A COMING TOGETHER OF MARKETPLACES: THE ADVENT OF CROSS-MARGINING BETWEEN THE CASH AND FUTURES MARKETS

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The size and sophistication of the U.S. financial marketplaces continue to increase in impressive fashion.[1] However, as volumes grow, and new products are introduced, there is a concomitant rising need for the risk management processes related to those marketplaces to act in coordination with each other. Otherwise, the margin collateral collection practices that are integral to risk management of trading activity will choke off liquidity and limit both trading opportunities and the efficient use of assets.[2]

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[1] For example, from 1991 to 2001:

(a) average daily trading volume in U.S. Treasury securities increased from $127.5 billion to $297.9 billion; *See* http://www.bondmarkets.com.

(b) average daily trading volume in Agency mortgage-related securities increased from $12.8 billion to $111.9 billion; (*See id*.) and

(c) average daily stock market activity on the NYSE, AMEX, NASDAQ, and regional stock exchanges increased from $9.7 billion to $94.5 billion. *See* http://www.sia.com.

[2] A basic tenet of the financial marketplaces is that, the more one trades, the more margin one posts with the relevant clearing organization or broker-dealer. Clearing organizations typically have two key margining processes. One is for original margin (also known as initial margin or, in the case of the Government Securities Clearing Corporation, as "Clearing Fund" margin). Original margin represents a percentage (also known as the "haircut") of an overall amount of trading activity or net settlement position that is required to be posted by a member with a clearing organization for protection from risk of loss upon liquidation of a member's trades or positions. The calculation of this haircut amount is based on the volatility of the underlying products and available offsets among long and short positions in the same or similar products. *See, e.g.,* Government Securities Clearing Corporation Rule 4 available on http://www.gscc.com. The cross-margining arrangements that are the subject of this article are designed to prudently reduce the overall amount of original margin collected from market participants by clearing organizations.

A prime example of this lack of coordination was the absence, for many years, of a risk management arrangement between the U.S. Government securities over-the-counter ("OTC") marketplace and the largest Treasury futures marketplace -- the Chicago Board of Trade ("CBOT"). For an entity that traded actively in both markets, this meant that margin was collected by the Government Securities Clearing Corporation ("GSCC")[3] for cash trading[4] and, separately, by the Board of Trade Clearing Corporation ("BOTCC®")[5] for futures trading, without recognition of the entity's aggregate position across markets.[6]

The second key margining process is a mark-to-market process (also known as variation margin) that protects the clearing organization from the risk of loss of a change in value from contract price to current market value. *See, e.g., id*. at Rule 13. The cross-margining arrangements that are the subject of this article are not designed to affect mark-to-market amounts.

[3] GSCC is the central provider of centralized trade comparison, netting and settlement services in the U.S. Government securities industry. It processed over $329 trillion in original issue, buy-sell, and repurchase agreement ("repo") transactions in 2001. GSCC's services provide risk management and financial benefits and operational efficiencies to industry participants, which include the nation's major brokers, dealers and banks, as well as a wide range of other entities that trade U.S. Government securities. GSCC is a securities clearing agency registered with and regulated by the Securities and Exchange Commission ("SEC"). *See generally* http://www.gscc.com.

[4] Buy-sell trading and repo trading are commonly referred to as "cash trading." The cash market, in which ownership is transferred from seller to buyer and payment is given upon delivery, contrasts with the futures market, in which contracts are completed at a specified time in the future. DICTIONARY OF FINANCE AND INVESTMENT TERMS (2nd ed. 1987).

[5] BOTCC is a registered trademark of the Board of Trade Clearing Corporation. BOTCC is a Delaware corporation that acts as the clearing organization for certain futures contracts and options on futures contracts that are traded on the CBOT and that are regulated by the Commodity Futures Trading Commission ("CFTC"). It processed over 746 million contracts in 2001. BOTCC is deemed to be registered with the CFTC as a derivatives clearing organization pursuant to the Commodity Exchange Act, as amended. *See generally* http://www.botcc.com.

[6] As a simple example, assume that a common member ("Common Member") of GSCC and BOTCC has a $1 billion short cash Treasury position in a security on which GSCC takes a one percent margin haircut, and a $1 billion long futures position in a corresponding instrument on which BOTCC effectively takes a one percent margin haircut. Absent cross-margining, Common Member will pay $10 million in margin to each of GSCC and BOTCC, because each clearing organization views Common Member as having a totally unhedged position. The posting of $20 million in collateral in the aggregate by Common Member clearly is far more than is needed to protect from the risk posed by its overall portfolio.

What was needed was a "cross-margining" agreement between GSCC and BOTCC that would provide for an exchange of information on the trading activity of common members and establish a legally sound arrangement allowing the two clearing corporations to prudently substitute the guaranty of each clearing organization, based on the existence of offsetting positions, in lieu of the actual collection of margin collateral. In a nutshell, the basis for a cross-margining relationship is the assumption, based on rigorous analysis of price volatility and associated correlations, that in the event of the insolvency and liquidation of a common member, the liquidation loss of one of the clearing corporations will be offset by the liquidation gain of the other. The guaranty of the clearing corporation with the gain to recompense the clearing corporation with the loss effectively allows each clearing corporation to reduce the amount of margin collateral that would otherwise be needed to protect them from liquidation loss.

Cross-margining between the OTC cash markets and the interest rate futures markets, which had been discussed and planned for over a decade (and which has existed in the equity derivatives markets for many years)[7] became a reality in February of 2000, when GSCC implemented a cross-margining arrangement with the New York Clearing Corporation ("NYCC"), allowing GSCC to cross-margin its members' buy-sell and repo activity in U.S. Government securities against Treasury futures traded on the Cantor Financial Futures Exchange ("CFFE").[8] GSCC broadened its cross-margining program

[7] The first cross-margining arrangement was approved in 1988 for cross-margining options cleared by The Options Clearing Corporation ("OCC") and futures contracts and futures options cleared by the Intermarket Clearing Corporation, which is OCC's subsidiary. Order Approving Proposed Rule Change Establishing a Cross-Margining Program, Exchange Act Release No. 34-261153 (Oct. 3, 1988). OCC's cross-margining programs are currently limited to options on stock indexes and futures and futures options on stock indexes; individual equity options currently are not eligible for OCC cross-margining.

