

Callan

February 14, 2024

**House Finance Committee
Alaska State Legislature**

Capital Market Outlook, APFC
Asset Allocation and Performance
Update

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Outline

- 2023 year-end capital market review
- Callan's capital market projection process
- Current economic and capital market environment
- Full-set Callan 2024 capital market projections
- APFC Update
 - 2024 Policy Target Portfolio
 - Recent Performance Review
- Concluding observations

Public Markets Surge in 4Q, Following Decline in 3Q

Stocks have recovered losses of 2022, bonds still have ground to make up

S&P 500 soared 11.7% in 4Q23

- Loss through first three quarters of 2022 was 23.9%; the rebound in the following five quarters brought the index back to a positive return of 1.7% over the past two years.

Fixed income recovered in 4Q, up 6.8% after a sharp loss of 3.2% in 3Q

- The Bloomberg Aggregate was on track for another negative year through 3Q; softening Fed language on rates and a dot plot that showed cuts on the horizon in 4Q turned the market around.
- CPI-U declined in 4Q compared to 3Q, though up 3.4% year-over-year; the index is still 10% higher than it was at the start of 2022.

Economic data defied expectations of recession in 2023

- GDP growth came in at 2.1% in 1Q, 2.2% in 2Q, and jumped to a stunning 4.9% in 3Q. Preliminary 4Q forecasts have GDP over 2%.
- Job market remains solid, providing support to Fed efforts to fight inflation.

Returns for Periods ended 12/31/23

	Quarter	1 Year	2 Years	5 Years	10 Years	25 Years
U.S. Equity						
Russell 3000	12.07	25.96	0.88	15.16	11.48	7.74
S&P 500	11.69	26.29	1.69	15.69	12.03	7.56
Russell 2000	14.03	16.93	-3.55	9.97	7.16	7.91
Global ex-U.S. Equity						
MSCI World ex USA	10.51	17.94	0.54	8.45	4.32	4.62
MSCI Emerging Markets	7.86	9.83	-6.32	3.69	2.66	--
MSCI ACWI ex USA Small Cap	10.12	15.66	-3.79	7.89	4.88	7.28
Fixed Income						
Bloomberg Aggregate	6.82	5.53	-4.19	1.10	1.81	3.85
90-day T-Bill	1.37	5.01	3.22	1.88	1.25	1.90
Bloomberg Long Gov/Credit	13.24	7.13	-11.62	1.12	3.22	5.21
Bloomberg Global Agg ex-US	9.21	5.72	-7.29	-1.56	-0.79	2.25
Real Estate						
NCREIF Property*	-1.37	-8.39	3.12	5.26	7.40	8.31
FTSE Nareit Equity	16.22	13.73	-7.25	7.39	7.65	9.27
Alternatives						
HFRI Fund Weighted	3.59	7.52	1.52	7.00	4.53	6.30
Cambridge Private Equity*	1.60	2.78	3.19	15.18	14.78	13.61
Bloomberg Commodity	-4.63	-7.91	3.40	7.23	-1.11	2.83
Gold Spot Price	11.02	13.45	6.44	10.09	5.59	8.19
Inflation - CPI-U	-0.34	3.35	4.89	4.07	2.79	2.54

*Cambridge PE data as of 6/30/23; NCREIF Property data as of 9/30/23

Sources: Bloomberg, Callan, Cambridge, FTSE Russell, HFRI, MSCI, NCREIF, S&P Dow Jones Indices

Callan Capital Market Projection Process

Process Overview

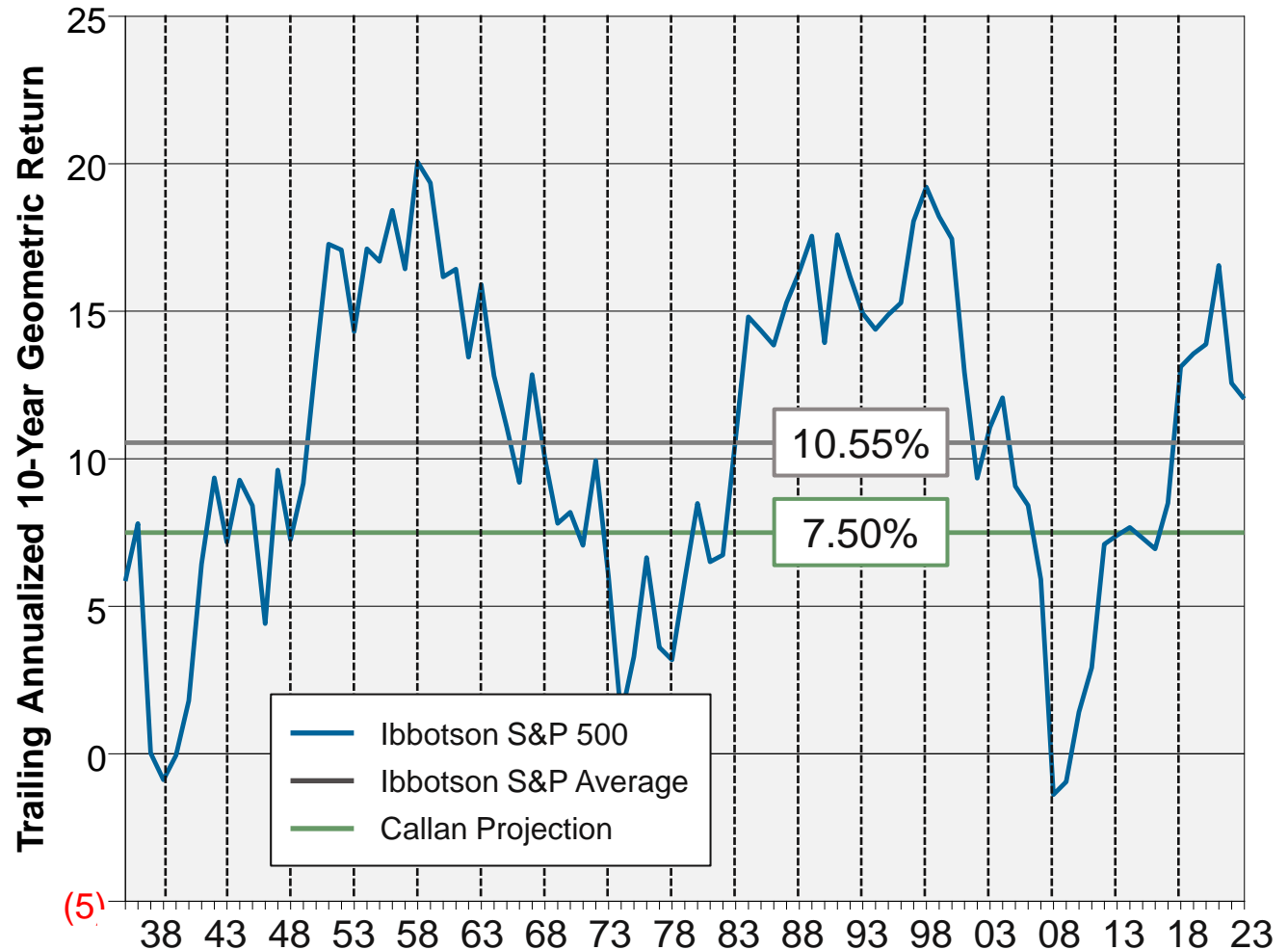
- Callan updates long term capital market projections each year in January and uses them for the full year with all clients for strategic planning purposes.
- Projections take into account long term relationships balanced with current market conditions.
- Consensus expectations (central banks, economists, asset managers, consultants, etc.) are carefully considered as an integral part of the process.
- Each number – **return, risk, correlation** – for every asset class must be individually defensible, and the numbers collectively need to work together as a set to generate reasonable portfolios during strategic planning exercises.
- Projections change slowly over time and are not designed to provide tactical insights.
- Process is executed by Callan's Capital Markets Research group and projections are peer reviewed by Callan's Client Policy Review Committee as well as the hundreds of clients that use them every year.
- Process is battle proven – it has evolved and improved but hasn't fundamentally changed over the last four decades.

US Equity Rolling 10-Year Returns

Historical Perspective – US Large Cap Equity

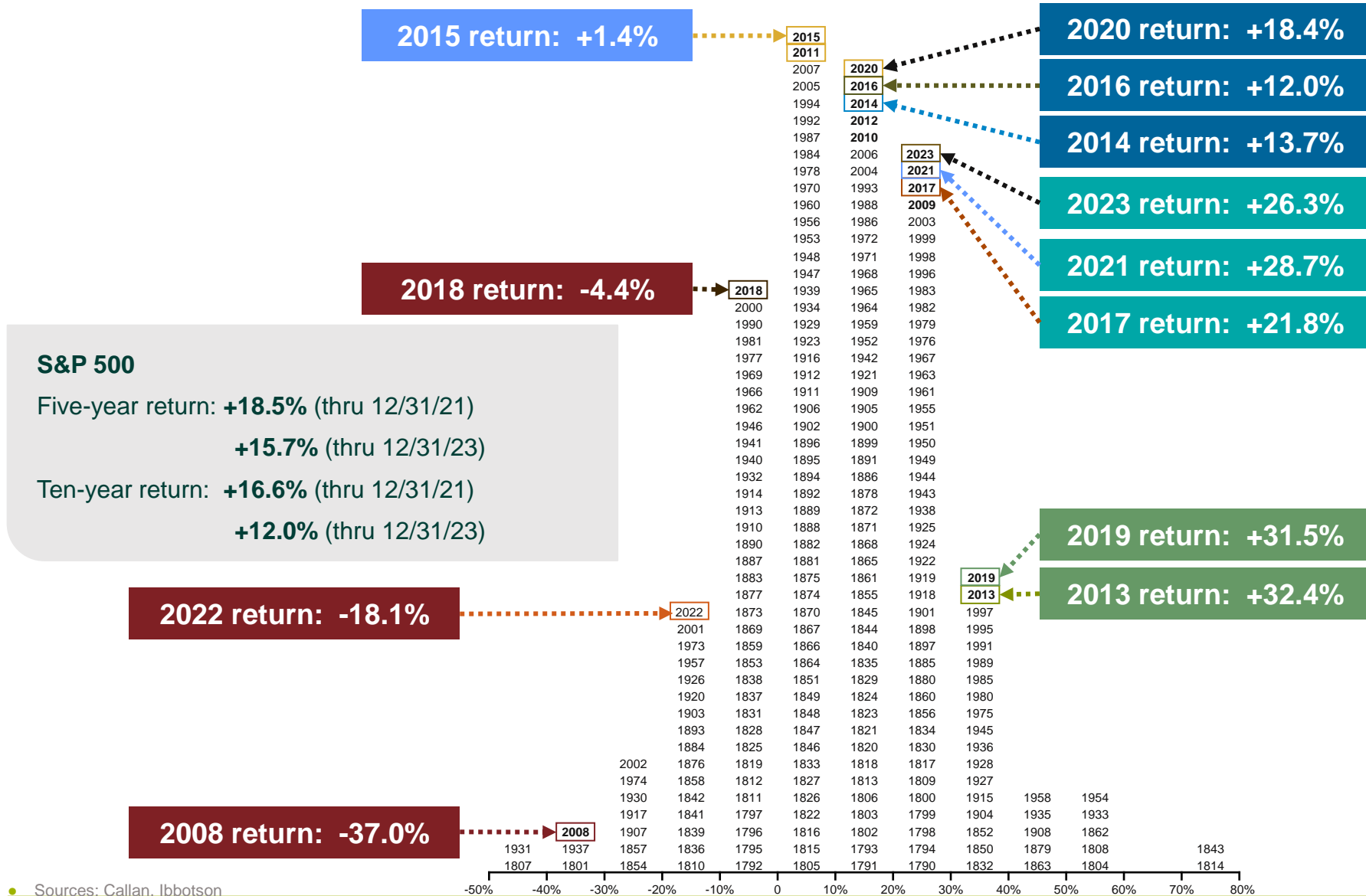
- Historical 10-year return for US large cap has averaged 10.55%.
- 2024 projected return for large cap US equities is 7.50%.
- Historically there have been very few periods of negative 10-year returns for US equities.
- Current outlook is in lower third of historical distribution, driven by relatively high valuations, concentration, and secular decline in equity risk premium.

