

## Advisory Notice

Clearing House

TO: Clearing Member Firms  
FROM: Clearing House Department  
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SUBJECT: **Clearing Processing for Products with Cash Adjustments**

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## Clearing Processing for Products with Cash Adjustments

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### Introduction

CME Clearing now processes numerous futures products with associated "**daily cash adjustments**", including the CBOT® Dow AIG Excess Return<sup>SM</sup> Futures, CME's Goldman Sachs Commodity Index (GSCI)® Excess Return Futures, and several CME TRAKRS<sup>SM</sup> Futures.

In the clearing system, except for the addition of this special cash flow, these futures behave normally: they are marked-to-market twice daily, the associated cash flow ("settlement variation") is banked, and performance bond requirements are calculated normally using SPAN®.

For customer accounts on clearing firm books, for these products, two different categories of customers may be defined. For the sake of discussion, let's call these "normal" and "special":

- For normal customers, these products behave like normal futures, except with the addition of the special cash flow. They are marked-to-market normally, and the resulting variation margin, together with the amount of the special cash flow, is included in open trade equity. Performance bond requirements are calculated using normal SPAN®.
- For special customers, the products behave differently. There is no special cash flow. Also, although mark-to-market amounts are calculated normally and included in open trade equity, they are considered "locked-up", and will not result in any collateral calls or releases. In addition, performance bond requirements are calculated using a special feature of SPAN called the "**value maintenance method**", which fixes the margin requirement at trade time as a specified percentage of the trade value, although it may be subsequently reset if the market price of the contract moves by more than a specified amount.

CBOT's Dow AIG Excess Return futures are an example of a contract in which all customers are treated as normal customers. CME's TRAKRS futures and GSCI Excess Return futures are examples in which there are both normal and special customers. For TRAKRS, for example, normal customers are called "QIB's" (Qualified Institutional Buyers), and special customers are "non-QIB's."

Going forward, more contracts with these features are expected to be launched. This advisory highlights the common aspects of processing for all such contracts. Please note that these are generic features of the CME clearing system, not tied to any one product.

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### Futures products with daily cash adjustments

Futures products with daily cash adjustments may be identified by a value of **FUTDA** in the "valuation method" field on the type "P" record in the SPAN file (bytes 117-121).

For each such contract currently eligible to trade, two "daily adjustment rates" are published every day -- one for long positions, and one for short positions. These values may be positive, negative, or zero. (For historical reasons associated with CME's Rolling Spot contracts previously traded, a positive rate is also referred to as being "at a discount", while a negative rate is considered as being "at a premium.")

The current day's rates are published in the end-of-day SPAN files in the type "V" records, and the full history of these rates, for every day for which each currently eligible contract has been trading, is published every day in the "Daily Adjustment History File."

For each position in a customer account for which the daily adjustment must be calculated, the procedure is simple:

- Take the net position, expressed as a positive number for a long quantity or as a negative number for a short quantity.
- Take today's daily adjustment rate for this contract, selecting the rate for long or short positions as applicable.
- Take the contract value factor for this contract.
- Take the product of these three values, and round up (away from zero) to the normal precision of the settlement currency for this contract. (for example, to two decimal places for contracts denominated in USD, EUR or GBP, or to an integer for contracts denominated in JPY.)

To match the value calculated by the clearing system, the procedure is identical except that:

- You do it separately for the ending long position and the ending short position.
- The total daily adjustment amount for the position is the sum of the amounts for the long quantity and for the short quantity.

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### **Contribution to cash adjustments for as-of transactions**

If you are clearing transfers or other transactions with trade dates earlier than the current date, there is one additional wrinkle. Namely, you must include the daily adjustment for each such trade from trade date up to (but not including) the current day. To facilitate this, the daily adjustment history file published daily contains the **cumulative adjustment rate** for each contract, for each trade date up to but not including the current date. These rates will similarly be provided separately for long positions and for short positions. For example, for each such as-of transaction:

- Express the trade quantity as a positive number for a buy or a negative number for a sell.
- Take the cumulative adjustment rate, long or short as appropriate, for the desired trade date.
- Take the contract value factor.
- Take the product of these three values, and round up (away from zero) to the precision of the settlement currency.