[8] Since that time, Treasury futures trading has been suspended on the CFFE, and the GSCC-NYCC cross-margining program is currently dormant.

significantly starting in February 2002, when the GSCC-BOTCC cross-margining arrangement was implemented. This arrangement allows GSCC to cross-margin its members' buy-sell and repo activity in U.S. Government securities against Treasury and Agency[9] futures and futures options traded on the CBOT. Subsequently, in April of 2002, GSCC implemented similar arrangements allowing for cross-margining with Eurodollar futures and futures options[10] traded on and cleared by the Chicago Mercantile Exchange Inc.® ("CME"),[11] and Treasury futures traded on the BrokerTec Futures Exchange, L.L.C. ("BTEX") and cleared by BrokerTec Clearing Company, L.L.C. ("BCC").[12]

Collectively, this is a development of enormous significance. Clearing corporation members that participate in cross-margining experience a reduction in their margin requirements, which decreases their cost of capital, increases their liquidity, improves their collateral management, and lowers their operational costs. These

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[9] The term "Agencies" refers to non-mortgage-backed securities issued by certain U.S. federal agencies and Government-sponsored enterprises.

[10] Eurodollars are time deposits denominated in U.S. dollars that are deposited in commercial banks outside the U.S. They have long served as a benchmark interest rate for corporate funding. The Eurodollar futures contract, developed and introduced by CME in 1981, represents an interest rate on a three-month deposit of $1 million. The Eurodollar futures contract is now the most actively traded futures contract in the world. Open interest in the contract recently surpassed four million. *See* http://www.cme.com.

[11] Chicago Mercantile Exchange Inc. is a registered trademark of CME. CME offers futures contracts and options on futures primarily in four product areas: interest rates, stock indexes, foreign exchange and commodities. CME's wholly owned Clearing House clears, settles, nets and guarantees performance of all matched transactions executed on the exchange. In 2001, the underlying value of CME's trading volume totaled $293.9 trillion. On average, CME processes nearly 420,000 clearing trade transactions per day, moves about $1.5 billion per day in settlement payments and manages $28.3 billion in collateral deposits. *See generally* http://www.cme.com.

[12] BCC is the affiliated clearing organization for futures transactions executed on BTEX. On June 18, 2001, the CFTC approved the application of BTEX for contract market designation and the approval of BCC for registration as a derivatives clearing organization. BCC currently clears futures contracts on U.S. Treasury securities. It is expected that, in the future, BCC will clear other fixed income futures contracts and options on futures contracts traded on BTEX. *See generally* http://www.btec.com.

arrangements have the potential to provide greatly reduced margin requirements for active market participants[13] -- amounting to billions of dollars in the aggregate.

What is less evident is that cross-margining arrangements lead to important risk management benefits for each of the participating clearing organizations. They enable the clearing organizations to have more accurate and comprehensive data on members' trading activity, intermarket positions and risk exposure. The clearing organizations thus are able to see a common member's portfolio as a whole, which gives them a more comprehensive view for risk management purposes.[14]

The cross-margining agreement also contains several significant information-sharing provisions that potentially reduce risk. For example, each clearing organization is required to promptly notify the other if it applies any special surveillance procedures to a particular cross-margining participant, or if it requires more frequent reporting of financial information by a cross-margining participant. The agreement also encourages coordinated liquidation of an insolvent member, which may expedite the liquidation process and reduce potential losses.

Cross-margining programs have long been recognized as enhancing the safety and soundness of clearing systems and reducing exposure during times of market stress. By minimizing the need for clearing organizations to call for large amounts of additional margin in volatile markets, cross-margining reduces the risk of a liquidity crisis.[15]

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[13] The respective clearing organizations hold enormous amounts of margin collateral. For example, as of year-end 2001, GSCC held $6.3 billion, BOTCC held $3.9 billion, and the CME held $28.3 billion.

[14] *See* Rule Filing Approval Orders, *infra* note 19.

[15] *Id*.

Indeed, a driving force behind the introduction of cross-margining is that it is as dangerous for the numerous U.S. clearing corporations collectively to require too much margin collateral from their members -- because of the liquidity drain that is potentially caused -- as it is to collect too little. As was stated in the Report of the Presidential Task Force on Market Mechanisms (commonly referred to as the "Brady Report") with regard to the October 1987 market crash:

> Since stocks, stock index futures and stock options compose, in an economic sense, one market, margins need to be rationalized across markets . . . Consistent with the one-market concept, cross-margining should be allowed. Market participants with an investment in futures should be allowed to receive credit for an offsetting, or hedged, investment in stocks or options. Cross-margining allows margin regulations to focus on the true intermarket risk exposure of participants, rather than focusing myopically on a single market segment.[16]

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This article reviews the approach taken by GSCC in designing its cross-margining program -- which approach differs from the original arrangements established years ago in the equity options and futures markets -- and then discusses the important legal and risk management considerations involved.

General Approach of GSCC's Cross-Margining Program

As noted above, the purpose of any cross-margining program is to recognize the correlation of price volatility between offsetting positions maintained by a common member at two clearing organizations[17] (effectively viewing the member's positions at

[16] REPORT OF THE PRESIDENTIAL TASK FORCE ON MARKET MECHANISMS, pp. 64-66, 68 (Jan. 1988).

[17] It should be noted that the benefits of cross-margining arrangements are not limited to common members of two or more clearing organizations. It is typical for a financial organization to have different legal entities as the members of different clearing organizations. GSCC's cross-margining program allows for affiliated entities to participate as well.

both clearing organizations as a single portfolio) and to reduce the member's margin requirements at both clearing organizations accordingly.

