TRANSMITTAL LETTER

REGARDING THE MANAGEMENT OF OPERATIONAL RISK IN COLLATERALIZED FOREIGN EXCHANGE

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Dear Foreign Exchange Professional:

As part of our continuing effort to enhance the integrity of the foreign exchange market through the promotion of sound business practices, enclosed please find a copy of the Foreign Exchange Committee's *Managing Operational Risk in Collateralized Foreign Exchange*. This paper highlights the unique operational risks associated with collateralized foreign exchange trading, a rapidly growing business in many institutions. The paper also recommends a set of Best Practices to reduce those risks. We encourage market participants to implement immediately those Best Practices that can be readily adopted, while actively managing the process to implement the others as appropriate for their institutions.

This document focuses on operational risks related to trade capture and confirmation, trade settlement and payment netting, portfolio valuation and margining, and collateral management, and briefly addresses documentation requirements. In addition to the operational risks specifically identified in the paper, management also should remain aware of other risks related to collateralized foreign exchange, such as the legal risk associated with the perfection of security interests in collateral. Furthermore, although collateralization may reduce credit and settlement risks, it does not obviate the need for an affirmative credit decision before the initiation of collateralized foreign exchange trading with a counterparty. The Committee wishes to underscore that failure to control these legal and credit risks can result in loss.

Please do not hesitate to contact me or other members of the Committee with questions or comments regarding the Committee's work. Copies of this paper and the Committee's other publications may be viewed online or downloaded for later viewing from the Federal Reserve Bank of New York's World Wide Web site at *www.ny.frb.org/fxc/fxc.html.*

Sincerely yours,

John J. Finigan, Jr.
Chairman

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MANAGING OPERATIONAL RISK IN COLLATERALIZED FOREIGN EXCHANGE

Collateralized foreign exchange (FX) trading is a type of trading done between counterparties when one or both counterparties pledge collateral with the other to reduce credit and settlement risk. The fact that collateral is required does not eliminate the need for an affirmative credit decision for this special type of collateralized credit line. Collateralized FX trading has opened up the FX market to smaller companies, asset/investment managers, and high-net-worth individuals who are professional investors.

Although collateralization of the FX trading may reduce some credit and settlement risk, it does not mitigate all risks such as legal risk associated with the perfection of security interests in collateral. Consequently, legal counsel should be consulted before a counterparty commences collateralized FX trading. Further, operational risk is actually increased; credit losses can still occur because of incorrect margining or mismanagement of collateral. Failure to address and control any of these risks can also result in losses of business from reputational damage.

This document focuses on unique operational risks associated specifically with collateralized FX trading and recommends Best Practices that many market participants are implementing to reduce the operational risk associated with collateralized FX trading. We urge market participants to review these Best Practices with an eye toward implementing those that can be adopted immediately while actively managing the process to adopt the others as appropriate to their institutions. We recognize that future experience and innovation will lead to new Best Practices over time.

Because this document focuses on operational risks, documentation requirements are not addressed in great detail. In most financial institutions, documentation negotiation and tracking are not operational responsibilities. However, the sales and trading desks, as well as the operations and credit areas, must be fully informed of the terms of applicable legal agreements and must institute procedures to ensure that they are followed.

The key to collateralization of FX trading by a financial institution is the proper margining of a counterparty's trading account to cover adequately that counterparty's foreign exchange exposures to the financial institution. Margining can only be done effectively with accurate tracking and valuation of the collateral, as well as correct valuation of the current FX positions held by the counterparty. Operational technology and procedures should be functioning at a level of detail such that operations staff can properly process the FX deals that are being done and ensure the financial institution that the counterparty is properly collateralized. Automated processes are a key step in controlling the operational risks involved in collateralized FX trading.

The Best Practices are aimed at the collateralization of spot and forward FX trades with nonfinancial institution counterparties. While the recommended practices can for the most part cover collateralized FX options, such FX options are not specifically mentioned. One factor to consider when handling collateralized FX options (also known as leveraged currency options) is portfolio valuation methodology, which is not discussed here. In addition, while we recognize a trend in cross-product collateralization that includes interest rate swaps, asset swaps, foreign government securities, and similar products, we have not addressed these financial products.

A few terms used throughout the document should be clarified.

Collateral:
An asset pledged to a counterparty, who in turn has the right to apply it against any losses that the counterparty may incur if the counterparty pledging the asset defaults.

Collateralization:
In the context of these Best Practices, obtaining a security interest in an asset in order to secure margins that have been established with a counterparty.

