CALSTRS

CALIFORNIA STATE TEACHERS'
RETIREMENT SYSTEM

FIXED INCOME INVESTMENT POLICY

INVESTMENT BRANCH

MARCH 2019

D. Fixed Income Investment Policy

EXECUTIVE SUMMARY

In accordance with the CalSTRS Investment Beliefs and the CalSTRS Investment Policy and Management Plan, (IPMP), the California State Teachers' Retirement System Board has established an allocation for fixed income securities, a liquid and efficient market. CalSTRS' fixed income assets are to be invested, administered, and managed in a prudent manner for the sole benefit of its participants and beneficiaries, in accordance with the California Constitution, the Teachers' Retirement Law, and other applicable statutes. The CalSTRS Investment Beliefs provide a foundational framework to all of CalSTRS investment decision makers and shall guide investment decisions. No investment instrument or activity prohibited by the IPMP shall be authorized for the Fixed Income portfolio.

This document is intended to summarize the fundamental objectives and considerations used in the investment, administration, and management of the Fixed Income portfolio. These policies are designed to set boundaries that will ensure prudence and care in the management of the fixed income assets, while allowing sufficient flexibility in the management process to capture investment opportunities.

CalSTRS believes that environmental, social, and governance, ESG, issues can affect the performance of our investments. As a result, the CalSTRS ESG Policy has been developed as a tool that both internal and external investment managers are expected to use to assess the impact of ESG risk when making an investment on behalf of CalSTRS.

Detailed procedures and guidelines for each of the portfolios are maintained separately.

As with all other plan assets, these policies cannot be altered without explicit direction from the Board. A flowchart (Exhibit 1) is included to provide the context for the policies within the general process of implementing the Fixed Income portfolio. Words and terms that may be unfamiliar to the reader are referenced in the glossary.

PROGRAM OBJECTIVES

a. **Long-term Assets:** The internally and externally managed long-term fixed income assets shall be invested to improve the diversification of the total investment portfolio and to enhance its risk-adjusted total return.

b. **Short-term Assets:** The investment objective for the internally managed liquidity portfolio is to seek the preservation of capital and liquidity, and to generate the highest possible current income consistent with a prudent level of risk available from investing in a diversified portfolio of short-term fixed income securities.

c. **Cash Management:** The investment objective for the cash management function is to facilitate cash needs, utilizing various tools, as directed by the chief investment officer, deputy chief investment officer, or designee, in order to minimize the cost of raising cash and limit the effect on the investment managers.

Monitoring and oversight of the implementation of fixed income assets shall come under the purview of the director of fixed income.

PERFORMANCE OBJECTIVES

The CalSTRS Fixed Income Portfolio includes core and opportunistic fixed income strategies which, in aggregate, are to be structured to achieve a long-term total return consistent with the policy benchmarks representative of the fixed income markets.

Separate and distinct performance objectives and benchmarks shall be established for each of the portfolio mandates (e.g., Core, Core Plus, Short-Term) in order to determine whether each portfolio is representative of the market style adopted, and whether the performance objectives have been met.

PROGRAM BENCHMARK

The Fixed Income Policy benchmark is (95%) Bloomberg Barclays U.S. Aggregate Custom Index + (5%) Bloomberg Barclays U.S. High Yield 2% Issuer Capped Custom Index.

PROGRAM STRUCTURE

Asset Allocation: Under the direction of the director of fixed income, staff has discretion, within the range in the table below, to implement tactical allocations in the Fixed Income portfolio.