Rolling 10 Year Returns
US Large Cap Equity (Ibbotson S&P 500)



Stock Market Returns by Calendar Year

Performance in perspective: History of the U.S. stock market (233 years of returns)



Sources: Callan, Ibbotson

U.S. Equity Market: Key Metrics

S&P 500 valuation measures

S&P 500 Index: Forward P/E Ratio

Valuation Measure	Latest	30-year Average*	Std Dev Over-/Under-valued
Forward P/E	19.51x	16.59x	0.90
Shiller's P/E	32.43x	27.55x	0.79
Dividend yield	1.54%	2.00%	1.33
Price to book	3.97x	3.11x	1.10
Price to cash flow	14.82x	11.13x	1.64
EY minus Baa yield	-0.33%	0.04%	0.20



- Forward P/E is one standard deviation above its long-term average of 16.6%

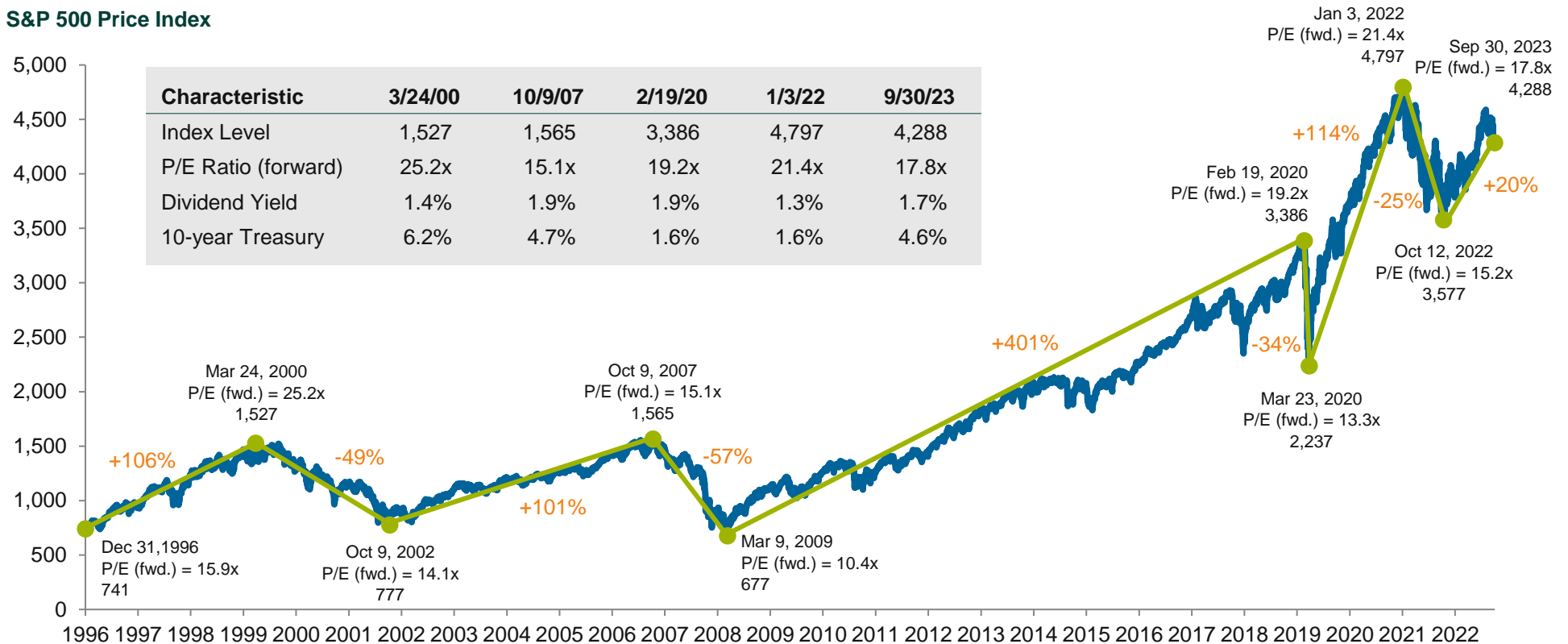
- Source: FactSet, FRB, Refinitiv Datastream, Robert Shiller, S&P Dow Jones Indices, Thomson Reuters, J.P. Morgan Asset Management.
- Price-to-earnings is price divided by consensus analyst estimates of earnings per share for the next 12 months as provided by IBES since December 1998 and by FactSet since January 2022. Current next 12-months consensus earnings estimates are \$245. Average P/E and standard deviations are calculated using 30 years of history. Shiller's P/E uses trailing 10-years of inflation-adjusted earnings as reported by companies. Dividend yield is calculated as the next 12-months consensus dividend divided by most recent price. Price-to-book ratio is the price divided by book value per share. Price-to-cash flow is price divided by NTM cash flow. EY minus Baa yield is the forward earnings yield (consensus analyst estimates of EPS over the next 12 months divided by price) minus the Moody's Baa seasoned corporate bond yield. Std. dev. over-/under-valued is calculated using the average and standard deviation over 30 years for each measure.

*Averages and standard deviations for dividend yield and P/CF are since November 1995 due to data availability. Guide to the Markets – U.S. Data are as of December 31, 2023.

U.S. Equity Market: Price Relative to History

S&P 500 Index at inflection points

S&P 500 Price Index

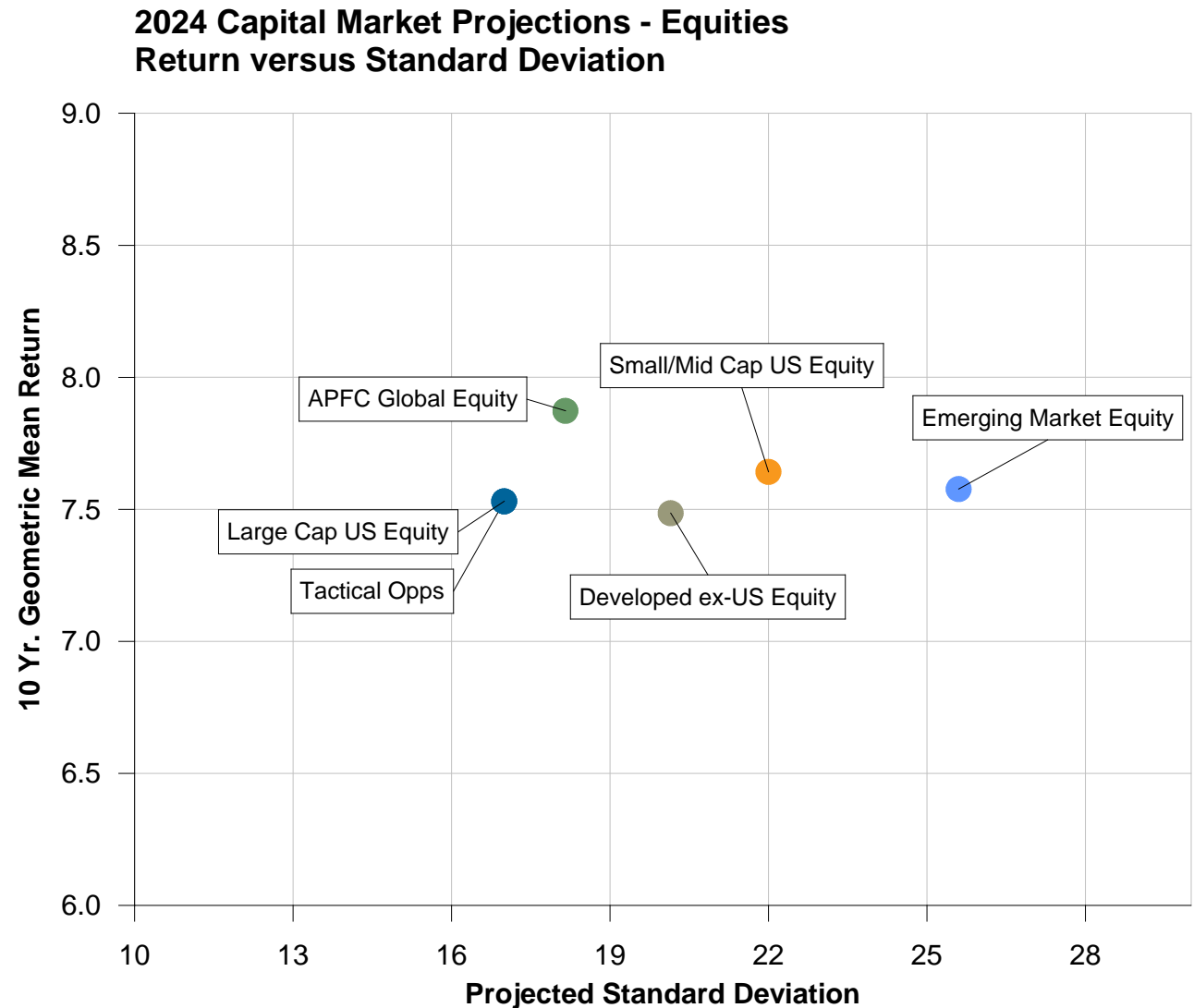


- The S&P is still modestly below its January 2022 peak even after 26% return in 2023
- PE of 19.5x below 2022 levels, and well below 2000.

- Source: Compustat, FactSet, Federal Reserve, Refinitiv Datastream, Standard & Poor's, J.P. Morgan Asset Management.
- Dividend yield is calculated as consensus estimates of dividends for the next 12 months, divided by most recent price, as provided by Compustat. Forward price-to-earnings ratio is a bottom-up calculation based on IBES estimates and FactSet estimates since January 2022. Returns are cumulative and based on S&P 500 Index price movement only, and do not include the reinvestment of dividends. Past performance is not indicative of future returns. Guide to the Markets – U.S. Data are as of December 31, 2023.

2024 Equity Market Projections

- Projected 10-year annualized geometric returns for public equity markets are in the 7.5% to 7.7% range.
- APFC portfolio employs all of the underlying equity markets.
- Diversification results in higher projected return than any single building block (7.85%).
- Higher standard deviation for non-US markets is partially due to currency volatility.

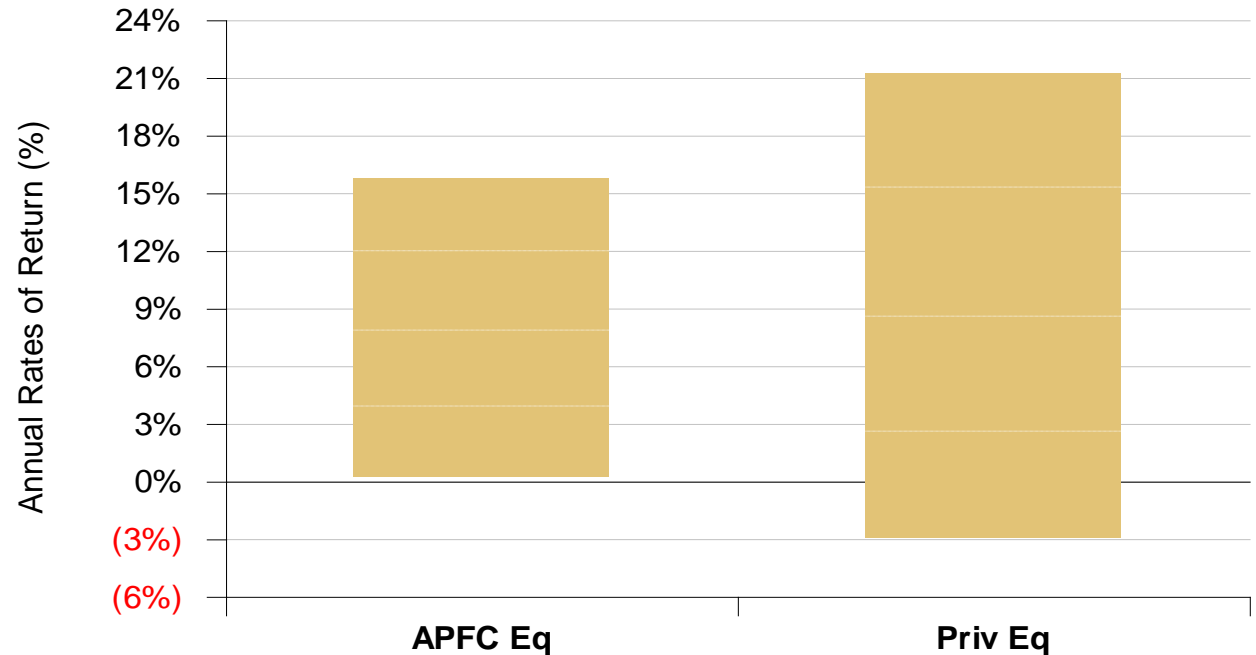


Range of Projected Equity Returns for APFC

10th through 90th Percentile

- Projected mid-point of range of 10-year annualized returns for APFC Public Equity portfolio increased from 7.60% in 2023 to 7.85%
- Projected mid-point for Private Equity portfolio increased from 8.50% to 8.60%
- Valuation lags for private equity resulted in a modestly smaller increase in return expectations.

**Range of Projected Rates of Return
Projection Period: 10 Years**



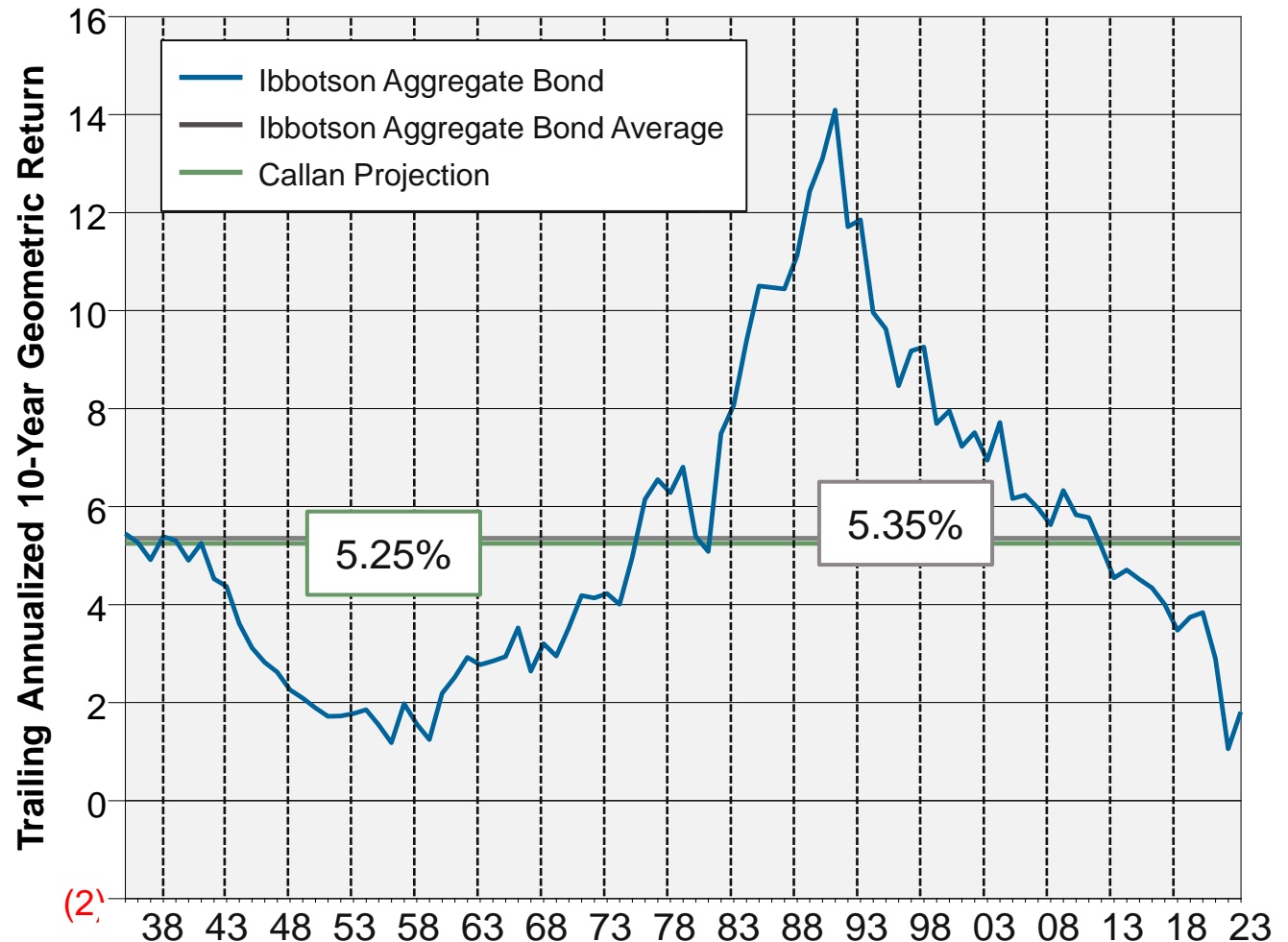
	APFC Eq	Priv Eq
10th Percentile	15.77%	21.23%
25th Percentile	11.99%	15.31%
Median	7.86%	8.58%
75th Percentile	3.90%	2.60%
90th Percentile	0.23%	(2.96%)

