Internal Auditors Society

Internal Audit Guidelines
Foreign Exchange

November 2010

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I. Introduction and Background

I. INTRODUCTION AND BACKGROUND

A. Overview

The Foreign Exchange (F/X) market is the world's largest financial sector with trillions of dollars and other currencies being traded or settled each day. In today's global economy, corporations have significant transaction exposure from non-dollar revenues or payments and are among the biggest users of foreign exchange products and services. Fluctuations in exchange rates are usually caused by actual changes in monetary flows as well as by expectations of changes in monetary flows, which may result from changes in gross domestic product (GDP) growth, inflation, interest rates, budget and trade deficits or surpluses, large cross-border M&A deals, and other macroeconomic conditions. Banks and securities firms utilize the currency markets to service their clients (on either an agency or principal basis) to:

- Diversify. Investments in foreign securities often require foreign currency transactions. F/X products can be used to diversify portfolio risk and help reduce the volatility of portfolio returns.

- Trade Foreign Exchange. The currency markets can be extremely volatile, creating potential trading opportunities. Also, exchange listed currency futures can be traded on EFP (Exchange for Physical) markets to transact F/X around the clock.

- Hedge Foreign Currency Risks. Foreign currency transactions are often used by large corporations as a hedging strategy to provide protection against adverse movements in exchange rates that affect their revenues or holdings.

F/X Products

The types of products traded will depend on the particular institution or department under review. F/X trading businesses can include F/X spot and forward trading, and options trading desks which may include exotics trading desks where barrier risks and other cross-asset type risks are traded.

SPOT F/X

Spot F/X is a transaction in which an agreement is made between two counterparties to exchange one currency for an equivalent value of another currency, at a specified price within 2 business days of the deal date. These transactions generate an actual transfer of balances in both currencies, between buyer and seller.

FORWARD F/X

A forward F/X transaction involves the purchase of one currency against the sale of another for delivery on an agreed date in the future. It is similar to a spot F/X deal, but settlement occurs at a later date (for example, 7 days, one month, one year or a specific date).

OUTRIGHT FORWARD

These are similar to a typical forward; however, no money changes hands until settlement date. They are usually quoted for periods of 1, 2, 3, 6 and 12 months. [Note: “broken dates” may be quoted.] The value date for a forward F/X is measured from the spot value date. Exchange rates for forwards differ from spot rates. The difference between the forward F/X rate and spot rate is the interest rate differential between the two currencies.

Forward rates are quoted as the number of points by which the spot price must be adjusted to arrive at the outright forward price. These are known as forward points or swap points.

F/X FUTURES

A currency future, also called F/X future, is a futures contract to exchange one currency for another at a specified date in the future at a price (exchange rate) that is fixed on the purchase date. Typically, one of the currencies is the US dollar. The *price* of a future is then in terms of US dollars per unit of other currency. This can be different from the standard way of quoting in the spot foreign exchange markets. The *trade unit* of each contract is then a certain amount of other currency, for instance €125,000. Most contracts have physical delivery, so for those held at the end of the last trading day, actual payments are made in each currency. However, most contracts are closed out before that. Investors can close out the contract at any time prior to the contract's delivery date.

Major currency futures exchanges include the following: International Monetary Market (IMM), Deutsche Termin Bourse (EUREX), London International Financial Futures Exchange (LIFFE), Chicago Board of Trade (CBOT), Singapore International Monetary Exchange (SIMEX).

Comparing Futures Contracts and Forward Contracts

The major distinctions between futures and forwards contracts are summarized below.

Characteristic	Futures	Forwards
Trading	Traded on an organized exchange	Over-the-Counter
Trading Hours	During exchange hours	24 hours a day
Contract Size	Standardized per currency	Any contract size
Maturity	Standard fixed maturity	Any maturity
Deal	Non-member participants deal through brokers	Participants deal on a principal to principal basis
Cash Flows	Settlements made daily through the exchange's clearing house	Settlements made on specified date agreed upon by the buyer and seller
Margin	Initial margin and marking to the market	No margin requirements, but standing relations with the bank
Settlement	Rare physical delivery on settlement; mostly cash settled	Physical delivery at settlement
Counterparties	Client and Clearing House	Direct relations
Liquidity	Easy to enter and exit as they are traded on an exchange	Difficult to exit as contract is executed only on the settlement date
Credit Risk	No credit risk as clearing house is the counterparty	Each counterparty must be examined individually as credit risk and credit limits must be set for each
Commissions	Single commission covers purchase and sale	Commissions through bid-ask spread
Regulation	Governed by agencies like the Commodity Futures Trading Commission, National Futures Association	N/A

CURRENCY SWAP

A currency swap (or cross-currency swap) is an F/X agreement between two parties to exchange principal and fixed-rate interest payments on a loan in one currency for principal and fixed-rate interest payments on an equal in net present value loan in another currency. Currency swaps are used for two broad purposes: (1) risk management and (2) return management.

Risk management uses include managing currency risk and interest rate risk, hedging assets and liabilities, and hedging translation and transaction risk. Return management uses include arbitraging liabilities and assets with cash instruments and arbitrage with Long Term Foreign Exchange Instruments (LTFX).

A currency swap should be distinguished from a central bank liquidity swap. Cross-currency swaps can be negotiated for a variety of maturities, some in excess of 10 years. Unlike interest rate swaps, currency swaps involve the exchange of the principal amount. Interest payments are not netted (as they are in interest rate swaps) because they are denominated in different currencies. Currency swaps are over-the-counter derivatives, similar to interest rate swaps.

F/X SWAP

An F/X swap is a simultaneous trade of a pair of spot or forward transactions in which the second trade unwinds (or offsets) the first trade (such as a buy in the spot market and a sale in the forward market or vice versa). These swaps are used to switch a deal (from one currency to another,) or hedge (adjust the value date of) an outright forward deal. They may also be used to move a currency exposure forward or backward in time.

Comparing Currency Swaps with F/X Swaps

The major distinctions between currency and F/X swaps are summarized below.

Currency Swap	F/X Swap
Involves exchange of both interest and principal	Involves exchange of only principal; no interest exchanged
Initial exchange of principal usually made at the spot rate prevailing at the start of the swap	Initial exchange on principal amounts is made at prevailing spot rate
Re-exchange is also made at prevailing spot exchange rate at the start of the spot	Re-exchange of principal is at prevailing forward exchange rate at start of the swap
Since exchange rates are the same, same amounts are exchanged at maturity as at start of the swap	As spot and forward exchange rates are usually different, amounts of principal exchanged at maturity are usually different from amounts exchanged at start of the swap

NDF (Non-Deliverable Forwards)

An NDF is a short-term, committed forward cash settlement currency derivative instrument. NDFs are short-term (typically up to two years) outright (forward) foreign exchange contracts in currencies that have restricted convertibility. On the contracted settlement date, profit or loss is adjusted between the two counterparties based on the difference between the contracted NDF rate and the prevailing spot foreign exchange rates on an agreed notional amount. This is net settled, usually in US dollars.

F/X OPTIONS

An F/X option gives the buyer the right, but not the obligation, to buy or sell a specific quantity of one foreign currency in exchange for another at a fixed exercise price. F/X options can be either American or European in style, and may be traded on an exchange (e.g., Chicago Mercantile Exchange) or over-the-counter. The buyer pays a premium to the option seller.

F/X Trading

Overview of marketplace

Foreign exchange trades are done through an interbank network of market makers, principally the central commercial banks. Banks throughout the world participate. The main F/X trading center is London, but New York, Tokyo, Hong Kong and Singapore are all important centers as well. Currency trading happens continuously throughout the day; as the Asian trading session ends, the European session begins, followed by the North American session and then back to the Asian session, excluding weekends.

Due to the primarily over-the-counter (OTC) nature of the currency markets, there are a number of interconnected marketplaces, where different currency instruments are traded. This implies that there is not a *single* exchange rate but rather a number of different rates (prices), depending on what bank or market maker is trading, and where it is. In practice the rates are often very close, otherwise they could be exploited by arbitrageurs instantaneously. Due to London's dominance in the market, a particular currency's quoted price is usually the London market price.

In 1996, central banks endorsed a strategy to reduce the systemic risk arising from the settlement of foreign exchange trades, motivated by the finding that F/X settlement exposures could be significant relative to the size of an institution’s capital. In 2002, CLS Bank launched a multi-currency cash settlement system to significantly reduce settlement risk of F/X trades. Further details can be found in Bank for International Settlements, Committee on Payment and Settlement Systems: “Progress in reducing foreign exchange settlement risk”, May 2008.

G10 and emerging currencies

In F/X trading it is relatively common to distinguish between trading of G10 currencies and emerging market trading. Major currencies trade 24 hours, whereas emerging market currencies are typically regional in Europe, Latin America and Asian currencies. This distinction typically applies for both trading of spot/forward (NDFs are more typical in emerging markets) and options.

The major G10 currencies traded in the F/X market are: USD, CAD, JPY, AUD, NZD, GBP, EURO, CHF, SEK and NOK.

In the developing world, F/X and Rates markets are typically closely connected, meaning that the drivers of emerging market currencies are similar to the factors driving local interest rates, such as socio-political events.

For information regarding FED guidance for F/X Trading Best Practices, see the Foreign Exchange Committee's ("FXC") "Guidelines for Foreign Exchange Trading Activities", as published in May, 2008 (the "Best Practices"). The full text of the document is available at http://www.newyorkfed.org/FXC/annualreports/ar2007/FXAR07RE.pdf.

