

Foreign Exchange Transaction Processing:  
**Execution-to-Settlement**  
**Recommendations**  
for **Nondealer**  
**Participants**

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# Foreign Exchange Transaction Processing: **Execution-to-Settlement** **Recommendations** for **Nondealer** **Participants**

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## **Introduction**

### **The Foreign Exchange Market**

The foreign exchange (FX) market is the largest and most liquid sector of the global financial system. According to the Bank for International Settlements' *Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity 2004*, FX turnover averages USD 1.9 trillion per day in the cash exchange market and an additional USD 1.2 trillion per day in the over-the-counter (OTC) FX and interest rate derivatives market.<sup>1</sup> The FX market serves as the primary mechanism for making payments across borders, transferring funds, and determining exchange rates between different national currencies.

### **The Changing Marketplace**

Over the past decade, the FX market has grown in terms of both volume and diversity of participants and products. Although commercial banks have historically dominated the market, today's participants also include investment banks, brokerage companies, multinational corporations, money managers, commodity trading advisors, insurance companies, governments, central banks, and pension and hedge funds. In addition, the size of the FX market has grown as the economy has continued to globalize. The value of transactions that are settled globally each day has risen exponentially—from USD 1 billion in 1974 to USD 1.9 trillion in 2004.



## What Is the Foreign Exchange Committee and What Are the Best Practices?

The Foreign Exchange Committee is an industry group sponsored by the Federal Reserve Bank of New York that has been providing guidance and leadership to the global FX market since its founding in 1978. In all its work, the Committee seeks to improve the efficiencies of the FX market, to encourage steps to reduce settlement risk, and to support actions that enhance the legal certainty of FX contracts.

In 1998, the Committee recognized the need for a checklist of best practices that could help nondealer participants entering the FX market to develop internal guidelines and procedures for managing risk. The original version of *Foreign Exchange Transaction Processing: Execution-to-Settlement Recommendations for Nondealer Participants* was published in 1999 by the Committee's Operations Managers Working Group to serve as a resource for market participants as they evaluate their policies and procedures regarding FX transactions. This 2004 update takes into account market practices that have evolved since the paper's original publication and supersedes previous recommendations by the Committee regarding nondealer participants.

The purpose of this paper is to share the experiences of financial institutions that are active in the growing FX market with non-dealer participants that may participate in the

FX market on a more occasional basis. The twenty-two issues highlighted are meant to promote risk awareness and provide "best practice" recommendations for nondealers. Participants in prime brokerage or similar arrangements should also be familiar with these recommendations. The implementation of these practices may mitigate some of the trading and operational risks that are specific to the FX industry. It may also help limit potential financial losses and reduce operational costs.

This document is primarily oriented toward nondealer participants with moderate FX activities. However, those nondealer participants that are particularly active in the FX market are encouraged to review the Committee's guidance to other market participants, specifically the *Guidelines for Foreign Exchange Trading Activities* and the *Management of Operational Risk in Foreign Exchange*. These documents provide a more detailed discussion of the business practices and operational guidelines appropriate to institutions with larger or more complex FX activities. Copies of these papers are available on the Committee's website at <[www.newyorkfed.org/fxc](http://www.newyorkfed.org/fxc)>.

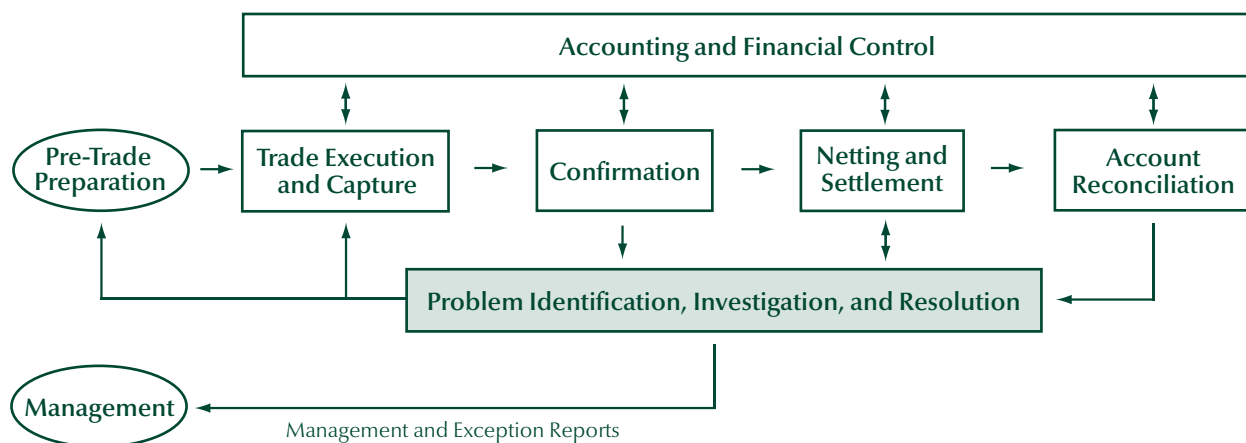
## How to Use This Document

This document is divided into sections based on the five steps of the FX trade process flow: 1) pre-trade preparation, 2) trade execution and capture, 3) confirmation, 4) netting and settlement, and 5) account reconciliation and accounting/financial control processes. How

<sup>1</sup> Bank for International Settlements, *Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity 2004* (Basel: Bank for International Settlements, 2004).



