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AUDIT GUIDELINES
CREDIT RISK

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I. INTRODUCTION TO CREDIT RISK

Scope of Internal Audit Guidelines

The Internal Audit Guidelines for Credit Risk is a tool designed to facilitate the internal auditors' determination of the risks and potential controls which an organization may use to monitor and evaluate its risk to counterparties. Also included are possible worksteps that the Internal Auditor may perform to test and assess the adequacy and effectiveness of controls and processes used in the monitoring of a firm's credit risks. Although the guidelines were designed to evaluate the risks of a US broker dealer and its affiliate security and derivative dealers, many of the principles underlying the guidelines are also applicable for foreign entities.

Credit risk is the risk of economic loss from the failure of a counterparty or other obligor to perform according to the terms and conditions of a contract or agreement. Credit risk exists in all activities that depend on the performance of issuers, borrowers, or counterparties, and virtually all capital-markets and trading transactions involve credit exposure that requires a monitoring framework throughout the life of transaction until eventual cash settlement occurs or the contract period expires. Over-the-counter (OTC) derivative transactions such as foreign exchange, swaps, and options can involve particularly large and dynamic credit exposures due to the leverage and settlement facilities inherent in such products. Accordingly, institutions should ensure that they identify, measure, monitor, and control all of the various types of credit risks encountered in trading both derivative and non-derivative products.

The quantitative valuation of credit risk is comprised of two components, the current replacement value of a position and the potential market exposure of the position in the future. Replacement cost should be determined using current market prices or generally accepted approaches for estimating the present value of future payments required under each contract. Potential credit exposure is measured more subjectively than current exposure and is primarily a function of the time remaining to maturity and the expected volatility of the price, rate or index underlying the contract. Potential future exposure can be measured using various quantitative techniques including an institution's own simulations, employing statistical analysis.

Credit risk exposure should be managed through a formal process which is independent of both the front and back office functions and is guided by appropriate policies and procedures which have been endorsed by management and consistent with the firm’s overall appetite for risk. Measurement systems should provide appropriate and theoretically sound estimates of credit exposure. The development of customer credit limits and the monitoring of exposures against those limits is a critical control function and should form the backbone of an institution’s credit-risk-management process. The most common forms of credit risks encountered in trading activities are issuer credit risk and counterparty credit risk. Issuer risk is the risk of default or credit deterioration of an issuer of instruments that are held as long positions in trading portfolios. While the short term horizon of trading activities limits much of the issuer credit for relatively high-quality and liquid instruments, other less liquid instruments such as loans, emerging-market debt, leveraged derivative transactions and below-investment-quality debt instruments, may be the source of significant issuer credit risk.

Counterparty risks, the most significant component of credit risk faced in trading activities, consist of both “presettlement” risk and “settlement” risk. Presettlement risk is the risk of loss due to a counterparty’s failure to perform on a contract or agreement during the life of a contract. For most cash instruments, the duration of this risk exposure is limited to hours or days from the time a transaction is agreed upon until settlement. Settlement cycles are often determined based on predefined market convention, although counterparties trading cash instruments may negotiate extended settlement periods. However, in the case of many derivative products, this exposure can often exist for a period of several years. Given this potentially longer-term exposure and the complexity associated with some derivative instruments, institutions should ensure full understanding of presettlement credit risks that are involved with such instruments.

Settlement risk is the risk of loss when an institution meets its obligation under a contract through either an advance of funds or securities before the counterparty meets its obligations. Failures to perform at settlement can arise from counterparty default, operational problems, market liquidity constraints, and other factors. Settlement risk exists from the time an outgoing payment instruction cannot be recalled and the incoming payment is received with finality. This risk exists with any traded product and is the greatest when delivery is made in different time zones.

The Guidelines are organized to allow the internal auditor to focus on specific general areas of control and the department's standing relative to the credit evaluation and monitoring overall processes including:

General and Organization- The Internal Auditor considers the Credit Risk Department's general position within an organization. The worksteps in this section facilitate the auditor's ability to evaluate the Credit Risk Department's overall competence and ability to perform in accordance with the policies and risk parameters described in the firm's polices. Additionally, the auditor should also conclude on the department's overall status and viability within the organization to achieve the mission of a sound credit risk management framework.