B. Audit Objectives

The three main objectives of an audit of F/X are:

- To determine the adequacy and effectiveness of controls relating to F/X transactions.
- To ascertain that all such transactions are properly recorded in accordance with their terms.
- To ensure that the company's financial statements and regulatory reports properly reflect, in accordance with generally accepted accounting principles, the results of F/X activity.

C. Audit Scope

The scope of the audit will include examination of the following activities and practices:

- Structure of the business and support functions
- Trade execution and capture
- Supervision
- New product approval
- Customer suitability
- Trade monitoring, reconciliation, confirmations and settlements
- P&L process
- Independent Price Verification (IPV) and reserves
- Risk Management, including limits monitoring, stress testing, risk analytics and aggregation
- Technology controls

D. Business Risks

Failure to manage inherent product and process risks can result in significant reputational and financial losses to the Firm. In addition, failure to comply with regulations and applicable accounting procedures could cause a Firm to be fined or to suffer penalties.

Summary of Specific Business Risks

Sales and Trading/Business Structure/Models

Sales and Trading risk arises from the possibility that sales strategies, sales and trading practices and supervisory standards are inadequate, omitted, or fraudulent.

- Failure to establish responsibilities and clear reporting lines and to provide required communications to upper management may result in supervisory omissions with regulatory, legal and financial consequences for the Firm.

Business Structure

- Failure by the Desk to define its products and strategies and to establish appropriate processes to ensure that all trades and trading parameters are captured within the trading systems may result in (1) inaccurate financial reporting and (2) failure to oversee trading and exceptions, which may generate significant financial losses for the Firm.

Models

- Use of untested and/or complex computer models, designed by the traders, in the pricing of transactions can result in significant financial loss.

Credit Risk/ Market Risk Management

Credit risk arises from the possibility that the counterparty to a contract defaults on the agreed payment at maturity. Market risk, in simplest terms, is price risk, or "exposure to (adverse) price change" (i.e., adverse change in a currency rate or in an interest rate).

Credit Risk Management

Failure to establish and manage credit risk limits appropriately or to establish position limits for products may result in significant financial losses for the Firm.

- Liquidity risk. Given the size, breadth, and depth of the foreign exchange market, liquidity risk is less of a danger than in most financial markets. Nevertheless, a Firm may find itself unable to liquidate assets quickly without loss or to manage unplanned decreases or changes in funding sources, resulting in significant financial losses.
    - *Settlement risk*, stemming in part from the fact that the two legs of a foreign exchange transaction are often settled in two different time zones, with different business hours, can expose the Firm to substantial financial losses. (Settlement risk is significantly mitigated by CLS.)
- Failure to properly vet a counterparty may result in a financial loss from uncollectible accrued receivables due to inability of counterparty to meet its obligations.
    - Failure to place separate limits on the value of contracts that mature in a single day with a single customer, or to restrict dealings with certain customers to spot only, unless there are compensating balances, may result in significant financial losses for the Firm.

Market Risk Management

There are *two forms* of market risk: an adverse change in *absolute* prices, and an adverse change in *relative* prices.

- Failure to independently establish and monitor a market risk framework may result in financial and reputational losses to the Firm. *Exchange rate risk* is inherent in foreign exchange trading.
  - *Sovereign risk* refers to the political, legal, and other risks associated with a cross-border payment. Risk mitigation measures include: establish ceilings for individual countries, monitor regulatory changes, watch credit ratings, and, where practicable, obtain export risk guaranties and other forms of insurance.
  - *Market Management framework* involves the failure to properly calculate the probability that (and the extent to which) market rates will move away from contracted transaction rates. To the extent that the Firm has an exposed foreign currency position, or a maturity gap, this exposure may result in significant financial loss.
- Failure to use VaR, DEAR or other dollars-at-risk measurements to assess dynamic market risk of a portfolio or position may result in substantial financial losses.

Finance and Product Control

Finance and Product Control risk arises primarily from a Firm's incomplete/inaccurate books and records; specifically, this is the risk of loss from exceeding of limits and/or failure to properly anticipate/manage losses due to such inaccuracies. Key contributors to this risk are:

- Procedural failures in reconciliation activities
- Improper reserve calculations and adjustments
- Failure to establish and monitor procedures for compiling the P&L
- Independent price verification breaches

Legal Documentation/Compliance

Legal Documentation and Compliance risk is the risk of loss when a contract cannot be enforced. This may occur, for example, because the counterparty is not legally capable of making the binding agreement, or because of insufficient documentation, or because a contract is in conflict with statutes or regulatory policy.

- Inappropriate or unlawful trading may occur, resulting in serious legal and financial consequences for the Firm unless trading activity is appropriately monitored so as to ensure that any such instances are identified.

- Over time, transactions may become unprofitable or illegal and require ongoing monitoring to avoid significant financial losses or inappropriate trade practices.
  - The regulatory bodies may reformulate comprehensive guidelines and those rules that are in use may change.
  - Transactions may become unenforceable in the event of a dispute with the counterparty due to incorrect or inadequate documentation.
  - Changes or unfavorable interpretations may occur in applicable accounting and tax rules.

Operations

F/X trading is subject to the risk of direct or indirect loss resulting from inadequate or failed internal operations procedures. Failure to reduce reconciliation timelines to address the inherent settlement risk of F/X products amplifies the risk of financial losses for the Firm. Risk is further heightened in the following circumstances:

  - Where cash flows are not paid net
  - Where payment dates do not coincide
  - During management of collateral

- Inaccurate maintenance of the large amount of static data, both external (e.g., customer details, security details, and standing settlement instructions [SSIs]) and internal (e.g., credit ratings and counterparty codes), required for trading F/X may result in significant financial losses due to improper payments, improper authorization of transactions and inaccurate or inconsistent valuations.

- Firms may also suffer losses if a trade is processed incorrectly.

Technology

Intentional or accidental technology misuse, or systems error, can result in inaccurate records or fraud, and are a source of considerable risk to the Firm.

- Insufficient and/or unreliable systems fail to produce accurate and timely information, resulting in significant financial losses for the Firm.
- Inappropriate systems access may result in fraud.

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II. Audit Guidelines

II. AUDIT GUIDELINES

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
A. Sales and Trading		
Segregation of Approving and Support Functions Front Office staff members have inappropriate access to Trading books or Back Office systems, causing conflicts of interest. Front Office staff members exert influence over support functions, leading to incomplete or ineffective exercise of controls and loss to the business.	Organizational structure is defined and does not allow Front Office staff to influence independent support functions. Approval and key support functions (such as settlement and confirmations) are carried out by functions independent of the Front Office staff.	• Test user access rights of the Trading systems being used to ensure that support functions do not have write access and that the access rights are up to date. – Review the performance of periodic access reviews; ensure that there is an appropriate level of approval. • Understand, review and evaluate that support functions are organizationally independent from the Front Office.
Business Strategy Business objectives are not established and/or communicated to Front Office personnel, resulting in trading activity that may not be in accordance with management business strategy.	Senior Management approves the strategy / business plan that outlines the primary objectives and risk parameters for the Desk. In addition, there are clear budgets and head count forecasts for the Desk.	• Obtain and review the latest strategy / business plan and confirm that it has been approved by Senior Management. – Assess the realism of the strategy. – Assess whether the targets increase risks. • Select a sample of days and verify that daily trading activity was consistent with the approved business strategy.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
KYC/ Suitability Account Opening: Trades are made which are unauthorized or not suitable for counterparties, exposing the Firm to regulatory criticism as well as penalties and fines. Recorded Phone Lines: Traders' phone lines are not recorded and tapes are not stored in accordance with regulatory requirement.	Salesperson performs due diligence to validate customers' identity and other pertinent information necessary to satisfy the "Know Your Customer" rules. These include but are not limited to USA Patriot Act, Office of Foreign Asset Control (OFAC), and Bank Secrecy Act. Desk Head classifies the level of complexity of each F/X Counterparty. Desk Head monitors trading activity as part of regulatory supervision process. All traders' telephone lines are recorded and tapes are maintained on file for resolution of disputes, as necessary.	• Walkthrough the account opening process and determine management's review and oversight of the KYC process. • Verify that the Business maintains a document setting forth their determination as to the complexity of transactions. Verify that appropriate Senior Management were consulted in the preparation of this document. – Compare this Product Categorization document to actual products in use to determine if there are any uncategorized products. – Review the Approved Products List maintained by Market Risk Management. – Retrieve recent transactions by transaction "type," or field containing sufficient description to agree the product to the Product Categorization document. – For a sample of transactions, review the product categorizations (complexity) to verify that the categorization is appropriate. • Review any Counterparty Classifications to ensure transactions are authorized / suitable based on KYC standards/guidelines. – Independently identify complex transactions; then determine that appropriate approvals were obtained timely. Determine if a process exists to identify product exceptions to previously agreed-upon client terms. – Walkthrough and document the process of monitoring trade activity to identify unauthorized trading. • Evidence that all trader telephone lines are recorded.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
Term Sheets/Client Presentation Lack of understanding by clients about the terms and conditions of a deal can result in litigation or harm to the Firm's reputation if the client suffers unexpected losses.	Term Sheets and Client Presentations contain appropriate disclaimer statements and scenario analysis. Compliance and Legal approve Term Sheet and Client Presentations prior to distribution.	• Verify that Compliance and Legal approve Term Sheet and Client Presentations prior to distribution. • Walkthrough the client presentation process. Determine the process used to increase clients' understanding or clarification of the terms and risks of a deal. – Select a sample of materials presented to non-professionals. Verify that disclaimer statements and scenario analysis are present.
Trading Supervision F/X personnel are not properly supervised, which may result in untimely discovery of improprieties such as trading unapproved products, exceeding position limits, engaging in improper business activities and violating regulatory requirements.	The Desk Head monitors F/X Desk activities. Mandatory Absence policy is put in place as a best practice (for "sensitive" positions). The Desk Head has adequate product-specific tools and reports (e.g., risk limit breaches and unsigned P&Ls, cancel and corrects, commission rate, employee trading, etc.) to supervise in accordance with Supervisory requirements. Monthly attestations given to Compliance indicate that the Desk has performed supervisory responsibilities as outlined in the Firm's Compliance Manual.	**For Broker-dealers:** • Verify the existence of a process to monitor Regulatory Supervisory Requirements specific to FINRA Rule 3130. – Evaluate the adequacy of the F/X supervisory procedures and management reports used to authorize, monitor, and/or document trade input, hedging and trading strategies, inventory, desk limits, and employee trading. – Select a sample of days and verify that daily trading activity was reviewed for unauthorized activity. Ascertain whether any negative trends or concentration exist that require further investigation. • If in place, review the Mandatory Absence policy and validate that all required personnel have complied. • Obtain a copy of supporting documentation sent to managers, and notification reports (e.g., risk limit breaches, unsigned P&Ls) for the month of the test date. • Determine that certification of monthly Compliance attestation was signed and submitted timely.

