MERCED CERA
Merced County Employees' Retirement Association

AGENDA
Retirement Board Education Meeting

Thursday, May 7, 2026, 1:15 P.M. – 4:30 P.M.

Location: Merced County Employees' Retirement Association
690 W 19th Street, Merced, CA
2nd Floor, Training Room

1. **Call to Order- 1:15 P.M.**

The Retirement Board may discuss and take action on the following:

2. **Roll Call**

3. **Public Comment**
   Members of the public may comment on any item under the Board's jurisdiction including items on the Board's agenda. Matters presented under this item will not be discussed or acted upon by the Board at this time. Persons addressing the Board will be limited to a maximum of five (5) minutes in total. Please state your name for the record.

4. **Meeting**
   Board Education
   Discussion on the following presentations:
   a. Investment Approach & Alternative Investing – Meketa
   b. Functional Allocation Framework – Meketa

5. **Information Sharing**

6. **Adjournment**

The Agenda and supporting documentation, including any material that was submitted to the Merced County Employees' Retirement Association Board after the distribution of the Agenda, are available online at www.mercedcera.com.

All supporting documentation for Agenda items, including any material that was submitted to the retirement board after the distribution of the Agenda, is also available for public inspection Monday through Friday from 8:00 a.m. to 5:00 p.m. at the administrative office for the Merced County Employees' Retirement Association located at 690 W 19th Street, Merced, California 95340.

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Spanish and Hmong interpreters are available.

Interpretes de espanol y hmong estan disponibles.
Peb muaj tug paab txhais lug Mev hab Hmoob.

MEKETA
INVESTMENT GROUP

MERCED CERA 2026 Educational Session

May 2026

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Overview of Agenda Topics

→ Investment Approach

- Board Administration of Assets and Investment Management
  - Investment Policy
  - Asset Allocation & Objectives
  - Risk Tolerance
  - Time Horizon
  - Performance Standards

→ Financial Reporting and Disclosure

→ Alternative Investing

- Private Equity, Infrastructure, Opportunistic Credit, Hedge Funds

Section 1 – Investment Approach

As We Get Started – Fiduciary Responsibility

The Board's fiduciary duty is to act solely in the best interests of the plan*

→ "Best interests" pertain largely to ensuring that promised economic benefits flow to the pension plan's participants.

→ Economic benefits are, in large part, influenced by the underlying investment results produced by the assets that support such benefits.

There are four guiding principles that can help Trustees maintain perspective on their obligations as a fiduciary:

→ Be loyal to the participants (no self-dealing)

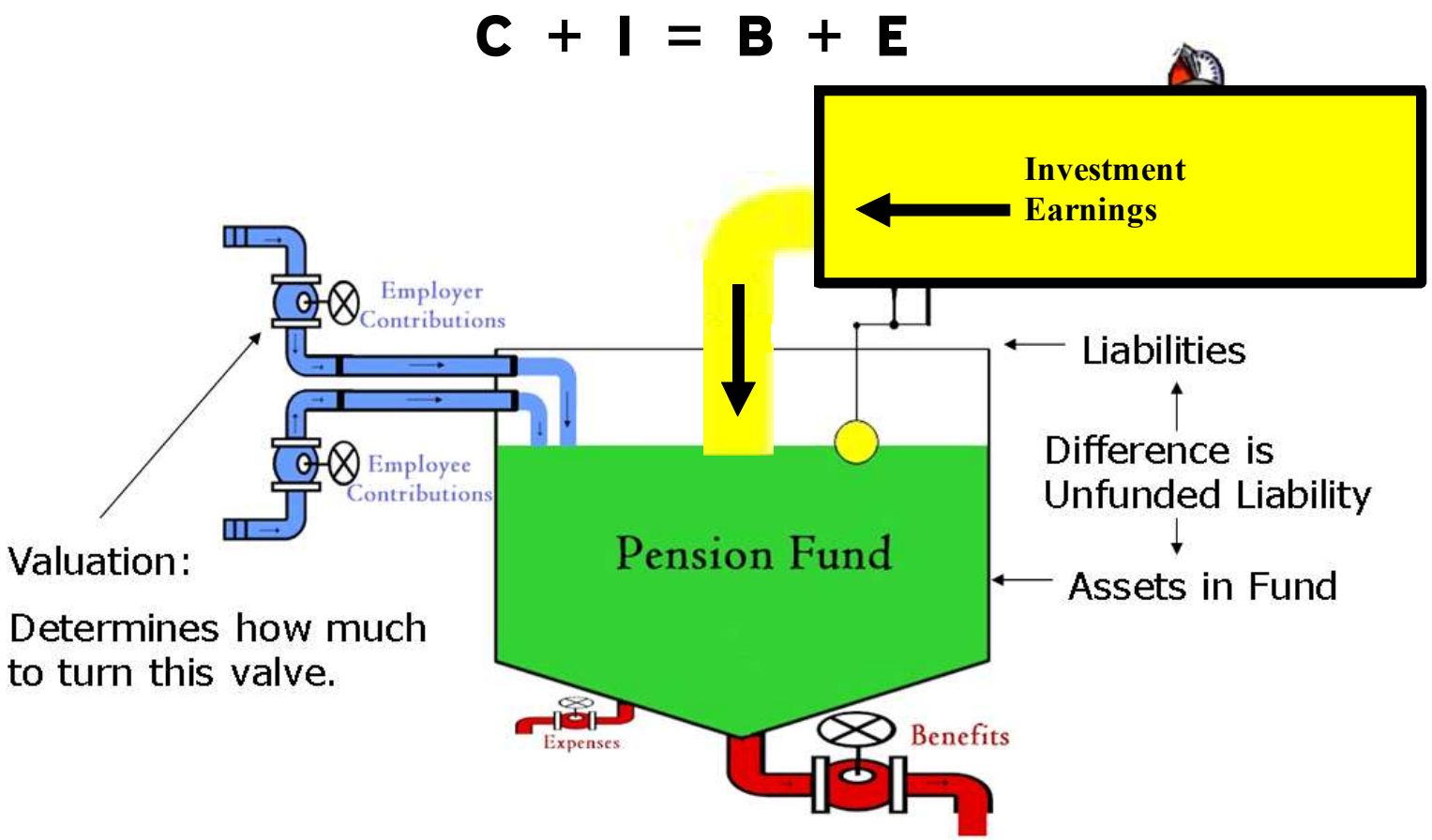
→ Be impartial (only act for the benefit of the beneficiaries)

→ Act prudently (establish and follow detailed processes)

→ Exercise due diligence (do your homework)

* Fiduciary laws can vary from state to state, and this is general advice not legal advice. Each plan should have its own fiduciary legal counsel to advise on the specific laws that are applicable in your jurisdiction.

A Brief Review of Portfolio Development Concepts



Importance of Good Governance

→ Creates an operating / management environment to achieve fund objectives
- The public fund environment is difficult

→ Board focused on policy issues
- Largest impact on the fund

→ Clearly defined roles and responsibilities

→ Clear investment policies
- Documentation

→ Role of the Trustees
- Governance starts at the top of the organization

→ Prudence is process

The Investment Challenges Facing Public DB Plans

→ Public pension fund policy-makers face many daunting challenges as they strive to provide retirement security to plan beneficiaries

→ Expected return target: 7% to 8%

→ Plan characteristics and financial health

→ Volatile return environment

- Record low to record high interest rates
- Equity markets are not bargain priced

“The important thing in life is not to have a good hand but to play it well.”

- Louis Fortin, Writer

The Investment Challenges Facing Public DB Plans

→ Expected return target: 6.5% to 7.5% (median 7.00%)
- Seems high when compared to expected returns in the capital markets

→ Most DB plans are underfunded – average 76.1% funded; down from 100% in 2001

→ Average active member to annuitant ratio is 1:25; down from 2:5 in 2001

→ Most plans are mature: Benefit payments > Employer + Employee contributions
- Net overflow on average is 2.0% per year

→ Underfunded status and negative cash flow reduce the funds' ability to recover from a large negative equity market event
- Average fund allocation to public equity: 41.7%

Data Source; NASRS Public Fund Survey.

The Investment Challenges Facing Public DB Plans

→ DB plans, though long-term investors, have to also be concerned with performance in the near term

- The journey matters!

→ Policy-makers must manage conflicting objectives

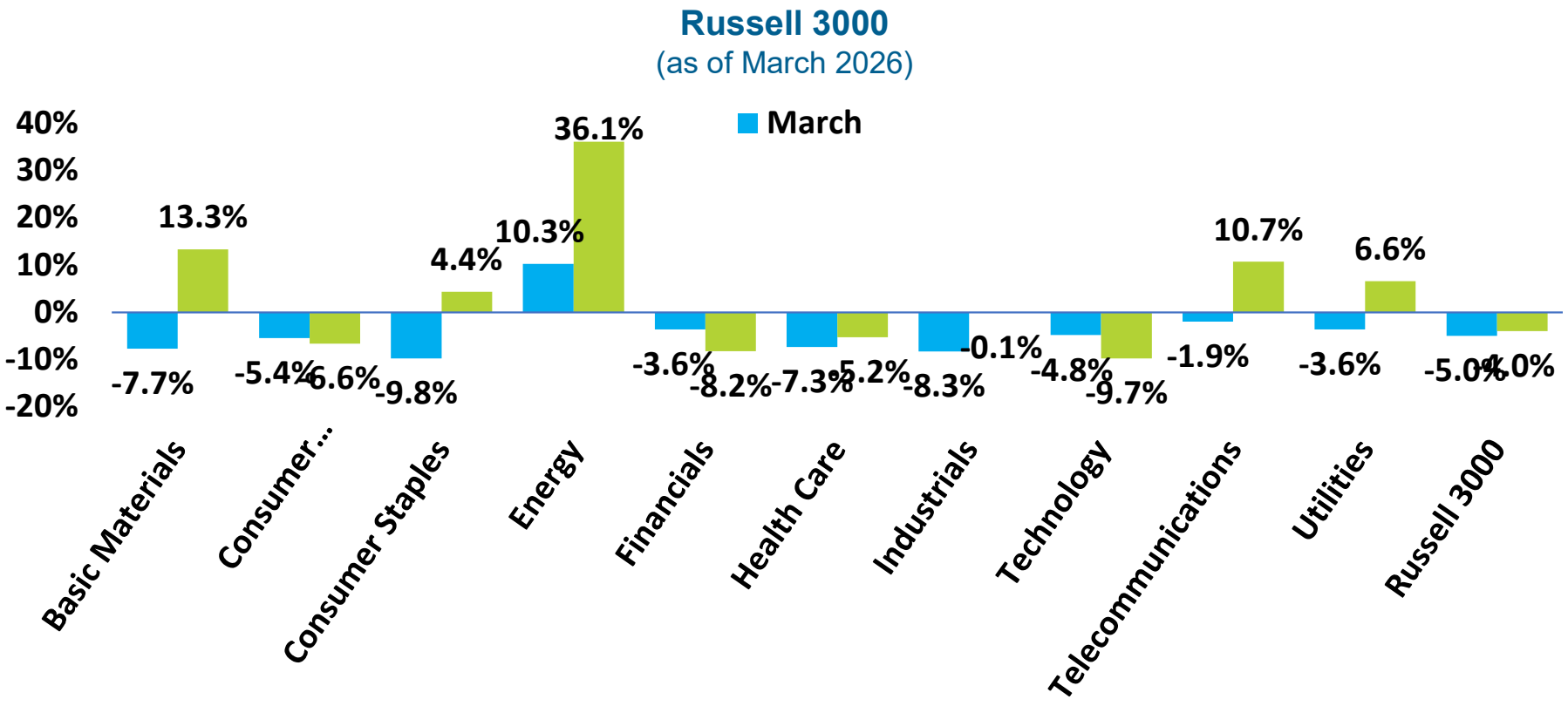
- High returns or stable returns?
- Lower contributions or lower contribution variability?

Capital Market Returns – April 2026

Indexes	MTD	YTD	1 YR	3 YR	5 YR	10 YR
S&P 500	10.49	5.70	31.05	21.66	13.14	15.26
S&P 100	11.50	3.50	31.83	22.89	13.32	14.53
Russell 3000	10.20	5.84	31.01	21.28	11.91	14.75
MSCI EAFE	7.45	6.12	24.60	15.28	8.83	8.85
MSCI ACWI	10.17	6.65	31.00	19.81	10.68	12.25
MSCI ACWI ex USA	9.65	8.88	32.20	17.36	8.38	9.10
MSCI EM	14.71	14.52	46.68	20.64	6.05	9.23
MSCI China	3.63	-5.63	12.42	9.74	-4.49	5.46
Bloomberg Aggregate	0.11	0.07	4.06	3.46	0.18	1.67
Bloomberg TIPS	1.15	1.42	4.07	3.53	1.43	2.75
Barclays High Yield	2.58	1.23	10.44	10.80	4.29	5.37
Commodities & Real Assets	**MTD**	**YTD**	**1 YR**	**3 YR**	**5 YR**	**10 YR**
Bloomberg Commodity Index	4.21	29.65	44.82	15.73	13.17	7.58
REITs	**MTD**	**YTD**	**1 YR**	**3 YR**	**5 YR**	**10 YR**
MSCI US REIT Index	9.02	14.30	19.53	12.00	5.99	6.73

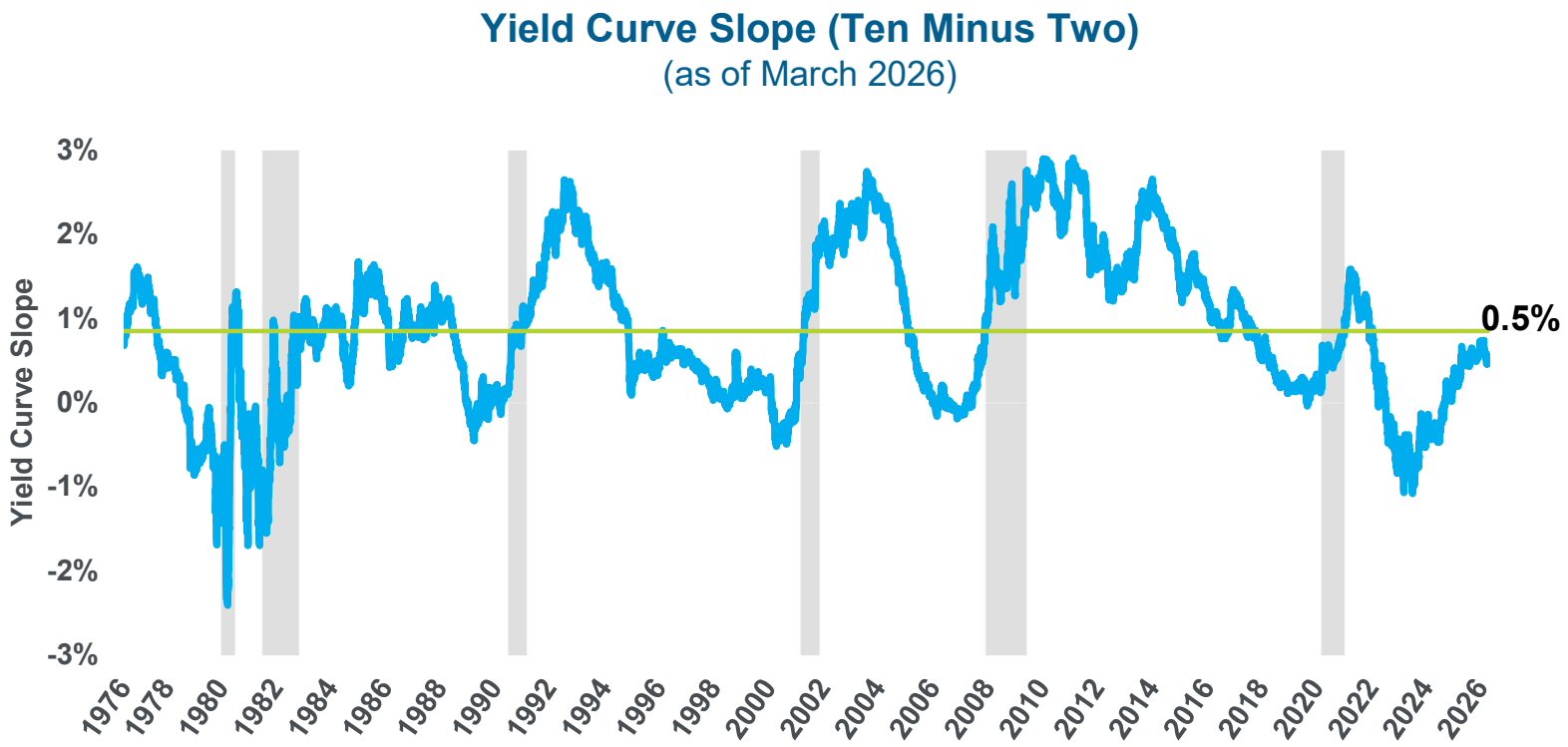
Source: InvestorForce.

