



# Guideline

---

Title	Derivatives Sound Practices – Guideline (2014)
Category	Sound Business and Financial Practices
Date	November 30, 2014
Sector	Banks Foreign Bank Branches Life Insurance and Fraternal Companies Property and Casualty Companies Trust and Loan Companies
No	B-7

---

## Table of Contents

---

### [Introduction](#)

### [Definition](#)

### [Use of Derivatives](#)

### [Risks of Derivatives](#)

### [Risk Management](#)

### [Market Risk](#)

- [Measurement of Market Risk](#)
- [Dealers and Active Position-takers](#)
- [Frequency and Reporting of Measurement](#)
- [Valuation Adjustments](#)

### [Credit Risk](#)

- [Credit Exposure Limits](#)
- [Measurement of Credit Risk Exposure](#)



- [Netting](#)
- [Margining](#)
- [Settlement Risk](#)
- [Central Counterparties \(CCPs\)](#)
- [Qualifying Central Counterparties \(QCCPs\)](#)
- [Capital Incentives for Central Clearing](#)
- [Central Clearing by FRFIs](#)

#### [Liquidity Risk](#)

- [Market Liquidity Risk](#)
- [Collateral Management](#)

#### [Operational Risk](#)

- [Legal Risk](#)
- [Regulatory Compliance Risk](#)
- [Business Resiliency and Continuity](#)

#### [Stress Testing](#)

#### [System Infrastructure Considerations](#)

- [Trade Confirmation](#)
- [Portfolio Reconciliation](#)
- [Portfolio Compression](#)
- [Electronic Trading Platforms](#)

#### [Reporting to Trade Repositories](#)

- [Objective](#)
- [Global Legal Entity Identifier \(LEI\) System](#)

- [Reporting Obligation](#)
- [Data Aggregation and Access](#)

[Capital for Derivatives Transactions](#)

[Other Guidance](#)

[Glossary](#)

[Footnotes](#)

## Introduction

Derivatives markets have experienced significant growth, both in size and in the number and complexity of products. The derivatives market is global in nature and is part of the core business of the domestic and cross-border operations of many federally-regulated financial institutions (FRFIs). While derivatives can be effective risk mitigation tool, the associated risks and exposures must be identified, measured, monitored and controlled as part of a FRFI's comprehensive risk management framework.

This Guideline sets out the Office of the Superintendent of Financial Institutions' (OSFI's) expectations for FRFIs with respect to derivatives activities. It applies to all FRFIs, i.e., Canadian incorporated FRFIs (and their consolidated subsidiaries) as well as the Canadian branch operations of foreign institutions.

This Guideline complements OSFI's [Supervisory Framework](#) and [Assessment Criteria](#) and other Guidelines, as noted on page 17 of this guideline.

## Definition

Derivatives are financial contracts whose values depend on, or are derived from, the value of one or more underlying reference assets. The value can be determined by fluctuations of the underlying asset, which may include stocks, bonds, commodities, currencies, interest rates and market indices. Derivatives include a wide assortment of financial contracts, including forwards, futures, swaps and options. An over-the-counter (OTC) derivative is a bi-lateral contract, negotiated between two parties, that does not go through an exchange. An

exchange-traded derivative is a standardized contract that is transacted on an organized exchange.

## Use of Derivatives

Derivatives allow FRFIs and other participants to identify, isolate and manage separately the risks in financial instruments and commodities for the purpose of trading, hedging, [arbitrage](#), and adjusting portfolio risks.

FRFIs may use derivatives as [end-users](#), [active position-takers](#), and [dealers](#). For example, a FRFI acts as an end-user when it uses derivatives to take positions as part of its proprietary trading or for hedging as part of its asset and liability management program. It acts as a dealer when it quotes bids and offers and commits capital to satisfying customers' demands for derivatives.

The Canadian derivatives market is dominated by FRFIs including the five largest banks for which derivatives activities represent a core business overseen by OSFI as part of its prudential mandate. For that reason, the Guideline may contain bank-specific references. Banks will also be required to comply with any regulations made under the *Bank Act* [1](#) respecting their activities in relation to derivatives.

## Risks of Derivatives

The key risks associated with derivatives include market risk, credit risk and liquidity risk. The risks of derivatives are more directly related to size and price volatility (including valuation adjustments) of the cash flows they represent than they are to the size of the notional amounts on which the cash flows are based. In fact, the risks of derivatives, and the cash flows that are derived from them, may represent only a small portion of the notional amounts.

However, in other cases (e.g., [credit default swaps](#)) the entire notional amount may represent potential cash flows.

## Risk Management

The process of risk management for derivatives should be integrated into the FRFI's overall risk management program. FRFIs should be in a position to identify the material risks they face with respect to derivatives activities, assess their potential impact and have policies and controls in place to manage risk effectively. A FRFI's derivatives

activities should be consistent with its [Risk Appetite Framework 2](#) . Effective control, monitoring and reporting systems and procedures should be in place to ensure on-going operational compliance with the Risk Appetite Framework.