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<tr><th>Risks to be Managed</th><th>Types of Controls to Manage/Eliminate Risks</th><th>Potential Audit Work Steps</th></tr>
<tr><td>Trade Capture

Appropriate processes are not established to ensure that all trades and trading parameters are captured.</td><td>Access to the dealing function is restricted to authorized personnel only.

An independent review is performed for complex or structured transactions to verify that the terms of the transaction have been accurately booked, in accordance with the Term Sheet.

For trades amended and cancelled, an audit trail is in place and business management is aware of unusual volumes and respective causes.</td><td>• Document the trade capture process for all key trade types.
– Ensure segregation of duties exists between trade capture, confirmation and settlement processes.
◻ Identify instances where the Middle Office books trades on behalf of the Front Office and ensure there is an appropriate level of approval by the Front Office.
– Ensure the trade capture process identifies all processes required to book value and risk manage Front Office positions.

• Walkthrough the independent review process for complex or structured trades.
– Select a sample of days and compare transactions booked versus the Term Sheet for accuracy and completeness.

• Assess the process of monitoring late, amended and cancelled trades.
– Ensure that late trades are input on the day the trade is executed.</td></tr>
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Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
Book Structure Trading books are not adequately or independently established, resulting in inconsistent Trading book hierarchy structures and inaccurate P&L or risk management reporting.	Trading books are opened simultaneously in Front Office and G/L. New books are set up by Controllers at the request of the Trading Desk. A standard form is completed and authorized by Controllers and the trader.	• Obtain and review new Trading book procedures for completeness. Based on discussions with Controllers, Technology, Market Risk Management, Operations and/or Finance departments, document controls used to monitor the book opening and closing procedures. • Ensure that a sample of recently opened books was opened in accordance with procedures. – Determine the population of Trading books and reconcile Front Office records to G/L. – Ensure periodic reconciliation between Controllers and Risk Management to establish that the business hierarchies used by the Business are consistent with Risk's hierarchy.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
Intra-Day Portfolio Management Lack of intra-day/overnight risk management or inability to book all components of a trade type give rise to losses in the book.	A centralized tool exists to monitor overall risk management of the portfolio.	• Verify that Front Office has established procedures to monitor intra-day portfolio risk. Evaluate that traders can see risk updates timely to risk manage the book. • Observe and evaluate that all trade components can be booked. • Establish that a deal review policy is in place identifying which trade types require trade booking review by Operations. Sample test to evaluate if any trade components cannot be booked.
Off-Premises Trading Trades are executed off-premises, resulting in unrecorded/unreported trades.	There is a policy for off-site trading in the Compliance Manual. Traders can trade out-of-office with appropriate authority from Compliance. Instances of trades being maintained off-line (spreadsheet) are minimized and monitored by Compliance. Any off-premises activity is carried out on a secured connection and recorded telephone line (if one is required).	• Discuss with traders and determine adequacy and effectiveness of off-premises trading policy. • Check system for evidence of off-premises trades, if these are permitted, to ensure that they comply with the policy and have been reported to appropriate personnel for monitoring. – Validate that secured access is monitored for off-premises trading. – Identify if any trending, exception reporting, or variance analysis is performed for off-premises trades.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
New Product/ Business Approval Process New products are introduced and/or traded by the Business without effective review and approval. This may cause significant risk and loss to the Firm in the event that such instruments are traded without the required legal, financial and risk infrastructures being in place. Trades are made with Special Purpose Entities not consolidated as required by FIN 46, resulting in regulatory consequences and financial penalties. Unapproved counterparty or SPV or Legal Vehicle is established without proper analysis, or is used for a non-permissible activity, leading to material errors in financial reporting, liquidity planning and potential regulatory and legal proceedings.	The Firm has a New Product Approval Policy, which specifies the procedures to be followed before trading in new products. The Firm has an approved list of authorized entities with which trades may be made. The Firm has a process in place to approve and control SPVs and legal vehicles, if used. Independent review of trades with unauthorized entities is performed.	• Obtain and review the New Product Approval Policy for completeness. Inquire into the procedure, test its effectiveness, and confirm it is up to date. – Verify that meeting minutes are maintained, including attendance and topics discussed. • Ensure that all new products and structures have been reviewed and approved by the New Product Committee. • For a sample of new products, ensure the procedures have been followed and that the Business is transacting within their approved parameters. – Verify that all required approvals (including but not limited to Accounting, Operations, Risk, Technology and Finance) took place before a transaction was executed. – Determine the process to follow-up on and resolve post-conditions of NPR. • For a sample of trades, ensure that trades have been made with approved entities and SPVs only. • Review individual cases of trades with unauthorized entities to test for sufficient review by management.

Risks to be Managed	Types of Controls to Manage/Eliminate Risk	Potential Audit Work Steps
Retail Distribution for Structured Products Structured Products are sold to inappropriate clients, violating regulatory requirements and resulting in censure, substantial financial losses, fines and penalties for the Firm.	The Firm has a separate Structured Product Approval Policy, which specifies the procedures to be followed before trading of structured products.	**Retail Distribution for Structured Products** • Verify that Senior Management adequately reviewed the following aspects of these products: – Structure of the deal. – Marketing process, marketing materials and prospectuses for adequate, accurate and understandable disclosures as well as any related training materials. – Offering material for appropriate disclosure of key terms and key risks of the transaction. – Fees and economics of the deal. • Review a representative subset of audit period deals, and isolate the sub-population of deals that appear to be done with retail counterparties. From this sub-population, choose a sample of potential retail deals and: – Verify with the Business those that are true retail deals. – Verify that the product as described agrees to a product as approved by Management. – Verify that Third Party Distributors were approved by Senior Management. • Review the process for self-identifying retail transactions and assess for adequacy, i.e., that it is effective enough to ensure that all transactions requiring review by Senior Management have been escalated accordingly.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
Inappropriate Tax-Driven Transactions Structured products are sold to clients with overreliance on tax factors as a significant reason for entering into the transaction.	Tax Department reviews all Structured Products during the Structured Product Approval Process. Tax implications are specifically considered as a step in the New Product Approval Process.	• Select a sample of transactions or strategies, from the source system, that were not identified by the Business as subject to Tax Standards. Focus on those involving multiple tax jurisdictions, total return swaps on dividend paying instruments, multiple vehicles/SPEs of the same counterparty, deals with unusually large fees or first day P&L, or deals which result in tax credits. Review the sampled deals to determine if: – The tax considerations provide a significant reason for entering into the transaction or using the product. – The desired result is an arbitrage between tax and regulatory considerations (including accounting treatment). • If so, follow-up with Business Management and Tax to verify that the transaction/strategy was in full compliance with tax standards.

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<tr><th>Risks to be Managed</th><th>Types of Controls to Manage/Eliminate Risks</th><th>Potential Audit Work Steps</th></tr>
<tr><td>Excessive Mark-Ups/Off-Market Rates

Excessive mark-ups charged where regulations prohibit excessive mark-ups may result in fines or regulatory censure of the Firm.

Trades are executed at off-market prices to inflate P&L.</td><td>Supervisory and Control functions verify that transactions adhere to the Firm guidelines.

Compliance reviews a spread report to ensure trades are not executed at any off-market rates.

Any trades executed at off-market prices are executed only for approved trading reasons e.g., where the market is very illiquid.

Independent surveillance of trading activity is performed.</td><td>• Select a sample of days to evaluate the mark-ups on deals executed during the audit period. Where reports exist and are used as an alternative to the retrieval, ensure completeness, accuracy, and robustness.

• Obtain and review Off-Market Pricing Policy.
– Walkthrough the process of executing trades at off-market prices.