Investment Environment



Source: Bloomberg. .

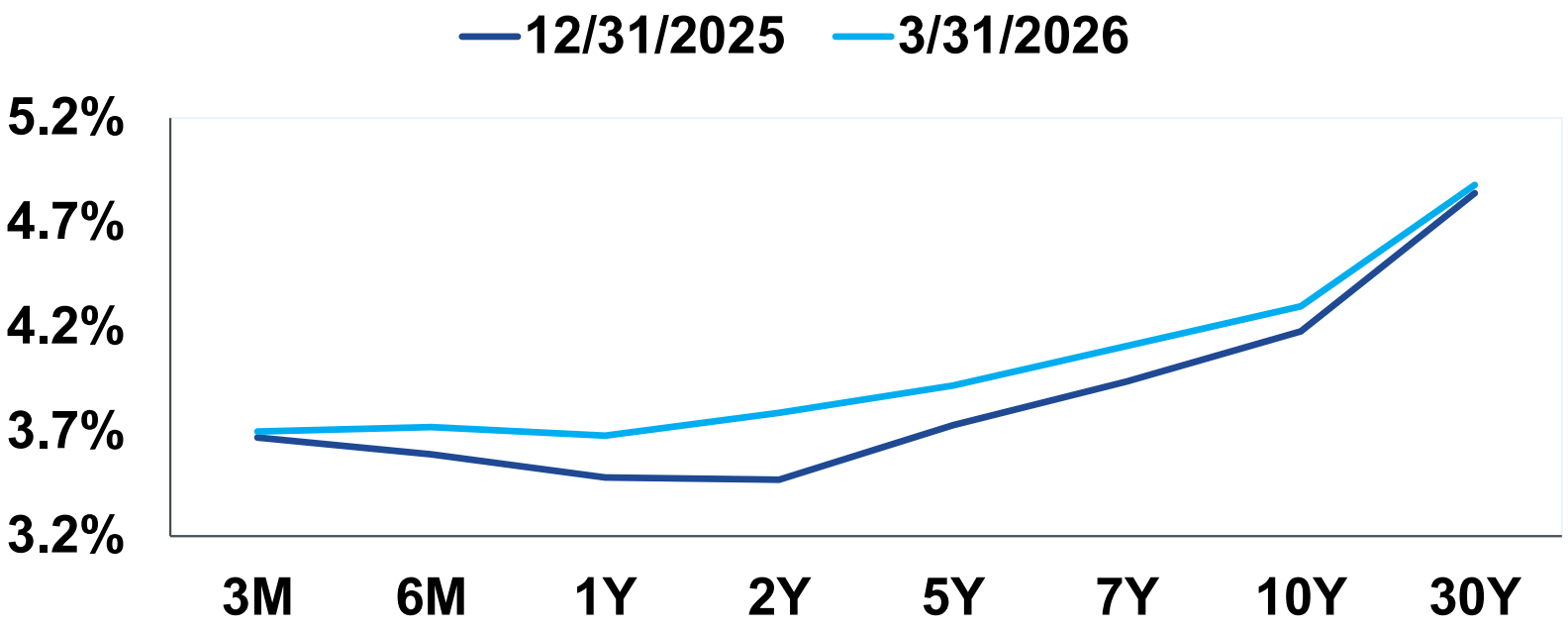
Investment Environment – High Interest Rates



Yield Curve Slope (Ten Minus Two) – Source: Bloomberg, and Meketa Investment Group. Yield curve slope is calculated as the difference between the 10-Year US Treasury Yield and 2-Year US Treasury Yield.

Interest Rates – U.S. Yield Curve

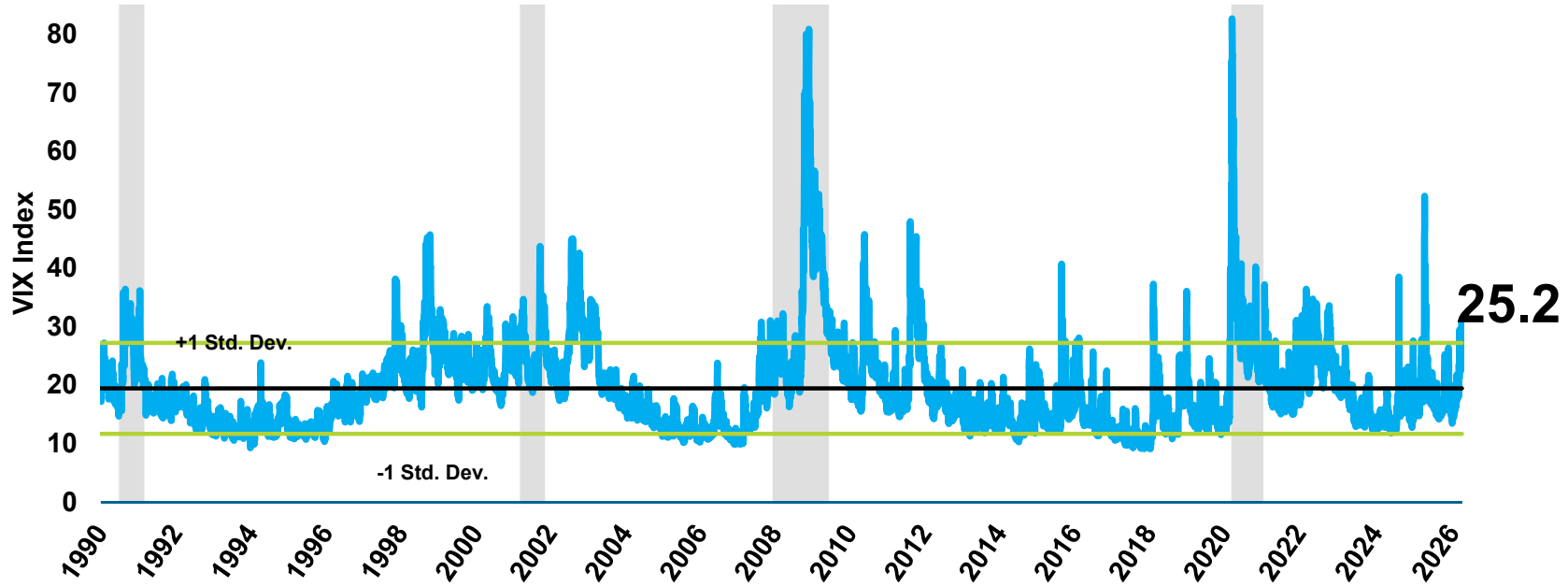
U.S. Yield Curve[1]



[1] Data Source: Bloomberg. .

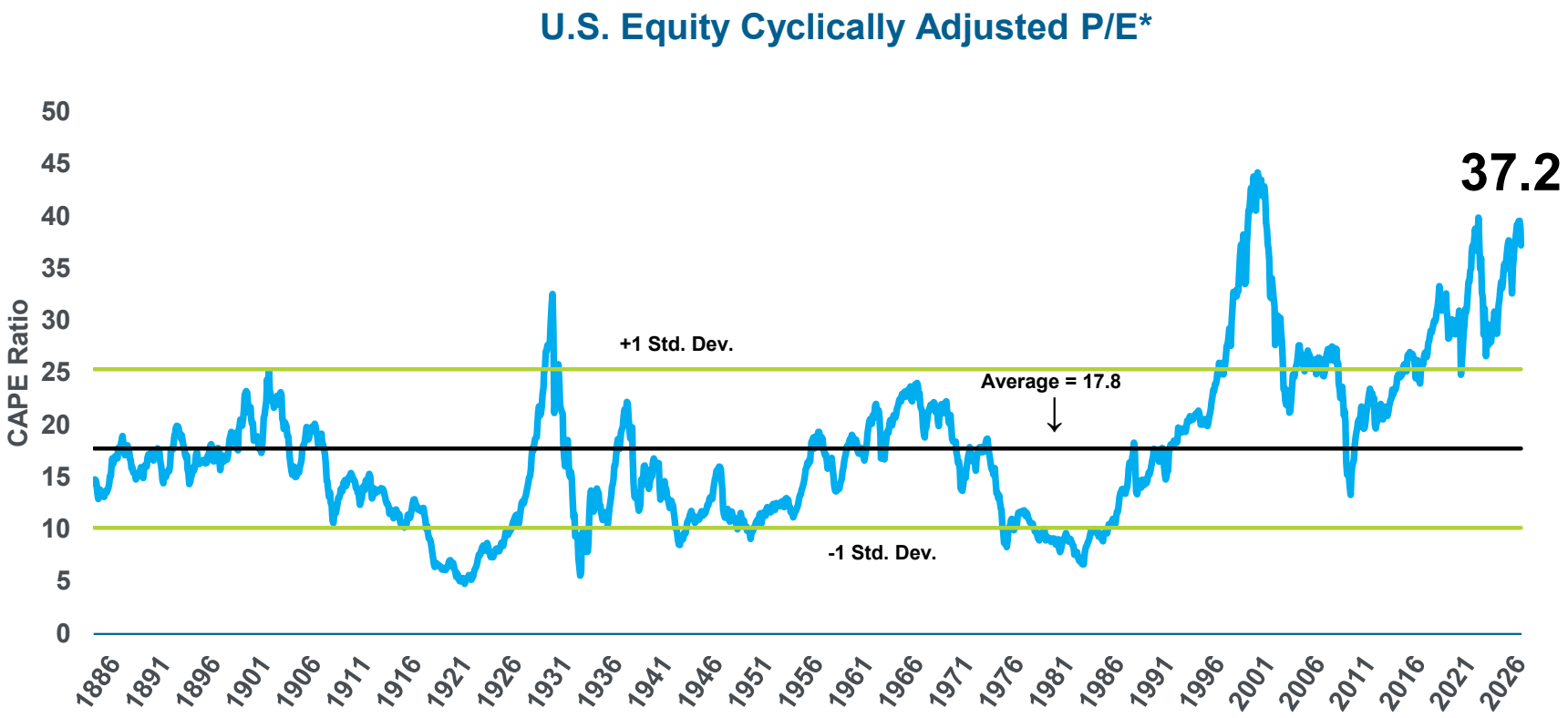
Volatility – Markets Move

Equity Volatility*
(as of March 2026)



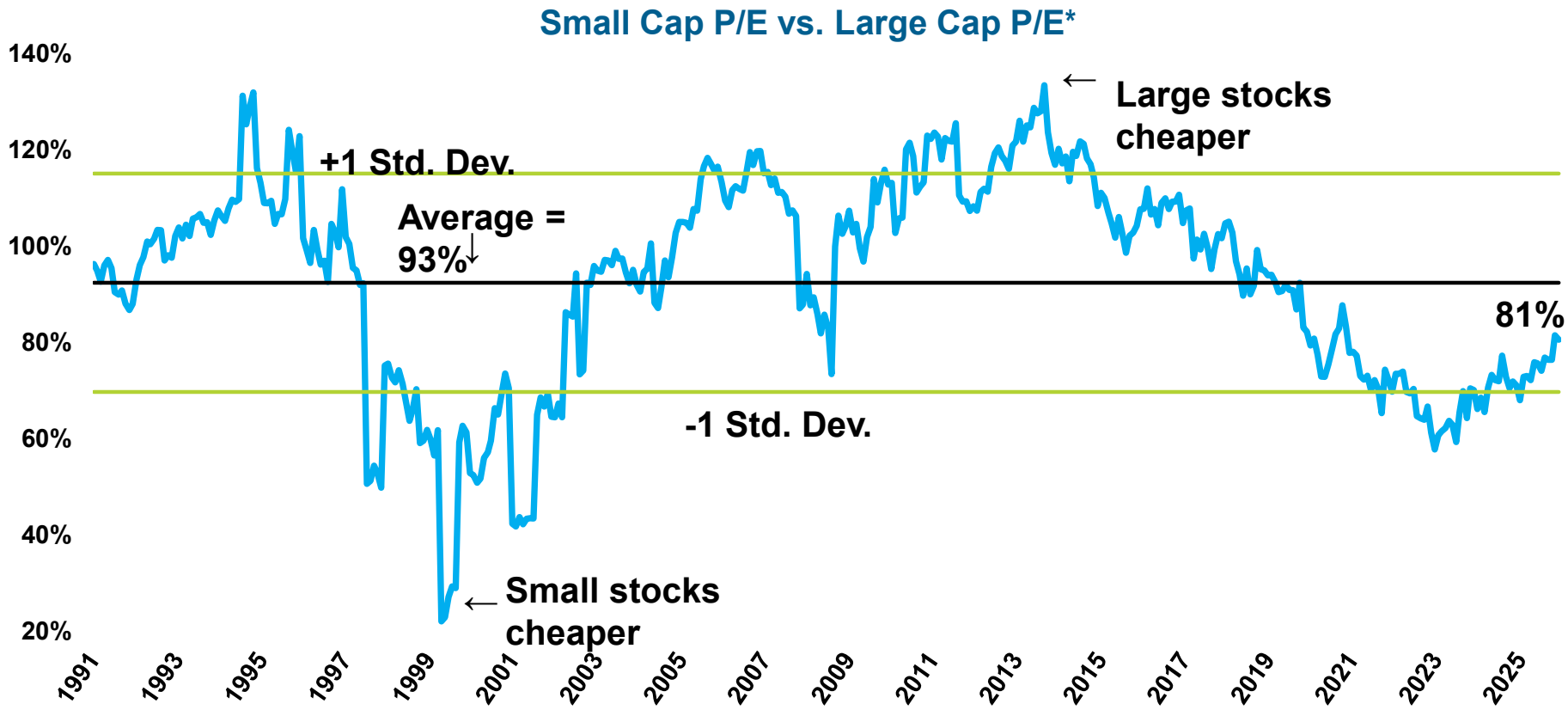
* Equity Volatility – Source: Bloomberg, and Meketa Investment Group. Equity Volatility proxied by VIX Index, a Measure of implied option volatility for US equity markets.

Investment Environment – US Equity Market Not Cheap (March 2026)



* US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group.

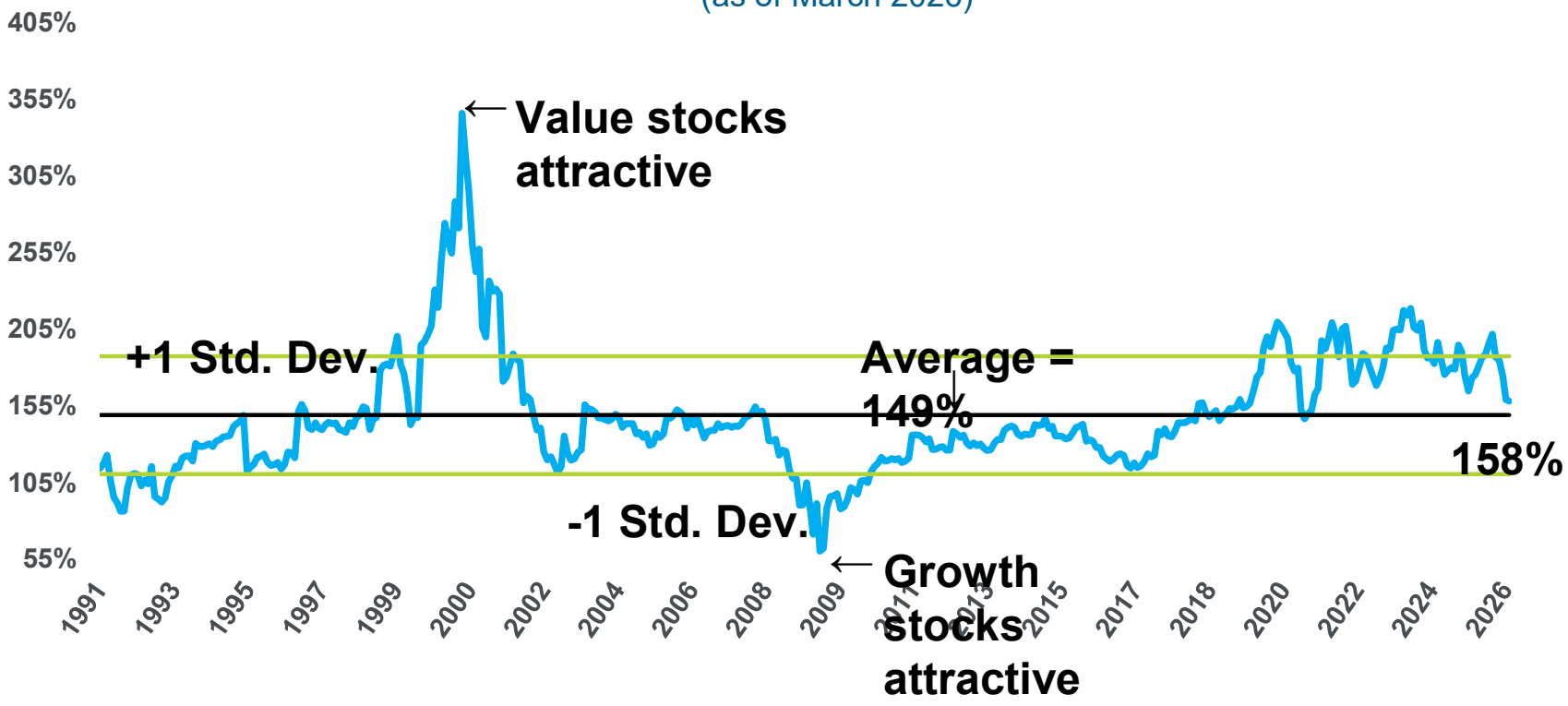
Investment Environment – Market Cap is key (March 2026)



* Small Cap P/E (Russell 2000 Index) vs. Large Cap P/E (Russell 1000 Index) - Source: Russell Investments. Earnings figures represent 12-month "as reported."