Credit enhancement agreement:
The generic term for the documents used to establish a collateralized FX relationship with the counterparty, whether or not as an annex to a netting agreement. Examples include the ISDA Credit Support Annex or a margin trading supplement to IFEMA or FEOMA. (At this time, there is no standard published margin trading supplement to IFEMA or FEOMA.)

Credit risk area:
The department in the financial institution that (i) assesses the probability that a counterparty will be financially unable to fulfill its payment or settlement obligations and (ii) establishes credit lines to limit the financial institution's exposure to such defaults.

Exposure:
The sum effect of the mark-to-market value of a counterparty's open positions and cash-versus-collateral value. Exposure can be reduced by the use of legally enforceable and operationally feasible netting agreements.

Margining:
Margining is the monitoring aspect of handling a collateralized FX account and is used to describe the marking to market of a counterparty's trading account value versus the value of collateral pledged less any haircuts to determine if the counterparty's exposure is adequately collateralized.

Margin Tracking System:
The system used to monitor and process collateralized FX trading activity. The system should have the ability to calculate the value of a counterparty's portfolio and track pledged collateral in order to determine if exposure to a counterparty is sufficiently collateralized. The system should also allow for netting and apply other criteria as defined in the applicable credit enhancement agreement.

Portfolio:
The net exposure in a counterparty's trading account, including all open FX trades and the cash balances and collateral relating to such transactions.

TRADE CAPTURE AND CONFIRMATION

The trade capture and confirmation of collateralized FX trades should be treated in exactly the same manner as noncollateralized FX trades. See the document, "Management of Operational Risks in Foreign Exchange," released in April 1996 by the Foreign Exchange Committee, for further best practices related to timely trade entry and confirmation. The act of margining the collateralized trading accounts is an additional step in the processing of FX transactions. Again, collateralized FX trading is subject to all the operational risks of FX trading as well as the credit and operational risks of managing collateral.

Best Practice No. 1: Timely Trade Entry

All collateralized FX trades should be entered in the margin tracking system as quickly as possible to update the counterparty's portfolio on a real-time basis in cases where a financial institution's credit policy requires real-time margining.

The counterparty's portfolio should have all trades correctly entered in a margin tracking system as soon as possible to ensure the proper margining of the trading account. If trades are left out of a counterparty's portfolio, the portfolio value will be incorrect and may leave the institution undercollateralized and at risk.

If a trade is executed by an asset manager or investment advisor, then the asset manager or investment advisor should provide account breakdowns before the end of the day on which the trade is booked to ensure proper margining. Normally, each account trading through a single investment advisor must be separately margined.

Best Practice No. 2: Electronic Interfaces between Margin and FX Processing Systems

If a margin system is separate from a corresponding FX trade settlement system, trade capture interfaces between the two systems should feed trade information and perform an automatic reconciliation of trade data. In addition, the market value of the collateral in the margin system should be consistent with that of the system that processes the collateral product.

Accurate trade data in the margin system are required to ensure the correct margining of a counterparty's trades at all times. A daily reconciliation between the two systems should be performed. Ideally, this reconciliation will be automatic, not manual. Collateralization is only fully effective in reducing risk if the margining of the accounts is accurate.

Additionally, if collateral valuation is not performed by the system that performs the processing of that type of asset (for example, the securities processing system for Treasury bills), a procedure should be in place to ensure that the rates and the firms valuation methodology for that asset type are consistent. Such a procedure will reduce risk caused by incorrect valuation of the collateral.

Collateralized FX counterparties may require statements of their margin accounts (including portfolio valuation and margin call support) which can be separated from the trade confirmation process.

TRADE SETTLEMENT AND PAYMENT NETTING

Payment netting is the act of aggregating all cash flows with a specific counterparty for a specific date in order to have only one cash flow for each currency.

Best Practice No. 3: Position Close-Out Agreements

Ideally, agreements should be made with collateralized counterparties stipulating that all foreign currency positions be closed out by the value date of the deals.

Closing out currency positions will leave the collateralized counterparty with a cash amount of profit or loss to settle on the value date. Normally this cash amount is in U.S. dollars, but it could be in any currency. At some institutions, these amounts are termed compensations or offsets. The net settlement on any given value date would then consist of only one cash payment to or from the counterparty. (The financial institution will reduce settlement risk by reducing the size of the possible payment failure.)

Some counterparties will prefer currency delivery to automatic close-out; if the execution of close-out agreements is not possible, see Best Practices Nos. 4 and 5 below.