FRFIs should have a strong governance process around the valuation of derivatives, which includes robust control processes and documented procedures. The valuation governance structures and related processes should be integrated with other risk management systems within the FRFI. There should be an appropriate segregation of duties between the valuation function and trading function based on the FRFI's derivatives activities. Where valuation systems are automated, there should be appropriate access management controls in place.

FRFIs using derivatives instruments where material valuation uncertainty exists (e.g., instruments with complex payoffs, thinly traded or less liquid instruments where there are no readily available market prices) should have valuation and risk management processes that explicitly assess valuation uncertainty commensurate with the size and depth of its activities. Such assessments should be included in communication to senior management.

Please refer to OSFI's *Corporate Governance Guideline* for OSFI's expectations of FRFI Boards of Directors in regards to operational, business, risk and crisis management policies.

## Market Risk

The market risk of a derivative is the risk of losses arising from fluctuations in the market value of the underlying reference asset. Market prices can be influenced by many factors, including movements in interest rates, credit spreads, equity prices, exchange rates or commodity prices. A FRFI should define market risk limits for derivatives exposures based on its overall risk appetite.

A FRFI should identify the market risk drivers for its derivatives activities, and estimate the market risk to which it is exposed. While there are various techniques for measuring market risk, the sophistication of a FRFI's analytical approach to measuring risk should match the depth of its involvement in the derivatives market and the complexity of its positions. A FRFI whose derivatives activities are limited in volume and confined to hedging risk as an end-user may need less sophisticated risk measurement systems than those required by a dealer or active position-taker. For

example, use of complex options requires sophisticated and more frequent risk monitoring and control than does the use of simpler derivatives with more [symmetric payoffs](#) and unleveraged payoffs, e.g., foreign exchange forwards and futures contracts.

## Measurement of Market Risk

The appropriateness and adequacy of the assumptions and parameters that underpin a FRFI's techniques for measuring market risk should be fully documented and frequently reviewed against actual experience and updated market information, particularly in the presence of increased market volatility.

At a minimum, risk measurement systems of end-users, active position-takers, and dealers should evaluate the possible impact on the FRFI's earnings and capital which may result from adverse changes in interest rates, exchange rates, and other relevant risk factors in normal and stress environments.

## Dealers and Active Position-takers

For dealers and active position-takers, market risk is typically measured as some form of "value at risk" (VaR) or Expected Shortfall [3](#) based upon an appropriate confidence interval and time horizon. For example, such a measure could indicate with a 99% confidence that the change in the value of a portfolio would not exceed a specified amount over any given two week holding period.

Where measures of value at risk are not explicitly adjusted for probability (e.g., interest rate sensitive trading portfolios that are re-valued assuming a fixed basis point change in interest rates), management should nevertheless document implicit assumptions the measure makes about volatility in comparison to historical experience.

The internal risk measurement model should exhibit the following characteristics:

1. Provide figures that are translatable into risk measures in dollar terms:
  - o For [linear derivatives](#) positions, valuation should use a discounted cash flow (DCF) algorithm to determine the net present value of positions and/or cash flows. Linear positions comprise forwards, swaps, futures, forward rate agreements, etc., with underlying references such as money market

products, fixed income securities, foreign exchange, equities and commodities.

- For [non-linear derivatives](#) positions, valuation should use an appropriate pricing model to calculate market values of options positions and other contingent cash flows. Non-linear derivatives positions comprise all option-based products but might arise in other non-options products due to structural features (e.g., termination or break clauses).

2. Calculate risk measures in dollar terms from committed cash flows reflecting volatility of relevant risk factors based on:

- appropriate minimum holding period(s) consistent with the liquidity of the relevant OTC market needed to hedge any open derivative position;
- a sufficiently long series of historical data, including a period of stress [4](#) ; and
- a minimum level of probability (e.g., 99 times out of 100).

3. For the purpose of determining amounts at risk, the required output of a valuation model should include changes in the derivative's value based on:

- changes in the price or rate of the underlying position ([delta](#));
- changes in the rate of change in the price of the underlying position ([gamma](#));
- changes in volatility ([vega](#), if applicable) [5](#) ;
- changes to interest rates (rho, if applicable); and
- time decay ([theta](#), if applicable).

Examples of risk factors to be considered include:

- the risks of loss arising from changes in the level of interest rates as well as the slope of the yield curve; and
- where relevant, [basis risk](#), including the risk of loss arising from the degree to which changes in market rates for different instruments, including different underlying and different references curves, of possibly the same term are not perfectly correlated.

4. Valuation and estimation of amounts at risk should be available on a daily basis.

5. FRFIs should have the capacity to frequently update underlying assumptions and the historical data on which they are based in order to facilitate the periodic reviews of related policies by senior management.

The last of these characteristics is particularly important for the complex mathematical models that are sometimes used by dealers to identify and aggregate risk. These models can have intrinsic shortcomings that include assumptions about statistical "normality", correlations between risks and between markets and about the liquidity of OTC markets that may not continue to be valid as markets change and develop. Periodic reviews and appropriate stress tests help address these concerns.