The long-term assets will be a blend of two major strategies: 1) core and, 2) opportunistic. The core strategy represents a relatively efficient, cost-effective way to provide market-like returns over time. The opportunistic strategy is to be composed of active portfolios with higher levels of risk and higher expected returns. It is anticipated that allocations to the core and opportunistic strategies will develop over time, as follows:

Strategy	Mgmt. Style	Range
Core	Enhanced Indexing	70% – 100%
Opportunistic	Active	0% – 30%

Eligible Securities:

a. **Debt Securities** – All securities that qualify for inclusion in the performance benchmark. While the performance benchmark has clearly defined rules regarding how sectors and securities are determined to be included, securities that do not technically meet those rules but are correlated to the sector are permitted, as documented within the investment guidelines.

b. **Derivatives** – The objectives for using derivatives are to assist in the efficient management of risk, asset allocation, and market exposures in the Fixed Income portfolio through the use of tools such as futures, options, swap agreements, or forward agreements. The implementation of the derivatives strategies shall be thoroughly vetted by staff to conform to the risk management section of this policy, along with the ranges specified within the fixed income diversification guidelines. In addition, these strategies may not increase or decrease the fixed income exposure to the total fund outside the ranges identified within the strategic asset allocation section of the IPMP. Further limitations with respect to aggregate risk control and counterparty exposure shall be documented within the investment guidelines.

Fixed Income Internal/External Management: The Fixed Income portfolio is managed by both internal staff and external investment managers. Within the boundaries established in the procedures, the decision to hire an external manager or utilize internal investment staff for an investment strategy is made by applying a board-approved criteria matrix (Exhibit 2) to evaluate a variety of factors including, but not limited to, cost effectiveness/control, market transparency and liquidity, market efficiency, active risk, and infrastructure/resource requirements. CalSTRS uses active external management as a tool to implement a portion of its opportunistic strategies and to allocate risks where it believes there is the greatest opportunity for enhanced returns relative to the core Fixed Income portfolio.

Within the boundaries and ranges established by these policies, staff is responsible for the selection, allocation, and oversight of the external fixed income managers. Manager guidelines, objectives, benchmark selection, tracking error, portfolio composition, constraints, and trading activities are to be administered by staff and integrated into the fixed income risk budget. CalSTRS shall also maintain a pool of managers to supplement the existing managers or replace a terminated manager, as needed.

Transition Management: The Fixed Income unit may use internal staff or external managers to prudently administer and liquidate, if advisable, the existing portfolios of managers that have been relieved of investment management responsibility for CalSTRS.

Other Strategies: Periodically the Board will approve investment strategies that may or may not be managed within the fixed income asset class specifically, but are instead designed to take advantage of an opportunity and/or to meet a performance objective. Unless a strategy is addressed by a specific policy of its own, Fixed Income staff is responsible for the implementation of any strategy that may be directed by the chief investment officer, deputy chief investment officer, or designee, within the boundaries and ranges established by this policy. Investment guidelines, benchmark selection, tracking error, portfolio composition, constraints, and trading activities are to be administered by staff and integrated into the CalSTRS strategic asset allocation process and risk budget.

RISK MANAGEMENT

Delegation of Authority: The investment, administration, and management of the fixed income assets and strategies are delegated to staff within the boundaries established by policy and the processes described within the relevant investment guidelines.

Tracking Error: Portfolios are managed within predefined risk or tracking error guidelines. Tracking error can be defined as the amount of quantifiable risk an investor is willing to take relative to a benchmark. CalSTRS manages its risk using tracking error deviation as a way to control overall portfolio risk. This quantifiable risk is then budgeted among the various sub-asset classes of the Fixed Income portfolio. These risks are monitored on a daily basis by each portfolio manager and reported weekly to the director of fixed income.

Diversification: Diversification within investment portfolios is critical in order to control risk and maximize returns. Minimum and maximum ranges with respect to investment sectors, credit exposure, and duration shall be established for the Fixed Income portfolio within the context of the performance benchmark. Such ranges shall be documented within the investment guidelines and are subject to change as conditions warrant, as determined by the director of fixed income.

Authorized Staff: Authorization letters which specify who may transact business for the portfolio, shall be sent with a copy of the most recent investment resolution, initially at the time an account is opened, and then periodically to all fixed income broker/dealers with whom CalSTRS conducts business. Whenever a change in authorized staff takes place, the broker/dealers shall be notified in writing within 24 hours in the event of termination, and as soon as possible in the event of newly authorized investment staff.

