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Senate and House Finance Committees
Alaska State Legislature

Capital Market Outlook and Alaska Permanent Fund Performance Update

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Outline

- Callan's capital market projection process
- Current economic and capital market environment
- Summary of Callan's 2021 capital market projections
- Projected return and risk for APFC policy portfolio
- Alaska Permanent Fund
  - Recent Performance Review
- Concluding observations

Callan Capital Market Projection Process

Long Term Capital Market Projections

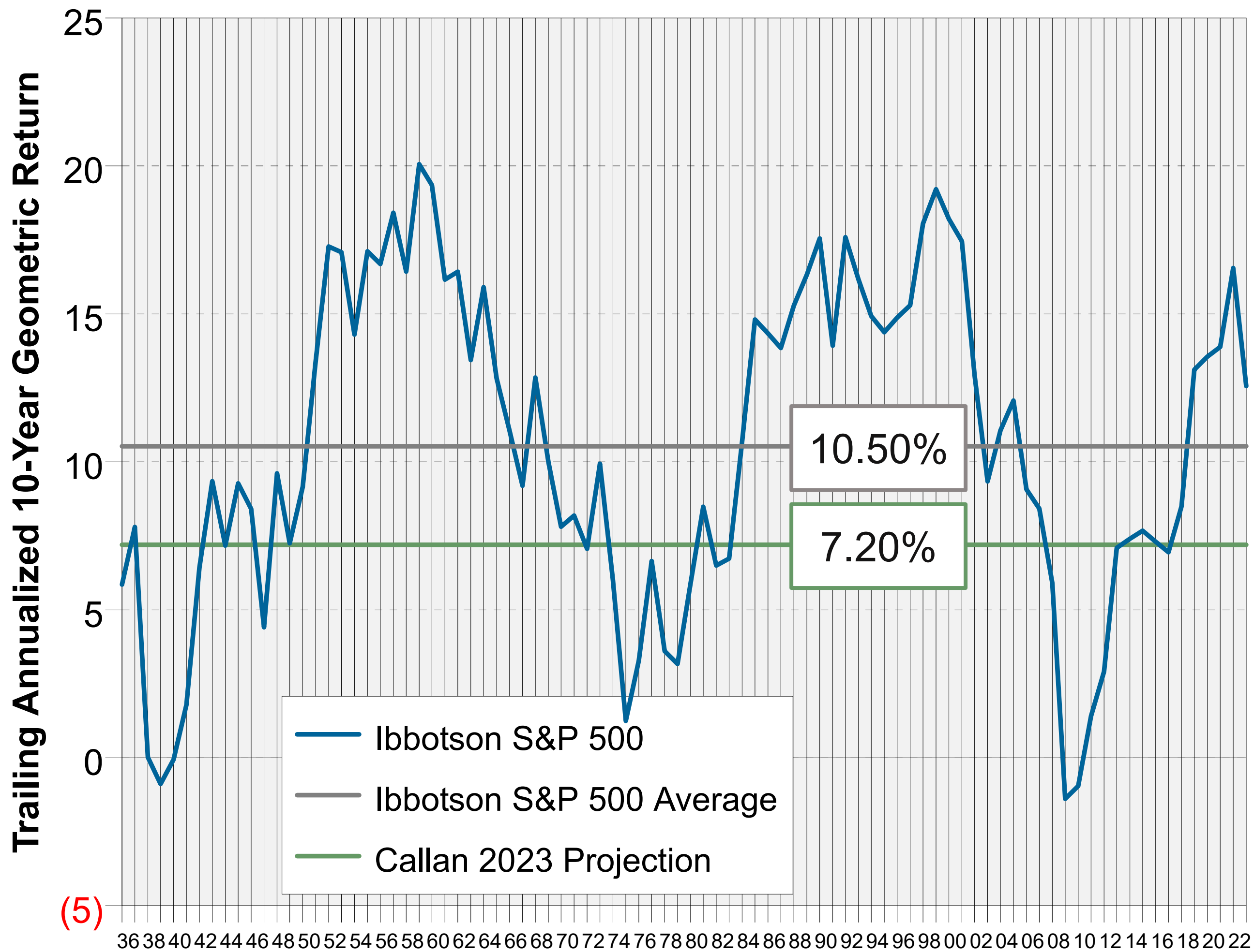
- Callan updates long term capital market projections each year in January and uses them for the full year with all clients for strategic planning purposes.
- Projections take into account long term relationships balanced with current market conditions.
- Consensus expectations (central banks, economists, 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 Client Policy Review Committee as well as the hundreds of the 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.

Callan Capital Market Projection Process

Historical Rolling 10-year Return – US Large Cap Equity

- Historical 10-year return for US large cap has averaged 10.5%.
- 2023 mid-point of projected range is 7.2%.
- Very few periods historically of negative 10-year return for US equities.
- Current outlook is in lower third of historical distribution, driven by relatively high valuations and secular decline in equity risk premium.

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

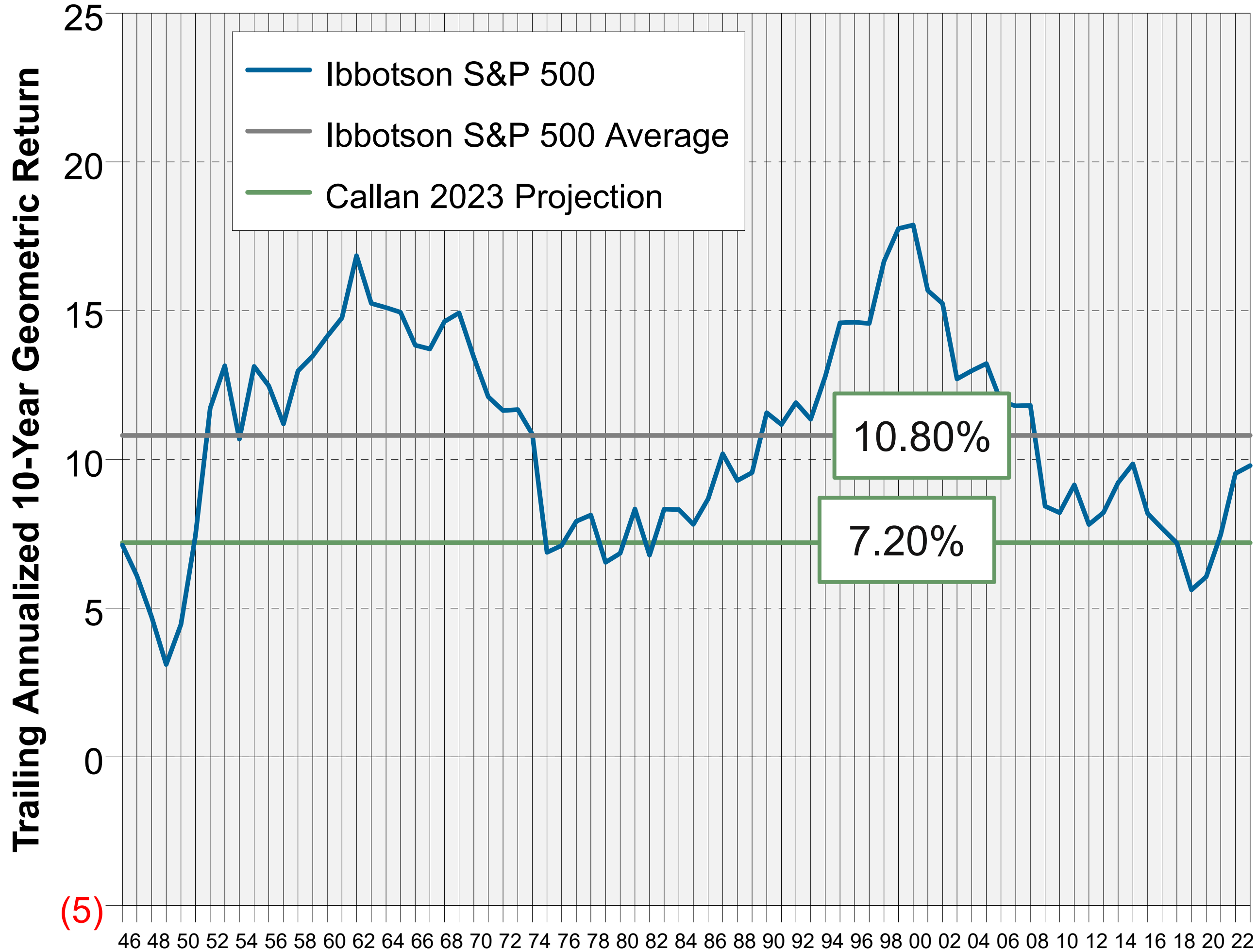


Callan Capital Market Projection Process

Historical Rolling 20-year Return – US Large Cap Equity

- Historical 20-year return for US large cap has averaged 10.8%.
- 2023 mid-point of projection range is 7.2%.
- Very few periods historically where the 20-year return was below 7.20% projection
- Longer time horizons reward equity risk takers with more consistent positive returns.
- Worst 20-year period for S&P 500 since 1926 was period ended 12/31/1950 (great depression, WW II). Annualized Return 3.1% (almost entirely dividends)

Rolling 20 Year Returns
US Large Cap Equity (Ibbotson S&P 500)



Stock Market Returns by Calendar Year

2022 YTD performance in perspective: History of the U.S. stock market (233 years of returns)

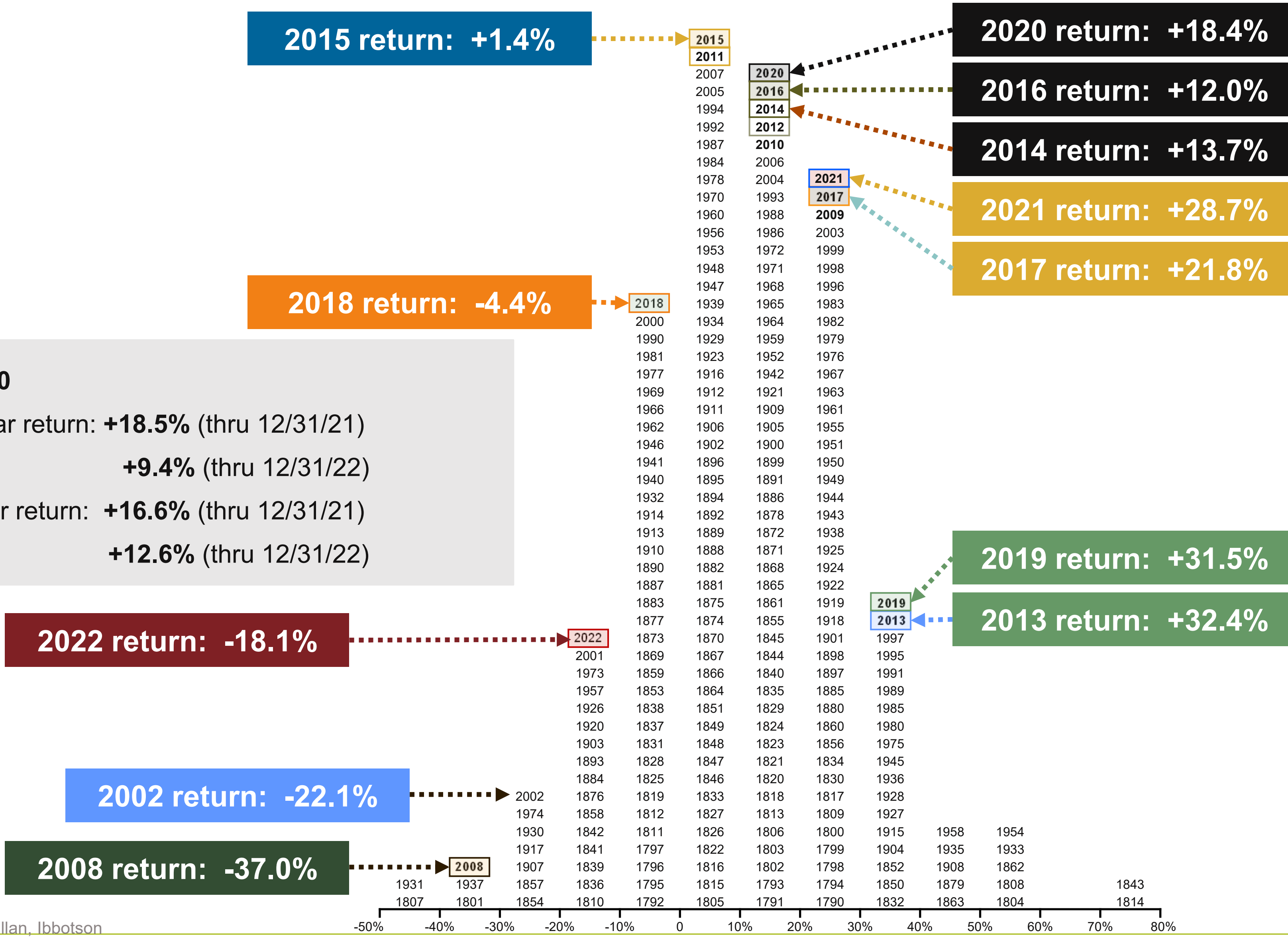
S&P 500

Five-year return: **+18.5%** (thru 12/31/21)