Investment Environment – Investment Styles

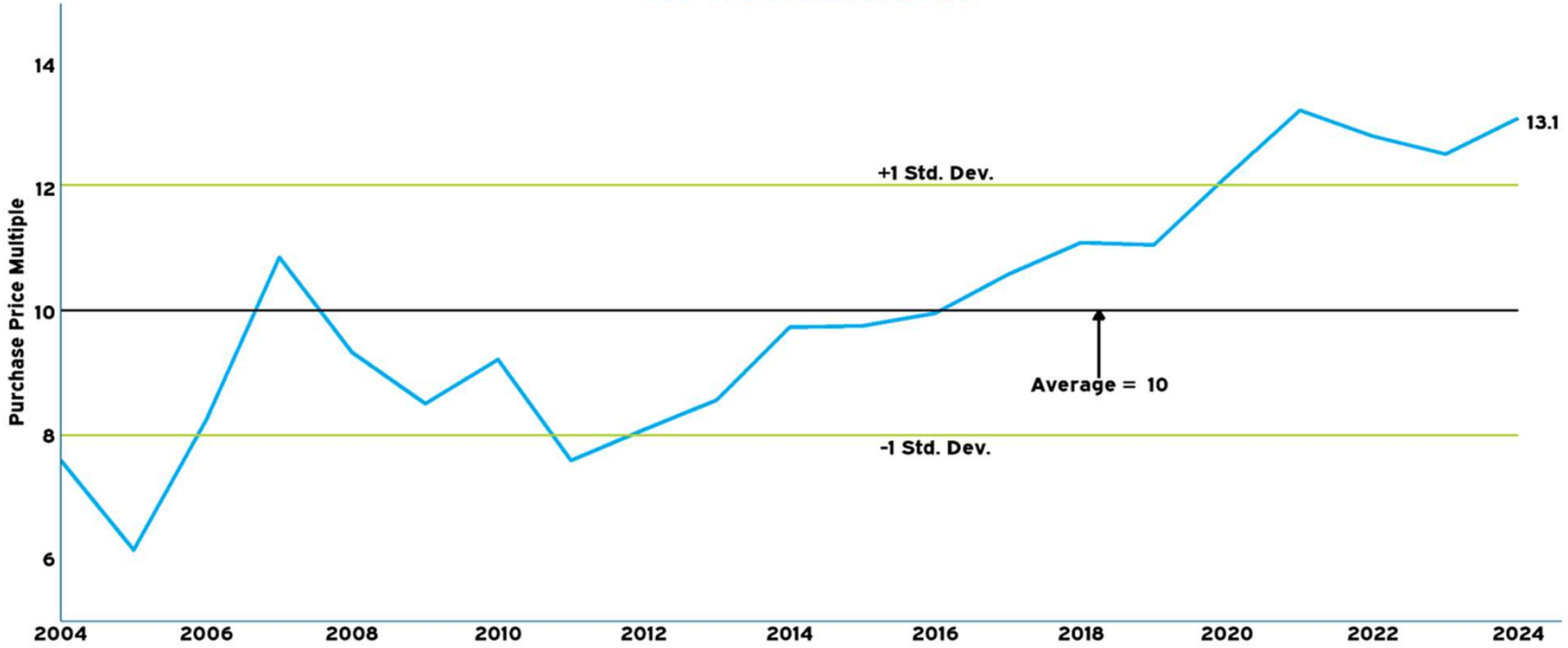
Growth P/E vs. Value P/E*
(as of March 2026)



* Growth P/E (Russell 3000 Growth Index) vs. Value (Russell 3000 Value Index) P/E - Source: Bloomberg, MSCI, and Meketa Investment Group. Earnings figures represent 12-month "as reported" earnings.

Investment Environment – Private Equity

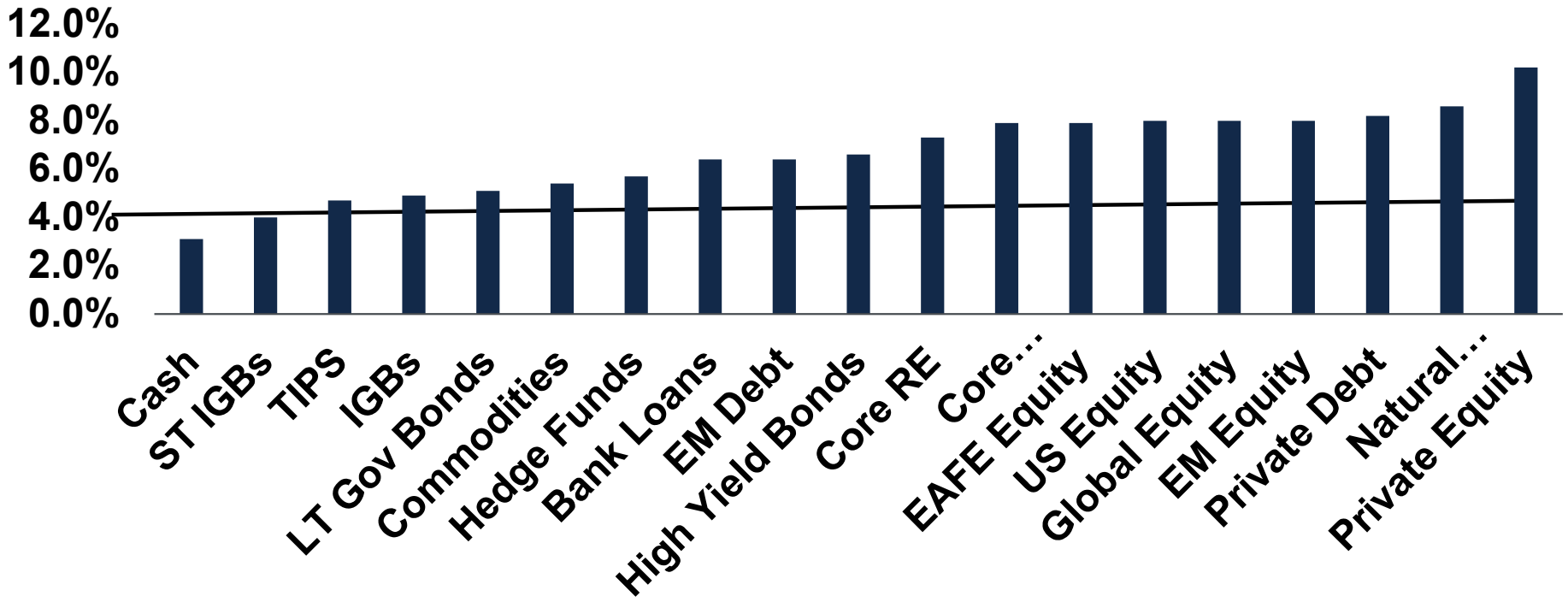
Private Equity Multiples*
(as of December 2024)



* Private Equity Multiples – Source: Preqin Median EBITDA Multiples Paid in All LBOs.

Investment Environment – Investment Styles

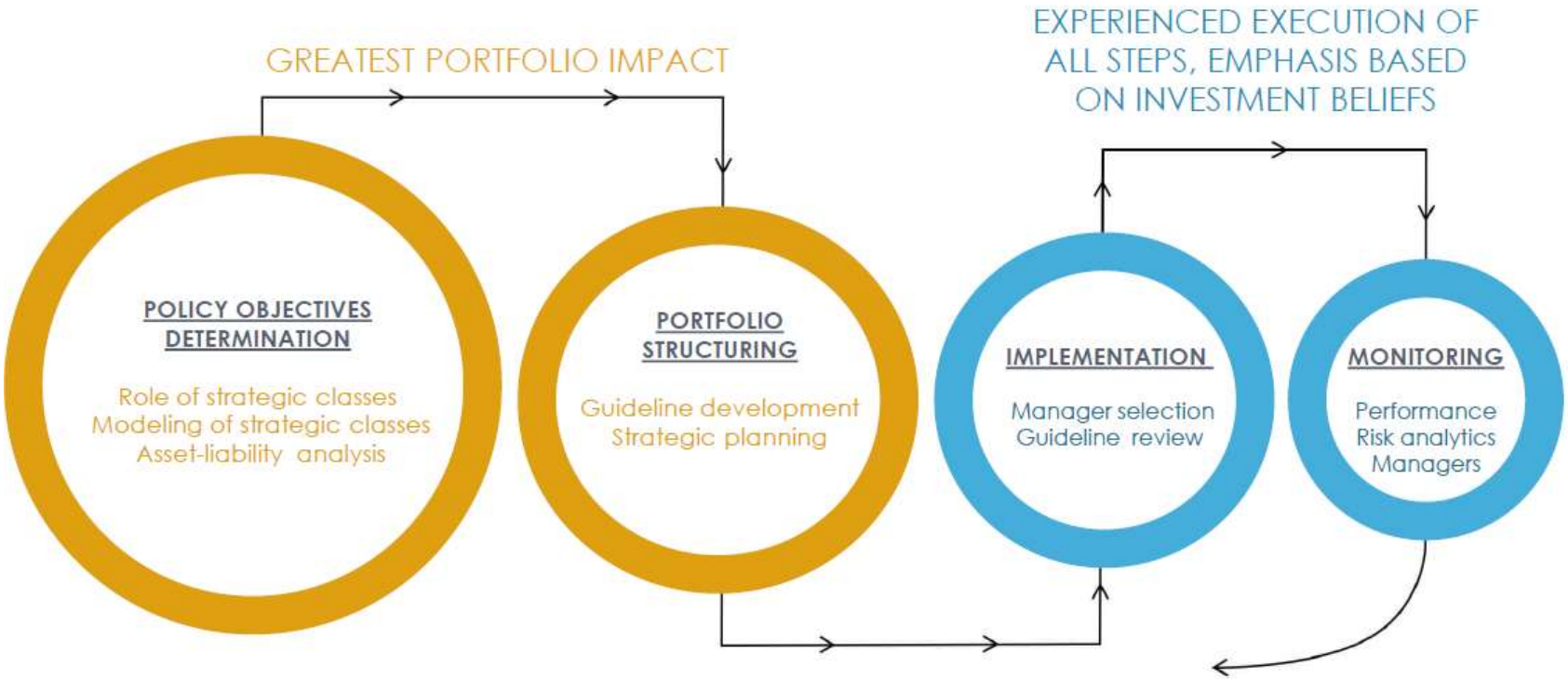
Long-Term Outlook: 20-Year Annualized Expected Returns



Source: Meketa Investment Group's 2026 Annual Asset Study.

Section 2 – Investment Policy Development

Investment Philosophy – Strategy / Policy are Drivers of Results



Investment Policy Statement

Purpose

→ Provide organization with a management roadmap

→ Address how Board will manage conflicting goals and objectives

→ Documentation

Contents

→ Mission Statement

→ Roles / Responsibilities

→ Investment Objectives

→ Investment Beliefs

→ Risk Management Strategy / Risk Tolerance

→ Asset Allocation Policy

→ Portfolio Structure

→ Portfolio Monitoring and Evaluation Standards

Investment Policy Statement

Elements of an effective Investment Policy Statement

→ Roles and responsibilities delineated (between Board and staff)

→ Delegation of bounded authority

→ Clear overall goals (objectives)

→ Asset classes (roles of each investment class addressed)

→ Clear strategic policy portfolio weighting and latitude

→ Evaluative criteria

→ All discretionary implementation authority delegated to staff should be explicitly specified in policy

Investment Policy Statement

Practical Benefits

→ Avoid unforced errors
- Switching philosophy mid-stream
- Helps stay the course

→ Board's risk philosophy disseminated through the organization

→ Apply philosophy consistently throughout the portfolio

→ Template to evaluate future policy changes and the suitability of new investment strategies

→ Consistency of policy if there is Board turnover

Investment Policy Statement

Investment Objectives

→ Are they realistic?

→ Do they conflict?

→ How will you manage those conflicts?

→ Is your portfolio designed to achieve these objectives?

→ Examples of conflicting objectives

- Capital preservation is our primary objective
- The portfolio will be invested to achieve the actuarial target return

Investment Beliefs

**“Any organization, in order to survive and achieve success,
must have a sound set of beliefs on which it premises all its policies and actions.”**

- Thomas Watson Jr.

→ Articulated in Investment Policy document

→ Guide to managing the investment portfolio

→ High-level investment principles

→ Does a proposed investment strategy (product) comply with the fund’s investment beliefs?

Investment Beliefs – Sample

- → As a long-term investor, XYZ should allocate a significant portion of its assets to illiquid, private markets.
- → To exploit market inefficiencies, XYZ must be contrarian and innovative in its approach to opportunistic investments.
- → Over the long-term, equity-oriented investments provide reliable return premiums relative to risk-free investments.
- → All fees, commissions, and transaction costs should be diligently monitored and managed in order to maximize net investment returns.

Investment Beliefs – Sample

- → Adequate and peer-group relative resources are required to successfully compete in world capital markets.
- → Asset allocation among complementary investment classes in the XYZ's leading policy decision is impacting long-term returns and risk.
- → Certain segments of the capital markets have inefficiencies that can be exploited with active management.
- → The XYZ has authority to set and monitor portfolio risk. Both short-term and long-term risks are critical.

Section 3 – Asset Allocation

Asset Allocation Process – Basic Mean-Variance Optimization

Asset allocation is the most important determinant of the portfolio return and risk.