• Select a sample of trades executed at off-market pricing.
– Discuss with the Desk and ensure trades have been appropriately approved.
– Confirm if mark-ups charged are in compliance with regulatory policy.</td></tr>
</table>

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
P&L (Mark-to-Market) Charges/Losses are not accounted for or disclosed, resulting in exceeding risk limits and inaccurate reporting.	Trades are marked daily, and on a timely basis. Procedures (including using last trade price, modeling techniques, etc.) exist to appropriately identify charges/losses. Management and Risk periodically review Trader marks (including illiquid and stale positions.)	• Obtain documented procedures regarding charges/losses related to P&L. • Document the mark-to-market process for the Desk. – Document all the product types traded and their corresponding valuation/ accounting treatment. – Obtain all information surrounding adjustments and investigate into the reasons why these exist. – Investigate the number of illiquid positions. ▫ Ensure they are marked on a regular basis. • Review a sample of stale positions (in excess of 30 days). – Where positions have not been marked for a number of days, ensure these are escalated.
Cancels / "As of" Trades Inadequate controls regarding changes in trade details may result in unauthorized amendments and inaccurate books and records.	The process to amend or cancel a trade is segregated between Sales & Trading and Operations. Audit trail of transaction details, with timestamps, is maintained for each phase of a transaction change. New confirmation is generated for changes to an original trade. Adjustments and cancel and corrects trades are reviewed by management.	• Verify that segregation of duties exists between initiation of cancels/ "as of" trades (Front Office) and execution (Operations). • Walkthrough the process to identify cancel/"as of" trades. – Select a sample of cancels/ "as of" trades and ensure sufficient review by management. – Review each sample for timestamp evidencing trade changes. • Verify existence of mechanism to capture complete population of changes to product databases in deal fact change control activities. • Confirm existence of process to identify offenders of cancel/"as of" trades.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
Trade Event Monitoring Failure to monitor events (e.g., ITM, barriers) may lead to failure to settle or missing windows of opportunity.	Tracking mechanism is in place for all events. Trading system generates early warning reports such as Near Barrier/Near Trigger event. Options are monitored to ensure that all ITM are exercised timely. All trade details input into the trader risk system are verified to supporting documents (e.g., term sheets, trade tickets).	• Discuss event monitoring procedures in relation to option expiries with Front Office and Operations. – Observe that a mechanism is in place to ensure that a complete population of accounts is included in the trader risk system to document reconciliation. • Document and evaluate how traders monitor event triggers and option exercises / expiration. – Ensure all triggers are captured. • Select a sample of transactions and test: – Whether event triggers were acted upon in a timely manner and in accordance with procedures. – The accuracy of all trade details.
Trade Input Edit Controls Trade input errors booked in electronic systems may result in financial loss.	Limits are in place in electronic Trading systems (e.g. exchange traded futures) to prevent input errors by traders. System edits or independent verification is performed to validate the accuracy of trade details. Executed trades are reconciled to orders through systematic matching.	• Identify the process in place to capture trade errors. – Determine review and approval by management. – Review the limits in place in electronic trade input systems to prevent input errors. – Walkthrough any automated matching processes and determine how differences are identified, reconciled, and resolved.

<table>
<tr><th>Risks to be Managed</th><th>Types of Controls to Manage/Eliminate Risks</th><th>Potential Audit Work Steps</th></tr>
<tr><td colspan="3">B. Models</td></tr>
<tr><td>FO Models

Models are not properly segregated from Front Office personnel, resulting in control deficiencies that could expose the Firm to realized losses in excess of calculated exposures.

The developed models are possible for the Trading Desk to override.</td><td>Segregation of duties exists specific to the creation and usage of models between Front Office and Back Office.

Model testing includes independent model validation by Risk Management and independent price verification by Product Control.</td><td>Determine if segregation of duties specific to model changes exists between Front Office and other areas.
Ensure that all parameters used within the Front Office marking of trades are independently price tested by the Product Control team.
Obtain the population of models being used.
Assess how models are validated, approved, updated.
Determine if models are located in a centralized area (shared drive, spreadsheet, etc.)
Walkthrough model testing and updating process.</td></tr>
<tr><td>Pricing Model Review

Models are not independently approved by Risk Management.

Models do not accurately quantify or simulate market conditions or inherent risks of the F/X business, resulting in unacceptable exposure to significant financial losses for the Firm.</td><td>All models and underlying assumptions are vetted, approved, and documented by Risk Management prior to production.

Manual adjustments to positions, marks, greeks, or model settings in risk aggregation systems are documented, reviewed and approved on T or T+1.

Controllers revalue positions using a conventional model. The difference is recorded as a modeling adjustment against the P&L.</td><td>Review Risk Management analysis to ensure that Desk models have been vetted and cannot be altered by traders.
Determine a mechanism is in place to ensure complete population of positions and trading accounts is included in the mark review.
Review any significant releases of model reserves. Verify proper documentation and justification using changes in market pricing.
Walkthrough process of making manual adjustments to positions. Ensure management's review is incorporated.
Examine process of recording modeling adjustments against P&L. Assess if there are thresholds/limits. Ensure review by management on a periodic basis.</td></tr>
</table>

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
Pricing/Valuation Specialist Trading areas have not developed appropriate models for the pricing of F/X trades.	Scripts are developed and approved independent of the Front Office. The use of scripts by the Desk is restricted and approved (scripts are Excel-based modeling tools which are developed by the Trading Desk). All models and scripts have an appropriate level of approval. Key valuation model inputs are identified within the model. Manual valuation inputs made by the Front Office are updated regularly and subject to validation.	• Validate the population of scripts to ensure they are developed, validated and approved by Market Risk. • Walkthrough the process of using scripts by the Desk. Determine if a process exists to detect the use of unauthorized scripts by traders. • Review models for spreadsheet control weaknesses including security/restricted levels and password protection. • Determine the existence of a process to prevent a script being overridden by the Trading Desk. • Assess that there is an independent Risk Management team review of key valuation model inputs.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
C. Credit/Market Risk Management		
Limit Establish/Monitor Risk and credit limits have not been established, reviewed, approved, monitored and/or resolved in a timely fashion, resulting in excessive Firm exposure. No initial due diligence analysis is performed, (including vetting each counterparty), resulting in the Firm not knowing to whom it is exposed. F/X transactions are completed without evaluating market/credit risk against acceptable risk appetite / tolerance levels. Incomplete or inaccurate aggregation of market risk exposures results in the undertaking of an unacceptably high risk of loss.	Risk Management independently monitors adherence to market risk limits. Limits for business unit, business area and desk levels are documented for all market risk components. Traders, Trading management and Risk managers are formally made aware of the limits. Corporate Credit performs the initial due diligence/annual reviews of F/X counterparties and establishes credit and forward settlement risk limits accordingly. Corporate Credit independently monitors daily credit exposures, limit-usage and excesses. Reports are sent to all levels of Trading management.	• Document the limit establishment and monitoring process. – Ensure risk limits agree with the most current limits approved by the Firm's Resource Management Committee and real-time credit limit monitoring exists. – Based on a sample of daily reports, gain reasonable assurance that the Desk operates within its approved risk limits and that Risk Management is monitoring exposures and reporting violations to management timely. – Review a sample of credit limit reports for the F/X Desk to gain reasonable assurance that credit risk limit violations are being monitored and resolved timely. – Where risk / credit limits have been violated, review samples to determine who approved and what was done as a result. – Document that repeat risk/credit limit violations are escalated accordingly.

Risks to be Managed	Types of Controls to Manage or Eliminate Risks	Potential Audit Work Steps

Aggregation of Credit Risk/ Credit Reserve
Credit risk is not aggregated, amplifying credit risk exposure for the Firm.
	Corporate Credit tracks credit limit violations daily and reports such violations to Desk Management and division heads. Repeat violations by the same employee or counterparty are escalated to the Risk and Credit Committee.
	Potential credit risk exposure is aggregated by portfolio simulation or aggregation of transactional worst case exposure.
		• Review a sample of F/X counterparties' documentation to verify that Corporate Credit performs periodic counterparty reviews and that risk limits have been set consistently (i.e., based upon credit quality).
		• Ensure all traders have access to real-time market risk and tenor limits: trades executed are linked to limits set to avoid breaches.
		• Determine whether the aggregation methodology is consistent for trader and management levels.
		  – Investigate netting applied in the aggregation of current and potential exposures.
		  – Investigate whether offsetting factors are taken into account when computing expected exposures. Factors should include: transactions linked to same bases, mismatches in peak exposures, and correlation between exchange rates, interest rates or underlying prices.
		• Document how often current/potential risk exposure is re-aggregated.
		• Verify approval of methodology and calculation utilized to estimate credit adjustments by head of Credit Risk and Chief Financial Officer, with review by head of Risk Management.
		  – Review methodology for reasonableness/completeness.
		    ▫ Verify the accuracy of the calculation and that it was properly booked to the G/L.
		• Walkthrough the process of aggregating market risk to determine review and approval.
		  – Verify all trades are aggregated globally and reported to downstream risk management systems.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
Netting Netting procedures and the supporting documents have not been established for the Trading Desks, resulting in increased settlement risks.	Multi-form Master Agreements are used where possible, and these include F/X forwards and options. Netted trades are confirmed individually to reduce the risk of trades being mistakenly added or removed. Operations confirms netted amounts again on the day before settlement date in addition to confirming the transaction itself on the trade date.	• Verify that netting procedures exist, are up to date, and have been communicated to the Trading Desks. • Document the use of Master Agreements within the Desk. – Determine what form of netting is provided by the Master Agreement: netting of payments, netting on close-out, full, two-way payment or limited two-way payment. – Determine whether the net current and future exposure is computed in accordance with the Master Agreement. – For a sample of netted clients, ensure that the relevant agreements are signed and approved. • Verify that all netted trades are aggregated correctly and reported to downstream risk management systems. Identify if any completeness checks and balances exist. – Ensure that credit risk limits can not be netted over multiple desks. – Walkthrough the process of monitoring disputed/unmatched netted trades.