+9.4% (thru 12/31/22)

Ten-year return: **+16.6%** (thru 12/31/21)

+12.6% (thru 12/31/22)

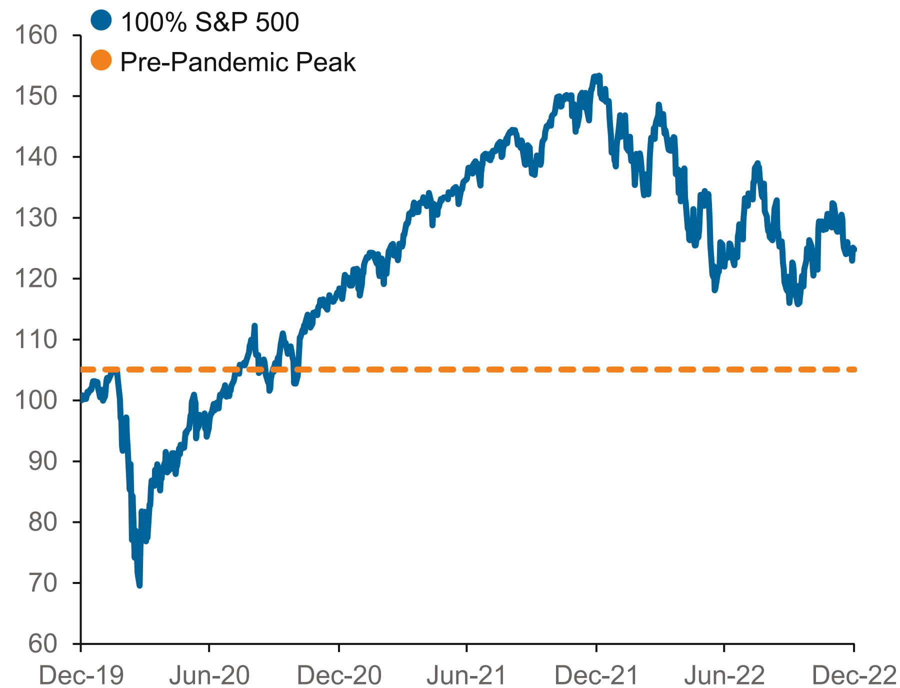


- Sources: Callan, Ibbotson

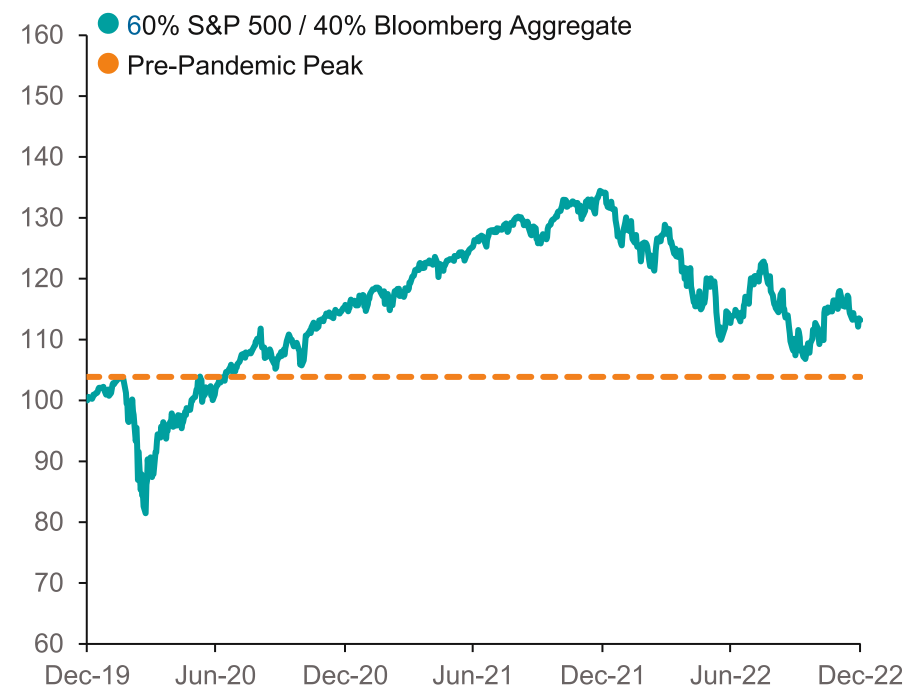
Post-Pandemic Market Performance

Sources: Callan, S&P Dow Jones Indices

Growth of $100 Invested on 12/31/19



Growth of $100 Invested on 12/31/19



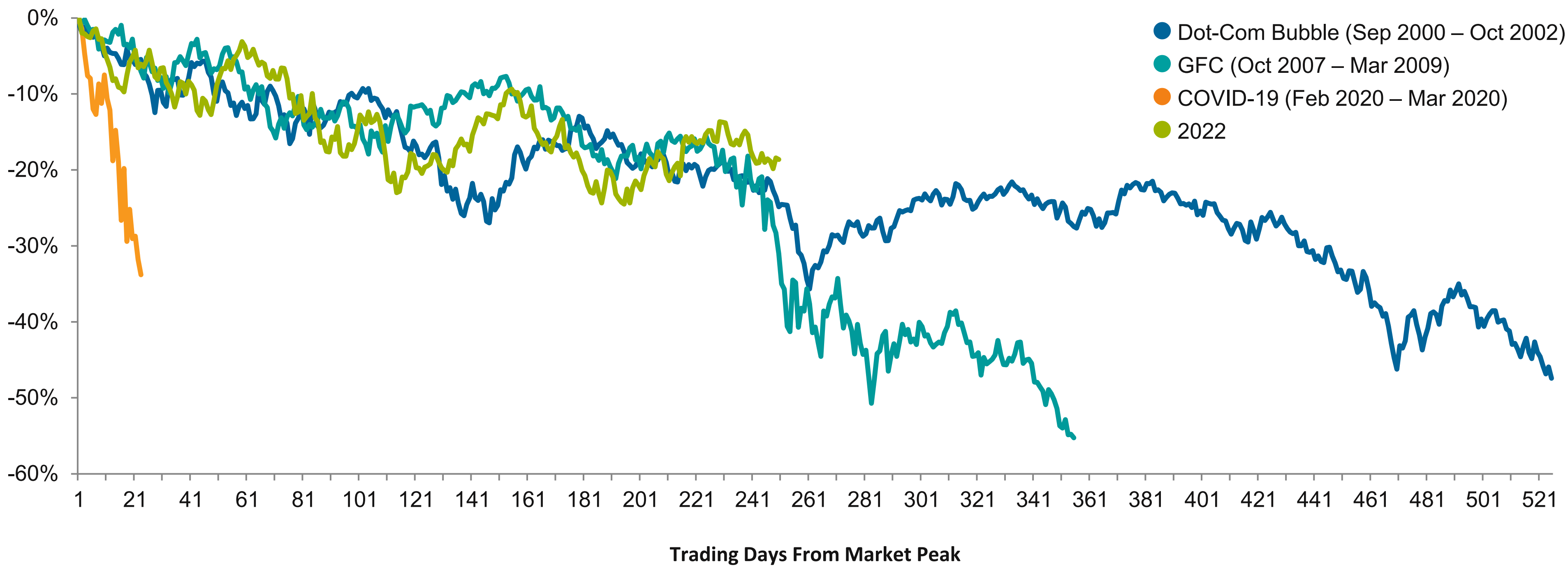
	Investment in S&P 500	**Investment in 60% S&P 500 / 40% Bloomberg Agg**
Gain from pre-pandemic peak to post-pandemic peak	45.9%	29.4%
Gain over pre-pandemic peak	18.8%	9.0%
Loss from post-pandemic peak	-18.6%	-15.8%
Further loss needed to return to pre-pandemic peak	-15.8%	-8.2%
Total loss if markets decline from post-pandemic peak to pre-pandemic peak	-31.5%	-22.7%

2022 Equity Drawdown: A More 'Typical' Correction?

Sources: Callan, S&P Dow Jones Indices

S&P 500 Cumulative Returns

Market Peak-to-Trough for Recent Corrections vs. 2022 Through 12/31/22

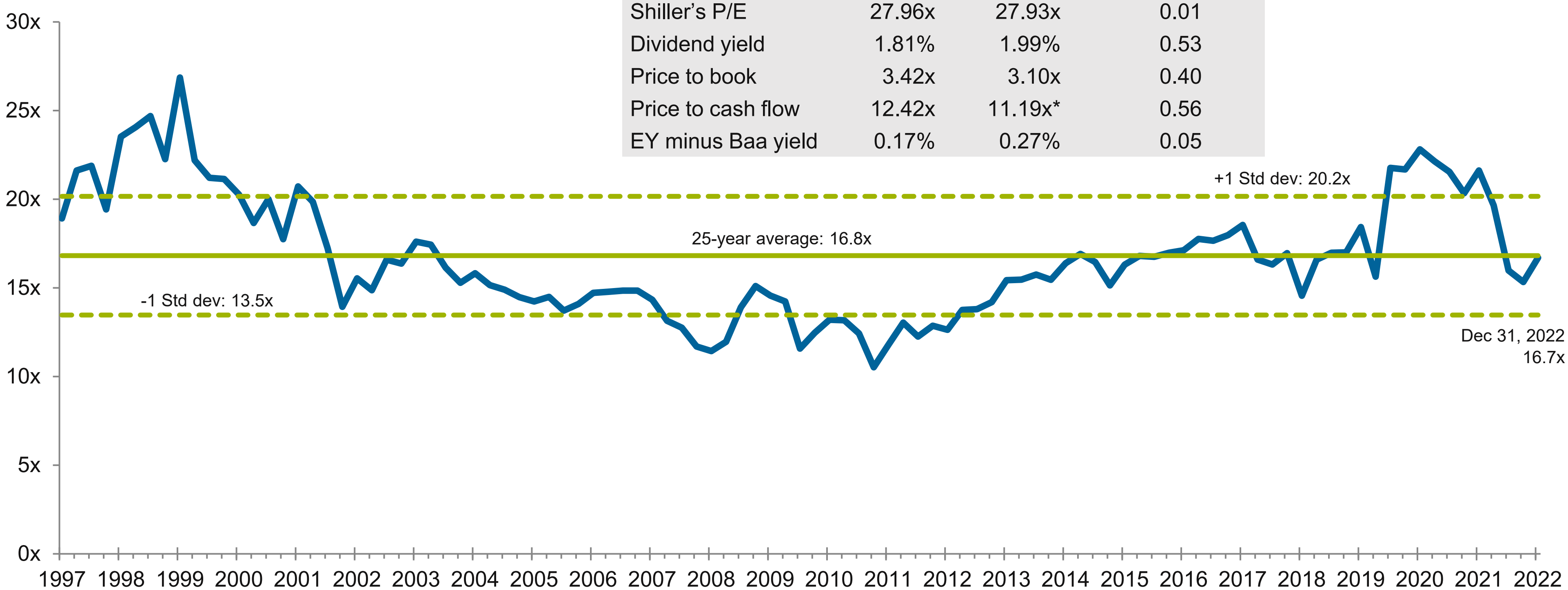


– While the COVID correction was swift and intense, the 2022 correction resembles the GFC and Dot-Com Bubble.
– The 2022 drawdown has been 250 trading days through December.
– It would take another 105 trading days to get to the bottom of the GFC and 275 trading days to get to the bottom of the Tech Bubble.

U.S. Equity Market: Key Metrics

S&P 500 valuation measures

S&P 500 Index: Forward P/E Ratio



Valuation Measure	Latest	25-year Average	Std Dev Over- / Under-valued
Forward P/E	16.65x	16.82x	-0.05
Shiller's P/E	27.96x	27.93x	0.01
Dividend yield	1.81%	1.99%	0.53
Price to book	3.42x	3.10x	0.40
Price to cash flow	12.42x	11.19x*	0.56
EY minus Baa yield	0.17%	0.27%	0.05

- All valuation measures are now within +/- one standard deviation of 25-year averages.
- Forward P/E is near the long-term average, but if we enter a recession both prices and earnings are likely to decline.

