

CALPERS INVESTMENT OFFICE
DERIVATIVES AND COUNTERPARTY RISK PROCEDURES MANUAL

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I. Overview

These procedures are governed by the California Public Employees' Retirement System (CalPERS) Statement of Investment Policy for Global Derivatives and Counterparty Risk. The procedures documented herein pertain to the administration of CalPERS derivatives trading activities and Counterparty Risk Management.

II. Scope

A. Benefit Plans/Trusts Covered under these Procedures

These procedures apply to the use of derivatives by CalPERS within the following Defined Benefit, Health Care, and Defined Contribution Benefit Plans/Trusts:

1. Public Employees' Retirement Fund (PERF)
2. Legislators' Retirement System (LRS)
3. Judges' Retirement System I (JRS I)
4. Judges' Retirement System II (JRS II)
5. Long Term Care (LTC) Fund
6. Health Care Fund (HCF)
7. Contingency Reserve Fund (CRF)
8. California Employers' Retiree Benefit Trust (CERBT) Fund
9. Supplemental Income Program Defined Contribution (SIP DC) Funds
 - a. CalPERS 457
 - b. State Peace Officers' and Firefighters Supplemental Plans (POFF)
 - c. Supplemental Contribution Program (SCP)
 - d. Placer County 457/401K

III. Derivatives Terminology

A derivative is broadly defined as a financial instrument whose value, usefulness and marketability, is derived from or linked to the value of an underlying security, commodity, or index that represents either direct ownership of an asset or the direct obligation of an issuer, otherwise known as the cash market instrument.

Generally speaking, there are five main categories of derivatives identified by the assets from which they are derived:

- Currency derivatives
- Interest rate derivatives
- Credit derivatives
- Commodity derivatives
- Equity derivatives

A derivative position can be expressed using a number of different financial instruments, each of which has a unique regulatory, risk and documentation context:

- A futures contract
- A cleared derivative
- An over-the-counter (OTC) derivative
- A hybrid instrument that embeds a derivative in a debt instrument

Derivatives under these procedures include, without limitation:

- Futures contracts
- Options
- Options on futures contracts
- Forward contracts
- Swap agreements
- Security based swap agreements

- Swap contracts with embedded options
- Instruments or contracts intended to manage transaction or currency exchange risk in purchasing, selling or holding investments

Spot Foreign Exchange transactions with settlement date up to T+5 shall be exempt from these procedures.

Cash transactions in any asset class are not derivatives. Derivatives, as defined in these procedures, shall not be construed to include a broad range of securities, such as Collateralized Mortgage Obligations (CMOs) and convertible bonds.

IV. Execution Venue

Derivatives may be purchased through a national exchange, via a Swap Execution Facility, or through a direct OTC arrangement with a Counterparty. All execution venues shall be registered in the US or UK and subject to Commodities and Futures Trading Commission (CTFC), Securities and Exchange Commission (SEC) or Financial Services Authority (FSA) regulation.

V. Mark to Market Requirements

To ensure compliance with these procedures, all internally and externally managed derivatives (other than derivatives held through Limited Liability Entities) must be marked to market on a daily basis by the Fund's external custodian and such reports will be reviewed for accuracy by the Investment Office (INVO) Investment Servicing Division.

VI. New Product/Strategy Approval Process

A. Internal Investment Strategies:

Prior to the implementation of a new internal derivative instrument type or application, Staff shall prepare a new product approval report to be submitted to the INVO Derivatives and Counterparty Risk Committee for review and approval. If the derivative falls outside of the scope permitted in these procedures or other INVO policies, the appropriate documentation and policy revisions will be prepared for Investment Committee (IC) review and approval. Approved products will be added to the Approved Derivatives Product Matrix for reference by Staff. The Approved Derivatives Product Matrix shall be reviewed on an annual basis to reaffirm that proper execution, operational and risk management processes are still in place for products that have not been traded in the prior year.