Risks to be Managed	Types of Controls to Manage/Eliminate Risk	Potential Audit Worksteps
Credit Enhancements Credit enhancements are established for less credit-worthy counterparties, thereby exposing the Firm to unacceptable levels of risk.	A policy exists to document the credit enhancement process.	• Confirm if a policy exists to prevent initiating credit to less credit-worthy counterparties. – Document the use of credit enhancements within the Desk. – Determine the frequency of monitoring of credit enhancements. – Determine how frequently collateral is revalued.
Cross-Border Risk Management Due to inherent cross-border risks in F/X transactions, the Firm may be unable to repatriate funds and may experience substantial financial loss as a result.	Cross-border exposures are reported and measured against limits, either as part of a Market-Based Cross Border Product Program or a one-off approval.	• Verify that a process is in place to monitor cross-border exposure against approved limits. – Verify that any Market-Based Cross Border Product risk allocation from the manager of the specific Program was received prior to trading. – Select a sample of days with cross-border risk exposure and verify that their exposure was within limits. – Select a sample of limit excesses and verify that the excesses were documented, explained, escalated and resolved as necessary. Determine management's involvement in the process.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps

Liquidity Risk and Contingency Funding
 	
Liquidity risk has not been identified as part of the limit monitoring structure, exposing the Firm to possible losses.
	The costs of investing/funding cash flows from the F/X portfolio are forecast to assure adequate reserves.
	
	The methodology used to estimate liquidity adjustments is approved by Senior Management and Risk Management.
	
	Reserves are established for illiquid inventory and monitored daily as part of management's risk analysis.
		Liquidity Risk
		• Document the liquidity risk for the Trading Desk.
		• Walkthrough the liquidity risk monitoring process as it relates to funding and forecasting.
		• Verify that methodology used to estimate liquidity adjustments has been approved by Senior Management and Risk Management.
		  – Verify the adjustments take key factors into account.
		• Determine if a liquidity reserve policy exists and is up to date.
		  – Verify that the liquidity reserve calculation has been properly booked to the G/L.
		  – Determine management's review and oversight of the process.
		Contingency Funding
		• Select samples of transactions requiring significant incremental funding or stressed market conditions.
		  – Include off-balance sheet transactions (outright sales, securitizations, unconsolidated SPEs).
		  – Include large transactions where there is no contractual liquidity provider, where there may be unsophisticated customers or where related assets may be complex or illiquid.
		    ◻ Verify that Treasury has been informed.
		    ◻ Verify accounting treatment used is reasonable.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
Risk Computation Risk components (inherent in products traded by the Desk) are not identified for inclusion in the Firm's risk computation methodology, thereby skewing risk exposure calculations.	The Firm's approved risk computation methodology is applied to calculate and monitor market risk limits for the Desk. Risk calculations are based on several scenarios, and analysis is performed by independent groups.	• Review the Risk Management Policies & Procedures to determine whether the Firm's risk computation methodology includes the inherent risks of products traded by the Desk. – Review any second order risk parameters that are not reported. Recommend revision to risk computation methodology, as necessary. – Verify that the approved methodology is used to calculate and monitor risk exposures for inclusion in the Firm's Risk System and daily risk reports are distributed to both Trading and Senior Management. • Assess if there are any independent reviews of the risk calculations or computation methodology.
Integrity of Credit & Risk Data Business data is not recorded, is recorded inaccurately or is lost during the transfer of information between the Front Office applications and downstream Credit and Risk systems, resulting in misstated market and credit risk computations.	Credit and Risk Management perform daily reconciliations of business data to ensure all positions are captured accurately in their respective risk systems. A mechanism is in place to ensure that complete population positions, including auto-trades, are included in the risk system reconciliation. An audit trail is maintained in the risk aggregation systems of all sign-offs and adjustments to facilitate review and approval.	• Document procedures to ensure the accuracy, timeliness, and completeness of all Credit/Risk Management data feeds and off-line reports. – Based on a sample of five non-consecutive days, ensure that: □ Data feeds are complete, timely and accurate. □ Reconciliations are performed daily, and discrepancies are investigated/resolved timely. □ Reconciliation data agrees with source documentation. • Obtain all off-line reports provided to Credit and Risk and review reports for accuracy, completeness and frequency.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
Capital Adequacy: Stress Testing The effect of stressed market risk factors on Foreign Exchange portfolios is neither calculated nor measured against a predetermined benchmark. As a result, losses may be much higher than anticipated under extraordinary circumstances and/or not escalated to Senior Management.	Market risk exposures are subject to daily stress testing to evaluate and report potential economic impacts to Firm management. Credit risk stress test assesses the effect of certain specific conditions on regulatory capital requirements. Stress test result is compared to actual P&L movements.	• Discuss with Risk Management the stress testing process, to gain an understanding of the scenario analysis performed, and assess adequacy of variables stressed. Specifically: – Ensure that portfolios are stress tested daily by reviewing stress testing reports for two non-consecutive weeks. – Confirm with Trader supervisors how reports are used for monitoring limits and the effectiveness of report coverage. – Determine compliance with regulatory capital requirements. • Assess the stress test comparison to actual P&L movements for reasonableness.

<table>
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<tr><td colspan="3">D. Finance/Product Control</td></tr>
<tr><td>Completeness and P&L Attribution

Trading P&L is not produced for all Trading books, resulting in possible exceeding of limits and exposure to unanticipated losses for the Firm.

Independent price verification breaches occur, resulting in improper reserve calculations and adjustments.

There is no process to add and remove books and portfolios to the system that compiles the P&L, resulting in inaccurate books and records.</td><td>Trading P&L is maintained for all relevant positions, and also includes late deals and new portfolios/books.

The daily P&L is distributed to traders on T+1 for sign-off at a reasonable time. Typically, traders should sign off no later than close of business on T+1.

A P&L attribution (P&L compared to risk taken) analysis is performed for complex products.

Independent price verification is performed for all trades to identify breaches.

A formal approval process exists to add or remove a trading book.</td><td>Completeness

• Document the process for ensuring that P&L is produced and captured for all Trading books.
– Determine the process of identifying limit breaches through the independent price verification process.
– Ensure that the P&L figures are consistent with any management reports that are compiled using daily P&Ls which are distributed.
– Obtain a copy of the end-of-day P&L which was compiled for five days surrounding the audit test date, along with all the reserves and adjustments and how they were calculated.
– Explain for the testing period stated.
– Document any disputes should the traders not sign off.

• Obtain the number of trading books or portfolios for each Desk.
– Validate that a process exists to monitor adding or removing a trading book.</td></tr>
</table>

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
		P&L Attribution • Verify that a Profit Attribution Analysis is being performed and determine the frequency. • Ensure that all factors affecting P&L are reviewed. • Ensure that reasonable exception amounts have been established for unexplained movements in P&L. P&L should be explained away into these factors with the unexplained amount being below the threshold. • Assess whether the review includes the identification of Potential Off-Market Transactions. • Ensure that P&L differences between Product Control and the Desk are investigated and reported to Senior Management.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
Position Reconciliations The P&L generated by Trading is not validated to the P&L generated from the Trading system, resulting in processing/sub-ledger breaks and related limit excesses. Reconciliation breaks are not resolved on a timely basis, and/or appropriately documented, resulting in inaccurate reporting. **Trading Profit Reconciliation** P&L reconciliations are not prepared or investigated by a team independent from the Front Office (usually the Middle Office), resulting in possible fraud.	Finance is responsible for performing reconciliations between Front Office and Back Office records. Daily reconciliation of the Front Office system against the books and records systems is performed to determine breaks. Sub-ledgers/Ledgers are reconciled to product processors whenever Ledgers are updated. Suspense accounts are reviewed by the Supervisor. All new transactions and closing positions entered into the accounting records are signed off daily by dealers. Differences are investigated and aged items are escalated to management. Individuals investigating and escalating differences are segregated from those able to resolve exceptions.	• Document the reconciliation process between Front and Back Offices. – Obtain copies of the reconciliations for a sample of days surrounding the audit test date. • Obtain a sample of Position Reconciliation reports (typically performed by the Middle Office) for a number of days and verify their use via random trader interview. – Validate the reconciliation by tying the numbers with books and records. – Ensure appropriate ageing and escalations of reconciliations are performed. – Evaluate the investigation methodology surrounding the resolution of the breaks. – Ensure all adjusted breaks have been understood and corrected. – Ensure there is appropriate documentation of the month-end reconciling items and suspense accounts. – Evidence management’s review and approval. • Test a sample of trading profit and loss reconciliations for 5 days. – Ensure breaks are adequately documented, appropriately aged, escalated, and resolved on a timely basis. – Evidence review by management.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
P&L Reporting Production of daily P&L and pricing is not performed independently of the Front Office. Failure could lead to inaccurately computed P&L that could mask potential or realized losses from being highlighted in a timely manner.	P&L is explained on a daily basis, with the reasons for moves being broken down to their individual factors. Senior Management is provided daily with P&L reports via the intranet MIS reporting system.	• Based on an agreed-upon global sample, review and document the daily and month-end P&L processes to gain reasonable assurance that P&Ls are accurately and timely reported. • Ensure that daily P&L, P&L explain, month-end actual vs. estimated P&L reconciliations and position reports (including over mark-to-market of outstanding positions) are accurate and are produced independently of Trading. – Assess whether variance thresholds exist for P&L explain. Determine any excess above threshold and monitoring by management. – Verify that counterparties sign off on intercompany transactions prior to recognition of P&L. – If pricing discrepancies were noted, ensure that material discrepancies were reported, investigated and resolved timely. – Verify that these reports received the necessary sign-offs by the Front Office.

