CALSTRS

Investment Committee

Item Number Item Number 13a – Open Session

Subject: Fixed Income Policy Revision – Risk Budget – First Reading

Presenter(s): Glenn Hosokawa and Rosie Lucchesini-Jack

Item Type: Information

Date & Time: July 8, 2021 – 15 minutes

Attachment(s): Attachment 1 – Fixed Income Policy – Redline Version

Attachment 2 - Fixed Income Policy – Clean Version

Attachment 3 – IPMP Fixed Income Section – Redline Version

Attachment 4 – IPMP Fixed Income Section – Clean Version

Attachment 5 – Meketa Memo

PowerPoint(s): Fixed Income Policy Revision – Risk Budget – First Reading

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POLICY

The item is covered under the CalSTRS Fixed Income Investment Policy (Teachers' Retirement Board Policy Manual, Section 1000, Pg. D-1), which governs the management of the fixed income assets and strategies in order to ensure a diversified portfolio that meets CalSTRS objectives within applicable risk parameters.

CalSTRS periodically reviews its policies and updates them as appropriate given evolving market practices and opportunities. The last revision to the Fixed Income policy took place in March 2019. A complete summary of policy revisions over the years can be found on page D-6 of the CalSTRS Fixed Income Investment Policy (Attachment 1).

PURPOSE

The theme of this item is active Risk Budget and Agility for the Collaborative Model. The purpose of this item is to recommend an update to the Fixed Income Investment Policy to incorporate the use of an active risk budget range along with the identification of private credit as a permitted debt instrument within the opportunistic sleeve for the long-term Fixed Income

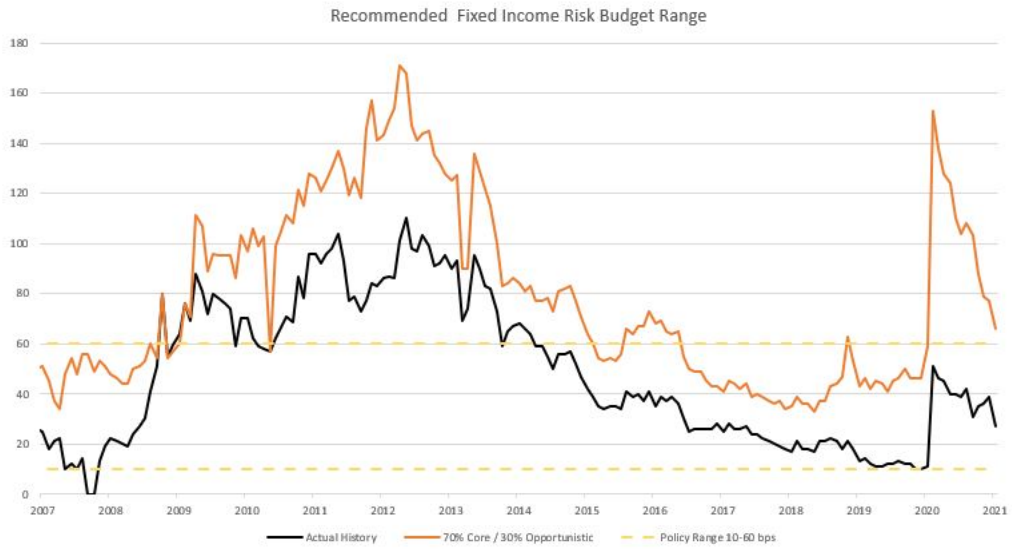
assets. In addition, staff is presenting several minor language updates to the Fixed Income Investment Policy that are unrelated to the adoption of the risk budget.

DISCUSSION/SUMMARY

Active risk is also referred to as tracking error and it measures how closely the portfolio's returns track the benchmark over time. It is a straightforward way to measure and monitor how much the Fixed Income portfolio differs from its policy benchmark.

Current Fixed Income policy requires the long-term assets to be managed in a blend of two major strategies: core and opportunistic. The core strategy represents an efficient, cost effective approach managed in an enhanced style that provides market-like returns over time. The opportunistic strategy is composed of active portfolios with higher levels of risk and commensurate higher expected returns. The allocation range for the strategies is 70% to 100% for the core and 0% to 30% for opportunistic.