Trading Parameters: The following parameters apply with respect to the non-cumulative daily trade activity within the internally managed portfolios, which include core and opportunistic fixed income assets. For derivative instruments, overlay and transition management portfolios, tighter trading parameters may be applied.

Investment Officer I	up to 2% of related internally managed portfolio
Investment Officer II	up to 4% of related internally managed portfolio
Investment Officer III	up to 6% of related internally managed portfolio
Associate Portfolio Manager	up to 8% of related internally managed portfolio
Portfolio Manager	up to 10% of related internally managed portfolio

Director of Fixed Income	up to 5% of total Fixed Income portfolio
Deputy Chief Investment Officer	up to 10% of total Fixed Income portfolio
Chief Investment Officer	up to 10% of total Fixed Income portfolio

Short-term Assets: No daily limits with respect to the approval of trade activity within the liquidity portfolio shall be established.

MONITORING AND REPORTING

The following reports will be prepared and presented to the Board, unless otherwise stated, in order to facilitate visibility of compliance monitoring and reporting according to this document:

a. **Fixed Income Status Report** – prepared by staff and distributed to the chief investment officer and deputy chief investment officer (monthly)

b. **Fixed Income Semi-Annual Report** – prepared by staff

c. **Performance Report** – prepared by master custodian/consultant (semi-annually)

d. **Investment Manager Ratings Report** – prepared by staff (semi-annually)

e. **Business Plan** – prepared by staff (annually)

BOARD REVIEW

Consistent with all other plan assets, the Board or the Investment Committee will review and/or alter this policy periodically, as deemed appropriate and in keeping with its fiduciary duties and standards.

Adopted by the Teachers' Retirement Board on July 8, 1993
Revised on June 5, 1996
Revised on April 7, 1999
Revised on October 11, 2000
Revised to adopt Lehman Agg (from Salomon LPF) benchmark on July 10, 2002
Revised to increase external management on December 7, 2005
Revised to integrate BlackRock System processes on September 7, 2006
Revised to adjust benchmark, post restructuring on April 4, 2007
Revised to integrate Cash Management function on July 13, 2007
Revised to include the Authorized Use of Derivatives on June 4, 2008
Revised to adjust the Risk Management - Trading Parameters on September 3, 2009
Revised to integrate Other Strategies management on July 9, 2010
Revised to clarify portfolio structure, derivatives and trading ranges on November 3, 2011
Revised to add ESG Risks policy reference on September 10, 2013
Revised to remove reference to presentation of annual report on April 4, 2014
Revised to update benchmark, on November 16, 2016
Revised to define APM trading linits, updated flowchart (Exhibit 1) to reflect APM in the hierarchy and reflect new reporting frequency on April 5, 2017
Revised to reflect new policy format on March 27, 2019