**Figure 1**  
**The Foreign Exchange Process Flow**



each of these individual phases integrates with the others in the FX process flow is outlined in Figure 1 above. Each section of this paper provides a process description, followed by a list of best practices specific to that phase. The paper concludes with general best practices that apply to overall risk management, including guidance for contingency planning and service outsourcing.

## Pre-Trade Preparation and Documentation

### Process Description

The pre-trade preparation and documentation process initiates the business relationship between two parties. During this process, both parties' needs and business practices should be established. An understanding of each counterparty's trading characteristics and level of technical sophistication should also develop. In summary, the pre-trade process allows the two parties to agree upon

procedures and practices for ensuring the safe and sound conduct of business.

### Recommendation No. 1: Determine Foreign Exchange Needs and Develop Appropriate Infrastructure

*It is critical for each firm to determine its underlying FX requirements and establish the appropriate infrastructure to support its activities.*

Before initiating activities in the FX market, a company should perform a thorough assessment of its FX needs within the context of its business and financial strategy. The risks associated with engaging in FX activities—including market, liquidity, credit, legal, operational, and settlement risk—need to be identified, quantified, and managed. Clear policies and procedures governing all aspects of FX trading and processing should be established, documented, and maintained. Because the nature of a firm's participation in the FX market may continually change and



evolve, policies and procedures should be periodically reviewed and updated.

All market participants should ensure that they engage sufficient experienced personnel to execute the firm's FX mandate. Each group or individual playing a role in the FX process flow should have a complete understanding of how FX trades are initiated, recorded, confirmed, settled, and accounted for. Insufficient knowledge of the overall FX process, or the role played by each individual or group, can lead to an improper segregation of duties, inadequate controls, and increased risk. All market participants should provide ongoing employee education regarding business strategies, roles, responsibilities, and policies and procedures.

A clear policy on ethics should be established, such as a code of conduct that conforms to applicable laws, good convention, and corporate policies. In particular, the guidelines should address the issue of the receipt of entertainment and gifts on the part of trading staff and others in a position to influence the firm's choice of counterparties. Senior management should ensure that the policies are well circulated, understood, and periodically reviewed by all personnel. Such policies should be updated regularly to ensure they cover new business initiatives and market developments.

**Recommendation No. 2:  
Ensure Segregation of Duties**

*Nondealer participants should preclude individuals from having concurrent trading, confirmation, payment, and general ledger reconciliation*

*responsibilities. Reporting lines for trading and operational personnel should be independent, and management should ensure that appropriate segregation of duties exists between operations and other business lines and within operations.*

Responsibility for trade execution, trade confirmation, payments, and general ledger reconciliation should be segregated to the greatest extent possible. At a minimum, responsibility for trade execution should be segregated from responsibility for subsequent processing steps. When such duties are not segregated, the potential for fraud might increase. An individual may be able to complete unauthorized trades and hide any resultant losses.

Individuals responsible for confirmation, settlement, and reconciliation must be able to report any and all issues to management independent of the trading function. To do so, operations staff must have a reporting line that is not subject to an organizational hierarchy that could lead to a compromise of control. Firms with small treasury staffs and an overlap in employee responsibilities should establish and document workflows and systems to prevent unauthorized activities. Such arrangements should be periodically verified by an independent audit function.

**Recommendation No. 3:  
Determine Appropriate  
Documentation**

*An institution should determine its documentation requirements and know whether those requirements have been met prior to trading.*





An institution should begin FX trading activities only if it has the proper documentation in place. The use of industry standard documents is strongly encouraged to provide a sound mutual basis for conducting financial market transactions. A variety of documents ensure the smooth functioning of the markets and protect participants in these markets:

- ❖ Authority documents address capacity—the right of an institution to enter into a transaction—and authority—permission for an individual to act on the institution’s behalf.
- ❖ Confirmations summarize the significant trade terms and conditions agreed upon by the parties.
- ❖ Master agreements contain terms that apply to broad classes of transactions, expressions of market practice and convention, and terms for netting, termination, and liquidation.<sup>2</sup>
- ❖ Standard settlement instructions provide for the exchange of payment instructions in a standardized, secure, and authenticated format.

Each institution is responsible for ensuring that it has the capacity to enter into a transaction, as well as to monitor and enforce compliance with its internal procedures regarding any limitations there may be on the

trading authority of its employees or third parties acting on its behalf. Thus, providing to dealing firms documentation that includes a number of investment limitations and restrictions affecting a participant’s ability to trade and invest is not consistent with best market practice.<sup>3</sup>

Before executing a master agreement with a counterparty, an institution should also establish a policy on whether or not it will trade and in what circumstances. It should also be noted that electronic trading often requires additional or different documentation. Specifically, customer and user identification procedures, as well as security procedures, should be documented.

Nondealer participants should be aware that dealers are likely to be subject to statutory, regulatory, and supervisory requirements for “knowing” their customers. Dealers need to know the identity of their counterparties, the activities they intend to undertake with the dealer, and why they are undertaking those activities. While each dealer may have different procedures for implementing these requirements, nondealer participants should cooperate in providing the information that allows dealers to fulfill these obligations.