US Bonds Rolling 10-Year Returns

Historical Perspective – US Fixed Income

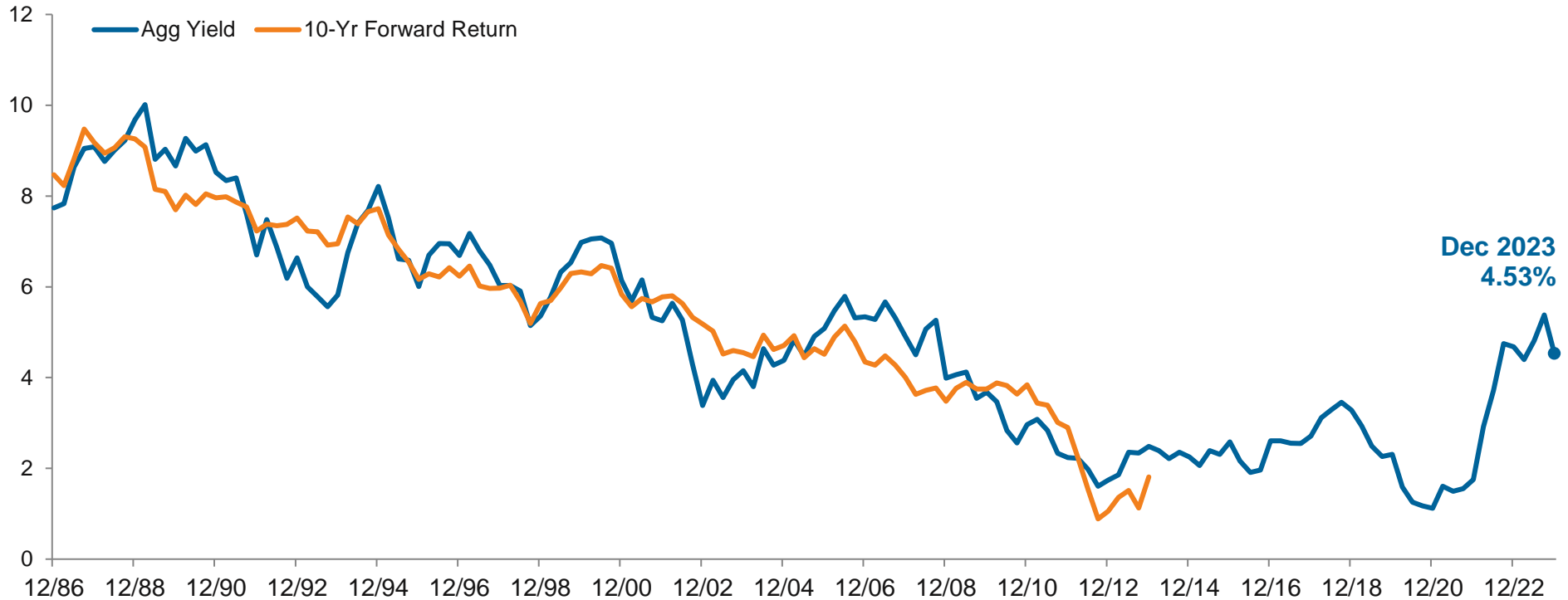
- Historical 10-year return for US bonds has averaged 5.35%.
- 2024 Projection is 5.25%.
- Still no periods historically of negative 10-year return for US bonds.
- Current outlook is in line with long term historical average.
- Rising interest rates have created higher return expectations going forward.
- Consistent cyclical decline in bond returns since 1990.

Rolling 10 Year Returns
US Investment Grade Fixed Income (Ibbotson Aggregate Bond)



Starting Yield Strongly Predicts Forward Returns

Bloomberg Aggregate Index Starting Yield vs. 10-Year Forward Return

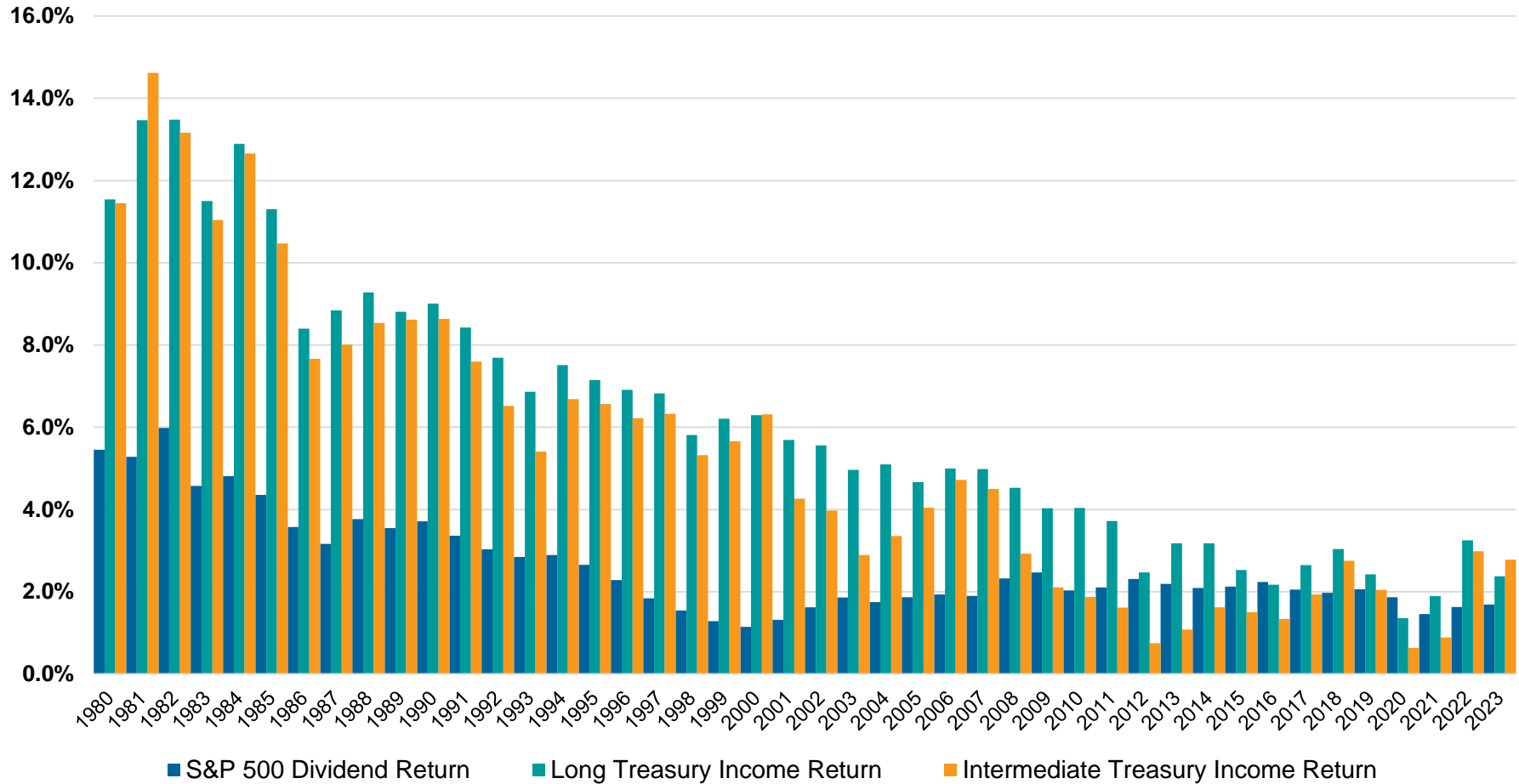


- There is a strong relationship between starting yields and subsequent 10-Year returns.
- Yield on the Bloomberg Aggregate Index was 4.53% as of December 31, 2023.

● Source: Bloomberg Barclays

History of Equity and Bond Yields since 1980

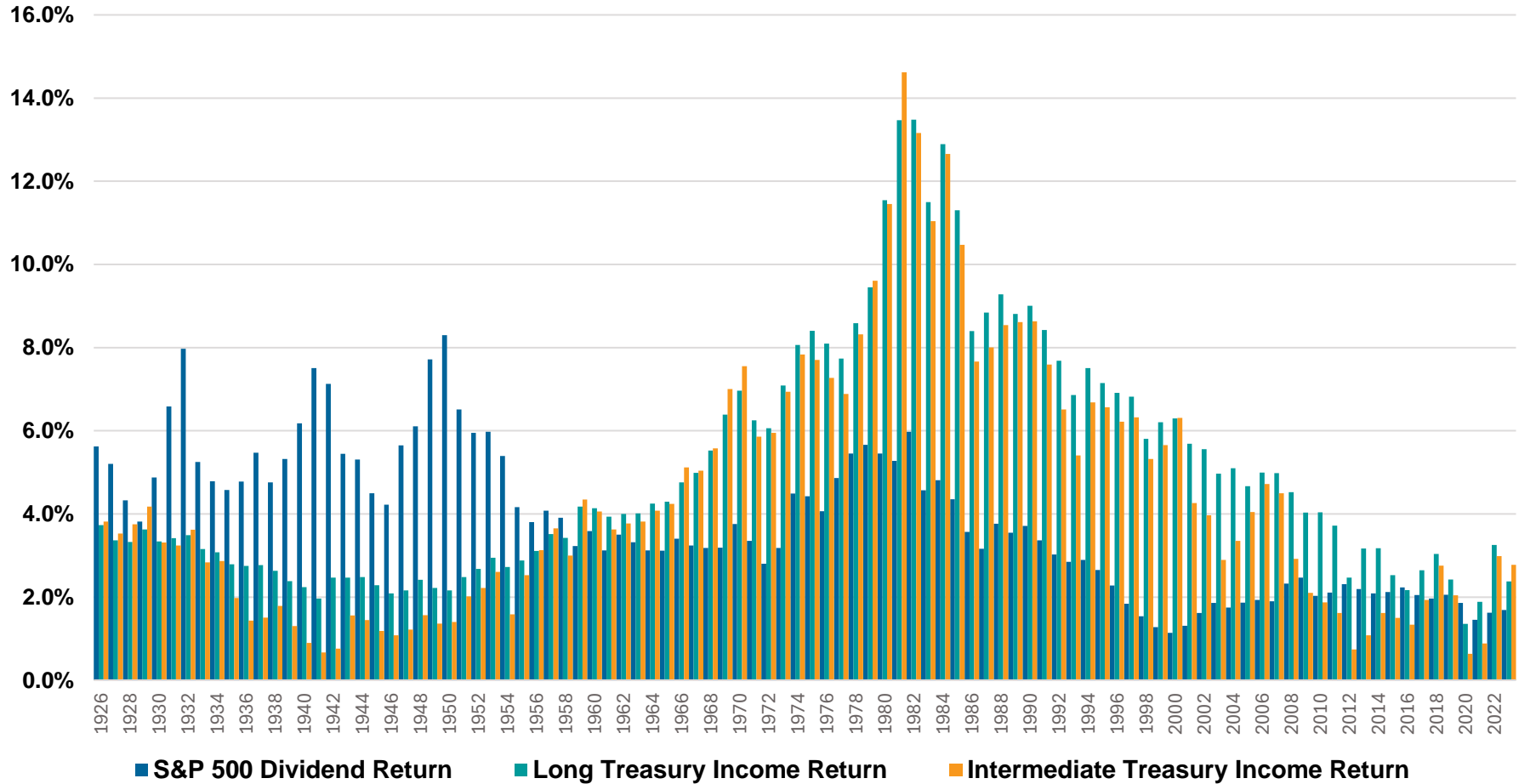
History of Yield (Income Return) on Stocks and Bonds



- Bond yields consistently declined since 1981 through the end of 2021.
- Rose sharply over next two years resulting in worst return for bonds in recorded history.