Exhibit 1

POLICY IMPLEMENTATION FLOWCHART

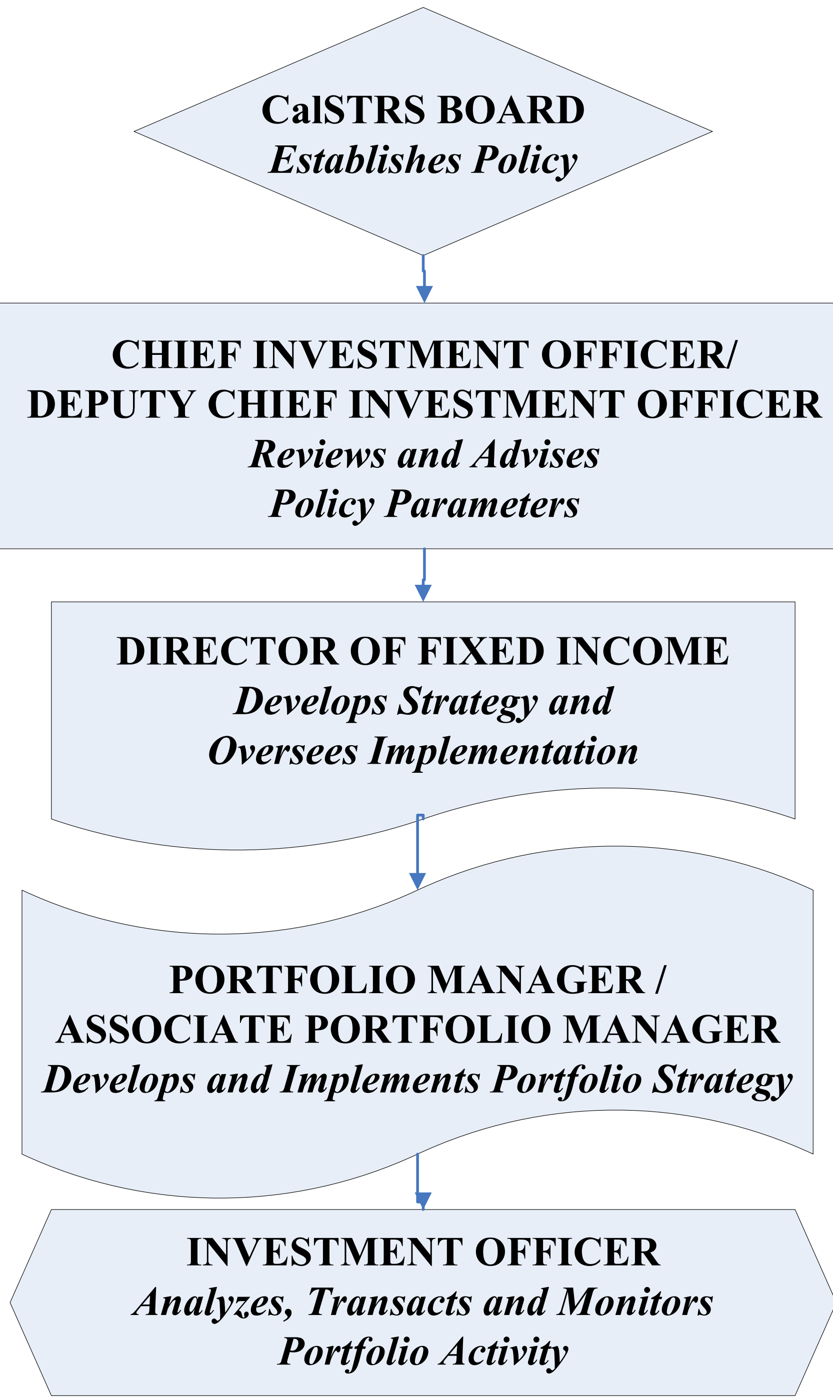

Exhibit 2

INTERNAL / EXTERNAL DECISION CRITERIA MATRIX

Decision Factors	Low	Medium	High
Cost-Effectiveness/ Control	External	External/Internal	Internal
Market Liquidity & Transparency	External	External/Internal	Internal
Market Efficiency	External	External/Internal	Internal
Active Risk	Internal	External/Internal	External
Infrastructure/ Resource Requirements	Internal	External/Internal	External

Cost-Effectiveness/Control

After including all costs, is internal management able to add more value than external management? All things being equal, management fees increase in direct relation to the risk and complexity of the strategy being managed. Given the narrower band for tracking error (i.e., risk) described earlier in this paper, passive management usually provides opportunities for more cost-effective management of assets, while active management presents the potential to generate alpha. For active management to make sense in the Portfolio, the strategy must generate returns in excess of the benchmark net of management fees which, as discussed in last year's active/passive study, is difficult to accomplish consistently.