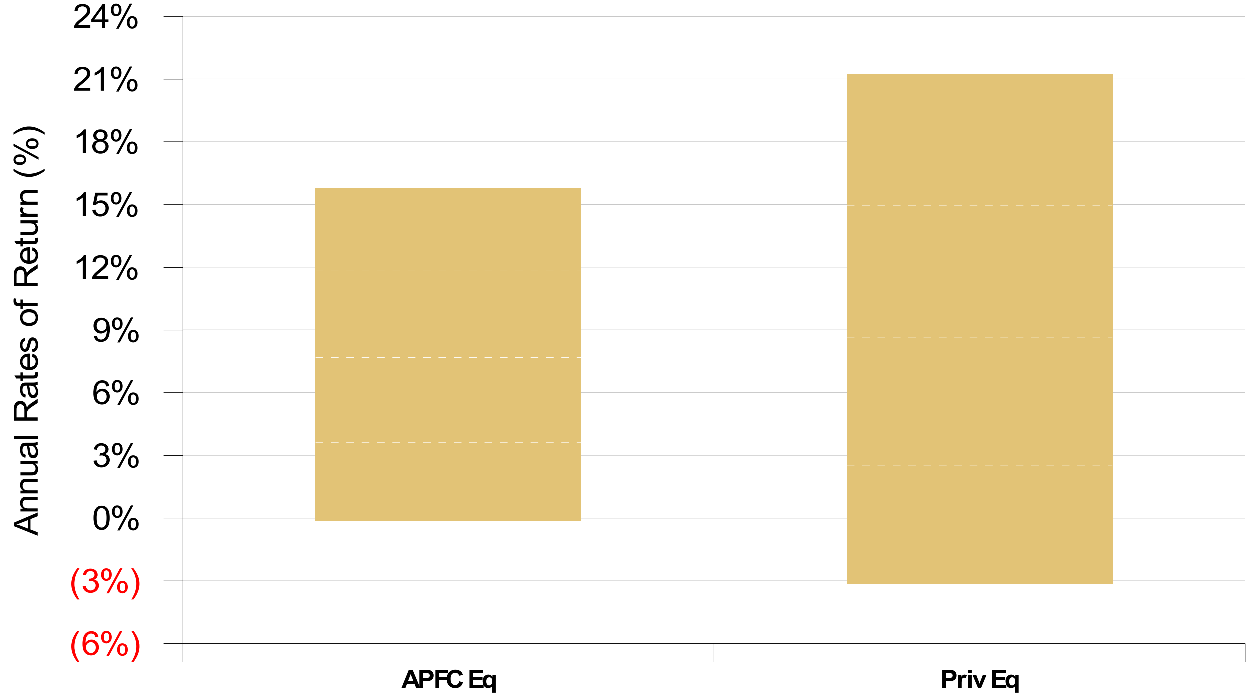
Source: FactSet, FRB, Refinitiv Datastream, Robert Shiller, Standard & Poor's, Thomson Reuters, J.P. Morgan Asset Management.
Price-to-earnings is price divided by consensus analyst estimates of earnings per share for the next 12 months as provided by IBES since December 1997 and by FactSet since January 2022. Current next 12 months consensus earnings estimates are $231. Average P/E and standard deviations are calculated using 25 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 25 years for each measure. *P/CF is a 20-year average due to cash flow availability. Guide to the Markets – U.S. Data are as of Dec. 31, 2022

Range of Projected Equity Returns

10^{th} through 90^{th} Percentile

- Projections are ranges not point estimates
- Point estimates are impossible to forecast
- Forecasting ranges is a more realistic goal
- Projected mid-point of range of 10-year annualized returns for APFC Public Equity portfolio increased from 6.85% in 2022 to 7.60%
- Mid-point for Private Equity increased from 8.00% to 8.50%
- 2022 losses in public equities have largely not been realized in private equity portfolios

Range of Projected Rates of Return
Projection Period: 10 Years



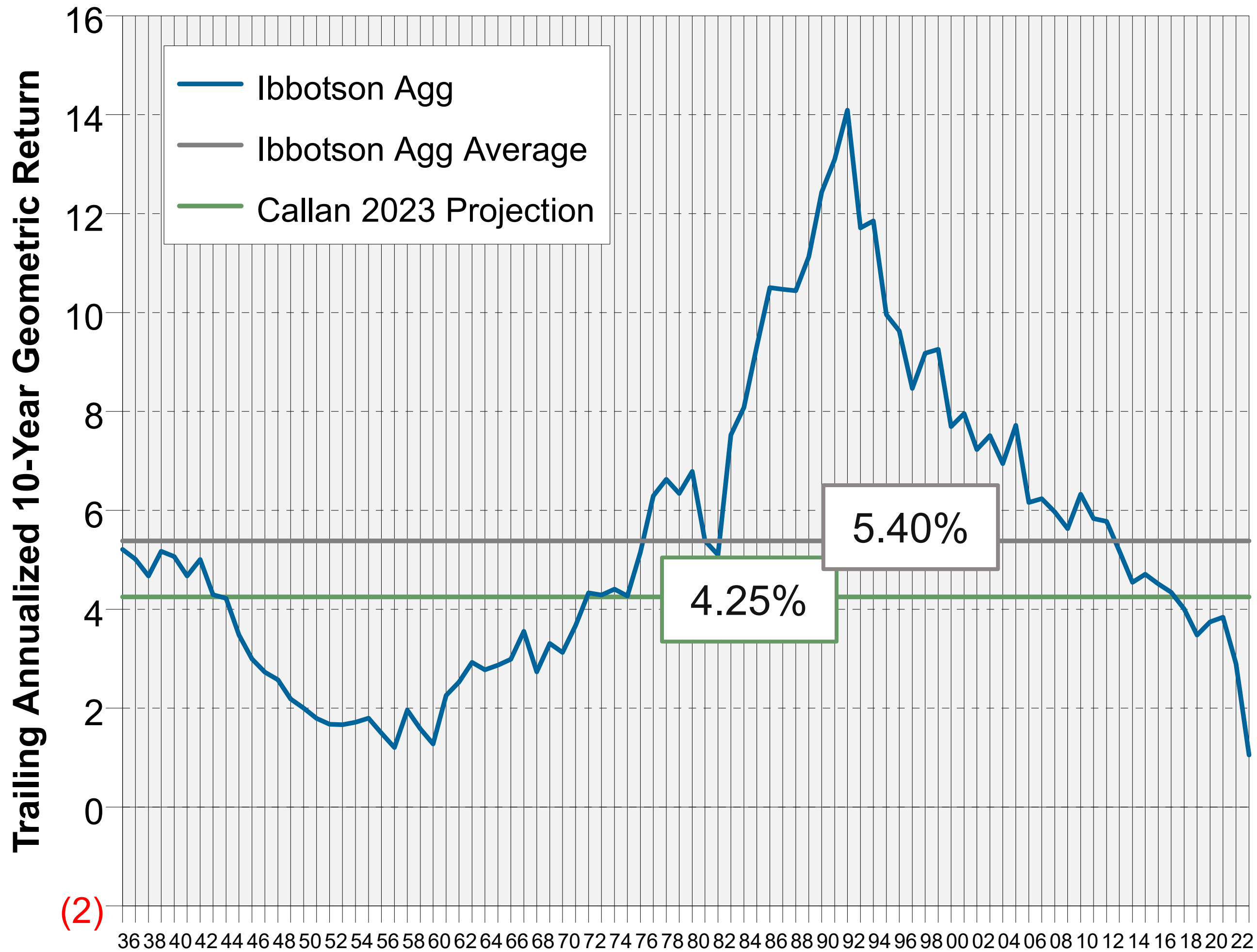
	APFC Eq	Priv Eq
10th Percentile	15.76%	21.23%
25th Percentile	11.83%	14.97%
Median	**7.60%**	**8.50%**
75th Percentile	3.61%	2.50%
90th Percentile	(0.16%)	(3.12%)

Callan Capital Market Projection Process

Historical Return – US Fixed Income

- Historical 10-year return for US bonds has averaged 5.4%.
- 2023 Projection is 4.25%.
- No periods historically of negative 10-year return for US bonds.
- Current outlook is in bottom third of historical distribution due to relatively low starting yields.
- Rising interest rates will eventually allow higher forward looking returns but will reduce return in the intermediate term.

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

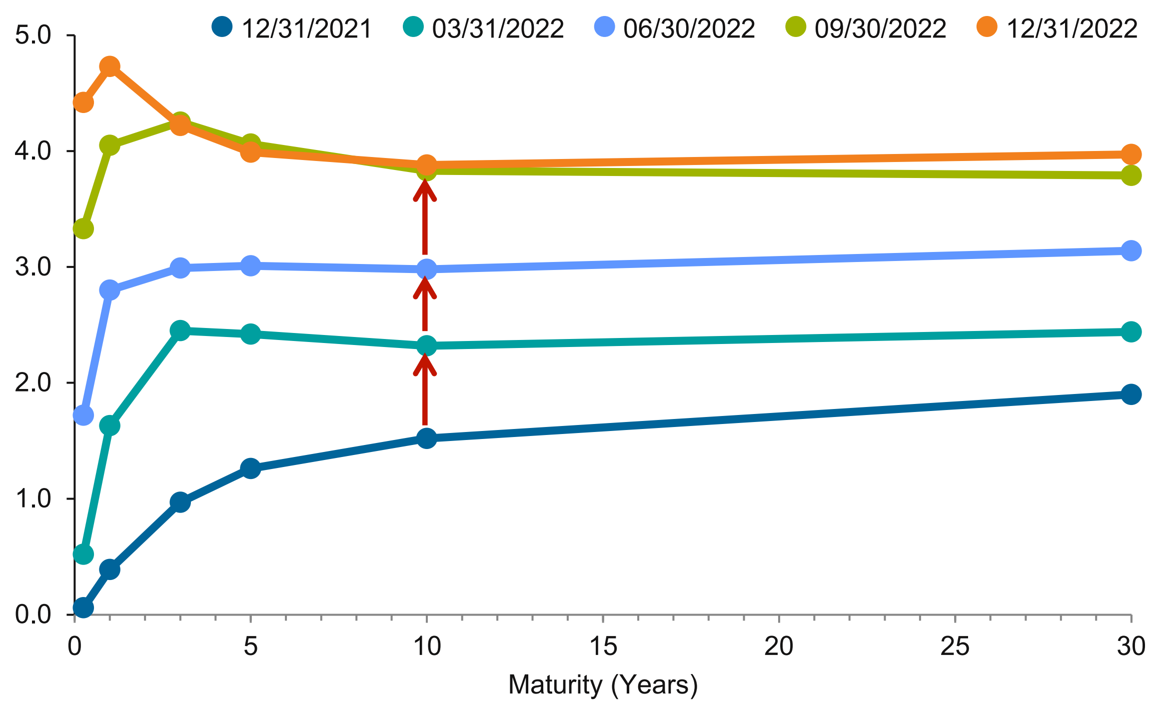


Yield Curve Rose and Inverted in Second Half of 2022

Largest calendar year shift relative to starting yield in observable history

- The Treasury yield curve has steadily shifted higher in 2022, especially on the short end.
- The yield curve inverted in mid-July and has remained inverted consistently since, with the 1- and 3-year yields exceeding 10- and 30-year yields.
- Higher yields increase the risk of inducing recession, which could lead to a reversal in interest rate policy and a lower return.
- Callan's forecasts generally assume reversion to a positively sloped yield curve and a long-term equilibrium yield across the curve

Treasury Yield Curve Change



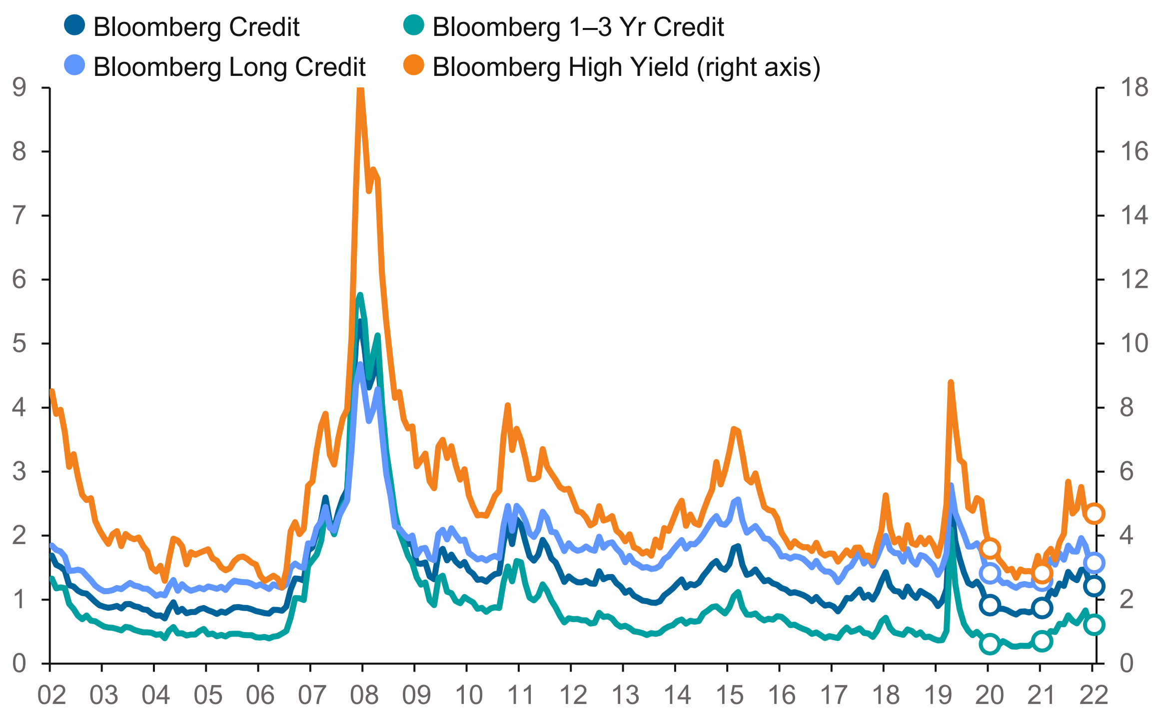
	3 Month	1 Year	3 Year	5 Year	10 Year	30 Year
12/31/2021	0.06	0.39	0.97	1.26	1.52	1.90
03/31/2022	0.52	1.63	2.45	2.42	2.32	2.44
06/30/2022	1.72	2.80	2.99	3.01	2.98	3.14
09/30/2022	3.33	4.05	4.25	4.06	3.83	3.79
12/31/2022	4.42	4.73	4.22	3.99	3.88	3.97