The concept of a risk budget was first introduced to the board at the January 2019 Investment Committee with subsequent education items at the asset class and at the broader fund level over the following 15-month period. An active risk budget was first adopted by the Investment committee for Global Equity in March 2020 with the intention for other asset classes to follow. The current plan is to adopt risk budgets for the public markets (Fixed Income, Global Equities and SISS). Working with the Innovation Strategy and Risk team, staff analyzed the historical active risk using our existing policy allocation limits of 70% core and 30% opportunistic (in orange) and our actual history (in black). As seen in the below graph, Fixed Income active risk is relatively stable until a market turmoil event and when a spike does occur, that increase can persist for some time. While historically the tracking error can range from 0 basis points (bps) to 110 bps, the mean tracking error has been 48 bps over this time period.



Staff recommends establishing a risk budget range of 10 bps to 60 bps for the public assets within the Fixed Income portfolio. As seen above, the proposed range would have resulted in a breach during the period following the Global Financial Crisis regardless of whether the portfolio was being managed at max policy weights (orange) or to our actual history (black), which were below our allowable policy limits. In addition, the proposed range is being developed in the context of the current market environment. During periods of market induced volatility or a change in the broader market regime, a breach of the range may occur, and the chief investment officer has the discretion to manage the portfolio above the upper limit. Any allowance of a breach and the steps to be taken to address the breach is addressed in the Investment Policy Management Plan (IPMP). This active risk budget would replace the current percentage range targets to be invested in the core and opportunistic strategies detailed in the current Fixed Income policy. The active risk as of April 30, 2021 for the Fixed Income portfolio was 36 bps.

The proposed update will not result in a substantive change to the oversight or management of the Fixed Income portfolio however it will provide more flexibility to allocate to the best opportunities across the debt landscape while staying in our proposed risk budget range.

Establishing an active risk budget would allow for improved risk management capabilities and transparency on any deviations from the current Fixed Income benchmark. The risk number was first previewed by the Risk Team to the board at the March 2021 meeting (item 7) and will continue to be reported to the Board on a regular basis. The wider range than what is seen in the Global Equity risk budget is a result of the enhanced and active indexing management of the Fixed Income program. The nature of the Fixed Income markets with the myriad of issuers and maturities allow for inefficiencies not seen with passive index investing.

Key elements that will remain the *same* under the use of an active risk budget include the objective of the internally and externally managed long-term Fixed Income assets being invested to improve the diversification of the total investment portfolio and to enhance its risk-adjusted total return; Fixed Income policy benchmark; list of prohibited securities; and ESG policy and application.

The proposed risk budget is for public assets only as over 99% of the existing Fixed Income assets in the CalSTRS portfolio are publicly traded with high amounts of transparency to the underlying issuers and security characteristics. Given the challenges in modeling private assets, the lack of a suitable benchmark and the small allocation the Fixed Income risk budget will not include private assets at this time. Changes that could occur with the adoption of an active risk budget include allocations to core and opportunistic strategies that may evolve over time; a dedicated private credit portfolio; and ongoing collaborative investments with other asset classes when conditions warrant.

Adopting an active risk budget would result in no change to the existing Fixed Income policy benchmark however the addition of alternative Fixed Income assets such as private credit to a meaningful position may necessitate a benchmark change at a later date. The adoption of a risk budget will enable staff to manage assets within the confines of its proposed risk range while

providing governance and oversight. If a future change in benchmark requires an adjustment in the risk budget, that will be brought forward to the board for discussion and approval.

Regulations for financial institutions post the 2008 Great Financial Crisis, the adoption of the collaborative model, and the current low interest rate environment have created large scale investment opportunities in privately held Fixed Income assets that provide both a debt-like cash flow structure as well as higher return components over their public debt counterparts. As the fund's first internally managed asset class, Fixed Income has demonstrative experience, expertise, and relationships across the asset management community. These advantages and experiences can be leveraged in this effort to increase our allocation to private debt instruments with a higher risk premium, which are very similar to investing in credit profiles the Fixed Income division oversees in high yield, leveraged loans and opportunistic credit.

Private credit has gained a foothold in many institutional investor's portfolios. Since it generates cash flow with a higher risk adjusted return than public debt, it is a complement to a Fixed Income portfolio while acting as a diversifier to the overall fund and reduces the correlation to public equity and traditional measures of publicly traded debt. As private credit becomes a larger part of the Fixed Income universe it will also have an increasing role in the CalSTRS Fixed Income portfolio due to the investment opportunities in this space and the additive nature it provides to a traditional debt portfolio. This evolution to the Fixed Income portfolio is expected to be gradual and evolve over the coming quarters, if not years. Therefore, staff recommends a maximum limit of 5% of the total Fixed Income portfolio be allocated to private credit. If at a later date staff feels a change to the proposed maximum limit is warranted, we will come back to the board for approval.

