### Agenda

### Marin County Employees' Retirement Association (MCERA) Retirement Board Strategic Workshop

### One McInnis Parkway, First Floor San Rafael, CA October 25-26, 2022

This meeting will be held via videoconference pursuant to MCERA Board of Retirement Resolution 2021-22/01, which invoked Government Code section 54953(e) for all MCERA Board and standing committee meetings through November 11, 2022.

Instructions for watching the meeting and/or providing public comment, as well as the links for access, are available on the <u>How to Watch Meetings</u> page of MCERA's website. Please visit <u>https://www.mcera.org/retirementboard/agendas-minutes/watchmeetings</u> for more information.

The Board of Retirement encourages a respectful presentation of public views to the Board. The Board, staff and public are expected to be polite and courteous, and refrain from questioning the character or motives of others. Please help create an atmosphere of respect during Board meetings.

Please note that the times certain provided for agenda items herein are estimates only, and that scheduled items may last longer, or shorter, than stated herein. Agendized topics will not commence earlier than as stated on the agenda; however, they may start later than is agendized.

### Day 1 October 25, 2022

#### Meeting Chair Todd Werby

9:00 a.m. Call to Order/Roll Call

#### **Open Time for Public Expression**

Open time for public expression, from three to five minutes per speaker, on items not on the Board Agenda. While members of the public are welcome to address the Board during this time on matters within the Board's jurisdiction, except as otherwise permitted by the Ralph M. Brown Act (Government Code Sections 54950 et seq.), no deliberation or action may be taken by the Board concerning a non-agenda item. Members of the Board may (1) briefly respond to statements made or questions posed by persons addressing the Board, (2) ask a question for clarification, or (3) provide a reference to staff for factual information.

9:00 a.m. - 10:00 a.m.

#### **Investment Manager Due Diligence – Prudent Practices for the Board**

Yuliya Oryol, Co-Chair of the Public Pensions & Investments Group, Nossaman LLP Ashley Dunning, Co-Chair of the Public Pensions & Investments Group, Nossaman LLP

#### MCERA

10:00 a.m. – 11:00 a.m. **Overview of the Annual Actuarial Valuation Process** Graham Schmidt, ASA, FCA, MAAA, EA Consulting Actuary, Cheiron Bill Hallmark, ASA, FCA, MAAA, EA Consulting Actuary, Cheiron

11:00 a.m. – 12:00 p.m. **Overview of the Asset Allocation Process** Jim Callahan, President, Callan LLC

12:00 p.m. – 1:15 p.m. Lunch Break

1:15 p.m. – 2:15 p.m. **Real Asset Allocation Structure Review** Jim Callahan, President, Callan LLC Avery Robinson, Vice President, Real Assets Consulting, Callan LLC

2:15 p.m. – 2:30 p.m. Closing and Follow-up Items from Today's Agenda

> Day 2 October 26, 2022

9:00 a.m. Call to Order/Roll Call

#### **Open Time for Public Expression**

9:00 a.m. – 10:00 a.m. MCERA Business Priorities for the next 2-3 Years Jeff Wickman, Retirement Administrator

10:00 a.m. – 11:00 a.m. Service Enhancement - Overview of Potential Member Portal Michelle Hardesty, Assistant Retirement Administrator Syd Fowler, Department Analyst

**Closing and Follow-up Items from Today's Agenda** 11:00 a.m. – 11:30 a.m.

**Note on Process:** Items designated for information are appropriate for Board action if the Board wishes to take action. Any agenda item from a properly noticed Committee meeting held prior to this Board meeting may be considered by the Board.

**Note on Voting:** As provided by statute, the Alternate Safety Member votes in the absence of the Elected General or Safety Member, and in the absence of both the Retired and Alternate Retired Members. The Alternate Retired Member votes in the absence of the Elected Retired Member. If both Elected General Members, or the Safety Member and an Elected General

Member, are absent, then the Elected Alternate Retired Member may vote in place of one absent Elected General Member.



Agenda material is provided upon request. Requests may be submitted by email to <u>MCERABoard@marincounty.org</u>, or by phone at (415) 473-6147.

MCERA is committed to assuring that its public meetings are accessible to persons with disabilities. If you are a person with a disability and require an accommodation to participate in a County program, service, or activity, requests may be made by calling (415) 473-4381 (Voice), Dial 711 for CA Relay, or by email at least five business days in advance of the event. We will do our best to fulfill requests received with less than five business days' notice. Copies of documents are available in alternative formats upon request.

The agenda is available on the Internet at <u>http://www.mcera.org</u>

# **NOSSAMAN** LLP

Fiduciary Principles Applicable to Public Retirement System Trustees: Investments Due Diligence

Presentation for the Strategic Workshop Board of Retirement of the Marin County Employees' Retirement Association

October 25, 2022

Yuliya A. Oryol & Ashley K. Dunning Co-Chairs, Public Pensions & Investments Group

### **Overview**

- Fiduciaries duty of care and loyalty
- Investment due diligence by fiduciaries
  - -Business considerations and review
  - -Legal considerations and negotiations

# **Fiduciary Duty of Care**

### Prudent Fiduciary with Experience

- 1. Trustee has a duty to administer the trust as a prudent person would, in light of the purposes, terms, and other circumstances of the trust.
- 2. The duty of prudence requires the exercise of reasonable care, skill, and caution, and the obligation to educate oneself as to the core activities of the retirement system and matters on which the trustee's board has authority and responsibility.
- 3. If the trustee possesses special facilities or greater skill than that of a person of ordinary prudence, the trustee has a duty to use such facilities or skill, such as the skills required of appointed and ex officio members, though other trustees are not required to defer to the special expertise of co-fiduciaries.

Cal. Const., art. XVI, § 17(c); Rest. 3d Trusts, secs. 77, 227.

# Fiduciary Duty of Care: the "Prudent Fiduciary with Experience"

- Skill required of trustees, standard is objective, not subjective to the trustee.
  - The "prudence standard is 'not that of a prudent lay person, but rather that of a prudent fiduciary with experience dealing with a similar enterprise'." *Whitfield v. Cohen*, 682 F. Supp. 188, 194 (S.D.N.Y. 1998) (quoting *Marshall v. Snyder*, 1 Empl.Ben. Cases (BNA) 1878, 1886 (E.D.N.Y. 1979)).
  - 2. Courts may probe the thoroughness of a fiduciary's analysis and basis for its decisions, rather than simply deferring to a determination that a fiduciary may make. See *Howard v. Shay*, 100 F.3d 1484, 1488 (9th Cir. 1996), cert. denied, 520 U.S. 1237.

# Fiduciary Duty of Care: Duty to Monitor, Question and Address

- The duty to monitor and take corrective action when reasonably appropriate is fundamental to a trustee's exercise of the duty of care.
- Prudence is forward-looking and must adapt to changing circumstances: "Trust investment law should reflect and accommodate current knowledge and concepts. It should also avoid the mistake of freezing its rules against future learning and developments."

Cal. Const., Art. XVI, § 17, subd (c); Rest. 3d Trusts, § 227, p. 14 (1992), comment d; *Tibble v. Edison, Int'I.* <u>135 S. Ct. 1823 (2015)</u>

# Fiduciary Duty of Care: Duty to Monitor, Question and Address

- "Under trust law, a trustee has a continuing duty to monitor trust investments and remove imprudent ones . . . separate and apart from the trustee's duty to exercise prudence in selecting investments at the outset."
- "[A] trustee cannot assume that if investments are legal and proper for retention at the beginning of the trust, or when purchased, they will remain so indefinitely. Rather, the trustee must 'systematic[ally] conside[r] all the investments of the trust at regular intervals' to ensure that they are appropriate."

*Tibble v. Edison Int'I*, 843 F.3d 1187, 1197 (9<sup>th</sup> Cir. 2016) (quoting A. HESS, G. BOGERT & G. BOGERT, LAW OF TRUSTS AND TRUSTEES § 684, 145-46 (3d ed. 2009)

# Fiduciary Duty of Care: Consult with Experts

 "To the extent necessary or appropriate to the making of informed investment judgments by the particular trustee, care also involves securing and considering the advice of others [such as legal and investment internal and external experts] on a reasonable basis."

Rest. 3d Trusts, § 227, p. 15, comment d.

# Fiduciary Duty of Care: Consult with Experts

- Reliance on expert's opinion is reasonable when:
  - Expert has appropriate qualifications;
  - Expert has accurate and full information;
  - Expert lacks bias;
  - Complexity of the topic and good governance support delegation; and
  - Reliance on expert's opinion is reasonable under the circumstances.
- Prudent fiduciaries should question methods and assumptions that do not make sense.

# Fiduciary Duty of Care: Prudent Delegation

- Prudence is the key to delegation as to all aspects of the topic:
  - Whether to delegate;
  - How to delegate;
  - To whom a task is delegated; and
  - How to supervise.