GSCC's cross-margining program is based on an agreement whereby GSCC and a participating futures clearing organization ("FCO")[18] effectively share any proceeds arising from the liquidation of correlated positions and supporting collateral in the event of an eligible member's insolvency. In view of this agreement, the amount of collateral that would otherwise be collected by each clearing organization will be reduced to reflect offsets between futures positions of a cross-margining participant (or its affiliate) at the FCO and the cross-margining participant's positions at GSCC. Each clearing organization guarantees the cross-margining participant's (or affiliate's) performance to the other clearing organization up to a specified maximum amount that is defined in the agreement between GSCC and the FCO. In effect, therefore, each clearing organization will reduce its margin requirement in exchange for a guaranty from the other clearing organization. Each clearing organization's guaranty, in turn, will be backed by the positions and margin deposits of its own clearing member.[19]

The program is available to a GSCC member that is, or that has an affiliate that is, a member of a participating FCO, with the exception of inter-dealer broker netting

[18] To date, GSCC's cross-margining program has included only futures clearing organizations. However, a GSCC cross-margining arrangement need not necessarily involve a futures clearing organization. For example, it would be logical for GSCC to cross-margin U.S. Government debt with a clearing organization, such as the London Clearing House Limited ("LCH"), that handles European sovereign debt.

[19] *See generally* Order Approving a Proposed Rule Change Relating to the Establishment of a Cross-Margining Program with BrokerTec Clearing Company, L.L.C., Exchange Act Release No. 34-45656 (March 27, 2002); Order Approving a Proposed Rule Change Relating to the Establishment of a Cross-Margining Agreement with the Board of Trade Clearing Corporation, Exchange Act Release 34-45335, Jan. 25, 2002); Order Approving a Proposed Rule Change Relating to the Establishment of a Cross-Margining Program with the Chicago Mercantile Exchange, Exchange Act Release No. 44-301 (May 11, 2001); Order Approving a Proposed Rule Change Relating to the Establishment of a Cross-Margining Program, Exchange Act Release No. 41-766 (Aug. 19, 1999) [hereinafter "Rule Filing Approval Orders"].

members ("IDBs").[20] Currently, the cross-margining arrangement is applicable, on the futures side, only to positions in a proprietary account of a cross-margining participant (or its affiliate) at an FCO. The arrangement does not apply to positions in a customer account at an FCO that would be subject to CFTC regulatory segregation requirements.

In structuring its cross-margining program, GSCC has employed a "hub and spoke" concept, wherein cross-margining is done on a multilateral basis with GSCC as the "hub" for purposes of linking the OTC Government marketplace with the individual futures and options marketplaces. This is the most appropriate and efficient way for GSCC to cross-margin given GSCC's position as the sole clearing organization for the OTC Government markets. Each FCO that wishes to cross-margin with GSCC enters into a separate cross-margining agreement between itself and GSCC. Each of the agreements has essentially similar terms.[21]

Under GSCC's cross-margining program, cross-margining occurs between GSCC and each FCO, and not between FCOs.[22] If a clearing member is a member of more than one participating FCO, GSCC will allocate its positions and margin among the participating FCOs. The allocations will optimize members' margin reductions—amounts will first be allocated to sets of products with the best correlations and, if products are equally correlated, allocations will be made pro rata based upon margin

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[20] IDBs are not permitted to participate because, as a general matter, they should never maintain positions at GSCC, and, therefore, would not have positions available for cross-margining.

[21] Rule Filing Approval Orders, *supra* note 19.

[22] BOTCC and CME have their own, separate cross-margining agreements with each other and with other futures clearing organizations. For example, in April 2000, CME implemented a cross-margining program with LCH and the London International Financial Futures and Options Exchange ("LIFFE") for the benefit of clearing member firms and their affiliates that have positions in the CME's Eurodollar contract and LIFFE's Euribor or Euro LIBOR contracts.

amounts submitted by each FCO. The "hub" approach maximizes the efficiency of a cross-margining program by permitting the clearing organizations to appropriately assess intermarket positions and optimally and proportionally allocate margin reductions.[23]

To facilitate the hub methodology, each clearing organization holds and manages the collateral posted to it by its own clearing member. This is called the "two-pot" approach, and is in stark contrast to the "one-pot" approach that is employed by some of the traditional cross-margining programs, which require the collateral supporting cross-margined positions to be held in a joint account in the name of the two clearing organizations. GSCC's two-pot approach permits each clearing organization to collect, maintain, value and return the collateral applicable to cross-margined activity in accordance with its own rules and procedures. It thus leaves each clearing organization's flexibility in managing collateral unaffected. Another significant benefit to the "two-pot" approach is that participating members need to do nothing from an operational viewpoint to join the cross-margining program.[24]

Perhaps most importantly, from a legal perspective, the two-pot approach leaves intact the ability of each clearing organization to pledge collateral for liquidity purposes.

[23] *See* Rule Filing Approval Orders, *supra* note 19.

[24] GSCC believes that the two-pot approach is the only workable one for it, given its roles as the sole clearing organization in its marketplace and as the hub in its cross-margining program. For GSCC, the two-pot approach avoids the administrative and operational complexities of establishing and maintaining joint margin accounts in a multiple-clearing organization cross-margining environment. For example, the two-pot approach avoids the need to coordinate timeframes for the collection and return of collateral, which would be particularly difficult in the hub environment. This approach also avoids the need to establish uniform, numerous procedures for determining how to value collateral, what types of collateral are acceptable (*e.g.*, some clearing organizations accept letters of credit while others do not), and how often and under what circumstances excess collateral should be returned. In addition, from an operational perspective, requiring multiple and separate joint margin accounts would be unworkable because GSCC, as the hub, would need to constantly adjust the location of margin collateral. Letter from Sal Ricca, President, GSCC, to Jonathan G. Katz, Secretary, SEC (April 19, 1999) [hereinafter "Comment Letter"]. The Comment Letter was written by GSCC in connection with its rule filing to establish its cross-margining program and to begin cross-margining with NYCC.