<sup>2</sup> The Financial Markets Lawyers Group (FMLG), an industry organization of lawyers representing major financial institutions sponsored by the Federal Reserve Bank of New York, has helped draft documentation for FX activities, including the International Foreign Exchange Master Agreement, the International Foreign Exchange and Options Master Agreement, the International Currency Options Market Master Agreement, and the International Foreign Exchange and Currency Options Master Agreement. These documents, endorsed by the Committee, are available on the FMLG’s and the Committee’s websites, <[www.newyorkfed.org/fmlg](http://www.newyorkfed.org/fmlg)> and <[www.newyorkfed.org/fxc](http://www.newyorkfed.org/fxc)>, respectively.

<sup>3</sup> For related guidance on this issue, see the letter to market participants on the Committee’s website.



## Trade Execution and Capture

### Process Description

The trade execution and capture function is the second phase of the FX processing flow. Deals may be transacted directly over a recorded phone line or through Internet-based systems (for example, proprietary trading systems or multidealer trading platforms). Trade information captured typically includes trade date, time of execution, settlement date, counterparty, financial instrument traded, amount transacted, price or rate, and may also include settlement instructions.

### Recommendation No. 4: Establish Appropriate Trading Policies and Procedures

*Firms should endeavor to execute transactions in a manner that reduces the possibility of misunderstandings, errors, or unauthorized dealing. Once completed, FX trades constitute binding obligations for both parties. Although subsequent processing steps (for example, confirmation) may uncover problems, the best protection from unanticipated loss is to avoid problems from the outset.*

Transactions should be executed only by internally authorized staff who are fully conversant with market practice and terminology. Firms should avoid the use of obscure market jargon that may lead to confusion or miscommunication. When trades are verbally executed, traders should

carefully reconfirm key terms with the counterparty before ending the call.

Firms should ensure that all trading is conducted at current market rates. Trades executed at off-market rates can conceal losses, facilitate accounting misstatements, or mask other illegitimate activities. Off-market trades also involve the extension of credit from one party to the other. Nondealer participants should establish controls to detect off-market dealing, such as comparing actual trade rates against daily market ranges and reviewing position revaluation results for unreasonable gains or losses.

In certain cases, valid business purposes may exist for completing off-market trades. Firms intending to complete off-market trades, including historical rate rollovers, should provide counterparties such additional information as is necessary to establish an underlying business purpose, as well as evidence that such dealing has been reported to and approved by senior management.<sup>4</sup> Responsibilities regarding monitoring and reporting off-market transactions should be clearly defined.

Firms electing to leave orders with FX dealers should establish a clear mutual understanding of how such orders will be handled, particularly with respect to fast or discontinuous markets or more serious market disruptions. Firms should clearly agree on the specific terms of the order, particularly

<sup>4</sup> The Committee's letter on historical rate rollovers, first published in December 1991, continues to offer sound advice to those who need to execute these transactions. The letter, reprinted in the Committee's 1995 Annual Report, is available on the Committee's website, <[www.newyorkfed.org/fxc](http://www.newyorkfed.org/fxc)>.





when such orders are activated, canceled, or modified by the occurrence of subsequent events. If certain aspects of an order are contingent upon the achievement of specific market levels, firms should agree in advance upon the rate or price sources to be used in such determination.

Given the twenty-four-hour nature of the FX market, nondealer participants should have a clear policy on dealing off the premises or during off-hours. Firms allowing such activity should consider instituting procedures to ensure that trades executed during off-hours are promptly reported to others in a prearranged manner (for example, e-mail, voicemail).

#### Recommendation No. 5:

##### **Clearly Identify Counterparties**

*All participants should clearly identify the legal entity on whose behalf they are undertaking a transaction. Trading on an unnamed basis is contrary to best market practice.*

Each counterparty to a transaction should ensure that its organization recognizes the importance of clearly and accurately identifying the legal entities involved in the transaction. Additionally, firms should encourage staff to provide their names and affiliation in all counterparty communication. The benefits of clear counterparty identification are particularly evident when:

- ❖ the organization has multiple legal entities (subsidiaries, branches, offices, and affiliates) that are trading in the FX market;

- ❖ the organization has been involved in acquisition, divestiture, or restructuring activity that has led to name changes; and
- ❖ participants are transacting in an agency capacity.

Identification failure raises a number of potential risks, including:

- ❖ incorrect assessment of counterparty performance risk;
- ❖ erroneous bookings and/or misdirected settlements, creating potential losses for either counterparty to the transaction;
- ❖ misallocation of collateral; or
- ❖ disclosure of transaction information to incorrect entities.

The practice of trading FX on an unnamed basis—also referred to as undisclosed principal trading—presents an adverse risk to both individual market participants and the broader financial market. Such practices constrain a dealer’s ability to assess the creditworthiness of its counterparties and to comply with “know your customer” and anti-money-laundering rules and regulations—exposing dealers to clear and significant legal, compliance, credit, and reputational risks as well as heightening the risk of fraud. It is recommended that investment advisors and dealers alike implement measures to eliminate the practice of trading on an unnamed basis. Specifically, investment advisors and FX intermediaries should develop a process to disclose client names to a dealer’s credit, legal, and compliance functions before the execution of FX trades.