Modeling Process

→ Determination of assets to include in the modeling

→ Determination of asset class assumptions

- Expected return
- Expected risk
- Expected correlations
- Asset class constraints (minimum and maximum allocations)

→ Run model – check for reasonableness

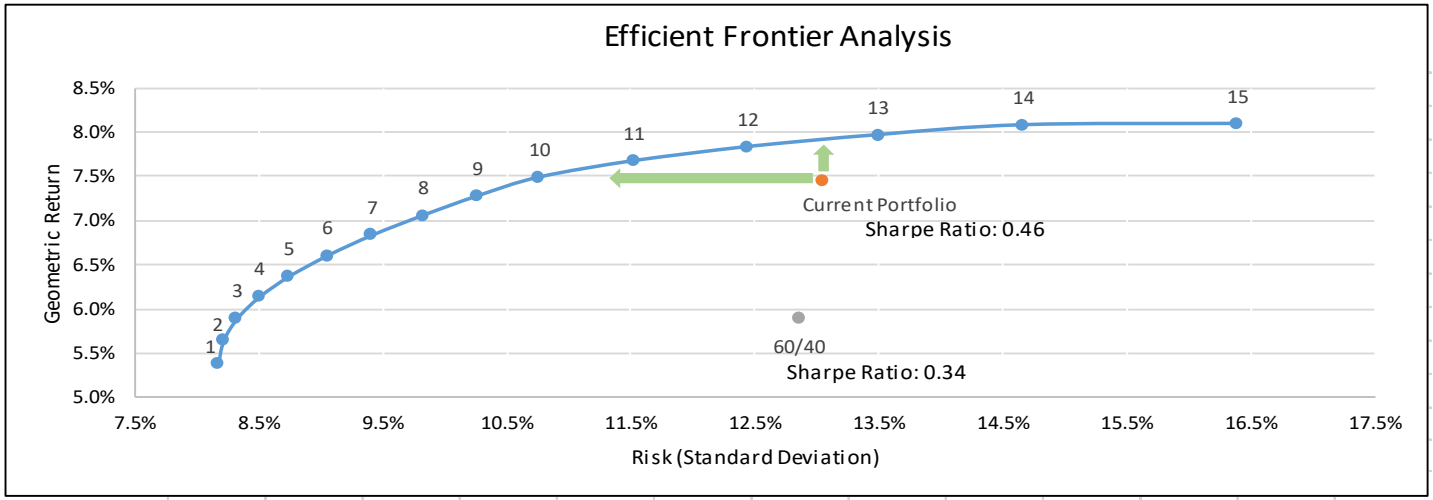
→ Review and discussion of model output given investor risk preferences

→ Adoption of allocation

Asset Allocation – Model Output

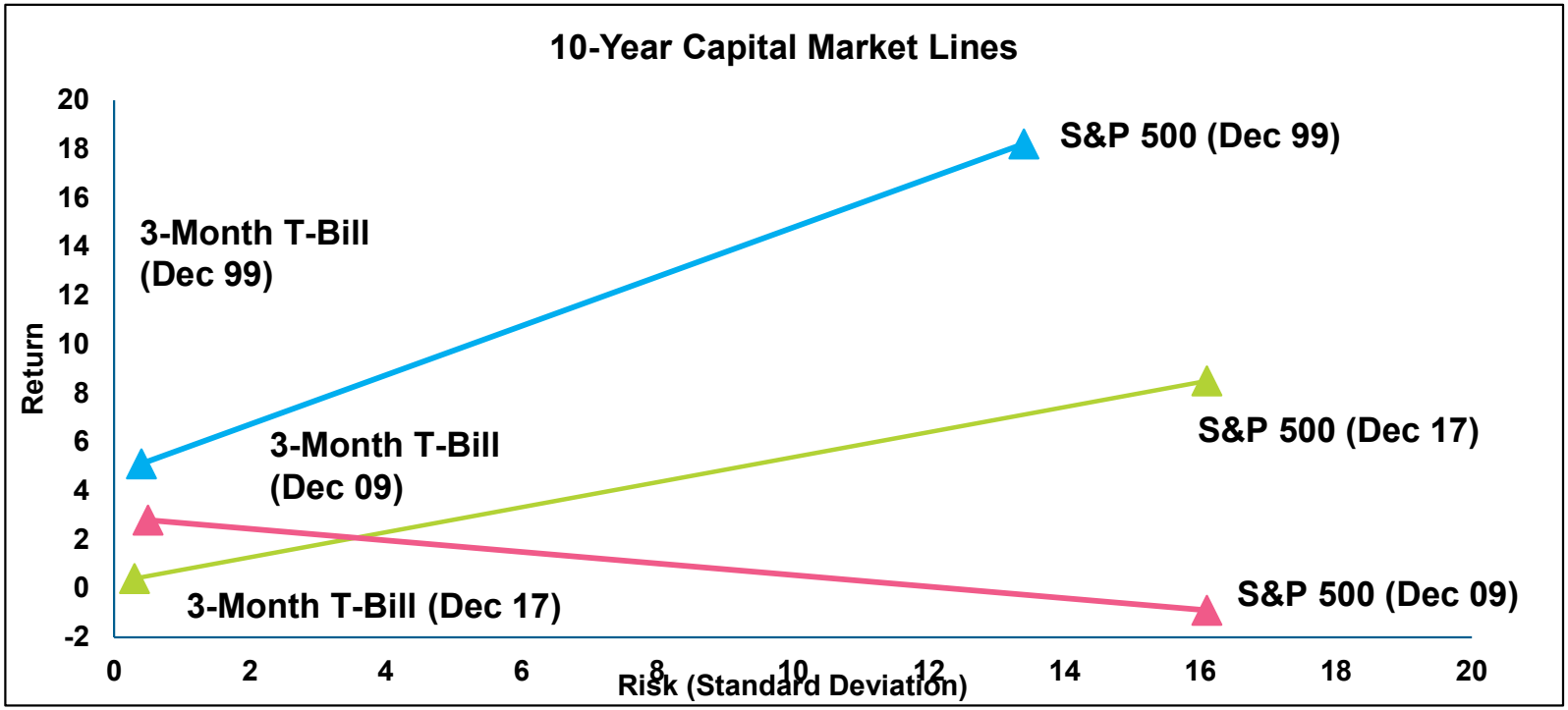
Allocation Constraints

	Min	Max
Global Equity	30	100
Private Equity	0	25
Real Estate	0	25
Fixed Income	10	100
Liquid Alts	0	100
Illiquid Alts	0	100



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	CP	60/40
Arithmetic Return	5.7%	6.0%	6.2%	6.5%	6.7%	7.0%	7.3%	7.5%	7.8%	8.0%	8.3%	8.6%	8.8%	9.1%	9.3%	8.2%	6.7%
Risk (StDev)	8.2%	8.2%	8.3%	8.5%	8.7%	9.1%	9.4%	9.8%	10.3%	10.8%	11.5%	12.4%	13.5%	14.7%	16.4%	13.0%	12.9%
Geometric Return	5.4%	5.6%	5.9%	6.1%	6.4%	6.6%	6.8%	7.1%	7.3%	7.5%	7.7%	7.8%	8.0%	8.1%	8.1%	7.5%	5.9%
Sharpe Ratio	0.42	0.45	0.48	0.50	0.51	0.52	0.53	0.54	0.54	0.54	0.52	0.51	0.49	0.47	0.43	0.46	0.34
Global Equity	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	40%	38%	60%
Private Equity	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	7%	13%	18%	24%	25%	18%	0%
Real Estate	8%	10%	12%	14%	16%	18%	20%	22%	22%	25%	25%	25%	25%	25%	25%	13%	0%
Fixed Income	56%	51%	45%	40%	35%	30%	24%	19%	13%	10%	10%	10%	10%	10%	10%	20%	40%
Liquid Alts	6%	10%	13%	16%	19%	23%	26%	29%	32%	29%	26%	22%	17%	11%	0%	6%	0%
Illiquid Alts	0%	0%	0%	0%	0%	0%	0%	0%	3%	5%	2%	0%	0%	0%	0%	7%	0%

Investment Challenge – Risk Is Not Always Rewarded



→ Investors are usually rewarded for taking investment risk.

→ However, risk is not rewarded in every 10-year time period.

→ Asset allocation reviews conducted in 1999 underestimated the market risk environment over the next decade.

→ Model assumptions that miss the actual outcome are called estimation errors.

The 60 / 40 Portfolio

A 60 / 40 portfolio has many positive attributes:

→ Investible

→ Inexpensive to manage

→ Easy to implement

→ Has performed well in the past

May not be suitable for a mature public DB plan in the current investment environment

→ 60 / 40 portfolio risk profile is dominated by one risk – equity (growth) risk

- The success or failure of the portfolio meeting its investment objectives rests on one outcome: equity investments continuing to rise in value

→ 60 / 40 portfolio has a lower expected return than other portfolio allocations

- Primarily because Fixed Income yields are so low

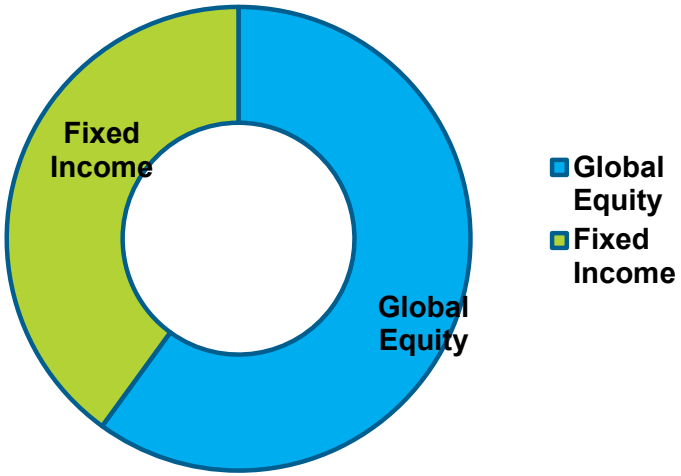
Sources of Portfolio Risk – 60/40 Portfolio

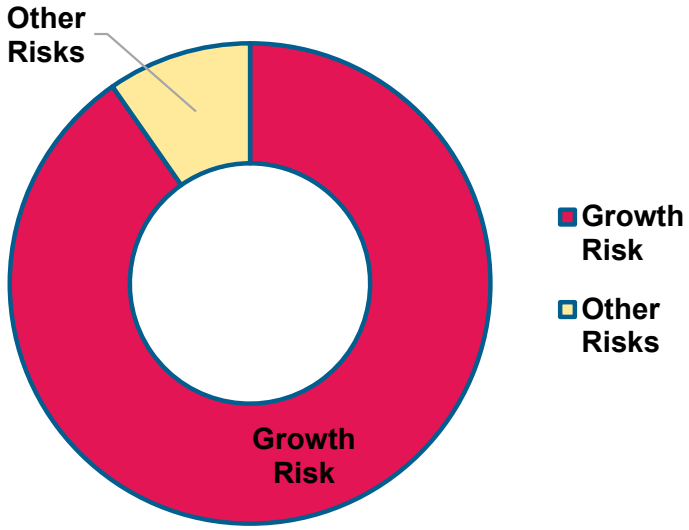
Portfolio Arithmetic Return: 6.5%

Portfolio Geometric Return: 5.8%

Portfolio Standard Deviation: 11.8%

Expected Sharpe Ratio: 0.32





→ Total portfolio risk (volatility) is dominated by equity (growth) risk.

Note: Risk defined as return variability.

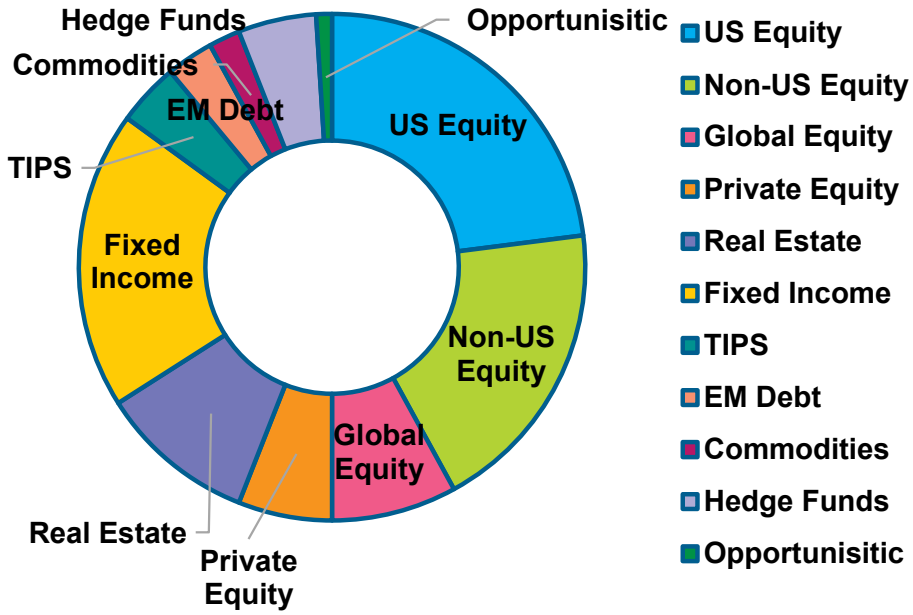
Sources of Portfolio Risk – Diversified Portfolio

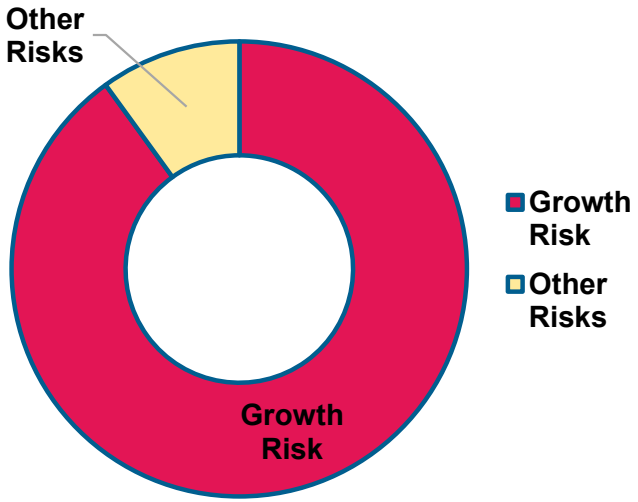
Portfolio Arithmetic Return: 7.2%

Portfolio Geometric Return: 6.6%

Portfolio Standard Deviation: 11.1%

Expected Sharpe Ratio: 0.39





Note: Risk defined as return variability.

Mature DB Plan – Volatility Is Not Your Friend

→ Net cash outflows reduce the investment flexibility of a long-term investor.

→ Large negative market movements (drawdowns) are particularly harmful to plan solvency for mature funds.

- Under the worst-case scenarios, investors are forced to liquidate long-dated assets in down markets or are forced sellers of illiquid assets – at price concessions.
- Cash inflows are not available to invest in lower valuation assets.

Diversification is Your Friend

→ A risk management investment strategy, which includes uncorrelated investments, is expected to yield higher returns and provide a lower risk (volatility) than any individual investment within the portfolio.

→ Requires you look at the portfolio as a whole, not as an individual asset class or investment.

→ In a diversified portfolio, some part of the portfolio will not be performing well in any given investment environment.

- If all assets are doing well or poorly at the same time, the portfolio is not really diversified.

“If you’re not worried about something in your portfolio you aren’t really diversified.”

-- Peter Bernstein

Section 5 – Risk Tolerance

Risk Management – Risk Theory

What is risk?

→ Risk is a condition where there are a greater number of possible outcomes than actual outcomes.

Institutional investors operate under a condition of uncertainty

→ The “objective” probability of individual outcomes is unknown.

→ Therefore, we substitute “subjective” probabilities of possible outcomes.

Risk management considers both subjective probabilities of outcomes and consequences of outcomes.

Risk Management – Risk Theory

Risk in an institutional portfolio context

→ Anything that prevents an organization from attaining its goals:

- Inability to meet a return target
  - Over what time horizon?
- Return volatility – mark-to-market value changes
  - Typically driven by risk exposure

“Risk management is the quality of a decision we make in the face of uncertainty.”

-- Peter Bernstein

Risk Management – Risks Institutional Investors Face

→ Volatility of investment return (market risk)
→ Risk of monetary loss or permanent impairment of value
→ Liquidity risk
→ Credit risk
→ Inflation risk
→ Counterparty risk
→ Operational risk
→ Reputational risk or “headline risk”
→ Regulatory risk
→ Valuation risk
→ Concentration risk
→ Leverage risk
→ Litigation risk

Risk Management

How does one smooth out total fund return volatility?

Many investors have sought to reduce return volatility through investing in:

→ Uncorrelated assets or strategies

→ Covered Calls portfolio in Growth Portfolio

→ Risk-oriented Tactical Portfolios – Tactical Asset Allocation

→ Currency Overlay Product to reduce short-term volatility of currency exposure

→ Tail risk management strategies

→ Other

Risk Management – Public Fund DB Plans

Pre-2008

→ Primarily focused on long-term return averages

→ Volatility of historical returns

Post-2008

→ Focus of probability of not meeting benefit payments

→ Focus on probability of increased contributions

→ Focus on managing worst case portfolio outcomes

→ Less concern with peer universe comparisons

Risk Management – Investment Horizon for Mature DB Plans

→ “We have long dated liabilities – therefore, we’re long-term investors.”

→ “The fund can ride out the market volatility that comes with being an equity investor.”

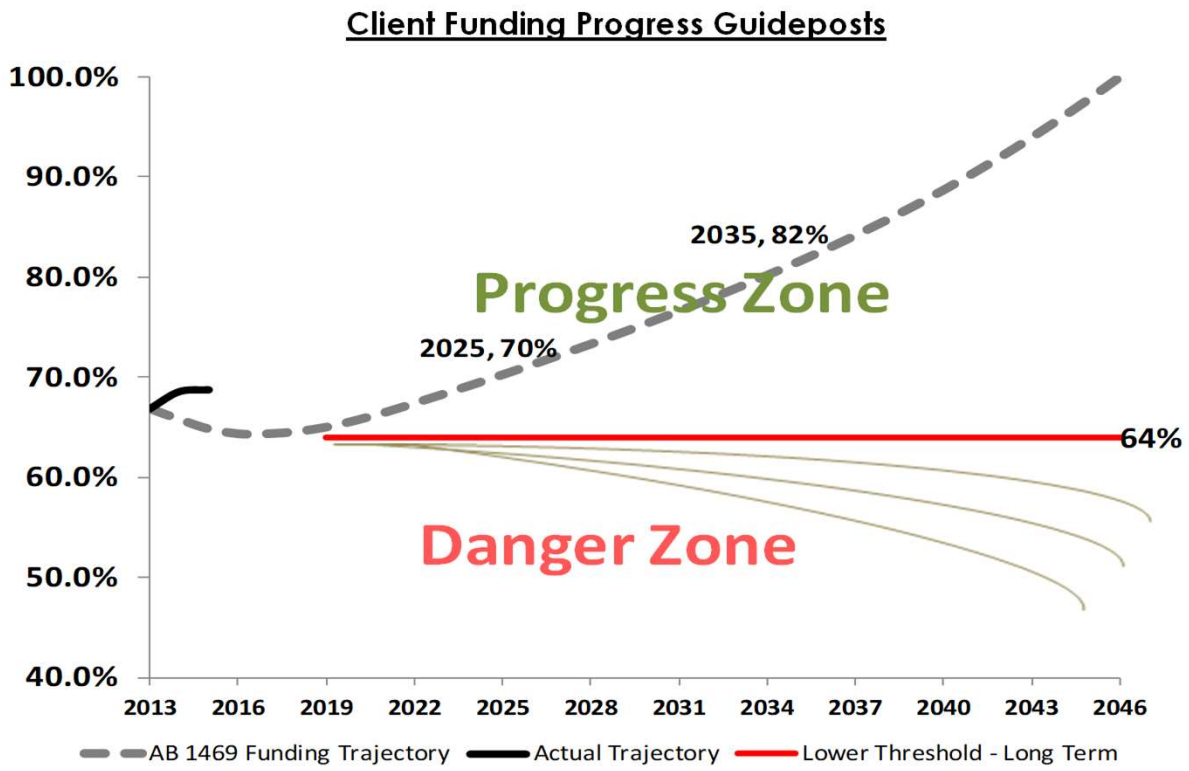
- You won’t know until you test the statement.