Reporting- The Internal Auditor evaluates the quality of a reporting structure and the accuracy of the reports used by the Credit Risk Management Department. Additionally, the auditor evaluates the quality of the information the Credit Risk Management Group provides to users throughout the organization.

Data Quality- The Internal Auditor evaluates the quality of data used by Credit Risk Management. This section enables the auditor to better determine the validity of reported credit exposure and allows the auditor to assess the quality of controls used to determine credit exposures (reconciliation performed and management review process).

Rights and Obligations- The Internal Auditor evaluates that agreements and contracts are maintained in an appropriate fashion and are reviewed by parties suited to evaluate the legal enforceability of the arrangement with the counterparty.

Completeness- The Internal Auditor evaluates that the exposures available to the Credit Department represents a complete population of credit exposures faced by the firm.

Valuation- The Internal Auditor evaluates the quality of the firm's ability to value actual and potential exposure on a timely basis. This section considers the firm's valuation models used to determine values of open exposures and posted collateral.

Technology- The Internal Auditor evaluates the quality of the controls inherent within the technology environment to determine that an effective architecture exists to support the credit risk management function. Considerations that the internal auditor should assess include security over data, access controls, system administration, data integrity and disaster recovery.

The guidelines are also designed to allow the Internal Auditor to note other areas of the organization that place reliance on the efficiency and quality of a credit risk management function. Therefore, while all controls and risks, may not be contained specifically in the credit risk management function due to the structural framework inherent within the specific organization, these guidelines will enable the Internal Auditor to identify cross-functional disciplines. These cross-functional disciplines may be tested as a component of either the Credit Risk Program of another audit program to promote the most efficient and complete degree of internal audit coverage.

The guidelines are not an exhaustive set of procedures that the auditor needs to follow during all audits of Credit Risk Management. To best evaluate the Credit Risk Department at a specific firm, judgment should be exercised when determining the procedures to be performed and the sequence of performing procedures.

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II A. AUDIT GUIDELINES

This guideline is intended to provide members of the Securities Industry Association, Internal Auditors Division with information for the purpose of developing or improving internal audit programs. The information is designed to provide guidance to member firms in the preparation of procedures tailored to the specific needs of their individual environment. Internal auditors should always utilize professional judgment in determining appropriate worksteps to complete specific audit steps.

The footnote in the "Risks to be Managed" section of the following tables is a cross-reference to the "Credit Process Diagram Flowchart" included on page 28. This reference is included for informational purposes and can be use to determine the potential area(s) of the credit process that may be affected.

GENERAL AND ORGANIZATION

Risks to be Managed	*Types of Controls to Manage or Eliminate Risks*	*Potential Audit Workstep*
Credit polices and procedures are not adequate to manage the credit risk inherent at the firm. [All]	• Senior management or Board of Directors regularly review the policies and procedures. • Policies and procedures articulate the firm's risk profile and clearly define roles and responsibilities of the credit risk department. • Policies and procedures are approved by senior management and/or Board of Directors.	• Obtain and review the content of credit policies and procedures. • Make sure they are dated, in written form and are understandable for relevant users. • Ensure that policies are reviewed and approved in a timely manner by an authorized body. • Obtain the minutes from the authorizing body to determine that policies and procedures have been continuously updated to reflect current market conditions. • Ensure that they include guidelines for credit risk management on a firm-wide basis and inclusive of all credit risks faced by the firm. • Ensure credit limit approval authority is clearly defined as a matter of policy.