**Recommendation No. 6:**

**Establish and Control System Access**

*As alternative technologies continue to emerge in the FX trading and processing environments, rigorous controls need to be implemented and monitored to ensure that data integrity and security are not undermined. Each system should have access controls that allow only authorized individuals to alter the system and/or gain user access.*

The use of electronic interfaces among FX market participants—such as electronic communications networks (ECNs) and automated trading systems (ATSs)—has increased significantly in recent years. Use of robust electronic interfaces is encouraged as it reduces trading- and operations-related errors, particularly when trade data flow directly from the electronic trading platform to the front-end trading system and to the operations system books and records in order to achieve straight-through processing.

To maximize the benefits of these developments, access to production systems should be allowed only for those individuals who require such access to perform their job function. Lack of adequate access controls and related monitoring can result in unauthorized trading activity. Without proper access control, the flow of data between the electronic trading platform and the trading systems or back-office books and records can be altered, compromising data integrity and subjecting the firm to the risk of financial loss.

System access and entitlements should be periodically reviewed, and users who no longer require access to a system should have

their access revoked. Under no circumstance should operations or trading functions have the ability to modify a production system if they are not authorized.

**Recommendation No. 7:**

**Enter Trades in a Timely Manner**

*All trades should be entered immediately into appropriate systems and be accessible for both trading and operations processing as soon as they are executed.*

It is crucial that all trades are entered immediately so that all systems and processes have timely, updated information. Front-end systems that capture deal information may interface with other systems that monitor and update credit limit usage, intraday profit and loss (P&L), trader positions, confirmation status, settlement instructions, and general ledger activity.

An institution's ability to manage risk may be adversely affected if it does not have accurate transaction updates in each of the above-mentioned areas. The failure to record trades promptly misrepresents contractual positions and can result in:

- ❖ inaccurate accounting records,
- ❖ mismanagement of market risk,
- ❖ misdirected or failed settlement, and
- ❖ the failure of a trade to be booked at all.



## Confirmation

### Process Description

The transaction confirmation is evidence of the terms of an FX or a currency derivative transaction. Therefore, proper management of the confirmation process is an essential control. This process is handled in many ways within FX markets. For spot, forward FX, or vanilla currency option transactions, counterparties exchange electronic or paper confirmations that identify transaction details and provide other relevant information. For structured and nonstandard transactions (for example, non-deliverable forwards [NDFs] and exotic currency option transactions), documents are prepared and 1) exchanged and matched by both counterparties, in the case of most dealers, or 2) signed and returned in the case of certain counterparties.<sup>5</sup>

All confirmations should be subject either to the *1998 FX and Currency Option Definitions* issued by the Committee, EMTA, and the International Swaps and Derivatives Association (ISDA) or to other appropriate guidelines.

### Recommendation No. 8:

#### **Confirm Trades in a Timely Manner**

*Both parties should make every effort to send confirmations or positively affirm trades within two hours after execution and in no event later than the end of the day.*

Prompt confirmations are key to the orderly functioning of the marketplace because they reduce market risk and minimize losses due to settlement errors. In

the absence of timely confirmation, trade discrepancies may go undetected, which can lead to disputes, disrupting the settlement process and increasing processing costs. Such discrepancies can also result in failed trades or inaccurate accounting records and can adversely affect any underlying security settlement. The incidence of error tends to increase when non-automated or verbal confirmations are not followed up with written or electronic confirmation. Given the significance of the confirmation process, it is important that the process is handled independently of the trading function.

Counterparties should have an understanding regarding confirmation practices, that is, whether they will both send out their own confirmations, or whether one counterparty will sign and return (affirm) incoming confirmations. It is not recommended that either party simply accept receipt of the counterparty confirmation as completion of the confirmation process.

Confirmations should be transmitted in a secure manner whenever possible. In the most developed markets, confirmations are generally sent via electronic message through a secure network. Automated confirmation matches one party's trade details to its counterparty's trade details. It minimizes manual error and is the most timely and efficient method because it requires no subsequent confirmation or manual check.

While a significant number of transaction confirmations are also sent via mail, e-mail, or

<sup>5</sup> Typically, the price maker prepares the confirmation and the price taker signs the confirmation.



fax, it is important to note that when these open communication methods are used there is a greater risk of human error or fraudulent correspondence. When sending confirmations by fax or e-mail, or when confirming by telephone, counterparties may agree to take additional steps to ensure receipt by the correct counterparty. Telephone confirmations should be used when no other method is available. Following the telephone confirmation, both parties should exchange and match written or electronic confirmations. With verbal confirmations, most dealers employ recorded telephone lines. Non-dealer participants may want to consider adopting this practice.

Data included in the confirmation should contain the following: the counterparty to the FX transaction, the office through which it is acting, the transaction date (or trade date), the value date (or settlement date), the amounts of the currencies being bought and sold, the buying and selling parties, and settlement instructions. Amended confirmations should be sent promptly when necessary. Settlement instructions for forward transactions should be reconfirmed two days before the settlement date.

Once a trade between counterparties has been confirmed, such trades may be the subject of novation or other similar agreements, which should be confirmed in a similarly vigorous manner.