### Prudent Delegation: Identification of Investment Opportunities

- Delegation as to investments includes relying on MCERA's investment consultant to identify opportunities for the Investment Committee to consider based on:
  - Substantial research, including review of specialized databases, regarding fund performance, investment terms, fundraising related information, top quartile results, firm stability, turnover, changes in strategy over time
  - Assessment of suitability investment for MCERA portfolio
  - Reference checks, in-person and/or virtual interviews, on-site meetings
- Must include disclosure of potential sources of conflicts, such as existing client relationships with managers and related party transactions by managers

### Prudent Delegation: Monitoring of Investments

- Delegation as to investments also includes relying on MCERA's Investment Consultant to monitor investments the Investment Committee authorized and report on performance.
  - Regular and detailed performance reviews
  - Identification of any material changes in performance, changes in key personnel, civil or criminal investigations, or economic or geopolitical changes that may warrant Investment Committee action
- Investment Committee and Retirement Administrator are responsible for monitoring Investment Consultant

### Fiduciary Duty of Loyalty: Exclusive Benefit and Primary Duty Rules

- Except as otherwise provided in the terms of the trust, a trustee has a duty to administer the trust solely in the interest of the beneficiaries, or solely in furtherance of the trust's purpose.
- Except in discrete circumstances, the trustee is strictly prohibited from engaging in transactions that involve selfdealing or that otherwise involve or create a conflict between the trustee's fiduciary duties and personal interests.

Cal. Const., art. XVI, § 17(a); Rest. 3d Trusts, sec. 78.

### Fiduciary Duty of Loyalty: Maximize Risk-Adjusted Return and Diversify

### Duty to Diversify

–Under California law, "shall diversify investments of the system so as to minimize the risk of loss and to maximize the rate of return, unless under the circumstances it is clearly not prudent to do so."

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Cal. Const., Art. XVI, § 17, subd (c)
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# **Objectives of Due Diligence**

- Uncover, minimize and allocate potential risk
- Assess and quantify risk of exposure
- Evaluate efforts to mitigate risk
- Check compliance with law and requirements
- Understand investment strategy
- Establish level of comfort with manager
- Monitor (frequently and regularly) performance, compliance and trigger events



# Due Diligence Process – Business

- Interview manager (phone, in person and virtual)
  - On-site meetings
  - Review marketing materials
  - Conduct independent research
    (review specialized databases for performance,
    investment terms, fundraising, quartile results, firm
    stability, turnover, management team, and
    changes strategy over time)
  - Background checks
  - Reference checks
  - Business due diligence questionnaires

# What is the goal of "Legal Due Diligence" in investments?

- Reliance on consultant's business due diligence and recommendations
- Conduct independent review of business and legal terms in investment documents
- Confirm documents afford sufficient legal protections in event of non-performance
- Establish compliance with applicable laws, policies and procedures
- Limit legal liabilities



# Legal Due Diligence

- Fiduciary duty of prudent, informed decision-making
- Assignment of responsibilities
  - Board, CEO, CIO
  - Consultant/Outside Counsel
  - Oversight and Monitoring
- Legal terms v economic terms

## Legal Due Diligence – Counsel's Focus



- Investment Documents Are terms market?
- Legal diligence will help to develop closing checklist and items to be addressed
- Ensure compliance with applicable laws, regulations, policies, investment guidelines, and established practices
- Establish exits/termination/removal rights
- Information gathered (good and bad) during diligence will guide negotiations



# Due Diligence Process – Legal

- Data rooms
- Legal due diligence questionnaires
- SEC/Form ADV
- Insurance certificates
- Fund documents
- Litigation search
- Disclosures
- Representations and warranties
- Legal opinions

# **Representations and Warranties**

- Representations & warranties of manager, partnership and investor
- Good standing
- Duly formed/validly existing
- Licensed/registered
- Compliance (past and future) with existing contracts, laws and policies
- Authority to enter into contract and bind entity
- No litigation/governmental investigations, etc.
- Notices of events

# Legal Due Diligence – Investment Contracts

- Scope will depend on asset class and type of investment
- Authorized personnel Authority to bind, give instructions
- Fiduciary duties/standard of care
- Legal opinions (tax, good standing, securities)
- Annual & quarterly reports, sample reports, ILPA template
- Financial models and waterfall models
- Manager's policies (allocation, valuation, conflicts, cyber, DEI etc.)
- Placement agents disclosures
- Customize for each investor



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# Thank You!



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### Overview of the Annual Actuarial Valuation Process

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Marin County Employees' Retirement Association

October 25, 2022 Graham Schmidt and Bill Hallmark 2 of 23

### **Pension Plan Management Policies**



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Over time, contributions and investment earnings have to pay for all plan benefits and expenses. The primary purposes of the annual actuarial valuation are to monitor the progress being made towards funding the benefits and to adjust contributions so that benefits remain secure.



Contributions + Investment Earnings = Benefit Payments +

**Expenses** 



### **Components to Project Future Benefits**





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The Service Retirement benefit is equal to the Member's Final Compensation muliplied by Credited Service multiplied by the factors shown above based on the Member's age at retirement. The percentage of Final Compensation for non-PEPRA members may not exceed 100%.



The benefit formulas are negotiated between the participating employers and their members. All new members hired after January 1, 2013 are members of the PEPRA benefit tiers. Other elements of the benefit provisions include the post-retirement COLAs, final average pay periods, and ancillary benefits (such as death and disability).









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#### Active Beneficiary Deferred Disabled Retiree



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We apply **actuarial assumptions** to project the future benefits to the members included in the snapshot. **Demographic** assumptions include the expected rates rates of retirement, disability, termination and death. These assumptions generally differ by employment class (i.e. Miscellaneous vs. Safety), sex, and/or benefit tier. The assumptions are determined based on the member's age and/or service, depending on which is a better predictor of behavior.

#### Retirement, Misc

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Future results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the assumptions, changes in assumptions, and changes in plan provisions or applicable law.



The demographic assumptions are reviewed and potentially updated every three years as part of the triennial **experience study**. To assess each assumption, we first we calculate the average percentage of active members leaving service for each cause over the past three years (or over a longer period, if there isn't much experience).

#### **Retirement Rates**

Miscellaneous (< 30 YOS)	Miscellaneous (30+ YOS)	Safety (10-14 YOS)	Safety (15-19 YOS)	Safety (20+ YOS)
	Miscellalleous (30+ 103)	Salety (10-14-103)	Salety (15-19 100)	Salety (20+ 103)




#### **Retirement Rates**

Miscellaneous (< 30 YOS)	Miscellaneous (30+ YOS)	Safety (10-14 YOS)	Safety (15-19 YOS)	Safety (20+ YOS)
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#### **Retirement Rates**

Miscellaneous (< 30 YOS) Miscellaneous (30+ YOS) Safety (10-14 YOS) Safety (15-19 YOS) Safety (20+ YOS)





We may propose a modification to the assumption, if the actual rate falls outside the interval (applying professional judgement as necessary). In this case, we proposed lowering the overall retirement rates for the Miscellaneous members at some ages.

#### **Retirement Rates**

Miscellaneous (< 30 VOS)	Miscellaneous (30+ VOS)	Safety (10-14 VOS)	Safety (15-19 VOS)	Safety (20+ VOS)
wiscellaneous (< 30 103)	wiscellaneous (30+ 103)	Salety (10-14 103)	Salety (15-19 103)	Salety (20+ 103)







Economic assumptions generally have the greatest impact on cost and - unlike demographic assumptions - are generally set based on forward-looking indicators, rather than reviewing recent Plan experience.





The assumption with the biggest impact on Plan cost is the discount rate, which is reviewed every year to confirm whether the assumption is still reasonable and appropriate. The discount rate has declined steadily over the past fifteen years, with one of the main drivers being the decline in the **risk-free rate** and the associated increase in the **risk premium** needed to achieve the assumption.

#### Vield on 10-Year Treasury MCERA Risk Premium



However, the risk-free rate has increased significantly this year, with the yield on the 10-year Treasury reaching 3.65% as of the beginning of October. This means MCERA would need to earn about 3.10% above the risk-free rate (after investment expenses) to achieve a 6.75% assumed return.

#### Vield on 10-Year Treasury MCERA Risk Premium





Source: http://www.econ.yale.edu/~shiller/data.htm

These values have also changed dramatically in recent months, dropping significantly. These two factors - increasing interest rates and declining equity markets - have resulted in investment consultants *increasing* their return expectations for many asset classes. As a result, Cheiron does not recommend any change to the MCERA discount rate this year. We recommend Board conduct a thorough review of the assumption next year as part of the experience study.

#### Shiller P/E Ratio Oct 2022

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Source: http://www.econ.yale.edu/~shiller/data.htm



### **Projected Benefit Payments**



## **Funding Objectives**





#### **Projected Benefit Payments**





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The sum of these discounted benefit payments is the present value of future benefits, and for inactive members, is the target amount of assets the plan should have. For active members, it is a little more complex.

### **Present Values**

	Active	Inactive	Total
Discount	ed Benefit Payments Past Service Future Service		
\$2,400			
\$2,200			
\$2,000			
\$1,800			
\$1,600			
\$1,400			
နိုင် မျို့ \$1,200 -			
≥ \$1,000 °			
\$800			
\$600			
\$400			
\$200			



For active members, ideally there is a contribution that is a fixed percentage of the member's pay each year that will accumulate with investment returns to equal the member's present value of benefits when they leave employment. This rate is calculated individually for each member and is called the **Normal Cost Rate**.