Credit Spreads Widened to Long Term Average Levels

Widening of Credit Spreads Aggravated Losses on Bonds in 2022

- Credit spreads at the beginning of 2022 were at or close to historic lows
- With the sell-off in equities, credit spreads widened to levels similar to long term averages
- This put additional pressure on bond prices in 2022 aggravating an already difficult environment for bond returns
- Going forward the wider beginning spreads translate to higher expected bond returns

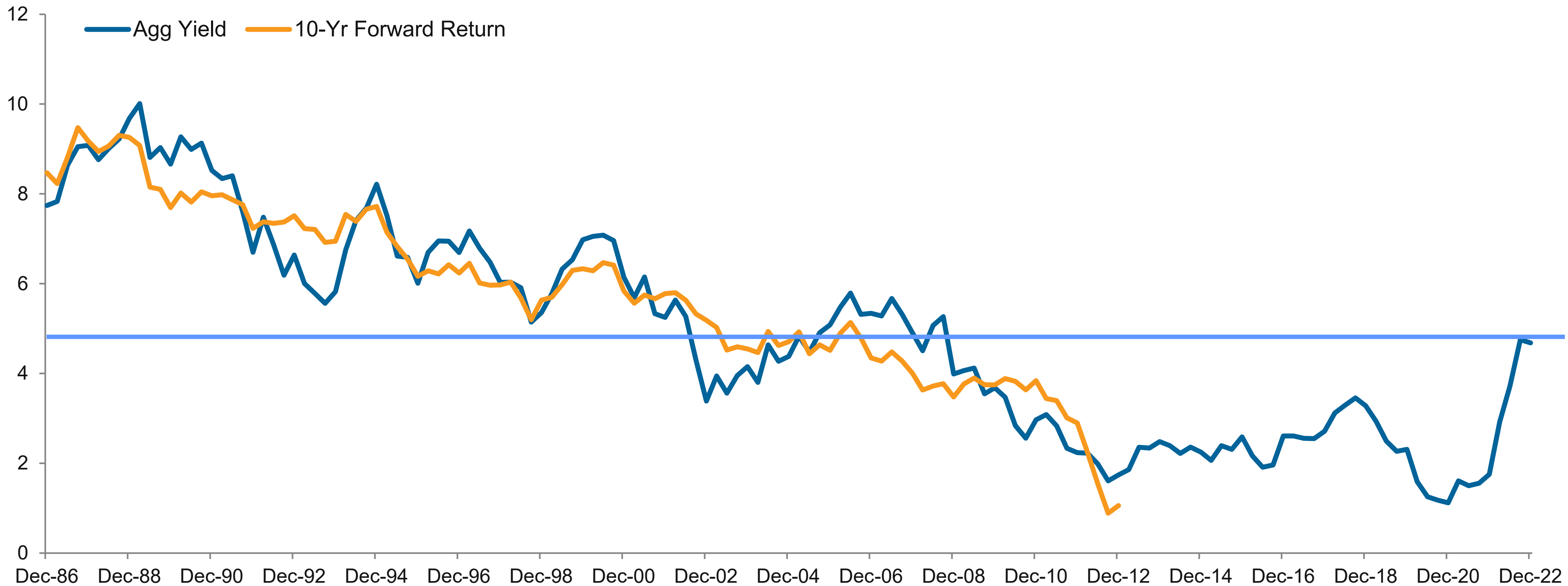
Historical Option-Adjusted Spreads (OAS)



	December 2020		December 2021		December 2022	
	OAS	Percentile*	OAS	Percentile*	OAS	Percentile*
Bloomberg 1-3 Yr Credit	0.3	3%	0.4	5%	0.6	47%
Bloomberg Credit	0.9	23%	0.9	17%	1.2	50%
Bloomberg Long Credit	1.4	26%	1.3	22%	1.6	38%
Bloomberg HY	3.6	26%	2.8	3%	4.7	56%

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.
– The December 2022 yield on the Bloomberg Aggregate index was roughly 4.6%.
– The last time starting yield was that high was in December 2008.

- Sources: Bloomberg Barclays

Fixed Income Forecasts

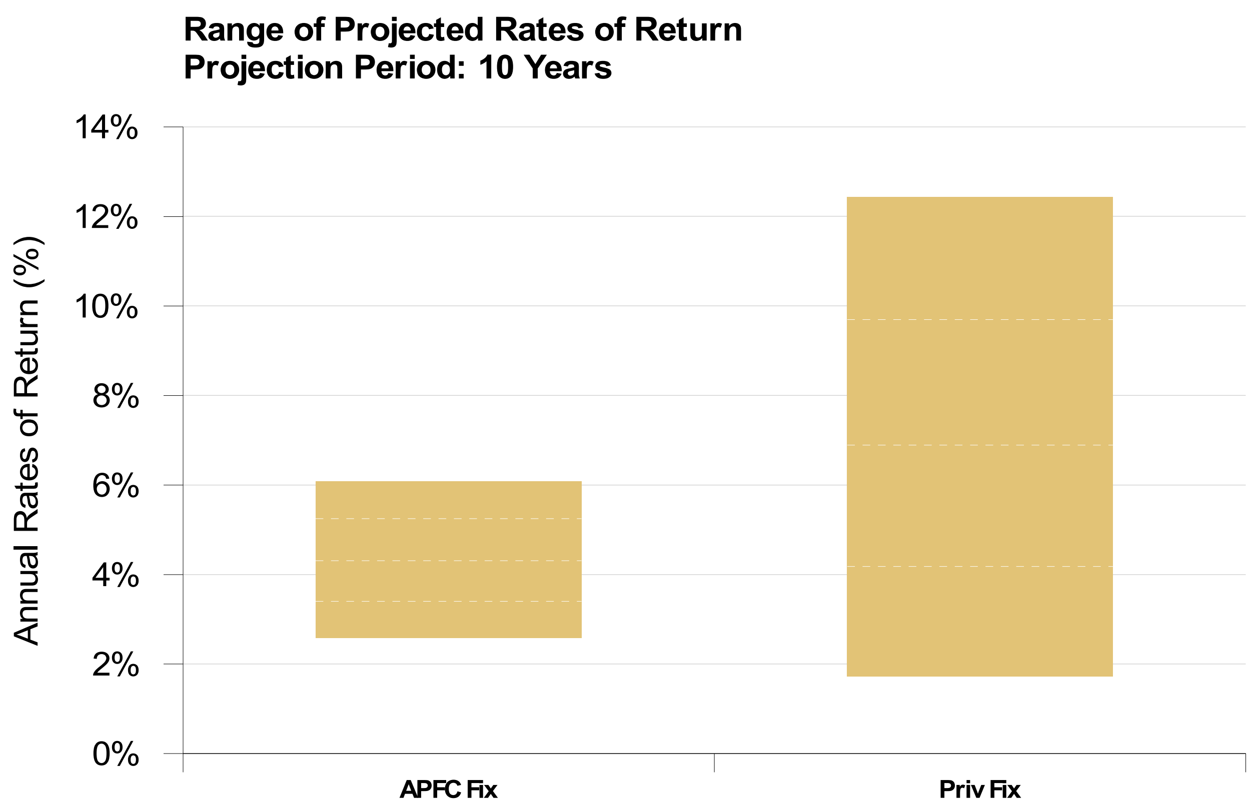
Source: Callan

	Income Return	+	Capital Gain/Loss	+	Credit Default	+	Roll Return	=	2023 Expected Return	2022 Expected Return	Change vs 2022
Cash	**2.75%**		**0.00%**		**0.00%**		**0.00%**		**2.75%**	**1.20%**	**1.55%**
1-3 Year G/C	**3.45%**		**0.20%**		**-0.10%**		**0.25%**		**3.80%**	**1.50%**	**2.30%**
1-3 Year Government	3.15%		0.20%		0.00%		0.25%		3.60%		
1-3 Year Credit	3.85%		0.10%		-0.20%		0.25%		4.00%		
Intermediate Gov/Credit	**3.95%**		**0.00%**		**-0.10%**		**0.25%**		**4.10%**	**1.70%**	**2.40%**
Intermediate Gov	3.65%		0.10%		0.00%		0.25%		4.00%		
Intermediate Credit	4.50%		-0.10%		-0.40%		0.25%		4.25%		
Aggregate	**4.30%**		**-0.20%**		**-0.10%**		**0.25%**		**4.25%**	**1.75%**	**2.50%**
Government	3.80%		-0.10%		0.00%		0.25%		3.95%		
Securitized	4.00%		0.00%		0.00%		0.25%		4.25%		
Credit	5.25%		-0.40%		-0.40%		0.25%		4.70%		
Long Duration Gov/Credit	**6.15%**		**-1.70%**		**-0.30%**		**0.60%**		**4.75%**	**1.80%**	**2.95%**
Long Government	4.90%		-1.80%		0.00%		0.60%		3.70%		
Long Credit	6.50%		-1.50%		-0.40%		0.60%		5.20%		
TIPS	**3.95%**		**-0.20%**		**0.00%**		**0.25%**		**4.00%**	**1.25%**	**2.75%**
Non-US Fixed (unhedged)	**2.40%**		**-0.20%**		**-0.20%**		**0.25%**		**2.25%**	**0.80%**	**1.45%**
High Yield	8.00%		0.20%		-2.20%		0.25%		6.25%	3.90%	2.35%
Emerging Market Debt	7.40%		0.20%		-2.00%		0.25%		5.85%	3.60%	2.25%
Bank Loans	7.40%		0.30%		-1.60%		0.00%		6.10%	4.60%	1.50%

Range of Projected Fixed Income Returns

10th through 90th Percentile

- Projected mid-point of range of 10-year annualized returns for APFC Public Fixed Income portfolio increased from 2.20% in 2022 to 4.35%
- Projected mid-point for Private Credit/Infrastructure portfolio increased from 6.40% to 6.90%
- Changes in yields had a larger impact on the outlook for public fixed income than for private credit and infrastructure



	APFC Fix	Priv Fix
10th Percentile	6.09%	12.43%
25th Percentile	5.25%	9.70%
Median	**4.35%**	**6.90%**
75th Percentile	3.40%	4.18%
90th Percentile	2.58%	1.73%

Highlights of 2023 Capital Market Projections

Changes and Observations

- 10-year annualized inflation expectation increased from 2.25% to 2.50%.
- Public equity mid-point of projected range for 10-year annualized return increased from **6.85%** to **7.60%.** Projected standard deviation (volatility) increased from 18.30% to 18.50%.
- Public fixed income mid-point of projected range for 10-year annualized return increased from **2.20%** to **4.35%**. Projected standard deviation increased from 3.75% to 4.20%.
- Private real estate projection remains unchanged relative to last year.
- The projected premium of private equity over public markets equity declined year-over-year due to the public markets more fully absorbing the 2022 multiple contraction
- The projected premium of private credit and infrastructure over public fixed income also declined due to similar dynamics in those two asset classes.