→ You are not a long-term investor if a major market decline can permanently impair fund solvency.

- The level at which the fund solvency is in question is not 0%.

What Matters Most – Policy in Context of the Overall System

Example



→ Based on cash-flow dynamics, falling below 64% funding after 2019 presented material implications for the plan.

→ 64% funding ratio was used as a key threshold during the modeling.

Risk Management Challenge

→ Reducing risk typically reduces portfolio expected return.

→ Since the plan has a 7.5% expected return target, risk cannot just be reduced.

→ The portfolio must have a reasonable expectation of meeting the target return.

→ It is difficult to move the needle without forfeiting expected returns.

→ Adding diversified strategies offers the prospect of reducing portfolio risk without sacrificing expected returns.

→ Diversifying (low correlated) strategies often require use of:

- Leverage
- Shorting
- Derivatives

Risk Management Challenge

→ Low correlated assets reduce risk. However:

- The allocation must be large enough to have a risk reduction impact on the total portfolio return.
- Low volatility assets do not have sufficient volatility to materially impact total portfolio return.
- Most diversifying assets / strategies reduce risk very slowly.
- Most institutional investors' portfolios risk profiles are dominated by equity risk.
  - If you have a 7.5% return target, it is difficult to construct a portfolio where that is not the case.

→ It takes time for a reduced risk strategy to pay off:

- Unless there is a market crisis in the near term

→ There are more up periods than down periods.

→ Risk reduction strategies lag in periods where risk is rewarded.

Risk Management – Tail Risk

Tail Risk Management

→ Tail risk is the small chance of a large negative capital market event occurring that results in a large negative total portfolio return.

→ Investors have found tail risk events occur more frequently than expected.

→ Tail risk events are difficult to predict

- Thus, creating the prospect for large losses when they do occur

→ Tail risk is expensive to hedge or insure against

- Investors are compensated for taking tail risk

→ Policy-makers may not decide to manage tail risk

- However, you should discuss the pros and cons

Risk Management – Tail Risk

Tail Risk Management Options: Purchase Tail Risk Insurance

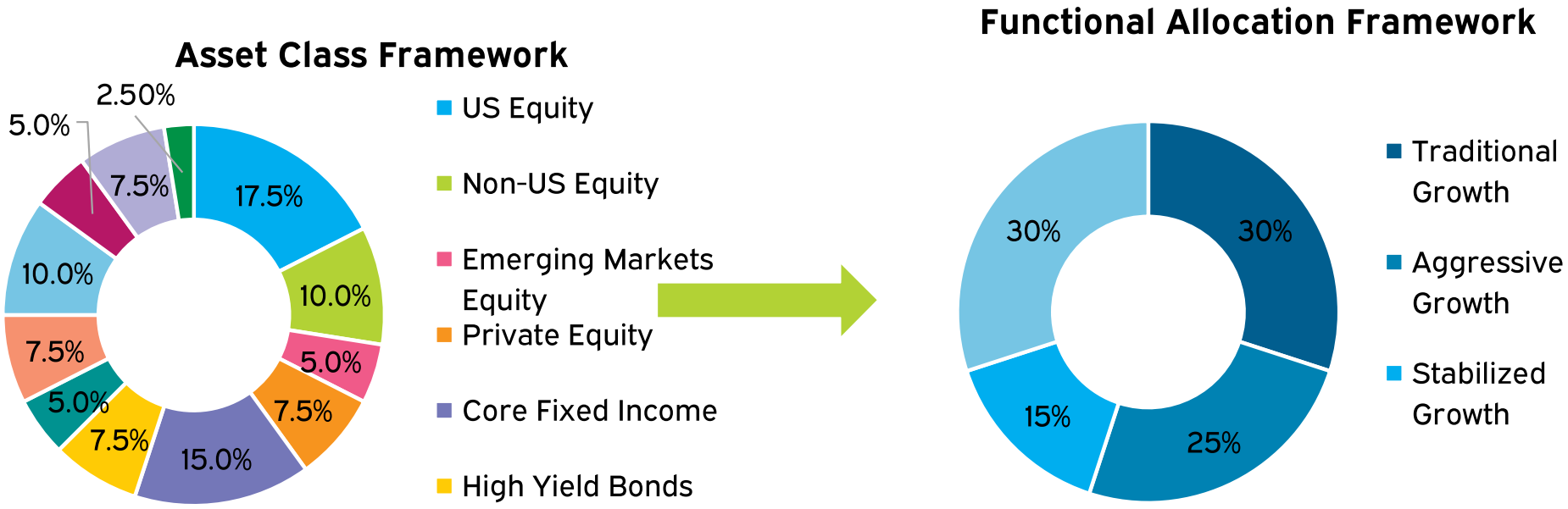
→ Systematically hedge tail risk: place a permanent insurance or hedge against tail risk

- A typical tail risk hedge product costs 1% (of total fund return) to "guarantee" total fund floor return of at least -15%
  - Foregoing 1% return in a low expected return environment is costly
  - -15% is a low floor return

→ Tactically hedge tail risk: only insure or hedge against tail risk when risk conditions warrant

- Difficult to execute
  - When risk perception is high – insurance is expensive
  - When risk perception is low – insurance is cheap

From Asset Complexity to Functional / Risk Framework

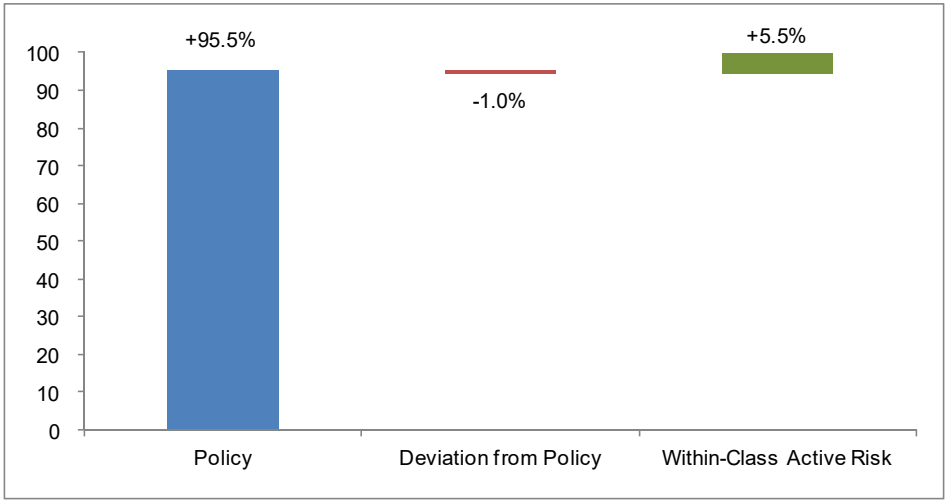


→ Over time, too many asset categories have blurred visibility of purpose.

→ High-level decision-makers need to focus on main drivers of risk and performance.

Pension Plan Risk Allocation

Example Risk Contribution



→ Awareness of risks embedded in policy portfolio is critical.

→ Key aspect of implementation: capturing policy risk exposures / intentions effectively and efficiently.

Section 6 – Alternative Investing

Approach to Alternative Investments

We define alternative investments as Private Equity, Real Estate, and Infrastructure Investments

→ It is crucial to define the role of alternative investments
- Clearly define the role of each alternative program's sub-portfolio
- Strategy first, managers second

→ Fortify strategic partnerships with managers of conviction
- Fewer, more significant relationships
- Allow flexibility for tactical investing

→ Extensive due diligence to identify the top-performing investment managers in the market
- Investment, operations and legal

→ Be cognizant of the investment horizon and remain patient and deliberate
- Make transparent, meaningful, cost-effective and scalable commitments

Role of Alternative Investments

→ Drive investment returns

- Higher return profiles are expected in exchange for illiquidity

→ Diversify the plan's investment portfolio via:

- Returns that are more income driven and less liquid capital market reliant
- Long-term investment horizon, capital appreciation, and cash flow generation

→ To provide inflation protection

Alternative Investment Challenges

→ Defining and adhering to strategic goals

- Strategic objectives
- Investment policies
- Portfolio construction and strategic allocation modeling
- Implementing and evaluating the portfolios
- Benchmarking alternative classes
- Assessing implementation
- Valuation considerations

→ Identifying and fulfilling fiduciary obligation

- Fiduciary duty
- Fees, terms and conditions, and transparency
- Reputation and headline risk potential
- Trustee education

→ Addressing unique characteristics of alternative investments

- Pacing process and long-term planning
- New strategy development, implementation, and evaluation
- Liquidity concerns
- Delayed reporting

Board Concerns Regarding Alternative Investments

What Keeps Board Members Up at Night?

→ Strategic goals and implementation

→ Managing allocation to illiquid assets

→ Meeting the return expectations for the overall investment portfolio over the long term

→ Liquidity needs

→ Risk and risk mitigation

→ Investment/ manager selection and due diligence

→ Fees and terms

→ Monitoring responsibilities and assessment – reporting, monitoring, and education

→ Stakeholder concerns

→ Legislative oversight

→ Media attention

Alternative Investment Risk Mitigation

Annually reaffirm Program's long-term investment objectives

→ Including consistency with performance targets and risk objectives

→ Review progress toward previously established goals

- Commitment pacing
- Market allocation
- Diversification
- Performance

Establish investment activity goals for the upcoming calendar year

→ Analyze the current market environment

- Identify attractive segments

→ Dependent upon client's unique needs

- Target annual commitment level utilizing a customized pacing model
- Target number of investments
- Target areas of emphasis by strategy or focus

→ Understand risk factor exposures of alternative investment strategies

- Growth risk, rate risk, inflation risk, liquidity risk

Alternative Investment Fees and Terms

Fee and expense policies are an important area where more transparency and education is needed

Pension plans should

→ Work with General Partners to gain more transparency of fees and terms

→ Receive education on the changing market dynamics

→ Collaborate with industry groups that advocate on behalf of limited partners (e.g., ILPA)

→ Negotiate to obtain optimal fees and investment structures; and

→ Serve on Limited Partner Advisory Committees

Private Equity Definition

→ Equity or equity-linked securities in operating companies that are not publicly traded on a stock exchange

→ Types of investment strategies:

- Buyout – acquisition of a company that investor believes can be made more valuable
- Growth capital – investment in mature companies looking for capital to expand, restructure, enter new markets
- Venture capital – investment in typically less mature companies for launch, early development, or expansion
- Mezzanine – subordinated debt/preferred equity used to reduce amount of equity capital required to finance leveraged buyouts
- Distressed – equity securities of financially stressed companies
- Secondaries – investment in existing private equity assets

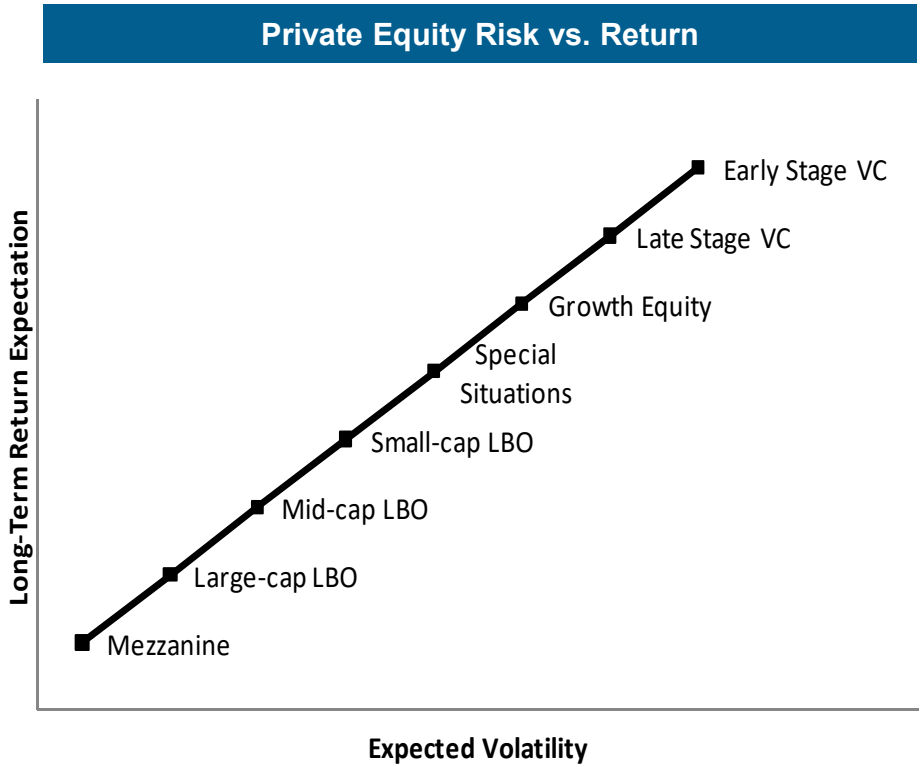
→ Types of structures:

- Direct investment – direct purchase of equity securities of a private company
- Co-investments – investments in equity securities of a private company alongside the manager of a direct fund
- Direct fund – pool of capital formed to make direct investments
- Fund of funds – pool of capital formed to make investments in direct funds

Private Equity Characteristics

- → Illiquid, long-term time horizon (7- to 12-year closed-end partnerships)
- → Quality of the managers selected is the key determinant of success
- → High volatility of returns compensated by higher expected returns
- → Encompasses four stages: fundraising, portfolio construction, investment exit, and return realization

Private Equity Risk and Return Expectations



Performance Expectations

Strategy	Payback Period	Performance Target
Venture Capital	6 to 10 years	Public Equities + (4% - 5%)
Mid/Small LBO	5 to 8 years	Public Equities + (3% - 4%)
Large LBO	5 to 8 years	Public Equities + (2% - 3%)
Mezzanine	4 to 6 years	Public Equities + (1% - 3%)
Distressed	3 to 5 years	Public Equities + (3% - 5%)
Natural Resources	6 to 10 years	Public Equities + (1% - 2%)
Special Situations	2 to 5 years	Public Equities + (2% - 5%)

Private Equity Guiding Principles

→ Private Equity markets are inefficient
- Investments should be made on an opportunistic basis relative to market environment

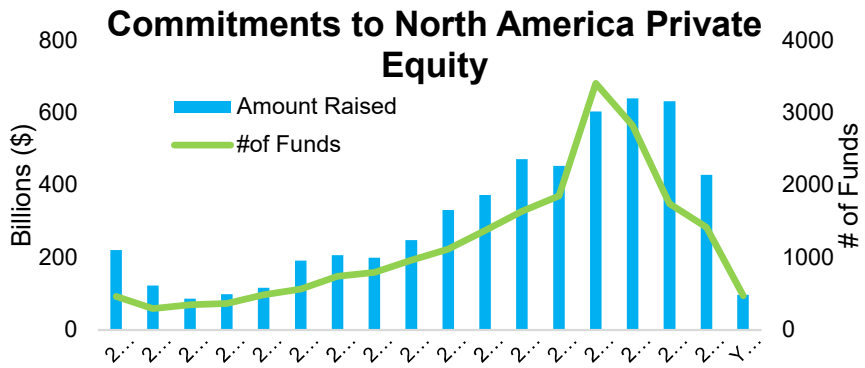
→ Manager selection is crucial
- Value can be added through extensive due diligence

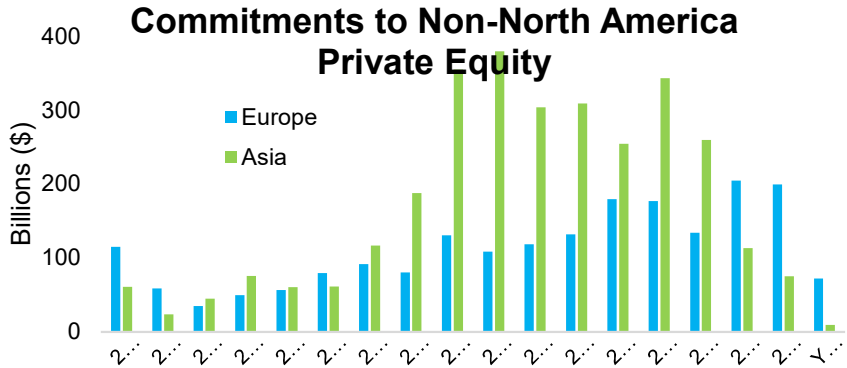
→ Emphasize larger commitments with fewer partnerships to managers of conviction
- Over-diversifying can lead to median results

→ Target outsized returns through intelligent portfolio construction
- Sector exposure, payback structure, investment type, vintage year diversification

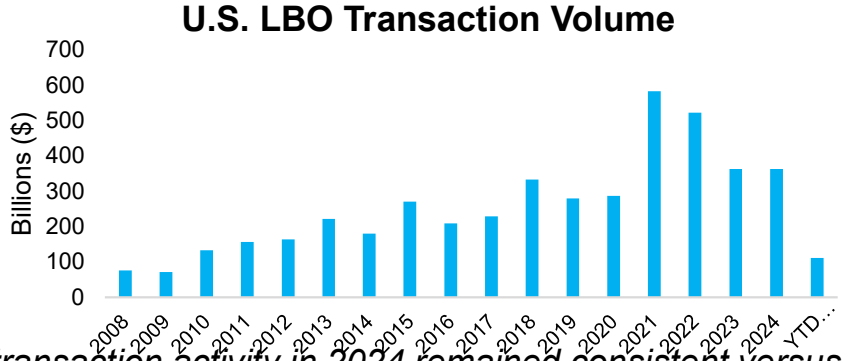
Private Market Overview

This section examines the private equity market environment, including fundraising, LBO transaction volume, and private equity purchase price multiples.





