bond call; or b) inter-day favorable market movements and/or the liquidation of positions only if performance bond equity in the account is equal to or greater than the initial performance bond requirement. IRS Clearing Members shall reduce an account holder's oldest outstanding performance bond call first.

3. IRS Clearing Members must maintain written records of all performance bond calls issued and satisfied in whole or in part.

8G930.F. Release of Excess Performance Bond

Subject to exceptions granted by Exchange staff, IRS Clearing Members may only release performance bond deposits from an account if such deposits are in excess of initial performance bond requirements.

8G930.G. Loans to Account Holders

IRS Clearing Members may not make loans to account holders to satisfy their performance bond requirements unless such loans are secured as defined in CFTC Regulation 1.17(c)(3). The proceeds of such loans must be treated in accordance with CFTC Regulation 1.30.

8G930.H. Aggregation of Accounts and Positions

IRS Clearing Members may aggregate and net positions in accounts under identical ownership within the same classifications of customer segregated, customer secured, customer sequestered and non-segregated for performance bond purposes. IRS Clearing Members may compute performance bond requirements on identically owned concurrent long and short positions on a net basis.

8G930.I. Liquidation of Accounts

If an account holder fails to comply with a performance bond call within a reasonable time (the IRS Clearing Member may deem one hour to be a reasonable time), the IRS Clearing Member may close out the account holder's trades or sufficient contracts thereof to restore the account holder's account to required performance bond status. IRS Clearing Members shall maintain full discretion to determine when and under what circumstances positions in any account shall be liquidated.

8G930.J. Clearing House Authority to Require Additional IRS Performance Bond

The Clearing House, in its sole discretion, has the authority to require IRS Clearing Members to collect additional performance bond from specific account holders in circumstances deemed necessary by the Clearing House.

Rules 8G931-974. [RESERVED]

8G975. IRS EMERGENCY FINANCIAL CONDITIONS

If the President of the Exchange or the President of the Clearing House determines that the financial or operational condition of an IRS Clearing Member or one of its Affiliates is such that to allow that IRS Clearing Member to continue its operation would jeopardize the integrity of the Exchange, or negatively impacts the financial markets by introducing an unacceptable level of uncertainty, volatility or risk, whether or not the IRS Clearing Member continues to meet the required minimum financial requirements, he may empanel the Chief Executive Officer, the President of the Exchange, Chairman of the Board, the Chairman of the IRS Risk Committee and the President of the Clearing House (the "IRS Emergency Financial Committee"). Such committee shall be duly authorized and, upon a unanimous

vote of the panel, be empowered to order (a) an immediate position limitation, (b) an immediate suspension of the IRS Clearing Member, (c) that all open trades of said clearing member be for liquidation only, (d) the liquidation or transfer of all or a portion of the open positions of the clearing member, (e) additional performance bond to be deposited with the Clearing House and/or (f) any other action necessary to protect the financial integrity of the Clearing House. The IRS Clearing Member affected by action taken shall be notified and may request a hearing before the Board as provided in Rule 412. In the event of suspension, the Chief Executive Officer shall, promptly after a suspension, set the matter for hearing before the Board for final determination. To the extent that the IRS Emergency Financial Committee orders that all open trades of a clearing member be for liquidation only, or the panel orders the liquidation or transfer of all of the open positions of an IRS Clearing Member, Rule 8G913.B. shall apply and the clearing member shall be treated as a withdrawing clearing member.

CME Chapter 900 (Interest Rate Swaps)

90001. SCOPE OF CHAPTER

The scope of this Chapter is limited in application to IRS Products. The procedures for trading IRS Products and for clearing and settling IRS Contracts and any other matters not specifically covered herein shall be governed by the other Chapters of these Rules, including Chapter 8-F (Over-the-Counter Derivatives Clearing) and Chapter 8-G (Interest Rate Derivative Clearing), to the extent applicable.

Capitalized terms in this Chapter that are not otherwise defined in this Chapter shall have the meanings given to such terms in the other Chapters of the Rules. Capitalized terms in this Chapter that are not otherwise defined in either this Chapter or the other Chapters of the Rules shall have the meanings set forth in the ISDA Definitions.

90002. DEFINITIONS

90002.A. Acceptance Conditions

With respect to an IRS Contract, the acceptance for clearing by both IRS Clearing Members of an IRS Product submitted for clearing and the acceptance by the Clearing House of such IRS Product for clearing.

90002.B. Acceptance Date

With respect to an IRS Contract, the date on which the Acceptance Conditions are satisfied.

90002.C. Acceptance Time

With respect to an IRS Contract, the time at which the Acceptance Conditions are satisfied.

90002.D. Clearing Business Day

With respect to an IRS Contract, any day on which the Clearing House is open to process and settle IRS Contracts.

90002.E. Clearing Effective Date

With respect to an IRS Contract:

(a) where the Acceptance Time for such IRS Contract is prior to 7.00 p.m. (Eastern Standard Time) on a Clearing Business Day, the Acceptance Date for such IRS Contract; and

(b) where the Acceptance Time for such IRS Contract is on or after 7.00 p.m. (Eastern Standard Time) on a Clearing Business Day, the Clearing Business Day immediately following the Acceptance Date for such IRS Contract.

90002.F. Contract Elections

With respect to an IRS Contract, each of the following elections made by an IRS Participant for such IRS Contract: the: Effective Date, Notional Amount and currency, Termination Date and any Business Day Convention adjustment, Fixed Rate Payer Payment Dates, Fixed Rate , Floating Rate Payer Payment Dates, Floating Rate Option, , initial payment amount (if any), initial amount payer (if any) and whether the IRS Clearing Participant is acting as Floating Rate Payer or Fixed Rate Payer

90002.G. Eligible Contract Participant ("ECP")

An eligible contract participant as defined in the Commodity Exchange Act.

90002.H. Interest Rate Swap ("IRS")

A contract that provides for the exchange, on specified payment dates, of cash payments (on a net or gross basis) determined by reference to a predetermined notional amount or notional amounts, one or both of which payments is/are based on a floating or variable reference interest rate or interest rate index.

90002.I. IRS Clearing Member

A Clearing Member of the Clearing House that is authorized to submit IRS Products for clearing pursuant to these Rules.

90002.J. IRS Contract

An IRS Product that has been accepted for clearing by the Clearing House.

90002.K. IRS Participant

A market participant on whose behalf an IRS Clearing Member holds a position in an IRS Contract.

90002.L IRS Product

An IRS that the Clearing House has designated as eligible for clearing. An IRS Product must specify:

- (a) a Termination Date equal to or less than 31 years after the Clearing Business Day on which such IRS Product is submitted for clearing by the Clearing House;
- (b) the Notional Amount in USD; and
- (c) in the case of a USD IRS, the Floating Rate Option as USD-LIBOR-BBA.

90002.M. ISDA

The International Swaps and Derivatives Association, Inc.

90002.N. ISDA Definitions

The 2006 ISDA Definitions, as published by ISDA.

90003. NOTICES

Any notice, document, communication, filing or form to be served on, filed with, made to or provided by the Clearing House to an IRS Clearing Member pursuant to these Rules or in relation to any IRS Contract or IRS Product shall be served, filed, made or provided in accordance with these Rules and the relevant procedures set forth in the Clearing House Manual from time to time.

Any notice, document, communication, filing or form to be served on, filed with, made to or provided to the Clearing House pursuant to these Rules or in relation to any IRS Contract or IRS Product shall be served, filed, made or provided in accordance with these Rules and the relevant procedures set forth in the Clearing House Manual from time to time.

Notwithstanding any other provision of these Rules, for so long as the Clearing House is unable to receive or deliver, or an IRS Clearing Member is unable to deliver, any notice as a result of a failure, malfunction, suspension or termination of all or any part of any of the relevant Clearing House systems, the time periods for delivery of any such notice will be tolled and any applicable delivery deadlines shall be extended accordingly.

90004. ISDA DISCLAIMER

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90005. REGISTRATION

90005.A. IRS Clearing Members

An IRS Clearing Member must register with CME in order to clear IRS Contracts through the Clearing House.

90005.B. IRS Participants

In order for an IRS Participant to participate in the clearing of IRS Contracts through the Clearing House, such IRS Participant's IRS Clearing Member must register the account of such IRS Participant with CME prior to submitting IRS Products on behalf of such Participant for clearing by the Clearing House and shall comply with any requirements of Rule 8F.09.

90005.C Eligible Contract Participant

In order to transact in IRS Contracts, an IRS Participant must be an ECP. An IRS Clearing Member that clears IRS Contracts must obtain a covenant from each IRS Participant for which it provides clearing services that such IRS Participant is, and will be, an ECP at all times clearing services are provided for such IRS Participant. If an IRS Clearing Member becomes aware that an IRS Participant for which it provides clearing services no longer qualifies as an ECP, the IRS Clearing Member must notify the Clearing House and work with the IRS Participant to close out any open IRS Contracts as soon as possible.

90005.D. Identification of IRS Contracts

Each IRS Contract shall be identified with an account number which identifies the originator of such IRS, and which specifies whether such IRS Contract is (i) a proprietary transaction of an IRS Clearing Member duly registered with the Clearing House or (ii) a transaction by an IRS Participant duly registered with the Clearing House.

90006. SUBMISSION OF INTEREST RATE SWAPS TO THE CLEARING HOUSE

90006. IRS Submission Methods

IRS Products may be submitted to the Clearing House for clearing through (a) the CME ClearPort GUI and API, (b) the Clearing House migration utility and (c) any other facility or trade platform approved by the Clearing House from time to time. To the extent not specified elsewhere in these Rules, the Clearing House will specify the terms and conditions under which IRS Products may be submitted to the Clearing House for clearing through procedures defined in the Clearing House Manual.

90007. INTERPRETATION

For the purposes of any IRS Contract, references in the ISDA Definitions to:

(i) a "Confirmation" shall be deemed to be references to the terms of the relevant IRS Contract; and

(ii) a "Swap Transaction" shall be deemed to be references to the relevant IRS Contract.

CME Chapter 901 (US Dollar Interest Rate Swaps)

90101. SCOPE OF CHAPTER

This Chapter sets forth the terms and conditions of US Dollar IRS Contracts ("USD IRS Contracts"). The terms and conditions of each USD IRS Contract shall be defined by this Chapter, as supplemented by the Definitions and the relevant Contract Elections, and as further supplemented and amended by provisions of these Rules. Capitalized terms in this Chapter that are not otherwise defined in either this Chapter or the other Chapters of the Rules shall have the meanings set forth in the ISDA Definitions.

90102. CONTRACT TERMS

90102.A. Business Day Convention

~~With respect to an USD IRS Contract, Payment Dates shall be subject to adjustment in accordance with the Modified Following Business Day Convention.~~

90102.B. Business Days

With respect to an USD IRS Contract, Business Days shall be New York and London.

90102.C. Calculation Agent

With respect to an USD IRS Contract, the Clearing House shall be the sole Calculation Agent for all purposes. The Calculation Agent shall not be required to consult with the parties to an USD IRS Contract prior to making any determination.

90102.D. Calculation Period

For any USD IRS Contract submitted to the Clearing House for clearing, if the elections made by the relevant IRS Clearing Members for such USD IRS Contract include "Compounding", then the Floating Rate Calculation Period of such USD IRS Contract shall be 6 months and shall entail a Compounding Period equal to 3 months.

If such elections do not include "Compounding", then the Floating Rate Calculation Period of such USD IRS Contract shall equal 3 months.

The Fixed Rate Calculation Period of such USD IRS Contract shall equal 6 months.

90102.E. Currency

With respect to an USD IRS Contract, the Settlement Currency shall be USD dollars ("USD"). All USD IRS Contract calculations and determinations shall be made with reference to USD, and all payments shall be due in USD.

90102.F. Day Count Fraction

With respect to an USD IRS Contract, the Floating Rate Day Count Fraction shall be Actual/360 and the Fixed Rate Day Count Fraction shall be 30/360.

90102.G. Designated Maturity

With respect to an USD IRS Contract, Designated Maturity shall be 3 months.

90102.H. Initial Payments

If an Initial Payment Payer and an Initial Payment Amount are specified in the Confirmation of an USD IRS Contract, the Initial Payment Payer shall pay to the Clearing House an amount equal to such initial payment amount on the Business Day immediately following the relevant Clearing Effective Date; provided that if the initial payment amount is equal to or greater than \$100,000,000 for such USD IRS Product or group of USD IRS Products submitted at the same time for clearing, then such initial payment amount shall be due at or prior to the Acceptance Time.

90102.I. Reset Date

With respect to an USD IRS Contract, the Reset Date shall be the first day of each Calculation Period.

90103. CONTRACT MODIFICATIONS

90103.A. CME Rules

The terms of USD IRS Contracts may be modified by CME in accordance with the Rules, with such modification to become part of these Rules and to be applicable to all USD IRS Contracts that are entered into subsequent to the relevant date of modification.

90103.B. Change in Law or Regulation

If any governmental agency or body with jurisdiction over CME issues an order, ruling, directive or law that conflicts with the requirements of these Rules, CME shall make such amendments and modifications to these Rules as it deems appropriate in its sole discretion in order to reflect the application of such order,

ruling, directive or law, and such changes to these Rules shall be applicable to all USD IRS Contracts that are open as of, or entered into subsequent to, the relevant effective date of the order, ruling, directive or law.

**CME, CBOT and NYMEX – RULE 403 (Clearing House Risk Committee)
Rule Changes for OTC IRS Clearing (Strikeout version)**

403.A. Jurisdiction and General Provisions

The Clearing House Risk Committee (or any subcommittee thereof) (collectively, "CHRC"), shall determine whether an applicant satisfies the qualifications for status as a Clearing Member. The CHRC decision shall be subject to appeal to the Board by an applicant. The CHRC may adopt regulations regarding qualifications for admission to membership in the Clearing House, which regulations, when approved by the Board, shall have the same effect as rules of the Exchange. The CHRC shall act upon applications for clearing membership and applications for assignment of Class A Shares, trading rights and related Class B Shares for clearing purposes. Applications for clearing membership and for assignment of Class A Shares, trading rights and related Class B Shares for clearing purposes, when approved by the CHRC, shall be effective and thereafter ratified by the Board.

The CHRC shall have at least two co-chairmen, who shall be members of the Board, and at least seven additional individuals, five who shall be Clearing Member representatives and at least one who shall be a non-member.

The CHRC may conduct investigations, issue charges and consider settlement offers on its own initiative or by referral from Exchange staff, the PCC, or the BCC. Hearings on charges issued by the CHRC will be conducted by the BCC pursuant to the provisions of Rule 408.

If the CHRC determines that a Clearing Member is in a financial condition which jeopardizes or may jeopardize the integrity of the Exchange, the CHRC may, by majority vote:

1. Order the Clearing Member or its customers to deposit such additional performance bond with the Clearing House as deemed appropriate to protect the integrity of open contracts;
2. Prescribe such additional capital or other financial requirements as it deems appropriate;
3. Impose position limits on Clearing Members based on their regulatory capital and such other criteria as it deems appropriate;
4. Suspend a Clearing Member, subject to approval of any two of the following individuals: the Chief Executive Officer, the President, the President of the Clearing House, the Chairman of the Board, the Chairman of the CHRC or the Chief Operating Officer; and/or
5. Order the Clearing Member to cease and desist from the conduct found to be contrary to the best interests of the Exchange.

No person shall serve on the CHRC unless he has agreed in writing that he will not publish, divulge, or make known in any manner, any facts or information regarding the business of any person or entity or any other information which may come to his attention in his official capacity as a member of the CHRC, except when reporting to the Board or to a committee concerned with such information or to the Legal Department, Audit Department or Market Regulation Department, when requested by the CFTC or other governmental agency or when compelled to testify in any judicial or administrative proceeding.

All information and documents provided to the CHRC and all deliberations and documents related thereto shall be treated as non-public and confidential and shall not be disclosed, except as necessary to further an Exchange investigation or as required by law.

The CHRC shall have jurisdiction to enforce rules pertaining to the following:

1. Financial integrity of Clearing Members; and
2. Business conduct of and compliance with Exchange rules by Clearing Members and by any Member who is an officer or a principal or who has assigned his membership on behalf of a Clearing Member, in connection with such Clearing Member's activities, except insofar as jurisdiction over matters relating to conduct, trading practices, trading ethics and certain sales practices of Members, and market manipulations or other actions that threaten the integrity of the market are within the purview of the BCC.

Notwithstanding anything to the contrary herein, the jurisdiction of the CHRC shall not extend to IRS Products or IRS Clearing Members in such capacity when clearing IRS Products. The IRS Risk Committee shall have jurisdiction over IRS Products and IRS Clearing Members in such capacity when clearing IRS Products pursuant to the IRS Risk Committee's charter.

**CME, CBOT and NYMEX – RULE 802 (Protection of Clearing House)
Rule Changes for OTC IRS Clearing (Strikeout version)**

802.B. Satisfaction of Clearing House Obligations

If the Clearing House is unable, using the defaulting clearing member's collateral as set forth in Rule 802.A, to satisfy all of the clearing member's obligations to the Clearing House then such obligations shall be met and made good promptly by the Clearing House pursuant to this Rule 802.B. Such obligations include, but shall not be limited to, costs associated with the liquidation, transfer and managing of positions, arising out of: 1) its substitution (pursuant to Rule 804 or Rule 8F05) for a defaulting clearing member a defaulting Participating Exchange, or a defaulting Partner Clearinghouse; 2) a shortfall in a cross-margining program; 3) the failure of a depository, exchange or market apart from the Exchange but whose transactions are cleared pursuant to the provisions of Chapters 8B, 8C, 8D, 8E or 8F; or 4) any other cause. All of the foregoing shall be deemed Losses to the Clearing House, which shall be apportioned by the Clearing House to Loss categories associated with the Product Class producing the Loss. Losses that cannot readily be attributed to a specific Product Class shall be apportioned by the Clearing House across all Product Classes in proportion to relative size of the Tranches (excluding the Commingled Tranche). Losses shall be satisfied by the Clearing House in the order of priority hereafter listed. Non-defaulting clearing members shall take no actions, including but not limited to attempting to obtain a court order, that would interfere with the ability of the Clearing House to collect and apply assets and proceeds in accordance with this Rule 802.B. For purposes of this Rule 802.B, a default by a Participating Exchange or a Partner Clearinghouse shall be managed in the same manner as a default by a clearing member.

1. If Losses Are Limited to the Base Product Class:
 - i. ~~CME Surplus funds of the Exchange in excess of funds for normal operations~~ Funds (as defined below).
 - ii. The Base Tranche.
 - iii. The Commingled Tranche.
 - iv. The CDS Tranche and any Alternate Tranche, pro rata in accordance with the relative size of such Tranches.
 - v. The balance of any Losses remaining after the application of the above funds shall be assessed against all clearing members (excluding any insolvent or defaulting clearing members). Each clearing member (excluding any insolvent or defaulting clearing member) shall be subject to an assessment up to an amount that does not exceed a total of 275 per cent of such clearing member's guaranty fund requirements attributable to all Product Classes at the time of the default. Assessed amounts shall be divided among clearing members pro rata in proportion to the size of the Clearing House's assessment authority with respect to each clearing member. If after satisfaction of any assessments up to foregoing maximum, a non-defaulting clearing member withdraws as set forth in 802.B.5, the clearing member shall not be subject to any further assessment in respect of Losses attributable to the default.
2. If Losses Are Limited to the CDS Product Class:
 - i. ~~CME Surplus funds of the Exchange in excess of funds for normal operations~~ Funds.
 - ii. The CDS Tranche.
 - iii. The Commingled Tranche.
 - iv. The Base Tranche and any Alternate Tranche, pro rata in accordance with the relative size of such Tranches.
 - v. The balance of any Losses remaining after the application of the above funds shall be assessed against all clearing members (excluding any insolvent or defaulting clearing members). Each clearing member (excluding any insolvent or defaulting clearing member) shall be subject to an assessment up to an amount that does not exceed a total of 275 per cent of such clearing member's guaranty fund requirements attributable to all Product Classes at the time of the default. Assessed amounts shall be divided among clearing members pro rata in proportion to the size of the Clearing House's assessment authority with respect to each clearing member. If after satisfaction of any assessments up to foregoing maximum, a non-defaulting clearing member withdraws as set forth in 802.B.5, the clearing member shall not be subject to any further assessment in respect of Losses attributable to the default.
3. If Losses Are Limited to an Alternate Product Class:
 - i. ~~CME Surplus funds of the Exchange in excess of funds for normal operations~~ Funds.
 - ii. The Alternate Tranche.
 - iii. The Commingled Tranche.
 - iv. The Base Tranche, the CDS Tranche and any other Alternate Tranche, pro rata in accordance with the relative size of such Tranches.
 - v. The balance of any Losses remaining after the application of the above funds shall be assessed against all clearing members (excluding any insolvent or defaulting clearing members). Each clearing member (excluding any insolvent or defaulting clearing member) shall be subject to an assessment up to an amount that does not exceed a total of 275 per cent of such clearing member's guaranty fund requirements attributable to all Product Classes at the time of the default. Assessed amounts shall be divided among clearing members pro rata in proportion to the size of the Clearing House's assessment authority with respect to each clearing member. If after satisfaction of any assessments up to foregoing maximum, a non-defaulting clearing member withdraws as set forth in 802.B.5, the clearing member shall not be subject to any further assessment in respect of Losses attributable to the default.
4. If Losses Are Apportioned Among Multiple Product Classes:

Because of differences in the timeframes and processes associated with the liquidation of certain product types, the Clearing House may finalize Loss amounts associated with different Product Classes at different points in time. Notwithstanding this, the Clearing House will act with all possible speed to satisfy the Losses as they are finalized, in the order of priority and per the schedule set forth below.

i. ~~CME Surplus funds of the Exchange in excess of funds for normal operations~~ Funds shall be applied. ~~CME Surplus funds of the Exchange~~ Funds shall be divided by the Clearing House into separate segments in proportion to the size of each Tranche except for the Commingled Tranche. Each segment of surplus funds ~~CME Surplus Funds~~ shall be applied first to Losses associated with the applicable Product Class for such segment, and only at such time as one or more Losses associated with such Tranche are finalized. Subject to paragraph 802.C if any surplus funds ~~CME Surplus Funds~~ remain after such initial application, such surplus funds shall be reserved to be later applied to Losses associated with other Product Classes as set forth in paragraph 802.B.4.v.

ii. The Base Tranche shall be applied to Losses associated with the Base Product Class, the CDS Tranche shall be applied to Losses associated with the CDS Product Class, and any Alternate Tranche shall be applied to Losses associated with the applicable Alternate Product Class, in each case when one or more Losses associated with such Tranche are finalized. Subject to paragraph 802.C, if the Tranche is not exhausted, any remaining funds shall be held in such Tranche and may later be applied to other Losses as set forth in paragraph 802.B.4.v.

iii. The Commingled Tranche funds shall be applied to remaining Losses associated with any Product Class immediately as such Losses are finally determined by the Clearing House, in the order that the amounts of such Losses are finalized. Consequently, the application of Commingled Tranche funds to Losses associated with one Product Class may occur prior to the finalization of Losses associated with other Product Classes (i.e., prior to the completion of the processes set forth in paragraphs 802.B.4.i and 802.B.4.ii with respect to Losses associated with another Product Class.) If Losses associated with more than one Product Class are to be finalized pursuant to auction processes being conducted concurrently, then any remaining Commingled Tranche funds shall be divided and allocated to such auctions during the auction process, pro rata in proportion to the relative sizes of the mark-to-market losses for such Product Classes.

iv. Any Losses remaining after the application of the processes set forth above shall be assessed against all clearing members (excluding any insolvent or defaulting clearing members) up to an amount that does not exceed a total of 275 per cent of the aggregate guaranty fund requirements across all clearing members (excluding any insolvent or defaulting clearing members) at the time of the default with respect to the Product Class with which the Loss is associated. Such assessments shall occur on a per-Product Class basis as Losses associated with each Product Class are finalized by the Clearing House. Consequently, the application of an assessment against clearing members with respect to Losses associated with one Product Class may occur prior to the finalization of Losses associated with other Product Classes. Assessed amounts shall be divided among clearing members pro rata in proportion to the size of the Clearing House's assessment authority with respect to each clearing member, without regard to the Product Classes cleared by such clearing member or the proportion to which such Product Classes contribute to such clearing member's maximum assessment exposure. (For example, a clearing member that clears only CDS products and that is subject to a maximum \$1 billion assessment because of that clearing activity will be subject to assessment of up to \$500 million for a Loss associated with the Base Product Class if 50% of the Clearing House's aggregate assessment powers are generated by guaranty fund requirements with respect to the Base Product Class). Any remaining unused assessment authority associated with Product Classes as to which Losses are fully satisfied shall be reserved and later may be applied to Losses associated with other Product Classes as set forth in paragraph 802.B.4.v below. For the avoidance of doubt, each clearing member (excluding any insolvent or defaulting clearing member) shall be subject to assessment up to a maximum amount of 275 per cent of such clearing member's aggregate guaranty fund requirements with respect to all Product Classes at the time of the default. If after satisfaction of any assessments up to foregoing maximum, a non-defaulting clearing member withdraws as set forth in 802.B.5, the clearing member shall not be subject to any further assessment in respect of Losses attributable to the default.

v. Reserved (a) collateral of the defaulting clearing member, (b) ~~surplus funds~~ ~~CME Surplus Funds~~, (c) Base Tranche funds, CDS Tranche funds or Alternate Tranche funds, and (d) assessment powers shall be applied to remaining Losses as they are finalized with respect to each Product Class and in such order, provided that if at the time of any such application, Losses associated with another Product Class remain to be finalized, the Clearing House shall continue to reserve a portion of such remaining funds or assessment powers, pro rata in proportion to the size of the Tranches originally supporting such Product Classes, until such remaining Losses are finalized. When all Losses have been finalized by the Clearing House, any remaining reserved funds and assessment powers of any kind may be applied to satisfy such Losses, pro rata relative to the size of the remaining losses for the Product Classes.

5. Fedwire and Satisfaction of Assessment

All amounts assessed by the Clearing House against a clearing member pursuant to this Rule, during the hours in which the Federal Reserve's wire transfer system (Fedwire) is in operation, shall be paid to the Exchange by such clearing member prior to the close of Fedwire on such day; provided, however, that all amounts assessed within one (1) hour prior to the close of Fedwire shall be paid to the Exchange within one (1) hour after Fedwire next opens.

Any clearing member that does not satisfy an assessment, made pursuant to this paragraph 802.B.5 or paragraphs 802.B.1.v, 802.B.2.v, 802.B.3.v, 802.B.4.iv or 802.B.4.v above, shall be in default. Any Loss that occurs as a result of such default shall itself be assessed by the Clearing House to non-defaulting clearing members pursuant to the applicable paragraph.

If a clearing member (i) has made payment of all amounts assessed against it pursuant to this Rule 802.B in connection with any single default and any related default by any other clearing member with respect to its own assessment, (ii) has replenished any deficiency in its guaranty fund contribution in accordance with Rule 802.D, and (iii) within five (5) business days after making such payments, has satisfied the other conditions for withdrawal set forth in Rule 913.A, it may provide written notice of its application to withdraw from clearing membership pursuant to Rule 913. Upon receipt of such notice, provided that the foregoing conditions have been satisfied, the withdrawing clearing member shall not be subject to any residual assessment to cover Losses on an open unresolved default, nor any other assessment pursuant to this Rule in respect of defaults occurring on or after the date upon which notice is received. Further, the guaranty fund contribution that it has restored shall not be used or applied towards meeting any claim or obligation of the Clearing House pursuant to Rule 802.B that arises with respect to defaults occurring on or after the date upon which notice is received, and the withdrawing clearing member's guaranty fund contribution shall be released in accordance with Rule 913.

After payment of an assessment pursuant to Rule 802.B, a clearing member shall charge other clearing members for whom it clears contracts or carries positions on its books to recover their proportional share of the assessment. Such other clearing members shall promptly pay the charge.

6. Details of Implementation

While adherence to the provisions of this Rule 802.B shall be mandatory, the detailed implementation of the process of finalizing Losses with respect to a default, including the liquidation, auction or sale of positions or assets of the defaulting clearing member, shall be conducted by the Clearing House in consultation with the Clearing House Risk Committee, with the approval of the Board, and/or such other committee as the Board may designate. With respect to a default occurring in the CDS Product Class, the finalization of Losses with respect to the defaulting clearing member's CDS positions shall be conducted in consultation with the CDS Default Management Committee.