As mentioned, adopting an active risk budget would result in no change to the Fixed Income policy benchmark. The excess return target and compensation policy would need to be evaluated as it currently contains separate excess return targets for the core and opportunistic components of the Fixed Income portfolio. Adopting an active risk budget would require a modification to replace the separate core and opportunistic targets with one excess return target for the overall Fixed Income portfolio. Meketa recommends an excess return target of 15bps. Meketa's memo (Attachment 5) explains their recommended proposed change to the alpha target and the compensation policy if this proposed risk budget is approved. The table below identifies the alpha or excess return of the core and opportunistic targets relative to the proposed pro-forma benchmark.

CalSTRS New Performance Composite vs Proposed Blended Benchmark
(As of December 31, 2020)

	1 Year	3 Year	5 Year
Annualized Excess Return	0.89	0.56	0.73
Tracking Error	1.34	0.84	0.71

The other minor edits to the Fixed Income policy include replacing wording that specifies tracking error with "active risk" in addition to the removal of language that is redundant as it appears in the IPMP and CalSTRS' online investment term glossary.

By approving the Fixed Income policy revision, the Fixed Income section (page A15) in the IPMP would be updated to be consistent with the Board's approval. Attachment 3 shows changes that would be incorporated into the IPMP. Attachment 4 is the clean version with edits accepted, provided the Fixed Income change is approved. The proposed edits to the IPMP include the following language on how a breach of the risk budget would be managed:

"The Board delegates to the chief investment officer authority to adjust allocations within the Fixed Income portfolio when forecast active risk falls outside of the Fixed Income Investment Policy defined range. Given the varied contributions to forecast active risk, a plan will be developed within one month to determine the best course of action should adjustments be necessary to return to policy compliance. The plan will be tailored to address the cause of the breach, which could include but is not limited to portfolio holdings, extreme market volatility, or a combination. Adjustments will be made in a timely manner while considering prudence, the market environment, transaction costs, and the nature of the breach.

Legend of Fixed Income Policy Red-Lined Version (Attachment 1)

Track Changes	Comments	Rationale
Green underline	Green Comments with to/from section	Language was moved from one section to a new section
Highlighted language	Purple Comments	Common language found in many policies
Blue underlined	None	New Language
Blue underlined and highlighted yellow	None	New titles to the Policy
~~Red strike out~~	Red comments	Deleted, redundant or a process/procedure

RECOMMENDATION

Staff recommends and the Board consultant, Meketa Investment Group, concurs that the Investment Committee approve the proposed policy revisions to establish a risk budget range of 10bps to 60bps for the Fixed Income Portfolio and add private credit as a permitted debt instrument up to a maximum of 5%. Staff also recommends approving the additional clarifying revisions to the Fixed Income Investment Policy. Staff will incorporate feedback from the Committee into the policy and bring it back for a second reading unless the Committee decides to approve the recommended changes at this meeting.

CALSTRS

CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM

FIXED INCOME INVESTMENT POLICY

INVESTMENT BRANCH

JULY 2021~~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.

Using both enhanced and active indexing management, t~~T~~he long-term assets of the Fixed Income portfolio shall be managed within an annualized forecast active risk range of 10 basis points (bps) to 60 bps as measured by the CalSTRS risk management system. If there is an anticipated change in the CalSTRS risk management system or a material change in the methodology used to calculate active risk, staff will notify the Investment Committee.

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 which can include private credit investments not to exceed 5% of the total Fixed Income allocation.

~~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, active risk ~~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 defunded ~~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~~active risk, 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.

Forecast Active Risk~~Tracking Error~~: Portfolios are managed within predefined risk or active risk ~~tracking error~~ guidelines. Forecast active risk is used as a way to control overall portfolio risk. ~~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.~~ The delegated non-cumulative daily trade limits for approval of transactions are designated in the Investment Policy and Management Plan (IPMP).