## Frequency and Reporting of Measurement

The frequency with which exposures should be evaluated and reported varies according to the nature and size of a FRFI's involvement, and should be commensurate with the price volatility, time-horizon and turnover of the instruments and portfolios being measured. Dealers and active position-takers should complete more sophisticated and frequent evaluations and reporting than an end-user who uses derivatives used to hedge positions in the structural and investment portfolio of the FRFI. Less frequent evaluations may be sufficient for such a FRFI given the low turnover of the book and its emphasis on effectiveness in hedging the longer term profile of the more static investment portfolio. The frequency of reporting should be increased as system capabilities are developed and ad-hoc reporting should be executed during times of unusually high volatility and extraordinary circumstances.

## Valuation Adjustments

FRFIs should take into account all relevant valuation adjustments when pricing derivatives.

## Credit Risk

Counterparty credit risk management for derivatives activities should be incorporated into the prudent person approach [6](#) for lending. Timely, meaningful reports should be prescribed and prepared in accordance with policy and procedure requirements, as established by the FRFI.

FRFIs should have an enterprise-wide credit risk management function that is independent of individuals and units that conduct trades and create risk exposures. The credit risk management function should have analytical capabilities commensurate with the complexity and sophistication of the FRFI's derivatives activities, and have clear authority and responsibilities that include:



- approving counterparty credit exposure measurement standards;
- assigning and approving internal credit risk ratings at inception;
- assessing periodic reviews of existing counterparties to verify internal credit ratings;
- assigning and approving counterparty limits;
- monitoring usage against counterparty limits and taking action to resolve situations where limits are exceeded;
- approving exceptions to non-standard credit-related ISDA terms;
- reviewing concentrations of credit risk; and
- reviewing and monitoring risk reduction arrangements (e.g., performing ongoing review and ensuring the enforceability of netting arrangements).

For end-users, these functions may be embedded into an enterprise-wide credit risk management framework.

## Credit Exposure Limits

A FRFI should establish written limits regarding counterparty exposures for derivatives trading and settlement that are consistent with the FRFI's risk appetite as well as the risk profile of the counterparty with whom they are trading. The criteria that counterparties must meet should be explicitly outlined in the FRFI's credit risk policies. Individual counterparty limits should be established by the credit risk management function, or equivalent. Business with a counterparty should not commence until a credit exposure limit has been formally established and authorized.

Credit authorizations should be provided by personnel who are independent of personnel responsible for engaging in derivatives trades.

## Measurement of Credit Risk Exposure

Prior to settlement, the credit risk exposure of a derivative is measured as the sum of its replacement cost (or current exposure) and an estimate of the FRFI's potential future exposure. Replacement cost is the cost of replacing the remaining cash flows of a derivative at prevailing market prices. Potential future exposure is a statistically-based estimate of the potential change in the value over the remaining life of the contract and is primarily a function of the time remaining to maturity and the expected volatility of the price, rate or index underlying the derivative.

The method used to measure counterparty credit risk exposure should be commensurate with the volume and level of complexity of the derivatives activity. Dealers and active position-takers should have access to credit equivalent exposures, which represent the replacement cost plus potential future exposure. Counterparty limits should be based on a [peak exposure](#) measure over the life of the netting sets, rather than the calculation of effective expected positive exposure (which is used for capitalizing portfolios). The replacement cost calculation involves marking-to-market each derivatives contract.

For dealers and active position-takers, the potential future exposure calculation should reflect the volatility and remaining maturity of the derivative position based on:

- an exposure measure that is based on a distribution of exposures that accounts for the possible non-normality of the distribution of exposures;
- a sufficiently long series of historical data, including a period of stress;
- a methodology that takes into account wrong-way risk; and
- where appropriate, a methodology that takes into account enforceable netting and margin/collateral arrangements.

End-users may elect to use a less sophisticated method for measuring the potential future exposure (e.g., a look-up table of percentages of notional value that varies with the volatility and the remaining maturity of the underlying), as long as other mitigating factors are in place. Examples of mitigating factors include restricting transactions to the highest quality counterparties or limiting contracts to mature, less volatile, derivatives.

Senior management should be provided with reports that document credit risk exposure by, for example, counterparty geography/currency, or any other relevant units of netting and aggregation. Such reports should include the credit risk exposures of derivatives with all other credit risk exposures the FRFI might have to a particular customer.

## Netting

In order to reduce counterparty credit risk exposure, a FRFI should, where practicable, use legally enforceable bilateral and multi-lateral netting agreements with its counterparties. FRFIs should control and monitor their

derivatives' credit exposures on a net basis only when they have performed sufficient legal review (e.g., obtaining a legal opinion) to ensure the enforceability of close-out netting arrangements with counterparties under the laws of all of the relevant jurisdictions. Legal enforceability should extend to any relevant insolvency proceedings of the counterparty. The FRFI should be able to demonstrate that it has exercised due diligence in evaluating the enforceability of these contracts.