7. Surplus Funds

CME Surplus Funds for purposes of this Rule 802 shall be the amount by which funds held by the Exchange at the time of a default exceed (i) the amount of funds previously determined by the Exchange to be necessary for normal operations on an ongoing basis and (ii) any amount of such funds that is designated by the Exchange for satisfaction of the CME IRS Contribution requirement set forth in Rule 8G802.B.

*Manual of Operations
for CME Cleared Interest Rate Swaps*



A CME/Chicago Board of Trade/NYMEX Company

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CHAPTER 1 – INTEREST RATE SWAPS IRS CLEARING MEMBERSHIP

CME GROUP IRS CLEARING MEMBER STRUCTURE FOR CLEARED INTEREST RATE SWAPS

Components of offering

CME Group's cleared interest rate swaps (IRS) have several components that should be highlighted to provide a framework for understanding the Manual of Operations.

- All cleared OTC IRS trades are maintained with their original economics and held open through the duration of the trade unless the trade qualifies for netting and netting is enabled for the particular account.
- OTC IRS customer protection standards will feature utilization of the CFTC OTC account class.
- Cleared IRS trades are maintained by clearing in position accounts for the benefit of individual customers; position accounts map directly to performance bond accounts, thus allowing CME Clearing to calculate performance bond requirements ("margin" requirements) specific to each account. Therefore, CME Clearing provides the initial and variation margin requirements for each account. Omnibus structure is not supported.
- CME Clearing is tracking customer level positions at the clearing level, trade offsets are done automatically through an end of day netting cycle that runs as part of the clearing cycle. Risk offsets against futures for customer cleared trades will not be provided on "Day 1"; pending regulatory resolution.
- Risk offsets against futures for House (proprietary) accounts are targeted for availability for house cleared trades shortly after "Day 1".
- One EULA per client relationship AND one EULA for IRS Clearing Member proprietary business is required. An Exchange User License Agreement (EULA) is a legally binding term sheet that market participants are required to enter into before they may actively participate in certain CME marketplaces.
- CME Clearing is offering credit controls which can be calibrated for each account, which allows for Straight through processing (STP) of the swap from the affirmation platform through clearing. If credit limits are not set / the swap fails the credit limits set by the IRS Clearing Member firm, a claim workflow will be used for IRS Clearing Member affirmation of the swap in the clearing system. More information on credit controls can be found in Chapter 4.

CME GROUP IRS CLEARING MEMBER REQUIREMENTS

Risk Management Capabilities and Suitability Requirements

Equally important to the necessary capital and operational capabilities to process the daily IRS product transaction flows, is the IRS Clearing Member's risk management infrastructure and ability to analyze its cleared positions, regardless of instrument type. Further, the IRS Clearing Members must provide evidence of appropriate experience in the IRS market commensurate with their anticipated clearing activities, as well as participate in CME Clearing's IRS default management process.

Members must commit to real-time analysis in support of their IRS clearing business, including daily internal stress tests and IRS (and options) exposure monitoring. Additionally, the IRS Clearing Member must commit to a robust screening process for client suitability to all IRS related products. Risk management expectations include the ability, commitment and expertise to:

- Evaluate actual and theoretical market events on portfolio returns on an ex-post or ex-ante basis;
- Mark positions to market on at least a daily basis;
- Calculate concentration risk and impact on margin requirements at IRS Clearing Member and account level;
- Conduct independent daily stress tests based on position and regional concentrations for equities, interest rates, commodities, and foreign exchange asset classes;
- Conduct independent daily stress tests for IRS positions based on net exposure of each sequestration origin (customer sequestered and non-segregated) by IRS Clearing Members for their house and client accounts;
 - Assess and transmit upon request results of stress tests exercise on risk profile of accounts
 - Ability to stress test components of portfolio risk
- Risk Factor Modeling – using historical data to model future behavior of risk factors including correlation, volatility, and optionality;
- Netting – Running netting rules to calculate overall exposure;
- Aggregation – rolling up data from position level to top of firm;
- Monitoring IRS trading and P&L swings;
- Direct access to markets in order to liquidate positions which it clears;
- Ability to force liquidation of all or parts of clearing-level portfolios, on immediate notice;
- Construct a bid for a default management auction;
- Assist with hedging the IRS portfolio of a defaulted IRS Clearing Member and demonstrate ability to execute with multiple participants within the OTC market;
- Take in a broad IRS portfolio and price it in conjunction with the defaulting IRS Clearing Member position auction process;
- Maintain sufficient excess capital to support the IRS Clearing Member's participation in CME financial safeguards;
- Ability to commit qualified resources for simulated default management exercises that will be run periodically at CME Clearing. Primary responsibility for managing default events must reside within the IRS Clearing Member or a CME-approved affiliate.

An applicant is required to respond to a detailed questionnaire that allows CME Clearing to assess that applicant has sufficient internal market/credit/operational risk measures/monitoring/limit process and management frameworks. Relevant internal policies will be reviewed by CME and the IRS Risk Committee and the application will be provided with results/recommendations.

New and existing IRS Clearing Members will also go through a review that includes:

- The activity that the applicant will conduct;
- Disciplinary and regulatory history of the applicant and its principal officers;
- Regulatory capital computations to ensure that CME Clearing capital requirements are met;
- Review capital and earnings trends of the IRS Clearing Member or its parent;
- Review earnings calls of the relevant IRS Clearing Member or parent;
- Ensure that all membership requirements, shares, guaranty funds, and other agreements are in place.

The CME Clearing House Risk Committee has authority over IRS Clearing Member requirements. The IRS Risk Committee reviews and approves the application of each IRS Clearing Member

Operational and Suitability Requirements

In addition strict capital and risk management requirements, IRS Clearing Members must also satisfy CME Clearing related operational requirements, and provide the means and commitment to facilitate the following items:

- Participate in the Default Management Committee (i.e. expertise to hedge, liquidate, and facilitate the process);
- Offer the necessary back office services to clients;
- Perform trade and position processing services for CME-cleared IRS Products, including capturing trades, producing client statements, calculating initial margin requirements, reconciling with the clearing system, and daily banking of resulting cash movements;
- Submit monthly financial statements;
- Submit audited financial statements annually;
- Ability to process the expected volumes and values of IRS Products within the required time frames (including at peak times);
- Collateral operations capable of managing daily margin processes;

- Maintains operations in a form and substance acceptable to CME Clearing which:
 - Is remote from any exchange floor and/or trading desks;
 - Has adequate systems (including, but not limited to, computer and communication systems) and records;
 - Has adequate number of competent personnel experienced with procedures for the management and clearance of business transacted in the markets and trades in which the applicant participates.

Further, IRS Clearing Members should evaluate the suitability of clients for IRS Products (Eligible Contract Participant equivalent) and ensure that they have a certain level of sophistication and understanding of IRS trading mechanics and prudent risk management capabilities consistent with the client's activity relative to the proportional size of the IRS Clearing Member.

Sequestration of Customer Funds for IRS

Laws, regulations and rules governing "cleared OTC derivatives" (including but not limited to IRS) cleared by CME Clearing require that customer positions and monies be separately accounted for and sequestered from the positions and monies of the IRS Clearing Member. These laws, regulations and rules are designed to protect customers in the event of the insolvency or financial instability of the IRS Clearing Member through which they conduct business. The requirements of separate accounting and sequestration of customer positions and monies extend to CME Clearing. CME Group's Audit Department routinely inspects the books and records of IRS Clearing Members to ensure, among other things, their compliance with sequestration requirements. The integrity of sequestration relies on the accuracy and timeliness of the information provided to CME Clearing and the CFTC by member firms. Violations by an IRS Clearing Member of its sequestration requirements would be considered serious infractions that may result in major fines and penalties.

For IRS, CME Clearing and IRS Clearing Members will hold customer IRS positions and related collateral in "cleared OTC derivatives sequestered accounts" pursuant to CME Rules and CFTC Part 190 Regulations. In accordance with CME Rules, customer IRS positions and related collateral must be sequestered from the positions and monies of the IRS Clearing Member.

CME Rules also mandate the use of forms of acceptable collateral to support margining of positions. Please see Chapter 6 of this Manual for further information regarding acceptable collateral and haircuts.

CHAPTER 2: INTEREST RATES PRODUCTS

The Initial Product Set:

The products in scope for the first phase of the OTC Interest Rate Swaps program are fixed-floating single currency¹ Interest Rate Swaps. The product characteristics of the supported products are listed below:

Product Characteristics – USD

Clearing Product Code	USD3L1
Floating Index	USD BBA-LIBOR 3M
Reset Frequency	Quarterly
Fixing Date	2 Business days prior to floating payment
Fixed Payment Frequency	Semi-Annual, Bond Basis
Floating Payment Frequency	Quarterly
Day count conventions	Fixed = ISDA 30/360 Floating = ISDA ACT/360
Business Day Conventions	ISDA MOD Following
Accrual Type	ADJUSTED for Fixed and ADJUSTED for Float
Business Calendar	USNY and GBLO(London) for Fixed Leg and Float Leg
Effective Dates	Old Start Dates Spot Start Dates (Trade date + 2 business days) Forward Start Dates
Stubs (Post Pilot Launch)	May have Front Stubs (with stub rate specified)
Tenors	0 through 31 years
Notional	Non-Amortizing

¹ The cash flows of the swap are in a single currency

Other supported variations are:

Template Name	Description
USD3L2	Same as USD3L1 except: Accrual type UNADJUSTED for Fixed Accrual
USD3L3	Same as USD3L1 except: Floating Payment Frequency Semi Annual with Quarterly compounding
USD3L4	Same as USD3L1 except, Floating Payment Frequency Semi Annual with Quarterly compounding and Unadjusted Fixed Accrual

Trade Details

Sample Confirmation Message outlining all trade details and descriptions

CME Clearing sends clearing confirmation messages real time via messaging queues set up between CME Clearing and each IRS Clearing Member. Below is an overview of all fields and applicable descriptions for each component of a clearing confirmation message. The next section elaborates on the details of a message from CME Clearing.

Field's	Description	
SentBy	Represents the sender of the message i.e. CME	
sentTo	Represents the receiver of the message i.e. the IRS Clearing Member ID	
Party Reference	Field	Description
	partyReference	Reference to the IRS Clearing Member
	accountReference	Reference to the account
Party Trade Identifiers	Field	Description
	partyReference	Reference to the clearing service i.e. CME
	cme_trade_id	Trade ID assigned by CME for the trade
	client_trade_id	Trade ID assigned by the client to the trade
	Platform_trade_id	Trade ID assigned by the platform to the bi-lateral deal that was executed/affirmed on the platform
CME Swap Identifier	Used for easy identification of the swap that was traded	

History	Field	Description
	replacementTradeId	Appears on the Cleared Confirm Terminated Partial Netting message with a reference to the cme_trade_id that was created because of this partial netting
	originalTradeId	Appears on the Cleared Confirm Terminated Full Netting message with a reference to the cme_trade_id(s) that were terminated because of this netting Appears on Cleared Confirm Amended Netting Remnant with a reference to the original cme_trade_id of the latest trade in the same direction of the remaining notional
relatedParty	Identifies a related party performing a role within the transaction	
	Field	Description
	partyReference	Reference to the party to the trade
	Role	Role of the party e.g. participant
origin_code	HOUSE or CUST account sequestration	
Trade Date	Date when the trade was originally executed.	
Cleared Date	This represents the date the trade was cleared through a central counterparty	
Status	This represents the status of the trade sent for clearing. Following are the attributes CLEARED – For a new trade that was created and cleared AMENDED – For a existing trade that was amended due to an event e.g. partial netting TERMINATED – For a trade that was terminated due to an event e.g. transfer, netting, VOID etc	
originatingEvent	This represents the event that created the trade. The following are the attributes for this field. This element will appear if the trade is in "CLEARED" or "AMENDED" status NEW_TRADE – New trade from the platform TRANSFER – An event when one party transfers the trade to another party TRADE_AMEND – If a "CLEARED" trade is amended NETTING_REMNANT – An event when like swaps are used to offset each other resulting in either termination of all the swaps or amendment of last swap in the same direction	

terminatingEvent	<p>The event that terminated the trade. This element will appear with the status "TERMINATED"</p> <p>FULL_NETTING – Termination due to full netting with other trades</p> <p>PARTIAL_NETTING – Termination due to partial netting with other trades</p> <p>TRANSFER – Termination due to trade being transferred to another account</p> <p>VOID – Termination of a Top day trade due to request from the original counterparties to the trade</p>	
productId	<p>Swap template for this particular swap. The attributes of this are</p> <ul style="list-style-type: none"> • USD3L1 • USD3L2 • USD3L3 • USD3L4 	
swapStream ID	<p>Repeating group for different legs of the swap. The following are the attributes</p> <ul style="list-style-type: none"> • fixedLeg • floatLeg 	
payerPartyReference	Reference to the party on the pay side of this leg	
receiverPartyReference	Reference to the party on the receive side of this leg	
payerAccountReference	If the payer party is an IRS Clearing Member then the account information of that firm's account	
receiverAccountReference	If the receiver party is an IRS Clearing Member then the account information of that firm's account	
calculationPeriodDates	Field	Description
	Effective Date	Date when the accrual on this leg begins
	businessDayConvention	Represents the convention to follow in case of non business days. This item is repeated as needed
	Termination Date	The last date of the trade. After this date the trade will mature and cease to exist
	Business Center	Calendars to use for determining business and non business days
calculationPeriodFrequency	Field	Description
	periodMultiplier	Multiplier used to determine the period e.g. 6
	period	This represents the period e.g. M which represents Month
calculationPeriodAmount	Field	Description
	Notional	Notional Amount on the trade
	Currency	Currency of the notional amount

payRelativeTo	This item is repeated for fixed and float legs. Defines if the payment occurs at the beginning or end of the period.	
fixedRateSchedule	Field	Description
	initialValue	The fixed rate of the swap expressed in decimal
	dayCountFraction	Day count basis convention to calculate number of days between two dates e.g. ACT/360
paymentCalculationPeriod	Repeated group for each cashflow on the fixed leg	
	Field	Description
	adjustedStartDate	Start Date of the cashflow period
	adjustedEndDate	End Date of the cashflow period
	notionalAmount	Notional amount to calculate the cashflow on
	fixedRate	Fixed rate used for this period
resetDate	Field	Description
	resetRelativeTo	This defines if the reset happens at the beginning or end of the period
	fixingDates	Represents the offset in days to fix the floating rate along with the business day convention
	resetFrequency	Frequency of reset on the float leg
	resetDatesAdjustments	Business day conventions for reset date
floatingRateCalculation	Field	Description
	floatingRateIndex	Index used for the floating rate e.g. USD_LIBOR_BBA
	indexTenor	This is the term of the index represented with a periodMultiplier and Period combination e.g. 3M
paymentCalculationPeriod	Repeated group for each known cashflow on the float leg	
	Field	Description
	adjustedStartDate	Start Date of the cashflow period
	adjustedEndDate	End Date of the cashflow period
	notionalAmount	Notional amount to calculate the cashflow on
	floatingRateDefinition	Adjusted Fixing date and Observed rate for this period. ObservedRate is '0' if the fixing is not done

CHAPTER 3: THE CLEARING SYSTEM; GETTING STARTED

Clearing System Modules and Infrastructure

CME's Clearing System is comprised of four basic categories of applications:

1. **Trade and Position Management Systems:**
 - a. Front End Clearing: Deal Management System, a multi-faceted trade processing module integrated with multiple trade matching and affirmation platforms (Bloomberg, MarkitSERV, TradeWeb) and linked via a real time messaging infrastructure to all IRS Clearing Member back office systems.
 - b. The IRS Position Management system, a central application that performs valuation and netting of all IRS Clearing Member house and customer trades as well as generating the core clearing trade register data files and reports.
2. **Performance Bond Systems:** PC Rates uses a Principal Component Analysis (PCA) model for calculating Margin requirements for each portfolio which is directly mapped to a Performance Bond/Position Account. See Chapter 7, Interest Rate Margining.
3. **Settlement, Banking and Asset Management Systems:** CME Clearing systems where all IRS Clearing Member proprietary and customer account structures are managed and linked to IRS Clearing Member settlement bank asset accounts for purposes of collateral management, and settlement of initial and variation margin cash flows.
4. **Referential Data Modules:** These modules include the CME Clearing Product, Calendar, Account Registration and Security Administration systems.

Trade Processing Module

Trade Acceptance

Trades are accepted from Trade Confirmation and Affirmation Platforms over an open standard CME ClearPort API. CME ClearPort provides a robust interface for the submission of two sided trades with embedded FpML block containing the deal information to clearing. If a group of trades is allocated, allocations can be split into distinct trades by the platforms and then submitted. All trades will be credit checked as set up by the client's IRS Clearing Member. If credit limits are breached, the trade will be sent to the corresponding IRS Clearing Member Firm for Claim and the platform will be notified. Once the IRS Clearing Member Firm (s) has claimed, the platform will be notified of the cleared trade. If the trade is rejected by the IRS Clearing Member Firm, the platform will be notified.

Supported Functions

The following table lists functions support by the API:

API Function	Description
Two sided Trade Submission	Submit a new two sided trade into clearing.
Trade Void/Termination	A cleared trade can be voided.

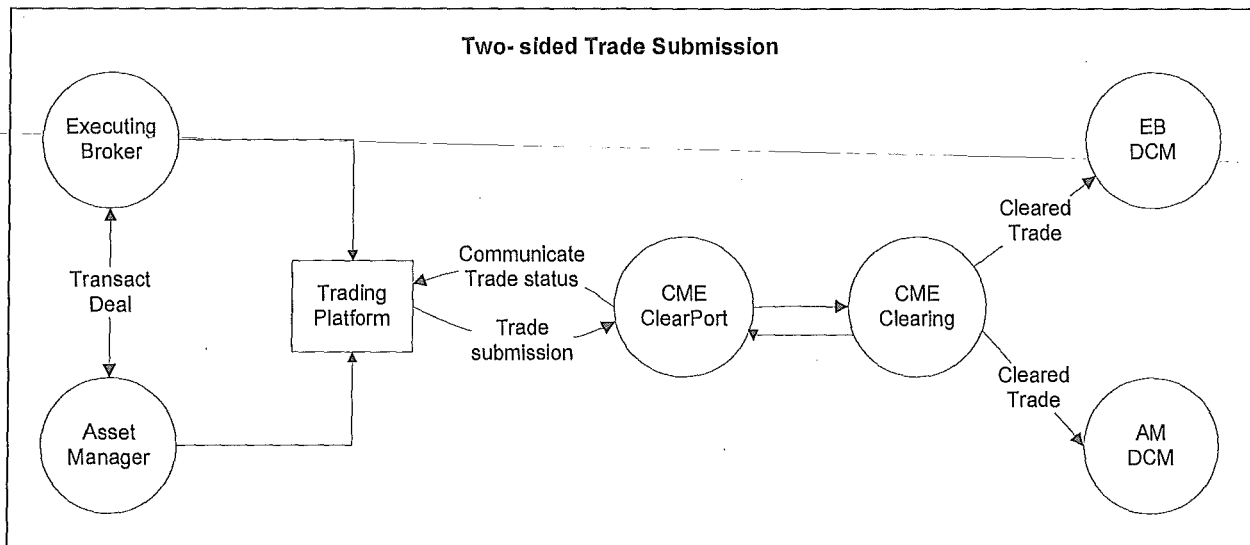


Figure 1: Trade workflow

Three platforms: MarkitSERV, Bloomberg VCON and TradeWeb are certifying to the CME ClearPort API. Trades are processed in on a real-time basis, with trades and other transactions handled as soon as received. The Clearing System is available, from Sunday afternoon through Friday evening. Please see Chapter 5 for operations timelines.

In addition to the rich ClearPort FPML-based API, a powerful and easy-to-use graphical user interface (GUI) – Front End Clearing; Deal Management System (DMS) is provided for IRS Clearing Member staff members. The DMS GUI is browser-based and may be accessed from any workstation with Internet connectivity.

The Position Management module is the part of the clearing process that provides trade netting. In other words, participants can establish trades, and then can liquidate those trades by clearing opposing trades, regardless of the counterparty following the netting process outlined in the netting section in Chapter 4.

Margin Module

The Margin module uses positions from the position module, the mapping of positions accounts to performance bond accounts and computes the margins for each performance bond account using the IRS Margin Methodology as described in Chapter 7 of the Manual of Operations.

The Margin system generates a report in csv format with margin numbers for each position account. This report is placed in the secure FTP site for the Clearing Member Firm. Seasoned portfolios submitted by the Clearing Member Firm for back loading (migration) can be run through the margin system to determine the indicative margins for the portfolio. Firms can use these indicative margins to provide consent to uploading the portfolio for clearing.

Settlement, Collateral, and Asset Management

The Settlement module sits at the core of the clearing process and is invoked at every settlement cycle. It performs functions including:

- Aggregation of cumulative financial settlement requirements such as settlement amounts and variation margin;
- Aggregation of calculated initial margin requirements; and
- Comparison of initial margin requirements to collateral on deposit using a rules-based engine, ultimately determining whether collateral excess or deficits exist, and if necessary generating cash calls to cure any deficits.

The Settlement module always performs an end-of-day settlement cycle, and provides the ability to process additional settlement and banking cycles throughout the day should market activity warrant.

Banking

The Banking module works together with the Settlement module to execute fund movements associated with settlement cycles. The Settlement module determines how much to bank for each Clearing Member, and the Banking module then applies a rules-based engine to these results to select bank accounts, determine funds movement methods, and generate and transmit funds movement instructions.

Like the Settlement module, the Banking module is highly configurable and rule-driven. Flexibility is provided in the rules for bank and bank account selection.

CME Clearing typically transmits banking instructions to its settlement banks via the secure Society for Worldwide Interbank Financial Telecommunication (SWIFT) network.

Asset Management

The Asset Management module serves as the central repository of all collateral deposited by IRS Clearing Members to meet performance bond requirements, and handles all transaction types associated with those collateral assets. Collateral transactions include deposits, withdrawals, maturities, coupon payments and substitutions.

In addition to these transactions, the system supports a variety of advanced collateral management programs to provide firms with great flexibility and efficiency.

Whenever an IRS Clearing Member requests withdrawal of an asset, the Asset Management module evaluates in real time whether this withdrawal would leave the firm with sufficient collateral to meet its performance bond requirement. The withdrawal is only allowed if no deficit would result.

The Asset Management module also provides powerful facilities for marking collateral assets to market, and for calculating rule-based haircuts against those market values. The result for each asset on deposit is what we call the performance bond value of the asset -- the amount by which it may be used to meet performance bond requirements.

Organization and Account

The Organization and Account module captures the clearing account structures defined for IRS Clearing Member firms. The module provides firms with flexibility, supporting definition of the following attributes:

- Trading Member Firms (TMF's) -- the entities which perform trade processing functions. IRS Clearing Members may define any number of TMF's for various purposes and venues, and are typically used to segregate trade processing.
- Position Accounts -- the levels at which trades are kept. Typically trades executed by any number of trading firms are aggregated to position accounts according to rules defined according to firm requests.
- Performance Bond Accounts -- the levels at which initial margin requirements are calculated.
- Settlement Accounts -- the levels to which financial requirements such as variation margin and initial margin are aggregated for determining funds movement instructions.
- Asset Accounts -- the levels at which collateral assets are maintained.

The Organization and Account module is also responsible for maintaining the strict sequestration of positions and monies mandated under CME Clearing rules and CFTC regulations. All accounts are tagged with their "origin", also called their "sequestration types", and customer funds are kept strictly separate from proprietary or House funds of IRS Clearing Members.

Other infrastructural modules

- The Currency module serves as the central repository of currency exchange rates needed by different parts of the system.
- The Calendar module serves as the central repository of calendars used by the system for determining processing days, valid trading days, value dates for banking and collateral transactions, etc.
- The Security module is the central repository for storing valid users and their access profiles.

CHAPTER 4: TRADE ENTRY, MESSAGING AND MANAGEMENT

Submission of IRS Product trades to CME Clearing

IRS Product trades may be input into CME Clearing by the following routes:

1. Via any third party vendor approved by CME Clearing. (As of July 2010, Bloomberg's VCON (Voice Confirmation) platform is an approved vendor. MarkitSERV and TradeWeb scheduled for Q3 production release)
2. Directly from IRS Clearing Members by API
3. Portfolio Migration via Excel

Third Party Submission Methods

Privately negotiated IRS transactions may be submitted to CME Clearing for clearing from all standard sources including: (a) Bloomberg VCON; (b) MarkitSERV; (c) TradeWeb; (d) directly from Swap Execution Platforms via API.

Regardless of how submitted, trades involving IRS Products may only be for accounts registered by the relevant IRS Clearing Members, and will require IRS Clearing Members to explicitly consent if the trade does not clear risk filters for the position account setup by IRS Clearing Members at CME Clearing. More information around setting up credit limits (also known as risk filters) can be found in the Credit Limits section later in this chapter.

Trade Acceptance

IRS transactions received into Clearing System are checked and validated by the Clearing System before being accepted for clearing by CME Clearing. The validation checks include the following:

- Transactions must be in products which are valid and eligible for clearing;
- The IRS Clearing Member / Customer account ID must be valid;
- Credit Limits/Risk filters (Approval leads to straight through processing) (more details below).

The Clearing System Front End Clearing; Deal Management System performs the checking and validation procedures. In order for CME Clearing to engage in Substitution (per CME Clearing Rule 8G05), trade submission must pass Clearing Firm and CME Clearing credit limits. Please refer to the section on Credit Limits for further details on credit limit enforcement. Upon substitution, the CME Clearing Financial Safeguards for IRS Contracts is effected and CME Clearing is substituted as the counterparty to each party of the original trade submission. There shall be two equal and offsetting IRS Contracts – one between the original buyer and CME Clearing and one between the original seller and CME Clearing, pursuant to CME Rule 8G05, Substitution.

New Trade Submission – Successfully Cleared

In this scenario, a Client executes a swap with Executing Dealer (ED). The ED alleges swap to Client using an affirmation platform. Client selects its IRS Clearing Member and Affirms Swap.

The steps are

1. The Affirmation platform sends matched trades to CME for Clearing.
2. After validating product, account and applying credit limits set by the IRS Clearing Member(s), CME accepts swaps for clearing.
3. CME Clearing sends "Cleared" Notification to Affirmation Platform which displays trade status to principals.
4. CME Clearing sends Clearing Confirmation to IRS Clearing Member(s).

New Trade Submission – Successfully Cleared

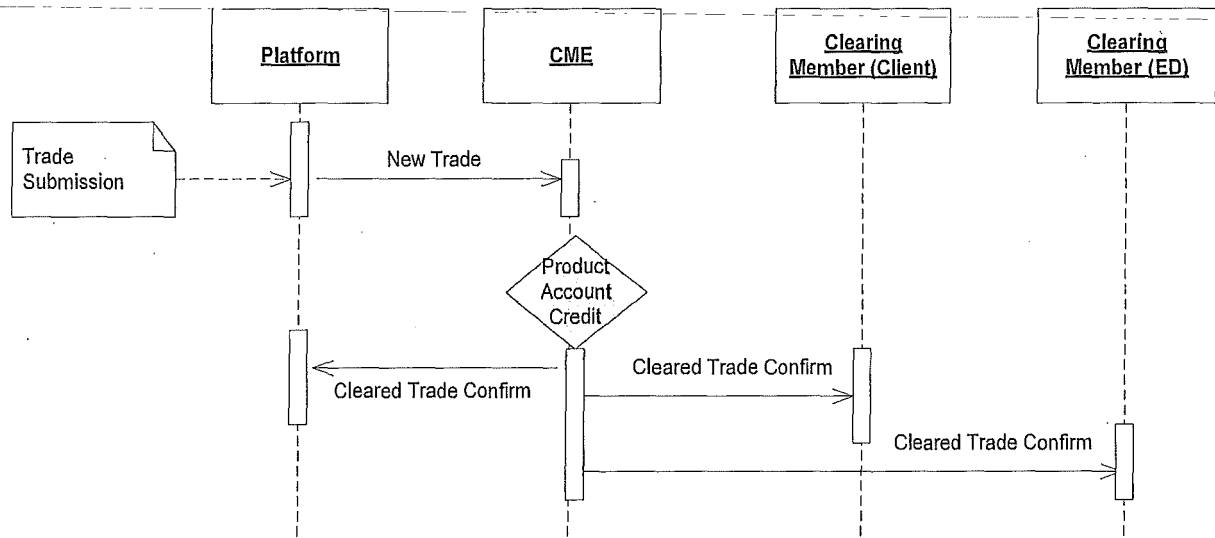


Figure 3: New trade submission flows

New Trade Submission – Rejected due to product and account validation

In this scenario, a Client executes a swap with Executing Dealer (ED). The ED alleges swap to Client using an affirmation platform. Client selects its IRS Clearing Member and Affirms Swap.