Risks to be Managed	*Types of Controls to Manage or Eliminate Risks*	*Potential Audit Workstep*
Credit risk department lacks authority to instill and enforce credit risk policies. [1,2,3,5,9,10,11]	• Detailed organizational chart (including risk based culture and approach) and hierarchy detailing department's independence, authority and role in management of the firm. • Periodic quality assurance reviews to ensure credit analysis is adequate and ratings are consistent. • Compensation structure is independent of the company's credit risk department. • Development and approval of mission statement or chart of the Credit Risk Management department.	• Determine that the Credit Department's mission has been defined and approved by management and/or the board of directors. • Verify that the credit risk function is a separate function from front office or other discipline exposing the firm to credit risk. • Determine that the credit risk department is included in strategy discussions involving a new product/counterparty. • Determine the involvement of the Credit risk department in management as well as its role in the organization as a whole (e.g. management and oversight committees). Make an informed decision whether it has the necessary authority to achieve its objectives. • Understand the role of the Chief Credit Officer (CCO) and the nature of the CCO's reporting lines.
Counterparty is provided a credit line that is not supported by its financial status. [2,3,5]	• Structured credit evaluation and approval process supported by policies and control procedures.	• Obtain guidelines for the department to establish, approve and review credit lines for a counterparty (all parties subjecting the firm to credit exposure). • Select sample of counterparties. Review their respective credit files to determine that appropriate and up-to-date documents (e.g. financial statements, SEC filings, press releases) are included to support the credit limit determined by the credit department.

Risks to be Managed	*Types of Controls to Manage or Eliminate Risks*	*Potential Audit Workstep*
		• Determine that credit files have been reviewed by management. • Review policies and procedures to determine that limits which have been set for counterparties conform to firm guidance. • Determine that policies are set for maintenance reviews.
Policies and procedures do not provide for adequate segregation of duties. [All]	• Detailed organizational chart (including risk based culture and approach) and hierarchy detailing department's independence and authority. • Structured credit department with specific roles and authority. • Credit risk management charter (or mission statement) details the group's independence and authority. • Compensation structure is independent of the company's credit risk department.	• Obtain the organizational chart and job descriptions. • Determine if the organizational structure and job descriptions provide for adequate segregation of duties. • Complete segregation of duties checklist and make informed judgment about potential conflicts.

Risks to be Managed	*Types of Controls to Manage or Eliminate Risks*	*Potential Audit Workstep*
Personnel lacking the proper education and training to make credit decisions. [2,3,5,10]	• Continuing education program exists and are adequate for personnel to maintain up to date on credit risk. • Formalized human resources hiring process exists to provide proper personnel for specific needs. • Annual review process of personnel. • Firm budgeting and resource/headcount policies and review process. • Formalized organization structure within the Credit Department; individuals are assigned roles commiserate with subject matter expertise and experience.	• Interview staff of credit department, and preliminarily assess if they have a reasonable understanding of credit risk. • Determine that there are an adequate number of staff members to complete objectives. Observe the cycle time to complete their daily workload and volume of manual processes. • Ensure that there is adequate supervision of staff. Understand the review and approval process within the Credit Department. • Review continuing education classes available to staff and records of staff attendance. • Determine if mechanism exists enabling staff to maintain up to date knowledge of current trends in risk management. • When necessary, ensure that product specialists have been assigned for coverage purposes or consulted for individual products or industries as a result of the special attributes of the products • Ensure a process is in place for the pre-approval of structured trades. Determine that concerted coordination occurs with credit and market risk management in assessing the risk of such exposures.

Risks to be Managed	*Types of Controls to Manage or Eliminate Risks*	*Potential Audit Workstep*
Credit limits/reporting are not in accordance with regulatory/ legal standards specific for regulated entities or external reporting. [3,9,10,11]	• Compliance department (or equivalent) exists to monitor suitability and activity housed in regulated entities. • Corporate reporting reviews the reports filed either to users internally or externally. • Regulatory/legal department oversees external reporting.	• Determine what legal entities (i.e. bank, broker/dealer, public company) are within the company that are/or can be exposed to credit risk. • For each entity identified ensure proper regulatory/ legal reporting requirements for regulated entities and determine proper margin requirements are considered.
Credit exposure reports are based on incorrect information. [9,11]	• System reconciliations are performed. • Edit checks, hash totals and check digits exist to ensure integrity of data used from the front office. • A policy of credit data requirements (or standards) is used and provided to all business areas which may create credit exposures.	• Determine if system generated reports require manual adjustments. • If manual adjustments, determine the nature of the adjustment and whether it is of a recurring nature. • Recurring and/or routine adjustments: review process to determine if applied appropriately and consistently. • Non-routine: select sample and investigate scope of adjustments and determine if adjustments are appropriate. • Ensure adjustments are reflected in data processed and reported by credit risk. • Ensure each system feed has been tested, including reconciliation to the books and records. • Ensure a process is in place to validate the integrity of data on a daily basis (reconciliation between front and back office systems).