Capital Market Projections

Summary of Callan's Long-Term Capital Market Projections for APFC Asset Allocation Model (FY 2023 - 2032)

Asset Class	Performance Index	PROJECTED RETURN 1-Year Arithmetic	PROJECTED RETURN 10-Year Geometric Return	PROJECTED RISK Annualized Standard Deviation	Projected Yield
APFC Public Equities		**9.05%**	**7.60%**	**18.50%**	**2.85%**
Global Equity	MSCI ACWI - IMI	9.05%	7.60%	18.50%	2.85%
APFC Public Fixed Income		**4.35%**	**4.35%**	**4.20%**	**4.55%**
Cash Equivalents	90-Day T-Bill	2.75%	2.75%	0.90%	2.75%
TIPS	Bloomberg TIPS	4.10%	4.00%	5.30%	3.95%
US Fixed Income	Bloomberg Aggregate	4.25%	4.25%	4.10%	4.30%
US Investment Grade Credit	Bloomberg Credit	4.30%	4.25%	4.60%	4.55%
Non-US Fixed Income	Bloomberg Global Treasury ex-US Hedged	2.70%	2.25%	9.80%	2.40%
Emerging Market Debt	50/50 JPM EMBI/JPM GBI	6.25%	5.80%	10.65%	7.40%
High Yield	Bloomberg US High Yield 2% Issuer Cap	6.75%	6.20%	11.75%	8.00%
US Securitized	Bloomberg US Securitized	3.90%	3.90%	4.00%	3.65%
Private Equity/Growth Opps		**11.95%**	**8.50%**	**27.60%**	**0.00%**
Private Equity	Cambridge Private Equity (lag)	11.95%	8.50%	27.60%	0.00%
Private Real Estate		**6.60%**	**5.75%**	**14.20%**	**4.40%**
Real Estate	NCREIF Total Index (lag)	6.60%	5.75%	14.20%	4.40%
Private Infra/Credit/Income Opps		**7.50%**	**6.90%**	**12.45%**	**5.55%**
Private Infrastructure	Cambridge Global Private Infra (lag)	7.15%	6.10%	15.45%	4.60%
Private Credit	Bloomberg US High Yield (lag)	8.00%	7.00%	15.50%	7.00%
Absolute Return		**5.05%**	**4.80%**	**8.45%**	**0.00%**
Hedge Funds	HFRI Total HFOF Universe	5.05%	4.80%	8.45%	0.00%
Risk Parity		**7.15%**	**6.65%**	**11.95%**	**3.50%**
Risk Parity	HFR Risk Parity Vol 12	7.15%	6.65%	11.95%	3.50%
Cash Equivalents		**2.75%**	**2.75%**	**0.90%**	**2.75%**
Hedge Funds	90-Day T-Bill	2.75%	2.75%	0.90%	2.75%
Total Fund	APFC Total Fund Target	**7.90%**	**7.25%**	**13.30%**	**2.90%**
Inflation	CPI-U		2.50%	1.50%	

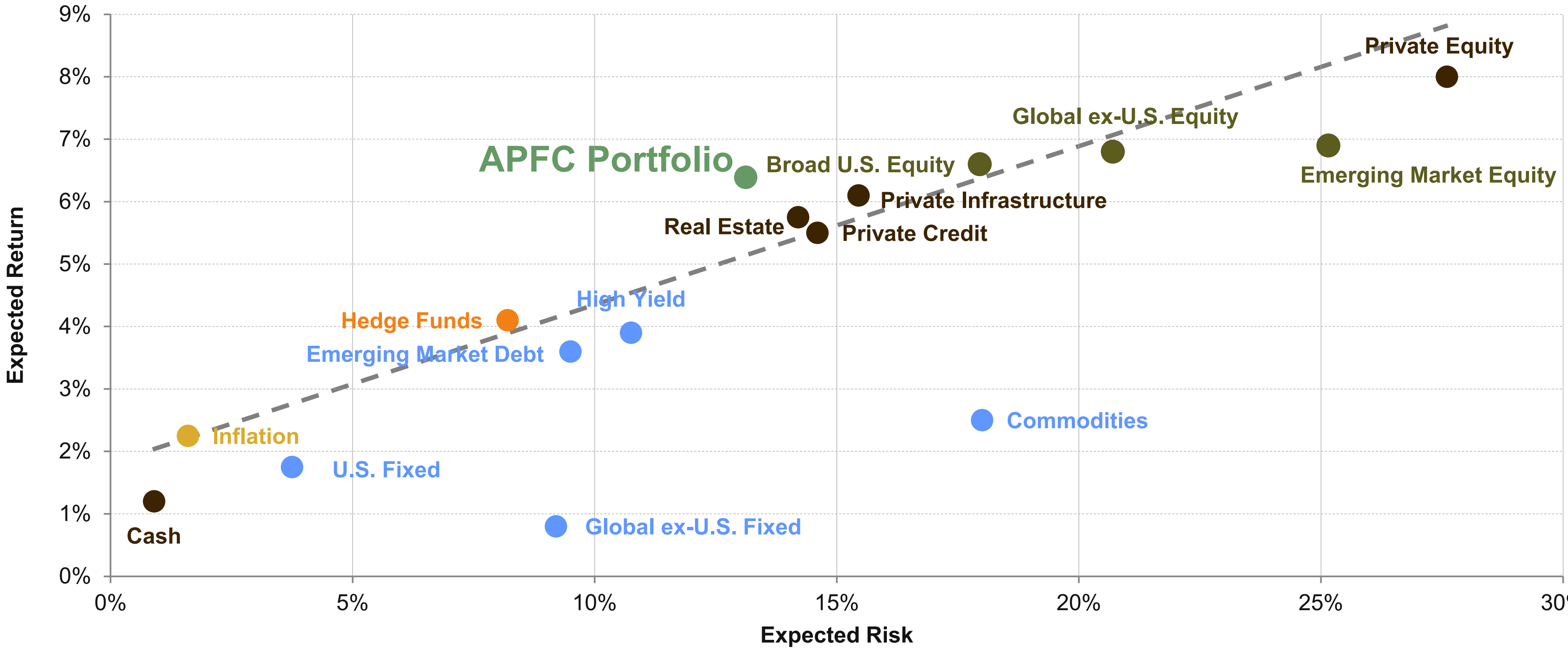
The Return of Yield

Asset Class	Index	Projected Yields*		Difference
		2023	2022	
Equities				
Broad U.S. Equity	Russell 3000	1.95%	1.70%	0.25%
Large Cap U.S. Equity	S&P 500	2.00%	1.75%	0.25%
Smid Cap U.S. Equity	Russell 2500	1.75%	1.50%	0.25%
Global ex-U.S. Equity	MSCI ACWI ex USA	3.70%	2.55%	1.15%
Developed ex-U.S. Equity	MSCI World ex USA	3.75%	2.75%	1.00%
Emerging Market Equity	MSCI Emerging Markets	3.55%	2.10%	1.45%
Fixed Income				
Short Duration Gov/Credit	Bloomberg 1-3 Year Gov/Credit	3.45%	1.65%	1.80%
Core U.S. Fixed	Bloomberg Aggregate	4.30%	2.90%	1.40%
Long Government	Bloomberg Long Gov	4.90%	3.30%	1.60%
Long Credit	Bloomberg Long Credit	6.50%	4.70%	1.80%
Long Government/Credit	Bloomberg Long Gov/Credit	5.85%	4.15%	1.70%
TIPS	Bloomberg TIPS	3.95%	2.50%	1.45%
High Yield	Bloomberg High Yield	8.00%	6.95%	1.05%
Global ex-U.S. Fixed	Bloomberg Global Agg ex US	2.40%	2.15%	0.25%
Emerging Market Sovereign Debt	EMBI Global Diversified	7.40%	6.05%	1.35%
Alternatives				
Core Real Estate	NCREIF ODCE	4.40%	4.40%	0.00%
Private Infrastructure	MSCI Glb Infra/FTSE Dev Core 50/50	4.60%	4.60%	0.00%
Private Equity	Cambridge Private Equity	0.00%	0.00%	0.00%
Private Credit	N/A	7.00%	5.50%	1.50%
Hedge Funds	Callan Hedge FOF Database	0.00%	0.00%	0.00%
Commodities	Bloomberg Commodity	2.25%	2.25%	0.00%
Cash Equivalents	90-Day T-Bill	2.75%	1.20%	1.55%

Projected Yields represent the expected 10-year average yield.

Relationship Between Expected Return and Volatility

Visualizing Callan's Capital Markets Assumptions



Expected Return Increases with Increased Expected Risk

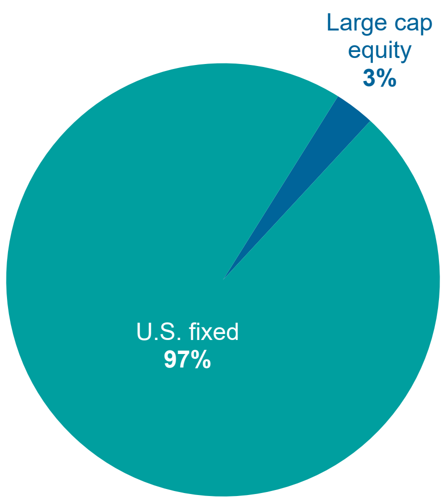
For example, investors demand a greater return from private equity than public equity as compensation for higher implementation risk and less liquidity

Lower correlation asset classes can fall below the capital markets line and still be efficient components of a diversified portfolio (eg Global ex-US Fixed, Emerging Market Equity)

Mixes Yielding 7% Expected Returns Over Past 30+ Years

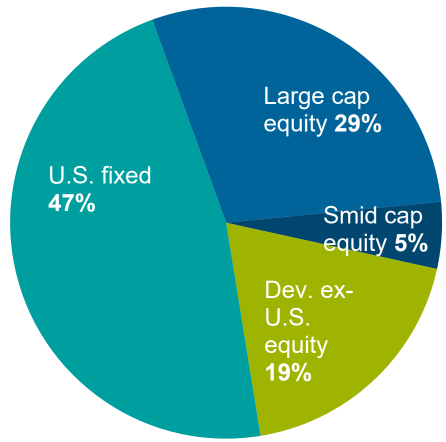
Visualizing Callan's Capital Markets Assumptions

Increasing Complexity



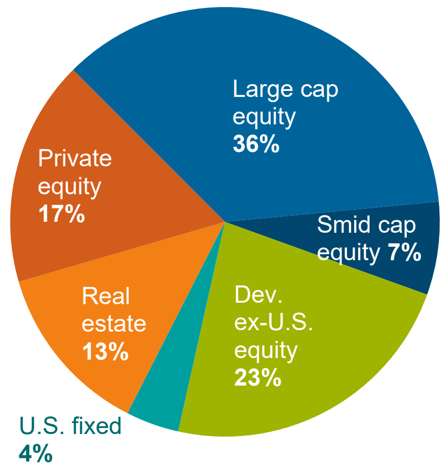
1993

Return: 7.0%
Risk: 6.2%



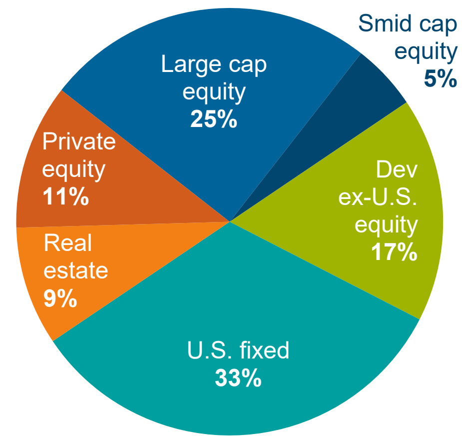
2008

Return: 7.0%
Risk: 9.4%



2022

Return: 7.0%
Risk: 16.8%



2023

Return: 7.0%
Risk: 11.8%

Increasing Risk

In 1993, our return expectation for broad U.S. fixed income was 6.85%.

Just 3% in return-seeking assets was required to earn a 7% projected return.

15 years later, an investor would have needed over half of the portfolio in public equities to achieve a 7% projected return.

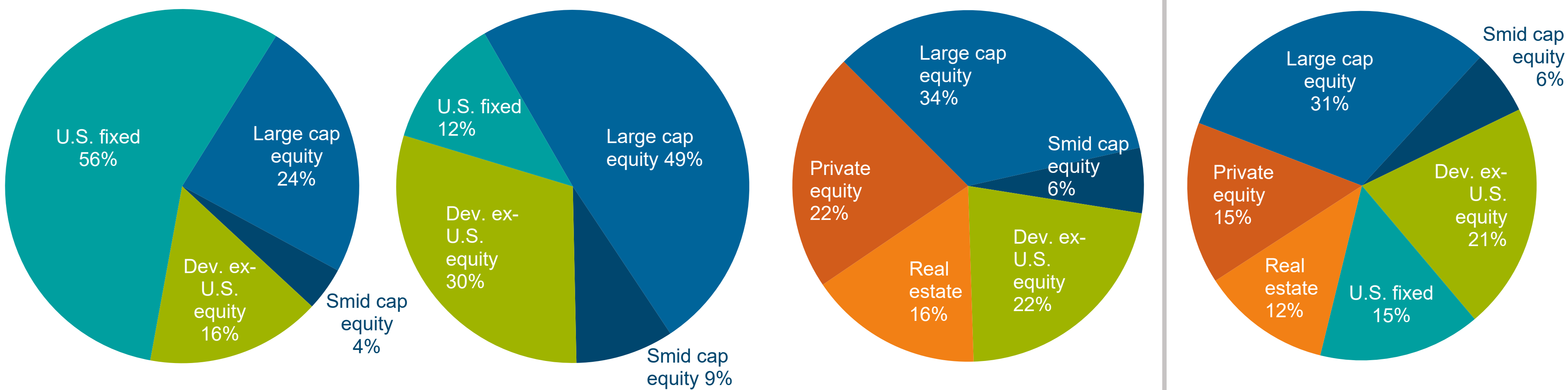
In 2022 an investor was required to include 96% in return-seeking assets (including 30% in private market investments) to earn a 7% projected return at almost 3x the volatility compared to 1993.

Today's 7% expected return portfolio is much more reasonable than it was just a year ago, with a third in fixed income and a correspondingly lower level of risk.