The steps are:

1. The Affirmation platform sends matched trades to CME for clearing.
2. After validating product and account(s), if any of those are not valid, CME sends a Rejected trade message to the Affirmation Platform indicating that the product or account(s) is invalid.

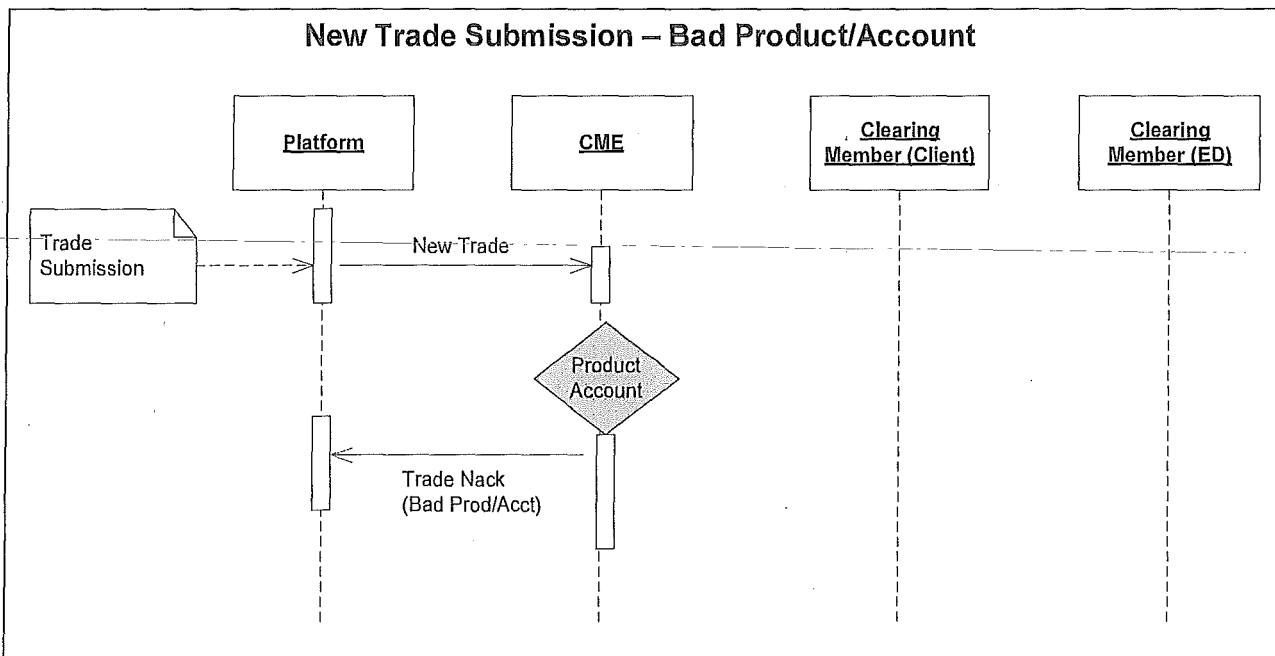


Figure 4: New trade flow - Product / account failures

New Trade Submission – One side Credit Failure – IRS Clearing Member Accepts

In this scenario, a Client executes a swap with Executing Dealer (ED). The ED alleges swap to Client using an affirmation platform. Client selects its IRS Clearing Member and Affirms Swap.

The steps are:

1. The Affirmation platform sends matched trades to CME for clearing.
2. After validating product, account and applying credit limits set by IRS Clearing Member(s), the Client side swap fails the Credit Check.
3. CME Clearing Sends "Pending DCM Approval" Notification to Affirmation Platforms.
4. CME Clearing sends "Clearing Consent" notification to the IRS Clearing Member of the Client. The Swap is in "Pending Clear" state and is eligible for withdrawal by counterparties to the trade
5. IRS Clearing Member of Client responds with an accept message.
6. CME Clearing notifies Affirmation Platform "Swap Cleared".

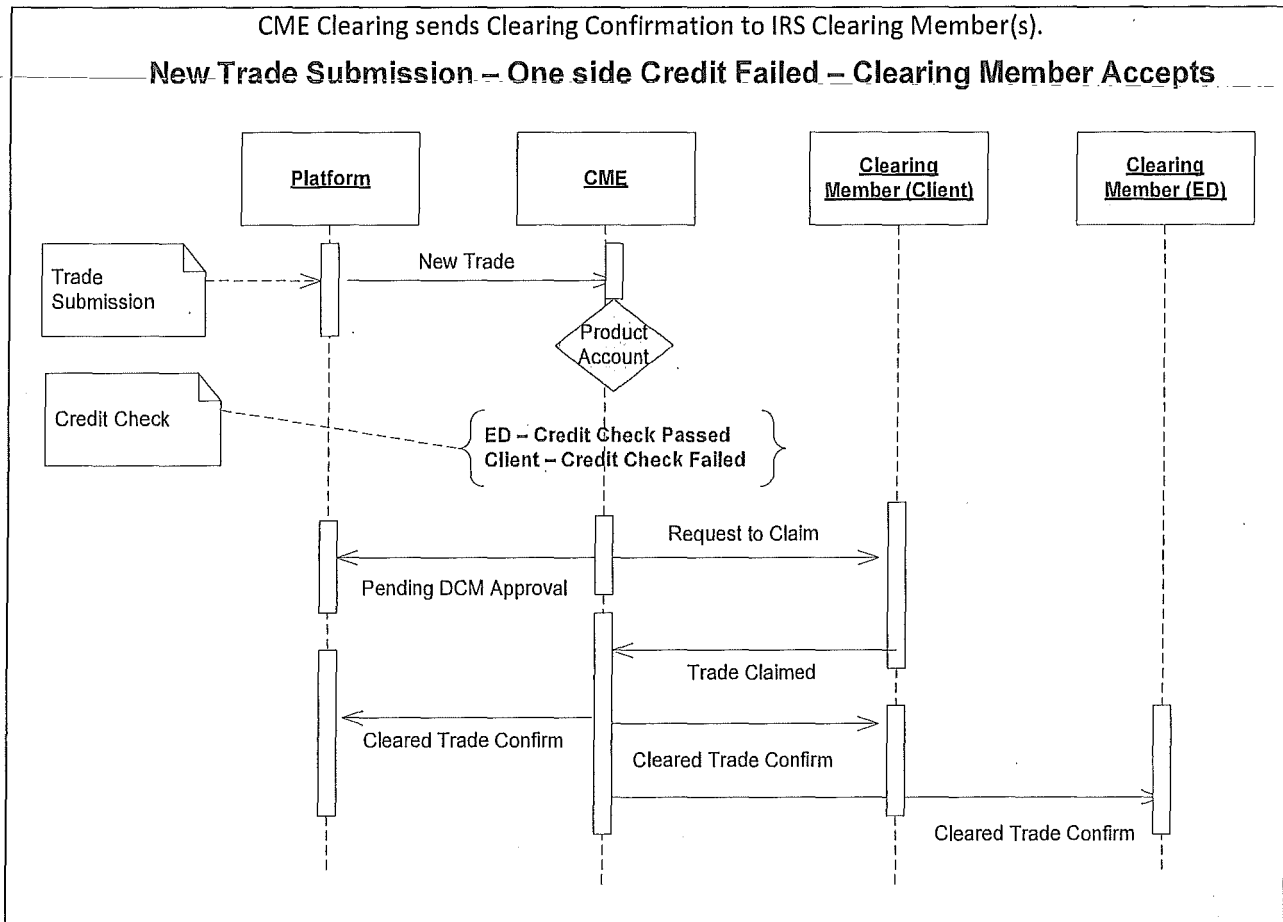


Figure 5: New trade submission - credit failed with IRS Clearing Member firm acceptance

New Trade Submission – One side Credit Failure – IRS Clearing Member Rejects

In this scenario, a Client executes a swap with Executing Dealer (ED). The ED alleges swap to Client using an affirmation platform. Client selects its IRS Clearing Member and Affirms Swap.

The steps are:

1. The Affirmation platform sends matched trades to CME for clearing.
2. After validating product, account and applying credit limits set by IRS Clearing Member(s), the Client side swap fails Credit Check.
3. CME Clearing sends "Pending DCM Approval" Notification to Affirmation Platforms.
4. CME Clearing sends "Clearing Consent" notification to IRS Clearing Member of the ED. The Swap is in "Pending Clear" state and is eligible for withdrawal by counterparties.
5. IRS Clearing Member of Client rejects the Swap.
6. CME Clearing notifies Affirmation Platform "Trade Rejected for Clearing".
7. Affirmation platform notifies principal.

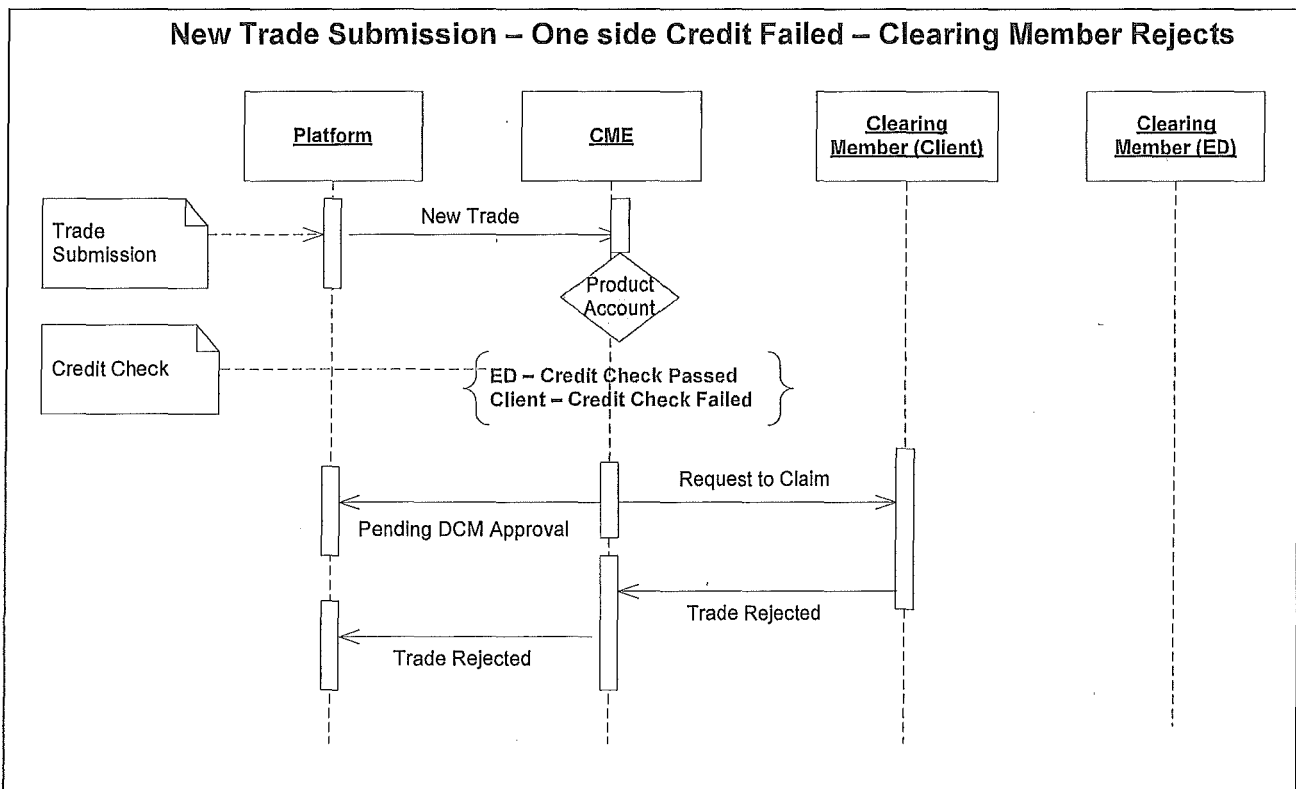


Figure 6: New trade submission - credit fails, member rejects

New Trade Submission – Both sides Credit Failure – Both IRS Clearing Members Accept

In this Scenario, a Client executes a swap with Executing Dealer (ED). The ED alleges swap to Client using an affirmation platform. Client selects its IRS Clearing Member and Affirms Swap.

The steps are:

1. The Affirmation platform sends matched trades to CME for clearing.
2. After validating product, account and applying credit limits set by IRS Clearing Member(s), both sides fail Credit Check.
3. CME Clearing sends "Pending DCM Approval" Notification to Affirmation Platforms.
4. CME sends a request to claim notification to IRS Clearing Members of both sides. The Swap is in "Pending Clear" state and is eligible for withdrawal by counterparties.
5. IRS Clearing Member of Client responds with an accept.
6. CME Clearing notifies the platform of the claim.
7. IRS Clearing Member of ED responds with an accept.
8. CME Clearing notifies Affirmation Platform "Swap Cleared".
9. CME Clearing sends Clearing Confirmation to IRS Clearing Member(s).

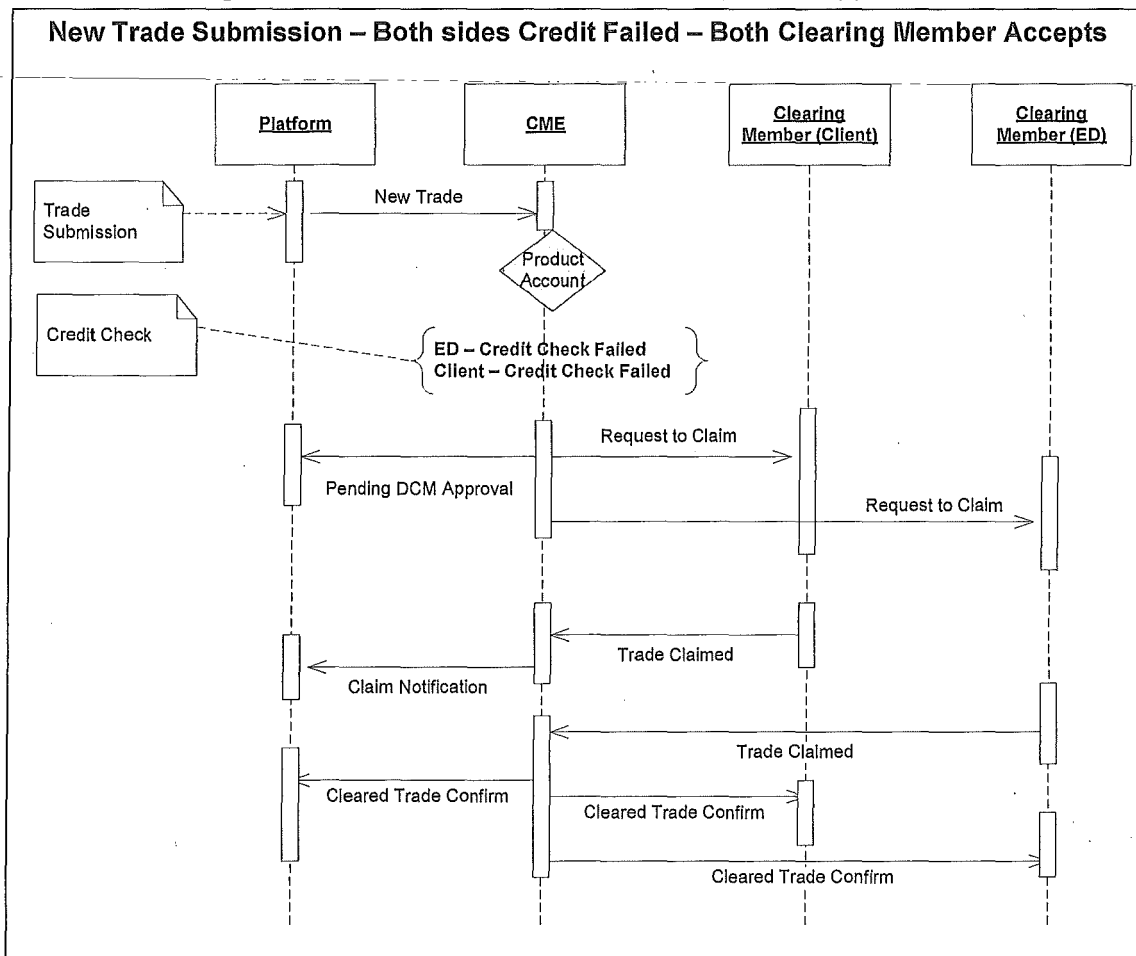


Figure 7: New trade submission - credit fails for both sides, member accepts

New Trade Submission – Both sides Credit Failure – One IRS Clearing Member Rejects

In this scenario, a Client executes a swap with Executing Dealer (ED). The ED alleges swap to Client using an affirmation platform. Client selects its IRS Clearing Member and Affirms Swap.

The steps are:

1. The Affirmation platform sends matched trades to CME for clearing.
2. After validating product, account and applying credit limits set by IRS Clearing Member(s), both sides fail Credit Check.
3. CME Clearing sends "Pending DCM Approval" Notification to Affirmation Platforms.
4. CME sends a request to claim notification to IRS Clearing Members of both sides. The Swap is in "Pending Clear" state and is eligible for withdrawal by counterparties.
5. IRS Clearing Member of Client responds with an accept.
6. CME Clearing notifies the platform of the claim.
7. IRS Clearing Member of ED responds with a reject.
8. CME Clearing notifies Affirmation Platform with "Trade Rejected for Clearing".
9. CME Clearing sends Trade Rejected messages to both the IRS Clearing Member(s).

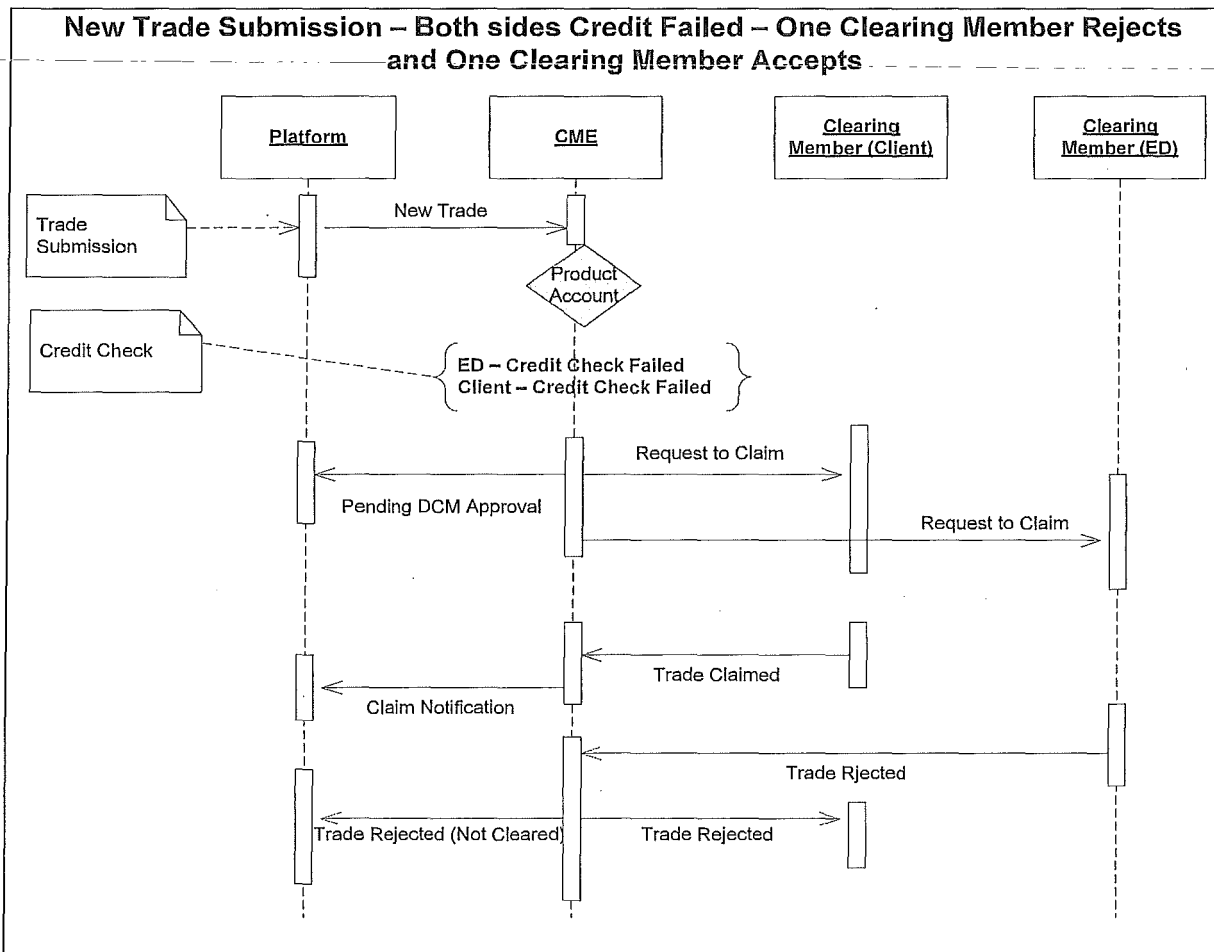


Figure 8: New trade submission, both sides' credit failed, one member rejects, other accepts

New Trade Submission – Pre Clearing Allocations – All allocations Cleared

In this Scenario, an Asset Manager executes a group of trades with Executing Dealer. The ED alleges the group of trades to the Asset manager. The Asset Manger affirms the block. The Asset manager allocates trades to Fund1 (F1) and Fund2 (F2) with IRS Clearing Members CMF1 and CMF2.

The steps are:

1. The Affirmation platform sends two Swaps: F1 → ED and F2 → ED, to CME Clearing.
2. After validating product, account and applying credit limits set by IRS Clearing Member(s), CME accepts both the swaps for clearing.
3. CME Clearing sends two “Cleared” Notifications to Affirmation Platform which displays trade status to principals.
4. CME Clearing sends Clearing Confirmation to all the IRS Clearing Member(s).

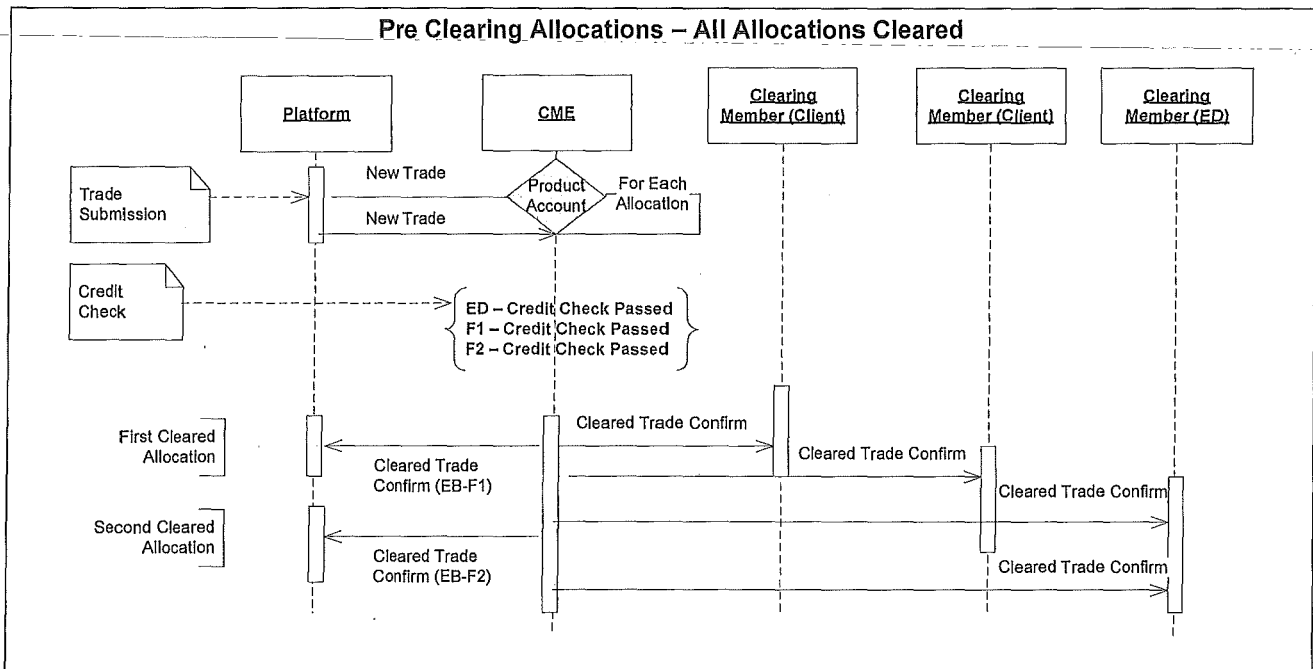


Figure 9: Pre-clearing allocations

New Trade Submission – Pre Clearing Allocations – One Allocation Rejected

In this scenario, an Asset Manager executes a group of trades with Executing Dealer. ED alleges the group of trades to the Asset manager. The Asset Manger affirms the group of trades. The Asset Manager allocates trades to Fund1 (F1) and Fund2 (F2) with IRS Clearing Members CMF1 and CMF2.

The steps are:

1. The Affirmation platform sends two Swaps: F1 → ED and F2 → ED, to CME Clearing.
2. CME Clearing validates product and account information. ED and F1 pass Credit Check and F2 fails Credit Check.
3. CME Clearing sends "Pending DCM Approval" Notification to Affirmation Platform. For the F2 → ED trade. CME discloses the Fund name (F2) in the message back to the platform.
4. CME Clearing sends "Clearing Consent" notification sent to IRS Clearing Member of the Client. The Swap is in "Pending Clear" State and is eligible for withdrawal by counterparties.
5. IRS Clearing Member of Client rejects the Swap with a "Consent Denied".
6. CME Clearing notifies Affirmation Platform "Trade Rejected for Clearing".
7. CME Clearing sends "Cleared" Notification for F1 → ED Trade to Affirmation Platform which displays trade status to principals.
8. CME Clearing sends Clearing Confirmation to IRS Clearing Member(s) of ED and F1.
9. CME Clearing notifies the IRS Clearing Member of ED with "Trade Rejected for Clearing".