#### Entry Age Cost Method Member Hired at Age 30, Retired at Age 60



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#### Entry Age Cost Method Member Hired at Age 30, Retired at Age 60





### **Present Values**

Active	Inactive	Total

#### Discounted Benefit Payments Past Service Future Service

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The Actuarial Liability for the plan is the present value of the projected benefit payments that are attributed to past service, which includes all of the projected payments for inactive members and a portion of the projected payments for active members.

### **Present Values**



#### Discounted Benefit Payments Past Service Future Service



Each valuation, the Actuarial Liability (or Funding Target) is compared to the value of assets. Any shortfall of assets (Unfunded Actuarial Liability or UAL) should be made up within a reasonable period of time. Amortization methods are used to determine the additional contribution required each year to pay off any UAL or credit for any surplus.





The UAL each year is actually composed of many layers. Each layer represents the remaining amount of a (gain) or loss or assumption change from a specific year. Experience gains and losses are shown below as gold layers and assumption changes are purple layers. The two green layers are the 2009 extraordinary loss and the 2013 initial UAL when this layered methodology was implemented.





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Many public plans use asset smoothing to control the short-term volatility in contributions. The phase-in/out amortization methods used by MCERA are intended to provide similar volatility management without smoothing assets.



Amortization Year

# MCERA Amortization Payment Layers



### **MCERA Amortization Payment Layers**





#### Normal Cost Administrative Expenses UAL Payment Employee Employer





Normal Cost Administrative Expenses UAL Payment Employee Employer



## **Projected Employer Contributions**

5-20% 20-40% 40-60% 60-80% 80-95%



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### **Projected Employer Contributions**

5-20% 20-40% 40-60% 60-80% 80-95%





#### Certification

The purpose of this presentation is to provide educational materials for the training of Trustees. This presentation is for the use of MCERA in its education efforts.

In preparing our presentation, we relied on information (some oral and some written) supplied by MCERA. This information includes, but is not limited to, the Plan provisions, employee data, and financial information. We performed an information of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23. The data and actuarial assumptions used (unless modified within this communication) are described in our June 30, 2021 and prior actuarial valuation reports.

Future projections may differ significantly from the projections presented in this presentation due to such factors as the following: plan experience different from that anticipated by the assumptions; changes in assumptions; and changes in plan provisions or applicable law.

Cheiron utilizes ProVal actuarial valuation software leased from Winklevoss Technologies (WinTech) to calculate liabilities and project benefit payments. We have relied on WinTech as the developer of ProVal. We have a basic understanding of ProVal and have used ProVal in accordance with its original intended purpose. We have not identified any material inconsistencies in assumptions or output of ProVal that would affect this valuation.

To the best of our knowledge, this presentation and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this presentation. This presentation does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

This presentation was prepared for the MCERA Retirement Board for the purposes described herein. Other users of this presentation are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

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# Callan



Jim Callahan, CFA Fund Sponsor Consulting

## **Steps in the Investment Management Process**

A Recommended Fiduciary Process for All Types of Funds

## Analyze Current Position

## Step 1

Conduct Fiduciary Review:

- Current position
- Regulatory environment
- Mission and objectives
- Risk tolerance
- Performance objectives
- Cash flow considerations
- Liabilities

## Design Optimal Portfolio

## Step 2

- 1. Develop investment policy guidelines
- 2. Set asset-allocation policy
- 3. Determine rational manager structure
- 5. Identify appropriate performance benchmarks

Formalize Investment Policy

## Step 3

Prepare a written Investment Policy Statement



- 1. Hire investment managers.
- 2. Negotiate investment manager fees
- 3. Review custody/ recordkeeping. arrangements
- 4. Review securities lending program
- 5. Establish brokerage policies

Monitor and Supervise

Review

## Step 5

- 1. Review performance measurement and reporting procedures
- 2. Monitor trading costs
- 3. Monitor ongoing manager. performance
- 4. Make program refinements as required



**Capital Market Theory** 

## Modern Portfolio Theory (MPT)

#### PORTFOLIO SELECTION\*

HARRY MARKOWITZ The Rand Corporation

THE PROCESS OF SELECTING a portfolio may be divided into two stages. The first stage starts with observation and experience and ends with beliefs about the future performances of available securities. The second stage starts with the relevant beliefs about future performances and ends with the choice of portfolio. This paper is concerned with the second stage. We first consider the rule that the investor does (or should) maximize discounted expected, or anticipated, returns. This rule is rejected both as a hypothesis to explain, and as a maximum to guide investment behavior. We next consider the rule that the investor does (or should) consider expected return a desirable thing *and* variance of return an undesirable thing. This rule has many sound points, both as a maxim for, and hypothesis about, investment behavior. We illustrate geometrically relations between beliefs and choice of portfolio according to the "expected returns—variance of returns" rule.

One type of rule concerning choice of portfolio is that the investor does (or should) maximize the discounted (or capitalized) value of future returns.<sup>1</sup> Since the future is not known with certainty, it must be "expected" or "anticipated" returns which we discount. Variations of this type of rule can be suggested. Following Hicks, we could let "anticipated" returns include an allowance for risk.<sup>2</sup> Or, we could let the rate at which we capitalize the returns from particular securities vary with risk.

The hypothesis (or maxim) that the investor does (or should) maximize discounted return must be rejected. If we ignore market imperfections the foregoing rule never implies that there is a diversified portfolio which is preferable to all non-diversified portfolios. Diversification is both observed and sensible; a rule of behavior which does not imply the superiority of diversification must be rejected both as a hypothesis and as a maxim.

 This paper is based on work done by the author while at the Cowles Commission for Research in Economics and with the financial assistance of the Social Science Research Council. It will be reprinted as Cowles Commission Paper, New Series, No. 60.

 See, for example, J. B. Williams, The Theory of Investment Value (Cambridge, Mass.: Harvard University Press, 1938), pp. 55–75.

 J. R. Hicks, Value and Capital (New York: Oxford University Press, 1939), p. 126. Hicks applies the rule to a firm rather than a portfolio.

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### Principles

- "{T}he investor does (or should) consider expected return a desirable thing and variance of return an undesirable thing."
- "Diversification is both observed and sensible; a rule of behavior which does not imply the superiority of diversification must be rejected both as a hypothesis and as a maxim."
- "The E-V [expected return volatility] rule states that the investor would (or should) want to select one of those portfolios which give rise to the (E,V) combinations indicated as efficient in the figure; i.e., those with minimum V for given E or more and maximum E for given V or less."

MPT quantifies investing inputs

- Expected Returns
- Standard Deviation (Risk)
- Correlations (Diversification)

MPT quantifies "best" investment portfolios

Most return for risk taken

## Returns

## **Expected Returns**

## Historical returns

Past is prolog

## Forecast "real" returns

• Returns relative to inflation

## Forecast return "premia"

- Returns relative to other asset classes
  Evidence of risk aversion
- Equity risk premium
- -vs. T-bills
- -vs. bonds

## Granular forecasts

- Equity
- Profits, dividends, valuations
- Bonds
- -Yield, price

### Rolling 12 Quarter Relative Returns Relative to 3-Month T-Bill



## The Equity Risk Premium: A (Very) Long-Term Global Perspective

Real (above inflation) annualized returns on equities internationally (1900-2020)



Globally, equities have outpaced inflation by roughly 5%/year since the start of the 20th century Individual country experience differs markedly

- Underscores importance of international diversification
- Note the U.S. experience as one of the strongest performers
- -Reflects period where the U.S. transitioned into the world's largest economy
- -On winning side of two World Wars
- -Dangerous to extrapolate both U.S. relative and absolute performance into the future

Source: Credit Suisse Global Investment Returns Yearbook 2020



## **Stock Market Returns by Calendar Year**

History of the U.S. stock market (231 years of returns)



## Risk

## Returns through time and volatility

Returns are not constant through time

Distribution of returns tends to be "bell shaped"

- More returns near the average
- Fewer returns at the extremes

Projected risks are "uncertain" but guided by the "probability" distribution of historical returns

### **Returns Through Time**

- Investment A Return
- Average Return



## **Normally Distributed Asset Class Returns**

## Bell curve

Modern Portfolio Theory assumes that all asset class returns are "normally distributed" (symmetric bell-shaped probability curve)

Benefits of the assumption

- The returns of portfolios constructed from normally distributed asset class returns are also normally distributed
- Returns, risks, and correlations of the underlying asset classes are the only assumptions needed to determine the return and risk of the portfolio
- Normal distributions allow us to calculate probabilities of returns

### **U.S. Broad Equity**

Expected Return = 6.6% Standard deviation = 18.0%



50% probability of return between

-5.5% and 18.7%
## **Graph Interpretation/Connection**

Bell curve



Investors have demanded and received higher long-term returns for taking on greater risk

 But high risk means that shorter-term results can vary meaningfully from longterm averages

### Statistics 1926 - 2020

	Returns	Standard Deviation
U.S. Small Cap Stocks	11.99%	37.68%
U.S. Large Cap Stocks	10.27%	22.03%
U.S. Long-term Corporate Bonds	6.14%	8.40%
U.S. Intermediate Government Bonds	4.93%	4.19%
U.S. T-Bills	3.43%	1.60%
U.S. Inflation	2.91%	2.59%

Source: Ibbotson. Data from 1926-2020.