History of Equity and Bond Yields since 1926

History of Yield (Income Return) on Stocks and Bonds



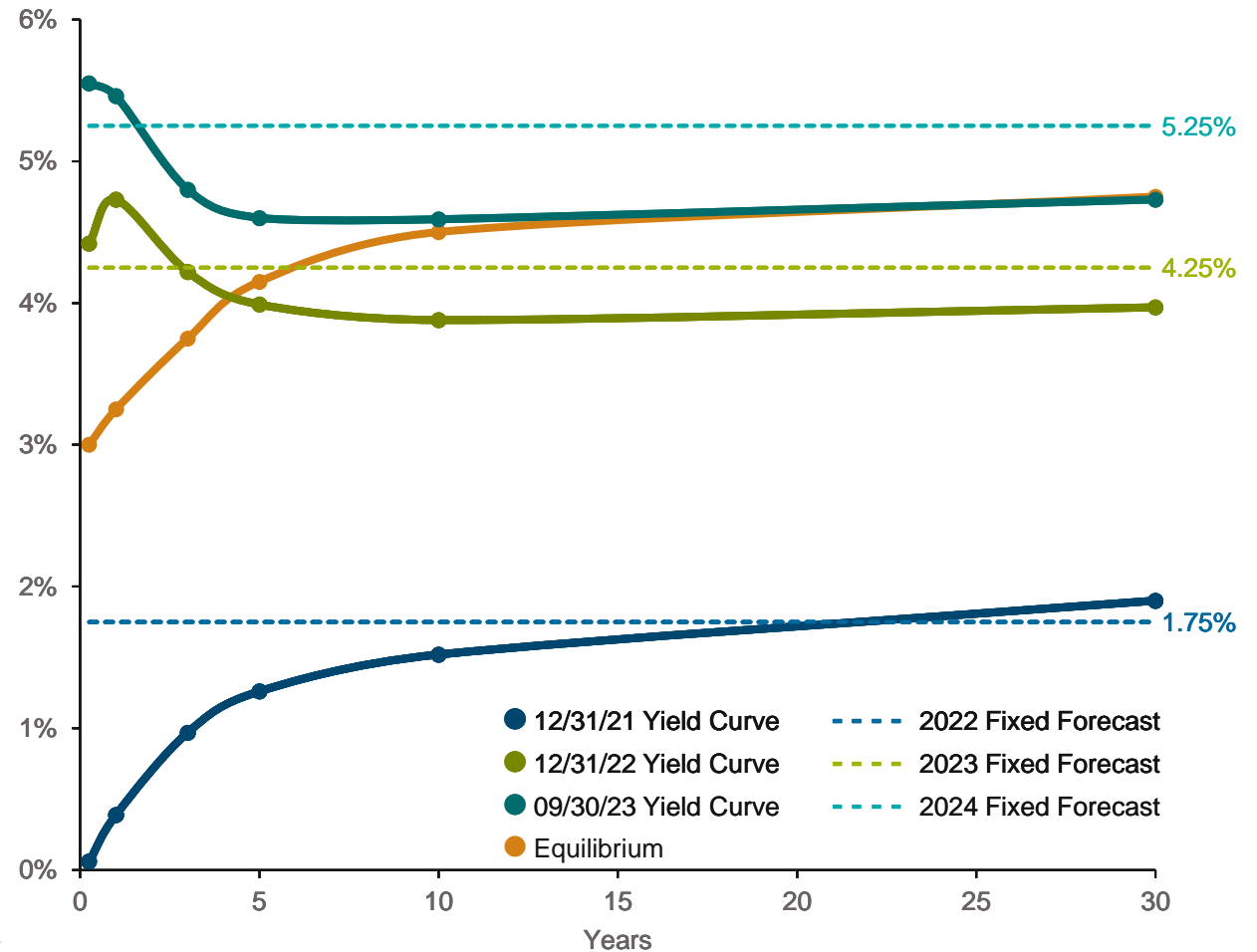
- Check out those dividends pre-1956!
- Equity dividends have only exceeded bond yields once since (2016).

Yield Curve Rose and Inverted in 2022 and 2023

Level and Shape of the Yield Curve Drives Fixed Income Return Projections

- After a historic rise in 2022, the Treasury yield curve continued to rise through the third quarter of 2023.
- Yield curve has been inverted since the middle of 2022.
- Callan's forecasts assume a reversion to an upward sloping yield curve and a long-term equilibrium across the curve.
- We expect a large and swift decline for intermediate- and short-term rates. This drop leads to capital appreciation for sectors with exposure to these areas of the curve.

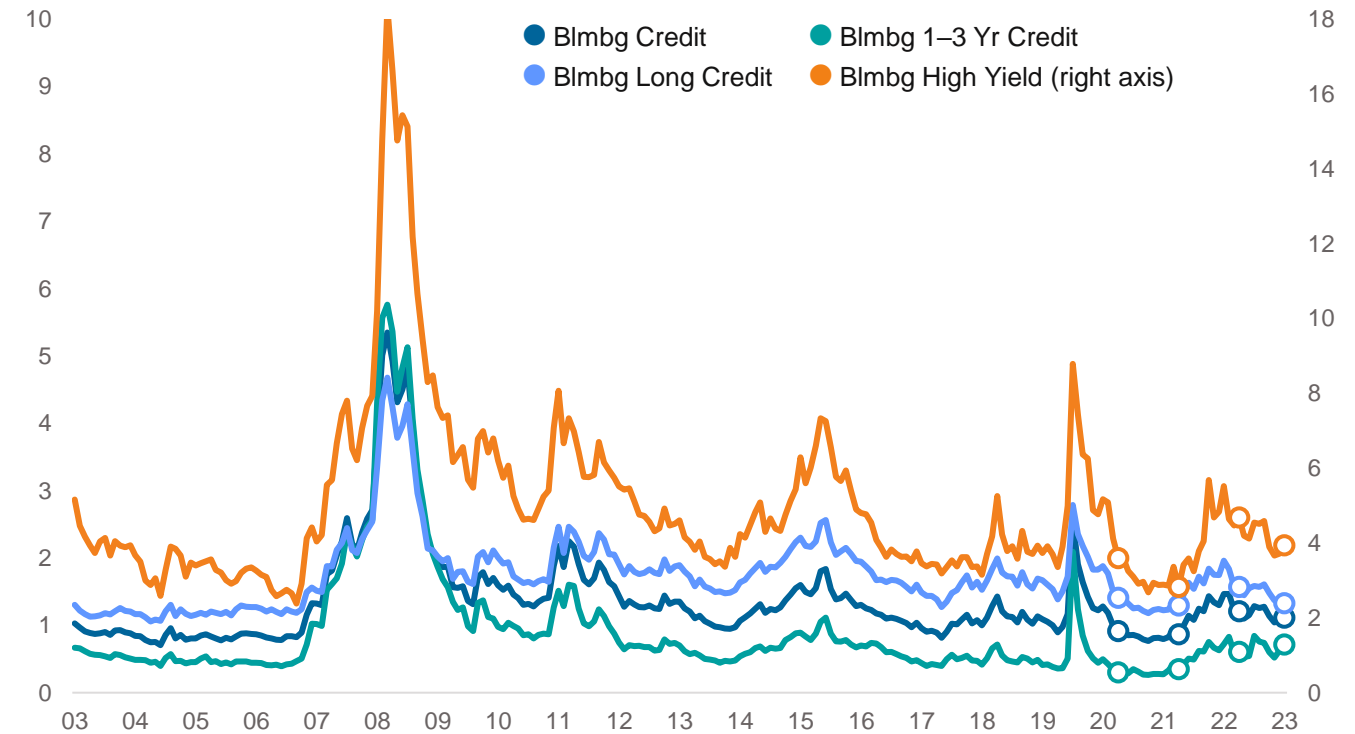
Fixed Income Yields and Forecasts



Spreads Remained Off 2021 Lows but Divergence Emerges

- Spreads widened in 2023 for short-dated credits but tightened in other sectors.
- Callan forecasts assume spreads revert to long-term medians over time.
- Wider spreads on the short end contribute to higher return projections as spreads fall toward equilibrium.
- Tighter spreads in other sectors, particularly long credit, detract from return projections as spreads rise toward equilibrium.

Historical Option Adjusted Spreads (OAS)



	December 2020		December 2021		December 2022		September 2023	
	OAS	Percentile*	OAS	Percentile*	OAS	Percentile*	OAS	Percentile*
Blmbg 1-3 Yr Credit	0.3	3%	0.4	5%	0.6	48%	0.7	63%
Blmbg Credit	0.9	23%	0.9	17%	1.2	50%	1.1	43%
Blmbg Long Credit	1.4	27%	1.3	22%	1.6	39%	1.3	24%
Blmbg HY	3.6	26%	2.8	3%	4.7	60%	3.9	42%

● *Percentiles based on 20-year history of OAS for each respective index.

● Source: Bloomberg

Fixed Income Forecasts

Source: Callan

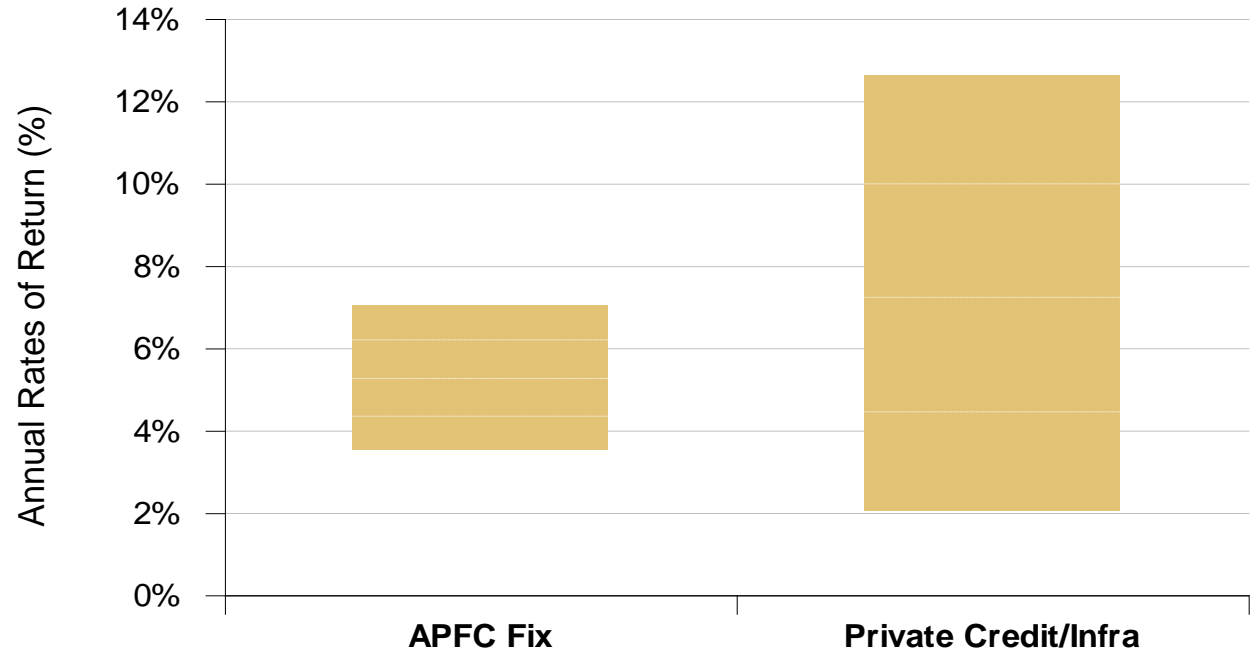
	Income Return	+ Capital Gain/Loss	+ Credit Default	+ Roll Return	=	2024 Expected Return	2023 Expected Return	Change vs. 2023	2022 Expected Return	Change vs. 2022
Cash	3.00%	0.00%	0.00%	0.00%		3.00%	2.75%	0.25%	1.20%	1.80%
1-3 Year Gov/Credit	3.70%	0.40%	-0.10%	0.25%		4.25%	3.80%	0.45%	1.50%	2.75%
1-3 Year Government	3.50%	0.40%	0.00%	0.25%		4.15%	3.60%			
1-3 Year Credit	4.20%	0.40%	-0.20%	0.25%		4.65%	4.00%			
Intermediate Gov/Credit	4.30%	0.30%	-0.10%	0.25%		4.75%	4.10%	0.65%	1.70%	3.05%
Intermediate Gov	3.90%	0.30%	0.00%	0.25%		4.45%	4.00%			
Intermediate Credit	4.90%	0.40%	-0.30%	0.25%		5.25%	4.25%			
Aggregate	4.70%	0.40%	-0.10%	0.25%		5.25%	4.25%	1.00%	1.75%	3.50%
Government	4.20%	0.40%	0.00%	0.25%		4.85%	3.95%			
Securitized	4.50%	0.60%	0.00%	0.25%		5.35%	4.25%			
Credit	5.55%	0.20%	-0.40%	0.25%		5.60%	4.70%			
Long Duration Gov/Credit	5.70%	-0.10%	-0.20%	0.60%		6.00%	4.65%	1.35%	1.80%	4.20%
Long Government	4.80%	0.00%	0.00%	0.60%		5.40%	3.70%			
Long Credit	6.20%	-0.20%	-0.30%	0.60%		6.30%	5.20%			
TIPS	4.30%	0.50%	0.00%	0.25%		5.05%	4.00%	1.05%	1.25%	3.80%
Global ex-U.S. Fixed	2.70%	0.30%	-0.10%	0.25%		3.15%	2.25%	0.90%	0.80%	2.35%
High Yield	8.45%	0.20%	-2.10%	0.25%		6.80%	6.25%	0.55%	3.90%	2.90%
Emerging Markets Debt	7.70%	0.30%	-1.90%	0.25%		6.35%	5.85%	0.50%	3.60%	2.75%
Bank Loans	8.15%	0.00%	-1.60%	0.00%		6.55%	6.10%	0.45%	4.60%	1.95%

Range of Projected Fixed Income Returns for APFC

10th through 90th Percentile

- Projected mid-point of range of 10-year annualized returns for APFC Public Fixed Income portfolio increased from 4.35% in 2023 to 5.25%
- Projected mid-point for Private Credit/Infrastructure portfolio increased from 6.90% to 7.25%
- Changes in yields had a larger impact on the outlook for public fixed income than for private credit and infrastructure

**Range of Projected Rates of Return
Projection Period: 10 Years**



	APFC Fix	Private Credit/Infra
10th Percentile	7.04%	12.62%
25th Percentile	6.20%	9.98%
Median	5.26%	7.23%
75th Percentile	4.34%	4.45%
90th Percentile	3.52%	2.05%

Highlights of 2024 Capital Market Projections

Changes and Observations

- 10-year annualized inflation expectation remained constant at 2.50%.
- Public equity 10-year annualized return projection increased from **7.60%** to **7.85%**. Projected standard deviation (volatility) decreased from 18.50% to 18.15%.
- Public fixed income 10-year annualized return projection increased from **4.35%** to **5.25%**. Projected standard deviation decreased modestly from 4.20% to 4.15%.
- Private real estate projection increased from 5.75% to 6.00%.
- The projected premium of private equity over public markets equity declined year-over-year due to the public markets more fully absorbing valuation adjustments.
- The projected premium of private credit and infrastructure over public fixed income also declined due to similar dynamics in those two asset classes.
- Projected Total Fund return for APFC policy portfolio increased from 7.25% to 7.60% (more on that next).