The total daily adjustment amount for the position, then, is the amount for the ending position calculated using today's rates, plus the sum of the amounts for each as-of transaction cleared today, calculated using the cumulative rates.

The sign conventions for the quantities and the rates are selected so that a positive daily adjustment amount means you are receiving cash, while a negative amount means you are paying cash. For example, for a long (positive) position, a positive rate means you are receiving cash while a negative rate means you are paying cash. For a short (negative) position, a positive rate means you are paying cash, while a negative rate means you are receiving cash.

### **Inclusion of cash adjustment amounts in Open Trade Equity**

In futures bookkeeping systems, daily adjustment cash flows associated with such open positions should be included in **Open Trade Equity**, together with normal mark-to-market amounts ("settlement variation", "variation margin"), and are transferred to the ledger balance when the position is liquidated or otherwise closed.

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### Processing for special customer accounts using the "Value Maintenance Method"

As described above, for special customer accounts for such products:

- Cash adjustment amounts are not calculated, and do not apply.
- Although mark-to-market amounts are calculated normally and included in Open Trade Equity, they are considered "locked-up" until the position is liquidated or otherwise closed, so that they may not result in a collateral call or release.
- The performance bond requirement is calculated using the **"Value Maintenance Method"**.

As described above, for TRAKRS, special customer accounts are denoted as "non-QIB's". For CBOT's Dow AIG Excess Return futures, all customer accounts are treated normally.

### Calculating performance bond requirements using the Value Maintenance Method

In the daily SPAN risk parameter file, for each such product, on the type "V" record, the following values are provided, separately for long positions and for short positions:

- The margin rate, as a decimal fraction (for example 0.50 means 50%)
- The "reset flag", specifying whether or not the requirement originally calculated must be reset if the market value of the contract has moved sufficiently
- If the reset flag is set to "Y" (true), the "low maintenance threshold" and the "high maintenance threshold", which control when the requirement is reset.

For each open trade, a value called the **margin price** is defined. On the day the trade is executed, the margin price is set to the trade price. On each day thereafter, if the reset flag is set to true, compare the margin price to that day's settlement price as follows:

- Take the product of the margin price times the margin rate.
- If this value is less than the product of the low maintenance thresholds times the current settlement price, or greater than the product of the high maintenance threshold times the current settlement price, then reset the margin price to the current settlement price.

The margin requirement on the open trade, then, is calculated as:

- Take the product of the margin price, the contract value factor, and the trade quantity.
- Round this result normally to the precision of the settlement currency.

The total of these amounts for all open trades, becomes the **scan risk** for the combined commodity containing these contracts. Delta for such positions is set to zero. Hence the total of these amounts will become the total SPAN risk requirement prior to the application of any risk adjustment factors or initial to maintenance ratios.

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For example, for CME TRAKRS futures:

- For long (buy) trades, the margin rate is 100%, and the reset flag is set to false.
- For short (sell) trades, the margin rate is 50%, the reset flag is set to true, and the low and high thresholds are 30% and 70% respectively.

In other words, for buys, the performance bond requirement is 100% of the trade price and is not thereafter reset. For sells, the performance bond requirement is 50% of the trade price, but is reset to the current market price if the margin requirement drops below 30% of current market value or climbs above 70% of current market value.

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### How "Locked-Up Equity" works

As described above, for a "special" customer account -- one for which the Value Maintenance Method applies -- the Open Trade Equity resulting from these positions is deemed to be "locked-up", and will neither reduce nor increase the amount of collateral that must be deposited.

Here's how the determination of whether an excess or deficit exists, is modified. We introduce a new term, the **Locked-Up Equity (LUE)**. Locked-Up Equity is simply the Open Trade Equity for positions margined using the Value Maintenance Method. For accounts not qualifying for this treatment for any positions, LUE is zero.