## Margining

To mitigate replacement cost risk, a FRFI can choose to exchange (i.e., both receive and deliver) [variation margin](#) to collateralise changes in mark-to-market exposure. The frequency with which variation margin is exchanged should affect the determination of the size of minimum transfer amounts with the most frequent exchanges (i.e. daily) corresponding to the lowest minimum transfer amounts.

Where a FRFI has chosen to adopt an exchange of variation margin, it should use legally enforceable collateral arrangements, such as a [credit support annex](#) (CSA). These arrangements should include, among other things, details on eligible collateral, applicable haircuts, frequency of variation margin exchanges, thresholds and minimum transfer amounts. The FRFI should be able to demonstrate that it, or a qualified third party, has performed sufficient legal review in evaluating the enforceability of these contracts (e.g., obtaining updated enforceability opinions).

FRFIs should ensure that any collateral received, after accounting for an appropriate haircut, is able to hold its value in a time of financial stress. To the extent that the value of the collateral is exposed to liquidity credit, market and foreign exchange risks in stressed market conditions, increasingly conservative risk-sensitive haircuts should be applied.

## Settlement Risk

Settlement risk is the risk an institution faces when it has performed its obligations under a contract, but has not yet received value from its counterparty. This risk arises if the counterparty defaults during the settlement cycle for operational or other reasons. FRFIs should establish limits and monitoring procedures for settlement risk exposures. In the case of FRFIs that are branch operations, the limits and procedures within the branch operations

should be integrated with those used in the home jurisdiction.

## Central Counterparties (CCPs)

A CCP is an entity that interposes itself between counterparties to contracts in a financial market, becoming the buyer to every seller and the seller to every buyer. This allows the CCP to assume counterparty risk while market participants retain market exposures. A CCP becomes a counterparty to trades with market participants through novation, an open offer system, or another legally binding arrangement. Among other measures, CCPs mitigate risk through the use of margin requirements (both initial and variation) and a default management process, including a default fund and other resources. Increasing the portion of the OTC derivatives markets that is centrally cleared should result in more effective management of counterparty credit risk, improve market transparency and mitigate systemic risk.

A FRFI should establish internal credit risk ratings and counterparty credit limits for CCPs on a risk-adjusted basis consistent with its risk appetite and counterparty credit risk policies.

## Qualifying Central Counterparties (QCCPs)

In order to be classified as a [QCCP](#), a CCP must be based, and prudentially supervised, in a jurisdiction where the relevant regulator/overseer has established, and publicly indicated that it applies to the CCP on an on-going basis, domestic rules and regulations that are consistent with the CPSS-IOSCO [Principles for Financial Market Infrastructures](#) (PFMIs).

## Capital Incentives for Central Clearing

In order to encourage central clearing of standardized derivatives, on January 1, 2013, OSFI implemented capital incentives for central clearing of derivatives and appropriate capitalization of bi-lateral transactions with the adoption of Basel III minimum capital requirements in the Capital Adequacy Requirements (CAR) guideline. These rules provide clear incentives to centrally clear derivatives by recognizing, through reduced capital requirements, the lower risks associated with multilateral netting of exposures under various models of central clearing. The rules also increase capital requirements for large interbank exposures and bank exposures to highly levered counterparties in the OTC derivatives markets through the advanced approaches to credit risk. In addition, the

Credit Valuation Adjustment (CVA) capital charge for bilateral OTC derivatives [7](#) went into effect on January 1, 2014.

## Central Clearing by FRFIs

All central clearing by FRFIs should be done using a QCCP, including global QCCPs, recognized by Canadian authorities [8](#) . If no QCCP recognized by Canadian authorities is available, FRFIs should use a CCP that is recognized as a QCCP in a foreign jurisdiction.

OSFI, as the primary regulator for FRFIs, expects a FRFI to centrally clear, where practicable, new [standardized derivatives](#) in which it is transacting where the clearing of such products is offered by a QCCP. OSFI expects that the availability of central clearing will increase over time as more products are standardized and QCCPs expand clearing capacity.

QCCPs have access and participation requirements to help ensure that only entities with the ability to manage risks in the clearing system become [clearing members](#). Direct participation may be limited to members with adequate financial and technical resources to assist in managing the default of a member. For FRFIs that are not direct clearing members, indirect clearing may be available as an alternative means of accessing central clearing, whereby the FRFI would clear indirectly as a [client](#) of a direct clearing member.

FRFIs using a QCCP should follow the membership rules and regulations imposed by the QCCP and its applicable regulator(s).

Intra-group transactions between a FRFI and its affiliates are not expected to be centrally cleared, provided the risks of the transactions are measured, monitored, and controlled as part of the FRFI's risk management framework.