REPORTING

Risks to be Managed	*Types of Controls to Manage or Eliminate Risks*	*Potential Audit Workstep*
Contract (loan, OTC transaction) has been entered into which exceeds credit limit amount provided to counterparty/ product. [4]	• Credit violation/ exception reports are generated to reflect amounts which exceed credit limits. • Trade approvals are required for all trades.	• Obtain credit limits established by credit department. Note the level of detail associated with such credit limits (e.g. Are different credit limits provided for collateralized and uncollateralized exposures?). • Determine that credit limits and current exposures are available to users (traders, sales). • Determine that transactions are monitored for credit limit exceptions by management on a daily basis. • Obtain the credit positions for a sample of counterparties to ensure that their respective limits have not been exceeded. • Review the exception report for instances where limits have been exceeded. Investigate reasons for exception. • Ensure a process is in place for reporting to senior business unit management of credit violations and related trends. • Ensure that when credit limits are exceeded proper management authorization and approval is documented. • Document and evaluate the quality of the process for informing relevant employees of changes to credit limits.

Risks to be Managed	*Types of Controls to Manage or Eliminate Risks*	*Potential Audit Workstep*
Reports generated do not provide management with relevant information. [11]	• Regular review of credit risk management report.	• Obtain from the Credit Risk Department all information provided to management to monitor credit risk. • Select sample of daily reports generated: • Determine that reports are provided to the appropriate levels of management. • Verify that all risk limits and all positions are presented correctly in these reports. • Determine if reports are adequate for management to understand the credit risk potential exposure via interview with management (i.e. users of the reports) and observation of the organization's risk appetite and profile • Ensure that all credit risk exposures have been accounted for (e.g. counterparty, country, industry). • Determine the appropriateness of the frequency and timing of report distribution to management. • Determine that reports consider the prospective credit risk inherent in leveraged products. • Determine and evaluate the nature and appropriateness of credit risk reporting (including commitments to extend credit to counterparties) to the Board of Directors and members of senior management. • Evaluate whether sufficient technology exists to properly detect and present credit violations and appropriate technological means are used to communicate information to management in a timely manner.

DATA QUALITY

Risks to be Managed	*Types of Controls to Manage or Eliminate Risks*	*Potential Audit Workstep*
Credit risk management department misstates credit exposure. [7,8,9]	• Securities/collateral reconciliation of location of collateral. • Confirmation process exists for all trading activity. • Programmed controls used to maintain data integrity across credit processes.	• Determine that, where possible, ISDA agreements are used, and netting is performed to correctly state credit exposure. • Determine the methods for validating the value of collateral held to offset credit risk of counterparty and ensure adequate collateral reconciliation process. • Verify that new products/ counterparties are reviewed by the appropriate personnel, from the appropriate perspectives (e.g., accounting, risk management, legal/suitability, valuation methodology). • Determine the extent that programmed controls ensure the adequacy of the calculation of credit exposure. • Review the process to ensure that data housed within the credit system (including limits) agrees to the underlying credit files.
Company has unknown exposure due to counterparties' deteriorating financial condition and such exposure is not discovered on a timely basis. [5]	• Formalized review process of counterparty quality. • Review of collateral quality and surrounding liquidity issues.	• Determine that the policies and procedures address the review requirements. • Determine that the credit department performs timely reviews of counterparties'/countries' financial status (timely reviews should consider the risk ratings for each specific counterparty). • Review updated counterparty/country financial review by credit department.

Risks to be Managed	*Types of Controls to Manage or Eliminate Risks*	*Potential Audit Workstep*
		• Determine that a conclusion on credit line is adequately supported with appropriate approvals. • Determine appropriateness and completeness of outside vendors utilized to discover potential credit issues and events. Understand external data feeds and related edit checks. • Determine that the company has the ability to work out of positions where counterparties' financial condition has deteriorated. • Determine that a reporting mechanism exists (e.g. a watchlist) documenting troubled counterparties with potentially deteriorating/deteriorated credit. • Determine that plans have been developed to reflect actions to be taken to react to counterparty of deteriorating financial condition. • Determine that there is an appropriate credit reserve methodology.
Credit limit is misstated due to fundamental relationships within various counterparties, subsidiaries, affiliates, etc. not taken into account. [2,5,9]	• Structured process to determine relationships between parties.	• Review credit department's method in determining relationships between counterparties. • For a sample of counterparties, review. financial statements, press releases, SEC filings, and other documents for related parties and shareholders of counterparties; ascertain that documentation supports credit limit structure.