The basis for asset allocation is the longterm expected characteristics of each asset class and how they interact with each other

Public market assumptions represent passive exposure (beta only); however, return assumptions for real estate and private equity reflect active management (alpha)

All return assumptions are net of fees

Callan capital market assumptions are used for long-term strategic planning

Reflect risk aversion

Benchmark	Expected Return*	Standard Deviation
Cambridge Private Equity	8.50%	27.60%
MSCI ACWI ex USA	7.35%	20.70%
Russell 3000	7.10%	17.95%
NFI-ODCE	6.15%	14.20%
Callan Hedge FOF Database	4.80%	8.20%
Bloomberg Aggregate	3.90%	3.75%
	BenchmarkCambridge Private EquityMSCI ACWI ex USARussell 3000NFI-ODCECallan Hedge FOF DatabaseBloomberg Aggregate	BenchmarkExpected Return*Cambridge Private Equity8.50%MSCI ACWI ex USA7.35%Russell 30007.10%NFI-ODCE6.15%Callan Hedge FOF Database4.80%Bloomberg Aggregate3.90%

\* 10-year annualized return

# Risk

### Diversification

Diversification occurs when asset classes have different return cycles

Diversifying asset classes need not have different returns and risks

Asset classes with the same expected returns and risks but different return cycles can still diversify each other



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### **Definition of Correlation**

Correlation measures the degree to which two investments move in relation to each other

+1 correlation:

- Returns are "perfectly correlated" or synchronized
- No diversification benefit so or reduction in volatility

0 correlation:

- The relationship between the returns of two investments is completely random
- Substantial reduction in volatility

-1 correlation:

- Returns are completely unsynchronized
- Good and bad returns exactly cancel out, leaving no volatility

These relationships will have a large impact on the generation of efficient asset mixes using mean-variance optimization



### **Moving from Asset Classes to Portfolios**

### Mean-variance optimization



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## **Portfolio Mean-Variance Optimization Example**

### Efficient frontier



	Sample Mix	Mix 1	Mix 2	Mix 3	Mix 4	Mix 5
Broad U.S. Equity	70%	19%	23%	27%	30%	34%
Global ex-U.S. Equity	0%	12%	15%	17%	20%	22%
Private Equity	0%	6%	7%	8%	9%	10%
Broad U.S. Fixed Income	30%	46%	43%	35%	27%	19%
Private Real Estate	0%	7%	8%	10%	11%	12%
Hedge Funds	0%	4%	4%	3%	3%	3%
Totals	100%	100%	100%	100%	100%	100%
10-Year Compound Return	5.48%	4.56%	5.04%	5.48%	5.88%	6.26%
Projected Standard Deviation	12.52%	8.02%	9.52%	11.02%	12.52%	14.02%

The optimization model determines the portfolios with the highest expected return for any given risk level known as the "efficient frontier"

The sample portfolio is below the efficient frontier because it is relatively undiversified

Determining the efficient frontier is the first step in developing asset allocation policy

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**Setting the Asset Allocation Policy** 

### The Importance of Asset Allocation

Asset allocation is the primary determinant of investment return and asset volatility

Asset allocation is the process of determining the optimal allocation of a portfolio among broad asset classes based upon, among other factors:

- Investment goals
- Time horizon
- Liquidity needs
- Capital market expectations
- Liability characteristics
- Risk tolerance

Elements of an appropriate target asset allocation include:

- Identifying asset classes for inclusion
- Special considerations such as fees, size or capacity constraints, liquidity requirements
- Rebalancing discipline

### **Three Key Strategic Policies**

Evaluating the interaction of the three key policies that govern a defined benefit plan with the goal of establishing the best investment policy

### **Investment Policy**

- How will the assets supporting the benefits be invested?
- What risk/return objectives?
- How to manage cash flows?



### **Benefits Policy**

- -What type/kind of benefits?
- -What level of benefit?
- -When and to whom are they payable?

### **Funding Policy**

- How will the benefits be funded?
- -What actuarial discount rate?
- How will deficits be paid for?
- How will costs be recognized?

## Asset Allocation Policies Vary Widely by Plan Type

### Average allocations



Long-term investors (public pension funds, endowments) typically allocate 60–70% or more of the portfolio to growth assets (e.g., public equities, private equity)

Corporate defined benefit funds allocate more to fixed income to hedge liabilities (mark-to-market framework)

Endowments more heavily invested in alternative investments

Sources: Callan (December 31, 2019), NACUBO (2019 study)



## **Public Pension Asset-Liability Study Basics**

The goal of an asset-liability study is to establish a long-term strategic asset allocation target

The funded status of a pension plan is assets/liabilities 100% is fully funded, though few are currently.

Inflows have to equal outflows over the life of the plan

Underfunded pension plans seek to have inflows (green) exceed outflows (orange) in order to reach full funding
over time:



An appropriate asset allocation will depend on the plan sponsor's investment objectives:

- Minimize costs over the long run (long-term goal)
- -Larger allocations to growth assets reduce contributions and/or improve funded status
- Minimize funded status volatility (short-term goal)
- -Larger allocations to risk-mitigating assets (e.g. bonds) reduce contribution/funded status volatility

The strategic asset allocation target should be an optimal balance between sustainable funded status volatility and minimization of contributions over the long run

The strategic asset allocation will vary by the unique circumstances of the plan sponsor

• No "one-size-fits-all" solution exists

# Callan

## Callan Asset-Liability Modeling Process



## **Liability Modeling**

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Callan's Preliminary 2023 Capital Market Projections and MCERA Projected Returns

## Why Make Capital Markets Projections?

### Guiding objectives and process

A long-term strategic investment plan is the cornerstone of a prudent process.

- Capital markets projections are key elements to set reasonable return and risk expectations for the appropriate time horizon.
- Projections represent our best thinking regarding the long-term (10-year) outlook, recognizing our median projections represent the midpoint of a range, rather than a specific number.
- Develop results that are readily defensible both for individual asset classes and for total portfolios
- Be conscious of the level of change suggested in strategic allocations for long-term investors: DB plan sponsors, foundations, endowments, trusts, DC participants, families, and individuals
- Reflect common sense and recent market developments, within reason

Callan's forecasts are informed by current market conditions, but are not built directly from them.

• Balance recent, immediate performance and valuation against long-term equilibrium expectations

### How are Capital Market Projections Constructed?

### Guiding objectives and process

Underlying beliefs guide the development of the projections:

- An initial bias toward long-run averages
- A conservative bias
- An awareness of risk premiums
- A presumption that markets are ultimately clear and rational

Reflect our beliefs that long-term equilibrium relationships between the capital markets and lasting trends in global economic growth are key drivers to setting capital market expectations

Long-term compensated risk premiums represent "beta"—exposure to each broad market, whether traditional or "exotic," with limited dependence on successful realization of alpha

The projection process is built around several key building blocks:

- Advanced modeling at the individual asset class level (e.g., a detailed bond model, an equity model)
- A path for interest rates and inflation
- A cohesive economic outlook
- A framework that encompasses Callan beliefs about the long-term operation and efficiencies of the capital markets

### First Half of 2022 Capital Markets Review

### Big jump in rates; equities off more than 20%

Inflation and interest rates dramatically increased

- Yields across the curve have risen by 2+ standard deviations.
- The 10-year Treasury yield has almost doubled, moving from 1.52% to 2.98%.
  - The yield was 0.93% at the end of 2020.
- At one point the yield was up to 3.49%.
- The 30-year AA corporate yield has risen by 176 bps in the first half of the year.
  - -52 bps of the increase is from spreads widening.
- Inflation was up 7%-9% depending upon the metric used.
- Inflation levels are NOT driving our actions now.
- Our Aggregate Treasury yield was not projected to be at 6/30 levels for another 13 years.
- The rate rise accounts for the majority of the -20% return for the first half of the year.
- -Going forward, core fixed income should be considered a much more attractive asset class.

### Equities have performed poorly

- The equity market is down more than 20%, bringing many valuation metrics back to reasonable historical levels.
- The drop in equity markets is NOT driving our actions now.

### Interest Rate Movement Through 6/30/22

Yields have shifted dramatically higher this year

- The rate increases across the yield curve equate to a 2+ standard deviation event.
- -10-year UST yield is up 146 bps.
- 30-year UST yield is up 124 bps.
- Long corporate AA rates rose 176 bps.
- Our original interest rate forecast did not have 10-year yields this high until year 13 of the forecast.
- For 10-year forecast, losses up front will be offset by higher yields in the following periods; 10-year forecast can be meaningfully higher if yield increases are early and high enough, AND yields are maintained.
- The yield curve shifted up even more dramatically on the short end.
- Higher yields increase the risk of inducing recession, which could lead to reversal in interest rates and lower return.