~~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 limits, 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
Revised language to support an active risk budget framework and inclusion of private credit as an investable asset on July 8, 2021

Exhibit 1

POLICY IMPLEMENTATION FLOWCHART

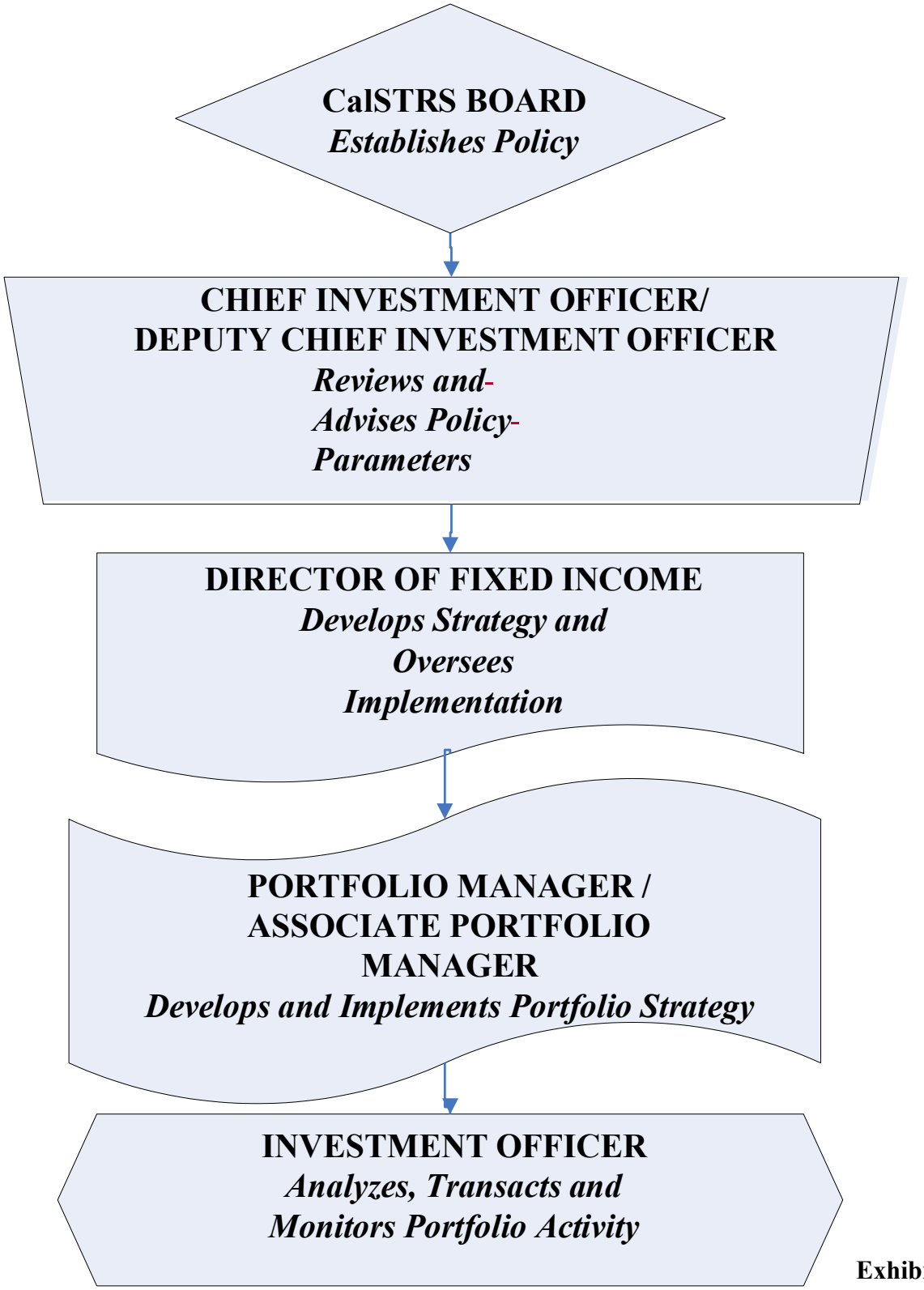


Exhibit 2

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 active risk ~~tracking error (i.e., risk) described earlier in this paper, passive~~ enhanced 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.~~

CALSTRS

CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM

FIXED INCOME INVESTMENT POLICY

INVESTMENT BRANCH

JULY 2021

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, to implement tactical allocations in the Fixed Income portfolio.