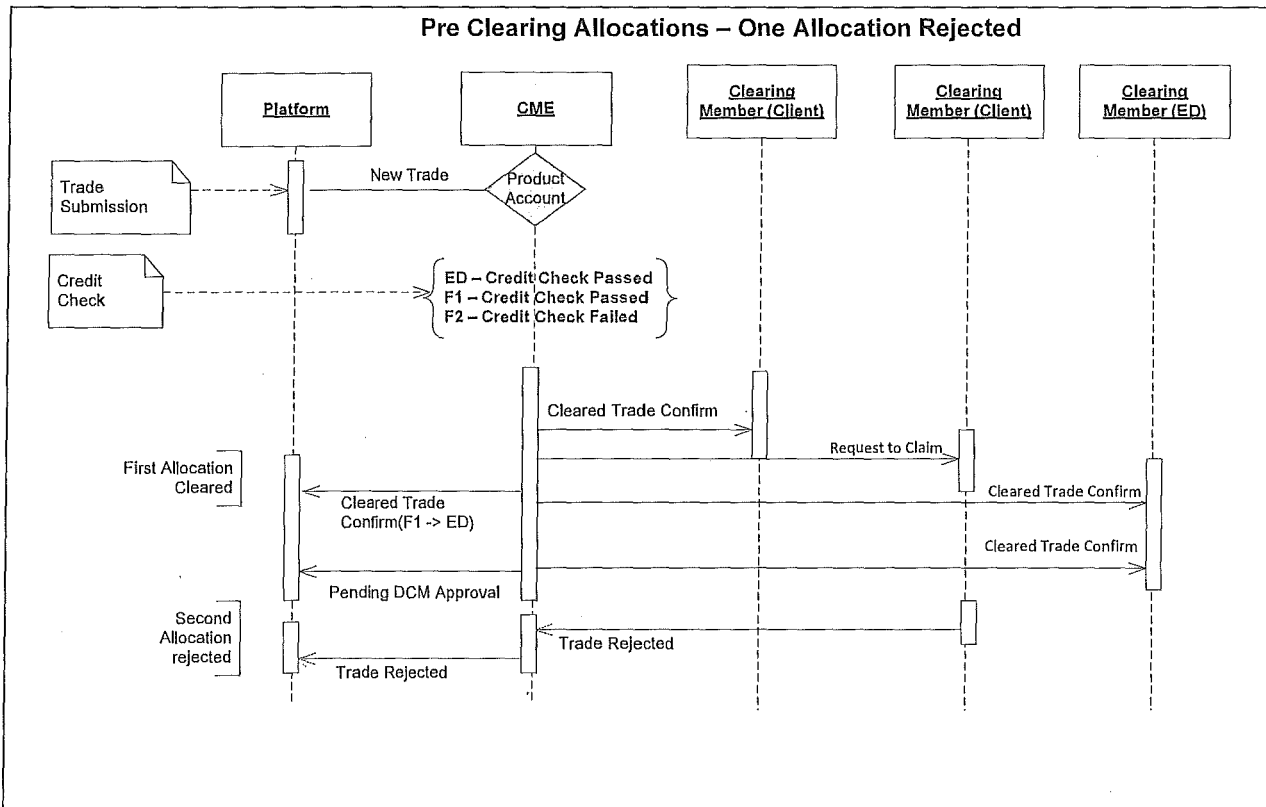


Figure 10: Pre-clearing allocations with rejection

Portfolio Migration via Excel

Seasoned portfolios and new portfolios of IRS trades may be submitted to CME Clearing for direct upload into the position management system from either a Third Party Platform or directly from an IRS Clearing Member to CME Clearing.

An excel file with a set of swaps is considered one submission. A message from the 3rd party platform with multiple swaps is considered one submission for the purposes of rule 8G.05 of the CME Rules. If the swap is submitted by the IRS Clearing Member, the IRS Clearing Member deemed to provide explicit consent for clearing of the portfolio. Future functionality may permit submission of a portfolio via a third party platform, in such cases the IRS Clearing Member firm(s) of the counterparties to the portfolio must explicitly consent to clear the transactions. CME Clearing will provide clearing members with the net cash flow and margins associated with the seasoned portfolio before the trades are loaded into clearing. Upon acceptance of the transactions by CME Clearing and the IRS Clearing Members for clearing pursuant to CME Rules, new IRS Contracts are created with CME Clearing as the central counterparty pursuant to the CME Rule 8G.05, Substitution.

Customer position accounts and the “origin” code

Each cleared IRS trade is identified with a IRS Clearing Member number, a customer account ID (the “customer account number”), and the origin, identifying whether the account is for a customer of the IRS Clearing Member or for the IRS Clearing Member’s own account (“house”, or “proprietary”).

For each IRS trade, the trade contains information identifying the side of the trade, the IRS Clearing Member, the customer account number, and the origin.

IRS Clearing Members will register each customer account in their bookkeeping system utilized to clear IRS Contracts. CME Clearing creates an alias to simplify the specification of the customer account on the trade. The three values – IRS Clearing Member firm ID, customer account ID, origin may be used to create a unique single customer account alias value.

Credit Limit Management and Enforcement

CME Clearing will provide credit limit checks within the Straight through Processing (STP) workflow. IRS Clearing Member Firms can setup credit limits for their accounts and also change them in real-time through a credit controls web based UI – web access link: <https://ersnr.cmegroup.com/>.

Credit Limits may be established by both the IRS Clearing Member and CME Clearing. IRS transactions submitted to CME Clearing for clearing services must pass valid and effective credit limits for the appropriate account prior to acceptance for clearing and substitution pursuant to CME Rule 8G05, Substitution.

Two types of IRS Clearing Member users will have access to the credit controls UI from IRS Clearing Members and will login using their FEC/DMS/portal ID.

- Admin login- change settings
- User Login- view only

Please see Chapter 6, Account Configuration for the account set up process.

IRS Clearing Members may setup credit limits for each position account and trading member firm² along the following dimensions:

Notional: Cap on Gross amount which does not consider directional of the notional amount

Basket	Limit	Used	Available	Usage	Effective Date	Expiry Date
NY	100,000,000	150,000,000	0	150%	17-Aug-2010	17-Aug-2011
SY	100,000,000	100,000,000	0	100%	17-Aug-2010	17-Aug-2011
DR	100,000,000	100,000,000	0	100%	17-Aug-2010	17-Aug-2011
*	100,000,000	100,000,000	0	100%	17-Aug-2010	17-Aug-2011

NPV: Cap on NPV in either positive or negative direction

Basket	Limit	Used	Available	Usage	Effective Date	Expiry Date
NY	5,000,000	794,830	4,205,170	16%	01-Oct-2010	01-Oct-2011
SY	5,000,000	0	5,000,000	0%	01-Oct-2010	01-Oct-2011
DR	5,000,000	5,102,430	0	101%	01-Oct-2010	01-Oct-2011
*	5,000,000	26,008,930	0	520%	01-Oct-2010	01-Oct-2011

PVO1: Scaled by shock to zero curve of 1 basis point

Basket	Limit	Used	Available	Usage	Effective Date	Expiry Date
NY	10,000	7,686	2,314	77%	01-Oct-2010	01-Oct-2011
SY	30,000	28,141	1,859	94%	01-Oct-2010	01-Oct-2011
DR	50,000	46,826	3,074	94%	01-Oct-2010	01-Oct-2011
*	100,000	151,669	28,131	64%	01-Oct-2010	01-Oct-2011

² There can be multiple position accounts under a particular IRS Clearing Member Firm. IRS Clearing Member Firms may choose to “group” these accounts under a particular Trading Member Firm (TMF). Limits can be set at TMF level.

Notional (directional): Cap on direction amount

Search	IV	5,000,000	791,630	4,208,370	16%	01-Oct-2010	01-Oct-2011
Front Office	3F	5,000,000	0	5,000,000	0%	01-Oct-2010	01-Oct-2011
Links	5F	5,000,000	0	5,000,000	0%	01-Oct-2010	01-Oct-2011
	10F	5,000,000	5,182,410	0	101%	01-Oct-2010	01-Oct-2011
	*	5,000,000	26,000,930	0	520%	01-Oct-2010	01-Oct-2011

Delta01: Shock input quotes by 1 basis point

Search	DELTA_01 (No Rating)	Limit	Used	Available	Usage	Effective Date	Expiry Date
Front Office	Budjet	10,000	0	10,000	0%	01-Oct-2010	01-Oct-2011
Links	1F	30,000	0	30,000	0%	01-Oct-2010	01-Oct-2011
	3F	50,000	0	50,000	0%	01-Oct-2010	01-Oct-2011
	5F	90,000	0	90,000	0%	01-Oct-2010	01-Oct-2011
	10F	200,000	0	200,000	0%	01-Oct-2010	01-Oct-2011
	*						

For any single limit, Russian Doll can be configured:

The Russian Doll configuration allows the credit limit in any bucket to count as an aggregate total that impacts all buckets up to and including the bucket that is impacted with the credit limit criteria.

If function is turned off- each bucket is impacted individually

The limits will be "Daily" limits which means that the limit utilization will reset with '0' each business day. Trades entered that Business Day will impact the limit utilization. For all limits that are sensitive to market conditions, NPV, and PV01, calculations are based on the most recent curve in the system. Limits across all dimensions and hierarchy are checked and if any of the limits fail, the trade is not accepted for clearing and a notification is sent to the IRS Clearing Member(s) to explicitly claim the trade. The IRS Clearing Member will have the ability to enable / disable any or all of the credit checks at the position account level.

- For claim and allocation workflow, set all limits to zero
- For everything to pass limits IRS Clearing Member enters "U"

Limits may be setup at the position account level and at a higher level of grouping – Trading Member Firm level. CME Clearing will set hard limits at the IRS Clearing Member and origin level (House, Customer). All limits are enforced and failure of any limit threshold results in the trade being *rejected* (if hard limits) and the trade in *pending* state (if soft limits). The default setting for IRS Clearing Members is soft limits.

CME Clearing will establish hard limits for each IRS Clearing Member account origin. Hard limits are subject to change at any time, at the discretion of CME Clearing. The IRS Clearing Member will be notified as soon as practicable of any change to the hard limit. Any submitted transaction that fails the hard limit of the IRS Clearing Member is rejected for clearing. Rejected transactions remain bi-lateral, non-cleared transactions in accordance with the appropriate legal documentation for bi-lateral over-the-counter transactions.

In the event of a soft limit failure at the position account / grouping level, the IRS Clearing Member guaranteeing the position account will be required to explicitly accept any new trades for that account. IRS Clearing Members are notified of the failed limits using messages as defined in the CME Clearing API and also via the Front End Clearing (FEC) Deal Management System (DMS) browser based user interface. IRS Clearing Members can grant / refuse consent for the *pending* trade using a real-time message as defined in the CME Clearing API or can use the "Accept" / "Reject" actions available through the FEC- DMS claims user interface. Please refer to Chapter 4 above on detailed workflows.

IRS Clearing Members will also have the ability to enter '0' limit for any position account. Thus, CME Clearing will suspend any trade that is entered for that account. The IRS Clearing Member is then required to affirm each trade in the Deal Management System. When configuring limits, all amounts are input as positive values. Tenor buckets can be customized across all types of limits and can be as simple as 1 bucket for 0-31 years.

Procedures for setting limits

Go to <https://ersnr.cmegroup.com/>

Login:

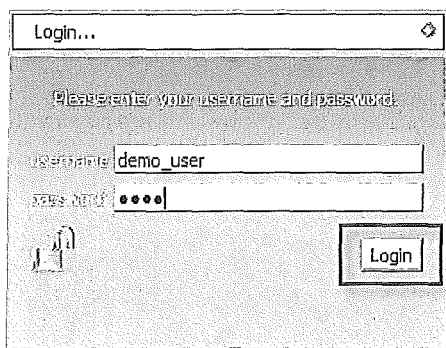
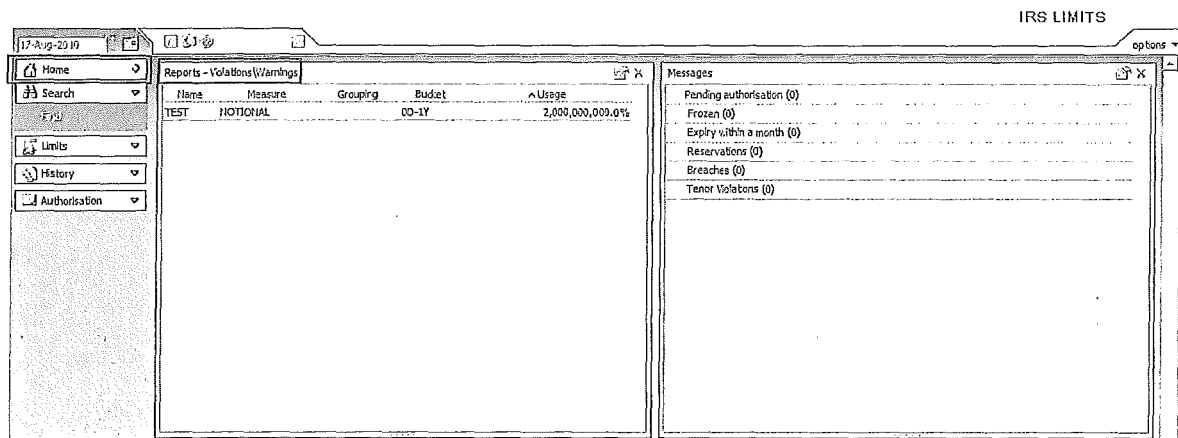
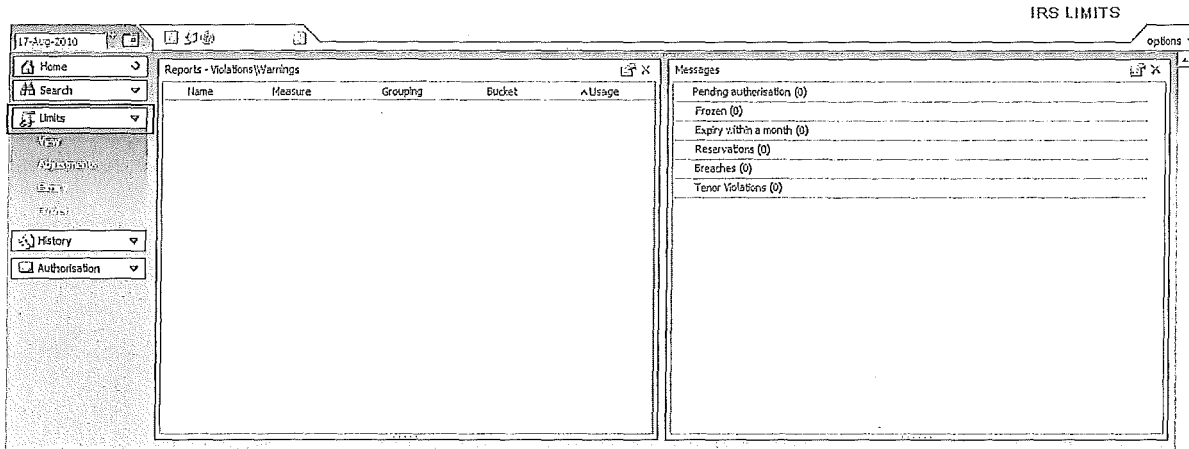


Figure 11: Credit Control System - Login

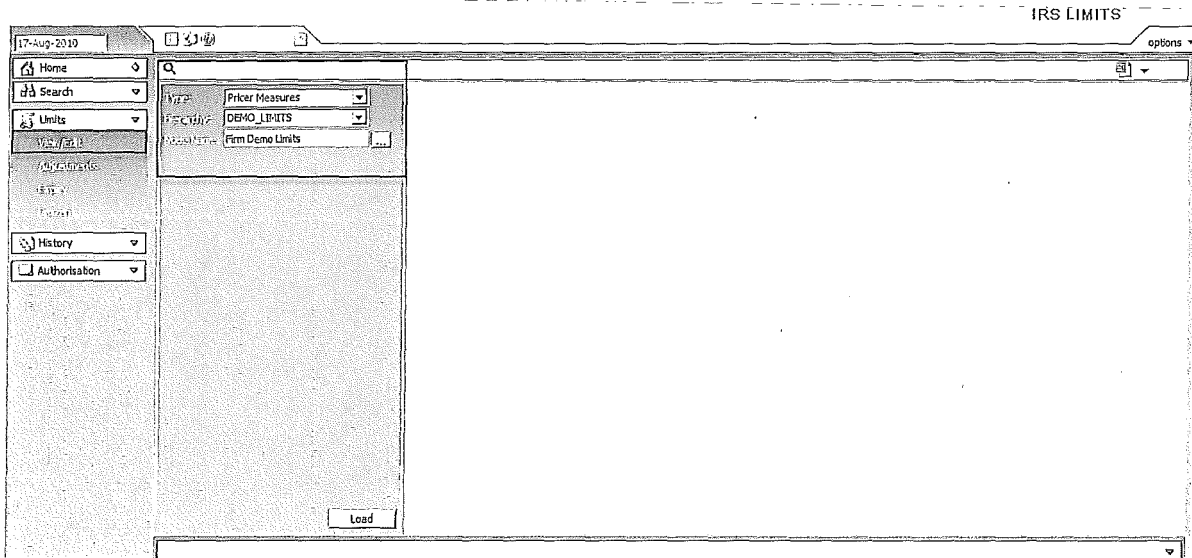
Home page displays a report on violations and warnings



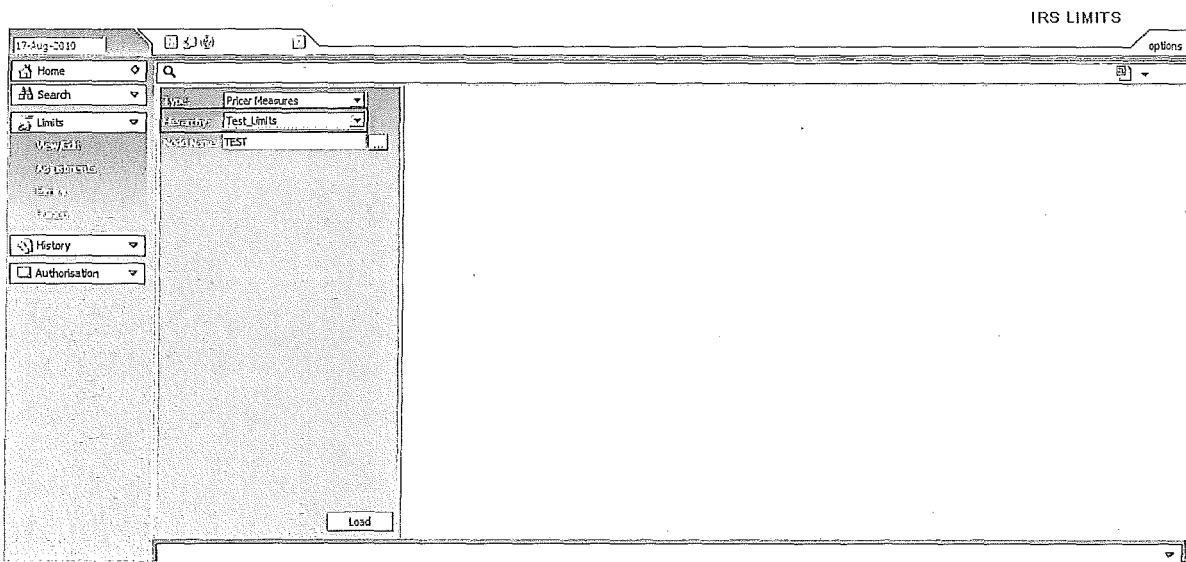
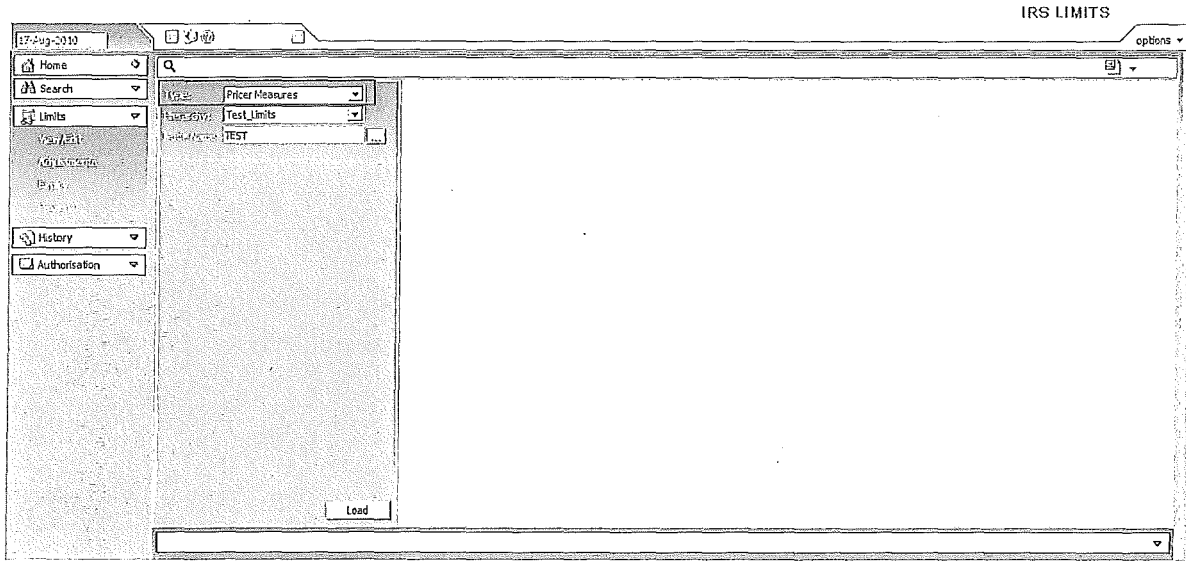
To set limits, navigate to the limits link on the navigation pane on the left.

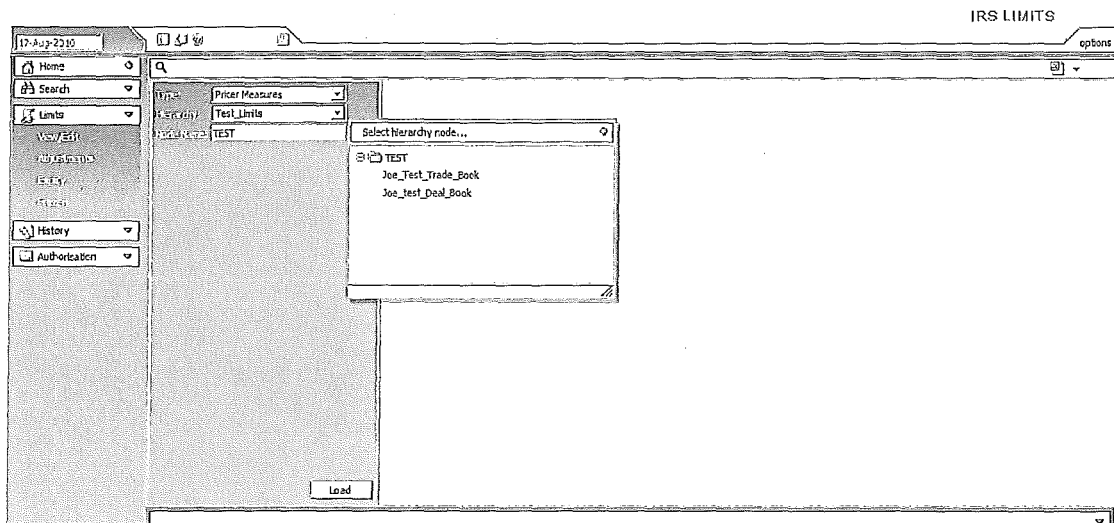
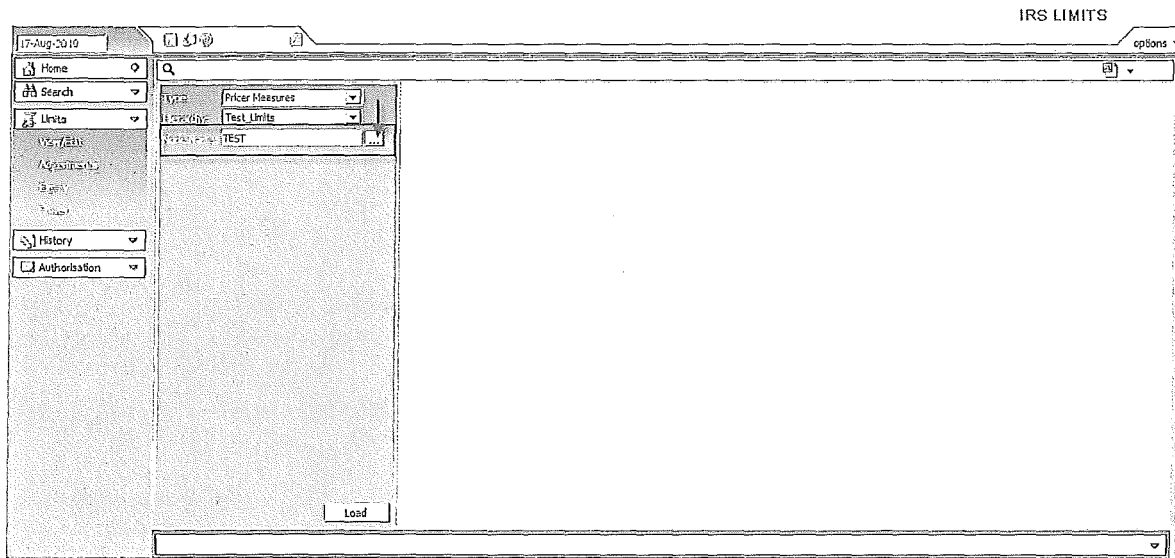


Select 'View/Edit' link to view and edit the limits. On the right pane, the limit Type; Hierarchy; and Node Name will appear.

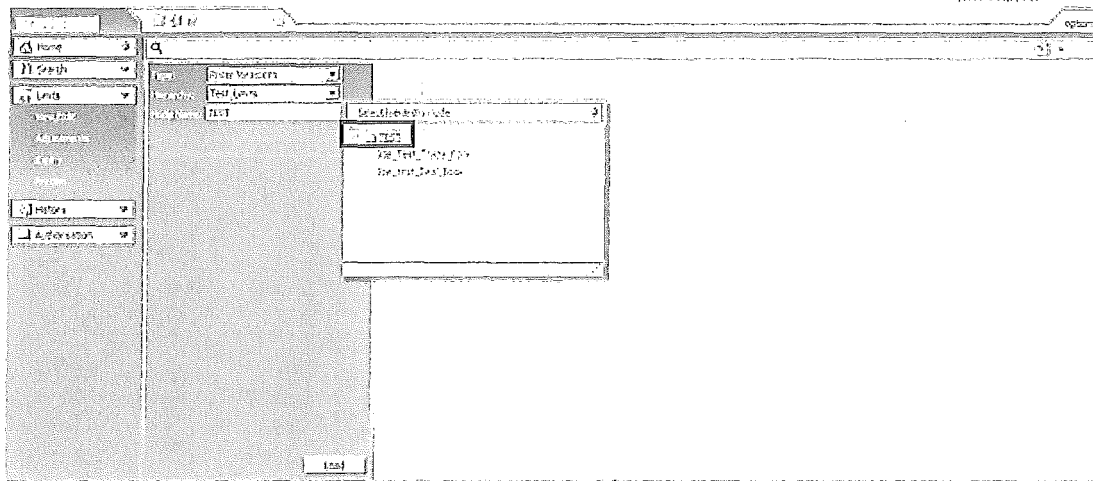


Select the "Pricing Measure" from the Type drop down. The hierarchy dropdown allows the firm to select the trading member firm (TMF).

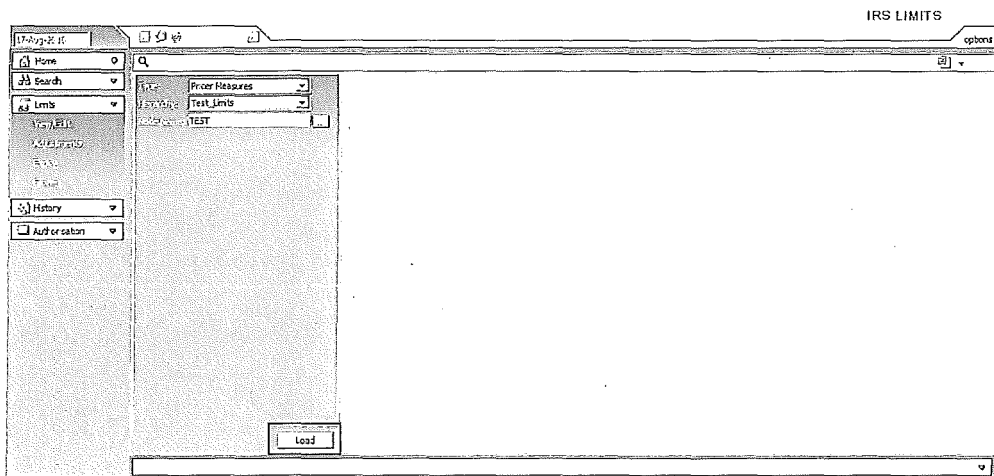




Selecting the hierarchy node with the folder will bring up firm level limits (in this example the 'TEST' node)



Click 'Load' to proceed



Next to the magnifying glass icon, the specific node the user is viewing (in this example, 'Pricer Measures – Test_Limits (TEST)') is displayed.