A large portion of GSCC's Clearing Fund is in the form of Treasury securities. In a situation involving member default or market volatility, the ability to quickly and efficiently take possession of margin collateral, or to pledge such collateral to obtain temporary financing, is a critical safeguard to ensuring orderly end-of-day settlement. If margin collateral is in a joint account with various other clearing organizations, such action would likely require the consent of each participating clearing organization, which could cause delays in accessing collateral.[25]

Key Aspects of GSCC's Cross-Margining Program

Given the general parameters outlined above, there were three significant areas of focus in designing the cross-margining program and negotiating the cross-margining agreement (the "Agreement") between GSCC and a participating FCO.[26] As discussed in more detail below, these three areas are: the calculation of the cross-margining reduction, the loss sharing process, and the legal enforceability of the arrangement.

The Reduction Calculation

The key to ensuring the soundness of the entire cross-margining arrangement is the validity of the calculation of the cross-margining reduction (the "Reduction"), the amount by which the cross-margining participant's margin requirement at each clearing organization is eligible to be reduced.[27] If the Reduction is too large, the clearing

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[25] *Id.* at 2-3.

[26] As stated above, GSCC enters into a separate cross-margining agreement with each participating FCO, and each agreement has essentially the same terms. The term "Agreement" will be used to refer to provisions and descriptions that are applicable to all of the cross-margining agreements that GSCC currently has in place.

[27] The participant's eligible Reduction always is the same amount at GSCC and the FCO.

The cross-margining arrangement never functions to increase a participating member's margin requirement. It can only reduce it or have no impact.

organizations will take on undue exposure. Conversely, if it is too small, there will be diminished benefits to industry participants. Moreover, as will be discussed later, the Reduction, which is calculated each business day and with respect to each cross-margining participant, serves as the basis for establishing the loss sharing responsibilities of each participating clearing organization.

For purposes of calculating the Reduction, GSCC and the FCO must agree upon the categorization of eligible products into *offset classes*. For example, GSCC's offset class C represents GSCC-eligible Treasury Notes with remaining maturities of one year plus one day to two years; BCC's offset class FV represents the BTEX's Five-Year U.S. Treasury Note Futures contract and options thereon.

GSCC and the FCO also must agree upon *disallowance factors* and a *minimum margin factor*. The disallowance factors reflect the correlation between a product in a given GSCC offset class and a product in a given FCO offset class. The correlation is based upon historic price volatility studies. A relatively higher disallowance factor indicates that positions in the two offset classes are relatively less correlated, and that more of the Reduction should be "disallowed." For example, the disallowance factor between GSCC's offset class C and BCC's offset class FV, as both are defined in that respective cross-margining agreement, is currently 30 percent, whereas the disallowance factor between GSCC's offset class C and BCC's offset class TY (representing the Ten-Year U.S. Treasury Note Futures contract) is currently 40 percent. This indicates that positions in GSCC's offset class C are more highly correlated with positions in BCC's offset class FV than BCC's offset class TY.[28]

[28] The SEC requires GSCC to review the disallowance factors once per year, and more frequently if market circumstances dictate the need to do so.

The minimum margin factor is a conservative measure designed to protect the clearing corporations from the potential for the disallowance factors to be incorrect, resulting in the hedge between offset classes being less effective than anticipated upon liquidation. It ensures that the clearing organizations will always collect a prudent minimum amount of collateral, even where the positions appear to be "perfectly" correlated, because, in fact, the correlations may turn out to be incorrect upon liquidation. Currently, the minimum margin factor ranges from 25 to 50 percent in GSCC's cross-margining program.[29]

The Agreement provides that, on each business day, and with respect to each cross-margining participant, GSCC and the FCO first perform their internal offsetting and margining process in accordance with their rules[30] and calculate a *residual position* and associated *residual margin amount* in each offset class. These are the amounts that are available for cross-margining. Put another way, the residual margin amount is the amount of margin that the participant would be required to pay in the absence of cross-margining on the specific amount of residual position.

The FCO's residual position, which is expressed as a number of contracts, must be presented to GSCC as a Treasury cash equivalent amount so that it can be compared

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[29] For example, assume that a participating member has a $1 billion short position in the 5-Year Note with GSCC, and a $1 billion long position in the 5-Year Note futures contract at an FCO. Because the positions are in the same security, the disallowance factor could be zero. This suggests that no margin need be collected; however, the minimum margin factor would be applied to ensure that a minimum amount of margin still was collected by both GSCC and the FCO.

[30] Each participating clearing organization first offsets, for margining purposes, the long and short positions that a member has in the products cleared by that clearing organization, before entering into cross-margining with another clearing organization. Thus, for example, if a GSCC netting member had a $1 billion short position in the Two-Year Note, and a $1 billion long position in each of the Five-Year Note (at GSCC) and the Five-Year Note futures contract (at the CBOT), GSCC would internally cross-margin the Two-Year Note cash position against the Five-Year Note cash position, with nothing then being left to cross-margin with BOTCC.

with GSCC's positions. The FCO converts its residual positions to Treasury cash equivalent positions by applying a standard, agreed upon formula.[31]

FCO margin rates are typically expressed as a certain dollar amount per contract. For cross-margining purposes, as is the case with the residual positions, the FCO's margin rate must be expressed in a way that is comparable to GSCC's margin rate. To accomplish this, GSCC calculates an effective margin rate for the FCO by dividing the residual margin amount by the residual position in the offset class. An example follows:

Example -- Calculation of the FCO's Effective Margin Rate

	Offset Class	Residual Position	Margin Rate	Residual Margin Amount
GSCC	E	short $10,000,000	0.625%	$62,500 (short)
FCO	FV	long $30,300,000	$1,000 per contract	$300,000 (long)
			"expressed as"	
FCO	FV	long $30,300,000	0.99 %	$300,000 (long)

In this example, the cross-margining participant has a short position of $10 million in GSCC's offset class E. GSCC's rules provide that the margin rate for offset class E is 0.625%, which yields a residual margin amount of $62,500, the amount of margin that GSCC would require the participant to post in the absence of cross-margining. The participant also has 300 contracts representing a long position in the Five-Year Treasury Note futures contract at FCO, which translates into a Treasury cash equivalent residual position (using a standard conversion formula set forth in the Agreement) of $30,300,000. FCO charges $1,000 per contract on the FV offset class,

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[31] Each cross-margining agreement contains an appendix that sets forth the applicable conversion formula, which is based upon the type of instrument underlying the futures contracts at issue. Thus, there is a different conversion formula for Eurodollar futures than for Treasury futures.

which yields a residual margin amount of $300,000, the amount of margin that FCO would require the participant to post in the absence of cross-margining. Dividing the residual margin amount of $300,000 by the residual position of $30.3 million results in an effective margin rate for FCO of 0.99%.