#### Recommendation No. 9:

#### **Block Trades Should Be Confirmed in a Timely Manner**

*The full amount of block trades transacted by agents should be confirmed as soon as possible, but always within two hours of the trade execution.*

Investment managers or others acting as an agent may undertake “block” or “bundled” trades on behalf of multiple counterparties. Such trades are subsequently split into smaller amounts and apportioned to specific underlying funds or counterparties. The failure to allocate a block trade on a timely basis could result in increased credit, legal, and operational risk. Specifically, a delay in allocation hampers the allocation and management of credit exposure. Trade confirmation will also be delayed, which in turn may interrupt the settlement process and, in extreme cases, cause payment failures.

The full amount of block trades should be confirmed as soon as possible but always within two hours of trade execution. Allocations and confirmations to individual obligor accounts should be completed within four hours and no later than the end of the day on the trade date. To minimize errors caused by manual intervention, trade allocations should, if possible, be provided to the counterparty electronically, either through a secure network or through authenticated means.

#### Recommendation No. 10:

#### **Resolve Confirmation Discrepancies in a Timely Manner**

*Discrepancies between a confirmation received from a counterparty and a firm’s own records should be brought to the counterparty’s attention*



*immediately. Escalation procedures should be established to resolve any unconfirmed or disputed deals.*

When trade discrepancies exist, unintended exposure to market risk may arise. Trade discrepancies may also lead to increased processing costs, inaccurate accounting records, failed settlements (including underlying transactions), and financial loss. Unconfirmed trades may result from simple trade entry errors or more serious disagreements between counterparties with respect to the agreed-upon transaction terms.

To mitigate this risk, confirmation discrepancies should be brought to the counterparty's attention immediately and resolved as quickly as possible. Additionally, procedures should be established to escalate unresolved discrepancies to increasingly higher levels of management within established time frames. Automated trade confirmation systems are strongly recommended; these systems can highlight discrepancies and mitigate potential problems. Processes should be in place to detect chronic discrepancies.

**Recommendation No. 11:  
Unique Features of Foreign Exchange Options**

*Market participants should establish clear policies and procedures for the confirmation, exercise, and settlement of FX options and familiarize staff with the additional terms and conditions associated with options.*

FX options are more complex products than spot and forward transactions. Options incorporate additional and often complex

contract terms (such as strike price, call or put indicator, premium price, and expiry date and time). Their value is determined not only by spot and forward exchange rates but also by implied volatilities and time remaining until expiration. Option values may change rapidly and in a nonlinear manner. Those options possessing intrinsic value at expiration (strike rate more favorable than current market or index rate) must be properly exercised if such value is to be realized. The exercise of an option generally creates a new position in the underlying instrument (for example, spot dollar-yen) requiring further processing and settlement.

Special attention should be paid to the sale of options (short positions), which generally entail significantly higher levels of market risk. Similarly, management should be aware that “deep-in-the-money” option transactions by their nature involve unusual funding requirements and related credit exposure. There may be legitimate reasons for the sale of such options—for example, the “sell back” of an option or the implied delta within a separate derivatives product. However, it should be recognized that the sale of deep-in-the-money options can be used to exploit weaknesses in a counterparty's revaluation or accounting process that could create erroneous results. Procedures should ensure an appropriate level of review—if necessary, by senior trading management or risk management outside the sales and trading area—to guard against potential legal, reputational, and other risks.

Management should clearly define roles and responsibilities to ensure that the higher inherent risk of options is well controlled.





Operations staff should be fully versed in options terminology, contract provisions, and market practice. Transaction terms should be electronically, or at least verbally, confirmed on the trade date and both parties should sign a detailed confirmation. Certain exotic options may also require the collection of additional information or rates, depending on the product.

Premium settlements should be closely monitored to reduce the potential for out-trades.

Clear policies and procedures related to the exercise of options should be established and, where possible, documents and systems should be designed to auto-exercise expiring in-the-money options. It is recommended that, whether or not auto-exercise applies, both parties independently monitor their option positions for internal market and operational risk management purposes.

**Recommendation No. 12:**

**Unique Features of Non-deliverable Forwards**

*Market participants should establish clear policies and procedures for the confirmation and settlement of FX NDFs and familiarize staff with the additional terms and conditions associated with NDFs in order to reduce operational risk.*

NDFs are cash-settled FX instruments that require a rate fixing to determine the amount

and direction of the cash settlement. NDFs, like options, have additional trade terms and require additional handling and processing. In addition, they may be more susceptible to market disruptions.

Counterparties should confirm NDF transaction terms electronically, or at least verbally, on the trade date. In addition to the standard transaction details (such as the counterparties and the offices through which they are acting, the transaction date, the notional amount of the currencies, and settlement instructions), NDFs involve additional trade terms that require confirmation, such as fixing source and date. Following telephone confirmation, both parties must validate, review, sign, and return the long-form confirmation to cover all nonfinancial information. Confirmations should be reviewed on the trade date to determine the fixing source, and transactions should be reviewed daily thereafter to ensure that fixings are obtained as required in the confirmation language.

When possible, counterparties are encouraged to use an addendum to an existing master agreement, indicating a set fixing rate for each currency.<sup>6</sup> On the fixing date, fixing advices that reflect the fixing rate and cash settlement amount should be generated and exchanged electronically (when possible).

<sup>6</sup> The Master Agreement Addendum for Non-deliverable Forwards is available online at the Committee's public website.