#### Sources: Bloomberg, Federal Reserve

### The Effect of Higher Rates on Callan's Interest Rate Forecasts

**Yield Curve Paths** 

The blue line is our original forecast of interest rates for the next 30 years.

The orange line is a revised forecast that incorporates the rise in rates experienced in the first half of 2022.

Things to note:

- 30-year terminal point remains unchanged.
- 2 Our original forecast did not project 6/30/22 rates for another 13 years. In other words, the bond market has taken on 13 years worth of "pain" in the last six months.
- It would be inappropriate if our modeling and assumptions were not updated to reflect this.
- Otherwise, we would be projecting additional fixed income losses on top of what has already been experienced, aka "bad on bad."
- Bad forecasted returns on top of bad experienced returns.

#### Aggregate Treasury: Callan 2022 Projection 4.5% Aggregate Treasury: Rates End 2022 at 6/30/22 Level 4.0% 3.5% 3.0% 2 2.5% 2.0% 1.5% 1.0% 0.5% 0.0% Year Year Year Year 0 2 8 10 12 14 16 18 20 22 24 26 28 30

The terminal point of our interest rate forecasts remains unchanged. The 10-year Treasury was not projected to be this high until 2035.

Source: Callan



### **Preliminary 2023 Capital Market Assumptions**

- Increase inflation by 25 bps from 2.25% to 2.50%
- Increase cash by 120 bps from 1.20% to 2.40%
- Increase core fixed by 215 bps from 1.75% to 3.90%
- Increase U.S. large cap equities by 50 bps to 7.00%
- Reflects pass-through of our increased inflation assumption
- -Removes the negative 25 bps valuation adjustment from higher valuations at beginning of year
- All other asset class return assumptions were adjusted as appropriate so they hang together as a set
- Asset class volatility and correlations have not changed
- -These variables will be re-visited during the annual update process later this year

## Preliminary 2023–2032 Risk and Return Assumptions

Asset Class	Index	2023–2032 10-Year Expected Return*	2022–2031 10-Year Expected Return*	Standard Deviation
Equities				- otandara-Deviation
Broad U.S. Equity	Russell 3000	7.10%	6.60%	17.95%
Large Cap U.S. Equity	S&P 500	7.00%	6.50%	17.70%
Smid Cap U.S. Equity	Russell 2500	7.20%	6.70%	21.30%
Global ex-U.S. Equity	MSCI ACWI ex USA	7.35%	6.80%	20.70%
Developed ex-U.S. Equity	MSCI World ex USA	7.00%	6.50%	19.90%
Emerging Market Equity	MSCI Emerging Markets	7.40%	6.90%	25.15%
Fixed Income				
Short Duration Gov/Credit	Bloomberg 1-3 Yr G/C	3.20%	1.50%	2.00%
Core U.S. Fixed	Bloomberg Aggregate	3.90%	1.75%	3.75%
Global ex-U.S. Fixed	Bloomberg Glbl Agg xUSD	2.00%	0.80%	9.20%
TIPS	Bloomberg TIPS	3.25%	1.25%	5.05%
Long Gov/Credit	Bloomberg Long Gov/Credit	4.10%	1.80%	10.50%
High Yield	Bloomberg High Yield	6.00%	3.90%	10.75%
Bank Loans	S&P / LSA Leveraged Loan	6.10%	4.60%	9.15%
Emerging Market Debt	EMBI Global Diversified	5.80%	3.60%	9.50%
Alternatives				
Core Real Estate	NCREIF ODCE	6.15%	5.75%	14.20%
Private Infrastructure	MSCI Glb Infra/FTSE Dev Core 50/50	6.50%	6.10%	15.45%
Private Equity	Cambridge Private Equity	8.50%	8.00%	27.60%
Private Credit	N/A	6.50%	5.50%	14.60%
Hedge Funds	Callan Hedge FOF Database	4.80%	4.10%	8.20%
Commodities	Bloomberg Commodity	2.75%	2.50%	18.00%
Cash Equivalents	90-Day T-Bill	2.40%	1.20%	0.90%
Inflation	CPI-U	2.50%	2.25%	1.60%

\* Geometric returns derived from arithmetic returns and the associated risk (standard deviation).

### **MCERA Target Allocation**

The target allocation consists of 62% equity, 23% fixed income, and 15% real assets

- Opportunistic allocation of 0-5% is not shown
- The goal of the opportunistic allocation is to enhance the risk-adjusted return of the total portfolio
- The Plan's target is projected to return 6.9% over the next 10 years versus an actuarial discount rate of 6.75%.
- Callan's public market return projections do not incorporate active management premiums
  - Active management premiums accrue when investment firms selected by MCERA outperform their passive benchmarks net-of-fees
  - It is important to note, though, that investment firms will at times underperform their passive benchmarks



Expected Return = 6.9% Expected Standard Deviation = 13.1%

### **Role of Asset Classes**



 The current target allocation is growth-oriented with lesser allocation to risk mitigation and inflation hedging which is reasonable for a long-term investor (MCERA investments identified by \*)

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### Peer Comparison at June 30, 2022



### Asset Class Weights vs Callan Public Fund Spons - Large (>1B)

• The target allocation has similar allocations to public equity, fixed income, real estate, and public real assets relative to peers

• While the target is underweight private equity relative to a majority of peers the actual allocation is above median

### **Alternative Asset Mixes**

### Real Assets Constrained to 15% of Portfolio

				Alternative Asset Mixes - 15% Real Assets				
	MCERA	Min	Max					
Asset Class	Target	Alloc	Alloc	Mix 1	Mix 2	Mix 3	Mix 4	Mix 5
Broad US Equity	32%	0%	100%	24%	27%	29%	32%	34%
Broad International Equity	22%	0%	100%	16%	17%	19%	20%	22%
Broad US Fixed Income	23%	0%	100%	35%	30%	25%	20%	15%
Real Assets	15%	15%	15%	15%	15%	15%	15%	15%
Private Equity	8%	0%	100%	10%	11%	12%	13%	14%
Totals	100%			100%	100%	100%	100%	100%
Expected Return	6.9%			6.6%	6.8%	7.0%	7.1%	7.3%
Real Return	4.4%			4.1%	4.3%	4.5%	4.6%	4.8%
Risk (Standard Deviation)	13.1%			11.0%	12.0%	12.9%	13.9%	14.9%
% equity	62%			50%	55%	60%	65%	70%
% fixed income	23%			35%	30%	25%	20%	15%
% real assets	15%			15%	15%	15%	15%	15%
% illiquid	16%			18%	19%	20%	21%	22%

- Mixes are constrained to hold 15% real assets
- Real assets expands the real estate allocation to include other real assets, all publicly traded: TIPS, commodities, natural resource equity and REITs
- Maximum private equity allocation = 25% of public equity exposure
- No new asset classes included

### **Alternative Asset Mixes**

Real Assets Constrained to 15% of Portfolio and Private Equity to 10%

				Alterna	Alternative Asset Mixes - 15% Real Assets			
	MCERA	Min	Max					
Asset Class	Target	Alloc	Alloc	Mix 1	Mix 2	Mix 3	Mix 4	Mix 5
Broad US Equity	32%	0%	100%	24%	27%	30%	33%	36%
Broad International Equity	22%	0%	100%	16%	18%	20%	22%	24%
Broad US Fixed Income	23%	0%	100%	35%	30%	25%	20%	15%
Real Assets	15%	15%	15%	15%	15%	15%	15%	15%
Private Equity	8%	0%	10%	10%	10%	10%	10%	10%
Totals	100%			100%	100%	100%	100%	100%
Expected Return	6.9%			6.6%	6.8%	6.9%	7.1%	7.2%
Real Return	4.4%			4.1%	4.3%	4.4%	4.6%	4.7%
Risk (Standard Deviation)	13.1%			11.0%	11.9%	12.8%	13.7%	14.7%
% equity	62%			50%	55%	60%	65%	70%
% fixed income	23%			35%	30%	25%	20%	15%
% real assets	15%			15%	15%	15%	15%	15%
% illiquid	16%			18%	18%	18%	18%	18%

• Mixes above are identical to those on the prior page but with private equity limited to a maximum of 10%

- Private equity allocations above 10% are reallocated to public equity
- The resulting impact on total portfolio return and risk is modest
- Slight reduction in return and risk for Mixes 2 through 5 relative to the prior page

### **Projected Rates of Return (10 Years)**



Range of Projected Rates of Return Projection Period: 10 Years Optimization Set: 2023 Prelim

- Chart reflects annualized return distribution over the next ten years
- Bar heights proportional to return volatility
- Higher expected (median) returns associated with higher volatilities
- Increased volatility leads to lower worse-case (97.5th percentile) returns
- The target has a reasonable chance (>52%) of earning 6.75% or better over the next 10 years

### **Disclaimers**

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# Callan



October 25, 2022

**Real Asset Allocation Structure Review** 

Avery Robinson, CAIA Real Assets Consulting

Jim Callahan, CFA Fund Sponsor Consulting



Why Real Assets

## **Why Inflation Matters**

### Impact of High Inflation on Traditional Asset Classes

Time horizon matters when evaluating the impact of rising inflation on a portfolio.