Using both enhanced and active indexing management, the long-term assets of the Fixed Income portfolio shall be managed within an annualized forecast active risk range of 10 basis points (bps) to 60 bps as measured by the CalSTRS risk management system. If there is an anticipated change in the CalSTRS risk management system or a material change in the methodology used to calculate active risk, staff will notify the Investment Committee.

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 which can include private credit investments not to exceed 5% of the total Fixed Income allocation.

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, active risk, 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 defunded 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, active risk, 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.

Forecast Active Risk: Portfolios are managed within predefined risk or active risk guidelines. Forecast active risk is used 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 delegated non-cumulative daily trade limits for approval of transactions are designated in the Investment Policy and Management Plan (IPMP).

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 limits, 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
Revised language to support an active risk budget framework and inclusion of private credit as an investable asset on July 8, 2021

Exhibit 1

POLICY IMPLEMENTATION FLOWCHART

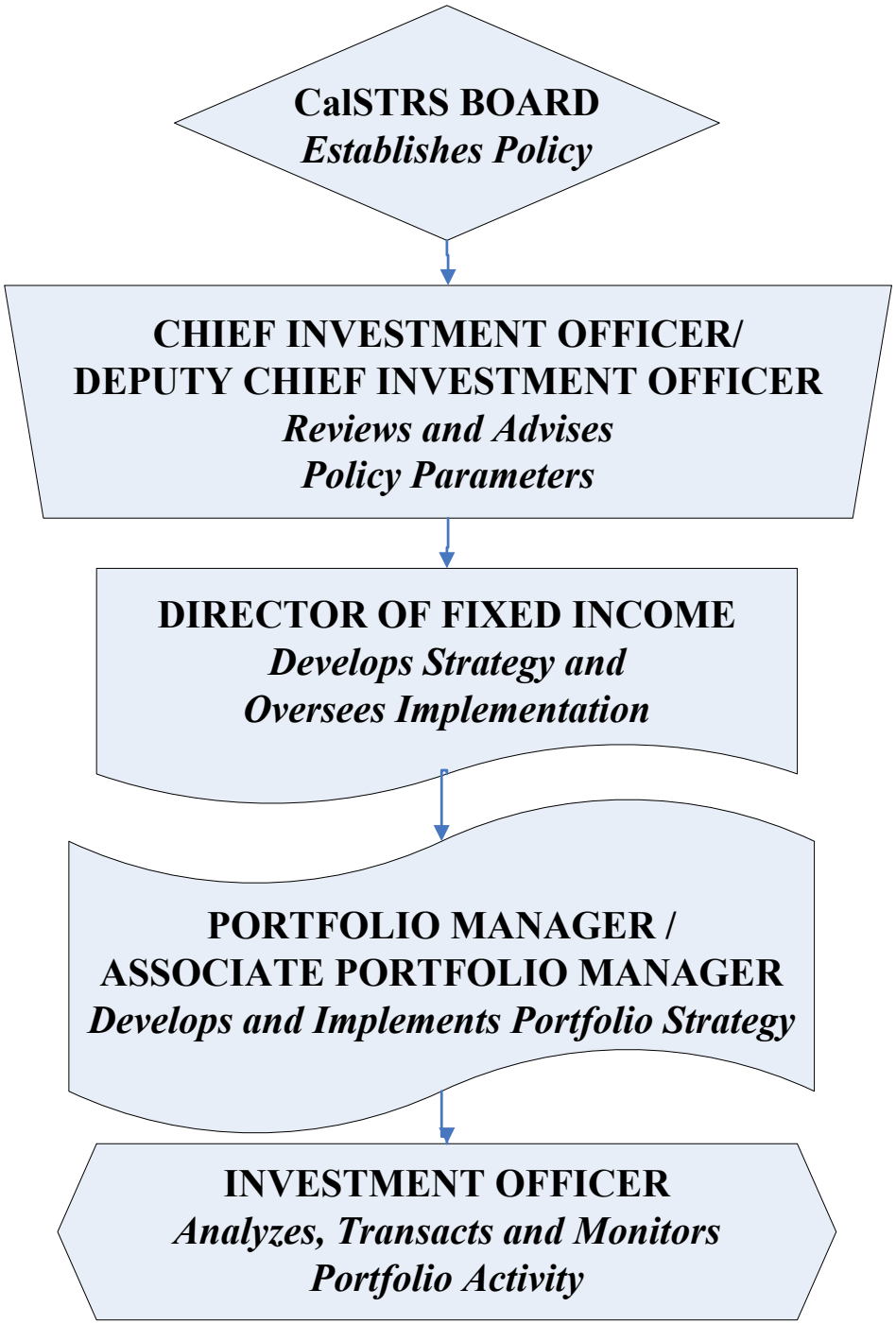


Exhibit 2

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 active risk enhanced 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 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.