Mixes Yielding 5% Expected Real Returns Over Past 30+ Years

Visualizing Callan's Capital Markets Assumptions

Increasing Complexity →



1993		2008		2022		2023	
Inflation:	**4.00%**	**Inflation:**	**2.75%**	**Inflation:**	**2.25%**	**Inflation:**	**2.50%**
Real Return:	**5.0%**	**Real Return:**	**5.0%**	**Real Return:**	**5.0%**	**Real Return:**	**5.0%**
Risk:	**8.8%**	**Risk:**	**14.6%**	**Risk:**	**17.8%**	**Risk:**	**14.9%**

Increasing Risk →

Despite a 4% inflation projection, an investor could have over half of the portfolio in low-risk assets (fixed income) and still earn a 5% projected real return in 1993.

15 years later, an investor would have needed 88% in public equities to achieve a 5% projected real return with 1.7x the portfolio volatility of 1993.

In 2022 an investor required 100% of the portfolio in return-seeking assets to earn a 5% projected real return at approximately 2x the volatility compared to 1993.

Today's 5% expected real return portfolio is much more reasonable than it was just a year ago, with 15% in fixed income and a correspondingly lower level of risk.

Alaska Permanent Fund Corporation

Projected Returns and Recent Performance Review

APFC Policy Mix

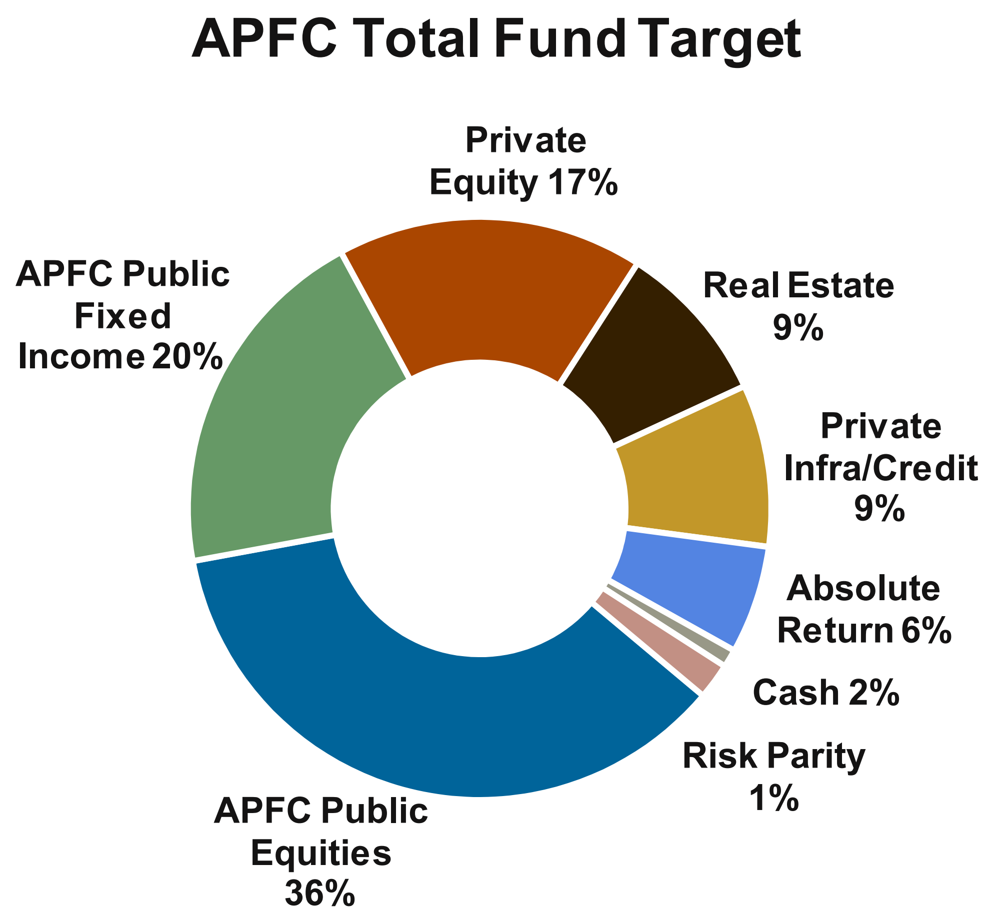
Callan's 2023 Capital Market Projections

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

APFC FY 2023 Total Fund Policy Target

Target Asset Allocation

- Broadly diversified across all major institutional asset classes
- Roughly 60% allocated to public markets investments (publicly traded equities and fixed income) and 40% 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

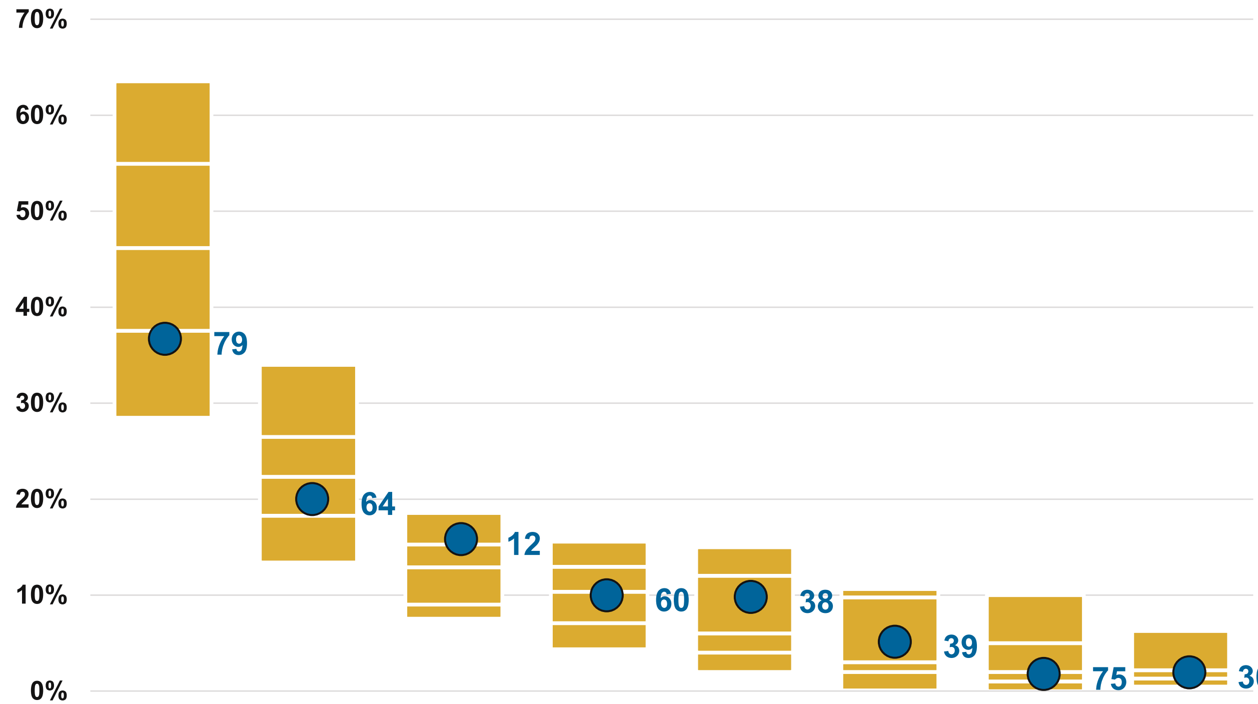


APFC FY Target versus Large Public Funds

Target Asset Allocation Comparison

- APFC has above median allocations to private equity, private credit, and absolute return
- APFC has below median allocations to public fixed income and real estate
- APFC allocation to private markets is roughly 41% versus 32% for median public fund
- APFC overall allocation to growth assets is roughly 69% vs 70% for the median large public fund

Asset Allocation Distribution as of December 31, 2022
Callan Large Public Fund Database (> $1 billion)



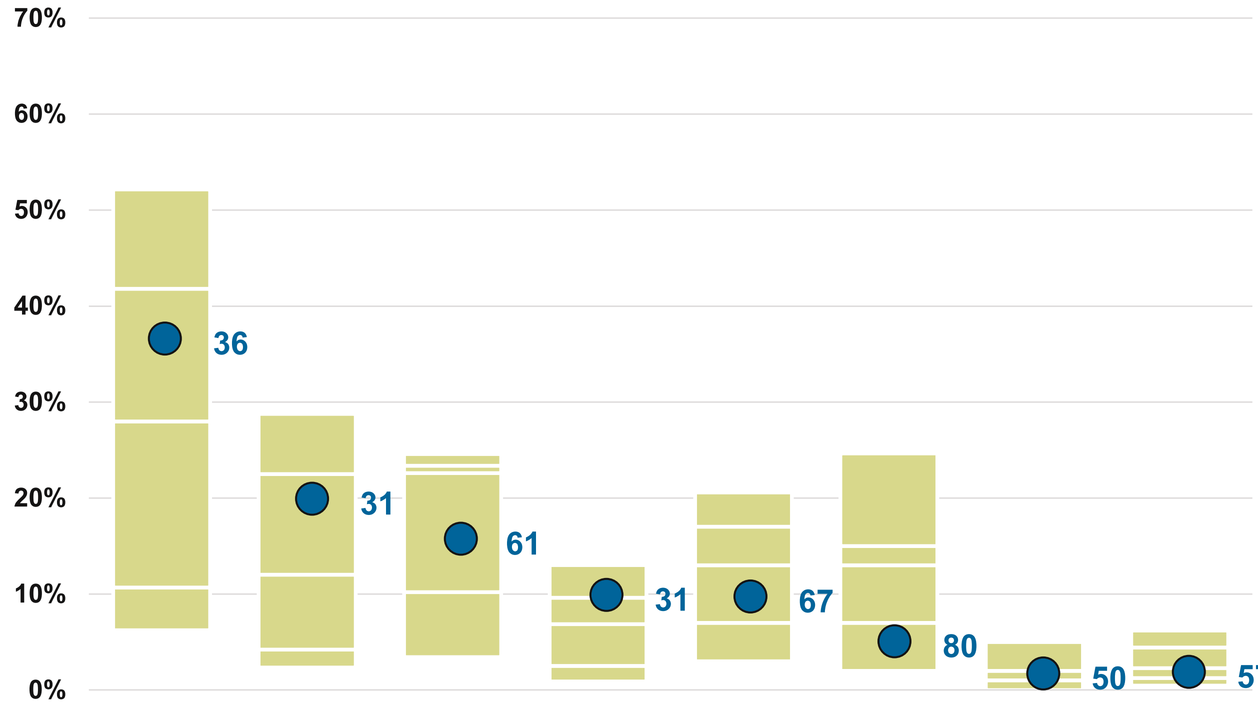
	Public Equity	Public Fixed	Private Equity	Real Estate	Private Credit	Absolute Return	Risk Parity	Cash
APFC	**36%**	**20%**	**17%**	**9%**	**9%**	**6%**	**1%**	**2%**
Median	46%	22%	13%	10%	6%	3%	2%	1%
Rank	79%	64%	12%	60%	38%	39%	75%	30%

APFC 2023 Target versus Large Endowment/Foundations

Target Asset Allocation Comparison

- APFC has above median allocations to public equity and public fixed income
- APFC has below median allocations all private market asset classes
- APFC allocation to private markets is roughly 41% versus 55% for median endowment
- APFC overall allocation to growth assets is roughly 69% versus 75% for the median large endowment

Asset Allocation Distribution as of December 31, 2022
Callan Large Endowment/Foundation Database (> $1 billion)



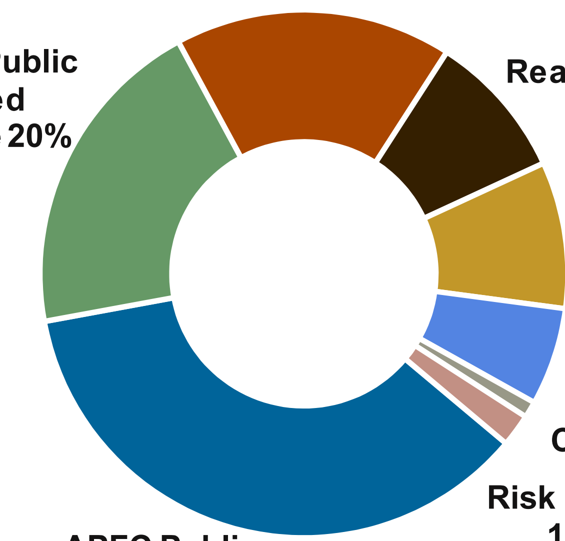
	Public Equity	Public Fixed	Private Equity	Real Estate	Private Credit	Absolute Return	Risk Parity	Cash
APFC	**36%**	**20%**	**17%**	**9%**	**9%**	**6%**	**1%**	**2%**
Median	28%	12%	23%	7%	13%	13%	1%	2%
Rank	36%	31%	61%	31%	67%	80%	50%	57%