Best Practice No. 4: Settlement Netting Agreements

A netting agreement should be part of the credit enhancement agreement signed by each collateralized counterparty. The netting agreement should specify that all payments in a given currency for a specific value date be netted against each other so that only one payment in that currency is required.

If all positions are not closed out as described in Best Practice No. 3 above, settlement risk can be reduced by netting any residual payments, although netting may be advisable even when there are closed-out trades. The netted payment amounts will reduce the amount of cash flows in settling the transaction. The standard IFEMA (or the recently released FEOMA) and a corresponding credit enhancement agreement can adequately address this requirement. Each institution should designate specific departments—which may include credit, legal, operations, and trading—to review and approve these agreements.

Netting benefits may also be obtained with a broader (cross-product) netting agreement such as the ISDA Credit Support Annex.

Trade settlement, which includes the payment and receipt of the currencies being traded, is normally handled by the FX processing system. If a collateralized counterparty wishes to settle an FX position rather than close it out, the settlement process should be managed more carefully to control the settlement exposure. Additional measures that should be taken when dealing with collateralized FX settlements in order to reduce the settlement risk.

Best Practice No. 5: Contingent Payment Release

Payment release is a credit decision. Until a settlement line is granted, no principal settlement amounts should be released to a collateralized counterparty until full payment of the currency owed by them has been received, or unless the payment is fully collateralized.

Payments on an FX deal may require a credit decision. In order to manage settlement risk, payments may be handled (1) by accepting separate collateral, (2) by granting a settlement line, or (3) on a payment-versus-payment (PVP), or contingent, basis. A PVP payment release occurs only after the financial institution receives confirmation that the funds transfer from its counterparty is irrevocable. If the collateral processing and FX processing systems are separate, clear procedures should be established to ensure that FX payments are not made until the collateral processing system confirms that there is adequate collateral to cover the counterparty's outstandings.

A financial institution should consider and resolve questions about payment releases to a counterparty before trades are entered into with such a counterparty.

PORTFOLIO VALUATION AND MARGINING

Portfolio valuation involves calculating the value of the trading account that is being collateralized. Included in this portfolio are the open trades held by the counterparty, the cash flows of positions that have been closed out but have not yet reached the value date, and the collateral itself. In order to net these amounts, the parties must enter into a legally enforceable netting agreement along with a credit enhancement agreement (see Best Practice No. 4 above). The current portfolio value is used to determine whether the counterparty is sufficiently collateralized. Therefore, the information used to value the portfolio must be accurate, up-to-date, and verified independently.

The system used to monitor and process collateralized FX trading activity should have the ability to determine the value of a counterparty's portfolio and thus to determine whether a counterparty's trading account is sufficiently collateralized. Institutions differ in their methods of assessing the value of a counterparty's portfolio. One method is to calculate the maximum downside risk (MDR) of a counterparty portfolio. The MDR is the most that a counterparty could lose based on (l) open positions and (2) the maximum market movement. The MDR is the worst case scenario of what could happen in a pre-defined period if a counterparty held the same positions. Another method is to calculate the current value of the counterparty's open positions and compare this profit or loss to the collateral on hand.

Whatever risk calculation methodology is employed, the financial institution's FX collateral system should be able to determine if the counterparty's collateral is valuable enough to cover any shortfalls. If the collateral is insufficient under the terms of the applicable credit enhancement agreement, based on the standards set for margining (which vary from counterparty to counterparty and institution to institution), then the system should notify sales, trading and operations immediately that a counterparty is undercollateralized.

Best Practice No. 6: Real-Time Rate Update

Rates used to revalue the open FX positions should be updated on a real-time basis to ensure that the current portfolio value properly reflects changes in the market value.

The system used to perform the margining of the counterparty accounts should have a real-time rate feed from a reliable, independent rate source. The portfolio will then be revalued as often as the rates are updated on the rate source. The system should have the means to warn users if off-market rates are received. Such a mechanism may be created by establishing rate exception parameters. A system incorporating this mechanism will recognize if new rates vary significantly from the last rates input.

Best Practice No. 7: Cash Flow Update

Cash flows, which represent funds to be paid or received by the counterparty at a future date, should be removed from the counterparty portfolio only after it has been confirmed that the funds have actually been paid or received through an irrevocable transfer.