GSCC then compares the two margin rates (the GSCC margin rate and the FCO effective rate) and applies the *lower* of the two rates to the residual positions, which yields the *applicable residual margin amounts* that will ultimately determine the amount of the Reduction. Applying the lower of the two margin rates restates the residual margin available for cross-margining and makes the Reduction lower, which leads to a more conservative margin collection result for the clearing organizations. Continuing with the above example, we see the calculation of the applicable residual margin amounts as follows:

Example -- Calculation of the Applicable Residual Margin Amounts

	Offset Class	Residual Position	Margin Rate	Lower Margin Rate	Applicable Residual Margin Amount
GSCC	E	short $10,000,000	0.625%	0.625%	$62,500 (short)
FCO 1	FV	long $30,300,000	0.99 %	0.625%	$189,375 (long)

GSCC calculated an effective margin rate of 0.99% for FCO, which is higher than GSCC's margin rate of 0.625%. GSCC thus applies the 0.625% to the residual positions and derives applicable residual margin amounts of $62,500 (short) for GSCC and $189,375 (long) for FCO. In effect, GSCC views the FCO as now having only $189,375 available versus the original $300,000 that it submitted to GSCC.

To the extent that a cross-margining participant has long applicable residual margin amounts at GSCC, and short applicable residual margin amounts at the FCO, or vice versa, then offsets will occur on an intra-offset class basis and/or an inter-offset class basis depending upon the method agreed upon between GSCC and the FCO.[32] The offsetting determines the *applicable residual margin amount used* for the offset class, which is the smaller of the two applicable residual margin amounts. Again, continuing with the above example, we see the calculation of the applicable residual margin amount used:

<u>Example -- Calculation of the Applicable Residual Margin Amount Used</u>

		Applicable Residual Margin Amount	
GSCC	E	$62,500 (short)	Applicable Residual Margin Amount Used = $62,500
FCO	FV	$189,375 (long)	

In this example, the Applicable Residual Margin Amount Used is $62,500, the smaller of the two applicable residual margin amounts. In other words, $62,500 of the $189,375 in residual long margin at FCO is being used to offset the entire $62,500 in residual short margin at GSCC.

If GSCC and the FCO have agreed upon inter-offset class cross-margining (which maximizes the cross-margining benefit), the offsets of the applicable residual margin amounts will first occur within offset classes or between pairs of offset classes with the lowest disallowance factor and then continue between pairs of offset classes with

[32] Intra-offset class cross-margining means that offsets are permitted only within an offset class. For example, margin on a position in a Two-Year Treasury security may only be offset against margin on a position in Two-Year Treasury futures. In contrast, inter-offset class cross-margining permits offsets across offset classes; therefore, margin on a position in a Two-Year Treasury security may be offset against margin on a position in Five-Year Treasury futures.

increasing disallowance factors. This process is intended to provide the participant with a more optimal result, as shown below:

<u>Example -- Allocation of Applicable Residual Margin Amounts</u>

		Applicable Residual Margin Amount
GSCC	E	$62,500 (short)
FCO	FV	$30,000 (long)
FCO	TY	$80,000 (long)

Disallowance Factor for E versus FV = 25%
Disallowance Factor for E versus TY = 40%

1st Offset: E versus FV: Applicable Residual Margin Amount Used = $30,000
GSCC has $32,500 remaining

2nd Offset: E versus TY: Applicable Residual Margin Amount Used = $32,500. FCO has $47,500 remaining in offset class TY.

In this example, GSCC and FCO have agreed to cross-margin on an inter-offset class basis. GSCC's margin is allocated first to FCO's offset class FV because the E-FV pair has a lower disallowance factor than the E-TY pair.

If the cross-margining participant is a member of more than one participating FCO, GSCC will also allocate the applicable residual margin amounts in order of increasing disallowance factors. If more than one FCO has applicable residual margin amounts with equally beneficial disallowance factors, GSCC will allocate its applicable residual margin amounts on a pro rata basis, as shown below:

Example -- Pro Rata Allocation of Applicable Residual Margin Amounts

		Applicable Residual Margin Amount
GSCC	E	$63,000 (short)
FCO1	FV	$30,000 (long)
FCO1	TY	$80,000 (long)
FCO2	TY	$40,000 (long)

Disallowance Factor for E versus FV = 25%
Disallowance Factor for E versus TY = 40%

1st Offset: E versus FCO1's FV: GSCC allocates $30,000 to FCO1 against offset class FV, GSCC has $33,000 remaining.

2nd Offset: E versus FCO1's TY and FCO2's TY on a pro rata basis: GSCC will allocate $22,000 to FCO1 against FCO1's offset class TY and $11,000 to FCO2 against FCO2's offset class TY.

Finally, the applicable residual margin amount used is reduced by the product of the applicable residual margin amount used and the greater of the applicable disallowance factor or the minimum margin factor to derive the *margin offset*.[33] The sum of the margin offsets equals the Reduction at each clearing organization. (See examples below.)

Example – Calculation of the Margin Offset and the Reduction Where Minimum Margin Factor is Greater than the Disallowance Factor

GSCC   E

FCO   FV   Applicable Residual Margin Amount Used = $62,500

Minimum Margin Factor = 25%

Disallowance Factor for E versus FV = 20%

Margin Offset = $62,500 – ($62,500 * 25%) = $46,875

Reduction = $46,785

[33] Use of the greater of the applicable disallowance factor or the minimum margin factor produces a lower Reduction and, thus, the more conservative result.