Risks to be Managed	*Types of Controls to Manage or Eliminate Risks*	*Potential Audit Workstep*
		• Ensure relationships (i.e. subsidiaries, affiliates) which exist are considered when determining/ reviewing credit limits. • Determine that all entities under common ownership are considered when determining total exposure as well as when determining if any of the affiliated companies are liable for the indebtedness of another by reason of guarantees, hypothecations, etc. • Ascertain, where available, whether other lines of credit have been granted by other firms or brokers to the counterparty to determine if credit limits were evaluated based on complete information.

RIGHTS AND OBLIGATIONS

Risks to be Managed	*Types of Controls to Manage or Eliminate Risks*	*Potential Audit Workstep*
Transactions are entered into without legally enforceable agreements or without authorization by credit department. [1,3,4]	• Legal department reviews agreements before transactions are entered into. • Programmed controls preventing transactions being executed prior to counterparty approval.	• Select a sample of transactions and determine that relevant master agreements (such as ISDA) are used and contain appropriate signature. • For non-ISDA agreements, ensure that the legal department or legal counsel has reviewed the transaction from the perspective of "Legal Enforceability." • Select a sample of derivative agreements, determine that the set off clause of the ISDA master agreement is applied where appropriate to ensure that netting, collateral and guarantee arrangements are in place to reduce credit risk. • Review support to justify managements' confidence in enforceability in netting agreements. • Ensure that a process is in place to track and escalate missing documents.

COMPLETENESS

Risks to be Managed	*Types of Controls to Manage or Eliminate Risks*	*Potential Audit Workstep*
Credit limit reports are misstated due to counterparties not included in the regular reporting process. [11]	• Reconciliation between internal systems is generated. • Aging and exception reports are generated to reflect misstated amounts.	• Select sample of the company's limit reports (reports presented to management). • Obtain reconciliations, for the above selection, created between credit department and accounting books and records. • Obtain exception reports between the credit department and accounting books and records. • Determine appropriateness for explanations of exceptions.
Reports generated do not adequately address all risks and exposures. [11]	• Regular review of credit risk management report. • Programmed procedures are in place to ensure integrity of exposure reports.	• For a sample of exposures with no limit, trace to the credit risk management report. • For a sample of trading activities (risk weighting should be made to focus on products based on the complexity of product and it's inclusion in mainframe system) trace to credit risk reports. • Reconcile P&L per credit risk report to P&L reported by controllers. Investigate reasons for differences.

VALUATION

Risks to be Managed	*Types of Controls to Manage or Eliminate Risks*	*Potential Audit Workstep*
Credit risk VAR is not calculated correctly. [10]	• Management regular review of variables used in VAR calculation. • Documented review and approval process over VAR calculation.	• Obtain understanding of VAR models used. • Determine if process exists to validate and approve models before released for production. • Obtain the company's input for market information (i.e. swap rates, yield curves). • Compare market information utilized by the company and compare to third party. • Determine that specifications for VAR calculation are approved by management.
Credit limits are misstated. [3,5]	• Timely comparison of internal rating system to third party vendors. • Regular review of credit limits and/or models.	• Obtain the company's internal rating of counterparties/countries. • Compare internal rating system to third party rating systems. • Obtain explanations for variances between the rating systems. • Discuss with appropriate management how the changes in credit limits are communicated to the necessary functions on a timely basis. • For a sample of credit limits: review that there is required authorization, and that there has been a review of the limit within the past year. Where appropriate, more frequent review is required for more volatile counterparties/markets. • Ensure that credit limits are properly established. • Review the appropriateness for limits that have not been established.