Excerpt from CalSTRS Investment Policy and Management Plan
(Pages A15)

FIXED INCOME STRUCTURE

1. The Fixed Income Portfolio (Portfolio) shall be comprised of investment grade and non-investment grade securities, U.S. dollar based and non-U.S. dollar based securities. ~~The portfolio willtarget 80 percent using an enhanced indexing strategy, while 20 percent will be externallyactively managed using a broader universal fixed income and high-yield securities opportunity set. The internally managed portfolio will emphasize tracking the risk characteristics of the performance benchmark.~~

2. To align the investment implementation with the strategic asset allocation, the long term assets of the Portfolio shall be managed under an active risk budget framework, as defined in the CalSTRS Fixed Income Investment Policy.

~~1~~3. The Board delegates to the chief investment officer authority to adjust allocations within the Fixed Income portfolio when forecast active risk falls outside of the Fixed Income Investment Policy defined range. Given the varied contributions to forecast active risk, a plan will be developed within one month to determine the best course of action should adjustments be necessary to return to policy compliance. The plan will be tailored to address the cause of the breach, which could include but is not limited to portfolio holdings, extreme market volatility, or a combination. Adjustments will be made in a timely manner while considering prudence, the market environment, transaction costs and the nature of the breach.

~~2~~4. Short term fixed income/liquidity and cash securities, including the cash portion of equityportfolios, shall be managed internally with emphasis on safety and liquidity. The portfolioshall be comprised of investment grade securities; and other appropriate securities as approved in the policies and procedures.

~~3~~5. More detailed information and standards for the asset class can be found in the CalSTRS Fixed Income Investment Policy.

Excerpt from CalSTRS Investment Policy and Management Plan
(Pages A15)

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5. More detailed information and standards for the asset class can be found in the CalSTRS Fixed Income Investment Policy.

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MEMORANDUM

TO: Investment Committee, CalSTRS
FROM: Stephen McCourt, Allan Emkin, Mika Malone, Eric White, Meketa Investment Group
CC: Christopher Ailman
DATE: July 8, 2021
RE: Fixed Income Policy Revisions

Since the introduction of the Risk Budget framework in early 2020, the concept of a risk budget has only been applied to the Global Equity asset class. In March 2021, Meketa Investment Group ("Meketa") was asked by CalSTRS Investment Staff ("Staff") to review revisions to the Fixed Income Investment Policy ("Policy"). The modifications suggested by Staff extend the risk budgeting framework to the Fixed Income asset class. Risk budgeting will enhance the Staff's and the Committee's ability to manage and monitor risk going forward. *Meketa independently reviewed and assessed the proposed policy changes and, after significant dialogue with Staff, concurs with each of the changes recommended in the revised Policy presented to the Investment Committee.*

Staff has proposed two changes to the Policy. First, the proposed changes incorporate a Risk Budget as a way to manage risk in the asset class. Second, the Policy adds Private Credit as another component in which the Fixed Income Staff can invest. We summarize each below:

Policy Changes to Effect Risk Budgeting Within the Fixed Income Asset Class:

- The revised Policy extends the use of a risk budget to provide risk constraints on the Fixed Income portfolio. It replaces the term "tracking error," with "active risk." The terms are synonymous. The recommended range of active risk is forecasted to be 10-60 basis points annualized. This range is reflective of 1) What Staff and Meketa believe is a reasonable amount of active risk to target in the portfolio; 2) What the level of active risk has been historically; and 3) What the current policy parameters for the core and opportunistic fixed income component would translate to in a risk budgeting framework.
- The revised Policy eliminates the Core/Opportunistic constraints that have governed it in the past (in the same manner as the geographic weights were eliminated in the Global Equity policy and replaced with and active risk budget).
- Changes adopted by the Investment Committee regarding an active risk budget will influence the compensation policy for the Fixed Income team as well. The current incentive compensation structure includes specific targets for outperformance for Core and Opportunistic allocations and those constraints are being eliminated in favor of a blended approach that weights the benchmark according to core and opportunistic exposure. We discuss these implications further below.