## Liquidity Risk

### Market Liquidity Risk

During periods of market stress, market liquidity can evaporate and place a significant downward pressure on the market value of instruments. A FRFI should take account of the risks of sudden changes in market liquidity, which

can alter the effectiveness of hedging strategies. In designing stress scenarios, a FRFI should consider the nature of its activities and vulnerabilities to ensure that the scenarios incorporate the major market liquidity risks to which the FRFI is exposed.

When a FRFI establishes its market risk exposure limits, it should consider how long it would take to unwind or offset a position. Where markets or products are illiquid and there is little variety or depth to hedging alternatives, the FRFI should assume longer holding periods in measuring market risk.

## Collateral Management

As FRFIs increase their use of CCPs for standardized derivatives, the importance of effective collateral management will increase because clearing members must post initial and variation margin.

In future, FRFIs may be required to obtain and deploy additional liquidity resources to meet margin requirements that exceed current practice. A FRFI should actively manage its collateral positions, and ensure that its liquidity needs and risks associated with its derivatives activities are appropriately represented in its overall liquidity risk management framework. A FRFI should incorporate cash flows related to the re-pricing, exercise or maturity of derivatives contracts in its liquidity risk analysis based on the materiality of the liquidity risk exposures these activities create. This includes the potential for counterparties to demand additional collateral in the event of, for example, a decline in the FRFI's credit rating or creditworthiness and/or a decline in the price of the underlying asset.

## Operational Risk

The effective management of operational risk is a fundamental element of a FRFI's risk management program. Operational risk is inherent in all financial products, activities, processes and systems, including those related to derivatives. The structure of the relevant operational risk management framework will depend on the FRFI's nature, size, and complexity, and risk profile of its activities. If derivatives products, activities, processes or systems are material to the FRFI, the inherent operational risk should be identified, assessed and understood as part of the operational risk management framework, and appropriate monitoring and reporting mechanisms should be in place to support the proactive control and mitigation of risk.

## Legal Risk

FRFIs are expected to take necessary steps to mitigate [legal risk](#). For example, prior to engaging in derivatives transactions, a FRFI should satisfy itself that its counterparties have the legal authority to engage in those transactions. Where agents are involved, a FRFI should take all reasonable steps to assure itself that the necessary legal authorities exist.

A FRFI should satisfy itself that the terms of any contract governing its derivatives activities are legally sound and the underlying transaction documentation is adequate. This is especially important with respect to provisions governing, 1) the timing of the termination of outstanding transactions and, 2) the calculation of settlement amounts payable to or between parties upon the termination of a transaction or an agreement. In order to promote legal certainty, FRFIs should seek to agree in writing with counterparties to all material terms governing their trading relationship prior to or at the time of execution of a non-centrally cleared derivative.

A FRFI should act honestly and in good faith when marketing, negotiating, entering into, executing and administering transactions with its clients or counterparties. Staff who are involved in trading or providing advice in relation to derivatives trades should have the appropriate education, skills, experience and training to carry out their responsibilities. FRFIs dealing in derivatives should also take reasonable steps to identify and address potential material conflicts of interest.

## Regulatory Compliance Risk

Given the global nature of derivatives markets, a FRFI should have procedures for identifying, risk assessing, communicating, managing and mitigating [regulatory compliance risk](#). A FRFI should maintain knowledge of [regulatory requirements](#) of all jurisdictions which may apply to its derivatives activities. Non-compliance with applicable regulatory requirements can have significant negative effects on a FRFI's reputation and/or safety and soundness and may lead to increased regulatory intervention.

## Business Resiliency and Continuity

FRFIs should have business resiliency and continuity plans in place to ensure their ability to operate on an ongoing basis and limit losses in the event of a severe business disruption commensurate with the nature, size and complexity of their operations. Continuity management should incorporate business impact analysis, recovery strategies, testing, training and awareness programs, and communication and crisis management programs.

FRFIs should consider derivatives activities when identifying critical business operations, key internal and external dependencies, and appropriate resilience levels. Depending on the nature, size, and complexity of the derivatives activities, plausible disruptive scenarios should be assessed for their financial, operational and reputational impact, and the resulting risk assessment should be the foundation for recovery priorities and objectives.

## Stress Testing

Stress testing [9](#) is a risk management technique used to evaluate the potential effects on a FRFI's financial condition, of a set of specified changes in risk factors, corresponding to exceptional but plausible events. It attempts to determine the impact of situations where the assumptions underlying established models used in managing a business break down. Stress testing should play an important role in facilitating the development of risk mitigation or contingency plans across a range of stress conditions, and should support the FRFI's decision making process. The sophistication of a FRFI's stress testing with respect to derivatives activities should be commensurate with the nature, size and complexity of its involvement.

Stress tests help detect vulnerabilities including unidentified risk concentrations or potential interactions between types of risks. They should include both historical events and the simulation of shocks that have not previously occurred, covering a range of risks and business areas. FRFIs may have large gross exposures to derivatives counterparties that may be particularly exposed to specific assets types and market movements. In the case of severe market shocks, these exposures may increase abruptly. The potential correlation of the probability of default of counterparties with market risk factors may emerge (i.e., wrong-way risk). Depending on the nature, size and complexity of its involvement in derivatives, a FRFI should ensure scenarios incorporate both [counterparty credit risk](#) and market risk, understanding the impact on collateral requirements during times of market stress. Senior



management should ensure the stress tests are well-understood, documented, and sufficiently severe relative to the FRFI and the complexity of its derivatives activities.