## Netting and Settlement

### Process Description

*Settlement is the exchange of payments between counterparties on the value date of the transaction. Bilateral settlement netting is the practice of combining all trades between two counterparties due on a particular settlement date and calculating a single net payment in each currency. For example, if an institution executes twenty-five dollar-yen trades with the same counterparty, all of which settle on the same day, bilateral settlement netting will enable the institution to make only one or two netted payments.<sup>7</sup> These netted payments will generally be much smaller than the gross settlement amount due. The establishment of settlement netting agreements between counterparties can thus reduce settlement risk, operational risk, and clearing costs.*

Various market utilities support multilateral settlement netting, which involves combining all trades between multiple counterparties and calculating a single net payment in each currency.

For counterparties that do not settle on a net basis, payment instructions are sent to nostro banks for all the amounts owed—as well as for expected receipts. Settlement instructions are sent one day before settlement, or on the settlement date, depending on the currency's settlement requirements. If a settlement error occurs in the process, it is

typically quite costly. If a company fails to make a payment, it must compensate its counterparty, thus generating additional expense. Settlement errors may also cause an institution's cash position to be different than expected.

In addition, settlement risk—the risk that a company makes its payment but does not receive the payment it expects—can cause a large, even catastrophic, loss. This risk arises in FX trading because payment and receipt of payment often do not occur simultaneously. A properly managed settlement function reduces this risk. Settlement risk is measured as the full amount of the currency purchased and is present from the time a payment instruction for the currency sold becomes irrevocable until the time the final receipt of the currency purchased is confirmed.<sup>8</sup> Sources of this risk include internal procedures, intramarket payment patterns, finality rules of local payments systems, and operating hours of the local payments systems when a counterparty defaults.

### Recommendation No. 13:

#### **Net Payments and Confirm Bilateral Amounts**

*Transaction payments should be netted whenever possible. Legal agreements should provide for settlement netting as well as “close-out” netting in the event transactions are terminated before maturity.*

<sup>7</sup> Participants may also conduct “novational netting,” which nets trades across currency pairs. For example, a dollar-yen trade and a euro-dollar trade may be netted for a single dollar payment.

<sup>8</sup> For additional information on settlement risk, see Foreign Exchange Committee, “Defining and Measuring FX Settlement Exposure,” in *Foreign Exchange Committee 1995 Annual Report* (New York: Federal Reserve Bank of New York, 1996), and Foreign Exchange Committee, “Reducing FX Settlement Risk,” in *Foreign Exchange Committee 1994 Annual Report* (New York: Federal Reserve Bank of New York, 1995).



Settlement on a gross basis not only increases the actual number of settlements that are necessary but also increases the probability of settlement errors. An enforceable settlement netting agreement has the benefit of entitling parties to reduce the number and size of payments between themselves.

The operational process of settlement netting should be supported by a legal agreement. Such an agreement may be a brief document that only supports settlement netting or a settlement netting provision that is included in a master agreement. The following master agreements have been developed as industry standard forms. Each form includes provisions for settlement netting (included as an optional term) and close-out netting:

- ❖ International Swaps and Derivatives Association (ISDA) Master Agreement,
- ❖ International Foreign Exchange Master Agreement (IFEMA) covering spot and forward currency transactions,
- ❖ International Currency Options Market Master Agreement (ICOM) covering currency options, and
- ❖ International Foreign Exchange and Options Master Agreement (FEOMA) covering spot and forward currency transactions and currency options.

Correct calculations of netted payments are important to ensure accurate settlement amounts and enhance the efficiency of operations. All market participants are encouraged to automate the actual netting calculation so that errors introduced by

manual calculation are reduced. To protect against an improper settlement of a net amount, counterparties should confirm the net payment amount with each other at some predetermined cutoff time before settlement. Parties should establish the latest possible cutoff time for confirming bilateral netted amounts. Such a deadline will ensure that the parties agree on the transactions included in the net amounts.

In addition to settlement netting, master agreements may provide for close-out netting. Close-out netting clauses provide for 1) appropriate events of default, including default upon insolvency or bankruptcy; 2) close-out of all covered transactions; and 3) the calculation of a single net obligation from unrealized gains and losses. Close-out netting provisions provide significant risk management benefits to both parties to a master agreement by providing for the netting of all outstanding transactions under an agreement. Master agreements with legally enforceable close-out netting receive bankruptcy and insolvency law protection to ensure that the defaulting counterparty remains responsible for all existing contracts and transactions under the agreement and not just those it chooses. Thus, close-out netting provisions provide the legal basis for parties to measure counterparty exposure on a net rather than a gross basis.

**Recommendation No. 14:  
Provide Accurate and Complete  
Settlement Instructions**

*Market participants should always provide complete and accurate settlement instructions in a timely manner.*



Settlement instructions should clearly reference the following information:

- ❖ the recipient's account name, account address, and account number;
- ❖ the name of the receiving bank, a SWIFT/ISO address, and a branch identifier; and
- ❖ the identity of any intermediary bank used by the recipient.

Incomplete or inaccurate settlement instructions heighten the risk of a disrupted settlement process, thus inflating processing and compensation costs. Failed FX settlements may also disrupt completion of an underlying transaction.