**Fixed Income** 

- Erodes the present value of future interest and principal payments.
- Historical record periods of high or rising inflation exhibited poor (negative) real return performance.
- Inflation-linked bonds are the exception, although history does not exist for periods of sharply higher inflation.
- Longer term higher expected inflation eventually leads to higher coupons (return).

Equity

- Erodes the present value of future profits and capital appreciation.
- Higher interest rates constrain credit and restrict economic growth, thereby lower the growth in profit and appreciation.
- Historical record periods of high or rising inflation exhibited poor (negative) real return performance.
- Longer term ownership is a claim on the underlying real economy; equity is expected to provide long-term inflation protection (a positive real return).

### **Real Assets Defined**

### What are they and how are they accessed?

**Definition**: Real assets are a material or tangible investment in which value is derived from the asset's existence or use.

- Generally include real estate, timberland, farmland, and infrastructure
- May also include other types of physical assets such as commodities or precious metals
- Exist in both the private and public market spheres
- Investment can be through both equity and debt
- Many similarities to private equity and private credit in terms of implementation considerations



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## Why Invest in Real Assets?

### They offer several benefits, with some considerations

### Diversification

- Low correlation with other traditional asset classes
- Return profile
  - More stable, predictable cash flows from lease structures and contracted revenue
  - Can also be used for return enhancement and can exhibit absolute return characteristics
- Inflation protection
  - Ability to adjust lease and contract rates on a periodic basis in response to market dynamics
- Asset class considerations
  - Cyclical asset class
  - Illiquid structures
  - Monthly or quarterly pricing
  - Higher fees than other traditional asset classes
  - Lack of investable indices; benchmarking issues



### Asset Class Performance Varies with the Economy

There Is Not One Silver Bullet for Hedging Inflation



Given uncertainty, investors are seeking a diversified solution to preserve capital through various economic conditions and inflationary environments.

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### **Real Assets**

### A Diversified Approach Is Beneficial

No single asset class has proven to be a perfect inflation hedge over various market conditions.

TIPS generally perform well during periods of rising inflation, but tend to lose value when inflation declines.

Commodities have also performed well in rising inflation markets but have lost value when inflation remains persistently high or declines.

Broadly diversified equities have tended to lose value during periods of rising inflation but perform well in falling and stable (either high or low) inflation markets.

To provide protection over various inflation scenarios, it is recommended to invest in multiple inflation-sensitive asset classes across both public and private markets.



**Public Real Assets**
### **MCERA Public Real Assets Structure**



MCERA has a 15% allocation to Real Assets of which 7% is allocated to Public Real Assets. The remaining 8% is allocated to Private Real Assets.

The TIPS and REITs portfolios are passively managed. The commodities and global natural resource equities portfolios are actively managed.

## **Common Components of a Diversified Public Real Assets Portfolio**

Short term inflation hedging:

• Treasury Inflation-Protected Securities (TIPS)

-Hedge against rising prices and helps to mitigate volatility introduced by equity oriented real assets categories

- Commodities
- -High correlation to CPI
- -Historically strong diversifier to stocks and bonds
- -High volatility systematic rebalancing required to deliver the desired correlation benefit
- –Returns have been challenged, with very high volatility, in a strong equity market with little inflation. Inflationsensitive equity has been substituted in some strategies, boosting return, at the cost of potentially reducing the correlation benefit.

Positive long term real returns: equity whose underlying assets are inflation sensitive

#### • REITs

- Natural Resources Equity
- Global Listed Infrastructure (not in the current portfolio)

## **Treasury Inflation-Protected Securities (TIPS)**

TIPS are a treasury security that is indexed to inflation in order to protect investors form the negative effects of inflation. They are considered low risk since they are backed by the US Government and since their par value rises with inflation as measured by CPI, while their interest rate remains fixed.

#### **Benefits**

- Considered the risk-free real return available in the marketplace.
- Diversifier low correlation with other asset classes.
- Lower duration and standard deviation than a nominal Treasury with the same maturity.
- Higher correlation with inflation than equities and real estate.
- Respond positively to unexpected inflation.

- Should yield less than equivalent nominal Treasuries for not bearing the risk of unexpected inflation.
- Volatility is higher than nominal Treasuries especially in periods of high market stress.

## Commodities

The commodities market trades nearly 100 different commodities. Institutional investors typically invest in commodity futures contracts because of the difficulties of owning and storing physical commodities.

• For futures, the sources of return include the spot price, roll return, and the interest on underlying collateral. Commodities provide a direct hedge to inflation since spot commodity prices can be a major driver of inflation.

#### **Benefits**

- Good candidate for active management.
- Strong complement to TIPS exposure in a real return portfolio; low to negative correlation to stocks and bonds.
- Rise in price with inflation providing a natural hedge against equity and debt losses.

- Highly volatile with a steep downside and should be actively rebalanced with uncorrelated assets.
- High fees relative to traditional investments for active strategies.

## **REITs**

REITs are publicly traded real estate securities that provide liquidity not found in private real estate. Returns stem from dividend income and capital appreciation. Inflation-sensitivity is derived from the characteristics of the underlying private real estate assets.

#### **Benefits**

- Provide access to diversified real estate assets not found in other vehicles.
- Solid long-term inflation hedge; outperform bonds in periods of rapidly rising or sustained high inflation.
- Liquidity enables REITs to replace private real estate in smaller portfolios. REITs complement private real estate in larger portfolios with liquidity and exposure to specific market segments, such as regional malls and CBD offices.

- Sensitive to interest rates and management.
- Highly correlated to small and mid cap equities; highly volatile.

### **Natural Resource Equities**

Natural resource equities are the equity securities of commodity producers, generating returns from two sources: dividend income and capital appreciation. Commodity producers have an indirect hedge to inflation from exposure to the underlying spot commodities.

#### **Benefits**

- Solid correlation with inflation while having equity-like risk/reward characteristics.
- Highly liquid compared to non-exchange traded real return strategies.
- Eliminates the negative "roll return" often faced by commodity futures.

- More correlated with equity markets, at times, than direct commodity exposure.
- Many of the producers enter into hedging arrangement, which can minimize the commodity link.

### **Global Listed Infrastructure**

Global listed infrastructure investments consist of publicly traded stocks of companies engaged in infrastructurerelated activities. These activities are focused on economic infrastructure rather than social infrastructure. There is an emphasis on appreciation.

#### Benefits

- Quickly and easily assembled
- Liquidity
- Flexibility

- Shares volatility of equity markets substituting commodity exposure for Global Listed Infrastructure increases portfolio equity exposure
- Higher emphasis on capital gains rather than income
- Appropriate benchmark changing over time, moving away from S&P Global Infrastructure Index
- -FTSE Developed Core Infrastructure 50/50 Net has become the benchmark of choice for active managers
- -FTSE is more diversified (~250 names vs ~75), more US-oriented, and has slightly larger weights to utilities and communication names at the expense of slightly lower weights to transportation and energy infrastructure

## Why Global Listed Infrastructure?

#### Characteristics

"The basic facilities, services, and installations needed for the functioning of a community or society, such as transportation and communications systems, water and power lines, and public institutions including schools, post offices, and prisons." (Dictionary.com)

- Provides essential economic or social services
- Monopolistic or near-monopolistic in nature
- High barriers to entry
- Low demand elasticity

- Long-life assets
- Stable cash flow
- Illiquidity
- High leverage

	Economic Infrastructure		Social Infrastructure
Transportation	Utilities	Communications	Educational facilities
Bridges	Gas pipelines	Cable systems	Hospitals
Toll Roads	Electricity works	Wireless towers	Correctional facilities
Tunnels	Power generation	Broadcast towers	Public transportation
Airports	Water and sewage	Satellites	
Seaports	Renewable energy		
Rail			

## **Risk/Return**

15 Years Ended June 30, 2022



Historically, many of the underlying asset classes in real assets have substantially higher volatility in returns than TIPS.

While constructing a real assets portfolio balancing the inflation hedging characteristics with the volatility of the real asset sectors is key to maximizing return per unit of risk.

### Summary

The objective of MCERA's public real assets allocation is diversification to the total fund, inflation protection, and to be a complement to the private real assets allocation.

Portfolio construction is critical to delivering on these three objectives:

- REITS, Infrastructure, and Natural Resources Equity provide inflation sensitivity but equity market correlation is high.
- Diversification will largely come from inclusion of TIPS and Commodities.
- The beta of the portfolio to inflation is a critical factor; highest historical beta comes from commodities, natural resources and infrastructure.

Current MCERA implementation:

MCERA's public real assets allocation employs a traditional static allocation to TIPS, commodities, REITs and global natural resources. TIPS and REITs are implemented passively, while commodities and natural resources employ active management.

Current portfolio reflects moderate risk, lower than that of the total MCERA portfolio, due to the diversification benefit of half of the portfolio in TIPS and commodities.

Callan is comfortable with the current public real assets structure. Global listed infrastructure could be considered to diversify the current equity exposure (REITs and global natural resource equities).