The definition of NLV (Net Liquidating Value) does not change:

$$\begin{aligned}\text{NLV} &= \text{Ledger Balance} \\ &+ \text{Open Trade Equity} \\ &+ \text{Securities on Deposit (the haircutted value of them)} \\ &+ \text{Net Option Value (for premium-style options)}\end{aligned}$$

and the definition of TE (Total Equity) does not change:

$$\begin{aligned}\text{TE} &= \text{Ledger Balance} \\ &+ \text{Open Trade Equity} \\ &+ \text{Securities on Deposit} \\ &= \text{NLV} - \text{NOV}\end{aligned}$$

The definition of TR (Total Requirement) has a new term:

It had been:

$$\text{TR} = \text{SPAN requirement} - \text{NOV}$$

It changes to include the Locked-Up Equity:

$$\text{TR} = \text{SPAN} - \text{NOV} + \text{LUE}$$

As before, we can do the excess/deficit comparison in either of two ways:

1. Compare SPAN requirement to (NLV - LUE)  
(what's new about this is that we're subtracting Locked-Up Equity from Net Liquidating Value)
- or 2. Compare TR to TE  
(we changed the definition of Total Requirement to include the Locked-Up Equity)

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### **Summary of products using these features**

There are currently three groups of products using either or both of these features:

#### **CBOT's Dow AIG Excess Return Futures** (clearing product code **70**)

For these futures, the daily adjustment amounts consist of a 40 basis point cash flow from the long, and a 10 basis point cash flow to the short.

There is no distinction between special and normal customers. All customer accounts are "normal", ie, they all are margined normally in SPAN and have daily adjustment cash flows.

#### **CME's TRAKRS Futures**

There are several of these futures currently eligible to trade. All have daily adjustment cash flows, although the details of the rates vary from product to product.

For TRAKRS, there is a distinction between special and normal customers:

The normal customers are "QIB's" -- Qualified Institutional Buyers. These customers are margined normally, and daily adjustment processing applies.

The special customers -- "non-QIB's" -- are margined using the Value Maintenance Method, with the following parameters: for Longs, 100% margin rate, and no reset. for Shorts, 50% margin rate, with reset thresholds of 30% on the low side and 70% on the high side.

#### **CME's Goldman Sachs Commodity Index Excess Return (GSCI ER) Futures** (clearing product code **GA**)

This future has a daily adjustment cash flow, and has two categories of customer accounts:

Normal customers are margined normally, and daily adjustment processing applies.

Special customers are margined using the Value Maintenance Method, with the following parameters: on both sides 100% margin rate, and 100% reset thresholds on both sides.

For special customer accounts, this causes the margin to be reset to 100% of the daily settlement price, every day.



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### Special considerations for Omnibus Accounts

Positions in products which have daily cash adjustments and/or use the Value Maintenance Method for margining, may be held in omnibus accounts. And, as with any omnibus account, the subaccount breakdown of the positions may be fully disclosed, partially disclosed, or not disclosed at all to the clearing firm carrying the omnibus account.

If, however, any these positions are not disclosed, then there is one important restriction:

For products for which there are two classes of customers, a normal class which is margined normally and to which the cash adjustment applies, and a special class which uses the value maintenance method and for which cash adjustments do not apply ...

For these products, a single omnibus account may not simultaneously hold non-disclosed positions for both normal and special end-customer accounts.

The reason for this restriction is as follows: because the positions are not disclosed, we can only apply a single omnibus-account-level flag to indicate whether they should be processed in the normal or in the special manner.

For example, TRAKRS futures may be held in omnibus accounts. A single omnibus account may not, however, simultaneously hold non-disclosed positions in these futures for both QIB and non-QIB end-customer accounts.

In other words, if an omnibus account holds non-disclosed TRAKRS futures positions, either all of those positions must be for non-QIB end-customer accounts, or all of them must be for QIB end-customer accounts.

If necessary to ensure this, the carrying firm will need to carry two separate omnibus accounts, one for the non-disclosed positions for the non-QIB end-customers and a second for the non-disclosed positions for the QIB end-customers.

This requirement does not apply to end-customer accounts ("subaccounts") which are disclosed by the omnibus firm to the carrying firm. A single omnibus account may contain both QIB and non-QIB disclosed subaccounts.

Please note that, depending on the regulatory status of the omnibus account firm, regulations may require the end-customer subaccounts to be disclosed to the carrying firm.

With these restrictions, calculation of performance bond requirements for these kinds of positions in omnibus accounts proceeds as it always has for omnibus accounts in SPAN, except for the new Value Maintenance feature used for special positions:

- **For non-disclosed (naked) positions:** for each position, the SPAN requirement is calculated separately for the naked long quantity and then for the naked short quantity.