Risks to be Managed	*Types of Controls to Manage or Eliminate Risks*	*Potential Audit Workstep*
Credit exposure is not calculated or reflected correctly. [7,8,9]	• Credit exposure is calculated on timely basis. • Collateral collection process in place. • Netting procedures are in place to reflect the existing exposure.	• Understand valuation process used to determine gross exposures. • Review that collateral requirements reflect current market conditions. • For a sample of counterparties: ensure that collateral requirements are applied consistently across all counterparties. • Reconcile custodian statement for collateral to accounting books and records. Investigate differences. • Compare value of collateral to third party pricing and other analyses used to determine fair value. • Ensure that additional collateral requested from counterparties is received in a timely manner. • For a sample of transactions: determine that management recalculates exposure on a recurring basis for products/counterparties considering netting and collateral. • Verify that counterparty limits are monitored considering the level of collateral and applicable netting agreements.
Pricing models are not adequate. [7,8]	• Frequent comparisons of internal pricing model to third party and actual benchmarking.	• Ensure that the pricing model is well documented and approved by authorizing body before releasing into production. • Determine if a process exists to reconcile credit exposure calculation models to pricing models used for books and records.

Risks to be Managed	*Types of Controls to Manage or Eliminate Risks*	*Potential Audit Workstep*
Firm could be exposed to potential credit risk due to significant variations in market conditions. [7,8,10]	• Regular review of variables used in calculation.	• Review the adequacy of variables, as well as the overall design used to form stress scenarios that measure the impact of market conditions. • Ensure that highly volatile contracts (interest rate swaps) are monitored on an individual basis in considering credit risk.

TECHNOLOGY

Risks to be Managed	*Types of Controls to Manage or Eliminate Risks*	*Potential Audit Workstep*
Inappropriate users are able to view and manipulate data housed within the credit system. [All]	• Programmed controls over access to credit system.	• Determine and test that systems have adequate access security controls; test the effectiveness and accuracy of the access assigned to system users. • Understand who are the authorized users to adjust data and assess the propriety of such users.
Credit System programs cannot be changed by users. [All]	• Programmed controls which automatically log system changes. • Enacted process and approval hierarchy developed for system changes.	• Verify that program changes are made through a program change process to ensure that changes to credit limits and related credit calculations are properly authorized tested and approved. • Understand if the Credit System allows for "manual overrides" of system generated or provided data.
Data contained in credit systems is inaccurately provided from other interfaces or user defined sources. [All]	• Approved program for data pickup from various sources. • System reconciliations are performed to determine that proper amounts are being accumulated.	• Ensure that credit system applications contain edit checks and data validation controls to prevent and/or detect data errors. • Review system processing controls to ensure that all applicable trade information is fed into the credit risk management system from the front end trading systems on a timely basis. • Ensure that transactions are assigned systematic, sequential reference identification numbers; understand the prevent/ detect controls for out of balance or out of sequence conditions.

Risks to be Managed	*Types of Controls to Manage or Eliminate Risks*	*Potential Audit Workstep*
		• Ensure the system contains data validation controls for applicable market data (yield curve data, rates, spreads, day counts, etc.).
A Disaster occurs which in some way disrupts credit risk management routine operations. [All]	• Business Continuity and Disaster Recovery Plan's exist and are approved by senior management. • Data Backup and Restoration Process exists and is defined.	• Ensure the existence of a Business Continuity Plan (BCP) and determine how the plan has been validated for practicality and effectiveness. • Ensure that critical processes have been defined and appropriately considered in a BCP. Ensure that critical systems can be restored in the event of a disaster. • Determine that tolerable outage periods have been determined and that a BCP contemplates such requirements. • Understand the mechanism for testing and updating the BCP. • Ensure that sufficient data backup and restoration procedures are in place.

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II B. SEGREGATION OF DUTIES CHECKLIST

Adequate segregation of duties reduces the likelihood that errors (intentional or unintentional) will not be prevented and remain undetected. The basic idea underlying segregation of duties is that no one employee or group of employees should be in a position both to perpetrate and to conceal errors or irregularities in the normal course of their duties. Additionally, errors may occur due to inadequate supervision of employee activity. In general, the principal incompatible duties to be segregated are: authorization, custody of assets, and recording or reporting of transactions. In addition, the risk management function as well as other oversight functions (Controllers, Compliance, Legal, Credit) should be separated from the functions that are originating risk itself and the processing of a transaction.