Risks to be Managed	Types of Controls to Manage/Eliminate Risk	Potential Audit Work Steps
Intercompany Transactions Lack of a process to eliminate intercompany balances and transactions can result in the misrepresentation of financial information and legal sanctions being imposed on the company.	Intercompany balances are reconciled and cleared on a monthly basis. A Matching Report is produced at month-end to assist in clearing intercompany balances. After month-end, each Product Control Owner runs intercompany reconciliation reports that show breakages with each internal counterparty.	• Walkthrough the process of eliminating intercompany balances. Specifically: – Assess the population of current intercompany balances and determine if an ageing process exists, and if there is routine oversight by management. – Review a sample of 5 business days of intercompany reconciliations. Assess if breaks are cleared timely. – Evidence escalation of report. • Review the Month-End Matching Report for a sample of months. • Walkthrough the breaks process and evidence any aged items.
Use and Control of Journals Manual recording is not reviewed, allowing possible miscalculation, fraud or improper trading.	Manual journals in the General Ledger are reviewed by Senior Controllers on a sample basis with focus on unusual/ high value items. All adjustments to the G/L after month-end close are independently reviewed and approved.	• Obtain a sample of the manual journals reviewed by the Senior Controllers. – Assess the frequency and number of journals in case this is due to systems issues. – Verify their review and authorization. • Walkthrough the process to ensure segregation of duties.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
Independent Price Verification There is no independent review of the Desk's positions and associated fair market values. As a result, the Desk's portfolio may be incorrectly marked and the Firm's books and records may be inaccurately reported. Underlying product is so complex or illiquid that Controllers systems cannot obtain independent verification of the Trader marks, resulting in inaccurate risk estimates and Firm exposure.	Controllers substantiate traders' valuations against independent prices/pricing sources (consistent with the valuation policies) at least monthly. Alternative methods are used where valuation parameters or quotes are not obtainable (e.g., comparison with recent trade prices, sensitivity analysis, spread analysis). Prices are tested by Product Control, as part of the month-end process. Outstanding positions are marked to market daily. The majority of positions are marked using curves and option volatilities from sources independent of the Trading Desk. Significant pricing issues/areas of particular subjectivity, material differences and adjustments will be highlighted and escalated to management from the pricing review. This will be reported on the price-testing summary.	• Obtain and review independent price verification and off-market pricing policies with Product Control. – Select a sample of complex products listed as Externally Verified on the Verification Report. □ Verify that a reliable external source is used for these products. • Investigate any potentially unreliable sources, e.g., single broker, a small exchange. • Review current Business price verification procedures or the audit date Verification Report: – Externally Verified – Model/Inputs Verified – Unverified Model/ Inputs Verified □ Select a sample of products (involving multiple legs or optionality) or possible illiquid products (see products with a Liquidity MVA or a large bid/offer MVA); □ Verify that the model is validated vs. the Model Control Inventory; and □ Verify that inputs come from a reliable source.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps

		Alternative Procedures
		• Choose a sample of products under this category. Ensure that the alternative procedure is reasonable.
		• Focus on the quality of documentation and management review.
		Unverified
		• Review the level and trends in unverified balances over the past year to determine whether reasonable efforts to verify were attempted.
		  – Assess whether appropriate reserves have been taken.
		• Select a sample of differences between desk prices and independent verification prices that are over approved thresholds.
		  – Verify that differences were investigated and documented timely.
		  – Assess whether appropriate reserves have been taken.
		  – Ensure pricing issues are escalated on a timely basis.
		• For underlying products where Controllers cannot obtain independent pricing, determine any stale prices and ageing of market values.
		• Obtain the Price-Testing Summary Report and verify that material pricing differences and adjustments were highlighted and escalated to management from the pricing review.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
Balance Sheet (B/S) Reporting B/S accounts do not have owners and are therefore not reviewed against supporting schedules. As a result, erroneous or suspended items may not be identified or reported.	Controllers review and sign off on their B/S accounts on a monthly basis. Material items are investigated and reported to Finance management. For each balance sheet account, there is adequate independence between the responsibilities for reconciliation, review and reporting. Periodic reviews are performed of the full Trading account population (including wash and test accounts) to inactivate all Trading accounts that are dormant. All inactive Trading accounts are subject to independent review prior to inactivation.	• Review and document the B/S closing process to gain reasonable assurance that all accounts are accurately and timely reported at month-end. – Assess if any balance sheet accounts with significant balances are unassigned. • Determine if segregation of duties exists to ensure that individuals performing the reconciliation do not book to the same balance sheet accounts. • Investigate any suspense items and/or unsupported assets/liabilities. • Assess periodic reviews of accounts and determine management's review and oversight, and escalation of unattested / reviewed accounts to the CFO.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
E. Legal Documentation /Compliance		
Documentation Legally binding counterparty documentation is not in place prior to trades being executed with the counterparty. In addition, outstanding legal documentation is not obtained timely, resulting in significant financial losses from unenforceable agreements or transactions. F/X transactions are structured and executed without maintaining critical documentation in a centralized location, resulting in regulatory violations and fines.	Agreement/Confirmation governing terms and conditions of transaction and any Term Sheets are obtained and reviewed by Legal. The Desk uses a checklist to confirm that critical documentation is maintained on file. Documents used to open client accounts (specifically, documents related to KYC requirements) are retained by a specific independent group within Legal/Compliance to ensure enforceability of agreements and transactions. Legal/outside counsel provides a checklist of required documents that is monitored to ensure critical documents are executed prior to extending credit. Post closing documents are tracked and chased, and aged outstanding documents are reported to management.	• Determine Legal/Compliance's involvement in the new counterparty account opening process. • Determine if a checklist process exists to ensure completeness of critical documentation. • Obtain and review a representative sample of deal folders and compare the contents to the checklist for completeness. – Determine whether files are maintained in a centralized location and adhere to the Firm's documentation retention policies. – Determine process to follow-up on missing required documentation. • Based on the sample of accounts, ensure that: – A current list of authorized signatories is maintained. – Transaction confirmations and associated Master Agreements (MA) have been executed by authorized signatories prior to trade execution. • Determine management's review/oversight of the process.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
Confirmation Templates Confirmations are sent to the counterparty on non-standard templates that have not been approved by Legal, resulting in potentially significant financial losses from unenforceable agreements or transactions. Confirmations do not include standard risk warnings as required by various regulatory agencies (e.g., SFA), resulting in unenforceable agreements or transactions.	Confirmation templates relevant to the products traded are obtained from all counterparties. Legal reviews non-standard confirmation templates before they are sent to any counterparty.	• Interview Legal personnel to identify the standard agreements used in the market and obtain an explanation for any deviation from market practice. – Based on the above sample, if any non-standard templates were used, verify that Legal approved the template. • Walkthrough the process of development and use of disclaimers and risk statements.

Service Level Agreements (SLAs)
SLAs are not executed or properly approved for third party servicers/ external counsel, increasing the risk that they will be deemed unenforceable in legal proceedings.
	SLAs are reviewed jointly by Legal and the Desk Heads to determine whether the terms and conditions of the agreements and the responsibilities of both parties are clearly defined.	• Review a sample of SLAs for third party servicers/external counsel. Based on this, verify that agreements have been:
		  – Executed by the appropriate personnel.
		  – Reviewed by Legal and contain evidence of that review.
		  – Contain confidentiality clauses.
		• If SLAs are sent electronically, ensure files are encrypted.
		• Determine management’s oversight of the process.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
Monitoring of Trade Activity Compliance does not monitor trade activity at the F/X Desk timely, resulting in untimely identification of trade irregularities or other potential loss situations.	Compliance performs monitoring of late trades, cancellations and amendments, off-market prices, and warehousing.	• Document the processes established for monitoring trading activity by the Compliance department. Determine the frequency and timeliness. – Ensure there is a defined process for the performance of trade monitoring based upon the inherent risk of F/X. – Ensure all exceptions identified by the monitoring process are investigated and escalated as necessary. • Identify types of reporting performed for trade activity and assess adequacy.
Compliance Training Traders have not had adequate Compliance training and they are unaware of current Compliance issues.	All traders receive Compliance training when they join the Firm and receive annual refreshers to keep abreast of current issues.	• Obtain evidence from Compliance that traders have received relevant Compliance training as of “x” date. – Determine process to identify non-compliance and continuous training of employees. • Verify that all employees are in compliance with policy.
Trader Registration Traders are not registered in all products they trade and may commit violations for entering orders for products without proper registrations.	Compliance monitors employee registrations, and is responsible for identifying and enforcing compliance with jurisdictional requirements. Compliance verifies that employees hold the required registrations based on their job function.	• Review HR organization chart/Trader list for completeness. – Obtain the Compliance report detailing registration/licensing for all F/X Front Office personnel (e.g., traders and salespersons). ▫ Verify appropriate registration. Compare registration report against organizational charts, legal entity registration and region requirements. ▫ Identify management reporting/exceptions process.