APFC FY 2023 Total Fund Policy Target

Projected Return and Standard Deviation

- Projected median 10-year annualized return of **7.25%** is roughly the same as last year.
- Inflation expectation increased from 2.00% to **2.50**%.
- Projected median 10-year annualized real return of **4.75%** is an increase of roughly 55 basis points relative to last year.
- Projected standard deviation of **13.30%** is roughly the same as last year.
- Percent probability of exceeding 7.5% annualized return over 10-year horizon is estimated to be **48%.**
- Percent probability of exceeding 7.1% (median effective real payout) is estimated to be roughly **51%.**

APFC Total Fund Target

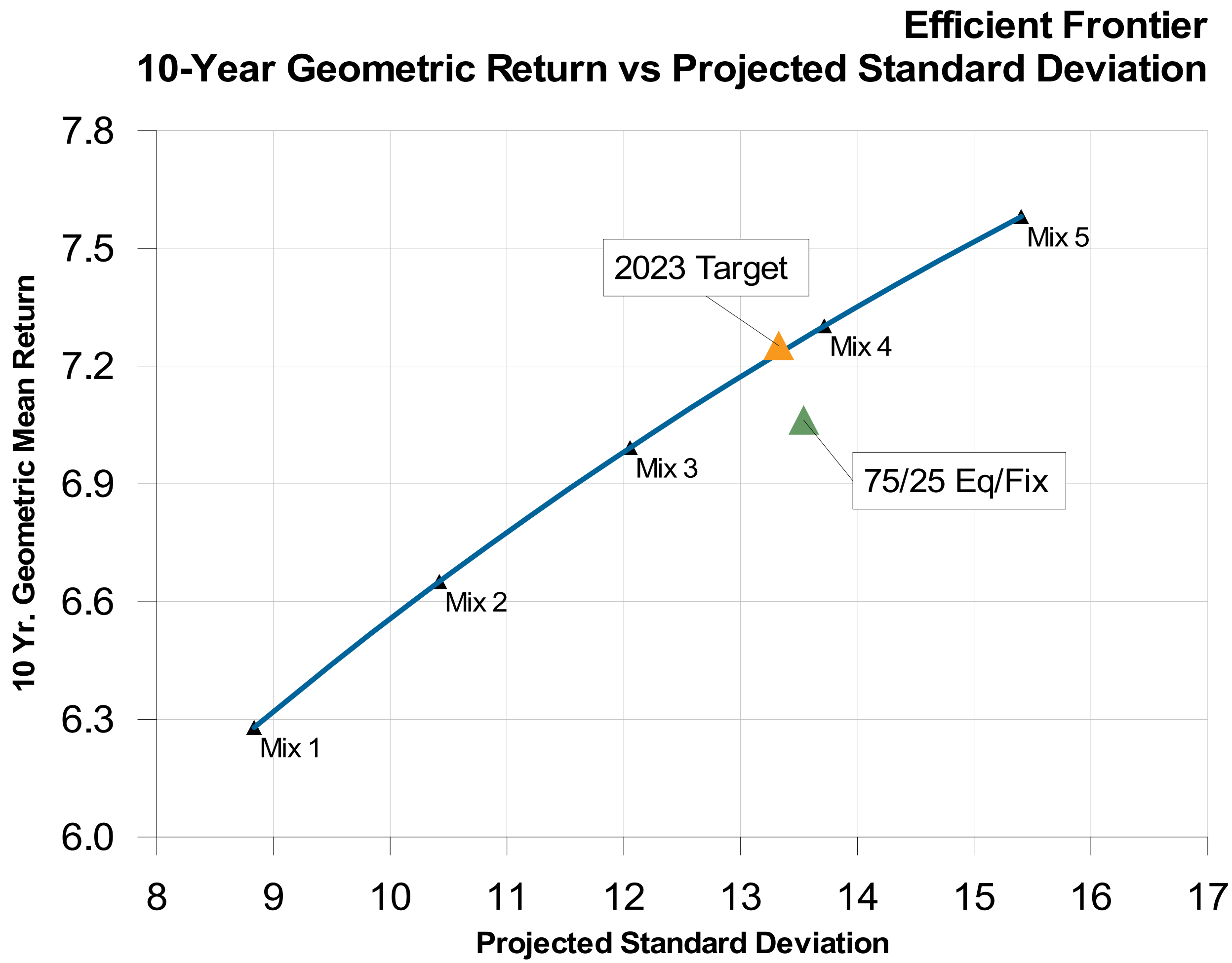


Expected 10-year Geometric Return:	**7.25%**
Expected Standard Deviation:	**13.30%**
Expected Inflation:	**2.50%**
Expected Real Return:	**4.75%**

Constrained Efficient Frontier Analysis 40% Private Assets

Projected Return and Standard Deviation

- Efficient frontier with 40% private markets constraint.
- Strategic Policy target portfolio is slightly below the constrained efficient frontier due to under-allocation to private real estate.
- 75/25 Equity/Fixed portfolio is pure public markets portfolio with same projected standard deviation as APFC Policy Target.
- APFC Policy Target has roughly a **20** basis point projected return premium over 75/25 public markets portfolio with lower risk.



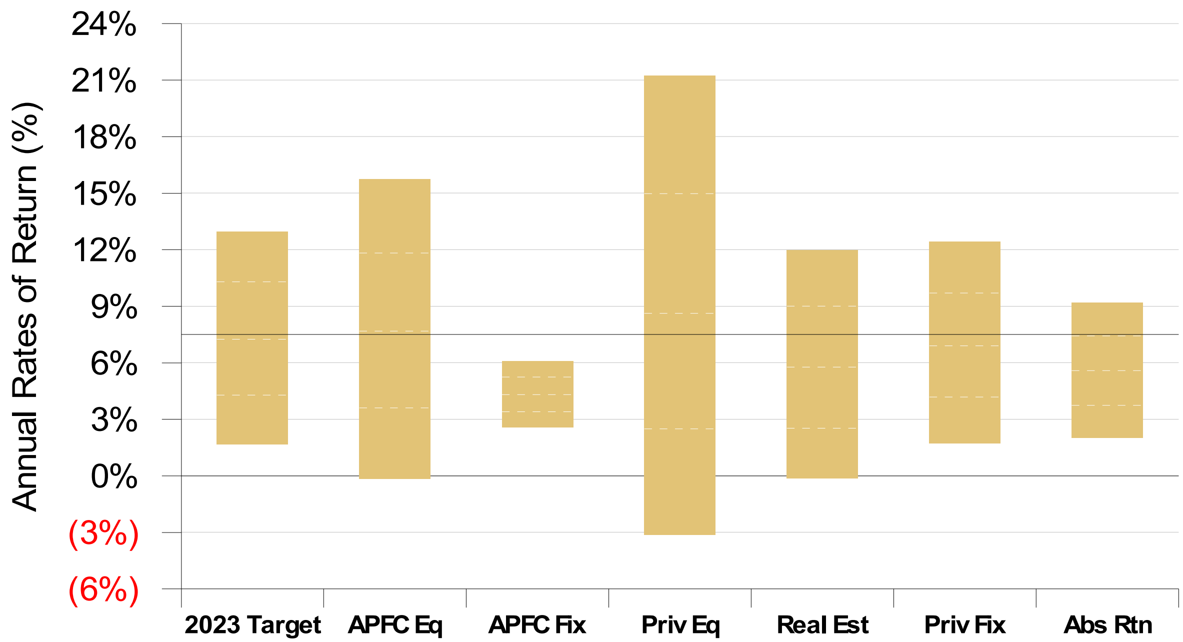
*75/25 Equity/Fixed portfolio assumes 75% allocation to APFC Global Equity benchmark and 25% allocation to Bloomberg Aggregate Index

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

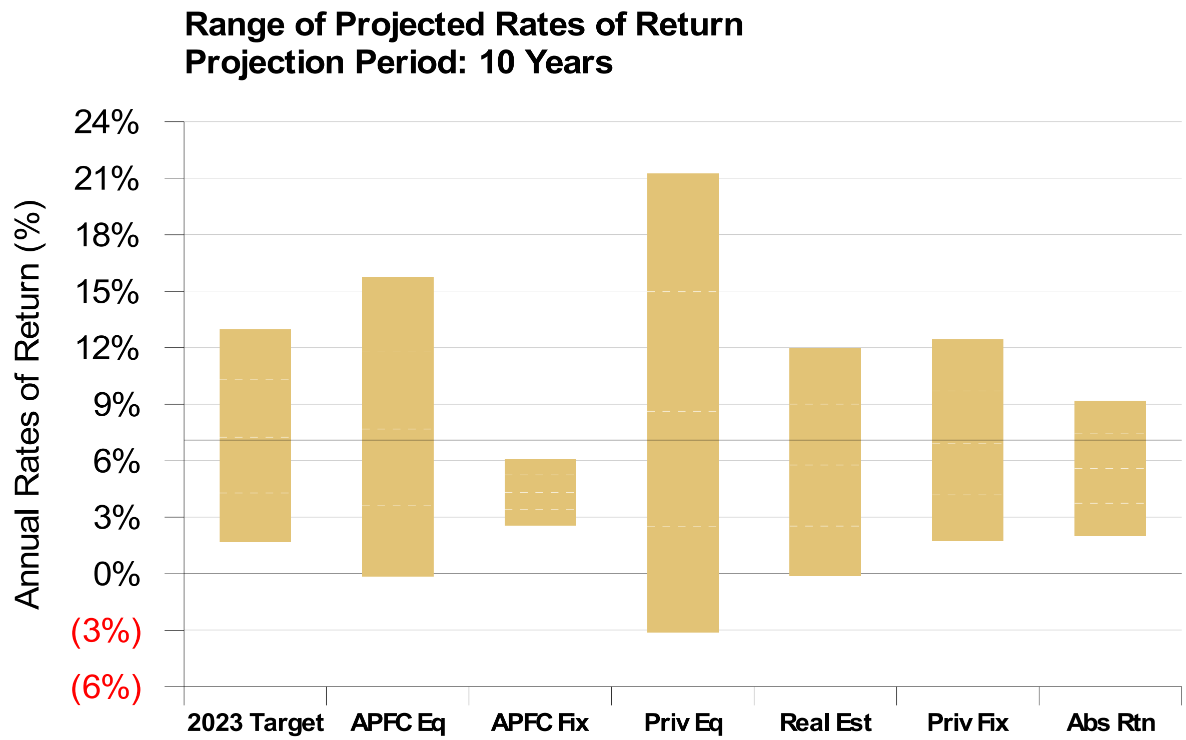


	2023 Target	APFC Eq	APFC Fix	Priv Eq	Real Est	Priv Fix	Abs Rtn
10th Percentile	12.96%	15.76%	6.09%	21.23%	11.98%	12.43%	9.18%
25th Percentile	10.29%	11.83%	5.25%	14.97%	9.01%	9.70%	7.42%
Median	**7.25%**	**7.60%**	**4.35%**	**8.50%**	**5.75%**	**6.90%**	**5.55%**
75th Percentile	4.29%	3.61%	3.40%	2.50%	2.53%	4.18%	3.74%
90th Percentile	1.69%	(0.16%)	2.58%	(3.12%)	(0.13%)	1.73%	2.02%
Prob > 7.50%	47.7%	51.1%	1.3%	54.7%	35.6%	44.2%	24.0%

Range of Projected Returns

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 2023 Target Mix exceeding 7.1% annualized return over 10 years is roughly 51%



	2023 Target	APFC Eq	APFC Fix	Priv Eq	Real Est	Priv Fix	Abs Rtn
10th Percentile	12.96%	15.76%	6.09%	21.23%	11.98%	12.43%	9.18%
25th Percentile	10.29%	11.83%	5.25%	14.97%	9.01%	9.70%	7.42%
Median	**7.25%**	**7.60%**	**4.35%**	**8.55%**	**5.75%**	**6.90%**	**5.55%**
75th Percentile	4.29%	3.61%	3.40%	2.50%	2.53%	4.18%	3.74%
90th Percentile	1.69%	(0.16%)	2.58%	(3.12%)	(0.13%)	1.73%	2.02%
Prob > 7.10%	51.4%	53.8%	2.4%	56.2%	39.0%	48.0%	28.7%

Concluding Observations

Callan’s 2023 Capital Market Projections

- A modest increase the inflation expectation consistent with consensus forecasts
- Public equity return projections were also increased modestly
- Public fixed income return projections increased significantly
- Yield expectations up across the board with the exception of private real estate
- Private market return expectations also increased
- APFC Policy Target is well diversified and lies on the efficient frontier for portfolios with a target of 40% 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 50%.