A practical method for using this checklist is to list the names of individuals responsible for particular functions. Review the checklist for individuals whose names are listed more than once and then make a determination whether that represents a potential lack of segregation of duties. Also consider whether individuals are performing incompatible duties. Once an individual is identified as performing incompatible duties, all duties performed by that individual should be challenged as to whether the effectiveness of those duties is reduced or eliminated by the lack of segregation of duties identified. Larger organizations may find it sufficient to list only the department performing each of these duties or functional job titles, rather than the names of individuals. Those companies could then evaluate whether any departments were performing incompatible duties.

Keep in mind that not all instances where an individual performs more than one function represent a lack of segregation of duties. In addition, it is important to remember that there is a possibility of a lack of segregation of duties within the same category. Consequently, completion of this checklist is intended to highlight potentially conflicting duties, not to be the only method of identifying all such conflicting duties. The segregation of duties checklist is located on the following page.

SEGREGATION OF DUTIES CHECKLIST

Credit Limit Application and Approval
Who approves new products and counterparties? ____________
Who establishes the assessment of credit worthiness? ____________
Who determines credit limits? ____________
Who approves credit limits and overall capital allocation? ____________
Who monitors and investigates counterparties? ____________
Who has access to credit-related data files and programs? ____________
Who determines credit risk management policy? ____________

Booking and Accounting of transactions
Who executes transactions? ____________
Who maintains books and records concerning credit transactions? ____________
Who reconciles front office records to accounting office records? ____________

Valuation
Who values positions? ____________
Who reconciles positions values to independent pricing source? ____________
Who reviews and approves the position valuation reconciliation? ____________

Compliance and Maintenance Review
Who monitors legal issues and ensures compliance with regulatory requirements? ____________
Who obtains and maintains the necessary credit limit and collateral documents? ____________

Monitoring
Who is responsible for monitoring collateral and reconciling with custodian statement? ____________
Who monitors trading positions against credit risk limits and who performs a check of new transactions entered into against authorized credit limits? ____________
Who reviews and approves instances where credit limits have been exceeded? ____________
Who calculates credit reserves and allowance for loan losses? ____________
Who reviews credit reserves and allowance for loan losses? ____________

Confirmation of Trades
Who is responsible for sending periodic statements for collateral? ____________
Who is responsible for handling and documenting credit inquiries from counterparties? ____________
Who receives inward and outward confirmations/statements? ____________

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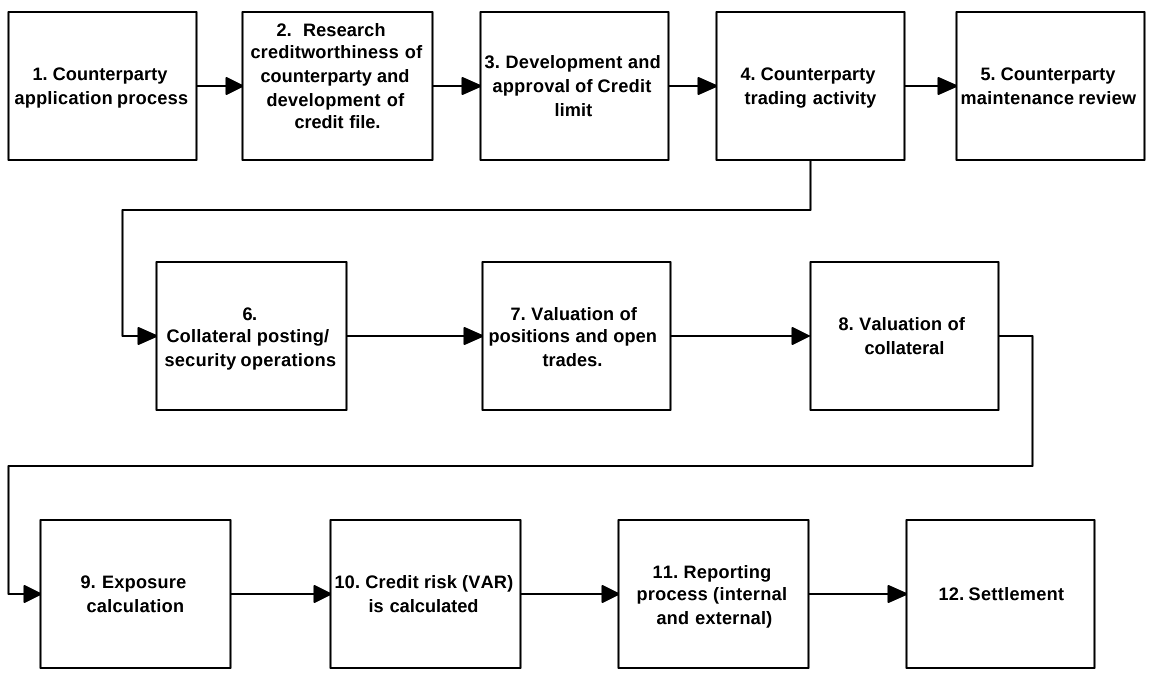
III. CREDIT RISK FLOWCHART