Example – Calculation of the Margin Offset and the Reduction Where Minimum Margin Factor is Less than the Disallowance Factor

GSCC	E	
FCO	TY	Applicable Residual Margin Amount Used = $62,500

Minimum Margin Factor = 25%

Disallowance Factor for E versus TY = 30%

Margin Offset = $62,500 – ($62,500 * 30%) = $43,750

Reduction = $43,750

It is significant that, although the Agreement contemplates that GSCC and the FCOs will reduce a cross-margining participant's margin requirement by the Reduction, nothing in the Agreement requires the clearing organizations to do so. Each clearing organization may unilaterally determine its actual margin requirements in respect of a particular cross-margining participant or participants taking into consideration market conditions, the financial condition of a participant, or any other factor or circumstance deemed by the clearing organization to be relevant.[34]

In other words, the cross-margining arrangement allows for great flexibility on the part of a participating clearing organization. If, on any particular day, it is rendered uncomfortable by either market conditions generally or the creditworthiness of a participating member or members, it can reduce or eliminate entirely the cross-margin reduction benefit for one or more participating members.

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[34] It should be noted that the Agreement expressly provides that the clearing organizations are not permitted to reduce a participant's margin by more than the Reduction.

The Loss Sharing Calculation

Critical to the entire cross-margining arrangement are the loss sharing provisions, which are triggered upon a participating member's default and define the payments that may be required to be made by one clearing organization to the other.

Loss sharing has been designed to meet several goals: being equitable to both clearing organizations, being limited in nature so that neither clearing organization is subject to undue exposure from the liquidation losses of the other, and having these limits be able to be determined at the time that the Reduction is determined. The loss sharing provisions also reflect the view that collateral should be retained in the clearing organizations for the protection of the financial markets and that this should be the highest priority use for such collateral in order to maintain the safety and soundness of such markets.

The basic ideas underlying the cross-margining arrangement are that, if GSCC and the FCO have accurately determined the price volatility correlations and resultant disallowances discussed above: (a) the amount of the liquidation gain of one of the clearing organizations (known as the "Better-Off Party") will be roughly equal to the liquidation loss of the other (known as the "Worse-Off Party"), (b) the Reduction should be equal to this estimated liquidation loss amount, and (c) as the Reduction reflects what GSCC and the FCO each do not collect from the participating member as the result of the cross-margining process, the maximum loss sharing amount should be directly tied to the

Reduction. In other words, the limit on the amount of loss sharing payment of the Better-Off Party to the Worse-Off Party logically should be the same as the Reduction amount.[35]

The calculation of the loss sharing payments is a tiered process. GSCC structured it in this way to reflect that fact that the clearing organization that is in a loss situation will need to be paid as soon as possible for safety and soundness purposes, but that afterwards, when the entire liquidation has been completed, the parties can determine (in a mathematically precise way) whether the first payment was equitable. The Agreement provides for three tiers of loss sharing payments.

The first payment is the *Preliminary Payment Obligation*, which is based solely upon the results of the liquidation of the positions used in cross-margining without regard to any available margin.[36] Upon the liquidation of the used positions, a clearing organization can wind up with an aggregate loss (a "cross-margin loss") or gain (a "cross-margin gain"), or be flat. In other words, as discussed above, the results of the liquidation of the used positions will produce a Worse-Off Party and a Better-Off Party.

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[35] Thus, for example, if, per their cross-margining arrangement, GSCC and an FCO each reduce the margin requirement of a participating member by $5 million, with a limited exception discussed below, both GSCC and the FCO know that they are exposed to a maximum of $5 million in potential loss sharing obligation.

The manner of calculating, and the limitations provided by, the loss sharing formula constitute another major difference between GSCC's cross-margining arrangements and some of the older, more traditional arrangements. The latter arrangements essentially require the participating clearing organizations to share equally, with no cap, in any losses associated with the liquidation of the contracts that were cross-margined.

[36] The Reduction amount is based only on the positions used in cross-margining. Thus, the initial loss sharing payment also is based only on the profit or loss associated with the liquidation of positions used in cross-margining. This reflects the logic that the Better-Off Party, until and unless a "cross-guaranty" type of payment becomes appropriate at a later stage (this is discussed below), should not be subject to having its loss sharing obligation increased because either it collected more margin than it needed to or the Worse-Off Party collected less margin that it needed to.

The latter is the clearing organization that is flat, the one with the only liquidation gain, or the one with a smaller loss than the other clearing organization.[37]

The Preliminary Payment Obligation of the Better-Off Party to the Worse-Off Party is equal to the lowest of the following four calculations:

(i) The cross-margin loss of the Worse-Off Party;[38]

(ii) The higher of the: (a) Reduction or (b) the cross-margin gain of the Better-Off Party; [39]

(iii) The amount that would equalize the results of the liquidation of the used positions;[40] and

(iv) If both parties have cross-margin losses, the amount by which the Reduction exceeds the Better-Off Party's cross-margin loss.[41]

An example of how the Preliminary Payment Obligation is calculated follows:

<u>Loss Sharing Example</u>

<u>Assume</u>:

Reduction = $5 million

GSCC has a cross-margin gain of $4 million (Better-Off Party)

[37] If both clearing organizations have a liquidation gain, there is no need for a Preliminary Payment Obligation.

[38] This reflects the fact that the Better-Off Party should not have to pay more than the Worse-Off Party lost upon liquidation of the used positions.

[39] As a general matter, the Better-Off Party should not have to pay more than the Reduction, because the Worse-Off Party relied on the cross-margining arrangement and associated guaranty as the basis for reducing the amount of margin that it collected, only to the extent of the amount of the Reduction. A logical exception to this is if the Better-Off Party gains more than was anticipated upon the liquidation of the used cross-margined positions.

[40] This number reflects the view that it would not be appropriate for the Better-Off Party, after payment of the Preliminary Payment Obligation, to be in a worse position than the Worse-Off Party.

[41] While not anticipated, it is possible that both clearing organizations will incur a liquidation loss. If the Better-Off Party itself has a loss (*i.e.*, it has a loss, but less of a loss than the Worse-Off Party), it is appropriate for it to be able to reduce what would otherwise be the amount of its Preliminary Payment Obligation by the amount of that loss.