Alaska Permanent Fund Corporation

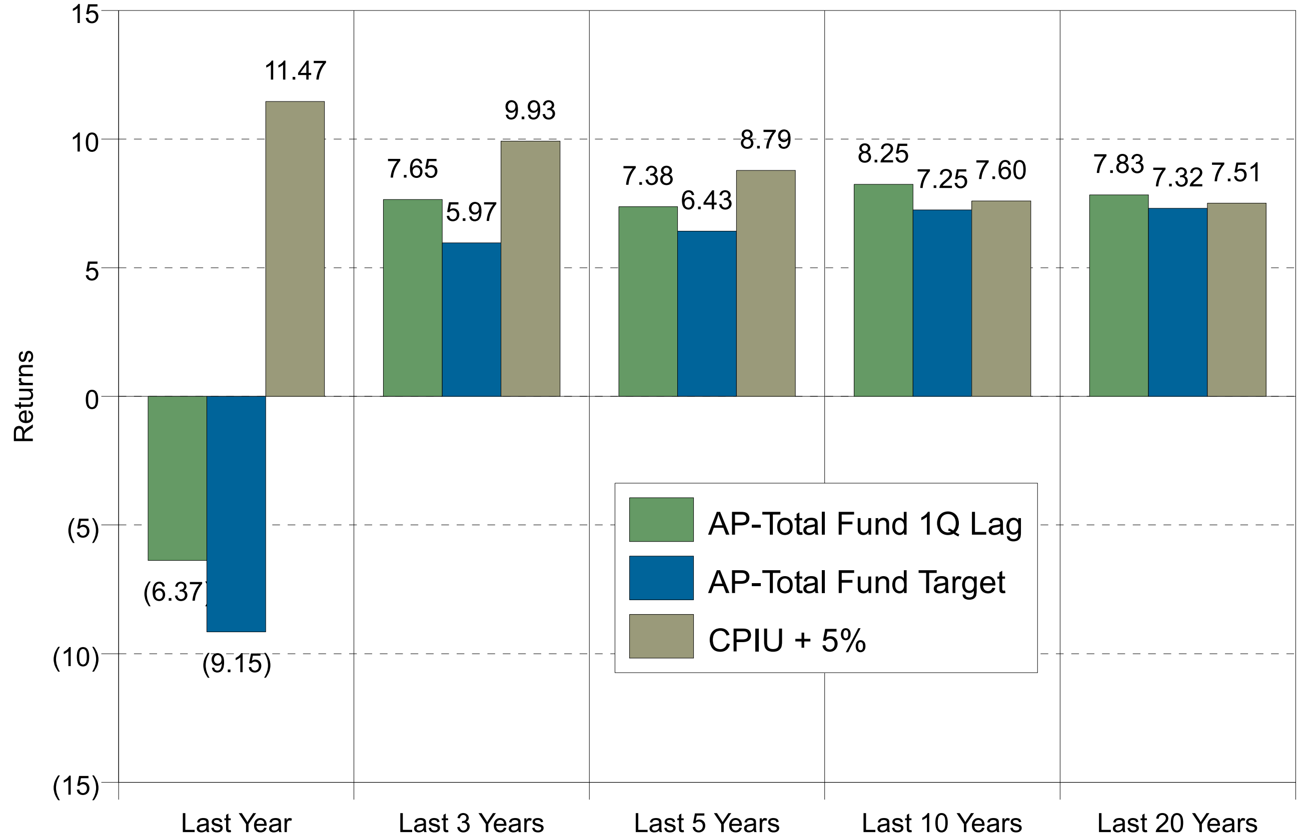
Performance Review Periods ended December 31, 2022

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 shown on chart.
- Total Fund trails the CPI + 5% objective for shorter term periods but is ahead of objective over 10 and 20-year periods.
- Total Fund has protected well during the 2022 downturn relative to the benchmark.

Net of Fee Returns for Periods Ending December 31, 2022



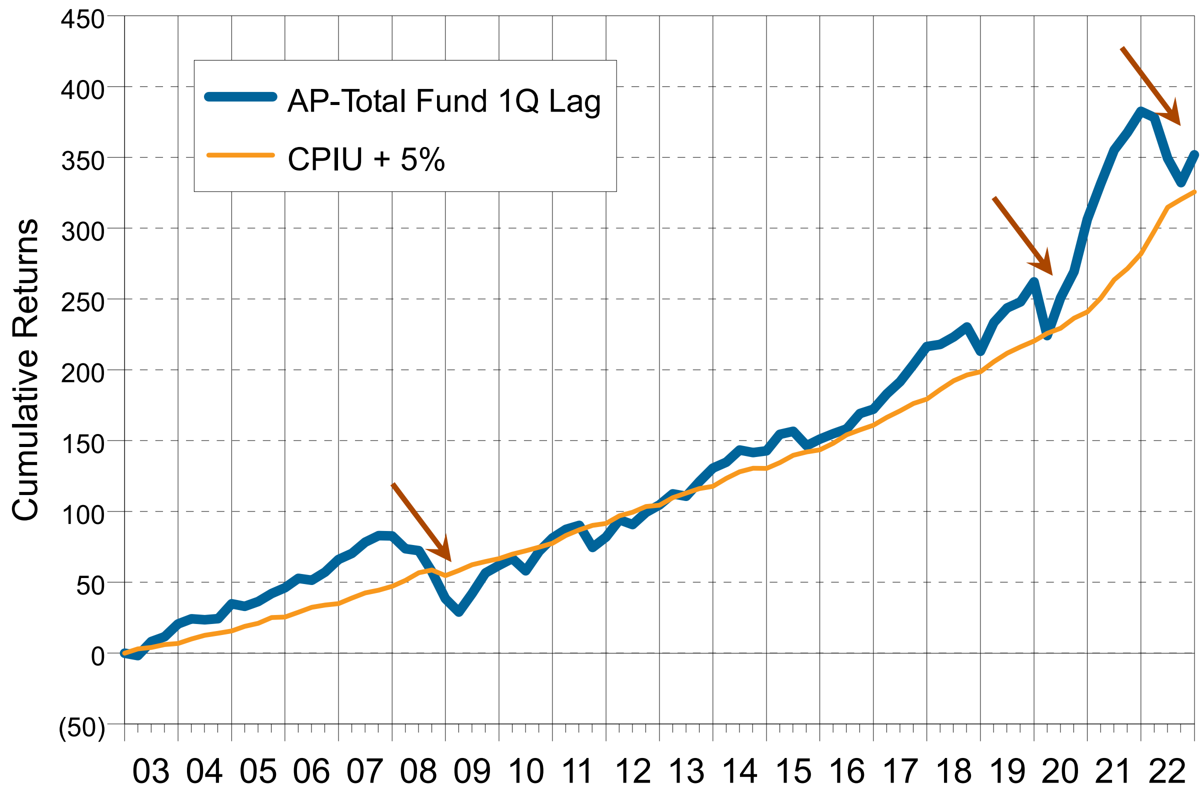
Current APFC Total Fund Target (FY22-FY23) = 36% MSCI ACWI IMI, 1.0% 90 Day T-Bills, 1.0% BB US TIPS, 5.5% BB Agg, 5.5% BB Corp IG, 3.0% BB Global Treasury xUS Hdgd, 2.0% BB US BB HY, 2.0% BB US Securitized, 17% Cambridge PE (lagged), 7.4% NCREIF Total Index (lagged), 1.4% MSCI US REIT (lagged), 5.4% Cambridge Global Pvt. Infrastructure (lagged), 3.6% Cliffwater Direct Lending TR (lagged), 3% HFRI EH Equity Market Neutral, 3% HFRI Macro, 2% 90 Day T-Bills, 1% HFR Risk Parity Vol 12% Institutional Index

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.
- Over the long term the Total Fund has kept pace with 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, 2022

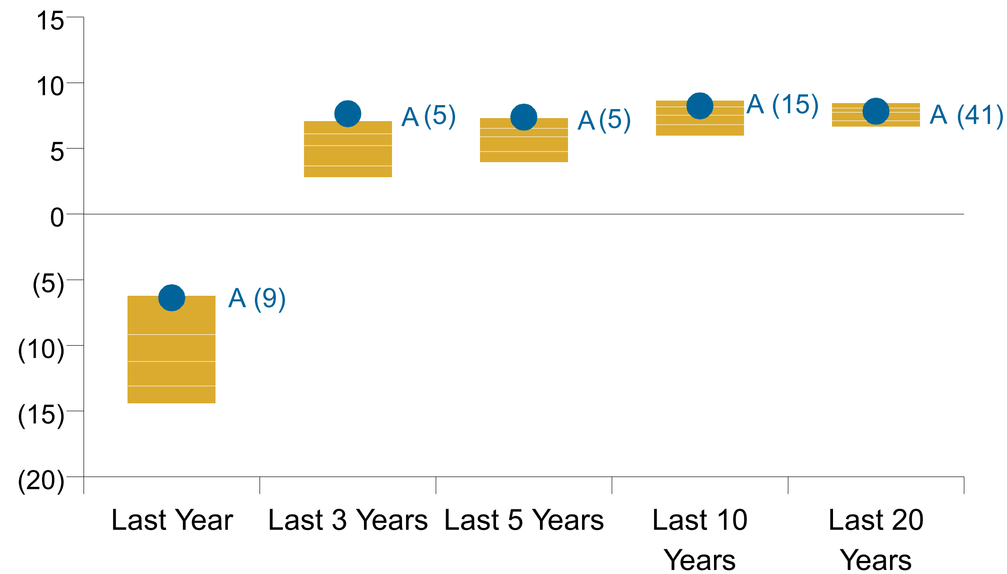


APFC Total Fund Ranking versus Large Public Funds

Total Fund versus Large Public Fund Peer Group

- Total Fund ranks very competitively versus large public funds over all time periods.
- Outperformance over the last year was significant, contributing to outperformance over longer periods.
- Some of this can be explained by the lagged return calculation methodology that APFC applies to private market investments.

Returns for Periods Ended December 31, 2022
Group: Callan Public Fund Sponsor - Large (>1B)



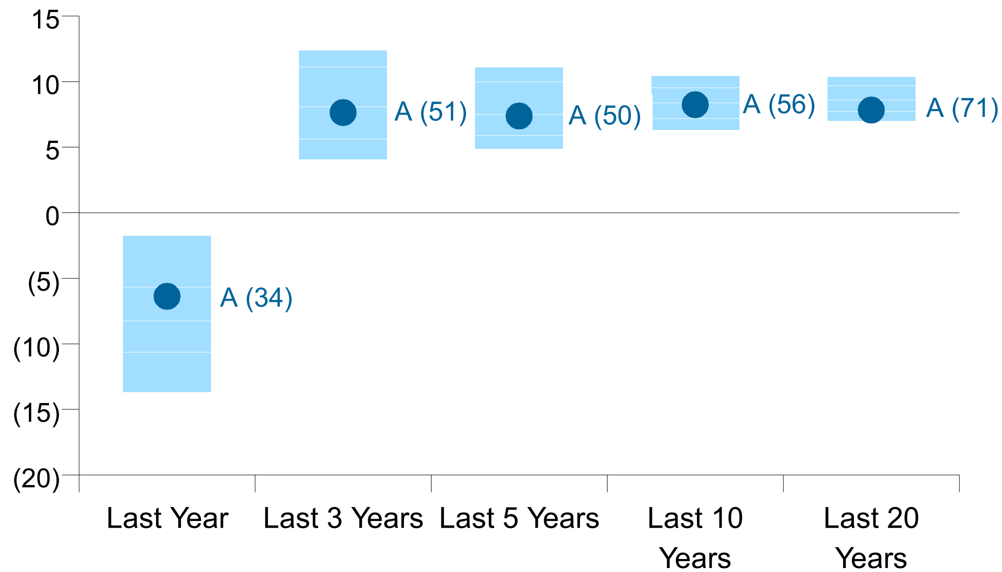
	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 20 Years
10th Percentile	(6.24)	7.08	7.29	8.62	8.45
25th Percentile	(9.16)	6.12	6.54	8.18	8.07
Median	(11.21)	5.22	5.89	7.53	7.76
75th Percentile	(13.08)	3.66	4.76	6.81	7.10
90th Percentile	(14.40)	2.82	3.95	5.99	6.68
APFC Total Fund* ● A	(6.37)	7.65	7.38	8.25	7.83

APFC Total Fund Ranking versus Large Public Funds

Total Fund versus Large Endowment/Foundation Fund Peer Group

- Total Fund ranks closer to median versus Large Endowment and Foundation universe.
- This is due to the fact that APFC asset allocation 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 decline in 2022 of public markets investments.

Returns for Periods Ended December 31, 2022
Group: Callan Endow/Foundation - Large (>1B)



	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 20 Years
10th Percentile	(1.75)	12.37	11.06	10.43	10.35
25th Percentile	(5.67)	11.13	9.99	9.54	9.67
Median	(8.24)	8.09	7.50	8.40	8.61
75th Percentile	(10.63)	5.63	5.90	7.19	7.74
90th Percentile	(13.67)	4.09	4.89	6.34	7.03
APFC Total Fund* ● A	(6.37)	7.65	7.38	8.25	7.83

Concluding Observations

Performance Review

- Total Fund has outperformed performance benchmark over most short-term and long-term periods ended December 31, 2022.
- Total Fund has underperformed the long-term performance objective of CPI +5% over short-term periods, but modestly outperformed over long-term periods.
- Total Fund performance has been competitive with that of large public pension funds and large endowments and foundations over most time periods ended December 31, 2022.
- Asset allocation of Total Fund looked more like that of a large public fund up until about 5 years ago.
- Asset allocation of Total Fund has evolved to look more like a large endowment and should perform increasingly in line with that universe over time.

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