#### Recommendation No. 15:

##### **Use Standing Settlement Instructions**

*Standing settlement instructions (SSIs) should be exchanged whenever possible. Market participants should issue new SSIs, as well as changes to SSIs, in a secure manner.*

SSIs allow for complete trade details to be entered quickly so that the confirmation process can begin as soon as possible after trade execution. By removing the need to exchange settlement instructions solely on a trade-by-trade basis, SSIs minimize the potential that incorrect or incomplete settlement instructions will be exchanged. SSIs also contribute to improved risk management and greater efficiency because the repeated manual inputting, formatting, and confirming of settlement instructions increases the cost of trade processing and heightens the opportunity for errors in settlement.

Market participants should exchange standing settlement instructions as soon as possible. When an institution changes its SSIs, it should provide as much lead time as possible—a minimum of two weeks' notice—to its counterparties to allow them to update their records before the new SSIs become effective. Institutions should update their records promptly when changes to SSIs are received from their counterparties.

All standing settlement instructions should be delivered electronically, if possible, and preferably through authenticated media because electronic delivery minimizes manual error and is the timeliest method of delivery. In addition, authenticated media reduce the potential for fraud. Changes to SSIs that cannot be delivered electronically should be delivered in writing and signed by an authorized individual.

Although SSIs are preferred, they are not always available and may not be appropriate for all trades. When SSIs are not used, the settlement instructions may be recorded at the time of trade execution. These exception settlement instructions should be delivered by the close of business on the trade date (if spot) or at least one day before settlement (if forward).

#### Recommendation No. 16:

##### **Understand Risks Associated with Third-Party Payments**

*In cases where a dealer agrees to process a third-party payment, nondealer participants should provide the information necessary for the dealer to internally approve and accurately make the payment.*



Third-party payments are the transfer of settlement funds for an FX transaction to the account of an entity other than the counterparty to the transaction. Third-party payments raise important issues that should be considered carefully by a firm requesting such a practice.

Participants should recognize that third-party payments may significantly increase operational risk and potentially expose all involved to money laundering or other fraudulent activity. The practice also heightens the risk of financial loss; if the third-party payment is directed to an incorrect beneficiary, the payment may be delayed or even lost. Third-party payments may also create potential legal liability to the dealer making the payment.

Both nondealers and dealers should be aware of the risks involved with these transactions and should establish clear procedures beforehand for validating both the authenticity and correctness of such requests. In addition, nondealer participants should provide dealers with any written information required to screen, internally review and approve, and accurately make the third-party payment. For example, written information may include the third party's receiving bank name and address; the third party's account name, address, and number; and the nature of the third party's affiliation with the nondealer participant.

Also, third-party payment instructions should be provided via authenticated means. Instructions otherwise provided—for example, by phone or fax—should be reconfirmed by staff independent of those providing such instructions.

## Account Reconciliation

### Process Description

Account reconciliation occurs at the end of the trade settlement process to ensure that a trade has settled properly and that all expected cash flows have occurred. An institution should begin reconciliation as soon as it receives notification from its bank that payments are received. If possible, reconciliation should be performed before the payment system associated with each currency closes. Early reconciliation enables an institution to detect any problems in cash settlement and resolve them on the settlement date.

### Recommendation No. 17: Perform Timely Account Reconciliation

*Account reconciliation—the process of comparing expected and actual cash movements—should be performed as early as possible.*

The main objective of the account reconciliation function is to ensure that expected cash movements agree with the actual cash movements in a firm's currency accounts. The cause for the difference might be that wrong settlement or trade information was captured or that a payment error occurred.

Failure to reconcile expected and actual cash movements could result in the inability to recognize the underfunding of a transaction and/or an overdraft to the cash account. When cash is used to overfund a position, opportunity costs arise because cash often cannot be invested. When positions are underfunded, overdraft charges may be imposed unknowingly. Account reconciliation also



serves as a main line of defense in detecting fraudulent activity.

All market participants are encouraged to reconcile expected cash flows against actual cash flows in a timely manner. The sooner reconciliations are performed, the sooner an institution can take appropriate actions to ensure that its accounts are properly funded.

**Recommendation No. 18:  
Identify Nonreceipt of Payments and  
Submit Compensation Claims in a  
Timely Manner**

*Management should establish procedures for detecting nonreceipt of payments and for notifying appropriate parties of these occurrences. Escalation procedures should be in place for dealing with counterparties that fail to make payments. Parties that have failed to make a payment on a settlement date should arrange for the proper value to be applied and pay compensation costs promptly.*

An institution should attempt to identify, as early in the process as possible, any expected payments that are not received. Failure to notify counterparties of problems in a timely manner may lead them to dismiss claims that are over a certain age, causing the institution to absorb overdraft costs.

All instances of nonreceipt of payment should be reported immediately to the counterparty's operations and/or trading units. When necessary, escalation procedures should be followed. Management may wish to consider a limited dealing relationship with counterparties that have a history of settlement problems. The counterparty that has not

received payment generally incurs the costs associated with nonreceipt, including those associated with obtaining alternative funding on the settlement date, processing the exception, and administering payment. As a result, the counterparty may commence legal action to recover these costs. Compensation claims for nonreceipt or late receipt of payment should be agreed upon and paid expeditiously.

## **Accounting and Control**

### **Process Description**

The accounting function ensures that FX transactions are properly recorded on the balance sheet and income statement. If transaction information is not recorded correctly, a company's reputation may be tarnished if material restatements of financial accounts are necessary.