B. Manager Investment Strategies:

Managers must seek approval with the appropriate Staff for any new derivatives transaction or derivatives strategy that is not expressly permitted under their Investment Management Agreement (IMA), Investment Guidelines or these procedures or other INVO policies. Updates to IMA/Guideline documentation, changes to these procedures or a transaction specific exemption based on the approval of the Chief Investment Officer (CIO) may be considered after thorough review of the proposed strategy.

VII. Counterparty Requirements

A. OTC Counterparty Exposure:

CalPERS shall enter into OTC derivative agreements only with qualified counterparties (must be classified as a Swap Dealer by the CFTC) and shall limit its exposure to any one OTC Counterparty:

Exposure to OTC counterparties shall be quantified for each CalPERS Trust or Plan¹ by determining the Absolute Net Market Value Exposure² on a weekly basis inclusive of internal positions and those executed by Managers operating under IMAs. Exposure to any individual counterparty will be limited to the maximum Absolute Net Market Value Exposure by Counterparty Credit Rating outlined in the table below. If a Counterparty is split rated, the higher credit quality rating will be used as a basis for the limit determination. The limits shall be used to monitor existing counterparty exposure on an ongoing basis to determine if any risk reducing actions are required. If the exposure limit is exceeded with an existing Counterparty, Staff shall inform Senior Management and Investment Compliance and Operational Risk (ICOR) Staff as soon as practical and take appropriate corrective action within 60 days or determine a corrective action plan which shall be presented to the INVO Derivatives and Counterparty Risk Committee at the next regularly scheduled meeting.

PERF OTC Exposure Limits	
Counterparty Credit Rating (S&P/Moody's)	Maximum Absolute Net Market Value Exposure
A2/A and above	750MM
A-/A3	500MM
Baa1/BBB+	100MM
Baa2/BBB	0MM (Not Allowed)

¹ OTC derivatives are currently only transacted in the PERF. Should those circumstances change these procedures will be amended with specific limits for the additional Trust or Plan that is transacting OTC derivatives.

² The Absolute Net Market Value exposure is the mark to market on the positions with each counterparty excluding any collateral posted to offset credit risk

1. The INVO Derivatives and Counterparty Risk Committee will resolve any issues with allocation of OTC counterparty limits across internal strategies and Manager strategies. CalPERS may request an adjustment of the OTC exposure of a Manager as it manages its overall counterparty exposure.
2. All OTC derivative transactions, including those managed through IMAs, must be subject to established International Swaps and Derivative Association (ISDA) Master Agreements and have full documentation of all legal obligations of both parties to each transaction and should clearly specify which CalPERS Benefit Plan/Trust is party to the agreement. All ISDA Master Agreements entered into by or on behalf of CalPERS by Staff or a Manager engaged pursuant to an IMA shall provide for netting of obligations. Staff and Managers shall also use collateral arrangements to mitigate counterparty credit or performance risk and where possible shall set thresholds to zero in credit support annex (CSA) agreements. If transacting with counterparties rated below A2/A thresholds amounts must be set to zero in the CSA agreement. Spot Foreign Exchange transactions with settlement date up to T+5 shall be exempt from these requirements.
3. Approved OTC counterparties: CalPERS will maintain an approved OTC Counterparties list to be referenced and used by Staff when transacting derivatives. Managers engaged under IMAs may enter into agreements and transact with counterparties that comply with the selection criteria specified in their IMA, Investment Guidelines and these procedures.

B. Futures Clearing Merchant/Cleared Derivatives Exposure:

CalPERS (Staff and Managers operating under IMAs) shall enter into Futures Clearing Merchant (FCM) agreements only with qualified entities in good standing with the CFTC, National Futures Association (NFA) and other regulatory bodies and that have an established track record of clearing derivatives transactions through central clearinghouses. At a minimum, a FCM must have more than \$1 billion in customer assets and \$1 billion in excess net capital as reported in the monthly CFTC FCM data. CalPERS shall seek to limit its exposure to any one FCM:

1. Exposure to FCMs will be quantified for each CalPERS Trust or Plan by the amount of Initial Margin/Collateral posted inclusive of both internal positions and those managed by Managers under IMAs which is outlined in the table below.