When FX positions have been closed out (that is, the same amount of foreign currency has been purchased and sold in the counterparty account), the profit and loss resulting from the purchase and sale must be settled. When the counterparty has profited on the trades, the cash flow is a receivable to the counterparty until the value date when the funds are actually received by the counterparty. In this case, the cash flow is an asset, increasing the value of the portfolio and potentially decreasing the collateral requirements. Once the funds have been sent to the counterparty, the cash flow is "settled," or removed from the portfolio since the payment obligation has been fulfilled by the financial institution. Alternatively, when the counterparty has suffered losses on trades, the cash flows are liabilities to the counterparty, which lower the portfolio value by the amount owed, potentially increasing the collateral requirements. Once the funds have been received by the financial institution, then the counterparty obligation is eliminated and the liabilities are removed from the portfolio.

These cash flows should be "settled" or removed from the portfolio only after confirmation that the funds have been paid or received so that counterparty portfolio and trading account information is never overstated. This is an important part of reducing the risk of incorrect margining. Furthermore, no payments to a counterparty should be made that will leave an institution's collateral account in a deficit the next day. Cash movements should be considered relative to settlements the next day (T+1) and the impact on the collateral requirements. Ideally, an electronic link between the settlement and the collateral systems will reconcile the cash flows to the pay or receive messages. Once the cash flows and payments have been reconciled and the next day's (T+1) collateral position assessed, the cash flows should be removed from the counterparty's account.

Best Practice No. 8: Real-Time Monitoring of Counterparty Positions and Margin

Because of the volatile and global nature of the FX markets and the uncertain creditworthiness of counterparties, counterparty positions and profit or loss against the available collateral should be monitored on a real-time basis, twenty-four hours a day.

Supporting collateralized FX trading may be a global task. Positions can be monitored at one site for the full twenty-four hours span or from multiple sites around the world, with each site assuming responsibility for some portion of the twenty-four hours.

Reaction to international events or economic data may result in uncertain market conditions and extreme movements in currency and/or collateral values. Periods of high volatility and extreme market moves may also increase counterparty credit exposures. Procedures should provide for crisis management during these periods to ensure active monitoring of margin requirements and calls as well as added management oversight and escalation.

Best Practice No. 9: Strict Adherence to Margin Calls

The operations area should notify the sales and trading desk and the counterparty immediately if a counterparty requires a

margin call. The counterparty should be asked to respond—that is, to pledge additional collateral or to close out open positions—within a minimal period of time.

The procedures for handling margin calls vary from institution to institution. It is critical that these procedures be clearly documented and available to all personnel supporting the collateralized FX accounts. Additionally, margin call requirements and procedures (specifically, margin call deadlines and threshold amounts) should be clearly set forth in the underlying credit enhancement agreement. Cutoffs for meeting margin calls should be established (including time elapsed before close-out) and closely monitored.

Failed margin calls should be reported immediately to the credit risk manager and sales or trading manager for approval or decision on the next course of action, which could include closing out positions. It is important that additional approvals or notification be required when a margin call is overridden. The credit enhancement agreement should address how long trading activity may continue after a margin call is not met. Because disputes in margin calls may arise, procedures for handling these disputes should be clearly established in this agreement before counterparty activity begins.

COLLATERAL MANAGEMENT

One key to successful collateralization is the proper management of collateral, including its valuation and the creation of a perfected security interest. The process of collateral management typically involves several different support areas, their exact identity depending on the types of collateral accepted. Timely communication of information between the various areas is essential to manage the exposure from counterparties' positions.

Best Practice No. 10: Approved Collateral List

The institution should maintain a list of types of collateral that are approved for collateralized FX trading in general and should tailor the list as necessary to each counterparty. The list should be initiated and approved by the credit risk area with input from sales and trading management.

Best Practice No. 11: Establishment of Haircuts on Collateral

Certain types of collateral should be valued at a percentage of the market value in order to reduce market risk. Collateral should be valued at least daily.

Noncash collateral should be given a haircut (that is, valued at lower-than-market value) because of market risk associated with that collateral's value. Cash collateral not in the financial institution's base currency should also be given a haircut because of exchange risk. The magnitude of the haircut depends on the relative risk of the collateral instrument, which reflects creditworthiness, volatility, and tenor, as well as liquidity. The haircut amounts should be approved by the credit risk area with input from sales and trading management.

Collateral such as securities and foreign currency should be valued at least daily using rates obtained from independent sources. Valuing collateral on an intraday basis may be appropriate in situations of high market volatility.