**Private Real Assets** 

### **MCERA Private Real Assets Structure**



MCERA has a 15% allocation to Real Assets of which 8% is allocated to Private Real Assets.

- Currently the Private Real Assets portfolio consists solely of private real estate.
- The target allocation is split between two open-end core real estate funds.

### **Characteristics of Private Real Estate Investing**

#### **Investment Types / Structures**

- Mostly equity investments in commercial real estate
- Wide range of strategies and vehicles (and benefits)
- Variance of property types and geographies

#### **Return Components**

- Income = Net Operating Income (NOI), or monthly rent/lease payments net of expenses
- Appreciation from "cap rate compression," "NOI growth," or both
- Return components depend on strategy

#### **Debt / Leverage**

- Debt is often employed to enhance returns and/or to increase diversification
- Leverage is expressed in terms of loan-to-value (LTV), or the

ratio of a property's loan balance to the value of the underlying property

• Income return net of debt service



Main Property Types: Office, Retail, Apartment, Industrial Alternative Property Types: Self Storage, Student Housing, Senior Housing, Medical Office

## **Private Real Estate Strategies – Relative Risk/Return**



Risk

	Core	Core Plus	Value-add	Opportunistic
Net Return estimate	Up to 8%	8-10%	10-12%	13%+
Asset	Stable asset, Highly occupied	Stable	Enhancement of existing asset, Material improvement, releasing	Development of a new asset, Significant capital improvement
Expected Income vs Appreciation Return	75%> Return mainly from income	65%/35%	50%/50%	<65% Return mainly from appreciation
Leverage	Limited leverage	Increased Leverage (50-65% Loan-to-Value)	Increased Leverage (50-65% Loan-to-Value)	High Leverage (> 65%)

### **Characteristics of Private Infrastructure Investing**

#### **Investment Types / Structures**

- Essential assets for economic activity / movement of goods and people
- Wide variance of sectors
- Can be brownfield (mature, stabilized) or greenfield (newly developed)
- Ex-U.S. focus, but primarily in OECD markets
- Investor size determines type of exposure (smaller investors via public markets; larger via private markets)

#### **Return Components**

- High income component with modest appreciation over time
- Defensive income streams through monopoly positions, high barriers to entry, and/or highly regulated market

#### **Debt / Leverage**

- Higher leverage levels due to large ticket sizes and significant capital needs (typically 50%–85%+ LTV)
- Stable, predictable income allows investors to service that debt



Transportation: Bridges, Toll Roads, Tunnels, Airports, Seaports, Rail
Energy: Transmission and Storage
Renewables: Solar, Wind, Biomass, Hydro
Utilities: Gas, Electric, Water
Water/Waste: Treatment, Desalination, and Management
Communications: Cable Systems, Wireless & Broadcast
Towers, Satellites

### **Characteristics of Private Farmland Investing**

#### **Investment Types / Structures**

- Ownership of agricultural land for lease or direct operation
- Two major crop types: row crops or permanent crops
- Domestic consumption and export to international markets
   Emerging global middle class = growth in food demand

#### **Return Components**

- Annual yields are primary driver, which can be affected by:
  - Row crops: Crop choice to plant/cultivate in given year
  - Permanent Crops: Changing consumer preferences over time
  - Both: Economic/demographic shifts, tariffs, weather / climate / environment

#### **Debt / Leverage**

- Lower leveraged asset class
- Typically 25% or less = working capital for the farm



**Row Crops:** Corn, Wheat, Barley, Rice, Soybeans, Hay, etc.

**Permanent Crops:** Tree Nuts, Orchards (Apples, Citrus, Avocado, etc.), and Vineyards

## **Characteristics of Private Timber Investing**

#### **Investment Types / Structures**

- Direct ownership and management of tree forests for harvesting timber
- Domestic consumption and export to international markets

#### **Return Components**

- Timber returns have four components:
  - Prices: supply and demand for timber
  - Biological growth: internal yield (aka "store-on-thestump")
  - Land appreciation
  - Other: recreational use, carbon offsets, easements, etc.
- Income vs. appreciation can be variable, depending on timber maturity:
  - Mature: high cash flow potential (sawtimber)
  - Intermediate: greatest appreciation potential (chip-nsaw)
  - Young: lowest commercial value (pulpwood)

#### **Debt / Leverage**

- Low leverage due to inconsistent cash flows
- Choice to monetize or "store-on-the-stump" challenges debt service



Soft Woods: Pine and Spruce

Hard Woods: Hickory, Maple, Oak, Teak, and Walnut

**North American Markets:** Southeast, Pacific Northwest, Northeast, North Central (Great Lakes), and Canada

**Global Markets:** South America (Brazil, Uruguay, Chile, Paraguay), Asia (Australia, New Zealand), South Africa, and Russia

## **Real Assets Opportunity Set**

#### Sample portfolio construction

Institutional real assets portfolios are anchored by a primary exposure to private real estate with complementary secondary exposures to infrastructure, farmland, and timberland.



Real estate and other real assets estimated ~\$2.5 trillion, or 24% of the \$10.6 trillion in private market assets

## **Private Real Estate and Infrastructure Strategies**

#### Risk / return spectrum by strategy



### **Open-End Diversified Funds**

- At a \$10 million commitment, all of the diversified real estate equity and debt funds in the universe are options for an investor commitment.
- Minimums are typically at the discretion of the manager.
- Other investment options via property type specific funds (e.g., apartment or industrial-focused strategies)
- Holding periods in perpetual life vehicles contribute to enhanced ability to improve sustainability of assets.

#### Number of Open-End Fund Strategies by Investor Commitment



\*Includes two closed-end funds.



## **Closed-End Diversified Non-Core Funds**

### Primaries and secondaries

- Ample universe of higher-returning, diversified strategies
- Secondaries are a good fit for an initial portfolio allocation due to high diversification potential – vintage year diversification, property type, strategy, and manager.
- More strategies offered by diverseowned managers than in core; however, many are narrow strategies concentrated by property type or geographic region / cities.
- Shorter holding periods for assets in non-core funds may impact "green" improvements.

#### Number of Closed-End Strategies by Investor Commitment



### Summary

The objective of MCERA's private real assets allocation is to provide diversification to the total fund, reduce the correlation to public markets, generate a strong income component, provide inflation protection, and complement the public real assets allocation.

Current MCERA implementation:

MCERA's private real assets allocation is currently allocated to two core real estate managers.

Callan is comfortable with the current private real assets structure. Value-add real estate and infrastructure could be explored for diversification benefits and potential return enhancement.



Marin County Employees' Retirement Association

# **MCERA Business Priorities:** 2-3 Year Horizon

Board of Retirement Strategic Workshop October 26, 2022

Jeff Wickman, Retirement Administrator Michelle Hardesty, Assistant Retirement Administrator

# Agenda

» Operational Focuses

» Organizational Focuses

» Strategic Focuses



# **Operational Focuses**

#### Evaluating current benefit management system and its functionality.

- Does the system meet future needs? If not;
  - A multi-year project would be required to evaluate, procure and implement a new system. This effort would require
    a significant amount of time and dedicated resources.

#### Assessment of current organization structure.

- Are functions properly aligned between the leadership structure and the staff performing the work?
- Have we properly transferred knowledge of the operation of the benefit management system to staff?
- Conduct formal process improvement reviews.
- Ensure structure creates better accountability at all levels.
- Production of an Annual Comprehensive Financial Report (ACFR).
  - Are resources and technology sufficient to complete the required work?
- Evaluation and implementation of a financial system.
  - This effort would have to be coordinated with any benefit management system replacement project.

# **Organizational Focuses**

### Ensuring processes are in place to support any transition in leadership.

- The Board has adopted a Senior Management Contingency Plan Policy that covers unexpected changes that might occur for the Retirement Administrator and Assistant Retirement Administrator.
- The Board should also be prepared to manage a more orderly transition that would involve executive recruitments.
- Other forms of transitioning leadership roles may also need to be addressed with the Board.
- Evaluate whether an additional leadership role needs to be added in the organization.
  - A Retirement Manager position was created prior to 2010 but has never been filled.
- Evaluate whether additional resources should be added to the Finance and Accounting Unit.
  - Investment or financial related positions.

# **Strategic Focuses**

## The Board should consider developing a multi-year strategic plan.

- The plan would fold in items discussed in previous slides and add items related to other Board priorities for management of investments and actuarial valuations.
- The plan would help focus what educational/informational items would be presented at the biannual Strategic Workshops.
- The plan allows the Board to express their short- and long-term goals for operations which can be used for the annual evaluation of the Retirement Administrator.

## Determine whether the Board wishes to conduct a search for an investment consultant.

• Last search was conducted in 2014.