Stress scenarios should include abnormally large market swings and periods of prolonged inactivity. If appropriate, the tests should consider the effect of price changes on the close-out value of the portfolio, as well as changes in the assumptions about the adjustments to the close-out price (such as the impact that decreased liquidity would have on close-out costs). In addition to directional stress tests which impact the value of primary underlying risk factors, FRFIs should consider additional non-directional stresses (such as the breakdown in historically stable correlation relationships) as well as the use of [reverse stress tests](#) to, for example, manage market risk factor concentrations.

## System Infrastructure Considerations

A FRFI should ensure that its systems infrastructure keeps up with changes in the size and complexity of its derivatives activities and the derivatives markets in general. FRFIs should have a sound technology infrastructure that meets current and long-term business requirements as well as integrated and comprehensive risk management. A FRFI should ensure its derivatives systems have sufficient capacity and are designed appropriately for the scale of its current and expected derivatives activity.

## Trade Confirmation

A FRFI should establish and implement processes and procedures that allow it to confirm the material terms of bilateral derivatives transactions in a timely manner after execution to reduce the potential for losses from market risk or other sources. Where practicable based on the nature, size and complexity of the FRFI and its derivatives activities, electronic methods and standard settlement instructions should be used to maximize the use of straight through processing (STP) and allow for prompt [confirmation and affirmation](#). STP helps to ensure that data is disseminated quickly, accurately and efficiently throughout the FRFI, and allows for effective monitoring and control of risks from trade execution to settlement. Escalation procedures should be in place to seek to resolve unconfirmed transactions in a timely manner. As the confirmation and affirmation processes are critical controls, there should be an appropriate segregation of duties between these functions and the trading function.

## Portfolio Reconciliation

A FRFI should seek to periodically engage in [portfolio reconciliation](#) of uncleared derivatives with counterparties with whom it has a material number of derivatives outstanding in order to identify and facilitate resolution of discrepancies, particularly with respect to the valuation of OTC derivative transactions. Procedures should be in place in order to resolve any discrepancies or disputes with respect to material terms and valuations in a timely manner.

## Portfolio Compression

Portfolio compression is a post-trade processing and netting mechanism whereby substantially similar transactions among two or more counterparties are terminated and replaced with a smaller number of transactions of decreased notional value. For portfolios with large numbers of uncleared derivatives contracts containing substantially similar economic terms, a FRFI should periodically assess the potential for portfolio compression and, where appropriate, engage in portfolio compression on a bilateral and multilateral basis to reduce the risk, cost, and inefficiency of maintaining redundant transactions on the counterparties' books.

## Electronic Trading Platforms

While the number of derivatives contracts that are traded on exchanges or other electronic platforms globally has grown in recent years, the OTC portion of the market continues to dominate. OSFI expects FRFIs to support efforts to increase the movement of OTC derivatives trading to organized platforms as the standardization of derivatives increases and Financial Stability Board (FSB) member jurisdictions develop guidance regarding the use of electronic trading platforms.

## Reporting to Trade Repositories

### Objective

One of the main objectives of [Trade Repository](#) (TR) reporting is to improve transparency in the derivatives market by improving the availability of data to authorities in order to fulfill their respective mandates and monitor financial

stability.

## Global Legal Entity Identifier (LEI) System

In order to facilitate data reporting, the FSB is coordinating the development and implementation of the global LEI system that will uniquely identify parties to financial transactions. This initiative requires strong cooperation between the regulatory community and private sector stakeholders. OSFI expects that FRFIs will continue to actively participate in the development and implementation of the LEI initiative to facilitate trade reporting. They should not only obtain their own LEIs, but encourage their clients and counterparties to derivatives transactions to obtain a LEI.

## Reporting Obligation

Multiple TRs operate, or are undergoing approval processes, in a number of different jurisdictions, and the requirements for trade reporting currently differ across jurisdictions. OSFI expects that a FRFI report derivatives transactions to a recognized TR, following the derivatives data reporting requirements [10](#) that have been adopted in the province in which the the head office and/or principal place of business of the FRFI is located ("local reporting requirements"). A FRFI should have in place the necessary systems, processes and controls in order to meet the timing and content of the local reporting requirements. OSFI will monitor FRFIs' compliance with this requirement, and a FRFI acting as a dealer should include in its annual chief compliance officer (CCO) report [11](#) an assessment of its compliance with the local reporting requirements.

## Data Aggregation and Access

TR data are currently fragmented across many locations, stored in a variety of formats, and subject to many different rules for authorities' access. The data in these TRs will need to be aggregated if authorities are to obtain a comprehensive and accurate view of the global OTC derivatives markets. The global aggregation of TR data is a particularly complex issue and its feasibility is currently being analyzed through international work streams.