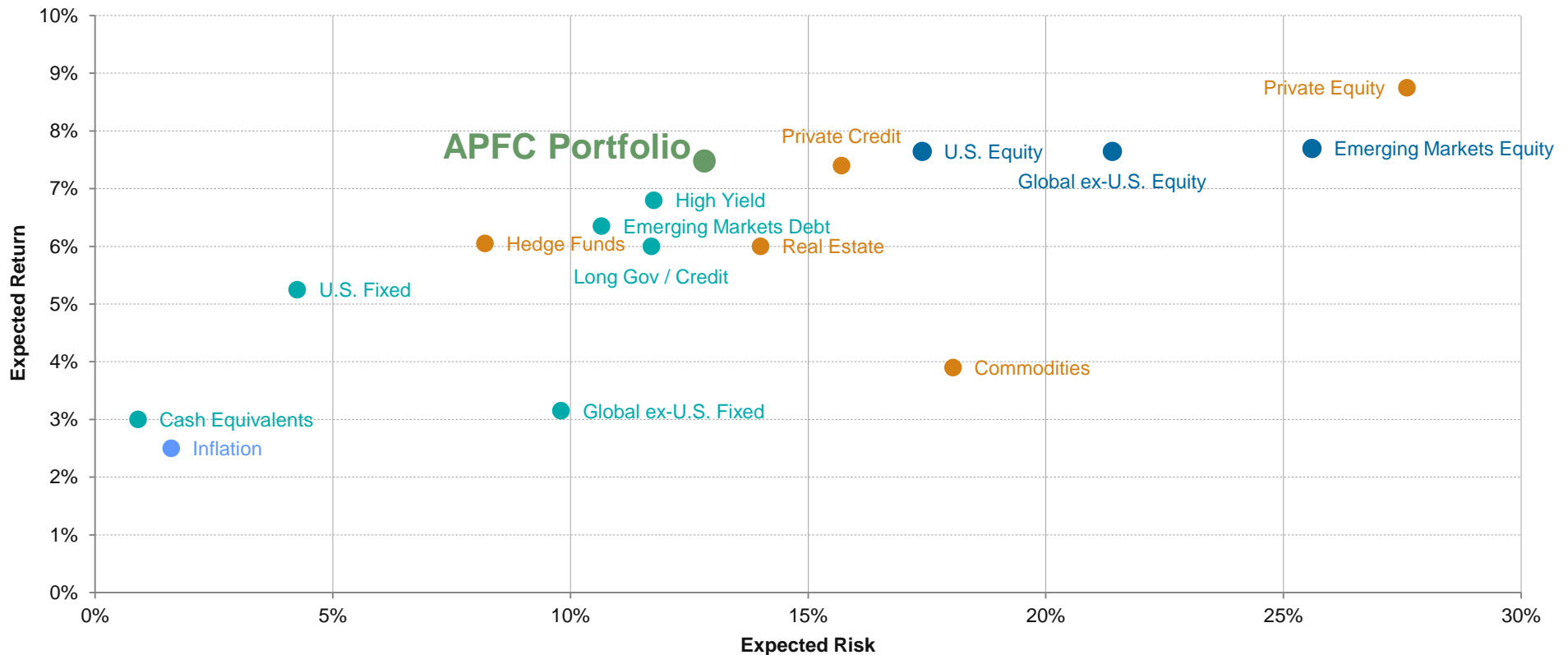
Capital Market Projections

Summary of Callan's Long-Term Capital Market Projections for APFC Asset Allocation Model (FY 2024 - 2033)

Asset Class	Performance Index	PROJECTED RETURN		PROJECTED RISK	
		1-Year Arithmetic	10-Year Geometric Return	Annualized Standard Deviation	Projected Yield
APFC Public Equities		9.25%	7.85%	18.15%	2.85%
Global Equity	MSCI ACWI - IMI	9.25%	7.85%	18.15%	2.85%
APFC Public Fixed Income		5.25%	5.25%	4.15%	4.95%
Cash Equivalents	90-Day T-Bill	3.00%	3.00%	0.90%	3.00%
TIPS	Bloomberg TIPS	5.10%	5.05%	5.40%	4.30%
US Fixed Income	Bloomberg Aggregate	5.25%	5.25%	4.25%	4.70%
US Investment Grade Credit	Bloomberg Credit	5.25%	5.25%	4.70%	4.90%
Non-US Fixed Income	Bloomberg Global Treasury ex-US Hedged	3.60%	3.15%	9.80%	2.70%
Emerging Market Debt	50/50 JPM EMBI/JPM GBI	6.75%	6.35%	10.65%	7.70%
High Yield	Bloomberg US High Yield 2% Issuer Cap	7.30%	6.80%	11.75%	8.45%
US Securitized	Bloomberg US Securitized	5.30%	5.35%	3.00%	4.50%
Private Equity		12.15%	8.75%	27.60%	0.00%
Private Equity	Cambridge Private Equity (lag)	12.15%	8.75%	27.60%	0.00%
Private Real Estate		6.85%	6.00%	14.00%	4.00%
Real Estate	NCREIF Total Index (lag)	6.85%	6.00%	14.00%	4.00%
Private Infrastructure/Credit		7.75%	7.20%	12.40%	5.85%
Private Infrastructure	Cambridge Global Private Infra (lag)	7.30%	6.35%	15.20%	4.80%
Private Credit	Bloomberg US High Yield (lag)	8.40%	7.40%	15.70%	7.40%
Absolute Return		6.25%	6.05%	8.20%	0.00%
Hedge Funds	HFRI Total HFOF Universe	6.25%	6.05%	8.20%	0.00%
Tactical Opportunities		8.70%	7.50%	17.00%	2.00%
Tactical Opportunities	S&P 500	8.70%	7.50%	17.00%	2.00%
Cash Equivalents		3.00%	3.00%	0.90%	3.00%
Hedge Funds	90-Day T-Bill	3.00%	3.00%	0.90%	3.00%
Total Fund	APFC Total Fund Target	8.15%	7.60%	12.65%	2.95%
Inflation	CPI-U		2.50%	1.60%	

Relationship Between Expected Return and Volatility

Visualizing Callan's Capital Markets Assumptions

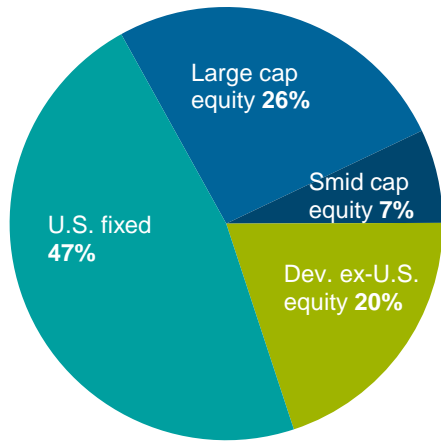


Expected Return Increases with Increased Expected Risk

- For example, investors demand a greater return from private equity than public equity as compensation for higher implementation risk and lower liquidity
- Lower correlation asset classes can fall below the capital markets line and still be efficient components of a diversified portfolio (e.g. Global ex-US Fixed, Emerging Market Equity)

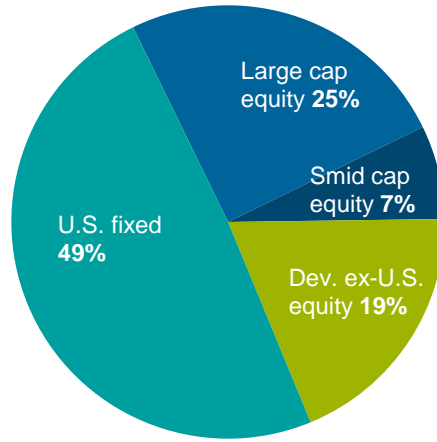
5% Expected Real Returns Over Past 30 Years

Increasing Complexity →



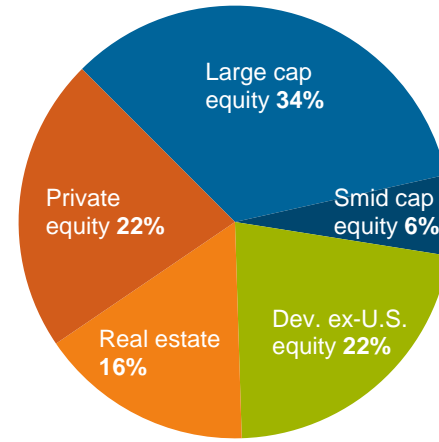
1994

Inflation: 3.75%
Real Return: 5.0%
Risk: 9.6%



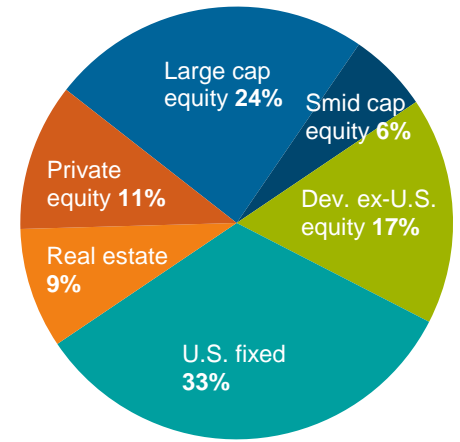
2009

Inflation: 2.75%
Real Return: 5.0%
Risk: 8.9%



2022

Inflation: 2.25%
Real Return: 5.0%
Risk: 17.8%



2024

Inflation: 2.50%
Real Return: 5.0%
Risk: 11.5%

Increasing Risk →

Despite a 3.75% inflation projection, an investor could have almost half of the portfolio in low-risk assets (fixed income) and still earn a 5% projected real return in 1994.

15 years later, an institutional investor would have needed to maintain essentially the same asset allocation to achieve a 5% projected real return despite a 100 basis point decline in inflation.

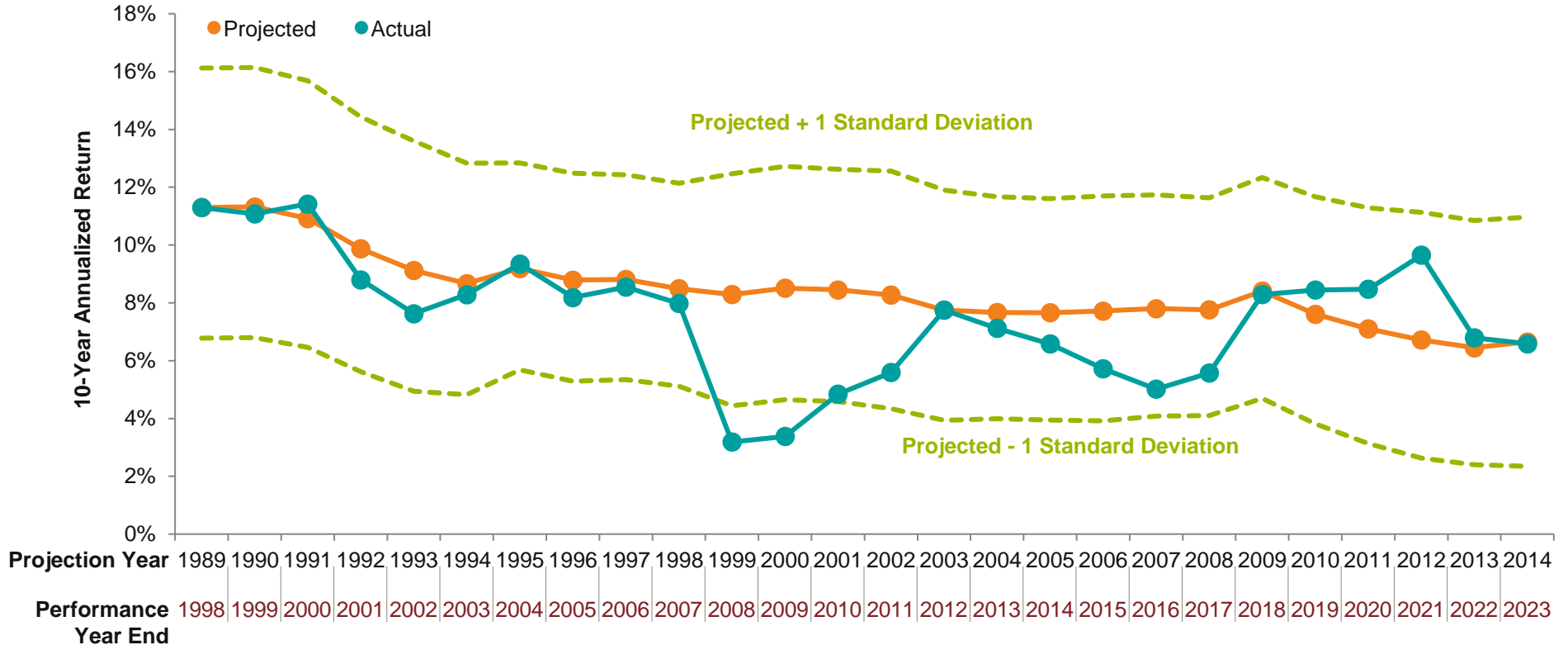
In 2022 an investor required 100% of the portfolio in return-seeking assets to earn a 5% projected real return at almost double the volatility compared to 1994.

Today's 5% expected real return portfolio is much more reasonable than it was in 2022, with a third of the portfolio in fixed income and a correspondingly lower level of risk.