Bucket	Limit	Used	Available	Usage	Effective Date	Expiry Date
1Y	1	20,000,000	0	2,000,000,000%	17-Aug-2010	17-Aug-2011
3Y	1	0	1	0%	17-Aug-2010	17-Aug-2011
5Y	1	0	1	0%	17-Aug-2010	17-Aug-2011
10Y	1	0	1	0%	17-Aug-2010	17-Aug-2011
=	1	0	1	0%	17-Aug-2010	17-Aug-2011

Again, this is the node ('Pricer Measures – Test_Limits (TEST)') that is displaying the firm level limits.

Displayed here are the firm limit templates that are active (5 available: Notional, NPV, Sign Notional, PV01, Delta01)

Pricer Measures - Test_Limits (TEST)							
NOTIONAL (No Netting) Daily							
Severity: 1 Warning Level: 80% 2010-08-17 10:30:20							
Bucket	Unit	Used	Available	Usage	Effective Date	Expiry Date	
1Y	1	20,000,000	0	2,000,000,000%	17-Aug-2010	17-Aug-2011	
3Y	1	0	1	0%	17-Aug-2010	17-Aug-2011	
5Y	1	0	1	0%	17-Aug-2010	17-Aug-2011	
10Y	1	0	1	0%	17-Aug-2010	17-Aug-2011	
*	1	0	1	0%	17-Aug-2010	17-Aug-2011	

Above is the NOTIONAL template. Here users can view and set the limits based on tenor. The 1Y bucket is red as this particular limit has been exceeded in this example.

To edit the NOTIONAL limits, click the edit icon on the top right corner.

Pricer Measures - Test_Limits (TEST)							
NOTIONAL (No Netting) Daily							
Severity: 1 Warning Level: 80% 2010-08-17 15:13:12							
Bucket	Unit	Used	Available	Usage	Effective Date	Expiry Date	
1Y	1	20,000,000	0	2,000,000,000%	17-Aug-2010	17-Aug-2011	
3Y	1	0	1	0%	17-Aug-2010	17-Aug-2011	
5Y	1	0	1	0%	17-Aug-2010	17-Aug-2011	
10Y	1	0	1	0%	17-Aug-2010	17-Aug-2011	
*	1	0	1	0%	17-Aug-2010	17-Aug-2011	

Users can also use the Freeze icon button to temporarily freeze limits on an account, or also use the delete icon button to delete an entire template.

Changing Limits

To change the value, overwrite the amount and click the save icon. Users also have the ability to set effective dates in the future and add or delete tenor Buckets.

Pricer Measures - Test_Limits (TEST)							
NOTIONAL (No Netting) Daily							
Predeal Included Soft Test							
Severity: 1 Warning Level: 80% 17-Aug-2010 17-Aug-2011							
Bucket	Limit	Effective Date	Expiry Date				
1Y	50000000	17-Aug-2010	17-Aug-2011				
3Y	1	17-Aug-2010	17-Aug-2011				
5Y	1	17-Aug-2010	17-Aug-2011				
10Y	1	17-Aug-2010	17-Aug-2011				
*	1	17-Aug-2010	17-Aug-2011				

To the left of the save icon is an icon to save a template which will allow users to apply the same limits to different accounts. To the right of the save icon is an undo icon which will undo all changes.

Bucket	Limit	Used	Available	Usage	Effective Date	Expiry Date
1Y	1	20,000,000	0	2,000,000,000%	17-Aug-2010	17-Aug-2011
3Y	1	0	1	0%	17-Aug-2010	17-Aug-2011
5Y	1	0	1	0%	17-Aug-2010	17-Aug-2011
10Y	1	0	1	0%	17-Aug-2010	17-Aug-2011
**	1	0	1	0%	17-Aug-2010	17-Aug-2011

NOTIONAL (No Netting) Daily

Severity: 1 Warning Level: 80% 2010-03-17 15:13:12

Changes Pending Authorisation

Once limits are applied or edited, they must be approved. To view and accept, or reject limit changes, go to 'Authorization,' 'Pending,' and click search.

Bucket	Limit	Effective Date	Expiry Date	User	Reason
00-1Y	50,000,000	17-Aug-2010	17-Aug-2011	demo_user	CHANGED
1Y-3Y	1	17-Aug-2010	17-Aug-2011	demo_user	NOTCHANGED
3Y-5Y	1	17-Aug-2010	17-Aug-2011	demo_user	NOTCHANGED
5Y-10Y	1	17-Aug-2010	17-Aug-2011	demo_user	NOTCHANGED
10Y-*	1	17-Aug-2010	17-Aug-2011	demo_user	NOTCHANGED

Pending Search Attributes...

Clear Search...

To accept limit changes click 'Accept.' To reject limit changes click the button to the right of the accept function.

Bucket	Limit	Effective Date	Expiry Date	User	Reason
00-1Y	50,000,000	17-Aug-2010	17-Aug-2011	demo_user	CHANGED
1Y-3Y	1	17-Aug-2010	17-Aug-2011	demo_user	NOTCHANGED
3Y-5Y	1	17-Aug-2010	17-Aug-2011	demo_user	NOTCHANGED
5Y-10Y	1	17-Aug-2010	17-Aug-2011	demo_user	NOTCHANGED
10Y-*	1	17-Aug-2010	17-Aug-2011	demo_user	NOTCHANGED

Pricer Measures Test_Limits (TEST) -> NOTIONAL (No Netting) Daily 2010-08-17 15:56:28

To 'Show Current Limits' click the icon to the left of accepts and the below Current Limits screen will appear:

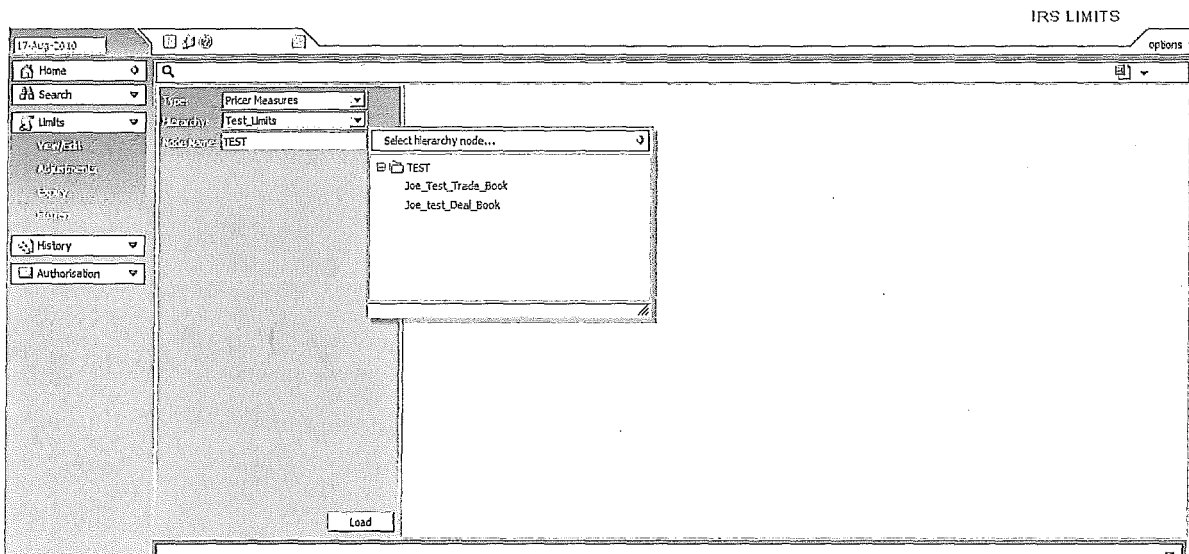
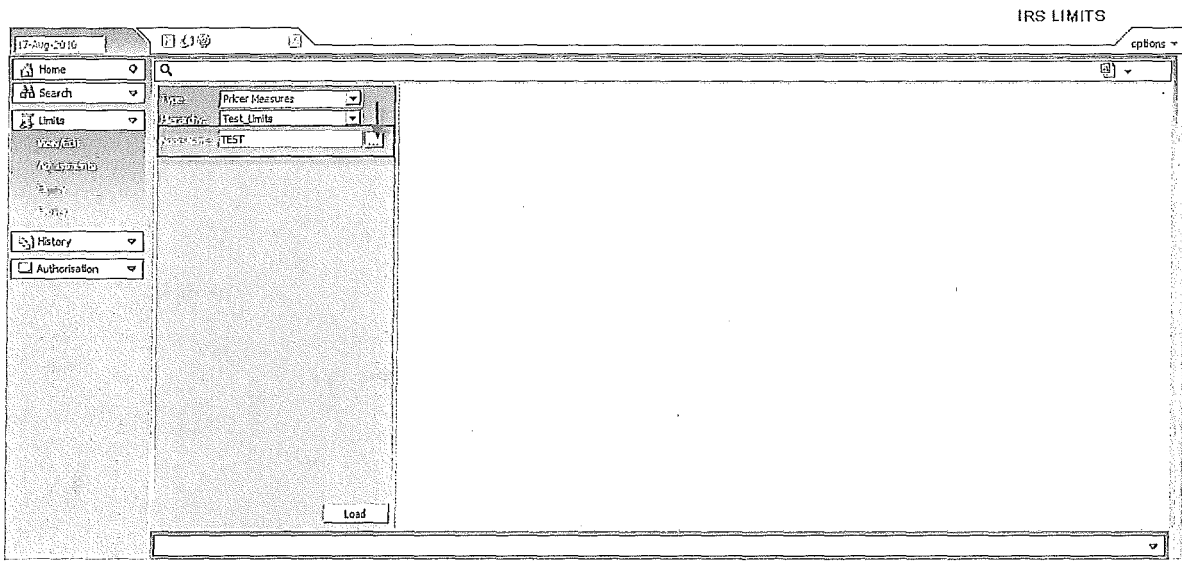
Current Limits...								
Name	Measure	Grouping	Bucket	Limit	Used	Currency	Available	Usage
TEST	NOTIONAL		0D-1Y	1	20,000,000	USD	0	2,000,000,000.0%
TEST	NOTIONAL		10Y-25Y	1	0	USD	1	0.0%
TEST	NOTIONAL		5Y-10Y	1	0	USD	1	0.0%
TEST	NOTIONAL		3Y-5Y	1	0	USD	1	0.0%
TEST	NOTIONAL		1Y-3Y	1	0	USD	1	0.0%

To go back to Limits, select 'Limits' and 'View/Edit' and select the magnifying glass icon to change the node view.

The screenshot shows the 'IRS LIMITS' application window. On the left is a navigation pane with options like Home, Search, Limits, View/Edit, History, and Authorisation. The main area displays a table with columns: Unit, Used, Available, Usage, Effective Date, and Expiry Date. The table contains five rows of data for different limit buckets. A 'Load' button is visible at the bottom of the table area.

Unit	Used	Available	Usage	Effective Date	Expiry Date
1	20,000,000	0	2,000,000,000%	17-Aug-2010	17-Aug-2011
1	0	1	0%	17-Aug-2010	17-Aug-2011
1	0	1	0%	17-Aug-2010	17-Aug-2011
1	0	1	0%	17-Aug-2010	17-Aug-2011
1	0	1	0%	17-Aug-2010	17-Aug-2011

To change the 'Node Name,' click the selection box on the right and a menu will appear.



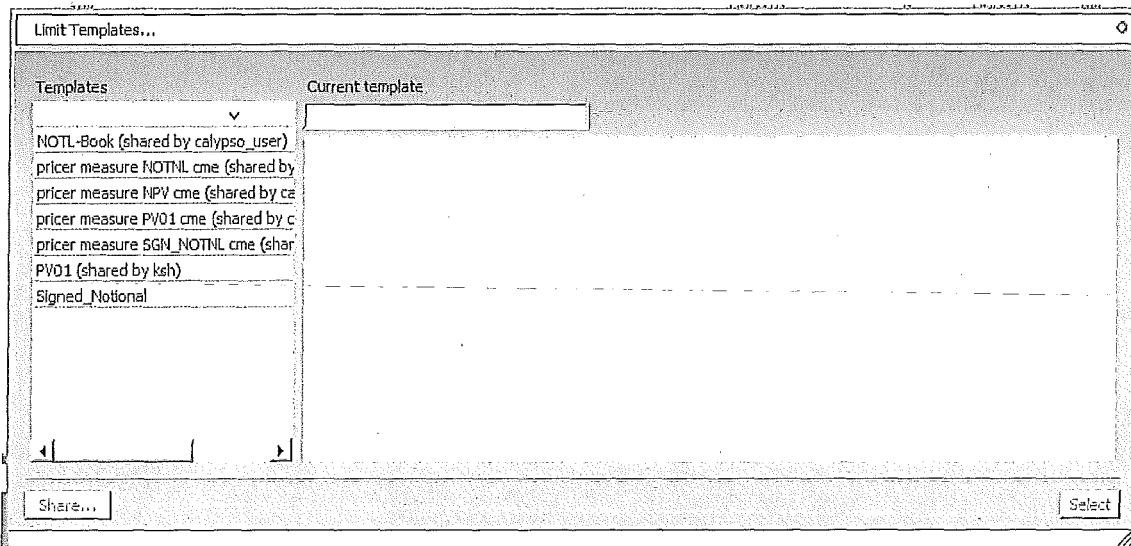
Select firm accounts listed under the folder structure (in this example, Joe_Test_Trade_Book & Joe_test_Deal_Book) to change account level limits. Load account level node limit structure. Follow steps beginning on Page 6 to edit existing limit structure.

To add additional un-active limit templates, select the 'New measure' template:

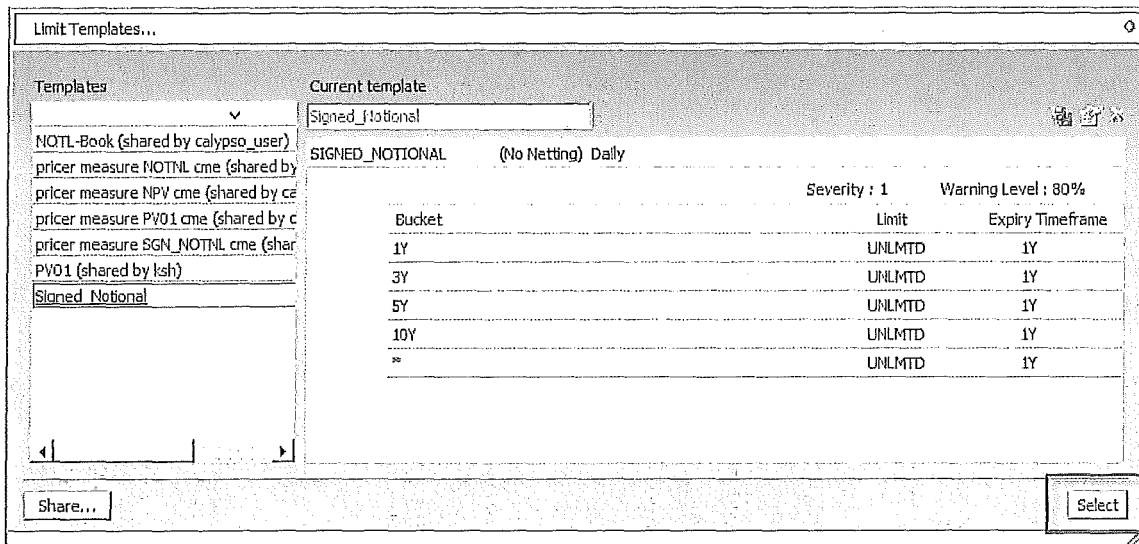
IRS LIMITS

Limit	Used	Available	Usage	Effective Date	Expiry Date
UNLMTD	10,000,000	UNLMTD	0%	17-Aug-2010	17-Aug-2011
UNLMTD	0	UNLMTD	0%	17-Aug-2010	17-Aug-2011
UNLMTD	0	UNLMTD	0%	17-Aug-2010	17-Aug-2011
UNLMTD	0	UNLMTD	0%	17-Aug-2010	17-Aug-2011
UNLMTD	0	UNLMTD	0%	17-Aug-2010	17-Aug-2011

A limit template window will appear with shared template options:



To activate a shared template, click the desired template and 'Select.'



Notes to Remember:

- There are five limit templates available at both the firm limit level and account limit Node levels.
- Users can create their own templates for use based on available options.
- All limit additions/edits must be authorized in order to be activated.

Post- Clearing Trade Processing

In the OTC marketplace, activities performed on a swap position after the original trades are termed as "Lifecycle events". In a Cleared context, Lifecycle events are: (1) Post Clearing Novations and (2) Netting. The following sections will explain these events and their implications in greater detail.

Post Clearing Novations (Transfers)

We anticipate that transfers – henceforth termed as "post clearing novations", will be needed upon occasion to fix processing errors. CME Clearing will provide support for this feature through the Front End Clearing Deal Management System for client to client transfers who are both customers of the same Clearing Member (CM). CME will also provide support for this feature for CM to CM transfers via CME back end processing.

Customers who want to process transfers are expected to request this service from their IRS Clearing Member. IRS Clearing Member staff will use CME's Deal Management user interface to complete the transaction. The tool will allow the CM to type in an upfront payment to be exchanged along with the transfer. Such amounts can be entered once for a list of positions to be transferred as a batch or can be entered for each position.

It is important to understand the special case of "Post-Clearing Novations" done on coupon payment value dates. When a position is "Post Clearing Novated" (transferred) on value date of the position's coupon payment(s), the position is transferred without the coupon payment. The coupon payments are paid (collected) to (from) the position's account before the transfer was initiated. It is assumed that the market participants will compensate for this operational behavior by exchanging upfront payments.

Netting of Trades

This section describes the netting logic used to identify swaps that are eligible to be netted together. The netting process will consider swaps that have exactly the same economics. These swaps may differ in "Direction" and "Notional" amount.

Account Consideration

When setting up customer accounts at CME Clearing for clearing interest rate swaps, the IRS Clearing Member will specify whether the account is eligible for netting or gross.

If a customer account is set to Net, the swaps in that account will be considered for netting. Swaps within the same customer account are netted together.

Note: Swaps in different customer accounts will not be netted together.

Stub Consideration

Swaps with stub periods will NOT be eligible for netting; swaps will not be eligible even when the stub period is over.

Netting Criteria

For two or more swaps to be eligible for netting, each must match in the following criteria:

- Type of Swap – This is represented by the template identifier USD3L1, etc. For details of what this identifier means please look at the Appendix section for template identifiers.
- Effective Date – CME will consider unadjusted Effective Date when matching for netting criteria.
- Maturity Date – CME will consider the unadjusted Maturity Date when matching for netting criteria.
- Fixed Coupon – Fixed coupon on the trades must be the same.

Along with matching the above four fields, the swaps must be in the same customer account that is setup as a netting eligible account.

Chapter 4 - Appendix 1- Cleared IRS Trade Processing

Clearing Notifications

During the STP processing of Interest Rate swaps, CME Clearing will generate real time notifications to the IRS Clearing Members.

CME Clearing provides messaging and data files for cleared IRS trades using industry-standard FpML and are aligned with FPML 5.0 Schema. The Messages can flow through the existing connection a IRS Clearing Member has with the exchange or the client can create a new connection. Since these are FPML messages, setting up unique queues specifically for IRS trades is recommended.

Detailed Message Samples are in the Annex

Messages Targeting Bookkeeping Systems

These messages are sent to the Firms back office systems to manage their books in sync with the books at CME Clearing.

Type of Notification	Description	Purpose
ClearedConfirm CLEARED NEW_TRADE	IRS Clearing Members will receive this message when a new trade is CLEARED under their account	Used by IRS Clearing Members to create a new trade in their book keeping system
ClearedConfirm CLEARED TRANSFER	IRS Clearing Members will receive this message when an existing trade is transferred to their account. This is similar to 'NEW_TRADE'; 'client_trade_id' and "platform_trade_id" is not applicable)	Used by IRS Clearing Members to make a transfer across accounts within a IRS Clearing Member firm or across IRS Clearing Members. This is available IRS Clearing Member Firms through CME's FEC-Front End Clearing System.
ClearedConfirm AMENDED NETTING_REMNANT	IRS Clearing Members will receive this message if there is a remaining notional after netting like trades. This message will carry Client ID and Platform ID of the latest trade that was netted in the same direction as the remaining notional. In the history tag, included is the original 'cme_trade_id' of the amended trade.	Used by IRS Clearing Member either to: <ol style="list-style-type: none"> 1. Create New trade 2. Amend existing trade

ClearedConfirm AMENDED TRADE_AMEND	IRS Clearing Members will receive this message, if a cleared trade is amended (amendments are only available for trades cleared in the current clearing cycle) before the clearing cutoff. The message is similar to NEW_TRADE.	Used by IRS Clearing Members to amend the existing trade
ClearedConfirm TERMINATED FULL_NETTING	IRS Clearing Members will receive this message for each trade TERMINATED due to NETTING (Full NETTING if full offsets) and there is <i>no remaining notional</i> . In the history tag, included is all the 'cme_trade_ids' TERMINATED by the netting event.	Used by IRS Clearing Members to terminate trades that net each other out completely
ClearedConfirm TERMINATED PARTIAL_NETTING	IRS Clearing Members will receive this message for each trade TERMINATED because of NETTING and there is <i>remaining notional</i> . In the history tag, included is the old CME trade id that is amended with the remaining notional.	Used by IRS Clearing Members to terminate trades that net each other out partially
ClearedConfirm TERMINATED TRANSFER	IRS Clearing Members will receive this message if a trade is transferred out of their account. Msg is similar to NEW_TRADE.	Used by IRS Clearing Members to terminate trades that were transferred to a different account
ClearedConfirm TERMINATED VOID	IRS Clearing Members will receive this message if a top day cleared trade is terminated because of a request from the original counterparties to the trade. Msg is similar to NEW_TRADE.	Used by IRS Clearing Members to terminate trades that were requested to be "VOID" on top day by the original counterparties

Messages Targeted to Firm Risk Systems

The messages listed below are associated with Swaps that are not cleared. CME sends these messages to the firm risk systems. The list below is a placeholder and is subject to change.

Request Explicit consent	<p>This notification is generated when the swap fails a limit check set by the IRS Clearing Member firm. Failed Credit Limit notification is only sent to the IRS Clearing Members whose limits were breached. For the pilot this notification will be in the form of email.</p> <p>When the swap fails credit limit set by IRS Clearing Members, a notification will be sent to the IRS Clearing Member to manually accept the swap</p>	<p>Allows Members to manually accept the swap even after it fails credit limits³</p> <p>IRS Clearing Members must act on these notifications to either accept or reject the swap that is being allocated to one of their accounts. Members can use CME User Interface to accept / reject the swap.</p>
Swap is Accepted	This notification is sent to CME by the IRS Clearing Members to explicitly accept a swap trade on their account	This notification confirms that the IRS Clearing Members accepts the trade
Swap is Rejected	This notification is sent to CME by the IRS Clearing Members to explicitly reject a swap trade (that is pending their acceptance) on their account	This notification confirms that the IRS Clearing Members rejects the trade

³ Credit Limits are set by IRS Clearing Member Firms for each client account. These Credit limits can be updated in real-time using a CME provided user interface.

Swap Refused Clearing	CME will send this notification only to the IRS Clearing Member that received "Request Explicit Consent". In cases where Credit limits have failed only on one side (for example: buy-side), only the Member Firm of the buy-side receives this notification after responding to the "Request Consent". This notification confirms that the swap is refused clearing	This notification confirms that the trade is refused clearing by CME
Swap Withdrawn Clearing	When a trade is withdrawn from clearing, CME will send this notification to CMF's that have a pending "Request Consent" or have accepted a "Request Consent"	This notification confirms that the trade is withdrawn from clearing

These notifications will be delivered to the IRS Clearing Members over their current network and communications infrastructure. The IRS Clearing Member(s) can choose to receive these notifications in a distinct queue setup specifically to receive notifications on Interest Rate Swaps.

The "Swap Cleared" notification message will contain the swap with all the fixed and floating coupon payment, and reset payment dates enumerated. The dates are computed by CME Clearing using the swap deal terms and all associated holiday calendars to create adjusted and unadjusted coupon dates.

CHAPTER 5 – OPERATIONS TIMELINE AND REPORTS

Reports Overview

This chapter will lay out a brief description of each report and the time it is published followed by examples of the FPML reports and a complete description of the Document Direct reports. At the end of the clearing business day, 7pm EST, CME Clearing runs a clearing cycle which generates a set of end of day reports which are described below. There are three different types of report outputs that are published in two different locations:

- (1) All “.xls” and “.csv” are summary reports of clearing systems data designed to be represented in a human and machine readable format. These reports are always sent to a IRS Clearing Member’s SFTP site.
- (2) All “.xml” are machine readable reports in FPML format sent from the clearing system and are sent to a IRS Clearing Member’s SFTP site; these reports are typically pulled into back office systems for further processing from IRS Clearing Members
- (3) Text “.txt” reports are accessible through the web-based CME Clearing Portal through an application called Document Direct. These reports provide aggregate cash reports across all house and customer business in the same reports as other asset classes to provide higher level information around settlement and banking for each IRS Clearing Member settlement account. The reports that are used for rates are: CAI500, CST610, CST620, CST680.

*Please contact CME Clearing for assistance gaining access to any of the above mentioned reports.

CME Cleared OTC IRS Operational Timeline & Report List

Real time Trade Submission from Affirmation Platform

Firms may begin to enter alleged and match trades from approved trade platform on Sunday	7:00 pm EST (T-1)
IRS Clearing Members may begin to affirm/reject matched trades for clearing through FEC	7:00 pm EST (T-1)
Firms can receive real time FpML confirms	7:00 pm EST (T-1)
Trade Submission deadline for current day from approved trade platform	6:59:59 pm EST (T)
Clearing systems run end of day processing	7:00 pm EST (T)
Trades affirmed and submitted to CME Clearing will be assigned a current day clear date once accepted for clearing. CME Clearing settles variation, PAI and upfront payment on T+1	< 7:00 pm EST (T)
Trades affirmed and submitted to CME Clearing after 7:00 p.m. will be cleared for the next Business Day. Trades may remain in pending status (awaiting IRS Clearing Member Consent) for up to 24 hours Trades not affirmed by 7:00 p.m. the next day will be removed from the CME Clearing system and are subject to bilateral agreements	> 7:00 pm (T)

End of Day Processing

<p>CME Publishes Reset Report</p> <p><u>Description</u></p> <p>Reset report (this report displays trade ID's and enumerates on the new rate when the fixing date arrives for each swap)</p> <p><u>Report Name and Location is SFTP</u> IRSRR_FFF_yyyymmdd_EOD.xml (production environment) IRSRR_FFF_yyyymmdd_EOD.nr.xml (test environment)</p>	<p>8:00pm EST</p>
<p>CME Publishes Position Report</p> <p><u>Description</u></p> <p>This is a Position report in FPML that contains all new and open trades and cash flows and is synonymous with a trade register or reconciliation report.</p> <p><u>Report Name and Location is SFTP</u> IRSPR_FFF_yyyymmdd_EOD.xml (production environment) IRSPR_FFF_yyyymmdd_EOD.nr.xml (test environment)</p>	<p>8:00pm EST</p>
<p>CME Publishes Trade Registers for individual position accounts</p> <p><u>Description</u></p> <p>Trade register (the exact same thing as the position report except this report is in excel format and is broken apart by position account so there is a trade register for each position account in xls format generated daily.</p> <p><u>Report Name and Location is SFTP</u> IRSTR_FFF_POSITIONACCOUNT_yyyymmdd_EOD.xls (production environment) IRSTR_FFF_POSITIONACCOUNT_yyyymmdd_EOD.csv (production environment) IRSTR_FFF_POSITIONACCOUNT_yyyymmdd_EOD.nr.xls (test environment) IRSTR_FFF_POSITIONACCOUNT_yyyymmdd_EOD.nr.csv (test environment)</p>	<p>8:00pm EST</p>

<p>CME Publishes Margin Data Files</p> <p><u>Description</u></p> <p>The report provides the initial margin requirement for each test account for house and customer trades.</p> <p><u>Report Name and Location is SFTP</u></p> <p>IRSMR_FFF_YYMMDD.csv (production environment)</p> <p>IRSMR_FFF_YYMMDD.nr.csv (test environment)</p>	<p>12:30am EST</p>
<p>CME Publishes EOD reports for Collateral Management and Settlement Banking</p> <p><u>Description</u></p> <p>Trade register data as well as all specific position management reports, e.g. final open position summaries and trade register reports are published.</p> <p><u>Report Name and Location is Document Direct</u></p> <p>CAI500 (Asset Inventory Trial Balance)</p> <p>CST610 (Initial Margin Requirement)</p> <p>CST620 (Variation Margin Requirement)</p> <p>CST680 (Final Margin Accounts)</p>	<p>12:30am EST</p>
<p>Settlement Bank Confirmation of Payment</p> <ul style="list-style-type: none"> • Deadline for CME Clearing settlement banks to confirm initial margin funding calls/releases and variation margin payment/receipts generated from the previous end of day clearing cycle. 	<p>8:30am EST Next Business Day (T+1)</p>

OVERVIEW OF FPML REPORTS

Reconciliation- end of day trade register

For traditional futures and options the Trade Register serves as the reconciliation mechanism. For Interest Rate Swaps the reconciliation mechanism must include the coupon, PAI and upfront fee amounts. CME Clearing will offer reconciliation reports in native FpML formats. The purpose of this section is to list out the information (in the reconciliation report) contained for each position maintained by CME Clearing for the IRS Clearing Member firm. A detailed message sample under the different formats is outlined in the appendix section of this document.