The decision to manage a portfolio internally or externally should not be based solely on who provides the cheapest management fees. Even though many studies have shown that internal asset management typically has a lower cost structure than external management, a more holistic view should be used in the decision making process, which includes control of the assets and market awareness of internal staff. Internal management, it has been argued, allows better coordination over when and how assets are deployed, permits greater control over corporate governance issues, and allows for a more straightforward mechanism to customize investment mandates that align with a plan sponsor's unique directives. In other words, internal management is able to focus on CalSTRS as its one and only client, versus the multiple accounts among which an external manager must divide its attention. Also, as internal staff begins to manage new strategies, staff should continue to identify additional ways to take advantage of market inefficiencies when they occur. It should be noted, however, that building in-house investment management expertise can be difficult, given the employment and hiring practices dictated by State employment.

While there seem to be many benefits to internal management, we should recognize that bringing assets in-house requires significant up-front costs which can then be amortized over the investment period. These costs include sufficient staffing levels, computer support systems, specialized software/technology, and access to investment-related data. It is clear that building and sizing the infrastructure, risk management and trading systems, and people are critical to investment success. The same criteria we apply to external managers in terms of people, process, and philosophy apply internally, as well. However, once an infrastructure has been established for an asset class, the incremental costs of adding new strategies may be minimal, depending upon the strategy.

Market Transparency and Liquidity

Does the market have enough liquidity and transparency to allow for effective management of the strategy? While it appears that the internal versus external management debate centers around the public (i.e., fixed income and equity) markets, as opposed to the private markets (i.e., private equity and real estate), it is really the transparency and liquidity of the markets within which each strategy trades that is the primary decision factor.

Private markets are generally less transparent and liquid than other asset classes within the Fund. Public equity and debt markets are more transparent, have broadly and widely recognized indices, are highly liquid, and are amenable to structuring a broadly diversified portfolio. This liquidity and transparency, in terms of widely followed market information and pricing, make equity and fixed income portfolio management a different kind of management challenge, as the assets are broadly available for purchase and sale to all with a mandate and the proper business infrastructure/resources.

Market Efficiency

Does the strategy operate in a market that is efficient or inefficient? Market efficiency refers to the degree that all investors in a market have access to the same information and, at any given time, security prices reflect all available market information. The decision to manage an active or passive strategy should be directly based on the efficiency of the market. For markets that are considered highly efficient, the probability of consistently outperforming the market is relatively low, which suggests that a passive/core strategy would be appropriate. In markets that are less efficient, the opportunity exists to generate alpha. Finding these market inefficiencies requires dedicated resources to identify securities that are considered mispriced. When these inefficiencies are evident, a skilled active manager can take advantage of these opportunities and construct a portfolio that should generate fee-adjusted returns in excess of the market.

Active Risk

Does internal staff have the knowledge and competence to manage the strategy in house? An active strategy requires highly specialized and skilled individuals who are well versed in the pursued strategy and willing to make educated decisions to take prudent risk, in order to achieve a net return higher than the benchmark. A passive or less active strategy still requires skilled individuals; however, the goal of this type of strategy is to track or slightly exceed the strategy's benchmark, and the research effort is much less intensive than active managers.

Private equity and real estate are uniquely active markets in which expertise, in terms of property or company type, leverage, deal structure, deal components, and terms, make them truly active investments requiring resources capable of reviewing the fundamentals of the deal structure and capital to fund the deal. With internal management, recruiting investment professionals who have highly specialized skills in active strategies may be difficult. CalSTRS' compensation structure and the current environment of state budget cuts may provide a headwind to attracting new investment talent. There is also the potential for key investment staff turnover. This will always be a concern in both internal and external portfolios. CalSTRS, like external managers, would seek to construct a bench of talent for any strategy undertaken.