Actual Returns versus Callan Projections

Historical Comparison: Actual Returns vs. Callan Capital Markets Projections

Portfolio (60% Equity, 30% Fixed, 10% Real Estate)



- Our projections have generally been within one standard deviation of the future actual return
- The glaring exceptions are the 10-year periods ended in 2008 and 2009 which contained not one but two major collapses in the equity market: the Dot-Com Bubble in 2001-02 and the Global Financial Crisis in 2008



Alaska Permanent Fund Corporation

Projected Returns for FY 2024 Target
Asset Allocation

APFC Policy Mix

Callan's 2023 Capital Market Projections

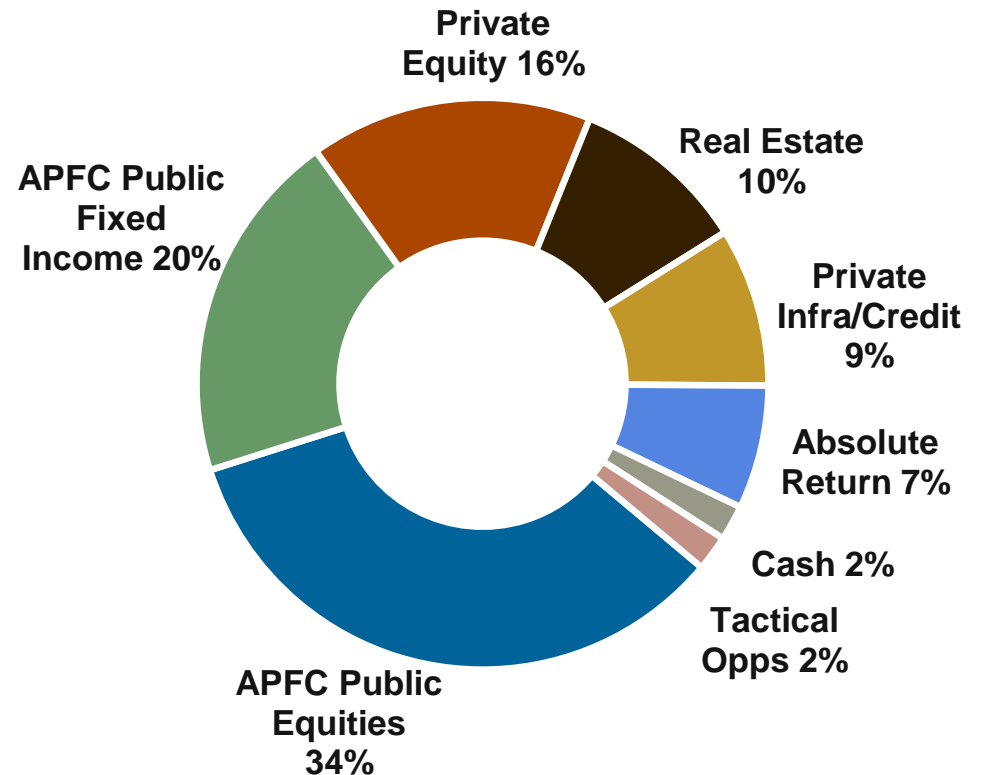
- Projected range of 10-year annualized return
- Projected range of 10-year annualized real return
- Asset allocation compared with peers
- Efficient Frontier analysis

APFC FY 2024 Total Fund Policy Target

Target Asset Allocation

- The Alaska Permanent Fund remains broadly diversified across all major public and private institutional asset classes
- Roughly 58% allocated to public market investments (publicly traded equities and fixed income) and 42% to private markets
- Exposures to private equity, private infrastructure and private credit have been methodically increasing over the last decade at the expense of public equity, fixed income and real assets

FY 2024 Total Fund Target



APFC FY 2024 Target versus Large Public Funds

Target Asset Allocation Comparison

- **Low Public Equity**

- Lower allocation to public equities than 76% of Public Funds.
- Median is 45%, APFC is 34%.

- **Median Public Fixed Income**

- Slightly below median allocation to public fixed income.
- Median is 22%, APFC is 20%.

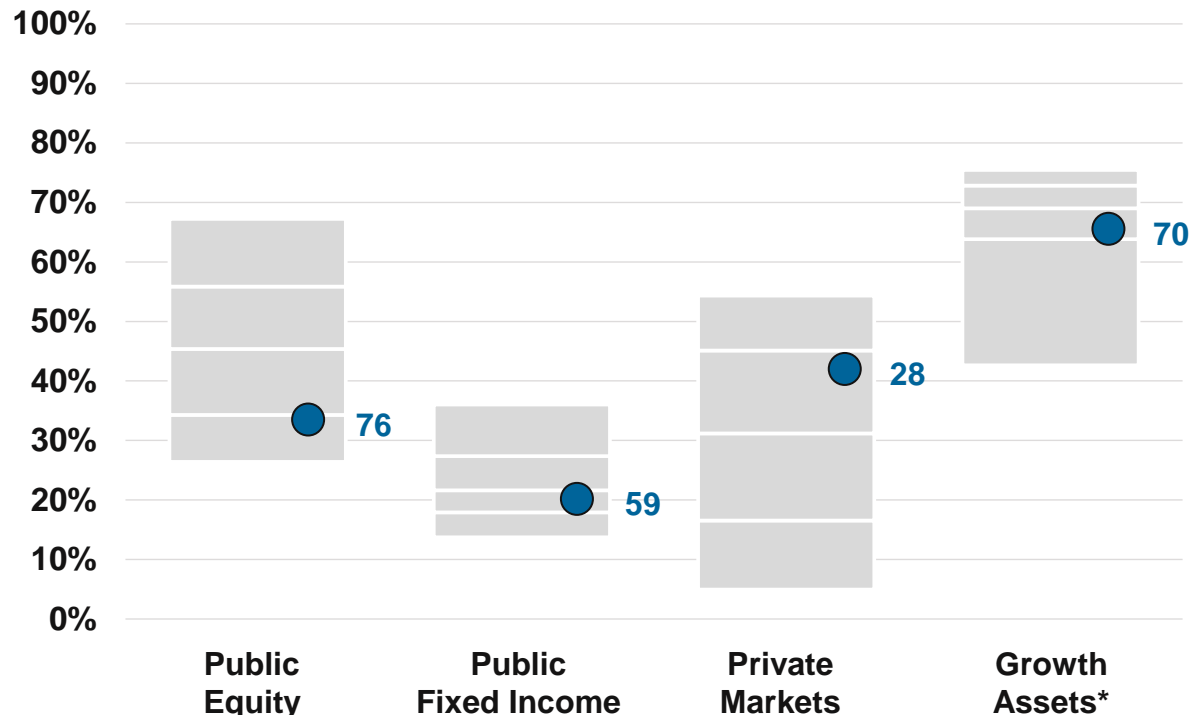
- **High Private Markets**

- Higher allocation to private markets than 72% of Public Funds.
- Median is 31%, APFC is 42%

- **Low Growth Assets**

- Slightly below median allocation to Growth Assets
- Median is 69%, APFC is 65%

Asset Allocation Distribution as of December 31, 2023
Callan Large Public Fund (> \$1 billion)



	Public Equity	Public Fixed Income	Private Markets	Growth Assets*
APFC	34%	20%	42%	65%
Median	45%	22%	31%	69%
Rank	76%	59%	28%	70%

*Growth Assets include public equity, private equity, tactical opportunities, 70% of private real estate, 70% of private infrastructure/credit.

APFC FY 2024 Target versus Large Endowment/Foundations

Target Asset Allocation Comparison

- **High Public Equity**

- Higher allocation to public equities than 68% of E&F's.
- Median is 30%, APFC is 34%.

- **High Public Fixed Income**

- Higher allocation to public fixed income than 70% of E&F's.
- Median is 11%, APFC is 20%.

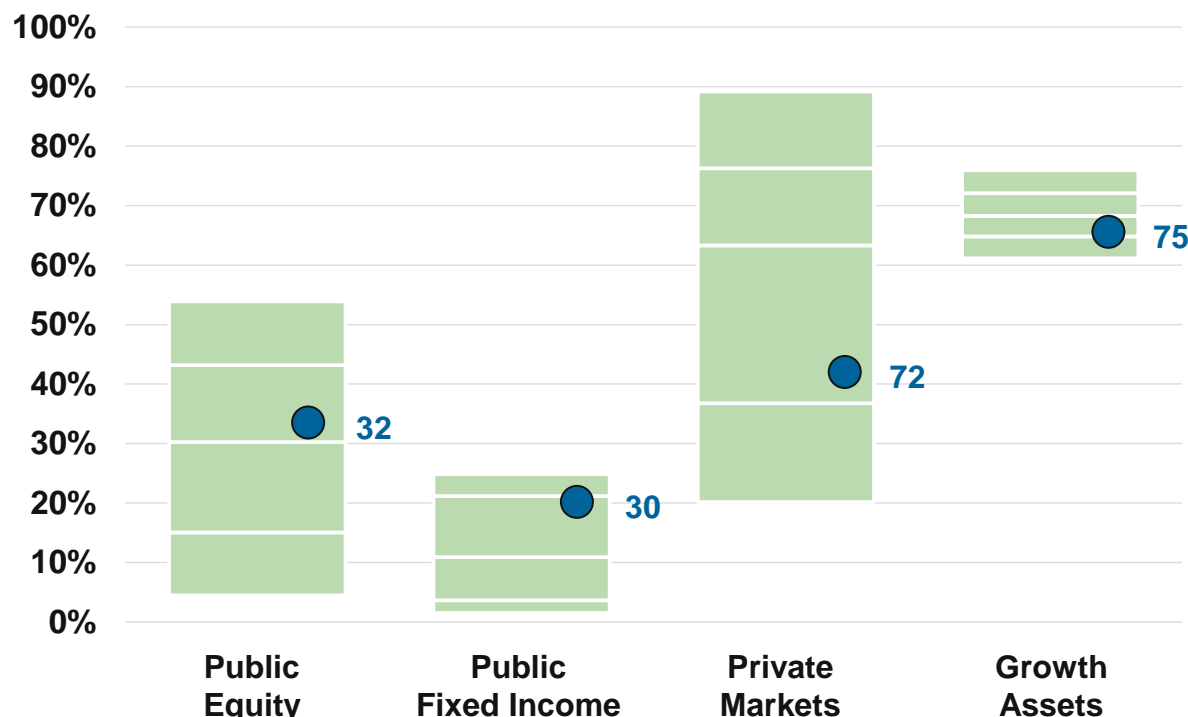
- **Low Private Markets**

- Lower allocation to private markets than 72% of E&F's.
- Median is 63%, APFC is 42%

- **Low Growth Assets**

- Slightly below median allocation to Growth Assets
- Median is 68%, APFC is 65%

Asset Allocation Distribution as of December 31, 2023
Callan Large Endowment/Foundation (> \$1 billion)



	Public Equity	Public Fixed Income	Private Markets	Growth Assets
APFC	34%	20%	42%	65%
Median	30%	11%	63%	68%
Rank	32%	30%	72%	75%

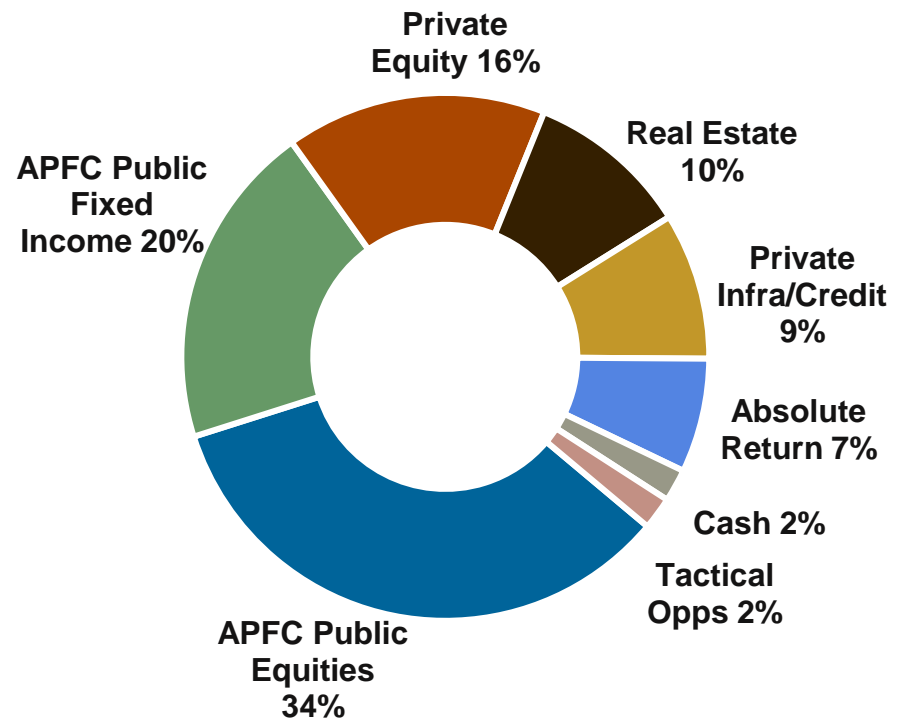
*Growth Assets include public equity, private equity, tactical opportunities, 70% of private real estate, 70% of private infrastructure/credit.

APFC FY 2024 Total Fund Policy Target

Projected Return and Standard Deviation

- Projected median 10-year annualized return of **7.60%** is roughly 35 basis points higher than last year.
- Inflation expectation remained the same at **2.50%**.
- Projected median 10-year annualized real return of **5.10%** is an increase of roughly 35 basis points relative to last year.
- Projected standard deviation of **12.65%** is 50 basis points lower than last year.
- Percent probability of exceeding 7.5% annualized return over 10-year horizon is estimated to be **51%**.
- Percent probability of exceeding 7.1% (median effective real payout) is estimated to be roughly **54%**.