CalPERS Trust or Plan	Maximum Initial Margin/Collateral per FCM
PERF Trust	750MM

If the exposure limit is exceeded continuously for more than 10 days with a FCM, Staff shall inform Senior Management and ICOR Staff as soon as practicable and take appropriate corrective action within 60 days or determine a corrective action

plan to be presented to the INVO Derivatives and Counterparty Risk Committee at the next regularly scheduled meeting.

FCM exposure monitoring will be triggered and specific limits applied only when the aggregate initial margin posted to FCMs exceeds \$25 million within a CalPERS Trust or Plan.

2. The INVO Derivatives and Counterparty Risk Committee will resolve any issues with allocation of FCM counterparty limits across internal and Manager strategies. CalPERS may request an adjustment of the FCM exposure at a Manager as it manages its overall FCM counterparty exposure.
3. All futures and cleared derivatives transactions, including those managed through IMAs, must be subject to established FCM Agreements, Cleared Derivatives Execution Agreements and have full documentation of all legal obligations of both parties to each transaction and should clearly specify which CalPERS Benefit Plan/Trust is party to the agreement.
4. FCMs shall be evaluated on an annual basis by reviewing relevant Statement on Auditing Standards No. 70 or Service Organization Control audit documentation, CalPERS internal operational scores for the FCM, any regulatory actions and any changes in the risk profile of the FCM. Any material changes in the operating profile of the FCM should be brought to the attention of the INVO Derivatives and Counterparty Risk Committee.

C. Clearinghouse Exposure:

CalPERS shall only use established clearinghouses with a good operational track record and in good standing with regulatory entities including the CFTC and SEC. Staff shall utilize third party experts to assist with providing due diligence of clearinghouse risk controls, systems and operations in determining appropriateness of these entities for CalPERS use in our investment process. Staff shall evaluate periodically (no less than annually) for any changes in the risk profile of each clearinghouse to reaffirm their appropriateness for continued use in CalPERS investment processes.

D. Eligible Short Term Trading Counterparties

For the purposes of these procedures eligible counterparties for short term transactions (to include Repurchase Agreements, Tri-Party Repurchase Agreements, Forward Settling MBS transactions and Securities Lending Transactions) with settlement date within 90 days must meet the following minimum criteria:

1. Any bank or broker/dealer explicitly rated A2/P2/F2 by at least two of the three rating agencies. In the case of split ratings, measure against the lowest of the three ratings.
2. Any bank branch whose parent is rated A2/P2/F2 (by at least two out of the three agencies).
3. Any subsidiary of a parent entity rated A2/P2/F2 carrying a guarantee of the parent.

In all cases, ratings must be issued by two out of the three agencies; in the case of split ratings, measure against the lowest of the three ratings.

VIII. Derivatives Position Limits

CalPERS Benefit Plans/Trusts shall comply with all derivative position and aggregate limits established by the applicable regulatory and legal organizations and authorities within each jurisdiction.

IX. Development of Derivatives Guidelines

A. Minimum Requirements for Internal Guidelines:

Derivatives Guidelines written to cover each Internal derivative strategy in INVO shall at a minimum contain the following:

1. Purpose of the derivative strategy
2. Description of the risks inherent in the strategy and how they shall be managed. At a minimum, the descriptions shall include market risk, liquidity risk and legal risk
3. An appropriate risk analysis and monitoring capabilities for any derivative strategy implemented
4. Description of the leverage employed under the strategy, the prudent reasons for employing leverage and the definition of leverage specific to the strategy, shall be consistent with any INVO leverage policy
5. Acceptable limits on overall exposure to be achieved through derivatives
6. Procedures for monitoring and managing the derivative exposure relative to the strategy including protocol for prompt reporting of violations of limits or other policy requirements
7. Prohibited uses of derivatives and general restrictions on their use