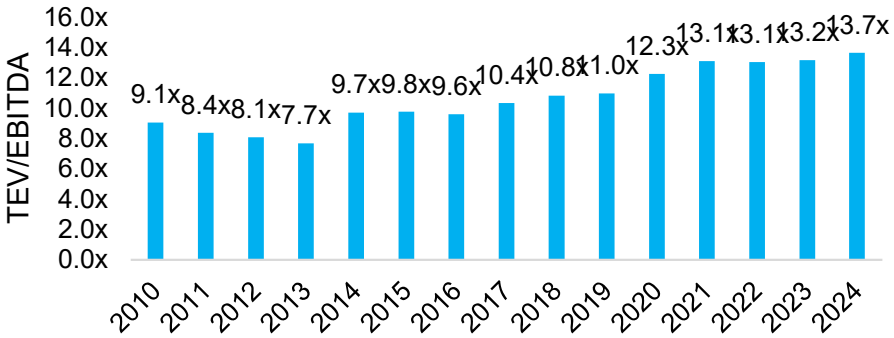
Domestic fundraising activities have decreased over the last two years, especially with respect to the number of funds closed. Non-US fundraising has also been subdued in recent years with commitments to Asia significantly trailing those to Europe.



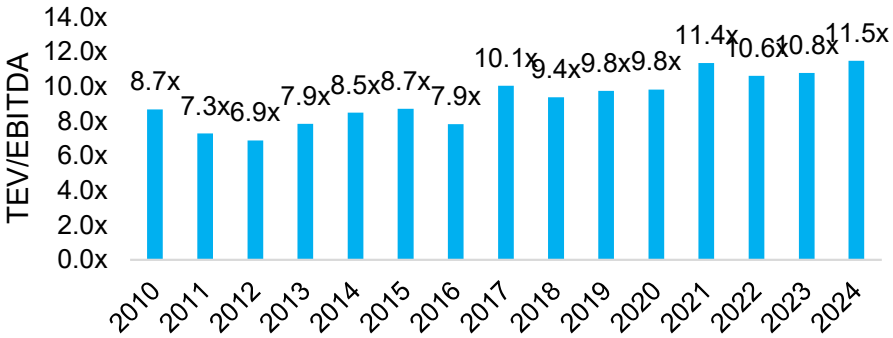
US buyout transaction activity in 2024 remained consistent versus the prior year.

Private Market Overview

Median North America Purchase Price Multiples



Median Europe Purchase Price Multiples



LBO transactions continue to be expensive domestically and have also slightly increased in Europe as of year-end 2024.

Infrastructure Subsectors

Infrastructure assets are tangible assets that derive their value from intrinsic physical qualities, substance, properties – many are the foundations for the production and delivery of goods and services critical to the global economy.

Infrastructure			
Transportation	**Energy/Utilities**	**Social**	**Communications**
Toll Roads	Midstream	Hospitals & Medical Facilities	Cable Networks
Bridges	Transmission & Distribution Systems	Education Facilities	Macro Cell Towers
Tunnels	Storage Facilities	Police & Military Facilities	Small Cells
Airports	Power Generation	Civic Buildings	Data Centers
Seaports	Renewables		Fiber
Rail & Mass Transit	Water Transportation		Satellite Systems
Parking Facilities	Water Treatment & Distribution		Spectrum
	Wastewater Treatment and Reuse		
	Waste Treatment		

Infrastructure Definition

Definition

→ Physical structures, facilities and networks which provide essential services within a community

→ Services provided are crucial to the economic productivity of a community

→ Assets are either privately owned or owned/operated by government entities

Major Categories

→ Brownfield projects that are already operational and/or have a predecessor of some description at the same location

→ Greenfield assets that are in the planning, development, financing or construction stage

How to Invest

→ Private/Unlisted Infrastructure (Debt/Equity)

→ Listed Infrastructure

→ Public Private Partnerships (PPPs/PFIs)

→ Municipal Bonds

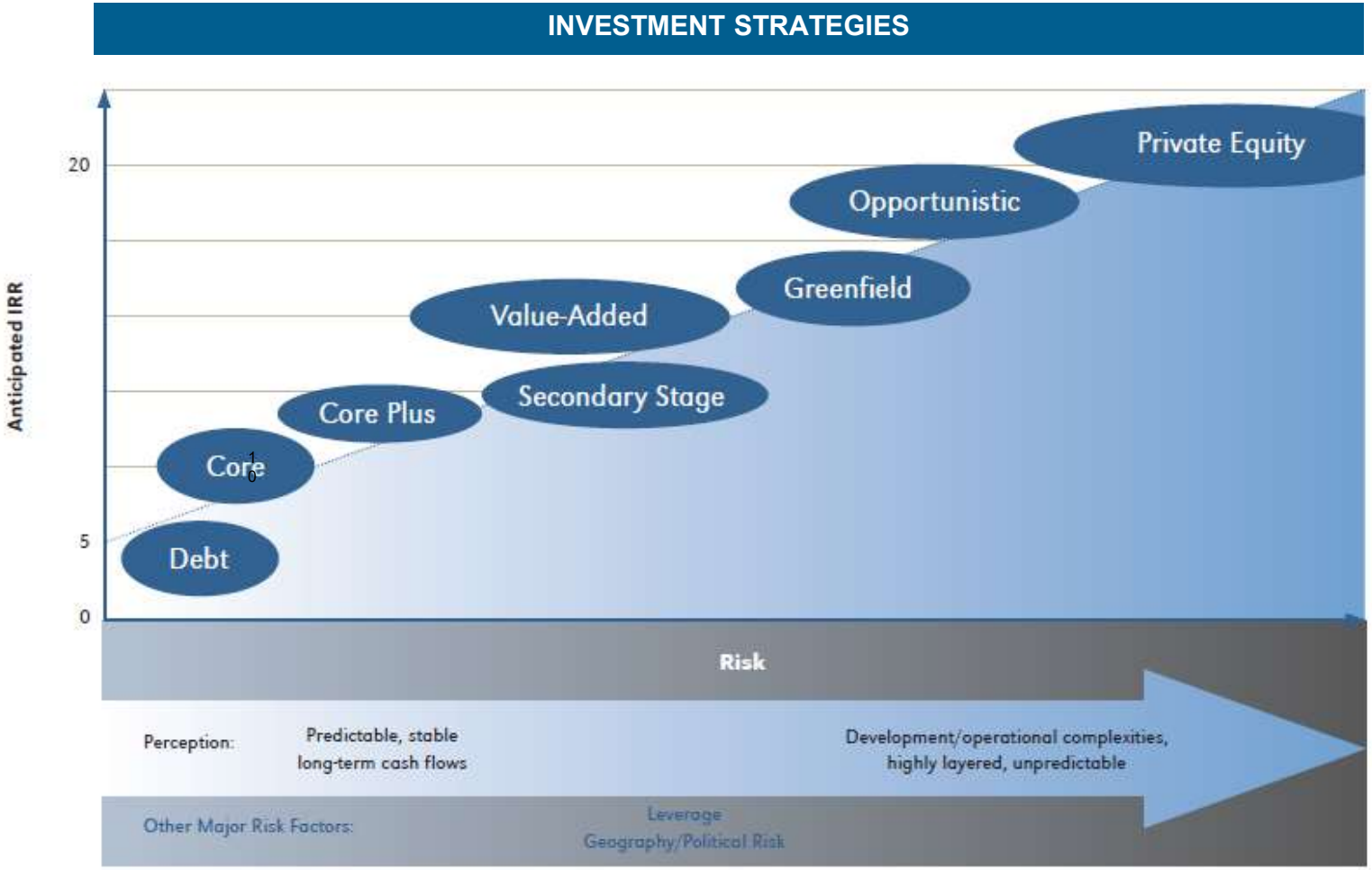
Benefits of Infrastructure Investments to Pension Plans

High Stable Yields	• Attractive risk adjusted returns
Low Correlation	• Low beta relative to traditional asset classes portfolio diversification
Duration Hedging	• Long lived assets to match liability duration 15- to 99-year cash flows
Inflation Protection	• Regulation or concession within pricing
Low Cyclicality	• Inelastic demand and monopolistic position support stable cash flows
Risk Transfer	• Risks transferred to subcontractors or back to public entity via partnership arrangements
Low Volatility	• Limited exposure to economic downturns
Greenfield Projects	• Job creation

Infrastructure Investment Concerns for Pension Plans

Leverage	• Deals are typically leveraged between 50% and 90%
Market Inefficiency	• Competitive auctions – overpaying • Current pricing – deal outliers or trend setters • Management teams with a proven track record are crucial • Limited history and track record in infrastructure space
Political & Headline Risk	• Potential lack of public acceptance of privatization • Different political landscape in every state and municipality
Regulatory Risk	• Regulated assets subject to changes • Government influence on pricing • Potential negative impact on bottom line
Construction & Development	• Project overruns and delays transfer to construction partners • Volume/demand risk for new developments; availability payments
Worker Impact	• Greenfield projects should generate new jobs • Concession agreements must address jobs and involve union/worker participation
Asset Control	• Stipulations via concession agreements limit some management control (pricing, growth, decision approvals, etc.)
Benchmarking	• There is no standard benchmark for the asset class

Infrastructure Investments Risk – Reward Profile



Source: Probitas Partners.

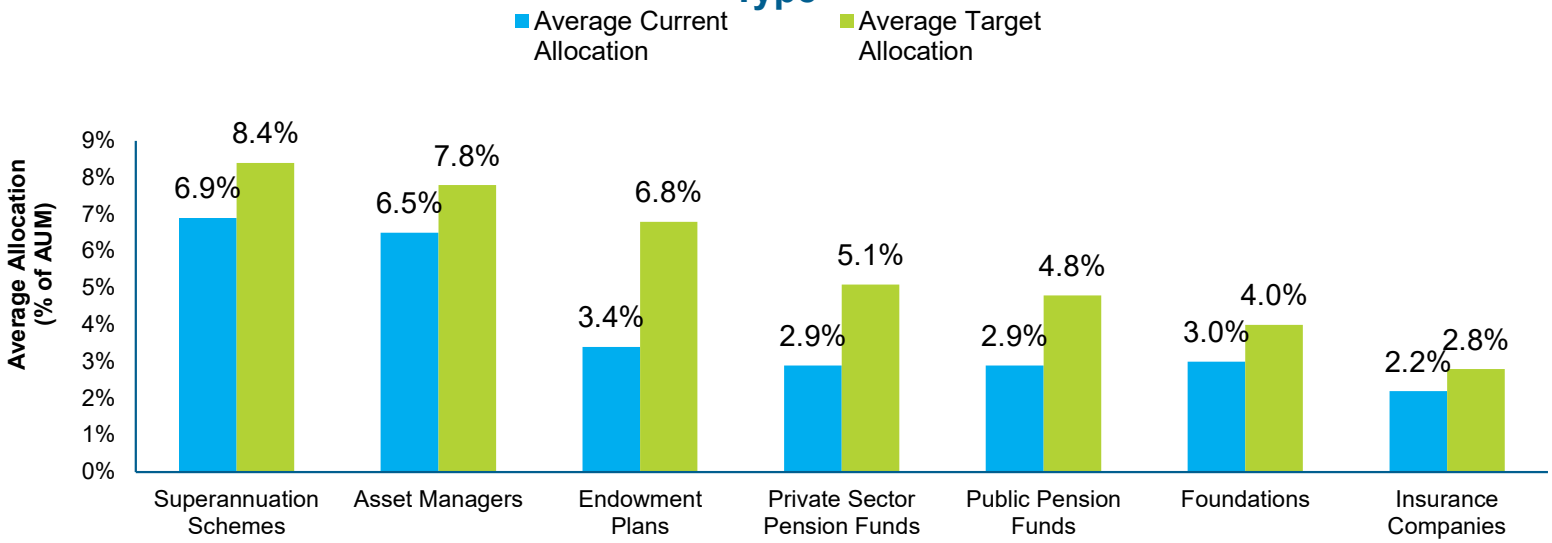
Accessing Infrastructure

Potential Ways to Access Infrastructure Assets: Investment Vehicle Options

Type	Pros	Cons
Commingled Funds	Specialized management teams, access to non-public opportunities, value-added opportunities, diversified portfolio	Blind pool risk, j-curve effect, possible strategy drift
Separately Managed Accounts	Customizable strategies, lower fees, greater governance, consortium opportunities via Club approaches	Generally, requires higher minimum commitment, additional staff participation, and monitoring
Co-Investments	Selective exposure to compelling opportunities alongside strategic managers, typically lower fees than commingled funds, or no fee at all	Requires resources and specialization to transact, quick turnaround and approval process needed, increased exposure to a single asset, opportunities are sporadic
Directs	Origination, diligence, ownership, management, exits investor-driven, maximizes governance and lowers fees	Requires considerable in-house staff resources and expertise, market compensation, outside advisors, and management partners
Secondaries	Mitigate blind pool risk, mitigate j-curve effect, favorable pricing	Inefficient marketplace, expensive to transact, opportunities are sporadic

Investor Allocations to Infrastructure

Average Current and Target Allocations to Infrastructure by Investor Type[1]

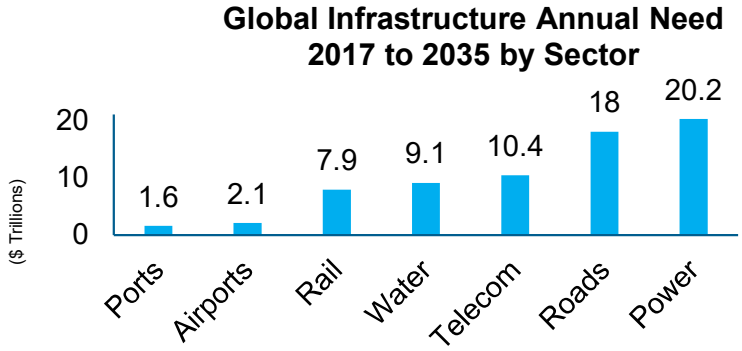


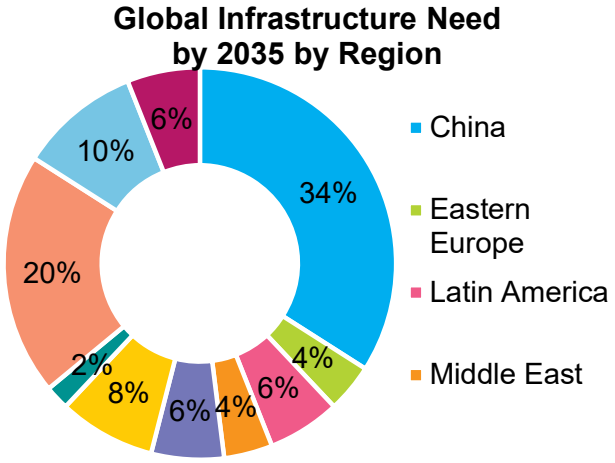
Jurisdiction	Typical Pension Fund Allocation to Infrastructure
Western Europe	3% - 5%
Australia	5% -10%
Canada	5% -10%
US	0% - 5%

[1] Investor universe includes investors in 80 countries worldwide.
Source: Preqin, Stonepeak Infrastructure Partners.