As FRFIs' primary prudential regulatory authority, OSFI continues to closely follow international developments and work with TRs regarding authorities' access to data. Although there are a number of issues that must be resolved before data can be meaningfully used by authorities, including information gaps, legal obstacles to data access, and technical fragmentation, OSFI expects to obtain access to TR data submitted by FRFIs. A FRFI should use its best

efforts to facilitate OSFI obtaining access to derivatives data reported to a TR.

## Capital for Derivatives Transactions

As is the case with all risk-bearing activities, the risk exposures a FRFI assumes in its derivatives activities should be fully supported by capital. A FRFI should ensure that its capital is sufficient to support all quantifiable risks, of which derivatives are a part, on a consolidated basis and that adequate capital is maintained in all group entities engaged in these activities. Credit, market, and operational risks need to be identified and incorporated into capital adequacy management.

A FRFI's analysis of its Internal Capital Adequacy Assessment Process (ICAAP) or Own Risk Solvency Assessment (ORSA) and stress testing program should consider the potential for material loss arising from its derivatives activities. The ICAAP or ORSA should address all material risks faced by the FRFI, and if appropriate, derivatives-related risks should be reflected in a FRFI's internal capital target.

## Other Guidance

This Guideline is complementary to, and should be read in conjunction with, other relevant OSFI guidance including, but not limited to:

- [Corporate Governance Guideline](#);
- [Capital Adequacy Requirements](#) (Banks and Trust & Loan Companies);
- Guideline A Life Insurance Capital Adequacy Test;
- Guideline A Minimum Capital Test;
- Guideline A Mortgage Insurer Capital Adequacy Test;
- Guideline A-4 Regulatory Capital and Internal Capital Targets;
- Guideline B-1 [Prudent Person Approach](#);
- Guideline B-2 [Large Exposure Limits \(D-SIBs\)](#);
- Guideline B-2 [Large Exposure Limits](#);
- Guideline B-2 Large Exposure Limits for Property and Casualty Insurance Companies;



- Guideline B-6 Liquidity Principles;
- Guideline B-11 [Pledging](#);
- Guideline D-6 Derivatives Disclosure;
- Guideline E-13 [Regulatory Compliance Management](#);
- Guideline E-18 [Stress Testing](#);
- Guideline E-19 [Internal Capital Adequacy Assessment Process \(ICAAP\)](#);
- Guideline E-19 [Own Risk and Solvency Assessment \(ORSA\)](#); and
- Liquidity Adequacy Requirements.

## Glossary

Active position-taker:

a type of end-user that uses derivatives to dynamically manage risk, either to reduce risk or increase the risk profile of the FRFI. These end-users generally have large derivative positions and tend to use more complex derivative structures than other end-users.

Arbitrage:

trading strategies designed to profit from price differences for the same or similar instruments in different markets.

Basis risk:

the exposure of a transaction or portfolio to differences in the price performance of the derivatives it contains and their hedges.

Bilateral netting:

a general term describing an arrangement to consolidate multiple offsetting obligations between two counterparties into a single bilateral obligation. The obligations covered by the arrangement may arise from financial contracts, transfers or both.

Clearing member:

a member of, or a direct participant in, a CCP that is entitled to enter into a transaction with the CCP, regardless of whether it enters into trades with a CCP for its own purposes or whether it also enters into trades as a financial intermediary between the CCP and other market participants.

Client:

a party to a transaction with a CCP through either a clearing member acting as a financial intermediary, or a clearing member guaranteeing the performance of the client to the CCP.

Credit support annex:

a legal document which documents collateral arrangements between two counterparties to an OTC derivative transaction.

Confirmation and affirmation:

the process in which the terms of a trade are verified either by market participants or by a central entity. A trade confirmation is legal evidence of the terms of a derivatives transaction. Trade affirmation involves acknowledging a counterparty trade notification or confirmation.

Counterparty credit risk:

the risk that the counterparty to a transaction could default before the final settlement of the transaction's cash flows.

Credit default swap:

provides protection against credit losses associated with a default on a specified reference asset. The swap purchaser (beneficiary) swaps the credit risk with the provider of the swap (guarantor).

Credit risk exposure:

the amount at risk from the failure of a counterparty to perform its obligation, regardless of the probability of default or severity of loss. For derivative transactions, credit exposure is a function of the replacement cost and the potential future exposure.

Delta risk:

the risk measured by the rate of change in the derivative value corresponding to a given change in the value of an underlying asset.

Dealer:

a financial market intermediary who acts as a principal by buying or selling from its own account. Dealers may also act as market makers by regularly quoting bid and offer prices and standing ready to make a two-sided market.

End-user:

enters into derivatives transactions in an investment portfolio context to hedge positions arising from a mix of assets and liabilities.

Gamma risk:



the risk measured by the rate of change of delta.

Legal risk:

the risk of an unexpected application of a law or regulation, usually resulting in a loss..