Best Practice No. 12: Proper Possession and Control of Collateral

Collateral should be legally pledged by the counterparty so that the pledgor cannot use that collateral without authorization from the pledgee. Collateral should not be added to the counterparty portfolio until confirmation has been received that the collateral is secured and that the transfer is irrevocable.

If the collateral is not properly secured, the counterparty, anticipating losses, could withdraw the collateral before paying for any losses. Collateral should be legally pledged to and/or by the counterparty in a manner that perfects a security interest in the collateral, thus restricting withdrawal of collateral unless agreed to and released by the pledgee. The method of perfection may vary by collateral type and by jurisdiction.

The collateral account name should be such that the pledgee's legal rights to the collateral are protected to the utmost. In-house or external legal counsel can provide guidance on how to achieve the best security perfection. Collateral should only be included in the counterparty portfolio when its receipt has been confirmed and is supported by a legally enforceable pledge agreement. This also applies to substitution of collateral.

An electronic link between the custody area that receives collateral and marks it as pledged and the collateral system is highly desirable. If the collateral is not held directly by the pledgee or one of its affiliates, a third-party professional custodian/depository with an experienced staff and established systems and procedures should be given legal responsibility for securing the collateral. Daily collateral statements from this custodian (whether the custodian is a third party or affiliated with the financial institution) should be obtained in order to reconcile collateral positions.

Best Practice No. 13: Return of Collateral

Two steps should be taken when a counterparty requests the return of collateral: (1) the account should be evaluated to ensure that the counterparty will continue to be sufficiently collateralized once the requested amount of collateral is removed from the portfolio, and (2) as soon as the instructions to send back the collateral have been given and accepted, the collateral should be removed from the counterparty's account.

Before honoring any request for the return of collateral, a financial institution should evaluate the counterparty's trading account to ensure that the counterparty will be sufficiently collateralized after the requested collateral is returned. This evaluation should include ensuring that all recent trade activity has been input and that rates used to revalue the positions are current. A transfer threshold should be agreed upon with the counterparty to avoid excessive and costly collateral transfers. The counterparty's account should be immediately reduced by the amount of collateral returned. A financial institution should be able to perform these functions quickly and efficiently so that if a counterparty has a right to have its collateral returned (if, for example, its positions move into the money), the collateral is returned promptly in accordance with the terms of the applicable credit enhancement agreement.

Best Practice No. 14: Reconciliation of Collateral

Collateral should be reconciled daily between the collateralized FX system and the systems used by the areas actually holding and processing the collateral.

It is important that the pledgee's FX collateral system and the systems used by the collateral custodian be reconciled. Ideally, electronic interfaces between these systems will update the collateral amounts as soon as they are updated by the custody areas. A daily electronic reconciliation is highly desirable because of its speed and accuracy.

The pledgee should clearly define the time limits for all required communications with its collateral custodian. The pledgee must notify the custodian of incoming or outgoing collateral, and the custodian must inform the pledgee of receipts and fails within agreed-upon timeframes to reduce any additional risk. The applicable custodian agreement as well as the pledgee's procedures must indicate the required time frames for notifications of and delivery of collateral. These time frames should also cover additional margin calls.

DOCUMENTATION

Best Practice No. 15: Maintenance of Complete Counterparty Files

Netting, credit enhancement, and custodian agreements should be signed and kept on file in the documentation area. Collateralized trading should not begin until sufficient documentation has been received, unless the credit risk area has approved uncollateralized exposure.

Operations and sales and trading personnel should ensure that all documentation for a new collateralized counterparty has been received and is on file before trading commences. Documentation on file should also include internal credit approvals, counterparty account setup forms, custody agreements, and pledge agreements. In-house or external legal counsel can provide guidance as to the most appropriate forms of documentation and the rights of any counterparty pledging collateral, which may or may not emanate directly from such documentation.

Sales, trading, and operations should have a thorough understanding of the terms and conditions of these documents and their own roles in the process of collateralized FX trading. In particular, these areas should understand the risks involved in this business and the procedures used to reduce these risks.

CONCLUSION

These Best Practices have been found to be of value in reducing the operational risks of collateralized FX trading. Because of the variety of operational areas and systems typically involved in this type of trading, communication is a key factor in reducing risk. Whether the communication is verbal or electronic, there should be an effective exchange of information between the sales and trading desk, operations, the counterparty, and custodian(s) of counterparties when engaging in collateralized FX trading. Constant and real-time communication is the only way to provide all parties with accurate and timely information, and to reduce financial risk. Additionally, clearly defined responsibilities and procedures are critical to effectively controlling collateralized FX trading.

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