Infrastructure/Resource Requirements

Does CalSTRS have sufficient infrastructure and the resources to support the strategy? Technology and risk management systems, along with proper staffing levels (front and middle office) are a key ingredient to operating a successful investment management operation. CalSTRS has gained much of this experience over the last 20 years through the development of our own internal infrastructure, in terms of communications, specialized investment software, and analytical criteria needed to operate in the public fixed income and equity markets, as well as our exposure to external managers.

GLOSSARY

ACTIVE STRATEGY – Objective is to maximize returns above a specified benchmark while minimizing risk exposure. This can be achieved by correctly forecasting broad market trends and/or identifying particular mispriced sectors of a market or securities in a market. Conversely, a passive strategy focuses on providing a return that closely mimicks the composition and return of a benchmark.

AGENCY SECURITIES – Investments issued by federal corporations and federally sponsored corporations that are able to issue debt at a lower cost to such constituencies as farmers, homeowners, and students.

ASSET-BACKED SECURITIES (ABS) – Investments that are collateralized by assets such as automobile loans, agricultural equipment loans, and credit card loans. The loans feature credit enhancements that lead to high credit ratings and limited investor exposure to the credit of the seller.

BASIS POINT – One hundredth of one percent (.01%); .0001 in decimal form.

BENCHMARK – A standard against which the performance of a security, mutual fund or investment manager can be measured. Generally, broad market and market-segment stock and bond indexes are used for this purpose.

BREAKEVEN INFLATION – The level of future inflation required to obtain similar returns between an investment in linkers/TIPS and an investment in nominal bonds; expressed as the difference between nominal and real yields.

BROAD MARKET-WEIGHTED PERFORMANCE BENCHMARK – With a market-weighted benchmark, the weighting of each asset class within the benchmark may change due to the market capitalization. Conversely, with a fixed-weighted benchmark, the weightings of each asset class are held constant.

CASH FORECAST – The projection provided by CalSTRS' Operations unit of the sources and uses of cash for CalSTRS in the immediate future.

COLLATERAL – Securities and other property pledged by a borrower to secure payment of a loan.

COMMERCIAL MORTGAGE-BACKED SECURITIES (CMBS) – Investments that are collateralized by commercial real estate mortgages. Similar to a mortgage backed security where payments to investors are received out of the interest and principal of the underlying mortgages.

COMPETITIVE BIDS/OFFERS – The practice of soliciting more than one bid or offer for a security transaction. It is based on an identifiable asset in accordance with identified fixed rules for all participants.

CORPORATE BOND – A financial obligation for which the issuer, -a company, promises to pay the bondholders a specified stream of cash flows, including periodic interest and a principal repayment.

CREDIT RATING – A relative ranking of timely interest payment and principal repayment based on past records of debt repayment, current financial status, and future outlook for the company.

DERIVATIVE – A derivative is a security whose price/return is dependent upon the price/return of some other underlying asset. Futures contracts, forward contracts, options and swaps are the most common types of derivatives.

DIVERSIFICATION – Investing in a wide range of securities/or asset classes in order to reduce financial risk.

DURATION – The weighted average maturity of the present value of a bond's cash flow stream. A measure of the change in price for a small movement in interest rates.

ENHANCED INDEXING STRATEGY – A technique for making relatively small adjustments to an indexed portfolio in order to increase the return slightly above the return on the index.

FAILED TRADE – Purchased or sold investment securities that are not delivered on the contracted settlement date.

FEDERAL RESERVE – The independent central bank that influences the supply of money and credit in the United States through its control of bank reserves. Also called the Fed.

FISCAL STIMULUS – A fiscal policy of incurring budget deficits to stimulate a weak economy.

FUNDAMENTAL ENVIRONMENT – The economic environment encompassing: interest rates, inflation, gross national product, unemployment, inventories and consumer spending.

HIGH YIELD SECURITIES – A higher-risk debt security that is rated less than Baa3/BBB- by the rating agencies.

INDEX – A defined representative collection of securities used to measure the change in value of the securities market on a monthly basis.