Global Infrastructure Needs

- → Global infrastructure investment need is massive
- → Developed economies face challenges posed by neglected and deteriorating infrastructure
- → Many developing countries aspire to meet basic human development needs, including providing sanitation, wide access to power and safe drinking water
- → According to McKinsey estimates, $69.4 trillion in infrastructure investments will be required to support projected global GDP growth through 2035
- → The world needs to invest an average of $3.7 trillion annually to support expected rates of growth





Source: McKinsey & Co.

Hedge Fund Definition

→ **Hedge funds are not an asset class**

- Hedge funds are a type or style of asset management that is generally skill based (ALPHA)
- Hedge funds management is not homogeneous (not many common factors)

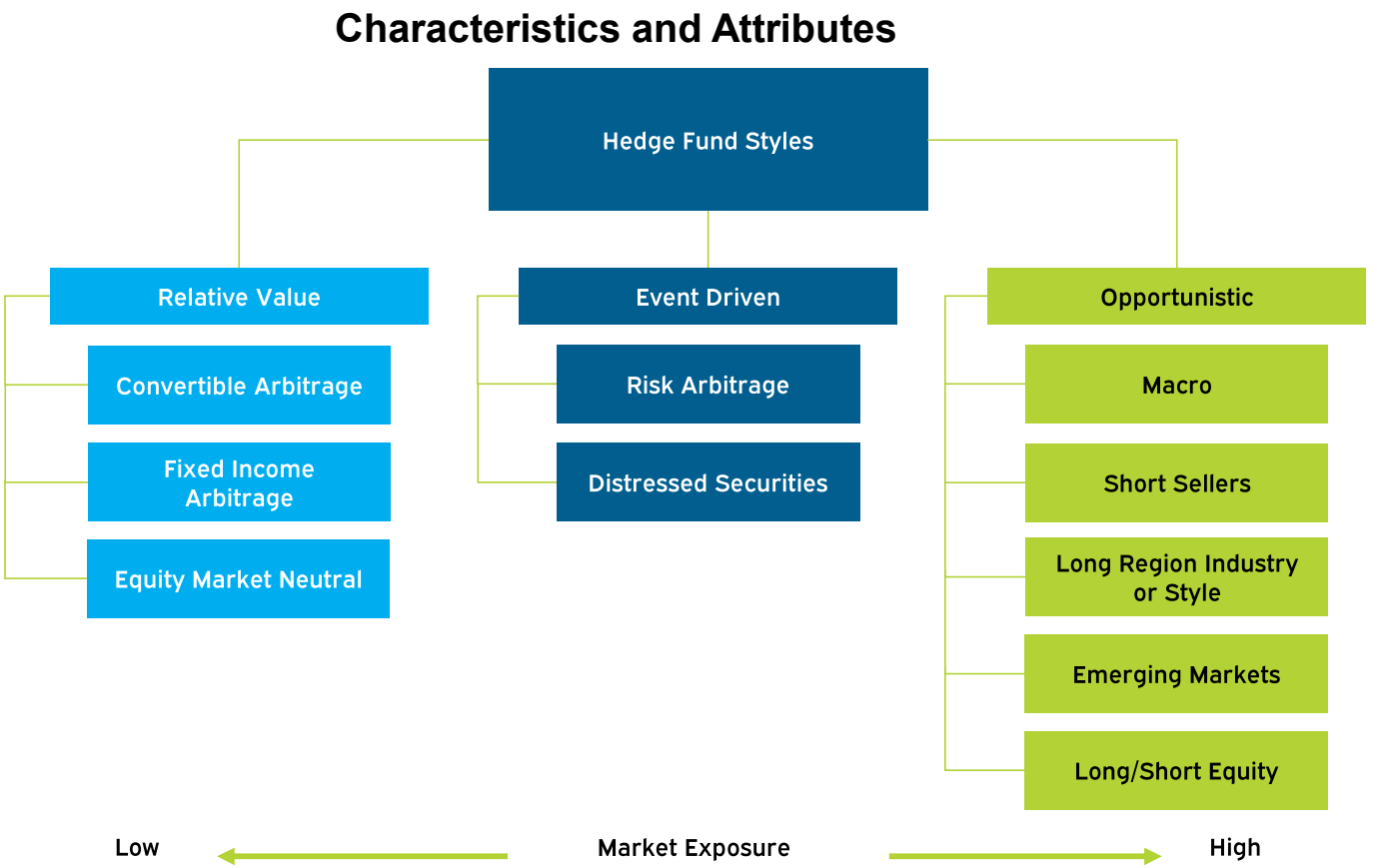
→ Hedge funds are commonly considered alternative investments because they

- Have higher management fees and performance related fees
- Are illiquid
- Are privately structured and limited to “sophisticated” investors

→ Hedge funds may contain significant financial leverage and contain other risk factors, including

- Financial leverage (use of margin accounts and short-term loans)
- Instrument leverage (use of derivatives that magnify returns)
- Direct fund – pool of capital formed to make direct investments
  - Short sales
  - Lack of transparency
  - Less regulatory oversight
- Span a broad array of strategies, producing a range of risk/volatility and returns from high to low
- Exhibit return behaviors that may be independent from other asset classes

Hedge Fund Characteristics



→ Hedge funds span many investment styles

→ Manager styles can be organized by market exposure

Hedge Fund Implementation

Three General Approaches

→ Include as a segment of an existing asset class
- Commonly a segment of the Alternative Investment asset class
  - Adds consistency and some liquidity to otherwise privately-held strategies
- Also could replace equities, fixed income, cash, etc., depending upon targeted risk and return objectives

→ Treat as a new strategic class
- Allocation level typically relies on optimization techniques
- Key role is largely as a diversifier versus other asset classes
- Strategies with higher return objectives have higher exposure to underlying asset classes (i.e., more "directional")

→ An alpha "overlay" to existing asset classes
- Must be material to have impact within overall asset class portfolio
- Utilizes significant amount of highly liquid derivatives to obtain market exposure
- Assumption of "zero beta" to underlying asset class returns

Investment Vehicle Options

→ Individual Hedge Funds

→ Multi-Strategy Funds

→ Fund of Hedge Funds

Hedge Fund Costs & Risks

Costs

→ Manager fees and profit sharing

→ Master custody costs

→ Staff salaries/benefits/administration

→ Consultant fees

Risks

→ There are several risks unique to hedge funds:

- Disclosure risk
- Partnership mortality risk (average life of partnership - 3 years)
- Financial leverage risk (mitigated to some degree by ERISA)
- Return dispersion risk

→ Other risks:

- Event risk
  - Correlations tend to increase during global shocks
- Manager selection risk
- Complexity risks (of process, of transactions, of securities)
- Personnel risks (hedge funds are usually run by smaller firms)
- Asset growth (too large an asset base threatens nimbleness)
- Liquidity risk
- Fraud risk
- Custody of assets - assets held in someone else's name, rather than in custodial bank

Closing Comments

We appreciate the opportunity to present to you today and thank you for your time.

Questions?

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MEKETA

Functional Allocation Framework

May 2026

Merced County Employees' Retirement Association (MercedCERA)

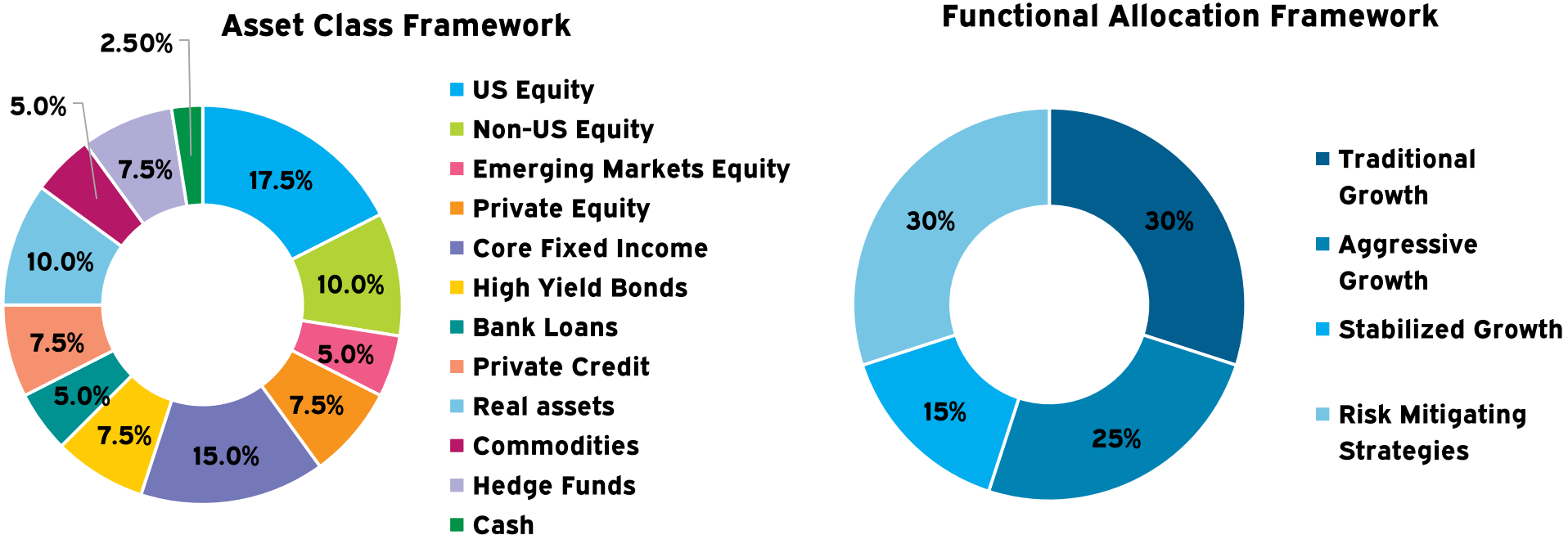
Introduction

→ In a functional allocation framework, assets are aligned based on their functional role within a portfolio.

→ Functional frameworks represent a departure from the classic asset class allocation paradigm.

→ While hundreds of billions of dollars are allocated via functional allocation frameworks, they remain the minority.[1]

Allocation Framework Examples



[1] See slide 16 for a sample of institutional investors.

Framework Comparison

Asset Class Framework

- → *Organizes investments based on type of instrument.*
- → Fundamental drivers of results not necessarily prioritized.
- → Often leads to "diversification-in-name only."
- → Portfolios often contain "Alternatives" allocations that are catch-all buckets.
- → Works well during "normal times."
- → Historically applicable when investments were primarily public equities and government bonds.

Functional Framework

- → *Organizes investments by primary risk drivers and/or function/role.*
- → Improves transparency into the portfolio's true risk posture.
- → Incorporates portfolio flexibility to address continually changing product offerings.
- → Shifts the oversight prism to "bad times."
- → Requires new strategies to be truly additive in an economic/intuitive sense.
- → Improves full-cycle and intra-Asset/Liability portfolio risk positioning (i.e., avoids risk drift).

Key Takeaways

→ The utilization of a functional allocation framework seeks to improve portfolio transparency and oversight, particularly for key decision makers such as boards or investment committees.

→ A functional allocation framework helps to separate and define the fiduciary and oversight roles of boards and staff.

- Provides clear and intuitive insight into fundamental risks and functions of each portfolio component.
- May improve implementation flexibility.
- Easy integration of non-traditional asset classes and investment strategies.
- Highly customizable with no consensus on what the framework should look like.
- Many institutional investors utilize a hybrid functional/asset class framework.

→ The adoption of a functional allocation framework is not a source of alpha or outperformance.

→ The methodology for designing an aggregate portfolio does not materially change whether one utilizes a functional framework or an asset class framework.

Categorizing Investments

→ As it relates to functional versus asset allocation frameworks, one can think of asset classes as the "basic" level and functional classes as the "superordinate" level.

- Still, many investors segment the superordinate level into two components (e.g., strategic level and sub-class level).

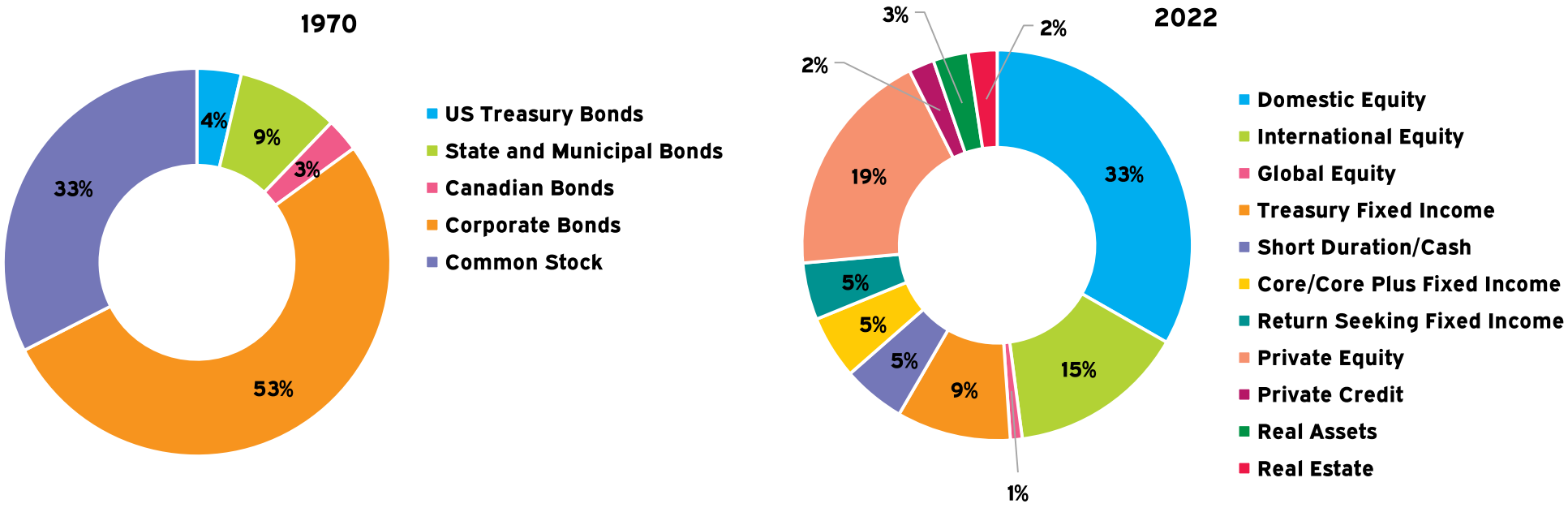
Functional Classes =	Superordinate	**Ex. Animal**
Asset Classes =	Basic	**Ex. Dog**
Strategic Level and Sub-Class Level =	Subordinate	**Ex. German Shepherd, Dalmatian, etc.**

[2] Source: Rosch, E. H. (1973). Natural categories. *Cognitive Psychology, 4*(3), 328–350 and Rosch, Eleanor (1978). *Cognition and Categorization*. Hillsdale, NJ: Lawrence Erlbaum, among others.

Example Public Pension Asset Allocation

→ Despite a wide variety of asset classes in 2022, the true fundamental drivers of the portfolio remain very similar to those in 1970, just at different weights.

→ An institutional investor likely has more types of investments today than they did in 1970, but their functions are similar to those of the broad asset classes of fifty years ago.[4]



[4] We show the Minnesota Combined Retirement Funds portfolio because Minnesota is one of the few institutional investors who make publicly available historical documentation form 50+ years ago (https://msbi.us/annual-reports).

Putting It All Together

→ A more descriptive name for the "functional allocation framework" is the "functional, risk-based allocation framework."

- Overarching strategic classes commonly used in functional frameworks tend to have key risks (factors) that drive most of the return variability within the classes.
- Assets within a "growth class" are explicitly exposed to economic growth risk, which means they are susceptible to changes in global economic growth and/or corporate profitability.
  - Growth risk is pervasive across asset classes and/or strategies that target meaningful levels of return (i.e., near, at, or above that of public equities).
- Whereas a "diversification class" is driven by a variety of other risks, such as duration risk, volatility risk, and time series momentum.
  - This concept shares some overlap with traditional risk parity and factor investing strategies.