8. Operational requirements for pricing, accounting and performance measurement of the derivatives used
9. Provide for periodic Staff review, at least annually, of the Derivatives Guidelines, specifically addressing the risks and assumptions it contains

B. Minimum Requirements for External Manager Guidelines:

Derivatives Guidelines written to cover each External Manager strategy shall at a minimum contain the following:

1. Derivatives Policy Requirement

External Managers shall prepare, maintain and periodically review a written derivatives policy that addresses the following areas:

- a. Systems and operational controls for supporting derivatives use
- b. Risk management function and monitoring of risk exposures
- c. Counterparty/credit risk management
- d. Accounting and reconciliation processes
- e. Pricing and valuation of derivatives
- f. Reporting of derivatives
- g. Internal compliance and regulatory compliance processes
- h. Escalation processes and management supervision
- i. Internal and external audit processes

2. Documentation

- a. Managers shall maintain all necessary documentation required to support enforceability of a claim arising from derivatives transactions
- b. All agreements, confirmations and other trade documentation shall be maintained by the Manager and be made available to CalPERS upon request

3. Risk Evaluation

Managers shall provide periodic (no less than annually) quantitative and qualitative evaluations of the risks across the following categories related to the derivatives strategies being executed on behalf of CalPERS:

- a. Market risk
- b. Credit risk
- c. Liquidity risk
- d. Basis risk
- e. Legal risk
- f. Settlement risk
- g. Operational risk

4. Pricing and Valuation

Managers shall mark to market derivatives positions daily using relevant market pricing or standard models to arrive at derivatives valuations

5. Reconciliation

Managers shall reconcile daily cash and margin positions with CalPERS master custodian bank

6. Permitted and Restricted Instruments

The guidelines shall specify which derivatives instruments are permitted for use within the account referenced in the IMA

7. Risk Limits

- a. The guidelines shall include risk limits for the use of derivatives
- b. The guidelines shall state whether leverage is permitted in the portfolio and set an appropriate limit on leverage if it is permitted

8. Counterparty Requirements

Managers shall maintain a written counterparty credit policy that:

- a. Outlines acceptable credit standards the counterparty must meet
- b. Specifies how a counterparty is evaluated versus those standards
- c. Specifies a list of approved counterparties with credit exposure limits
- d. Outlines the frequency of review for the approved list
- e. Outlines procedures and process for enforcing the counterparty credit policy

9. Reporting Requirements

At a minimum each Manager shall prepare a monthly report outlining the counterparties used, notional exposure, market value, profit and loss on the positions and amount of net exposure inclusive of and excluding collateral.

X. Approved Derivatives Product Matrix

Product	Approved for Strategy	Review Date	Conditions of Approval
Foreign Exchange Forward	Global Equity Global Fixed Income Currency Program Asset Allocation		
Currency Swap	Currency Program Asset Allocation		
Currency Options	Global Fixed Income Currency Program Asset Allocation		
Equity Index Swap	Global Equity Asset Allocation		
Commodity Index Swap	Commodity Program Asset Allocation		
Commodity Futures	Commodity Program Asset Allocation		
Commodity Options	Commodity Program Asset Allocation		
Fixed Income Index Swap	Global Fixed Income Asset Allocation		
Interest Rate Swap	Global Fixed Income Asset Allocation		
Credit Default Swap	Global Fixed Income Asset Allocation		
Total Return Swap	Commodity Program Global Equity Global Fixed Income Asset Allocation		
Equity Futures	Global Equity Asset Allocation		
Equity Options	Global Equity Asset Allocation		
Interest Rate Futures	Global Fixed Income Asset Allocation		
Interest Rate Options	Global Fixed Income Asset Allocation		

XI. General Reporting Responsibilities

Any violations of the provisions laid out in these procedures should be reported immediately to Senior Management and to ICOR Staff.