Risks to be Managed	Types of Controls to Manage/Eliminate Risk	Potential Audit Work Steps
F. Operations		
Trade Entry/Capture Trade data is not recorded properly, resulting in errors in financial and regulatory reports.	Traders enter trades to the Front Office System, which in turn feeds the Back Office System (i.e., books and records). Daily reconciliations of trade data are performed to ensure all positions are captured accurately. A log is maintained in Back Office to register written justification for off-market transactions.	• Review system diagram and/or process flow charts for the Desk; select a sample of trades and gain reasonable assurance that transactions were input timely to Front Office Trading systems, feed all relevant support systems accurately, and key controls are operating appropriately. • For a sample period, obtain copies of Front-to-Back System reconciliations performed and analyze the following: – Verify that reconciliations are performed daily and that discrepancies are investigated and resolved timely. – Trace and agree all reconciliation data back to source documentation. • Review trading activity to determine if off-market rates are used; correlate with log documentation. – Evidence management's review.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
Collateral Management Counterparties are permitted to trade without delivering adequate levels of collateral to protect the Firm from risk of loss. Specific counterparty collateral terms are not sufficiently outlined and may lead to financial loss for the Firm. Collateral is not marked to market daily, resulting in the risk of significant financial losses for the Firm. Margin calls are not made on a timely basis and not communicated to the Front Office or Credit, resulting in risk of significant financial losses for the Firm.	Collateral is independently priced each day; margin calls are then made by Operations. Collateral is priced using an automated process for liquid securities and a manual process for illiquid securities. Margin shortfalls and disputes are escalated to Senior Business and Credit Management. Disputes and margin shortfalls are escalated by Operations to Senior Business and Credit Management.	• Document the procedures and controls used to ensure that adequate collateral positions are held, managed and properly monitored by management, including other credit enhancements considered. – Review the process for obtaining marks for collateral. – Verify the independence of price checking for collateral. • Verify that there is a process for obtaining daily marks on collateral and for addressing stale or missing marks. – Discuss procedures for making margin calls and communicating with Front Office and Credit department. – Walkthrough the process of posting collateral for illiquid securities. • Walkthrough the process of identifying and escalating margin shortfall to Senior Management.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
Confirmations/Matching Confirmations are not sent independently of the Front Office or not sent out in a timely fashion with none of the key economics of the transactions being checked, resulting in possible fraud, legal or financial losses for the Firm. Confirmations received are not matched to the trade details, resulting in possible fraud, legal or financial losses for the Firm. There is no comprehensive management information kept on all outstanding confirmations highlighting their age and risk profile, leading to possible failure to follow up on high risk confirmations as a priority.	All the trade, legal and regulatory information in the confirmation is matched, and for any discrepancy there is a tracking and escalation process. Operations uses a confirmation system to track the status of outstanding confirmations. There is a list of approved signatories who can sign agreements for the Firm. Signed confirmations are scanned into a document retention application. Outstanding confirmations are subject to investigation. All outstanding confirmations are managed through comprehensive management information, highlighting their age and risk profile. A robust confirmations audit trail is put in place. All documents are retained as per the company policy on document retention.	• For a period of five days surrounding the audit date, document confirmations that should have been drawn up, date actually sent, when signed off by counterparty, number of follow-up calls made. – Identify existence of any “dummy” counterparty accounts within the confirmations process. • Ensure that confirmations cannot be suppressed. If they are suppressed, ensure there is an appropriate level of authorization around the process. • In instances where Legal department produces the confirmation, verify there is appropriate governance to ensure that Operations is not also producing the document. • Obtain the management information report surrounding this area for the month of the audit date. For any concerns, investigate, and request further reports for different time periods. • For the walkthrough trades, ensure that key economics of a trade, including the trade date, settlement date, the notional value, currency, basis of payment, interest calculation and term of the trade, are applied and documented. • Document the confirmations that were received, how they are checked and documented, with any disputes noted. • Review the priority/risk rankings of outstanding confirmations. Ensure that follow-up is made by Operations in this order.

<table>
<tr><th>Risks to be Managed</th><th>Types of Controls to Manage/Eliminate Risks</th><th>Potential Audit Work Steps</th></tr>
<tr><td>Settlement/Payment

Standing/Standard Settlement Instructions (SSI) have not been established for all counterparties, leading to payments being made to the wrong counterparty and possible fraud or counterparty claims.

Settlement details and payment instructions can be initiated, modified and executed by one user without the review and approval of another, allowing inappropriate or fraudulent transfers to be performed.</td><td>Standing/Standard Settlement Instructions are signed with counterparties and include provisions for payment instructions.

Transactions are independently confirmed with the counterparty by Operations before payment / receipt of funds. This includes counterparties with approved settlement instructions. All settlement instructions are supported by approved documentation.

The system functionality for all payment applications prevents the same user from initiating and approving a wire transfer.

For anti-money-laundering compliance, the Firm uses OFAC filtering software.</td><td>Walkthrough the process to establish Standard Settlement Instructions/Master Agreements with counterparties.
Determine the process of identifying missing agreements.
Document the settlement instructions for the walkthrough testing and that these transactions have not failed and have been processed to settlement.
Obtain a copy of the MI report detailing failed or unmatched trades for the month of the audit date.
Determine whether settlement fails were caused by not having set up SSI.
Review the process of updating settlement instructions.
Where details are emailed, ensure an appropriate level of call-back to authorized individuals. Verify that settlement instructions are updated by a different user than the signer of the approving wire.
Document and review payment / receipt procedures.
Evaluate procedures for completeness, especially regarding the settlement of intercompany transactions.</td></tr>
</table>

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
		• For a sample of payments and receipts (including interest payments, premiums on options, and intercompany trades), verify: – Amount of payment / receipt agrees with contract terms. – Payments are confirmed with counterparties prior to payment date. – Payment details, including counterparty address, bank name, Fed ABA#, and account numbers are accurate by agreeing to the confirmation and payment instructions. – Swap interest payment / receipt for items selected agree to banking confirmations. □ Document the procedures/control differences between swap interest and option premium payments processed via repetitive transfer vs. free-form transfer. – Fund disbursement instructions are properly authorized and in compliance with policy. – Repetitive wire instructions are established for counterparties with frequent fund transfers. – Wire transfer systems, personnel and their associated functions are adequately segregated and users have restricted access (e.g., user ID passwords, physical access controls, and terminal access codes).

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps

		• Verify all payment systems are coupled to OFAC filtering software.
		• Obtain report listing all payments made to offshore accounts for past six months.
		   – Review to ensure approvals were obtained for payments.
		• Obtain report listing all free-form payments made for the past three months.
		   – Review for appropriate approvals.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
Failed Transactions Failed transactions may not be properly investigated or resolved. As a result, the Firm may incur additional costs associated with processing such transactions.	Operations reports all failed transactions to the Desk. Operations researches the basis for the fail with the Front Office and the counterparty to ensure the fail is resolved on a timely basis. Operations ensures that credit reports appropriately update settlement exposure resulting from failed receipts.	• Perform a review of failed payment / receipt settlement reports for the past three months and perform the following: – Obtain an explanation for existence of fails. – Ensure follow-up was conducted timely and that fails were not indicative of a control weakness in the settlement process. • Ensure aged items were escalated to management timely. • Verify the process of updating credit officers with information related to failed transactions for significant amounts.
F/X Sell Down The F/X sell down process may not be accurately undertaken, resulting in financial loss to the firm. Note: It may be the responsibility of the F/X desk to execute F/X sell down. This process, typically done at month-end, locks in MTM and realized P&L on non-functional currency trades.	F/X requiring sell down is automatically swept into a central book. Amounts to be sold down are verified prior to executing sell down trades.	• Obtain and review procedures. – Verify that there is clear responsibility for accurately executing the F/X sell down. – Verify that F/X to be sold down is automatically swept. – Verify that amounts to be sold down are agreed by the originating desk or function. – Verify that control exists to confirm that the F/X sell down has been effective in reducing (to within a small materiality) residual F/X risk.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
Document Retention and Security Copies of original documentation are not kept securely and are not retained for an adequate period, resulting in violation of regulatory requirements.	Copies of all original documentation are kept securely by Operations per Firm policy. A separate, dedicated Operations Group for F/X is established within the Operations function of the Firm.	• Discuss document retention policy with Compliance, Operations (local regulations) and Legal for issues of law. Verify that regulatory requirements are documented and adhered to. – Based on various documentation samples, ensure all is retained in accordance with policy requirements. • Determine management's review and oversight timely.
Regulatory Reports Regulatory reports are not reviewed for accuracy resulting in fines and possible censure of the Firm.	A separate, dedicated Operations group for F/X prepares and reviews all regulatory reports (daily and monthly).	• Determine the population of regulatory reports with Operations for F/X. – Sample 5 reports and compare if prepared in accordance to regulatory requirements. – Identify any responses from the regulatory bodies regarding errors or untimely filing. – Evidence management's review.
Cash, Suspense and Position Reconciliations Incomplete or untimely reconciliations of cash and positions may result in untimely recognition of losses arising from errors or unauthorized transactions.	The Reconciliation group in Operations performs daily cash, suspense and position reconciliations. Unreconciled items are investigated and reported to Senior Management timely.	• Identify controls in place for monitoring and reconciling cash, position, and suspense accounts, including intra/interdesk and intercompany trades. – Verify suspense accounts are reviewed/cleared timely. • Review settlement reconciliation between custodian and Firm's books for a 5-day sample. – Identify significant breaks and the process to clear aged items. – Verify reconciliations are prepared daily and unreconciled items are aged, reported to Senior Management, and resolved timely.