The following flowchart illustrates the typical credit approval cycle. Definitions for the individual process steps are included below. Such definitions are numbered in order to cross-reference with the appropriate process step.

Credit Process Diagram Flowchart



Definitions of Process Steps

1. *Counterparty Application Process*- In most organizations, the account opening or new accounts process is clearly delineated in the organization's policies. The Credit Process begins when a counterparty's application for a credit line is submitted together with required counterpart documentation.

2. *Research creditworthiness of counterparty and development of credit file*- The credit department compiles relevant factors to facilitate the determination of a credit line specific to the counterparty. This process would include the gathering of quantitative and qualitative financial data relevant to the counterparty and the compilation of such data in a format prescribed as relevant to the determination of Credit Department objectives.

3. *Development and Approval of Credit Limit*- Using the data gathered, the Credit Department will establish a credit limit for the applicable counterparty. Furthermore, the credit limit recommended is approved by designated management personnel within the Credit Department.

4. *Counterparty Trading Activity*- Once credit limits have been established and approved, the counterparty's trading activity would be enacted and the institution would measure the counterparty's credit exposure relative to the limits determined.

5. *Counterparty Maintenance Review*- At regular intervals, each counterparty's creditworthiness is reevaluated to determine if limits prescribed are consistent with the counterparty's current financial status. Such review should be conducted in accordance with a prescribed schedule based on perceived counterparty risk weightings.

6. *Collateral Posting/Security Operations*- Based on the counterparty's exposure to the institution, the institution may require the posting of collateral to mitigate the exposure inherent in the event of counterparty default. Collateral is often in the form of another financial product which the couterparty has the ability to pledge to the institution.

7. *Valuation of Positions and Open Trades*- The calculation of counterparty exposure is a continuous process. Open trades and other counterparty obligations are valued on a daily basis by the institution to validate the credit exposures. Valuation processes should be monitored regularly as prescribed by the institutions valuation review process and managerial architecture.

8. *Valuation of Collateral*- Like the regular process surrounding the review of open trades, posted collateral should be regularly reviewed as well for its accuracy. Despite the fact that collateral is oftentimes not recorded on the institution's balance sheet, its regular valuation is a key component of the counterparty exposure calculation.

9. *Exposure Calculation*- The exposure calculation is performed based on the valuations determined for open positions and posted collateral. This process should be computed daily to determine the institution's exposure to a specific counterparty.

10. *Credit Risk VAR is calculated*- In addition to current exposure, the institution should undertake an analysis (like a value at risk or other scenario analysis) to determine potential exposures in the event of potential market conditions (for example, credit spread tightens or widens, credit of counterparty is upgraded/downgraded, interest or other market rates adjusted, etc.). Such an analysis not only evaluates the counterparty based on current conditions, but also allows for the consideration of other factors which may potentially impact the exposure in the future. Note that models and inputs used in VAR calculations must be scrutinized for overall propriety and relevance prior to implementation.

11. *Reporting Process*- The reporting process surrounding credit exposures should be clearly defined by the institution. Internal and External Reporting are each very important in the credit reporting process to allow for both an appropriate entity wide risk management

framework and accurate disclosure when providing required or requested disclosure to investors and other external parties.

12. *Settlement*- The credit monitoring process of a specific transaction concludes upon termination of such transaction. At such time the counterparty "clos
the actual cash settlement of the transaction. Transactions which are not settled at the scheduled maturity via payment should be monitored for potential credit impairment.