Linear derivative:

a derivative that displays linear price characteristics.

Market liquidity risk:

the risk that an entity cannot easily offset or eliminate a position at the market price because of inadequate market depth or market disruption.

Market value:

the amount obtainable from the sale or payable on the acquisition of a financial instrument in an active market or, when a quoted market value is not available, the amount that could be exchanged or settled between knowledgeable, willing parties in an arm's length transaction.

Non-linear derivative:

a derivative that does not display linear price characteristics. Options are one example of a non-linear derivative.

Operational risk:

the risk of loss resulting from people, inadequate or failed internal processes and systems, or from external events.

Peak exposure:

a high percentile (typically 95% or 99%) of the distribution of exposures at any particular future date before the maturity date of the longest transaction in the netting set. A peak exposure value is typically generated for many future dates up until the longest maturity date of transactions in the netting set.

Portfolio reconciliation:

a post-execution processing and risk management technique designed to (i) identify and resolve discrepancies between counterparties regarding material terms of OTC derivatives, (ii) ensure effective confirmation has taken place and the continued accuracy of records of material terms, and (iii) identify and promote the resolution of discrepancies between counterparties regarding valuations.

Qualifying Central Counterparty (QCCP):

an entity that is licensed to operate as a CCP (including a license granted by way of confirming an exemption), and is permitted by the appropriate regulator/overseer to operate as such with respect to the products offered.

**Regulatory compliance risk:**

a risk that arises from a FRFI's potential non-conformance with laws, rules, regulations, prescribed practices, or ethical standards in any jurisdiction in which it operates.

**Regulatory requirements:**

provisions in legislation, regulations or regulatory directives applicable to a FRFI or a subsidiary worldwide that require a FRFI or subsidiary to do (or prohibit it from doing) certain things or to act or conduct its affairs in a particular manner.

**Reverse stress test:**

a test that starts with a specified outcome that challenges the viability of the FRFI. The analysis would then work backward (reverse engineered) to identify a scenario or combination of scenarios that could bring about such a specified outcome.

**Risk Appetite Framework:**

an integral part of a FRFI's overall enterprise-risk management framework. It should contain a risk appetite statement (reflecting the aggregate level and type of risk that a FRFI is willing to accept in order to achieve its business objectives) and risk limits, as well as an outline of the roles and responsibilities of those overseeing the implementation of the Risk Appetite Framework

**Standardized derivative:**

a derivative that may be suitable for central clearing based on the degree of standardization of the product's contractual terms and operational processes, the depth and liquidity of the market, and the availability of fair, reliable and generally accepted pricing sourcing.

**Straight-through processing (STP):**

automated processing that allows data to be entered into technical systems once and is then used for all subsequent processing of transactions.

**Symmetric payoffs:**

a pattern of changes in value that moves continuously and proportionally up or down in response to price movements of an underlying security or other instrument. Traditional securities, futures and forwards tend to have symmetric payoffs. Options and instruments with option components typically have asymmetric payoff patterns over some price ranges.



Theta risk:

a risk measured by the exposure to a change in the value of an option due to the passage of time.

Trade repository:

an entity that collects and maintains a centralised electronic record (database) of derivatives transaction data.

Variation margin:

an amount of collateral posted to cover exposures resulting from actual changes in market prices. (Also known as "mark-to-market margin").

Vega risk:

a risk measured by the sensitivity of the value of an option to a change in the volatility of the underlying asset.



## Footnotes

- 1 See section 415.2 of the *Bank Act*.
- 2 For additional guidance in this area, please refer to OSFI's [Corporate Governance Guideline](#).
- 3 VaR is a technique that uses statistical analysis of historical data to estimate the likelihood that a given portfolio's losses will exceed a certain amount. Expected Shortfall (ES) measures the riskiness of a position by considering both the size and the likelihood of losses above a certain confidence level. Future updates to OSFI guidance will be made as international convergence is achieved.
- 4 In accordance with the requirements of OSFI Guideline A Capital Adequacy Requirements, if applicable.
- 5 For options referencing multiple underliers, FRFIs with more complex and material risks are expected to use more sophisticated methodologies and include each of the above for each underlying, as well as understanding the contribution of the cross-gamma terms between the underliers.
- 6 For additional guidance in this area, please refer to OSFI's guideline B-1 [Prudent Person Approach](#).
- 7 The CVA capital charge does not apply to centrally cleared derivatives.
- 8 The Bank of Canada is responsible for the oversight of CCPs that it has designated under the [Payment Clearing and Settlement Act](#). Provincial securities regulators oversee all CCPs carrying on business in their province.
- 9 For additional guidance in this area, please refer to OSFI's Guideline E-18 [Stress Testing](#).
- 10 Developed in coordination with the Canadian Securities Administrators Staff Consultation Paper 91-301, Model Provincial Rules- Derivatives- *Product determination and Trade Repositories and Derivatives Data Reporting*.
- 11 For additional guidance in this area, please refer to OSFI's Guideline E-13 [Regulatory Compliance Management](#).