FY 2024 Total Fund Target

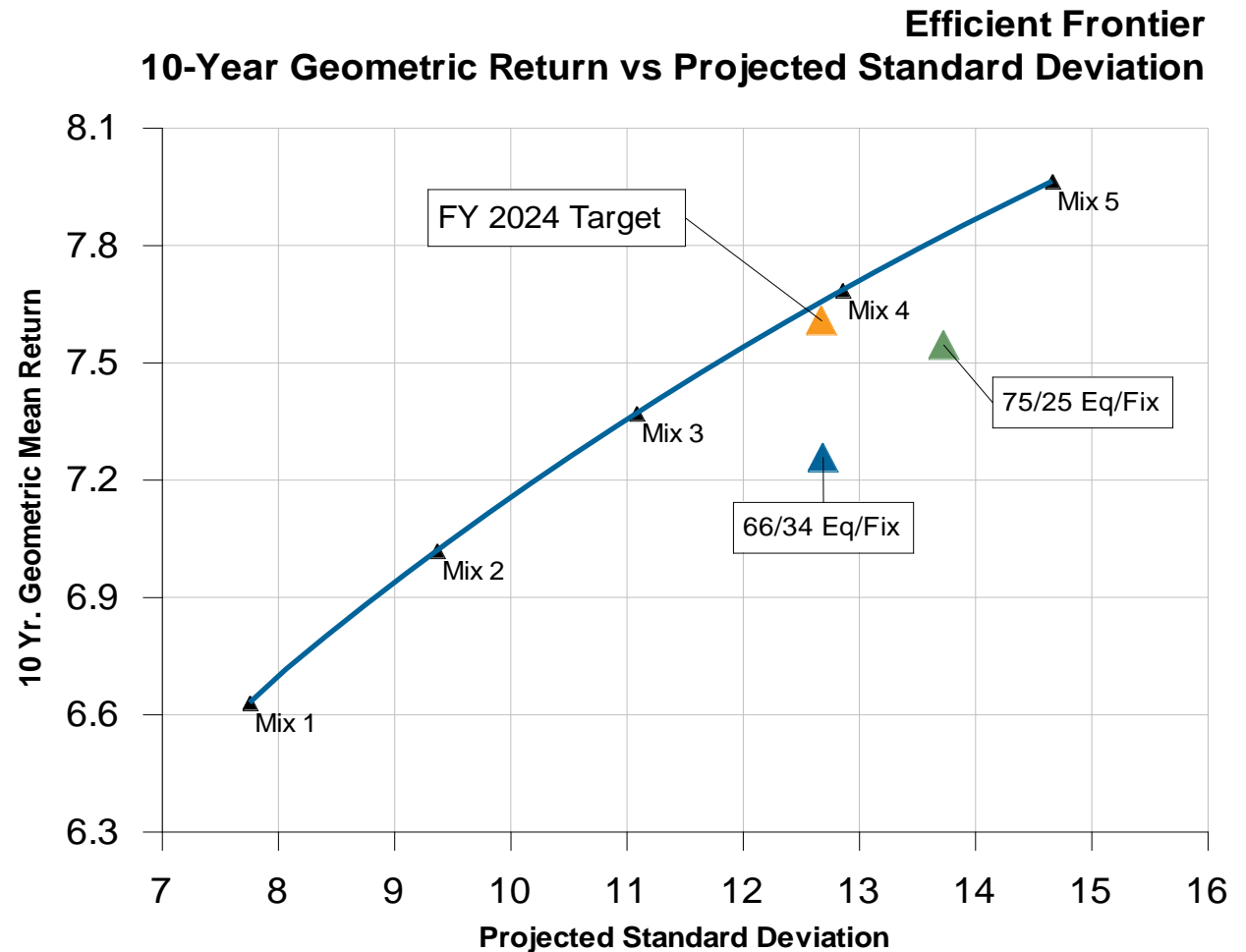


Expected 10-year Geometric Return:	7.60%
Expected Standard Deviation:	12.65%
Expected Inflation:	2.50%
Expected Real Return:	5.10%

Constrained Efficient Frontier Analysis (50% Private Assets)

Projected Return and Standard Deviation

- Efficient frontier with 50% private markets constraint.
- Strategic Policy target portfolio is slightly below the constrained efficient frontier due to 2% cash allocation and private markets allocation of 42%.
- 75/25 Equity/Fixed portfolio is pure public markets portfolio with slightly lower expected return and higher risk.
- APFC Policy Target has a roughly **35** basis point projected return premium over 66/34 public markets (portfolio with same projected risk).



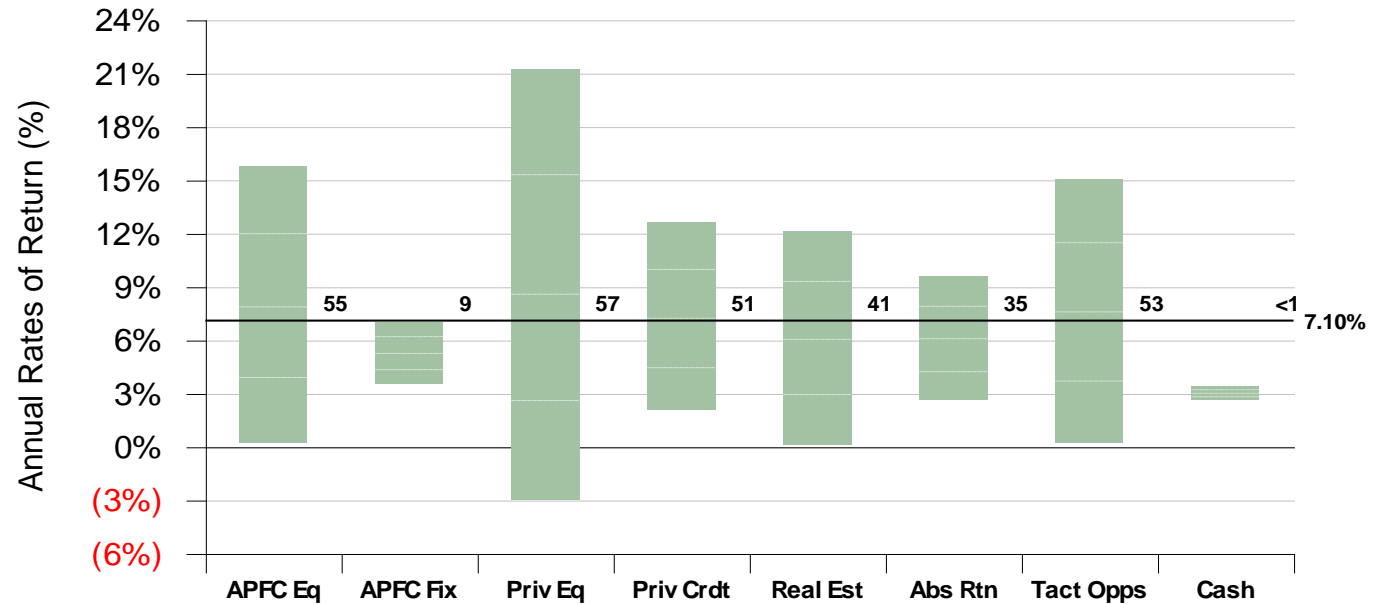
*75/25 Equity/Fixed portfolio assumes 75% allocation to APFC Global Equity benchmark and 25% allocation to Bloomberg Aggregate Index

Range of Projected Returns

10th through 90th Percentile

- Projections are ranges not point estimates
- Point estimates are impossible to forecast
- Forecasting ranges is a more realistic goal
- Range forecasts can supply reasonable estimates for probabilities of exceeding a threshold return
- Projected probability of 2023 Target Mix exceeding 7.5% annualized return over 10 years is roughly 48%

Range of Projected Rates of Return
Projection Period: 10 Years



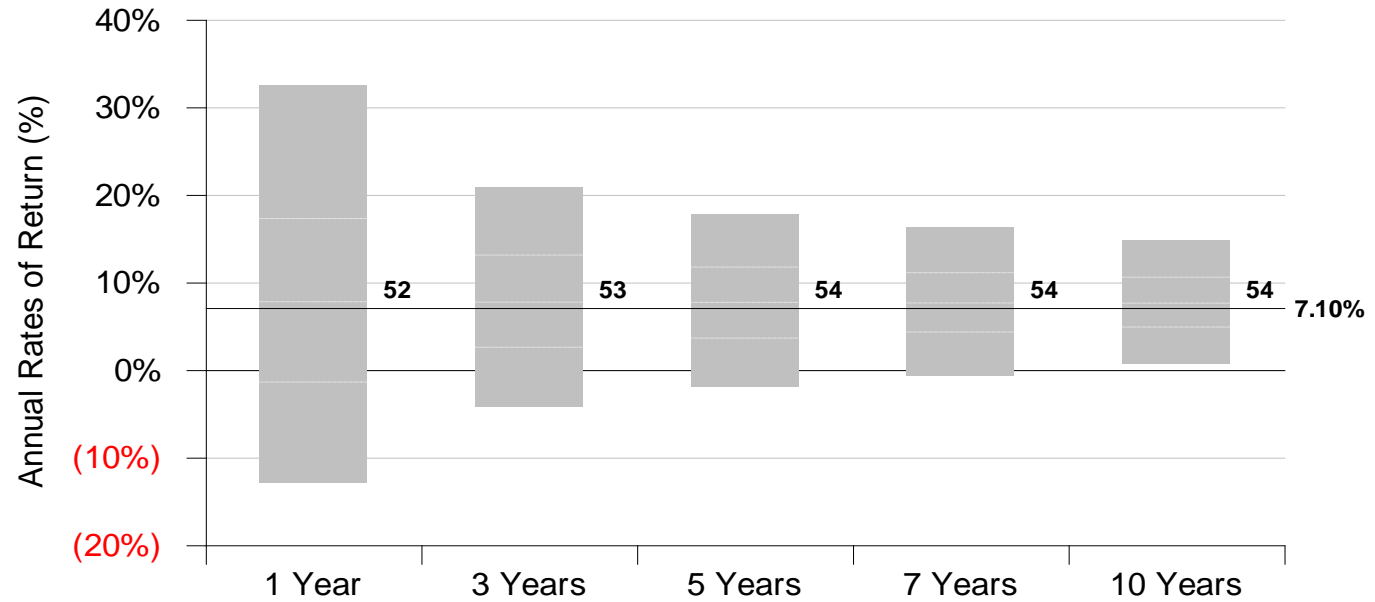
	APFC Eq	APFC Fix	Priv Eq	Priv Crdt	Real Est	Abs Rtn	Tact Opps	Cash
10th Percentile	15.77%	7.04%	21.23%	12.62%	12.12%	9.61%	15.04%	3.39%
25th Percentile	11.99%	6.20%	15.31%	9.98%	9.30%	7.91%	11.47%	3.21%
Median	7.86%	5.26%	8.58%	7.23%	6.04%	6.08%	7.58%	3.02%
75th Percentile	3.90%	4.34%	2.60%	4.45%	2.95%	4.23%	3.71%	2.82%
90th Percentile	0.23%	3.52%	(2.96%)	2.05%	0.13%	2.63%	0.27%	2.65%
Prob > 7.10%	55.1%	9.3%	57.0%	51.3%	41.3%	35.4%	53.4%	<1.0%

Range of Projected Returns over Various Time Periods

10th through 90th Percentile

- POMV spending rule is equal to 5% of the average ending market value for the first five of the trailing six years
- Given expected positive returns, this translates to an effective payout (relative to the most recent market value) of roughly 4.6%
- Adding 2.5% inflation to 4.6% yields a target threshold return of 7.1%
- Projected probability of 2024 Target Mix exceeding 7.1% annualized return over 10 years is roughly 54%

**Range of Projected Annualized Total Return
FY 2024 Target**



5th Percentile	32.5%	20.8%	17.8%	16.3%	14.7%
25th Percentile	17.3%	13.1%	11.7%	11.1%	10.5%
Median	7.8%	7.7%	7.7%	7.6%	7.6%
75th Percentile	(1.4%)	2.6%	3.6%	4.3%	4.9%
95th Percentile	(12.9%)	(4.2%)	(2.0%)	(0.6%)	0.7%
Prob > 7.10%	52.1%	53.0%	53.9%	54.3%	54.2%

Concluding Observations

Callan's 2023 Capital Market Projections

- No change in inflation expectation of 2.50%
- Public equity return projections were increased modestly
- Public fixed income return projections increased significantly
- Yield expectations up across the board
- Private market return expectations also increased but by smaller percentage
- APFC Policy Target is well diversified and lies close to the efficient frontier for portfolios with a target of 50% private markets
- Expected nominal and real return for APFC portfolio increased relative to last year
- APFC Policy Target has lower projected risk and higher expected return relative to a public markets portfolio with a 75% allocation to Global Equity and 25% allocation to US Fixed Income.
- The projected probability of exceeding the effective POMV annual payout of 4.6% (of current market value, 5% of trailing average) increased to over 54%.



Alaska Permanent Fund Corporation

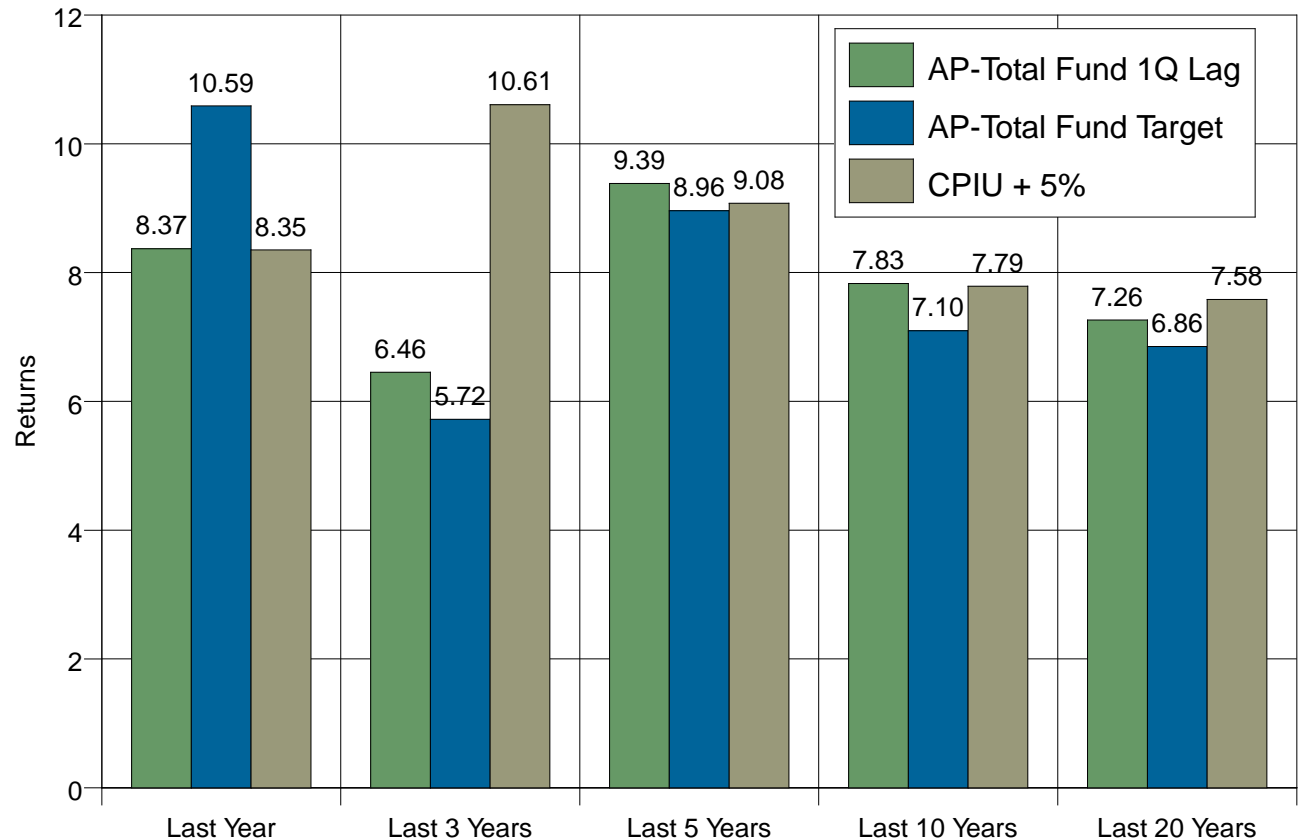
Performance Review for Periods
Ending December 31, 2023