Field	Description
Timing	<ul style="list-style-type: none"> ▪ EndOfDay for End of Day settlement cycle ▪ ITD for the Intraday settlement cycle
asOfDate	Clearing business date. Using the cash flow example in this document, the reconciliation generated at EOD settlement cycle January 12 th , 2010 will have the Clearing Business Date = 2010-01-12
IRS Clearing Member Firm ID	IRS Clearing Member firm identifier
Account	Account number that refers to the book that contains this position
Origin	<ul style="list-style-type: none"> ▪ C - Customer ▪ H -House
Position Status	<ul style="list-style-type: none"> ▪ CLEARED ▪ TERMINATED - Terminated positions are also reflected in reconciliation reports as they may have coupon payments associated with them that were credited to the firm before termination ▪ AMENDED
Event	<p>Defines the event that created/terminated this trade along with existing trades</p> <ul style="list-style-type: none"> ▪ NEW_TRADE ▪ TRANSFER ▪ TRADE_AMEND ▪ NETTING_REMNANT ▪ FULL_NETTING ▪ PARTIAL_NETTING ▪ VOID ▪ EXISTING
CME Position ID	CME issued cleared position identifier for the position as communicated to MarkitWire / TradeWeb / Bloomberg and the IRS Clearing Member firms during swap confirmation
Client Trade ID	MarkitWire / Bloomberg / TradeWeb trade ID the trade ID for the swap passed to the CME by MarkitWire / Bloomberg / TradeWeb
Platform Trade ID	Bi lateral deal id of the trade from the platform
CME Swap Identifier	Used for easy identification of the swap of that was traded.

Settlement NPV	Field	Description
	Value	Amount
	Currency	Settlement Currency
Prior Settlement NPV	Field	Description
	Value	Amount
	Currency	Settlement Currency
Adjusted Settlement NPV	Field	Description
	Value	Amount
	Currency	Settlement Currency
Prior Adjusted Settlement NPV	Field	Description
	Value	Amount
	Currency	Settlement Currency
Variation Margin	Field	Description
	Value	Amount
	Currency	Settlement Currency

Coupon Payment	Field	Description
	Type	<ul style="list-style-type: none"> ▪ Fixed ▪ Floating
	Effective rate	Rate used to compute the coupon
	Accrual begin date	Start date for the accrual period (included in the day count)
	Accrual end date	End date of the accrual period (not included in the day count)
	Accrual period	Accrual period in fractional years
	Amount	Coupon amount. Positive sign on the amount indicates credit and negative sign indicates debit.
	Notional	Current notional amount of the swap
Price Alignment Interest	Field	Description
	paiRate	Rate used to compute the PAI
	adjustedStartDate	Start date for the accrual period (included in the day count)
	adjustedEndDate	End date of the accrual period (not included in the day count)
	dayCountYearFraction	Accrual period in fractional years
	paymentAmount	PAI amount. Positive sign indicates credit and negative sign indicates debit

Upfront payment (fees)	Field	Description
	payerPartyReference	Party Paying the amount
	receiverPartyReference	Party Receiving the amount
	Currency	Currency of the amount
	Amount	Amount
	paymentDate	Date of the payment

Total Payment	Field	Description
	payerPartyReference	Party Paying the amount
	receiverPartyReference	Party Receiving the amount
	Currency	Currency of the amount
	Amount	Amount (VM+PAI+COUPON+UPFRONT)
	paymentDate	Date of the payment

Reset Report

Resets are unique to swaps. Reset dates are associated with the floating leg (or index) of the swap. Reset event is used to record the effective floating rate for the next floating accrual period. Resets do not impact the upcoming floating coupon payments but impact the subsequent floating coupon payment. For USD3L1 swaps, the resets occur on quarterly anniversaries from the effective date of the first reset date of the swap – which is the trade date of the swap. For EUR6E1 swaps, the resets occur on semi-annual anniversaries from the effective date of the first reset date of the swap. The CME will compute and publish all the reset dates associated with a swap position on the swap cleared notification (swap confirmation) message. The following table outlines the information sent in a typical reset advisory report. The actual message format and samples are provided in the Appendix to this Chapter.

Field	Description	
asOfDate	Clearing business date.	
IRS Clearing Member Firm ID	ID of the IRS Clearing Member firm	
rateObservation	Field	Description
	adjustedFixingDate	Same as reset date
	resetDate	Date of reset
	observedRate	Reset Rate in percentage
Index	Field	Description
	floatingRateIndex	Index e.g. USD_LIBOR_BBA
	indexTenor	periodMultiplier e.g. 3 period e.g. M
affectedPositions Position (Repeated)	Field	Description
	Account	Account of the trade
	Cme_trade_id	CME generated Trade ID
	Client_trade_id	Trade ID of the client
	Platform_trade_id	Bi-lateral Trade ID from platform

**Overview of Document Direct Reports
CAI500 ASSET INVENTORY TRIAL BALANCE**

CAI 500 provides a detailed account of all forms of collateral on deposit with CME Clearing including the following information: type of collateral, PB value, PAR Value and USD equivalent Value (which applies to foreign securities). The report organizes information by Firm ID, Business function (either CLR for clearing or SECR for security deposit), account type and funds seg type code, COTC is customer funds, NSEG is house funds, currency, and finally by asset type. All respective banks that collateral is deposited at are noted along with all respective CUSIP/ISIN information for each piece of collateral (when applicable). Acceptable collateral types can be found in Chapter 6.

CST610 RECAP LEDGER - FNL PERFORMANCE BOND REQUIREMENTS

CST610 contains a higher level breakdown of performance bond on deposit with the exchange summarized by collateral type within each segregated fund type (COTC, NSEG). The end of this report shows the total excess collateral on deposit as well as the Call/Release amount from the previous banking cycle. This report is generated after both banking cycles are completed each day and contains updated collateral holdings. This report also includes a breakdown of collateral.

CST620 RECAP LEDGER - TOTAL VARIATION BY SETTLEMENT

CST620 provides a summary of variation (the profit and loss of all positions in the portfolio since the previous banking cycle including the P/L of new positions in the portfolio) by product class. This report also shows the previous settlement amounts from the prior banking cycle and shows the current settlement amounts by currency, with a summary of the USD equivalent. This report also includes the total PB cash on hand, and settlement amounts covered by PB cash on hand.

CST680 N/R - FINAL MARGIN ACCOUNTS

CST680 provides Performance Bond (margin) requirements at each banking cycle across all currencies and breaks each requirement down by Core, Reserve, Concentration, and provides a summary. This report provides a detailed summary of all collateral types on deposit being applied to meet each Performance Bond increase, and showing the numbers in compared to the summary variation either paid or banked from each banking cycle. Included with the margin requirements is the variation requirement from the current banking cycle.

CHAPTER 6: ACCOUNT CONFIGURATION, MONEY CALCULATIONS, AND COLLATERAL**ACCOUNT CONFIGURATION****Customer registration and position accounts in the Clearing System**

Customers must register with CME Clearing by executing the CME ClearPort EULA. For each such customer that they will clear, the IRS Clearing Member will specify the exact customer account ID for that customer that will be recorded when trades for that customer are submitted to clearing.

In the Clearing System, following registration, a separate position account will be established for each such customer account. Trades for which the customer account ID matches the registered value, will be posted to that position account. Thus, positions will be kept in the Clearing System at the level of the individual registered customer account.

Unless the IRS Clearing Member specifies otherwise, end-of-day position quantities for each such position account corresponding to an end customer, will be determined on a net basis. Therefore, trades will automatically be treated as liquidating to the maximum extent possible.

Authorized individuals of the IRS Clearing Member can immediately deny access of an employee or client to the Clearing System by contacting the Operations, IT and Client Support Team. The Clearing System will periodically require IRS Clearing Members to review the list of authorized individuals of the IRS Clearing Member to ensure the data is correct and up-to-date.

The IRS Clearing Member provides information about how it wants its clearing accounts for IRS trades to be defined, and CME Clearing works with the IRS Clearing Member to set up the accounts in this manner. There are three types of such clearing accounts: position accounts, performance bond accounts, and settlement accounts.

To set up these accounts with the exchange, CME Clearing provides an account registration packet, which can be requested by emailing ccs@cmegroup.com with reference in the subject to "IRS Account Setup". CME Clearing Onboarding representatives can walk through the guide that appears in the annex as a separate item.

The following are key components of the account set up process:

Production Firm and Account Setup	Form
Exchange User License Agreement (EULA)	http://www.cmegroup.com/info_forms/registration/clearPortEula.html
Main Contact Form	Registration Packet
Account Setup	Registration Packet
Account Mapping	Registration Packet
OTC Asset Class Banking and Settlement Accounts	Registration Packet
FEC User Set-up form for access to portal, positions, document direct, and/or fees	http://www.cmegroup.com/clearing/files/onlineaccess.pdf

CME Rules allow CME Clearing to revoke any access to the Clearing System which violates CME Rules.

Position Account

The Clearing System uses IRS transaction information to determine the position account to which the trade should be posted. For customer-origin trades, position accounts are established for each registered customer account, and positions are kept for each such registered account. Thus, one registered customer account = one position account in clearing = one beneficial owner of the account.

Position accounts are the level at which trades are kept, and settlement amounts and variation margin amounts are calculated. IRS Clearing Members request position accounts for each registered customer account. For house (proprietary) trades, CME Clearing also defines a special position account to track positions in IRS trades separate from those for futures.

Customer trades kept in position accounts are aggregated to performance bond accounts at each settlement cycle for the calculation of initial margin. This is a one-for-one relationship: there is a performance bond account for each position account.

House trades kept in position accounts are aggregated to performance bond accounts at each settlement cycle for the calculation of initial margin. This is configured as a one-to-one or one-to-many relationship: There is a single performance bond account for each IRS Clearing Member that can have one or multiple position accounts mapping to it.

Money amounts determined in position accounts, and initial margin requirement amounts determined in performance bond accounts, are then aggregated to settlement accounts. This is the level at which collateral is maintained for meeting initial margin requirements, and it is the level at which settlement banking instructions are generated. IRS Clearing Members may maintain any number of settlement accounts, but typically would maintain only one for house business and one for customer business.

IRS trade quantities and side-of-market

CME Clearing adheres to the industry standard convention that the trade quantity is the notional amount of the trade. These will typically be round numbers, but CME accepts trade quantities to any integer notional amount.

The side-of-market is assigned using the industry-standard convention: Pay Fixed is expressed as a negative notional amount and to Receive Fixed is expressed as a positive notional amount

MONEY CALCULATIONS

Variation Margin Cash Flows

Every day the closing value (NPV) of a swap deal is communicated to the IRS Clearing Members. The Variation Margin is the difference between these closing values.

Variation Margin (VM) = $NPV_T - NPV_{T-1}$, where 'T' is the clearing business date.

NPV_T – Mark to Market value of the position using closing curve on date: T

NPV_{T-1} – Mark to Market value of the position using the closing curve on date: T – 1

On days before coupon payment the variation margin will be calculated based on Adjusted NPV. Using Adjusted NPV on the day before coupon ensures that the coupon payment and VM net each other when the cash flows are settled on the coupon date.

Adjusted NPV = $NPV - \text{Coupon}_{\text{Next Day}}$; on all other days NPV and Adjusted NPV will be the same.

On coupon payment value dates, the NPV does not take into account the coupons that are paid (collected).

Coupon Payments

An interest rate swap has two streams of coupon payments: (1) Fixed and (2) Floating coupon payments. The following are important parameters in determining the coupon payments:

- Accrual period – accrual periods are derived from the payment dates for the type of coupon
- Day count convention – the day count convention is specified on the swap for each type of coupon payment
- Effective rate – the effective rate on the swap is the fixed or the floating rate based on the type of coupon payment
- Notional – the notional is notional amount specified on the swap deal

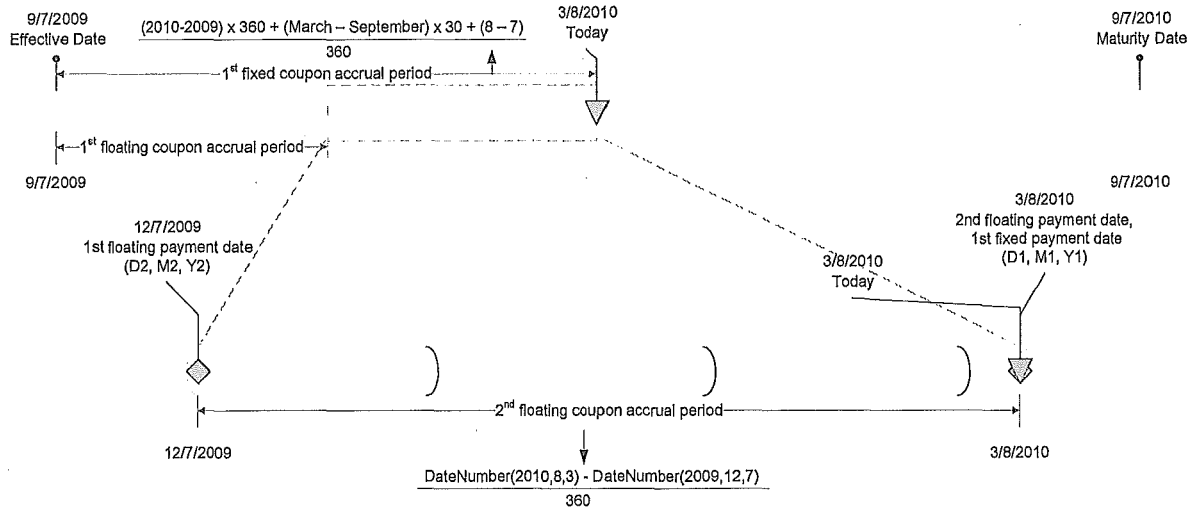


Figure 12: Accrual Period example

The figure above illustrates a 1y interest rate swap. CME Clearing has computed all the payment dates and published them to the IRS Clearing Members. The payment dates illustrated in the figure above are: (1) December 7th, 2009 – 1st floating coupon payment date and (2) March 8th, 2010 – 2nd floating coupon payment date and 1st fixed coupon payment date. The figure above further illustrates some accrual periods for the floating and fixed coupons. The accrual period for any type of coupon can be determined from the payment dates published. For a given type of coupon (such as a floating coupon payment type), on the coupon payment value date (for example: - March 8th, 2010) the accrual period excludes the current coupon payment value date (March 8th, 2010) and includes the previous coupon payment value date (December 7th, 2009).

The coupon payment dates are computed when a swap is processed for clearing and they are disseminated to the IRS Clearing Members in the swap confirmation message. The dates are adjusted based on holidays following the ISDA 2006 conventions specified on the swap.

Notations

Parameter	Notation
Previous payment value date	day (D1), month (M1) and year (Y1)
Current payment value date	day (D2), month (M2) and year (Y2)
Accrual period in years	AP
Effective rate	<i>r</i>
Notional	N
Coupon Payment	CP

Accrual Period Using ISDA 30/360 Algorithm

$$AP = \frac{(Y2-Y1) \times 360 + (M2-M1) \times 30 + (D2-D1)}{360}$$

If D1 falls on the 31st, then change it to the 30th.

If D2 falls on the 31st, then change it to the 30th only if D1 falls either the 30th or 31st.

Accrual Period Using ISDA ACT/360 Algorithm

$AP = \frac{\text{DayNumber}(Y2, M2, D2) - \text{DayNumber}(Y1, M1, D1)}{360}$, where "Day Number" is the function similar to the *Date*() function in Microsoft Excel that returns the number of days from a reference point in the past. The difference in "Day Number" returns the **ACTUAL** number of days between two calendar dates.

Accruals with semiannual float payment and quarterly compounding

The floating leg payment frequency can be 3M (USD3L1 and USD3L3) or 6M with quarterly compounding (USD3L3 and USD3L4). In case where float payment is 6M with quarterly compounding, the interest accrued in the first three month period is reinvested with the forward rate of the next three month period.

The formula to compute the float payment for 6M payment frequency swap with quarterly compounding is

$$\text{FloatPayment} = N * \left(1 + \frac{R1}{100} * AP1 \right) \left(1 + \frac{R2}{100} * AP2 \right) - N$$

Where:

N = Notional amount on the swap

R1 = Forward Rate for the first 3 month period

R2 = Forward Rate for the second 3 month period

AP1 = Accrual period year fraction of the first 3 month using ACT/360 convention

AP2 = Accrual period year fraction of the second 3 month using ACT/360 convention

Coupon Payment

$$CP = r \times AP \times N$$

Coupon Payments are processed on the day before the coupon date and banked on the coupon date.

When swaps have coupon payments, the daily reconciliation report dates (position report) on coupon payment value will provide the coupon amount and list out the parameters: (1) accrual period begin and end dates (2) day count convention (3) effective rate and (4) Notional. A positive sign indicates credit and a negative sign indicates debit.

Price Alignment Interest (PAI)

Since variation margin is moved as cash, the party with positive NPV – as of today, will have the right and ability to invest the funds and the party with negative NPV – as of today, will be funding the position. This has the side affect of distorting the value of the interest rate swap. To compensate for this distortion, the CME will collect overnight rate from the party with the positive NPV and pay the party with the negative NPV. A positive sign on the amount indicates credit and a negative sign indicates debit.

The source of the Fed Fund rate is <http://www.newyorkfed.org/rss/feeds/fedfunds.xml>

USD PAI Example

The following example illustrates the computation of PAI for a USD denominated swap position created on clearing business date ' d_0 '. For USD the effective rate is fed effective rate which is release after the effective period.

Clearing Business Day	NPV	Effective Rate	PAI ⁴	Comments
d_0	NPV_0	FF_0	-	No PAI here as the position did not exist on d_{-1}
d_1	NPV_1	FF_1	$FF_1 \times -1 \times NPV_0$ $\times \frac{d_1 - d_2}{360}$	
d_2	NPV_3	FF_2	$FF_2 \times -1 \times NPV_1$ $\times \frac{d_2 - d_3}{360}$	

⁴ The sign on the amounts are flipped (multiply by -1) because the party with the positive NPV pays the PAI and the party with the negative NPV receives the PAI

Trade Cash Adjustment (Upfront Fees)

Swap deals submitted for clearing can be accompanied with cash payments known as upfront fees or tear-up⁵ fees. These fees will be distinctly identified in the reconciliation report as “Upfront fees”. These fees should not be mistaken to be fees charged for clearing and settlement.

Net Banked Cash

The cash flows described above are banked. The net banked cash flow is given by the sum of the above cash flows.

Net Banked Cash = VM + CP + PAI + Upfront Fees

Timing of Cash Flows

CME Clearing Services are available from Sunday 7:00 pm EST through Friday 7:00 pm EST. CME Clearing Services recognize Dec 25th and Jan 1st as the only holidays in a calendar year. Trades that are cleared after 7:00 pm EST will be cleared as of the next business day. Additional information about the operational timelines is available in Chapter 5.

Interest Rate Swaps have additional cash flows related to coupons and price alignment interest. The purpose of this section is to highlight the timing of the cash flows. Please refer to the reconciliation section for the reconciliation reports available at these times. **The timings of cash flows are in Eastern Standard Time.**

Table 1: Cash flow timing using above timeline example

Cycle	Description	Cash flows
EOD	<p>End of day (EOD) settlement cycle for Clearing business date starts at 7:00 PM EST and includes new swaps received and accepted for clearing up to 7:00 PM EST and also the positions carried over from the previous settlement cycle. After 7:00 PM on January 12th, 2010, the clearing business date is advanced to January 13th, 2010. EOD settlement cycle processes:</p> <ul style="list-style-type: none"> ▪ Initial Margin – This settlement cycle includes the calculation of the initial 	Banked at 8:30 AM EST

⁵ The term tear-up used here is not consistent with the term tear-up used to describe portfolio compression. “Tear-up” here implies the client with the wanted to “step out” of his / her position and found a dealer to do so for a fee – i.e. got his/ her swap torn up for a fee.

margin requirement and its comparison to the performance bond value of collateral on deposit to meet those requirements. Initial margin requirements may be met by any of a wide variety of collateral types that CME Clearing accepts. If a deficit occurs, however, a USD cash margin call is issued, for next-day value if the call is issued at the end-of-day cycle

- PAI is computed using the NPV of previous close and the official fed effective rates released on the clearing business date

Variation Margin – The difference between the value of the position as of Market Close (3:00 p.m. EST) and the value of the position at previous end of day. Adjusted NPV will be used to calculate Variation Margin. Variation Margin is in the currency of the product. For USD swaps the variation margin is in USD. For EUR swaps the VM is in EUR.

$$\text{Adjusted NPV} = \text{NPV} - \text{Coupon}_{\text{NextDay}}$$

- Upfront payment (fees) – These are upfront fees accompanying the swaps that were accepted for clearing on the current clearing business day. This amount is banked along with the VM
- Coupon – Coupon payments processed on the clearing business day before coupon value date and are banked on coupon value date.

COLLATERAL MANAGEMENT AND SETTLEMENT BANKING

OTC Account Class and Collateral Management

Acceptable Collateral

CME Rules also mandate the use of a subset of acceptable collateral to support margining of positions. Please see the link below link for further information regarding acceptable collateral and haircuts.

<http://www.cmegroup.com/clearing/financial-and-collateral-management/collateral-types-accepted-307.html>

The following reflects acceptable collateral for IRS Trades as of August 2010.

CME Clearing accepts a wide range of collateral for deposit into trading accounts, including U.S. dollars, select foreign currencies, U.S. Treasuries, select foreign sovereign debt, asset-backed securities, and agency bonds. See requirements for each below.

Acceptable Performance Bond deposits by customers of IRS Clearing Members are subject to CME Rule 930.C (the following list of acceptable collateral pertains exclusively to deposits made by IRS Clearing Members to meet their obligations at CME Clearing).

Cash

Foreign Sovereign Cash

British pound, Canadian dollar, Euro	5% haircut.
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US Dollar	No haircuts are applied.
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Foreign Sovereign Debt

Discount bills	3%
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0-5 years	5.50%
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5-10 years	7.00%
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10-30 years	8.50%
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>30 years	10%
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U.S. Treasuries

U.S. Treasury Bills

No haircuts applied to market value.

U.S. Treasury Bonds

U.S. Treasury Notes

0-5 years	5-10 years	10-30 years	If security is off the run
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2%	3.5%	5%	0.5% added
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U.S. Treasury Strips (Principal & Coupon)

10% haircut applied to market value of security.

Please see Advisory Notice # 03-97 for more details.

U.S. Government Agencies

Limited to the combination of letters of credit and government agencies of no more than 50% of IRS Clearing Member's core. This restriction does not apply to the IRS Clearing Member's reserve performance bond or concentration requirements. Subordinated debt of the agencies listed below is not acceptable for performance bond.

Discount notes (with remaining maturity of no more than 12 months).
 Issued by Federal Farm Credit Banks, Federal Home Loan Bank System, Federal Home Loan Mortgage Corp. and Federal National Mortgage Assoc.

3% haircut on market value (0.5% added if security is off the run)

- Callable and Non-callable Fannie Mae Benchmark Bills
- Callable and Non-callable Freddie Mac Reference Bills
- Callable and Non-callable Federal Home Loan Bank Bills
- Callable and Non-callable Federal Farm Credit Bank Bills

3% haircut on market value of Agency Bills (0.5% added if security is off the run).

- Callable and Non-callable Fannie Mae Benchmark Notes and Bonds
- Callable and Non-callable Freddie Mac Reference Notes and Bonds
- Callable and Non-callable Federal Home Loan Bank Notes and Bonds
- Callable and Non-callable Federal Farm Credit Bank Notes and Bonds

0-5 yrs	5-10 yrs	10+ yrs	If the security is off the run
3%	4.5%	6%	0.5% added

Select Mortgage Backed Securities

- Fannie Mae (FNMA)
- Freddie Mac (FHLMC)
- Ginnie Mae (GNMA)

Haircut is 10% on market value

Specialized Collateral Programs

IEF2

- BlackRock FedFund
- BlackRock TempFund

IEF5

Specialized Cash Program - utilizing JP Morgan Chase.

CHAPTER 7: IRS MARGINING

IRS MARGIN SECTION OVERVIEW

THIS SECTION HAS TWO DIFFERENT SECTIONS: (1) AN OVERVIEW OF THE MARGIN METHODOLOGY FOR IRS AND (2) CME MARGIN REPORTING TO IRS CLEARING MEMBERS

MARGIN METHODOLOGY

Executive Summary

CME will offer clearing and central counterparty services to qualified current and future IRS Clearing Members for certain interest rate swaps (IRS).

CME Clearing plans to apply its existing information technology (IT) architecture and systems, financial resources, and risk management process by folding IRS into CME Clearing's existing set of cleared futures and options trades. As such, the new IRS trades will be subject to the same basic risk management and surveillance processes that have protected existing Clearing Members from default-related losses for more than a century.

To address the risks of clearing IRS, the CME will rely on its existing risk management practices and principles, as well as certain additional risk controls that are even more conservative than those utilized for existing futures and options products (e.g., more stringent membership eligibility requirements). In addition, the CME will use a new system for computing margin requirements for IRS Products.

Description of the CME Margin Model Objectives

The CME identified the following objectives for its IRS margin model:

- To ensure that the margining system captures portfolio exposures comprehensively and consistently in order to cover 99% of potential portfolio losses over a 5 day period;
- To ensure that all risk factors affecting IRS are included either explicitly or implicitly in the margin requirement and model;
- To make software available such that the requirement calculations are easily replicable;
- To ensure consistency of the IRS margin assessment mechanisms with other elements of the CME Group's margin assessment and overall risk management process.

The IRS margin model developed by the CME to achieve the above objectives is a Principal Component Analysis (PCA) model. By this method, the total risk in an IRS portfolio may be expressed by nine yield curve risk factors. Added together, all these individual factors define the total margin requirement for any particular portfolio.

Consistent with the margin policy for all other financial instruments cleared by CME, CME Clearing calculates margin requirements on a portfolio basis. CME's approach, moreover, represents a conservative approach to margin-setting in which margin is always additive across the underlying risk factors. By adding these factors together, CME Clearing's system is designed to provide sufficient margin in the event that each underlying risk event occurs simultaneously.

Quantitative Assessment

The CME Group constructed various portfolios in order to test the margin model over a broad range of market conditions and portfolio construction themes. Specifically, the CME evaluated 31 targeted portfolios (e.g. butterflies and spreads), 600+ synthetic targeted portfolios (multi-legged portfolios with exposure spread discretely along the curve), 50 client submitted portfolios (broad, multi-thousand line-item portfolios across the entire curve), and 10,000 additional randomly generated portfolios. The types of portfolios constructed consisted of both off-market and at-the-money coupons and included different combinations of DVO1 neutrality and net notional neutrality.

For the test portfolios above, margin requirements at the time were estimated using the previous 5-years of zero curve history as an input for the PCA transformations. The CME decayed the historical returns based on a weekly lambda of 97% in order to provide a balance between adequate margin coverage and cyclicity. The margin results calculated at time were then compared to the aggregate market move observed over t+1 through t+5.