FCO has a cross-margin loss of $8 million (Worse-Off Party)

The Preliminary Payment Obligation equals the lowest of the following:

(i) The cross-margin loss of the Worse-Off Party = $8 million

(ii) The higher of the Reduction ($5 million) or (b) the cross-margin gain of the Better-Off Party ($4 million) = $5 million

(iii) The amount required to equalize the results = $6 million

(iv) Not applicable in this case because both parties do not have cross-margin losses.

The Preliminary Payment Obligation is $5 million and it is paid by GSCC to FCO within the timeframes set forth in the Agreement.

The next tier in the loss sharing process is based upon the results of the liquidation of the <u>entire</u> portfolio of the defaulting member and all available collateral; the payment in this tier is called the *Adjustment Payment*. The underlying logic of the Adjustment Payment is that the Worse-Off Party should return all or part of the Preliminary Payment Obligation if it does not need such amount, taking into account its liquidation of all of the positions of the defaulting member (including non-cross-margined positions) and all of the margin collateral posted by that member, and its need to satisfy all other losses caused to it by the insolvency of that member.

An Adjustment Payment can only be triggered if the Worse-Off Party has an aggregate net surplus, taking into account its loss upon the liquidation of the cross-margined positions, the results of its liquidation of non-cross-margined positions, the collateral posted with it by the insolvent member, and the Preliminary Payment Obligation made to it by the Better-Off Party . The Adjustment Payment is equal to the lower of (a) the Worse-Off Party's aggregate net surplus or (b) the Preliminary Payment Obligation.

An example of the calculation of the Adjustment Payment follows:

<u>Loss Sharing Example</u>

Preliminary Payment Obligation = $5 million
GSCC has an aggregate net loss = $6 million
FCO has an aggregate net surplus = $12 million

Adjustment Payment = $5 million

In this example, FCO, the Worse-Off Party, received a Preliminary Payment Obligation of $5 million from GSCC. After the liquidation of the defaulting member's entire portfolio and all available collateral, FCO has an aggregate net surplus of $12 million, which triggers the Adjustment Payment. The Adjustment Payment is equal to the lower of (a) FCO's aggregate net surplus ($12 million) or (b) the Preliminary Payment Obligation ($5 million). FCO, therefore, is required to make an Adjustment Payment of $5 million to GSCC. In effect, it is required to return the $5 million to GSCC, because it does not need it.

The final possible payment from one clearing organization to the other is the *Maximization Payment*. If after the Adjustment Payment is made, one clearing organization has a remaining aggregate net surplus and the other has a remaining aggregate net loss, the Agreement provides a mechanism for distribution of the surplus.[42] Thus, continuing with the above example, once the Adjustment Payment is made from FCO to GSCC, GSCC remains with a $1 million loss. The Maximization Payment mechanism provides for FCO to make an additional $1 million payment to GSCC to eliminate GSCC's remaining loss.

[42] This "cross-guaranty" type of payment reflects the sound principle that it is important to ensure that margin collateral amounts are first used to make whole the clearing organizations that are vital to the safety and soundness of our markets.

Legal Considerations

Given the potential for challenge to the cross-margining arrangement by a trustee in bankruptcy or similar fiduciary, the legal soundness of the cross-margining arrangement is vital. GSCC's cross-margining arrangement is based upon the contractual obligation of one clearing organization to the other. The Agreement provides, among other things, that GSCC guarantees to the FCO (and vice versa) that it will fulfill the payment obligations that arise under the Agreement in the event of the default of a cross-margining participant. Once a guaranty payment is made pursuant to the Agreement from one clearing organization to the other, the defaulting participant's contingent obligation to reimburse the guarantor clearing organization arises.

The Agreement provides expressly for the cross-margining participant's reimbursement obligation:

> In the event that either Clearing Organization (the "Guarantor") becomes obligated to make a Guaranty payment to the other Clearing Organization (the "Beneficiary") in respect of the obligation of a Defaulting Member or its Cross-Margining Affiliate to the Beneficiary, the Defaulting Member and its Affiliate shall thereupon immediately be obligated, whether or not the Guarantor has then made the Guaranty payment to the Beneficiary, to reimburse the Guarantor for the amount of the Guaranty payment as determined by the Guarantor, and the Guarantor shall be subrogated to all of the rights of the Beneficiary against the Defaulting Member or its Cross-Margining Affiliate. Such obligation (the "Reimbursement Obligation") shall be due immediately upon a demand by the Guarantor to the Defaulting Member or its Cross-Margining Affiliate specifying the amount of such obligation.

The cross-margining participant becomes subject to the provisions of the Agreement by signing the cross-margining participant agreement, which expressly provides that: "Member agrees to be bound by the GSCC Rules and the [FCO] Rules applicable to Clearing Members and Cross-Margining Participants and by the provisions of the Cross-Margining Agreement between GSCC and [FCO] . . . ."[43]

The guarantor clearing organization must be able to enforce its contractual right under the Agreement to net any proceeds of positions and collateral of the defaulting participant otherwise owed by the guarantor clearing organization to the defaulting participant against the defaulting participant's reimbursement obligation to the guarantor clearing organization.

Section 362 of the U.S. Bankruptcy Code (the "Code") protects this right by providing an exemption from the automatic stay that is applicable to the setoff by a clearing organization of certain obligations of a defaulting member against margin deposits and other property of the member "held by or due from" the clearing organization.[44] Specifically, Section 362(b)(6) states that the filing of a petition under the Code does not operate as a stay:

> of the setoff by a commodity broker, forward contract merchant, stockbroker, financial institutions, or securities clearing agency of any mutual debt and claim under or in connection with commodity contracts, as defined in section 761 of this title, forward contracts, or securities contracts, as defined in section 741 of this title, that constitute the setoff of a claim against the debtor for a margin payment, as defined in section 101, 741, or 761 of this title, or settlement payment, as defined in section 101 or 741 of this title, arising out of commodity contracts, forward contracts, or securities contracts against cash, securities, or other property held by or due from such commodity broker, forward contract merchant, stockbroker, financial institutions, or securities clearing agency to margin, guarantee, secure, or settle commodity contracts, forward contracts, or securities contracts . . . ."[45]

[43] Moreover, GSCC's Rule 43 provides that the cross-margining participant is bound by the provisions of the applicable cross-margining agreement(s), which are deemed to be GSCC's Rules, and provides that the cross-margining participant is obligated to pay the amount of the reimbursement obligation as specified in the applicable cross-margining agreement(s).