→ The core philosophy behind a functional framework rests on investor awareness of the driving factors within each class and its role in the portfolio.

- Functional frameworks encourage investors to be cognizant of tail events.

Drawbacks/Challenges

→ There are two significant challenges to the functional framework.

→ The first challenge pertains to the high degree of abstraction.

- While the framework tilts the portfolio review lens towards the major risks and functions within a portfolio, this comes at the cost of decreased detail and granularity.
- There will certainly be times where key decision makers want to examine specific asset level exposures, and this may require peering through multiple layers.
- Relatedly, functional frameworks make comparing allocations across peer groups challenging.

→ The second challenge relates to the actual design/construction of the classes.

- In a perfect world, asset classes would be "pure" in the sense that they are largely driven by a single factor.
- While there are certain asset classes where this is more or less true (e.g., US Treasury bonds,), this tends to be more of exception than the rule.
- Real assets and TIPS, for example, have a variety of driving forces and economic sensitivities.
  - This is an example of the imprecise nature of functional frameworks.

Growth Risk and Growth Classes

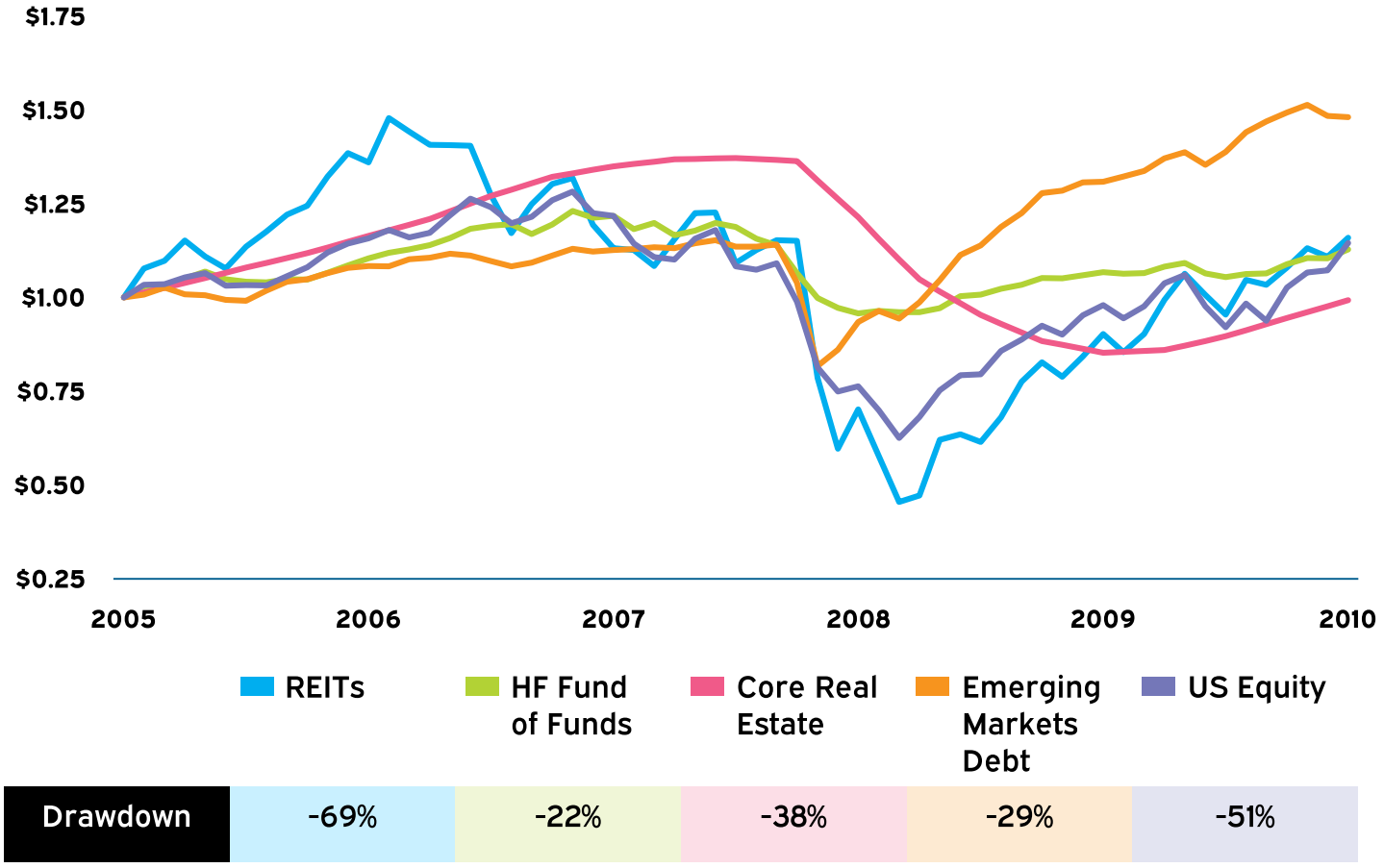
→ Historically, most asset classes tend to share a similar sensitivity to economic growth.

	US Equity	Non-US Equity	EM Equity	Private Equity	Real Estate	Infrastructure	High Yield	EM Debt (local)	Natural Resources (private)	Hedge Funds
COVID-19 Market Shock (Feb 2020-Mar 2020)	-35.0%	-32.7%	-31.2%	-7.4%	0.7%	-6.3%	-20.8%	-13.9%	-22.1%	-9.1%
Global Financial Crisis (Oct 2007 - Mar 2009)	-45.8%	-52.1%	-51.2%	-28.2%	-28.4%	-10.0%	-22.8%	-7.9%	-31.2%	-17.8%
Popping of the TMT Bubble (Apr 2000 - Sep 2002)	-43.8%	-46.7%	-43.9%	-26.2%	28.7%	13.5%	-6.3%	7.2%	-3.9%	-2.1%
Long Term Capital Management (LTCM) (Jul - Aug 1998)	-15.4%	-11.5%	-26.7%	-3.3%	-1.2%	-0.8%	-5.0%	-34.1%	-16.9%	-9.4%
Early 1990s Recession (Jun - Oct 1990)	-14.7%	-9.7%	-15.9%	1.8%	-2.4%	0.7%	-12.9%	-10.5%	5.6%	-1.9%
Crash of 1987 (Sep - Nov 1987)	-29.5%	-14.5%	-25.3%	-0.5%	-0.8%	-2.7%	-3.6%	-11.0%	-9.9%	-7.8%
Strong dollar (Jan 1981 - Sep 1982)	-2.3%	-18.0%	-12.1%	-3.9%	24.4%	-1.8%	6.9%	-2.0%	-9.5%	-3.8%
Volcker Recession (Jan - Mar 1980)	-4.1%	-7.0%	-6.6%	-2.7%	4.8%	-1.0%	-2.3%	-3.2%	-9.1%	-1.9%
Stagflation (Jan 1973 - Sep 1974)	-42.6%	-36.3%	-44.2%	-20.1%	-10.8%	-3.8%	-15.5%	-23.9%	19.3%	-15.7%

Source: Meketa Investment Group. Historical scenarios are modeled off of benchmark proxies when available and uses simulated returns when the proxies were unavailable.
Please see Appendix (slide 19) for a list of benchmarks and corresponding proxies.

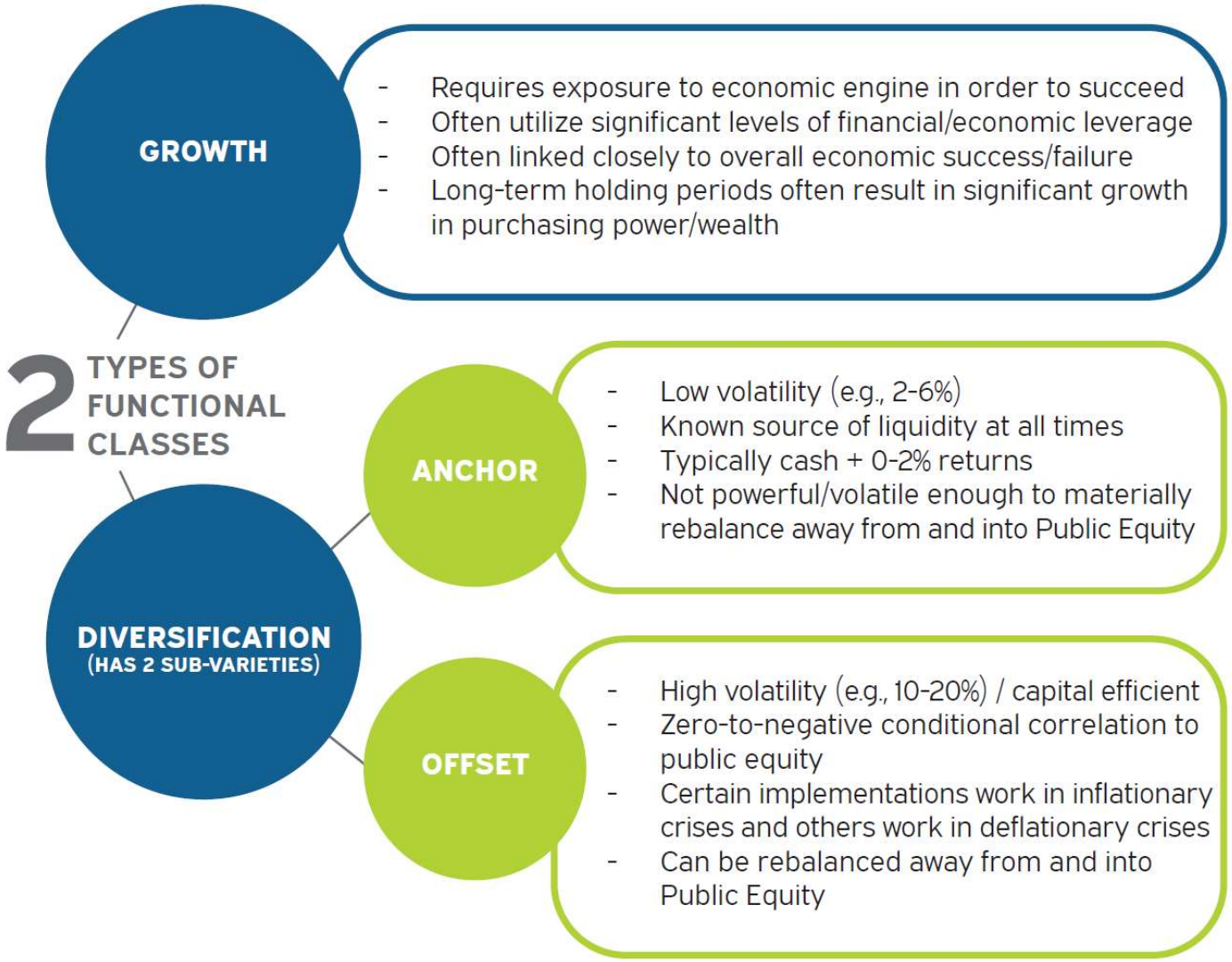
Asset Classes Potentially Provide Illusory Diversification

→ In-line with the common notion of "correlations move to 1," the GFC provided one of many historical examples of perceived diversification benefits being overestimated.



Data Sources: MSCI US REITs, HFRI FOF Composite, NCREIF ODCE, 50%JPM EMBI Global Diversified/50%BB EM Corporate Hard, Russell 3000

Functional Framework



Example: Functional Framework A

Growth	**Aggressive Growth**	Provide growth in excess of traditional growth investments (i.e., public equity markets) through exposure to investments driven mainly by exposure to both the equity risk and illiquidity risk premiums. (e.g., private equity and non-core real assets).
	Traditional Growth	Provide growth in-line with traditional public equity markets through global public equity investments and those of similar risk/return (e.g., US equity, non-US equity, REITs, etc.).
	Stabilized Growth	Provide growth through strategies that are exposed to market beta, exhibiting expected returns similar to traditional growth but with 50-75% of the volatility (e.g., credit, options strategies, and core real assets).
Diversification	**Inflation Protection**	Serve a mixed role of part anchor (e.g., TIPS) and part offset (e.g., commodities) depending on the market environment. Designed to help protect the portfolio during periods of high inflation.
	Principal Protection	Provide an anchor to the portfolio by exhibiting low volatility with minimal or zero exposure to the equity risk premia. Designed to provide consistent, stable returns during all or most market environments and preserve principal during periods where growth investments are experiencing significant drawdowns (e.g., intermediate duration investment grade fixed income).
	Risk Mitigating Strategies	Provide an offset to portfolio growth risk, through liquid exposures to systematic market and non-market based risk premiums expected to exhibit offsetting behavior to growth investments during periods of significant drawdowns (e.g., long duration Treasuries, systematic trend following, alternative risk premia, long volatility, global macro, etc.).

Example: Functional Framework B

Growth	**Private Growth**	Provide growth in excess of traditional growth investments (i.e., public equity markets) through exposure to investments driven mainly by exposure to both the equity risk and illiquidity risk premiums (e.g., private equity).
	Traditional Growth	Provide growth in-line with traditional public equity markets through global public equity investments and those of similar risk/return (e.g., US equity, non-US equity, REITs, etc.).
	Credit	Provide exposure to economic growth risk via debt-related holdings across both public and private markets. (e.g., high yield bonds, private credit, etc.).
	Real Assets	A spectrum of illiquid strategies that represent interests directly in or derived from physical, real assets. Represents a multitude of sensitivities to economic growth, interest rates, and inflation.
Diversification	**Liquid Defensive**	Structured to provide significant positive returns when growth assets are producing significant negative returns. Potential strategies include long duration Treasuries, long volatility, systematic trend following, etc.
	Liquid Diversifying	Structured to produce uncorrelated returns during both crisis and non-crisis periods for growth assets. Potential strategies include global macro, alternative risk premia, equity market-neutral, relative value, etc.
	Illiquid Diversifying	Structured to produce uncorrelated returns during both crisis and non-crisis periods for growth assets but with illiquid investments or vehicles. Potential strategies include insurance-linked/reinsurance, litigation finance, etc.

Sample of Institutional Investors with Functional Classes

Strategic Classes/Factors	CalSTRS	SJCERA	Hawaii ERS	New Zealand SF (Reference Portfolio	Illinois SURS	Orange County ERS
Functional/ Factor Class	• Economic Growth • Diversifying	• Aggressive Growth • Stabilized Growth • Traditional Growth	• Broad Growth • Diversifying Strategies	• Growth	• Broad Growth • Inflation Sensitive • Principal Protection • Crisis Risk Offset	• Risk Mitigation
Asset Class	• Real Assets	• CRO • Principal Protection		• Fixed Income		• Public Equity • Private Equity • Fixed Income • Credit • Real Assets
Approximate Size (USD)	$300B	$5B	$22B	$35B	$22B	$20B

Source: Approximate AUM figures are as 6/2022 or 9/2022 values. Documents/links were obtained from publicly available sources as of October 2022 and may change over time.
CalSTRS: https://www.calstrs.com/files/f46b99b00/A-InvestmentPolicyandManagementPlan07-2022.pdf
ATP: https://www.atp.dk/en/dokument/factor-investing-atp-way
Hawaii ERS: https://ers.ehawaii.gov/investments/asset-allocation
New Zealand SWF: https://www.nzsuperfund.nz/assets/Uploads/The-2020-Reference-Portfolio-Review-v2.pdf
Illinois SURS: https://surs.org/wp-content/uploads/policy.pdf
Orange County ERS: https://www.ocers.org/investments

MERCED CERA Portfolio

Sample: MERCED CERA Structural Framework

High-Level Class	Mid-Level	Strategy
Broad Growth (79)	Aggressive Growth (22)	Private Equity Private Infrastructure Value-Add/Opp Real Estate
	Traditional Growth (39)	US Equity Non-US Equity Emerging Market Equity
	Stabilized Growth (18)	Opportunistic Credit Hedge Funds Private Credit Core Real Assets
Diversifying Strategies (21)	Principal Protection (18)	US Fixed Income Cash
	Inflation (3.1)	Private Natural Resources
	Risk Mitigating	-------

Summary

Summary

→ Functional allocation frameworks seek to group assets into classes/buckets in a way that may more accurately represent critical commonalities.

- These groupings tend to be focused on specific factor risks, particularly macroeconomic factors and/or an alignment with portfolio functions.

→ Functional frameworks have the potential to dampen the undesirable tendences (e.g., behavioral biases) of the well-intentioned professionals who oversee institutional portfolios.

→ Functional frameworks do not necessarily change the nature of a given investment portfolio.

- Rather, they provide a different lens for examining the major risks of an investment portfolio and often spark improved conversations related to diversification.

→ These frameworks offer the potential to improve portfolio management and oversight.

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