Risks to be Managed	Types of Controls to Manage/Eliminate Risk	Potential Audit Work Steps
Client Valuations Client valuations provided are not in accordance with inventory valuations, indicating possible fraud. Publicity about client trades viewed by others as inappropriate leads to franchise losses. Inappropriate pricing is provided to customers or third party, which may result in reputational and financial losses for the Firm.	Customer Valuation Statements (CVS) are generated independently from the Sales and Trading functions. Basis of CVS calculation is authorized and approved by traders and Product Control before initial valuation delivery. Underlying valuation parameters are sourced where appropriate from Firm risk systems or via a source agreed with Risk Management. Customer Valuation templates are approved by Legal/Compliance, including appropriate disclaimer language.	• Document and determine adequacy of procedures performed to ensure appropriate pricing is provided to customers or third parties. • Review the number of client valuations provided to the Desk's clients, and confirm that: – Valuations are provided in accordance with the clients' terms. – They are provided independently of the Front Office. – A comparison is made between the client valuation to be provided and the Firm's inventory records. – Escalation procedures exist to be used when a valuation is not in line with inventory values. Document, and determine adequacy of, procedures performed to ensure appropriate pricing is provided to customers or third parties. • Select a sample of client valuations and ensure that they are properly authorized, approved and contain disclaimers that are approved by Legal.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
G. Technology		
Electronic Trading Incorrect quotes are submitted via etrading algorithms, leading to financial or reputational risk to the Firm. Appropriate circuit breakers are not in place for etrading algorithms, leading to financial or reputational risk to the Firm.	Responsibility for management of etrading algorithms is clearly defined. Algorithms include appropriate checks and alerts to prevent abnormal quotes, or for instances where a large number of messages are being generated with a particular venue.	• Review organizational structure and responsibilities for maintaining appropriate quotes. • Understand and assess circuit breakers in place and alerts generated in cases of unusually high messaging traffic, or where abnormal quotes are being generated.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
Application Security Users have access rights greater than their assigned job responsibilities, which could result in inadequate segregation of duties. Inadequate application security may result in fraudulent or inaccurate entries or changes to production data. This can hide or misstate profits or losses for the Firm.	Access rights are properly managed and assigned to individuals aligned with their job responsibilities. Application security includes minimum levels of security, such as: • User ID and password • Minimum-length passwords • Timeout after a period of inactivity • Violation reports For more critical applications, application security is made more robust, e.g., use of double sign-ins, manager approval, built-in maker/checker controls. Management periodically reviews access rights permissions.	• Obtain a user access list for each major system and ensure that all users have an authorized user account with access level in line with their responsibilities. Consider: – Standards for normal users. – Duplicate, generic and shared user IDs. – Privileged users and monitoring. – New access authorized in writing. – Removal of users no longer associated with the application or the Firm. • Review the application security functionality to ensure that it has minimum levels of security based on the criticality of the application, such as user ID and password, minimum-length passwords, etc. • Determine frequency of review by management.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
		• Verify that adequate access control procedures exist to limit file and directory access, based on assigned and approved user rights (e.g., read, update, create, delete). Access controls include: – User authentication. – Password controls (e.g., password strength, password assignment and change). – Segregation of data based on job responsibilities (e.g., access entitlement). – Physical security. – Semi-annual entitlements review for shared drives hosting EUC systems. • Verify that a regular backup process exists to ensure that critical EUC systems and data are adequately available and maintained in accordance with the applicable regulatory retention requirements and the BRP requirements. • Verify that a change management process exists. • Determine management's review and oversight of the process.

Risks to be Managed	Types of Controls to Manage/Eliminate Risks	Potential Audit Work Steps
Business Continuity Planning (BCP) Without business continuity and disaster recovery plans, the Business may not be able to resume operations within the timescale dictated by the relevant business needs.	A business continuity and disaster recovery plan has been developed and approved. Systems criticality is assessed to ascertain the maximum time period for recovery. Applications and data are backed up and retained at an offsite location.	• Obtain and review the Business's BCP and Disaster Recovery (DR) plan. Confirm that an assessment has been made of the impact of losing the system for different disaster scenarios. • Determine if the BCP has been tested and the frequency of testing. • Determine if a copy of the BCP has been distributed to key employees. • Verify that the location of the DR site is separated from the main site. • Determine the level of manual "work-arounds" for recovery planning.

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III. Glossary

III. GLOSSARY

The definitions in this section shall apply to the terms used in the guideline. Where terms are not defined in this section or within another chapter, they shall be defined using their ordinarily accepted meanings within the context in which they are used.

American-style Option	Style of option that may be exercised at any point from the inception of the option up to and including the expiration date.
Barrier Option	Type of financial option where the option to exercise depends on the underlying crossing or reaching a given *barrier level*. Four main types of barrier options are: • **Up-and-out**: spot price starts below the barrier level and has to move up for the option to be knocked out. • **Down-and-out**: spot price starts above the barrier level and has to move down for the option to become null and void. • **Up-and-in**: spot price starts below the barrier level and has to move up for the option to become activated. • **Down-and-in**: spot price starts above the barrier level and has to move down for the option to become activated.
Call Option	The call option gives the buyer the right to buy a currency on or before a predetermined date (expiry date) at a fixed rate called the strike price. The buyer of a Call may either exercise the option and buy the currency or allow it to expire worthless. The seller of a Call is required to deliver the underlying currency upon exercise by the option holder, although the option may never be exercised if the spot rate never equals the strike price.
Conversion	One-off transactions to convert one currency into another currency. The funds for conversion must be in the client account before the transaction is done. Conversions are non-credit sensitive and only require that the FA, branch manager and the operations manager ensure the funds are cleared and the transaction is appropriate.
Derivative Security	A security whose value is determined in part from the value and characteristics of another security.
European-style Option	A style of option that can only be exercised on the expiration date.
Exchange for Physical (EFP)	EFP trades are OTC currency trades done to offset or initiate futures positions. This allows a client to access the liquidity of the OTC F/X market. Quotes are made IMM style and transactions are posted on the IMM exchange for the client's account.
Exchange Traded Option	The Philadelphia Stock Exchange (PHILX) and the Chicago Mercantile Exchange (IMM) are the commonly used exchanges for F/X options. These options have standardized expiry dates, contract sizes and strikes. IMM options are options on the underlying Futures contracts.
F/X Forward	A contractual obligation to buy or sell a foreign currency at a specific price for delivery at a future date.
ITM/OTM	In the Money or Out of the Money

Maturity or Expiry Date	The predetermined date of the specified time frame on or during which the option may be exercised.
Non-Deliverable Forward (NDF)	A foreign exchange forward contract that is cash settled (mostly in U.S. dollars) upon expiration based on the difference between the contracted forward rate and the prevailing reference rate for the currency at maturity. In an NDF transaction, there is no exchange of physical currencies.
Option	Gives the buyer the right (but not the obligation) to buy or sell a specified amount of currency at a predetermined price (strike) on or before the maturity (expiry date). Options may be traded over-the-counter (OTC) directly.
OTC Market Conventions	Unless specified, OTC options are quoted European style. All options expire at 10AM New York time on the day of expiry. Premiums on options are settled two business days after trade date.
Outright Forward	Foreign exchange trade for forward settlement - more than two days after the trade date; a.k.a. Forward.
Over the Counter Option (OTC)	OTC options are not exchange traded. Instead, they are traded between counterparties and allow the flexibility to accommodate any amount, expiry date or strike the customer needs. Minimum principal amount for an OTC option is roughly 1 million USD. Premium: The upfront price that the buyer of the option must pay to the seller (or writer) of the option. OTC option premiums generally settle two days after the trade date.
Percentage in Point (PIP)	PIP is used in price quotes and as a measure of the change in currency prices. It is the smallest measure of movement in the quoted price. Prices for most currencies are quoted to four decimal places, so one pip is 0.0001 units of the quote currency.
Put Option	Gives the buyer the right to sell a currency on or before the expiry date at the strike price. The buyer of a Put may either exercise the option and sell the currency or allow it to expire worthless. The seller of a Put is required to acquire the underlying currency upon exercise by the option holder.
Spot F/X	F/X trade (buying one currency for another) for immediate delivery (generally two business days after the trade date).
STIRT	Short Term Interest Rate Trading
Strike	The predetermined rate at the inception of the option contract for which the Call owner buys the currency or the Put owner sells the currency.
Structured F/X Product	A medium term note with the coupon or yield tied to a spot exchange rate.