APFC Total Fund Historical Returns

Total Fund versus Total Fund Targets

- Total Fund is ahead of benchmark (APFC Total Fund Target) for all time periods other than the most recent year
- Total Fund trails the CPI + 5% objective over the last three years over the 10 and period
- While the Total Fund protected well on the downside in 2022, it failed to capture the market snap-back in 2023

Net of Fee Returns for Periods Ending December 31, 2023



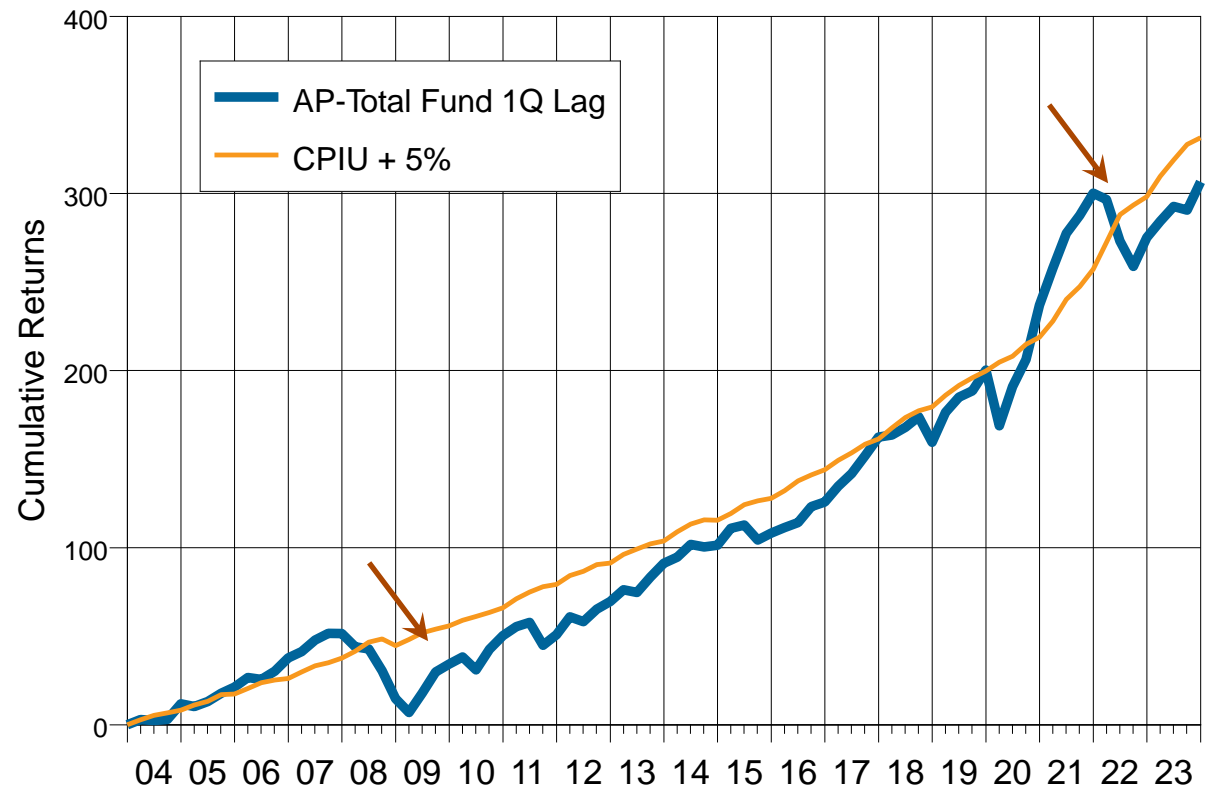
Current APFC Total Fund Target (FY23-FY24) = 34% MSCI ACWI IMI, 3.0% 90 Day T-Bills, 1.0% BB US TIPS, 5.5% BB Agg, 5.5% BB Corp IG, 3.0% BB Global Treasury xUS Hdgd, 2.0% BB US BB HY, 2.0% BB US Securitized, 16% Cambridge PE (lagged), 8.5% NCREIF Total Index (lagged), 1.5% MSCI US REIT (lagged), 5.4% Cambridge Global Pvt. Infrastructure (lagged), 3.6% Cliffwater Direct Lending TR (lagged), 3.5% HFRI EH Equity Market Neutral, 3.5% HFRI Macro, 2.0% S&P 500

APFC Total Fund Cumulative Return vs CPI + 5%

Total Fund versus Return Objective

- Chart shows the path of Total Fund returns versus the long-term return objective of CPIU + 5%
- Over the long term the Total Fund has fallen slightly behind the objective
- The volatility of an investment strategy that can keep pace with this objective over the long term will result in periods underperformance

Net of Fee Cumulative Returns
for 20 Years Ended December 31, 2023

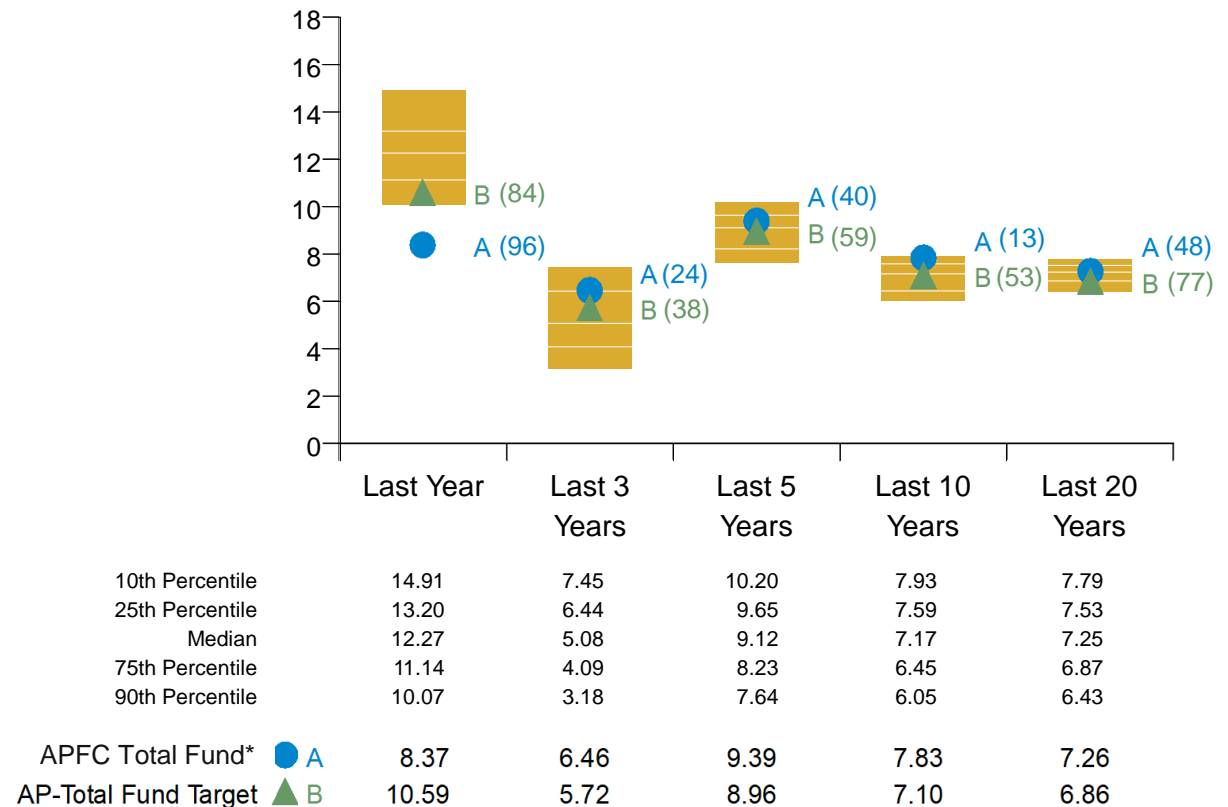


APFC Total Fund Ranking versus Large Public Funds

Total Fund versus Large Public Fund Peer Group

- Total Fund ranks very competitively versus large public funds over longer time periods
- Underperformance over the last year was significant due to higher public equity allocations in larger public funds
- Over the last year, the APFC public and private equity portfolios have underperformed their respective benchmarks

Returns for Periods Ended December 31, 2023
Group: Callan Public Fund Sponsor - Large (>1B)



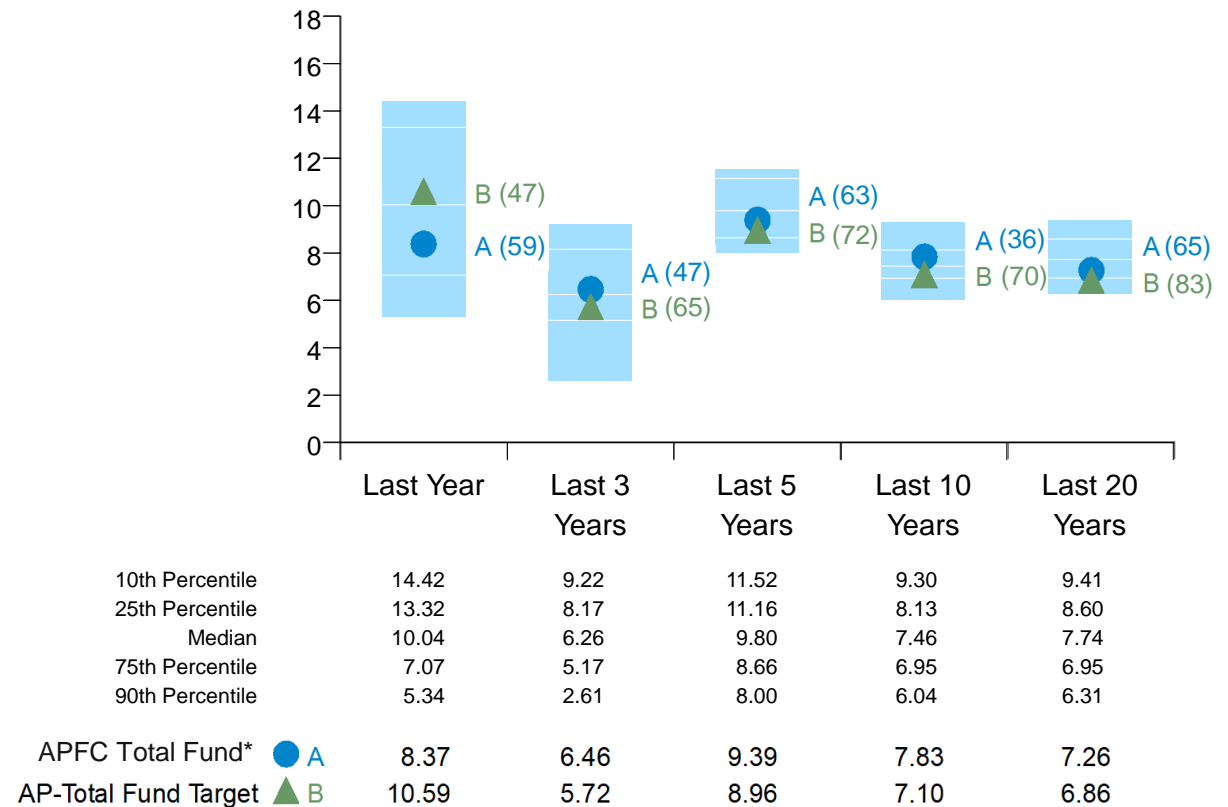
*APFC Total Fund is shown net of all fees, with performance for private market investments (including Private Equity & Special Opportunities, Real Estate, Infrastructure and Private Income) reported on a one-quarter lag.

APFC Total Fund Ranking versus Large Endowment Funds

Total Fund versus Large Endowment/Foundation Fund Peer Group

- Total Fund ranks closer to median versus Large Endowment and Foundation universe
- This is because the APFC asset allocation target has evolved to look increasingly like that of a large endowment
- Endowments typically employ large allocations to private markets investments that have not experienced the same price appreciation in 2023 of public markets investments

Returns for Periods Ended December 31, 2023
Group: Callan Endow/Foundation - Large (>1B)



*APFC Total Fund is shown net of all fees, with performance for private market investments (including Private Equity & Special Opportunities, Real Estate, Infrastructure and Private Income) reported on a one-quarter lag.

Concluding Observations

Performance Review

- Total Fund has outperformed performance benchmark over most long-term periods ended December 31, 2023.
- Total Fund has underperformed the long-term performance objective of CPI +5% over short-term periods, but modestly outperformed over longer-term periods.
- Total Fund performance has been competitive with that of large public pension funds and large endowments and foundations over most longer-term time periods ended December 31, 2023.
- Asset allocation of Total Fund looked more like that of a large public fund up until about 7 years ago.
- Asset allocation of Total Fund has evolved to look more like a large endowment and should perform increasingly in line with that peer group over time.

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