# **CPAS MEMBER PORTAL**

An Overview of the Capabilities of the Online Member Benefits Portal Component of MCERA's Benefits Administration System

## Board of Retirement Strategic Workshop October 26, 2022

Michelle Hardesty, Assistant Retirement Administrator Sydney Fowler-Pata, Department Analyst

# AGENDA

- Walkthrough of Portal Capability
- Discussion of Benefits and Risk Analysis

# ACTIVE MEMBER HOME SCREEN



# **RETIRED MEMBER HOME SCREEN**



## **MEMBER DEMOGRAPHICS**



# **ACCOUNT INFORMATION CHANGES**

C PAS		🏠 📮   + -   English - US   Logout 🏟
Personal Profile		
🗅 Olivia L Smith (USDEMO4) - U	SDEMO4 🛕 4 - US DB Plan	Quick Links Personal Information
Demographic Information Address History	Designation Update In the event all persons under Primary designation are deceased, we look to your assigned contingent designations. If you have more than	n one designation, please
New Address	identify how the distributions will be divided.	
Spouse and Related Parties	John Smith (XXX-XX-4611) - Date of Birth Oct 10 1960	
Beneficiary Designation	Spouse (Marriage Date - Jan 01 2000)	Update Information
Update Beneficiary	Mailing Address Shared with Member	Primary 🗸 100
Add Banking Instructions	Harriet Smith - Date of Birth Feb 14 2016	
Health Coverage	Child	Update Information
Select Coverage	Mailing Address Shared with Member	Secondary 🗸 100
	Henry Smith - Date of Birth Jul 01 2010	
	Child	Update Information
	Mailing Address Shared with Member	None V 0
	Add New Beneficiary	
		Cancel Next

# **SERVICE PURCHASES**

C PAS		🏠 斗   + —   English-US   Logout 🎝
Tools & Resources		
C Olivia L Smith (USDEMO4) - US	DEMO4 🛕 4 - US DB Plan	Quick Links Purchases and Transfers
Service Purchases	□ Validate - Error in Hours June 2016	
Service Purchase Payments Service Purchase Estimates	New Calculation	
Start My Purchase	Calculation Subtype	Leave of absence
	Calculation Date	10 / 17 / 2022 mm/dd/yyyy *
	Payment Date	10 / 17 / 2022 mm/dd/yyyy *
	Additional Data	
	Employee Cost Override	0
	Number of Bi-Weekly Payments	6
		Cancel Next

## **DOCUMENT UPLOADS**

Documents			
🗅 Olivia L Smith (USDEMO4) - U	SDEMO4 🛕 4 - US DB Plan		C Quick Links Documents
Documents	Document Properties		
Upload Document Forms	Description	*	
	Document Type	Application ~	
	File Name	⇔ Choose File	
			Cancel Next

# **RETIREMENT BENEFIT ESTIMATES**

Olivia L Smith (USDEMO4) -	USDEMO4 🛕 4 - US DB Plan
ment Modeler ement Estimate	• The Retirement Estimate is used to run retirement scenarios for the member using different dates. The Retirement Date is defaulted to the Earliest Retirement. If that date has already passed, the default is current date. The lower portion the screen allow overrides and additional information be used in this calculation only.
	Validate - Error in Hours June 2016
	New Calculation
	Retirement Date 10 / 17 / 2022 mm/dd/yyyy *
	Additional Data
	FAS Override 0
	Immediate Vesting Override (Y/N) No 🗸
	Earnings Increase Percent (max 4%) 0
	Pension Offset 0
	SSB Amount 0
	Early reduction override 0
	Beneficiary Date of Birth 10 / 10 / 1960 mm/dd/yyyy
	Accrued Benefit Override 0
	Beneficiary Name Mr. John Smith
	Beneficiary Relationship Spouse
	Additional Eligibility Service 0
	Cancel Next
## **RETIREMENT BENEFIT ESTIMATES**

C PAS				La 🗘   T -   English-US   Euguut		
Tools & Resources						
C Olivia L Smith (USDEMO4) - L	JSDEMO4 🛕 4	I - US DB Plan		C Quick Links Modeling		
Retirement Modeler	Calculation	Results				
Retirement Estimate	Olivia L Smith - 222-22-2004					
	Options	General Service				
	1. Olivia L Smith					
	Option No	Benefit Amount	Death Benefit Amount	Benefit Description		
	1.	4,220.12	0.00	This benefit amount is payable to you monthly for your lifetime. All benefits will cease at your death.		
	2.	3,933.15	3,933.15	A J&S 100% pension of 3,933.15 is payable to you monthly for your lifetime. Upon your death, your spouse will receive 3,933.15 for his/her lifetime. If your beneficiary does not survive you, no additional benefits will be paid.		
	3.	4,071.59	2,035.80	A J&S 50% pension of 4.071.59 is payable to you monthly on Oct 17 2022 for your lifetime. Upon your death, your beneficiary will receive 2,035.80 for his/her lifetime. If your beneficiary does not survive you, no additional benefits will be paid.		
	4.	4,186.19	0.00	A Life Gtd 10 year pension of 4,186.19 on Oct 17 2022. At the end of the guaranteed period, if you are still alive, the annuity continues until your death. However, if you die within the specified period of time, the beneficiary receives the benefit for the duration of the guaranteed period.		
	5.	4,056.81	0.00	A Life Gtd 20 year pension of 4,056.81 on Oct 17 2022. At the end of the guaranteed period, if you are still alive, the annuity continues until your death. However, if you die within the specified period of time, the beneficiary receives the benefit for the duration of the guaranteed period.		
				Cancel Submit		

### **COMPREHENSIVE RETIREMENT ESTIMATE MODELER**

Tools & Resources			
🗅 Olivia L Smith (USDEMO4) - US	SDEMO4 🛕 4 - US DB Plan		Cuick Links Modeling
Retirement Modeler Retirement Estimate	Input		Pension
	Your Current Age	52	Estimated Pension at Retirement Age
	Retirement Age	65	
	Current Savings Balance	100000	15k
	Future Monthly Savings	300.00	12.5k
	Future Monthly Withdrawal	500	lillin.
	Annuity		
	Values		бд 7.5к 5к
	Last Year Earnings Total Pensionable Service	38,808.20 44.78	25k
	Monthly Pension from DB Plan	2,896.60	
	Monthly Pension from DC Plan	0.00	From DC Plan From Savings From Government From DB Plan
	Monthly Pension from Government Plans	1,558.43	
	Monthly Pension from Savings	0.00	Savings
	Total Monthly Pension	4,455.03	E-directed Bedramont Bandran
	Total Savings	7,639.05	Estimated Retirement Savings
	Assumptions	1	2004
	Current Salary	30,000.00	150k
	Current Service	31.7833	
	COLA index rate	1.25	5 100k
	Inflation Rate	2	<i>ö</i>
	····· ·····	- n	

## **RETIREMENT APPLICATION**

C PAS		ער די די בווקווסוייטסן בטעטעני <b>קו</b> די די בווקווסוייטסן בטעטעניקאַ
Tools & Resources		
C Olivia L Smith (USDEMO4) - U	DEMO4 🛕 4 - US DB Plan	C Quick Links Benefit Calculations
Calculation History	Please remember to upload your birth and marriage certificates	
Retirement Estimate	Validate - Error in Hours June 2016	
Start My Pension Select Option	New Calculation	
Banking Instructions	Pending Calculation Exists. Continue?	Yes 🗸
Add Payment Instructions	Calculation Subtype	Retirement ~
Tax Instructions	Termination Date	10 / 17 / 2022 mm/dd/yyyy *
	Retirement Date	10 / 17 / 2022 mm/dd/yyyy *
	Payment Date	10 / 17 / 2022 mm/dd/yyyy *
	Additional Data	
	Employer	All v
		Cancel Next

## **RETIREMENT APPLICATION**

C PAS						
Tools & Resources						
🗅 Olivia L Smith (USDEMO4) - US	DEMO4 🛕 4 - US DB Plan	Quick Links Benefit Calculations				
Calculation History	Payment Instructions					
Retirement Estimate	Payment Method	Direct Deposit 🗸				
<ul> <li>Select Option</li> </ul>	Country	United States				
Banking Instructions	Financial Institution Search	1012				
Add Payment Instructions	Financial Institution	101200440 - PINNACLE BANK *				
Tax Instructions	Account Number	4745566				
	Account Type	Checking 🗸				
	Payee	*				
	We will send direct deposit payment advice or check to the address provided below. If you	wish to add an address, enter it under the Personal Information section.				
	Payment Confirmation Address	(Mail/Legal) 122 Anywhere Street, Austin, TX, 73301, USA 🗸				
	Pay Stub Address	(Mail/Legal) 122 Anywhere Street, Austin, TX, 73301, USA ✔ *				
		Cancel Next				

## **ADDITIONAL COMPONENTS**

- Address changes
- On-demand letters and statements
- Divorce (DRO) process
- Tax withholding instructions
- Healthcare information
- Workshop registration
- News/announcements
- Current status of active tasks in the member's account

# DISCUSSION

## **BENEFITS AND RISKS MUST BE ANALYZED**

#### Security

 What ensures a secure login process? What methods are employed to keep data secure? What is the framework for member account access administration?

### Design and Function

 Which components should be implemented? Which actions need to be reviewed and verified by MCERA staff? Should the portal link with workflow and/or imaged member files?

### Integration with Current Processes

• Do we continue to require original hard copies of documents? Do we accept electronic signatures? What complexities are created by the number of participating employers, numerous retirement tiers, and varied retiree healthcare administration rules?