The results indicated that, for nearly all sample portfolios and days considered in the analysis period, PCA methodology established margins that exceeded 99% percent of the profit or loss generated by the portfolio, indicating that the CME approach achieves its risk management objectives across a broad universe of portfolios. The IRS Risk Committee will receive monthly summary statistics on full back-testing results, with detailed results for the worst 1% portfolios.

The CME IRS Margin Model & Factor Descriptions

Overview of Margin Model

The CME has developed a PCA model to determine the margin requirements for IRS instruments. PCA is a mathematical procedure that takes a large amount of correlated data and readjusts and reduces it into factors that best explain the variation in the data. Given a set of points, the first factor (the eigenvector with the largest eigenvalue) corresponds to a line that passes through the mean and minimizes sum squared error with those points. The second factor corresponds to the same concept after all correlation with the first factor has been subtracted out from the points. Each eigenvalue indicates the portion of the variance that is correlated with each eigenvector. Thus, the sum of all the eigenvalues is equal to the sum squared distance of the points with their mean divided by the number of dimensions. The methodology produced nine risk factors to represent the different yield curve risks inherent to IRS Product portfolios. These nine factors will be aggregated to determine the total amount of margin required to protect a portfolio against exposures resulting from daily changes in IRS spreads.

10 years of historical zero rate curve data from 2000 to 2010 was used for the PCA to assess yield curve variability, determine number of relevant factors and perform back-testing.

The PCA model determined that 3 factors accounted for 99% of the yield curve variation. It was also determined that 9 factors were needed to account for 99% of portfolio variation.

The input to the PCA model is "Exponentially Weighted" 5-day log returns (consistent with our margin strategy). The PCA sub-function then produces factor weights which are ranked based on the amount of variance they explain. Factor weights can be thought of as multiplicative impacts to yields across the term structure (or in other words, yields multiplied by factor-coefficients or eigenvectors). PCA also gives us eigenvalues, which represent the variance of the principal components.

The shocked factor weights calculated are then applied to the original zero rate reference curve to derive new shocked curve points across the term structure for each of the standard deviation moves. The process of shocking and constructing curves is performed for each of the nine factors independently. As a result, a number of independent stressed curves are produced which yield an NPV differential for the portfolio relative to the original reference curve.

9 factors x 4 standard deviations x 2 = 72 independent stressed curves plus 1 base curve

The worst losses (min or max) arising from each of these stressed curves give that factors contribution to the margin. Each of the individual contributions are summed and will be the margin charged for that portfolio. Back-testing suggests that adding margins linearly compares favorably to benchmarks and gives adequate, well-balanced coverage while allowing us to use a small subset of factors.

PCA margin model Summary:

- 1) Perform PCA using decayed historical data ($\lambda = 97\%$) to generate factors explaining variability across the term structure
- 2) Shock the factor weights identified in PCA up and down 4 Standard Deviations using underlying volatility (square-root of the Eigenvalues as a proxy for each component's standard deviation)
- 3) Construct a set of new curves (for each factor) by applying shocked factor weights to an original zero-rate reference curve
- 4) Calculate the margin contribution from each PCA factor independently by taking largest loss from each
- 5) Calculate the total margin for the day by summing each factor's individual contribution

The equation below expresses the PCA model:

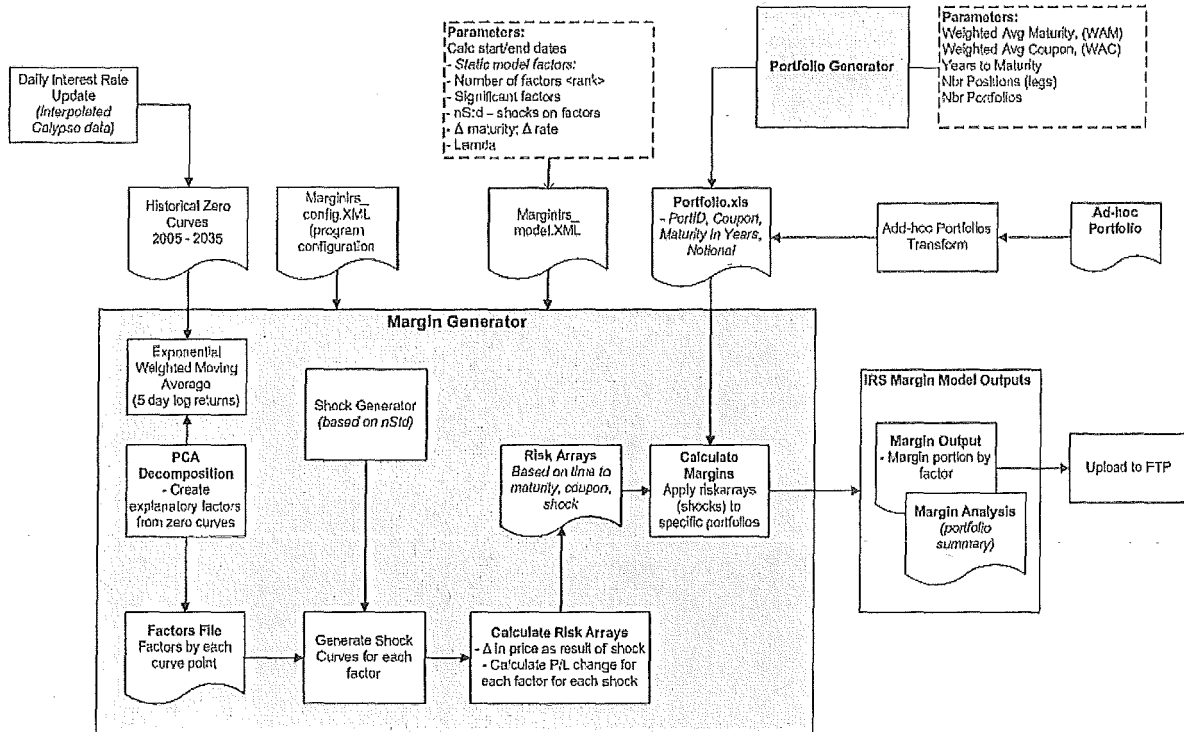
$$M^{\star} = \max[M_1 + M_2 + M_3 + M_4 + M_5 + M_6 + M_7 + M_8 + M_9]$$

where	M^{\star}	=	total portfolio margin required
	M_1	=	factor 1
	M_2	=	factor 2
	M_3	=	factor 3
	M_4	=	factor 4
	M_5	=	factor 5
	M_6	=	factor 6
	M_7	=	factor 7
	M_8	=	factor 8
	M_9	=	factor 9

The total risk in an IRS portfolio may be expressed by nine risk factors. Added together, all these individual factors define the total margin requirement for any particular portfolio.

Margin is always additive across the representative risk factors. By adding these factors together, CME Clearing's system is designed to provide sufficient margin in the event that each underlying risk event occurs simultaneously and thus CME's framework represents a conservative approach.

IRS Process Diagram
Draft: 9/03/10



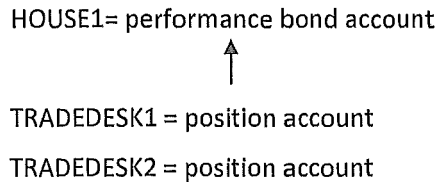
MARGIN REPORT FOR IRS CLEARING MEMBERS

CME will publish a margin report to the secured FTP site each night by 12:30am EST. The Margin report contains the initial margin requirement for each performance bond account on the exchange. The file is named: IRSMR_NNN_YYYYMMDD.csv and a sample file can be found in the appendix or can be provided by a member of the IRS Onboarding Team.

For cleared customer trades, the performance bond account maps directly to each individual position / trading account.

For cleared house trades, the performance bond account may have multiple position accounts underneath it or it will have a direct one-to-one mapping with a single performance bond account.

Example of multiple house position accounts mapping to a single house performance bond account:



More information on the account structure can be found in Chapter 3 under the Organization and Account section.

CHAPTER 8: END-OF-DAY VALUATIONS

CME Group OTC IRS Settlement Curve

CME Curve Construction

CME Clearing uses the following settlement curve and curve calculation process and methodology to mark cleared interest rate swap positions to market and determine daily variation margin amounts.

USD Instrument Description	Type
O/N Interbank Money Market	Yield
T/N Interbank Money Market	Yield
0 X 3 FRA	Yield
Front Month Quarterly Eurodollar Future	Future
2nd Eurodollar Future	Future
3rd Eurodollar Future	Future
4th Eurodollar Future	Future
5th Eurodollar Future	Future
6th Eurodollar Future	Future
2Y Swap Rate	Yield
3Y Swap Rate	Yield
4Y Swap Rate	Yield
5Y Swap Rate	Yield
6Y Swap Rate	Yield
7Y Swap Rate	Yield
8Y Swap Rate	Yield
9Y Swap Rate	Yield
10Y Swap Rate	Yield
12Y Swap Rate	Yield
15Y Swap Rate	Yield
20Y Swap Rate	Yield
25Y Swap Rate	Yield
30Y Swap Rate	Yield
40Y Swap Rate	Yield

The settlement curve will be constructed using a snapshot of benchmark instruments daily at 3:00pm EST from publicly available sources. Inputs for the benchmark instruments are obtained from various wire service feeds. CME will monitor these feeds throughout the day and will validate the EOD snapshot for consistency. Inputs used will be a blend of these feeds.

Building Blocks

Three sets of benchmark instruments are used for curve construction covering different maturity regions.

Deposits

- O/N Interbank MM
- T/N Interbank MM
- 0 X 3 FRA

Eurodollar

- Front Six Qtr Contracts Future
- Front Eurodollar rolls 3 business days prior to last trading day

Swaps

- 2-10Y Swap Rates
- 12,15,20,25,30 & 40Y Swap Rates

Curve Construction*Bootstrapping*

Swap curve construction incorporates a bootstrap procedure to generate a zero curve based on the defined benchmark inputs. Bootstrapping is aided by a monotone convex interpolation by operating on the instantaneous forward rates associated with the curve inputs. (Reference appendix for details)

The generation procedure for a yield curve for a given is as follows:

- A) Benchmark Handling:
 1. Account for any gaps/overlaps (reference appendix w/ gap/overlap logic)
 2. Bootstrap known rates (ie deposit block and ED block)

- B) Bootstrap swaps and interpolation scheme:
 1. An estimate is made for the forward rate as of the last date of the instrument – candidate discount factor.
 2. The intermediate forward rates are derived such that the interpolation scheme constraints are satisfied.
 3. Using the input swap fixed rate at a particular node in the swap block, the swap is priced with the candidate derived discount factors and forward rates to find the Net Present Value.
 4. From the calculated Net Present Value, an improved guess is of the forward rate is made.
 5. Steps 2 – 4 are repeated until an improvement in the forward rates cannot be found that produces a more than a 1×10^{-14} improvement in the Net Present Value.

The Bootstrap curve generation fits a curve to market prices and incorporates a global curve-fitting algorithm to smooth the results. This smoothing algorithm fits one point per instrument, eliminating the problem with futures contract dates and employs the Interpolator to handle curve smoothness across instrument boundaries.

Interpolation

Instead of implicitly assigning discrete forward rates as a property of the corresponding endpoint of an interval, the monotone convex interpolator treats the discrete forward rate as a property of the entire interval. The interpolation algorithm proceeds by deriving the instantaneous forward rates (f_i) from the average values at the midpoints of the adjacent intervals. The interpolation method balances locality with smoothness while enforcing positive forward rates. (Reference appendix - for details)

Curve Adjustments

There are a number of adjustments made in the curve construction process. The following two sections identify relevant adjustments.

Convexity Adjustment

Futures contracts are convexity adjusted using convexity levels from Reuters (RIC: EDZ0=; Hull-White model with zero drift).

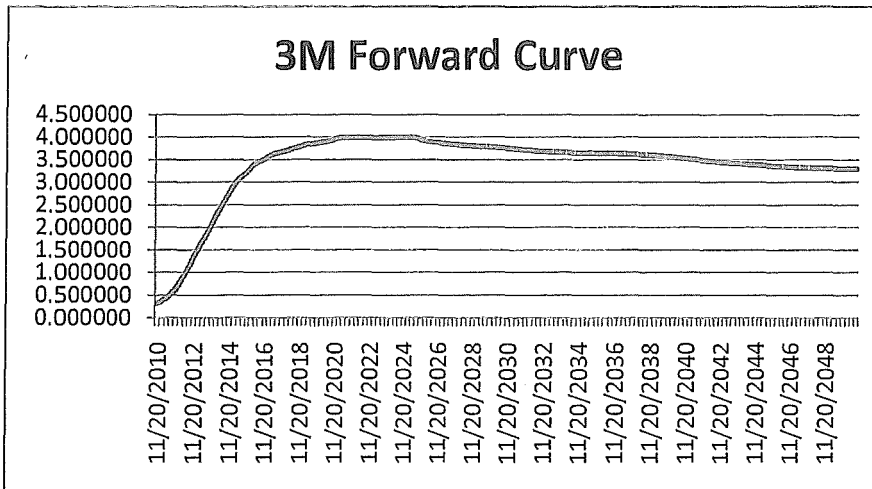
Alignment, Gaps, and Overlaps

Before a curve is generated, forward periods are produced with associated forward discount factors that have no alignment issues, gaps, or overlaps. (Reference appendix for details)

Settlement File

The settlement file will contain pertinent zero rates and discount factors along with a 3M forward rate for each day of the curve.

Example 3M Forward Rate curve for 8/20/2010:



OIS DISCOUNTING

CME is utilizing a LIBOR curve for both forecasting and discounting for the launch, but is currently in discovery phase for possibly migrating to an OIS curve for discounting after the launch.

Appendix**A. Boot Strap**

Derive the n-year zero coupon bond yield using an iterative process, where the price of the bond is calculated as the present value of the cash flows to be received in the future. In the case of swap rates:

$$100 = cf_n \cdot df_1 + cf_n \cdot df_2 + cf_n \cdot df_3 + \dots + (100 + cf_n) \cdot df_n$$

And

$$df_n = \frac{(100 - \sum_{i=1}^{n-1} cf_n \cdot df_i)}{(100 + cf_n)}$$

Where

- cf_n is the coupon of the n-year bond
- df_i is the discount factor for that time period
- df_n is the discount factor for the entire period, from which we derive the zero-rate.

Reference Calypso Technology, Inc. documentation regarding "BootStrapGlobal" (Curve Generation Enhancements Release Notes July 2010)

B. Monotone Convex

Monotone Convex Spline Summary

(Hagan-West, Applied Mathematical Finance, Vol 13, No 2, 89-129, June 2006)

The curve must be locally monotone and convex if the inputs show these properties as well as the implied forward rates must be positive and the entire curve must be smooth.

We will address this in four sections:

1. Basic Interpolator
2. Enforcing Monotonicity and Convexity on the interpolator
3. Enforcing Positive Forward Rates on the interpolator
4. Improving smoothness of the interpolator

Basic Interpolator

Let f_i^d be the discrete forward rate at node i that belongs to the entire interval $[\tau_{i-1}, \tau_i]$

$$f(\tau_{i-1}) = f_{i-1}, \quad f(\tau_i) = f_i, \quad \frac{1}{\tau_i - \tau_{i-1}} \int_{\tau_{i-1}}^{\tau_i} f(t) dt = f_i^d$$

We can satisfy this via the following quadratic form:

$$\begin{aligned} f(\tau) &= f_{i-1} - (4f_{i-1} + 2f_i - 6f_i^d)x(\tau) + (3f_{i-1} + 3f_i - 6f_i^d)x(\tau)^2 \\ &= (1 - 4x(\tau) + 3x(\tau)^2)f_{i-1} + (-2x(\tau) + 3x(\tau)^2)f_i + (6x(\tau) - 6x(\tau)^2)f_i^d \end{aligned}$$

Where

$$x(\tau) = \frac{\tau - \tau_{i-1}}{\tau_i - \tau_{i-1}}$$

for $i=1, 2, \dots, n$

Enforcing Monotonicity and Convexity on the Interpolator

Over the interval $\tau_{i-1} < \tau < \tau_i$ we require $f(\tau)$ be:

Monotone increasing if and only if: $f_{i-1}^d < f_i^d < f_{i+1}^d$

Monotone decreasing if and only if: $f_{i-1}^d > f_i^d > f_{i+1}^d$

Since our basic interpolator implies that f_i is between the average values of $f(\tau)$ on the adjacent intervals this implies that:

$$\min(f_i^d, f_{i+1}^d) \leq f_i \leq \max(f_i^d, f_{i+1}^d).$$

And hence to enforce the above constraints we need only the following conditions:

$$f_{i-1} \leq f_i^d \leq f_i \Rightarrow f(\tau) \text{ is monotone increasing}$$

$$f_{i-1} \geq f_i^d \geq f_i \Rightarrow f(\tau) \text{ is monotone decreasing}$$

We require an interpolation function that satisfies the following properties:

In order to formalize these conditions we must consider the difference between the instantaneous forward rate over the current interval and the discrete forward rate at a particular node as such:

$$g(\tau) = f(\tau) - f_i^d$$

And hence

$$\int_{\tau_{i-1}}^{\tau_i} g(\tau) d\tau = 0$$

It's easier to see this when you look at g in terms of x ie

$$g(x) = g(0)[1 - 4x + 3x^2] + g(1)[-2x + 3x^2]$$

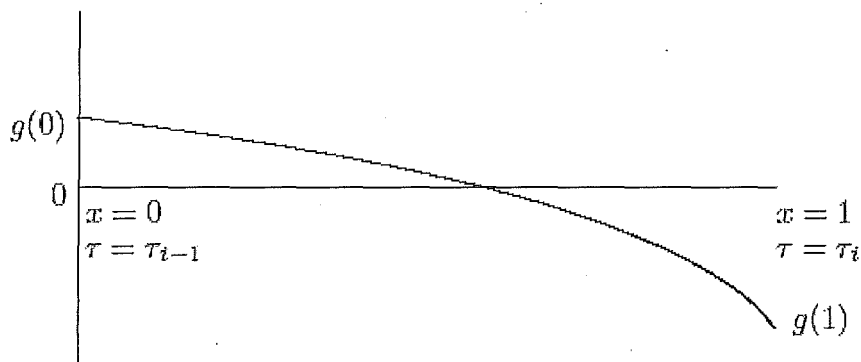
And hence

$$\int_0^1 g(x) dx = 0$$

Given our basic interpolator scheme we can see that:

$$g(\tau) = g_{i-1}(1 - 4x + 3x^2) + g_i(-2x + 3x^2)$$

Since g is quadratic we can see:



and so

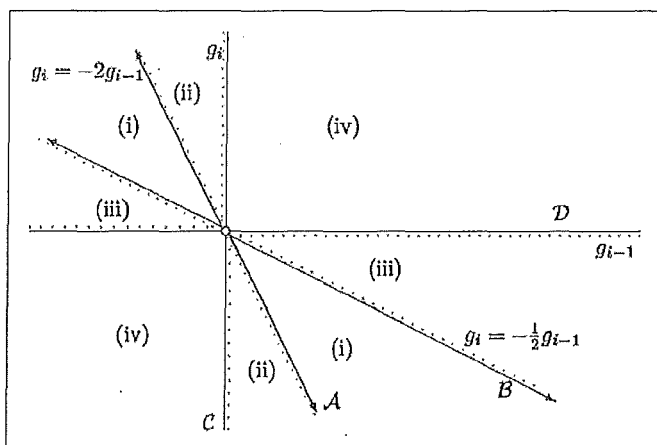
$$\frac{\partial g}{\partial x} = g_{i-1}(-4 + 6x) + g_i(-2 + 6x)$$

To control the behavior of this function we examine:

$$g'(0) = -4g_{i-1} - 2g_i$$

$$g'(1) = 2g_{i-1} + 4g_i$$

Excluding the origin we see the following behavior:



- (i) $g_{i-1} > 0, -\frac{1}{2}g_{i-1} \geq g_i \geq -2g_{i-1}$ and $g_{i-1} < 0, -\frac{1}{2}g_{i-1} \leq g_i \leq -2g_{i-1}$
(ii) $g_{i-1} < 0, g_i > -2g_{i-1}$ and $g_{i-1} > 0, g_i < -2g_{i-1}$
(iii) $g_{i-1} > 0, 0 > g_i > -\frac{1}{2}g_{i-1}$ and $g_{i-1} < 0, 0 < g_i < -\frac{1}{2}g_{i-1}$
(iv) $g_{i-1} \geq 0, g_i \geq 0$ and $g_{i-1} \leq 0, g_i \leq 0$

Now we can control these sectors as needed:

- (i) No conditions need to be applied here as the function is decreasing as expected.
(ii) f has to be non-decreasing therefore we enforce a flat segment here:

$$g(\tau) = \begin{cases} g_{i-1} & \text{for } 0 \leq x \leq \eta \\ g_{i-1} + (g_i - g_{i-1}) \left(\frac{x-\eta}{1-\eta} \right)^2 & \text{for } \eta < x \leq 1 \end{cases}$$

with η chosen to ensure that $g(\tau)$ averages to zero:

$$\eta = 1 + 3 \frac{g_{i-1}}{g_i - g_{i-1}} = \frac{g_i + 2g_{i-1}}{g_i - g_{i-1}}$$

ie

$$\int_{\tau_{i-1}}^{\tau_i} g(\tau) d\tau = 0$$

- (iii) f has to be non-increasing therefore we enforce a flat segment here:

$$g(\tau) = \begin{cases} g_i + (g_{i-1} - g_i) \left(\frac{\eta-x}{\eta} \right)^2 & \text{for } 0 < x < \eta \\ g_i & \text{for } \eta \leq x < 1 \end{cases}$$

with η again chosen to ensure that $g(\tau)$ averages zero:

(iv) $g(\tau)$ must average to zero and we use two quadratics, so that the function would reduce to the functions above in ii and iii so we define:

$$g(\tau) = \begin{cases} A + (g_{i-1} - A) \left(\frac{\eta - x}{\eta}\right)^2 & \text{for } 0 < x < \eta \\ A & \text{for } x = \eta \\ A + (g_i - A) \left(\frac{x - \eta}{1 - \eta}\right)^2 & \text{for } \eta < x < 1 \end{cases}$$

With

$$A = -\frac{1}{2}[\eta g_{i-1} + (1 - \eta)g_i]$$

So that g averages to zero over the interval.

We pick η to match our prior results, so at $g_{i-1}=0$ and $g_i=0$ $A=0$ so we use:

$$\eta = \frac{g_i}{g_i + g_{i-1}}$$

$$A = -\frac{g_{i-1}g_i}{g_{i-1} + g_i}$$

Enforcing Positive Forward Rates on the interpolator

g enforces minimum and maximum values over our sectors hence we can say that the maximum deviation from the average value over an interval is

$$\left| \frac{g_{i-1} * g_i}{g_{i-1} + g_i} \right|$$

Since our basic interpolator has:

$$\min(f_i^d, f_{i+1}^d) \leq f_i \leq \max(f_i^d, f_{i+1}^d).$$

$f(\tau)$ can only be negative if it has a negative local minimum within the interval which can only occur in quadrant $g_i > 0, g_{i-1} > 0$ we thus enforce a stringent requirement to keep a reasonable distance from 0 of:

$$0 < f_{i-1} < 2f_i^d \text{ and } 0 < f_i < 2f_i^d$$

This is applied as:

$$f_0 \rightarrow \text{bound}(0, f_0, 2f_1^d)$$

$$f_i \rightarrow \text{bound}(0, f_i, 2 \min(f_i^d, f_{i+1}^d)) \quad i = 1, 2, \dots, n-1$$

$$f_n \rightarrow \text{bound}(0, f_n, 2f_n^d)$$

Improving smoothness of the interpolator

The penalty of increasing the smoothness over an interval is the reduction in locality. With that in mind we can consider the interval i and $i+1$

When

$$f_i^d > f_{i-1}^d \text{ and } f_{i+1}^d > f_i^d$$

then $f(\tau)$ is increasing over the interval and the smoothest result is:

$$f_i^d + \frac{1}{2}(f_i^d - f_{i-1}^d) < f_i < f_i^d + 2(f_i^d - f_{i-1}^d)$$

We control this function to reduce its asymmetry by using:

$$f_i^d - \frac{1}{2}\lambda(f_i^d - f_{i-1}^d) < f_i < f_i^d$$

where $0 \leq \lambda \leq 1$ and is picked to determine the smoothness given our locality considerations. The algorithm applied given the above results is:

- (a) add an additional interval at the beginning and the end:

$$\tau_{-1} = \tau_0 - (\tau_1 - \tau_0), \quad f_0^d = f_1^d - \frac{\tau_1 - \tau_0}{\tau_2 - \tau_0} (f_2^d - f_1^d)$$

$$\tau_{n+1} = \tau_n + (\tau_n - \tau_{n-1}), \quad f_{n+1}^d = f_n^d + \frac{\tau_n - \tau_{n-1}}{\tau_n - \tau_{n-2}} (f_n^d - f_{n-1}^d)$$

- (b) Select the f_i 's by linearly interpolating on the midpoints of the intervals:

$$f_i = \frac{\tau_i - \tau_{i-1}}{\tau_{i+1} - \tau_{i-1}} f_{i+1}^d + \frac{\tau_{i+1} - \tau_i}{\tau_{i+1} - \tau_{i-1}} f_i^d, \quad \text{for } i=0, 1, \dots, n$$

Note that with the false intervals, this formula works for $i=0$ and $i=n$.

- (c) For each $i=1, 2, \dots, n-1$,

- (i) if the target ranges overlap, define the common range

$$\max(f_{i,1}^{\min}, f_{i,2}^{\min}) \leq f_i \leq \min(f_{i,1}^{\max}, f_{i,2}^{\max})$$

If f_i is outside this common range, make the minimum adjustment to f_i to

place it in the common range:

$$\text{if } f_i < \max(f_{i,1}^{\min}, f_{i,2}^{\min}) \quad \text{set } f_i = \max(f_{i,1}^{\min}, f_{i,2}^{\min})$$

$$\text{if } f_i > \min(f_{i,1}^{\max}, f_{i,2}^{\max}) \quad \text{set } f_i = \min(f_{i,1}^{\max}, f_{i,2}^{\max})$$

(ii) if the target ranges don't overlap, define the gap by

$$\min(f_{i,1}^{\max}, f_{i,2}^{\max}) \leq f_i \leq \max(f_{i,1}^{\min}, f_{i,2}^{\min})$$

If f_i is below or above the gap, make the minimum adjustment to f_i to place it on the edge of the gap:

$$\text{if } f_i < \min(f_{i,1}^{\max}, f_{i,2}^{\max}) \quad \text{set } f_i = \min(f_{i,1}^{\max}, f_{i,2}^{\max})$$

$$\text{if } f_i > \max(f_{i,1}^{\min}, f_{i,2}^{\min}) \quad \text{set } f_i = \max(f_{i,1}^{\min}, f_{i,2}^{\min})$$

(d) if now $|f_0 - f_0^d| > \frac{1}{2}|f_1 - f_0^d|$, replace f_0 with

$$f_0 = f_1^d - \frac{1}{2}(f_1 - f_0^d)$$

provided we don't know the value of f_0 (some markets explicitly quote f_0 .)

(e) Similarly, if $|f_n - f_n^d| > \frac{1}{2}|f_n - f_{n-1}^d|$, replace f_n with

$$f_n = f_n^d + \frac{1}{2}(f_n^d - f_{n-1})$$

(f) If the application requires $f(\tau) > 0$ apply

$$f_0 \rightarrow \text{bound}(0, f_0, 2f_1^d)$$

$$f_i \rightarrow \text{bound}(0, f_i, 2\min(f_i^d, f_{i+1}^d)) \quad i=1, 2, \dots, n-1$$

$$f_n \rightarrow \text{bound}(0, f_n, 2f_n^d)$$

C. Alignment, Gaps and Overlaps

1) Alignment: i.e. $A1=B1$ but $A2 < B2$ Alignment is when period A and period B start on the same date but end on different dates.

- Create a new period C that starts on A's end date and finishes on B's end date (i.e. C goes A2-B2)
- The fwdDf for C is $\text{fwdDf}(B) / \text{fwdDf}(A)$
- The original period B can then be moved to the Junked list.