INDEXED PORTFOLIO – A portfolio which replicates a broad market index, benchmark. Objective is to minimize tracking while providing market returns.

INFLATION – The general upward price movement of goods and services in an economy over a period of time.

INFLATION LINKED BONDS [aka linkers or, in the U.S., TIPS (Treasury Inflation-Protected Securities)] – Bonds aimed to preserve the purchasing power of the bondholder or to compensate for inflation experienced over the life of the bond.

INVESTMENT GRADE SECURITIES – Investment-grade is restricted to those bonds rated Baa3/BBB- and above by the rating agencies.

INVESTMENT OFFICER – Any one of the in-house investment professionals in the CalSTRS Fixed Income unit.

LINKERS – Inflation linked bonds.

LIQUIDITY – The ease with which a bond can be purchased or sold at a fair price in a timely manner.

LIQUIDITY PORTFOLIO – For CalSTRS' purposes, this is the Short-Term Fixed Income portfolio that provides cash flow for funding transactions for CalSTRS, such as benefit payments, investment manager activity, and asset allocation. Examples of short-term investments include U.S. Treasury, Agency, and money market securities (commercial paper, certificates of deposit, Eurodollar deposits, and repurchase agreements).

MARKET CYCLE – Generally considered to be three to five years.

MONETARY STIMULUS – The Federal Reserve manipulates the money supply either through open market transactions, member bank reserve requirements, or changing the discount rate.

MORTGAGED-BACKED SECURITY (MBS) – A security that is issued by a federal agency, such as the Federal Home Loan Mortgage Corporation, the Federal National Mortgage Association, or the Government National Mortgage Association, and is backed by mortgages. Payments to investors are received out of the interest and principal of the underlying mortgages.

NOMINAL BOND – A fixed-rate bond.

NOMINAL YIELDS – The yields of a fixed-rate bond.

PAR VALUE – The underlying stated value of a bond. The par value serves as the basis for calculating coupon payments and settlement details.

PORTFOLIO – A collection of stocks, bonds, or money market securities owned by an investor and segmented by a predefined method.

POSITION – The status of securities, futures, swaps, and options in an account, long or short.

PRINCIPAL PAYDOWN – The portion of a periodic payment that reduces the amount of the principal.

REAL YIELDS – The yields of an inflation-linked bond.

QUALITY RANGES – Guidelines for the percentage of market value of a particular credit rating within a portfolio.

QUANTITATIVE ANALYSIS – Applies mathematical and statistical techniques to a single market sector (e.g., equity or debt) or to asset allocation.

RATE OF RETURN – The total income received over a period of time including interest income, accretion of discount, amortization of premium, and change of market value; usually expressed as a percentage or in decimal format.

REFERENCE PRICE INDEX – An index that measures the nominal cost of a representative basket of consumer goods in the economy. In the U.S., this index is the Consumer Price Index, CPI.

SECURITIZED ASSETS – Debt investments that are collateralized by assets. Examples include: MBS, CMBS and ABS.

SETTLEMENT DATE – For each security transaction, a price is established based on the specifics of the security and the payment date. The payment date, or when the security is exchanged for value, is called the settlement date.

SPLIT-RATED – The credit ratings of corporate and other securities are made by independent services such as Moody's, Standard & Poor's and Fitch. When a security receives ratings that are different among the rating services, the term "split-rated" is used to signify this difference in relative credit ratings.

TECHNICAL ENVIRONMENT – Evaluates the environment through historical market activity, such as prices and volume, and uses charts to identify patterns that may suggest future activity and/or trends.

TRACKING ERROR – The deviation of the portfolio's rate of return from that of the target index or performance benchmark.

UNITED STATES TREASURY SECURITIES – Debt issues of the U.S. Government, such as Treasury bills, notes, and bonds.

WHOLE LOANS – A secondary mortgage market term which refers to an investment in an original mortgage loan, versus a loan which participates in a secured pass-through security.