**If this product is one that uses the Value Maintenance Method for special end-customers, and these positions are for such special end-customer accounts, then the open trades comprising the open naked long quantity and comprising the open naked short quantity must be specified, and the requirement is calculated using the Value Maintenance method.**

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- **If this product is one that uses the Value Maintenance Method for special end-customers, but these positions are for normal end-customer accounts, or if this product does not use the Value Maintenance Method, then the open trades need not be specified and the requirements are calculated normally.**
- **For a disclosed subaccount:** here the SPAN requirement is calculated using the portfolio of net positions for the subaccount. The exactly analogous logic applies, but this time to the net positions for the subaccount rather than the naked positions for the omnibus account.

**If this product is one that uses the Value Maintenance Method for special end-customers, and this subaccount is such a special end-customer account, then the open trades comprising the net positions in this product must be specified, and the requirement is calculated using the Value Maintenance method.**

**If this product is one that uses the Value Maintenance Method for special end-customers, but this subaccount is not such a special account, or if this product does not use the Value Maintenance Method, then the open trades need not be specified and the requirements are calculated normally.**

Note that for QIB end-customer TRAKRS positions in omnibus accounts, the Daily Adjustment cash flows go all the way down to that individual end-customer.

For example, suppose an end-customer QIB account in an omnibus account has long positions in TRAKRS futures. That end-customer QIB account is responsible for paying the Daily Adjustment to the omnibus firm, which in turn is responsible for paying it to the carrying firm, which in turn is responsible for paying it to the Clearing House.

For non-QIB end-customer TRAKRS positions in omnibus accounts, the Daily Adjustment cash flows go down to the carrying firm, but not farther.

For example, suppose an end-customer non-QIB account in an omnibus account has long positions in TRAKRS futures. The carrying firm is responsible for paying the Daily Adjustment to the Clearing House. The omnibus firm is not responsible for paying Daily Adjustment to the carrying firm, however, since it is being margined via the Value Maintenance method.

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### Relevant files and file formats

The layout for the daily adjustment history file is at:

<http://www.cme-ch.com/span/da-format.htm>

Daily adjustment history files for CME products are available at:

<ftp://ftp.cme.com/pub/span/data/cme/trakrs>

Daily adjustment history files for CBOT products are available at:

<ftp://ftp.cme.com/pub/span/data/cbt/darates>

The layout for the expanded-format SPAN file type "P" record, which can specify that daily adjustment processing applies to a product, is at:

<http://www.cme-ch.com/span/spanl30p.htm>

The layout for the type "V" record, which provides the current day's daily adjustment rates as well as the value maintenance parameters, is at:

<http://www.cme-ch.com/span/spanl31v.htm>

Expanded-format SPAN files for CBOT and CME products are available at:

<ftp://ftp.cme.com/pub/span/data/ccl>

The specification for the XML-based SPAN file is at:

[http://www.cme-ch.com/span/span4\\_xml\\_index.htm](http://www.cme-ch.com/span/span4_xml_index.htm)

See in particular the **valueMeth** element which can specify the **FUTDA** valuation method, the **dvas** element which holds a collection of daily value adjustment rates, the **vmRate** element which holds value maintenance rates, and the **vmClass** element which identifies the product group for classifying accounts as normal or special.

XML-format SPAN files for CBOT and CME products are available at:

<ftp://ftp.cme.com/pub/span/data/ccl/xml>

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### PC-SPAN support for these products

You can use PC-SPAN to calculate performance bond requirements for these products.

For CBOT's Dow-Jones AIG Excess Return futures, because all customer accounts are margined normally, you need only define the net positions for each customer account.

For CME's TRAKRS futures, you need to specify whether each customer account is "QIB" (normal) or "non-QIB" (special.) For special accounts, you will be prompted to define each open trade, with its trade date and trade price.

For CME's GSCI Excess Return futures, you similarly need to specify whether each customer account is normal or special, and for special accounts you will be prompted to define each open trade with trade date and trade price.

For normal accounts, the calculated amount of the cash adjustment is displayed on the "Settlements" tab of the Portfolio dialog box, denoted as "Cash Adjustment".

The "Value Adjustments" report will display all products with the **FUTDA** valuation method, together with their daily adjustment rates.

The "Value Maintenance Rates" report shows all such products with their value maintenance parameter information.

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