2) Gap: i.e. $A2 < B1$

- Use A's length and fwdDf to calculate the continuously compounded interest rate for period A
- Create a new period C from A2 to B1 (i.e. the gap)
- Assume that the continuously compounded interest rate for A applies to C too.
- Given this rate and the gap's length, we can calculate a forward discount factor for the gap.
- Add C to the Working list

3) Overlap i.e. $A1 < B1 < A2 < B2$. The goal is to calculate fwdDfs for the three periods A1-B1, B1-A2, and A2-B2.

- Generate the curve in order to calculate the absolute (i.e. not forward) discount factors for A1 and A2.
- Convert these discount factors into zero rates
- Interpolate a value for the B1 zero rate from the A1 and A2 zero rates.
- Convert the B1 zero rate to a discount factor
- Use the A1 and B1 discount factors to calculate a forward discount factor for the period A1-B1.
- Use the A1-B1 and A1-A2 forward discount factors to calculate a forward discount factor for B1-A2
- Use the B1-A2 and B1-B2 forward discount factors to calculate a forward discount factor for A2-B2
- Add A1-B1, B1-A2 and A2-B2 to the working list and discard the original A1-A2 and B1-B2
- Reanalyze and possibly omit the curve points generated at the beginning of this step (because subsequent overlaps may cause them to change)

Reference Calypso Technology, Inc Alignment, Gap and Overlap documentation

CHAPTER 9: FINANCIAL SAFEGUARDS**GUARANTY FUND****Separate IRS Guaranty Fund**

CME Clearing shall establish an additional IRS Guaranty Fund as described in Rule 8G.07.

Guarantee Fund Calculation

Each IRS Clearing Member's funded contribution to the IRS Guarantee Fund is calculated using two components: one that is tied to overall risk of the portfolio and the other tied to the size of the portfolio.

Each IRS Clearing Member's Guaranty Fund contribution to the Financial Safeguards Package will be calculated as a factor of two weighted components based on trailing 30-day averages:

- (1) Average IRS margin as a proportion of total IRS margin at the CME (90% weight);
- (2) IRS Clearing Member IRS gross notional as a proportion of total IRS gross notional at the CME (10% weight).

This calculated contribution will then be compared to two minimum values, such that each IRS Clearing Member's funded portion of the IRS guaranty fund will be the maximum of the follow values:

- (I) The IRS Clearing Member's calculated contribution (as described above);
- (II) \$50M;

The Guaranty Fund calculation is calculated as per the example below:

	Time Period X
<u>Determine overall financial safeguards pool size based on net debtor stress testing results</u>	
<u>Determine the percentage of overall margin requirements needed to achieve the target pool size</u>	
<u>Aggregate</u>	
Funded Guaranty Fund requirements for IRS Based on two largest net debtors	\$900,000,000
<u>Margin Component – 90% weight</u>	
Total Average IRS margin over trailing 30 days at CME	\$10,000,000,000
IRS Clearing Member XYZ's average 30-day margin requirement	\$800,000,000
IRS Clearing Member XYZ's margin %	8%
IRS Clearing Member XYZ's margin component of the IRS guaranty fund (\$900M Target x 90%) x 8%	\$64,800,000

Gross Notional Component -- 10% weight	
Total average IRS gross notional over trailing 30 days at CME	\$100,000,000,000
IRS Clearing Member XYZ's average 30-day CDS gross notional	7,000,000,000
IRS Clearing Member XYZ's open interest %	7%
IRS Clearing Member XYZ's open interest component of the IRS guaranty fund (\$900M Target x 10%) x 7%	\$6,300,000
IRS Clearing Member XYZ's margin component of the IRS guaranty fund	\$64,800,000
IRS Clearing Member XYZ's gross notional component of the IRS guaranty fund	\$6,300,000
Total IRS Clearing Member XYZ's funded Guaranty Fund contribution	\$71,100,000

This calculated value will then be compared to the minimum value. In this example, the calculated value of \$71.1M exceeds the minimum of \$50M. XYZ's Guaranty Fund deposit contribution is thus \$71.1M.

These calculations are performed per Rule 8G.[07].

IRS Clearing Members are also responsible for an unfunded portion of the IRS Guaranty Fund, which reflects the next two (IRS Clearing Members three and four) largest net debtors, in the form of CME Clearing assessment powers pursuant to Rule 8G802.B.

Please see the sample calculation below.

Calculating the Funded and Unfunded Portions of the Guaranty Fund

Scenario: All firms are equal contributors to the guaranty fund and the financial safeguards

Clearing Member	Guarantee Fund	Potential Assessment	Percentage of GF	
Firm A	\$100	\$200	10%	Firm A and Firm B are the 2 largest net debtors, they size the guarantee fund (funded portion)
Firm B	\$100	\$200	10%	
Firm C	\$100	\$200	10%	
Firm D	\$100	\$200	10%	
Firm E	\$100	\$200	10%	
Firm F	\$100	\$200	10%	
Firm G	\$100	\$200	10%	Firm X and Firm Y are the next 2 largest net debtors, they size the potential assessments (unfunded portion)
Firm H	\$100	\$200	10%	
Firm X	\$100	\$200	10%	
Firm Y	\$100	\$200	10%	
Total GF	\$1,000	\$2,000		

Calculating the Funded and Unfunded Financial Safeguards

Stress Test Loss – Margin – GF Contribution = Net Debtor

1 LND (Firm A) + #2 LND (Firm B) = Total Guaranty Fund Size (Funded)

3 LND (Firm X) + #4 LND (Firm Y) = Total Potential Assessments (Unfunded)

Funded Calculation					Unfunded Calculation				
Firm	Stress Test	Margin	GF	Net Debtor	Firm	Stress Test	Margin	GF	Net Debtor
A	\$1,100	\$500	\$100	\$500	X	\$1,100	\$500	\$0	\$600
B	\$1,100	\$500	\$100	\$500	Y	\$1,100	\$500	\$0	\$600
Total				\$1,000	Total				\$1,200

Guarantee Fund Size
Potential Assessments Size

Default Occurs

Clearing Member	Guarantee Fund	Potential Assessment	Percentage of GF
Firm A	\$100	\$200	10%
Firm B	\$100	\$200	10%
Firm C	\$100	\$200	10%
Firm D	\$100	\$200	10%
Firm E	\$100	\$200	10%
Firm F	\$100	\$200	10%
Firm G	\$100	\$200	10%
Firm H	\$100	\$200	10%
Firm X	\$100	\$200	10%
Firm Y	\$100	\$200	10%
Total GF	\$1,000	\$2,000	

Event #1: Firm A and Firm B Default

The default of Firm A and Firm B is covered by the Guarantee Fund. The defaults completely deplete the Guarantee Fund

Event #2: Firm X and Firm Y default

Because Firm A and Firm B have already depleted the Guarantee Fund, Firm X and Firm Y defaults are covered by the non-defaulting firms assessments: C, D, E, F, G, H

Funded Coverage

Firm	Stress Test	Margin	GF	Net Debtor
A	\$1,100	\$500	\$100	\$500
B	\$1,100	\$500	\$100	\$500
Total				\$1,000

Assessment Ratio Calculation:
Non-Defaulting Members Assessments to
Non-Defaulting Members Guarantee Fund Contribution

Non-Defaulting Members: C, D, E, F, G, H

Unfunded Coverage

Firm	Stress Test	Margin	GF	Net Debtor
X	\$1,100	\$500	\$0	\$600
Y	\$1,100	\$500	\$0	\$600
Total				\$1,200

Assessments: \$1200
GF Contribution: \$600

Assessment Ratio: 2x

Assessments Paid by
Non-Defaulting Firms

Scenario: Firms are unequal contributors to the guaranty fund and the financial safeguards

Clearing Member	Guarantee Fund	Potential Assessment	Percentage of GF
Firm A	\$171.44	\$500.25	20%
Firm B	\$171.44	\$500.25	20%
Firm C	\$28.54	\$83.29	3.3%
Firm D	\$28.54	\$83.29	3.3%
Firm E	\$28.54	\$83.29	3.3%
Firm F	\$28.54	\$83.29	3.3%
Firm G	\$28.54	\$83.29	3.3%
Firm H	\$28.63	\$83.54	3.3%
Firm X	\$171.44	\$500.25	20%
Firm Y	\$171.44	\$500.25	20%
Total GF	\$857.42	\$2,501.00	

Firm A and Firm B are the 2 largest net debtors, they size the guarantee fund (funded portion)

Firm X and Firm Y are the next 2 largest net debtors, they size the potential assessments (unfunded portion)

Calculating the Funded and Unfunded Financial Safeguards

Stress Test Loss – Margin – GF Contribution = Net Debtor

1 LND (Firm A) + #2 LND (Firm B) = Guarantee Fund Size (Funded)

3 LND (Firm X) + #4 LND (Firm Y) = Potential Assessments (Unfunded)

Funded Calculation

Firm	Stress Test	Margin	GF	Net Debtor
A	\$1,100	\$500	\$171	\$429
B	\$1,100	\$500	\$171	\$429
Total				\$857.42

Guarantee
Fund Size

Unfunded Calculation

Firm	Stress Test	Margin	GF	Net Debtor
X	\$800	\$500	\$0	\$300
Y	\$700	\$500	\$0	\$200
Total				\$500

Potential
Assessments Size

Defaults Occurs

Clearing Member	Guarantee Fund	Potential Assessment	Percentage of GF
Firm A	\$171.44	\$500.25	20%
Firm B	\$171.44	\$500.25	20%
Firm C	\$28.54	\$83.29	3.3%
Firm D	\$28.54	\$83.29	3.3%
Firm E	\$28.54	\$83.29	3.3%
Firm F	\$28.54	\$83.29	3.3%
Firm G	\$28.54	\$83.29	3.3%
Firm H	\$28.63	\$83.64	3.3%
Firm X	\$171.44	\$500.25	20%
Firm Y	\$171.44	\$500.25	20%
Total GF	\$857.12	\$2,501.00	

Event #1: Firm A and Firm B Default
The default of Firm A and Firm B is covered by the Guarantee Fund. The defaults completely deplete the Guarantee Fund

Event #2: Firm X and Firm Y default
Because Firm A and Firm B have already depleted the Guarantee Fund, Firm X and Firm Y defaults are covered by the non-defaulting firms assessments: C, D, E, F, G, H

Funded Coverage

Firm	Stress Test	Margin	GF	Net Debtor
A	\$1,100	\$500	\$171	\$429
B	\$1,100	\$500	\$171	\$429
Total				\$857.12

Assessment Ratio Calculation:
Non-Defaulting Members Assessments to
Non-Defaulting Members Guarantee Fund Contribution

Non-Defaulting Members: C, D, E, F, G, H

Assessments: \$503.04
GF Contribution: \$171.33

Assessment Ratio: 2.9x

Unfunded Coverage

Firm	Stress Test	Margin	GF	Net Debtor
X	\$800	\$500	\$0	\$300
Y	\$700	\$500	\$0	\$200
Total				\$500

Assessments Paid by
Non-Defaulting Firms

Scenario: Firms are unequal contributors to the guaranty fund and the financial safeguards

Clearing Member	Guarantee Fund	Potential Assessment	Percentage of GF
Firm A	\$54.55	\$31.24	5%
Firm B	\$54.55	\$31.24	5%
Firm C	\$145.10	\$83.11	13%
Firm D	\$145.10	\$83.11	13%
Firm E	\$145.10	\$83.11	13%
Firm F	\$145.10	\$83.11	13%
Firm G	\$146.19	\$83.73	13%
Firm H	\$146.19	\$83.73	13%
Firm X	\$54.55	\$31.24	5%
Firm Y	\$54.55	\$31.24	5%
Total GF	\$1,091	\$624.88	

Firm A and Firm B are the 2 largest net debtors, they size the guarantee fund (funded portion)

Firm X and Firm Y are the next 2 largest net debtors, they size the potential assessments (unfunded portion)

Calculating the Funded and Unfunded Financial Safeguards

Stress Test Loss – Margin – GF Contribution = Net Debtor

1 LND (Firm A) + #2 LND (Firm B) = Guarantee Fund Size (Funded)

3 LND (Firm X) + #4 LND (Firm Y) = Potential Assessments (Unfunded)

Funded Calculation

Firm	Stress Test	Margin	GF	Net Debtor
A	\$1,100	\$500	\$55	\$545
B	\$1,100	\$500	\$55	\$545
Total				\$1,091

Unfunded Calculation

Firm	Stress Test	Margin	GF	Net Debtor
X	\$800	\$500	\$0	\$300
Y	\$700	\$500	\$0	\$200
Total				\$500

Guarantee
Fund Size

Defaults Occur

Clearing Member	Guarantee Fund	Potential Assessment	Percentage of GF
Firm A	\$54.65	\$81.24	5%
Firm B	\$54.65	\$81.24	5%
Firm C	\$145.10	\$83.11	13%
Firm D	\$145.10	\$83.11	13%
Firm E	\$145.10	\$83.11	13%
Firm F	\$145.10	\$83.11	13%
Firm G	\$146.19	\$83.73	13%
Firm H	\$146.19	\$83.73	13%
Firm X	\$54.65	\$81.24	5%
Firm Y	\$54.65	\$81.24	5%
Total GF	\$1,091	\$624.88	

Event #1: Firm A and Firm B Default

The default of Firm A and Firm B is covered by the Guarantee Fund. The defaults completely deplete the Guarantee Fund

Event #2: Firm X and Firm Y default

Because Firm A and Firm B have already depleted the Guarantee Fund, Firm X and Firm Y defaults are covered by the non-defaulting firms assessments: C, D, E, F, G, H

Funded Coverage

Firm	Stress Test	Margin	GF	Net Debtor
A	\$1,100	\$500	\$55	\$545
B	\$1,100	\$500	\$55	\$545
Total				\$1,091

Assessment Ratio Calculation:
 Non-Defaulting Members Assessments to
 Non-Defaulting Members Guarantee Fund Contribution

Non-Defaulting Members: C, D, E, F, G, H

Assessments: \$499.90
 GF Contribution: \$873.40

Assessment Ratio: 0.57x

Guarantee Fund Loss

Unfunded Coverage

Firm	Stress Test	Margin	GF	Net Debtor
X	\$800	\$500	\$0	\$300
Y	\$700	\$500	\$0	\$200
Total				\$500

Assessments Paid by
 Non-Defaulting Firms

Stress Testing the IRS Financial Safeguards

CME Clearing will stress test the IRS Financial Safeguards by leveraging the PCA based margin methodology to perform stress tests on IRS Clearing Member portfolios. The model will be calibrated to cover 99.9 percentile 7-day P/L moves over a rolling 5 year look back period. Stress Testing will be performed daily under normal market conditions. The IRS Financial Safeguards will be recalculated monthly and at a higher frequency if market volatility increases

Analysis of 7-day portfolio variation across several client and randomly generated portfolios suggests that capturing 99.9 percentile of variance would require shocks to the PCA factors; therefore we will use these same shock levels as outlined in Chapter 7.

CHAPTER 10 – GOVERNANCE

IRS PRODUCT GOVERNANCE STRUCTURE

IRS Risk Committee

The primary function of the IRS Risk Committee (IRSRC) is to provide guidance and oversight on matters relating to the financial safeguards related to IRS Products, IRS Guaranty Fund contributions, review and approval authority over IRS Clearing Member eligibility, the IRS Product default management process, IRS Product margin requirements, and end-of-day valuation procedures for IRS Products. The IRS Risk Committee will receive monthly summary statistics on full back-testing results, with detailed results for the worst 1% portfolios.

IRS Advisory Committee

The IRS Advisory Committee functions as the primary advisory committee to CME Clearing regarding IRS Products. The IRS Advisory Committee has domain over eligible IRS Products and the commercial terms and issues around the IRS Product offering, including:

- The proposed product roll-out approach for new IRS Products;
- Amendments to Eligible IRS Product terms and rules;
- Trade compression or tear up services;
- Any change to CME Rules applicable to IRS Products that may reasonably be expected to have unique and material adverse impact with respect to eligible IRS Products.

IRS Default Management Committee

The IRS Default Management Committee (DMC) shall provide advice to and assist the Clearing House and the IRSRC on matters related to the default of an IRS Clearing Member, including advice related to hedging the risk associated with a defaulted Clearing Member's portfolio of IRS Products and the structure of a defaulted IRS Clearing Member's portfolio for liquidation and the administration of any auction of such portfolio in whole or in part.

CHAPTER 11: IRS DEFAULT MANAGEMENT

In the event of an actual or potential IRS Clearing Member default (i.e., failure to pay) to CME Clearing, the Clearing House will undertake a series of default management processes to protect itself and its counterparties. The primary goals of the default management process are to provide systemic risk protection, ensure that CME Clearing continues to meet its obligations to Clearing Members, contain the risk of default losses to other market participants, and to provide customer protection.

Clearing Member Default Action

The IRS Risk Committee will call upon the Default Management Committee ("DMC") to convene at a location at such place and time as shall be determined by CME. Committee members may also participate by means of a conference telephone or similar communications equipment as provided by CME Clearing. CME Clearing will store contact information for each DMC member in respect to who should be contacted at each Clearing Member when their services are needed and three potential nominees to serve on the DMC. It is at the DMC's discretion as to how to best hedge/liquidate the defaulting IRS Clearing Member's portfolio in order to facilitate an orderly auction for the remaining positions with the trading to be done via CME MarkitWire/Bloomberg account. There will be a CME Clearing owned clearing account of which the sole purpose shall be default management. Five separate Performance Bond/Position accounts shall be set up which will aggregate into a single CME Clearing Settlement Account. CME Clearing will own accounts with Bloomberg & CME MarkitWire of which the DMC will be able to use as their interface for hedging/liquidating a defaulted portfolio.

The DMC will receive valuations of the portfolio at regular intervals as hedging trades are implemented and markets move. The DMC will act to develop and execute an appropriate portfolio hedging strategy which includes:

- Netting positions where possible,
- Liquidating positions where possible,
- Hedging remaining exposures through off-setting trades where economically prudent.

Following the hedging process, the DMC will assist CME Clearing with the default management auction, in which the defaulting IRS Clearing Member's remaining positions will be made available by auction. The purpose of the auction is to provide an orderly process by which to liquidate distressed assets at a market sustainable rate. As such, IRS Clearing Members will construct bids for portions or all of the distressed assets. The winning bid will require the least amount of accompanying collateral to assume the portfolio. All IRS Clearing Members are required to submit bids for the default auction.

Auction Process

Once hedging is completed to the Default Management Committee's satisfaction, the portfolio is split into multiple sub-portfolios (Auction Portfolios). Each Auction Portfolio shall have its own auction. At the next settlement cycle, position and summary stats (DV01, Gross & Net Notional, Gross WAC, Gross WAM) pertaining to each Auction Portfolio is transmitted to each IRS Clearing Member via their FTP folder in the form of a .csv file. CME Clearing may also send the aforementioned data to select non-member participants; non-member participants would have to bid via an IRS Clearing Member(s). Bids are due at 7:30am CST following the next settlement cycle and are to be submitted via email to defaultmanagement@cmegroup.com.

Bids are subject to the review and acceptance of the IRS Default Management Committee.

From the time of the IRS Clearing Member default, all Mark-to-Market losses will be paid. Auction bids, in addition to the unmet Mark-to-Market losses on the portfolio, will be cured through the use of the IRS Financial Safeguards Package.

Default Management Drills

IRS Clearing Members will be required to participate in default management drills every six months, which will be initiated by CME Clearing. CME Clearing will provide summary information of the results and recommendations as a result of the default management drills to the IRS Risk Committee.

Firm Obligations

Each IRS Clearing Member has a minimum notional amount of each portfolio that must be bid on (Minimum Size). Each Clearing member's Minimum Size is determined by their relative contribution to the IRS Guaranty Fund. The aggregation of Minimum Sizes is set to be 130% of the notional amount of the Auction Portfolio. IRS Clearing Members may solicit bids from non-members in order to meet their bidding obligations. IRS Clearing Members are responsible for any amount not met by non-member bids. IRS Clearing members may submit bids for all or portions of their Minimum Size (no smaller than 25% of minimum size). IRS Clearing Members may also submit bids greater than their Minimum Size (up to 100% of the Auction Portfolio).

All bids submitted are then ordered from lowest to highest (best to worst), with each bid indicating how much the relevant IRS Clearing Member would require the Clearing House to pay it for taking on that percentage of the Auction Portfolio. Such that the Auction Portfolio would be allocated in pieces from the lowest to the highest bids until 100% of the Auction Portfolio is allocated. The portions of the portfolio would be allocated at their stated prices.

Summary of the Default Management Process

Step #	Task	Expected Time Period	Communication Protocol
1	Transfer Defaulted Clearing Member's Positions to CME-Owned Clearing Account (992)	t	Send notice to non-defaulting firms and Risk Committee Members; convene Default Management Committee
2	Execute Hedges on CME Bloomberg Account	<= t + 2 End of Day Cycle	Provide regular updates to Risk Committee Members; Update portfolio statistics for DMC analysis as hedges are implemented
3	Output "Margin File" and "Bidding File" to firms	<= t + 3 End of Day Cycle	Send notice to non-defaulting firms of the files' availability and their bidding obligations
4	Output second "Margin File" and "Bidding File" to firms	<= t + 4 End of Day Cycle	Send notice to non-defaulting firms of the files' availability and their bidding obligations
5	Bids due from firms and aggregated	<= t + 5 (7:30am CST)	Send notice to winning bidders
6	Move Positions and Collateral	<= t + 5 (9:00am CST)	Send notice of position and collateral movement

As an example, bids submitted are as follows:

- (A) Clearing Member 1: 10% at a price of 36; 10% at a price of 39, 5% at a price of 49;
- (B) Clearing Member 2: 10% at a price of 38; 15% at price of 50;
- (C) Clearing Member 3: 30% at a price of 45;
- (D) Clearing Member 4: 10% at a price of 43; 15% at a price of 48; 25% at a price of 50;
- (E) Clearing Member 5: 20% at 42; 5% at a price of 51.

In this example, the bids would be ordered as follows:

- (I) Clearing Member 1: 10% at 36;
- (II) Clearing Member 2: 10% at 38;
- (III) Clearing Member 1: 10% at 39;
- (IV) Clearing Member 5: 20% at 42;
- (V) Clearing Member 4: 10% at 43;
- (VI) Clearing Member 3: 30% at 45;
- (VII) Clearing Member 4: 10% at 48 = 100% of the Auction Portfolio cleared
- (VIII) Clearing Member 4: 5% at 48;
- (IX) Clearing Member 1: 5% at 49;
- (X) Clearing Member 4: 25% at 50 and Clearing Member 2: 15% at 50;

(XI) Clearing Member 5: 5% at 51.

In this case, the CME Clearing would have auctioned off the portfolio for a total cost of 42.3

Bidding Summary/Total Price Calculation

CM 1	10%	36	3.6		
CM 2	10%	38	3.8		
CM 1	10%	39	3.9		
CM 5	20%	42	8.4		
CM 4	10%	43	4.3		
CM 3	30%	45	13.5		
CM 4	10%	48	4.8		
Total				42.3	

				Final Payments to Firms	
				CM 1	7.5
				CM 2	3.8
				CM 3	13.5
				CM 4	9.1
				CM 5	8.4
Total				Total	42.3

Sample Report for Default Management

Below is sample file of what the IRS Clearing Members will receive in the event that a portfolio is auctioned. It contains all trade details including: Trade ID's, Trade Dates, Cleared Dates, Gross & Net Notionals, Effective Dates, Maturity Dates, Fixed Rate, Currency, NPV, DV01, Maturity Tenor, Time to Maturity (measured in years, i.e. 0.50 = 6 months) and maturity bucket (0-5yr, 5-10yr, or 10+yr).

Position Account	Trade ID	Template Name	Trade Date	Cleared Date	Direction	Notional	Effective Date	Maturity Date	Fixed Rate	Currency	NPV	DV01	MATURITY TENOR	Time To Maturity	Bucket
AAA100	1343	USD3L1	3/17/2010	3/17/2010	PAY	7,000,000.00	3/19/2010	3/19/2011	5.00	USD	-328,957.16	363.44	1Y	0.50	0-5Y
AAA100	1835	USD3L1	7/2/2010	7/2/2010	PAY	1,000,000.00	3/18/2010	3/18/2011	3.00	USD	-26,729.08	50.45	1Y	0.50	0-5Y
AAA100	1868	USD3L1	7/6/2010	7/6/2010	PAY	1,000,000.00	3/18/2010	3/18/2011	3.00	USD	-26,729.08	50.45	1Y	0.50	0-5Y
AAA100	5904	USD3L1	7/26/2010	7/26/2010	PAY	1,000,000.00	3/18/2010	3/18/2011	3.00	USD	-26,729.08	50.45	1Y	0.50	0-5Y
AAA100	1337	USD3L1	3/17/2010	3/17/2010	PAY	123,000,000.00	3/19/2010	3/19/2011	6.00	USD	-7,015,776.90	6,423.92	1Y	0.50	0-5Y
AAA100	1341	USD3L1	3/17/2010	3/17/2010	PAY	150,000,000.00	3/19/2010	3/19/2011	3.00	USD	-4,035,595.47	7,696.15	1Y	0.50	0-5Y
AAA100	1588	USD3L1	4/9/2010	4/9/2010	PAY	6,000,000.00	3/18/2010	3/18/2011	3.00	USD	-160,374.47	302.72	1Y	0.50	0-5Y
AAA100	1611	USD3L1	4/13/2010	4/13/2010	PAY	55,500,000.00	4/15/2010	4/15/2011	1.00	USD	-367,991.19	2,814.87	1Y	0.60	0-5Y
AAA100	1602	USD3L1	4/12/2010	4/12/2010	PAY	12,000,000.00	4/4/2010	4/4/2011	2.00	USD	-200,301.69	612.61	1Y	0.60	0-5Y
AAA100	1663	USD3L1	4/16/2010	4/16/2010	PAY	3,000,000.00	4/20/2010	4/20/2011	2.00	USD	-49,823.33	153.33	1Y	0.60	0-5Y
AAA100	1673	USD3L1	4/16/2010	4/16/2010	PAY	3,000,000.00	4/20/2010	4/20/2011	3.00	USD	-79,783.13	154.50	1Y	0.60	0-5Y
AAA100	1681	USD3L1	4/19/2010	4/19/2010	PAY	4,000,000.00	3/21/2010	3/21/2011	1.00	USD	-26,997.51	201.67	1Y	0.60	0-5Y
AAA100	1360	USD3L1	3/18/2010	3/18/2010	PAY	103,000,000.00	3/22/2010	3/22/2011	3.00	USD	-2,752,652.13	5,256.62	1Y	0.60	0-5Y
AAA100	1653	USD3L1	4/15/2010	4/15/2010	PAY	11,500,000.00	4/19/2010	4/19/2011	2.22	USD	-216,209.87	588.70	1Y	0.60	0-5Y
AAA100	1495	USD3L1	3/30/2010	3/30/2010	PAY	2,147,483,647.00	4/1/2010	4/1/2011	1.00	USD	-14,371,781.30	108,887.30	1Y	0.60	0-5Y
AAA100	1604	USD3L1	4/12/2010	4/12/2010	PAY	20,000,000.00	4/14/2010	4/14/2011	2.00	USD	-332,535.56	1,021.76	1Y	0.60	0-5Y
AAA100	1621	USD3L1	4/13/2010	4/13/2010	PAY	43,000,000.00	4/15/2010	4/15/2011	3.00	USD	-1,144,002.69	2,213.05	1Y	0.60	0-5Y
AAA100	1659	USD3L1	4/16/2010	4/16/2010	PAY	50,000,000.00	4/20/2010	4/20/2011	5.00	USD	-2,328,379.05	2,613.70	1Y	0.60	0-5Y
AAA100	1501	USD3L1	3/30/2010	3/30/2010	PAY	10,000,000.00	4/1/2010	4/1/2011	2.00	USD	-166,808.56	510.40	1Y	0.60	0-5Y
SUMMARY						\$ 2,751,483,647.00	WAM	0.58949658		WAC	1.551713255	\$ 139,966.10			

Contact information:

- CME IRS On-boarding team - otcirssupport@cmegroup.com
- CME Clearing Services Group- ccs@cmegroup.com or 312.207.2525