Accounting entries are first booked following the initiation of a trade. At the end of each trade day, all sub-ledger accounts flow through to the general ledger. Any discrepancies should be investigated as soon as possible to ensure that the institution's books and records reflect accurate information. The accounting area should ensure that outstanding positions are continually marked to market until close-out—after which realized gains and losses are calculated and reported.

Cash flow movements that take place on settlement date are also posted to the general ledger in accordance with accepted accounting procedures. The receipt and payment of





expected cash flows at settlement are calculated in an institution's operations system.

**Recommendation No. 19:  
Conduct Daily General Ledger,  
Position, and P&L Reconciliation**

*Systematic reconciliations of both the general ledger to the operations system and the trading systems to the operations systems should be done daily.*

Timely reconciliations will allow for prompt detection of errors in the general ledger and/or sub-ledgers and should minimize accounting and reporting problems. This reconciliation will ensure that the general ledger presents an accurate picture of an institution's market position. When problems are detected, they should be resolved as soon as possible. Senior management should be notified of accounting discrepancies to review and update control procedures as needed.

Position reconciliations allow an institution to ensure that all managed positions are the same as those settled by operations. This control is imperative when all deal entries and adjustments are not passed electronically between trading and operations. When straight-through processing is in place, the reconciliation ensures that all deals were successfully processed from trading to operations, along with all amendments. Because a discrepancy in P&L between trading and operations can indicate a difference in positions or market parameters (that is, rates or prices) all differences should be reported, investigated, and resolved in a timely manner.

**Recommendation No. 20:  
Conduct Daily Position Valuation**

*Using independent price sources, staff independent of the trading function should revalue outstanding positions to market daily. This is particularly important for market participants that are active in less liquid forward markets or in exotic options markets. Both trading and operations staff should be familiar with the procedures used for position valuation.*

The daily revaluation of outstanding positions is an integral part of the control process. The end-of-day rates and prices that are used to create the position valuations should be periodically checked by an independent source. Staff independent of the trading function should ensure that the rates and prices used for end-of-day valuation represent market rates. Position valuations should be verified using independent sources such as market rate screens or broker/dealer quotations.

Illiquid markets present additional risk to an institution because illiquid instruments are traded infrequently, making them difficult to price. Often, it is difficult to obtain market quotes, thereby preventing timely and consistent position monitoring. Valuations may be distorted, causing improper management of risk. In such instances, a company should seek to obtain quotes from other counterparties active in the market. Management should be aware of these procedures so that it may effectively manage and evaluate illiquid market positions. These procedures allow an institution to mark to market its positions and to evaluate associated risks.





Marking to market reflects the current value of FX cash flows to be managed and provides information about market risk.<sup>9</sup> Senior management will be able to better manage and evaluate market positions when it knows positions are accurately valued on a daily basis.

## Other

### Recommendation No. 21:

#### **Develop and Test Contingency Plans**

*Participants should develop plans for operating in the event of an emergency. Contingency plans should be periodically reviewed, updated, and tested.*

In the event of a major disaster, a market participant may not be able to meet its obligation to monitor its market positions. It may also fail to meet its obligation to settle and confirm transactions. Inability to trade or settle transactions could subject the market participant to severe financial and reputational repercussions.

Firms should identify various types of potential disasters and examine how they may disrupt the participant's ability to satisfy its obligations (that is, issuing and receiving confirmations, performing settlements, and completing daily trading). Disaster recovery plans should identify requisite systems and procedural backups, management objectives, staffing plans, and the methodology for dealing with each type of disaster. Plans should be reviewed and tested periodically.

Backup sites that can accommodate the essential staff and systems should be established, maintained, and tested on a regular basis. Particularly for operations, market participants should consider developing a backup site that relies on a separate infrastructure (electricity, telecommunications, and so forth).

Additionally, all market participants should identify alternative methods of confirmation and settlement communication and practice these methods with counterparties. Such methods may require the use of fax or telex to ensure proper processing. During a disaster, a firm should notify its counterparties of potential processing changes. It should also provide counterparties with current contact information for key personnel to ensure that counterparties can contact the firm in an emergency.

### Recommendation No. 22:

#### **Ensure Service Outsourcing Conforms to Best Practices**

*If an institution chooses to outsource a portion or all of its operational functions, it should ensure that its internal controls and industry standards are met. A firm that outsources should have adequate operational controls in place to monitor the outsourcer and to ensure that functions are being performed according to agreed-upon standards and industry best practices.*

An institution may choose to outsource some or all of its operations functions. However, outsourcing should neither

<sup>9</sup> Group of Thirty, Global Derivatives Study Group, *Derivatives: Practices and Principles* (Group of Thirty, 1993), p. 19.



compromise a firm's internal standards for confirmations, settlement, and payments nor diminish the responsibility of the firm to ensure settlement performance.

Controls should be in place to monitor vendors to ensure that internal standards are met. For example, trades should still be confirmed in a timely manner and proper escalation and notification procedures must still be followed.

Participants should establish procedures to periodically monitor service providers to ensure that they are performing functions according to agreed-upon standards and industry best practices. A service level agreement should be in place to clearly identify responsibility in case of failure to meet obligations.



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## Recommended Readings

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