Changes to allow for Private Credit Investments within the Fixed Income Asset Class:

- The new Policy allows for private credit strategies to be employed within the Fixed Income asset class, with a maximum allocation of 5% of the total asset class.
- CalSTRS has invested in private credit strategies in the past within the Innovative Strategies portfolio. Based upon their experience within Innovative Strategies, Staff believes that these strategies should be included in the Fixed Income asset class.
- As private market assets are not valued within a timeframe that allows for use within a risk budgeting framework, these private credit assets will be excluded from the Fixed Income risk budgeting calculations. The risk introduced by these assets will be controlled through the Policy's maximum allocation to private credit, 5%.

These Policy changes will enhance Staff's ability to execute the objectives of the Fixed Income portfolio, and enhance the Investment Committee's ability to monitor the portfolio and control execution risk. Further, the changes related to risk budgeting do not result in any material change to the potential risk profile of the Fixed Income portfolio. Meketa concurs with the risk budgeting policy changes proposed by Staff.

The changes to Policy related to Private Credit are consistent with Staff's communications with the Committee on private credit investment strategies, and are consistent with the intended process of graduating strategies from Innovative Strategies to other asset classes when CalSTRS' research and experience warrants such a graduation.

We do note that private credit strategies will reside outside of the Risk Budgeting framework, due to their valuation processes. Consequently, the policy will control and manage risk within the Private Credit strategies using more traditional tools, such as diversification requirements and maximum exposures.

Meketa believes that, provided that Private Credit continues to express favorable forward-looking risk/return expectations, CalSTRS should consider modeling Private Credit as a distinct asset class during the next asset liability study it undertakes.

It should be noted that the performance benchmark for the Total Debt/ Fixed Income program, which is 95% Bloomberg Barclays U.S. Aggregate Custom index/5% Bloomberg Barclays High Yield 2% Issuer Capped Custom Index, will remain unchanged. However, the performance composite and benchmark utilized for compensation metrics should be modified to reflect the weighted blend of the Core and Opportunistic composites, which is discussed below

Compensation Policy Implications

While the benchmark for the Total Debt/Fixed Income asset class does not change with these proposed Policy changes, the performance composite and benchmark used for incentive compensation should change due to the elimination of the maximum allocations to "core" and "opportunistic" strategies. Also, the outperformance target for incentive compensation purposes (currently 10 basis points for Core and 35 basis points for Opportunistic) will need to be merged into a single outperformance target for the

asset class. The new performance composite will be represented by composite TC00A25 within the compensation policy framework, a composite that dynamically weights Opportunistic and Core Fixed Income strategies but excludes small transition accounts, the home loan program, and private credit. The benchmark will also change to one that is a weighted blend of the existing benchmarks of the Opportunistic and Core composites, TC00A71 and TC00A31, respectively.

Longer term, as part of a review of all benchmarks within the program, Meketa would like to assess whether the performance composite used for incentive compensation purposes should be the total Debt/Fixed Income composite (which includes small transition accounts, the home loan program, and private credit), and no longer the weighted average blend of the Core and Opportunistic composites. The tables below show the historical return data for the new performance composite, compared to a pro forma estimate of the new weighted blend of the Core and Opportunistic benchmarks.

CalSTRS New Performance Composite (TC00A25) vs Pro Forma Benchmark (blend STRD01/STRD16)
(As of December 31, 2020)

	1 Year	3 Years	5 Years	10 Years
Annualized Excess Return	0.89	0.56	0.73	0.64
Tracking Error	1.34	0.84	0.71	0.70
Information Ratio	0.66	0.67	1.03	0.91

Blending the existing outperformance targets, based on actual historical allocations to "core" and "opportunistic" strategies, results in a combined outperformance target of approximately 15 basis points. We believe this to be an appropriate target for incentive compensation purposes, until a more thorough benchmarking and target setting analysis can be conducted. *Given this new structure, if approved, the Incentive Compensation calculation effective 7/1/21, should reflect the proposed scale maximum of 15 basis points and the new benchmark for 1/3 (2021-2022 calculation), and then 2/3 the previous scale maximums and benchmarks.*

Given the adoption of risk budgeting across multiple asset classes, Meketa suggests the Board review incentive compensation target outperformance levels, to harmonize these targets with the active risk budgets set across asset classes. This can be done as part of the broader benchmark review process.

If you have questions, please feel free to contact us at (760) 795-3450.

SPM/MM/AE/EW/jls