[44] *See* Comment Letter, *supra* note 24, for GSCC's position on the enforceability of its cross-margining program.

[45] 11 U.S.C.A. sec. 362(b)(6) (2001).

The relevant parties that are protected by Section 362(b)(6) are "commodities brokers" and "securities clearing agencies." The Code defines "commodity broker" to include a clearing organization,[46] which would include any participating FCO. Similarly, GSCC is a "securities clearing agency," which the Code defines as a person that is registered as a clearing agency under Section 17A of the Securities Exchange Act of 1934.[47]

The rights of GSCC and an FCO will be protected by Section 362(b)(6) if the claim is in connection with "commodities contracts" or "securities contracts." The Code definitions for these terms cover the transactions that are submitted to GSCC and the FCOs and processed by these clearing organizations.[48]

The payment of the reimbursement obligation must fall within the Code definition of "margin payment" or "settlement payment" in order for the claim of GSCC and the FCO to obtain the protection of Section 362(b)(6). The Code defines "settlement payment" with respect to "stockbroker liquidation" to mean "a preliminary settlement payment, a partial settlement payment, an interim settlement payment, a settlement payment on account, a final settlement payment, or other similar payment commonly used in the securities trade . . . ."[49] Payment of the reimbursement obligation is included within this definition of settlement payment—it is made in settlement of a debt arising

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[46] *Id.* at sec. 101(6).

[47] *Id.* at sec. 101(48).

[48] *See id.* at sec. 761(4)(D) for the definition of "commodity contract" with respect to a clearing organization, and sec. 741(7) for the definition of "securities contract."

[49] *Id.* at sec. 741(8).

under the rules of a clearing organization owed to a clearing organization by a defaulting member. In addition, the participant's margin deposits that secure its obligations to the clearing organization, including the reimbursement obligation, also fall within the various Code definitions of "margin payment."[50]

Another important statute that protects the clearing organization's netting rights against the reimbursement obligation is the Federal Deposit Insurance Corporation Improvement Act of 1991 ("FDICIA").[51] The netting provisions of FDICIA were enacted to ensure the enforceability of netting agreements even in the event of the insolvency of a market participant. In its findings section, Congress states that: "netting procedures . . . reduce the systemic risk within the banking system and financial markets . . . and the effectiveness of such netting procedures can be assured only if they are recognized as valid and legally binding in the event of the closing of a financial institution participating in the netting procedures."[52] Thus, the protection of the FDICIA statute is very broad: "Notwithstanding any other provision of law, the covered contractual payment obligations and covered contractual payment entitlements of a member of a clearing organization to and from all other members of a clearing

[50] The Code defines "margin payment" in Section 741(5) in relation to "stockbroker liquidation" as "payment or deposit of cash, a security, or other property, that is commonly known to the securities trade as original margin, initial margin, maintenance margin, or variation margin, or as mark-to market payment, or that secures an obligation of a participant in a securities clearing agency", and in Section 761(15) in relation to "commodity broker liquidation" as "payment or deposit of cash, a security, or other property, that is commonly known to the commodities trade as original margin, initial margin, maintenance margin, or variation margin, including mark-to-market payments, settlement payments, variation payments, daily settlement payments, and final settlement payments made as adjustments to settlement prices".

[51] 12 U.S.C.A. secs. 4401-4407 (2001).

[52] *Id.* at secs. 4401(4) and (5).

organization shall be netted in accordance with and subject to the conditions of any applicable netting contract."[53]

GSCC and the FCO are "clearing organizations" within the meaning of the FDICIA netting statute.[54] The provisions of each clearing organization's rules and the Agreement constitute a "netting contract."[55] A clearing organization and its members are deemed to be "members" of a clearing organization.[56] The reimbursement obligation owed to either GSCC or the FCO by its own member is a "covered contractual payment obligation" and the right of the member to the return of excess collateral from a clearing organization is a "covered contractual payment entitlement."[57] Accordingly, FDICIA will require the enforcement of the Agreement and the rules of the clearing organizations pertaining to cross-margining and the reimbursement obligation "[n]otwithstanding any other provisions of law."

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[53] *Id.* at sec. 4404(a).

[54] Section 4402(2) of the FDICIA defines "clearing organization" to include a clearing corporation or similar organization that provides clearing, netting, or settlement services for its members, and in which all members other than the clearing organization itself are financial institutions or other clearing organizations, or which is registered as a clearing agency under the Securities Exchange Act of 1934, or that is registered as a derivatives clearing organization under section 7a-1 of title 7 of the United States Code.

[55] Section 4402(14) of FDICIA expressly provides that a "netting contract" includes the rules of a clearing organization.

[56] Section 4402(11) of FDICIA defines "member" as a member of or participant in a clearing organization, and includes the clearing organization.

[57] Section 4402(5) of FDICIA defines "covered contractual payment obligation" to include a "covered clearing obligation," which, in turn, is defined by Section 4402(3) to be an obligation of a member of a clearing organization to make payment to another member of a clearing organization, subject to a netting contract. Section 4402(4) of FDICIA defines "covered contractual payment entitlement" as an entitlement of a member of a clearing organization to receive payment, subject to a netting contract, from another member of a clearing organization of a covered clearing obligation.

Conclusion

The three cross-margining arrangements recently implemented by GSCC with various FCOs constitute a highly significant and positive development for the Government securities marketplace and the interest rate futures marketplaces. It is likely that these markets will soon come to consider cross-margining as an essential prerequisite for optimal liquidity and safety. Time will tell the magnitude of the margin savings to market participants. If these savings levels are significant, similar arrangements no doubt will arise, both domestically and internationally, in various marketplaces. Moreover, the current cross-margining arrangements and any new ones could have enhanced features, such as the inclusion of variation margin payments, and could lead to more unified overall risk management processes among the various clearing organizations.