City of Columbia

Police & Fire Pension

Presented on September 9th, 2022

city of Columbia

Princeton Investment Consulting

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UBS

Quarterly review & outlook

4Q22 into 1Q23

Chief Investment Office GWM

January 2023

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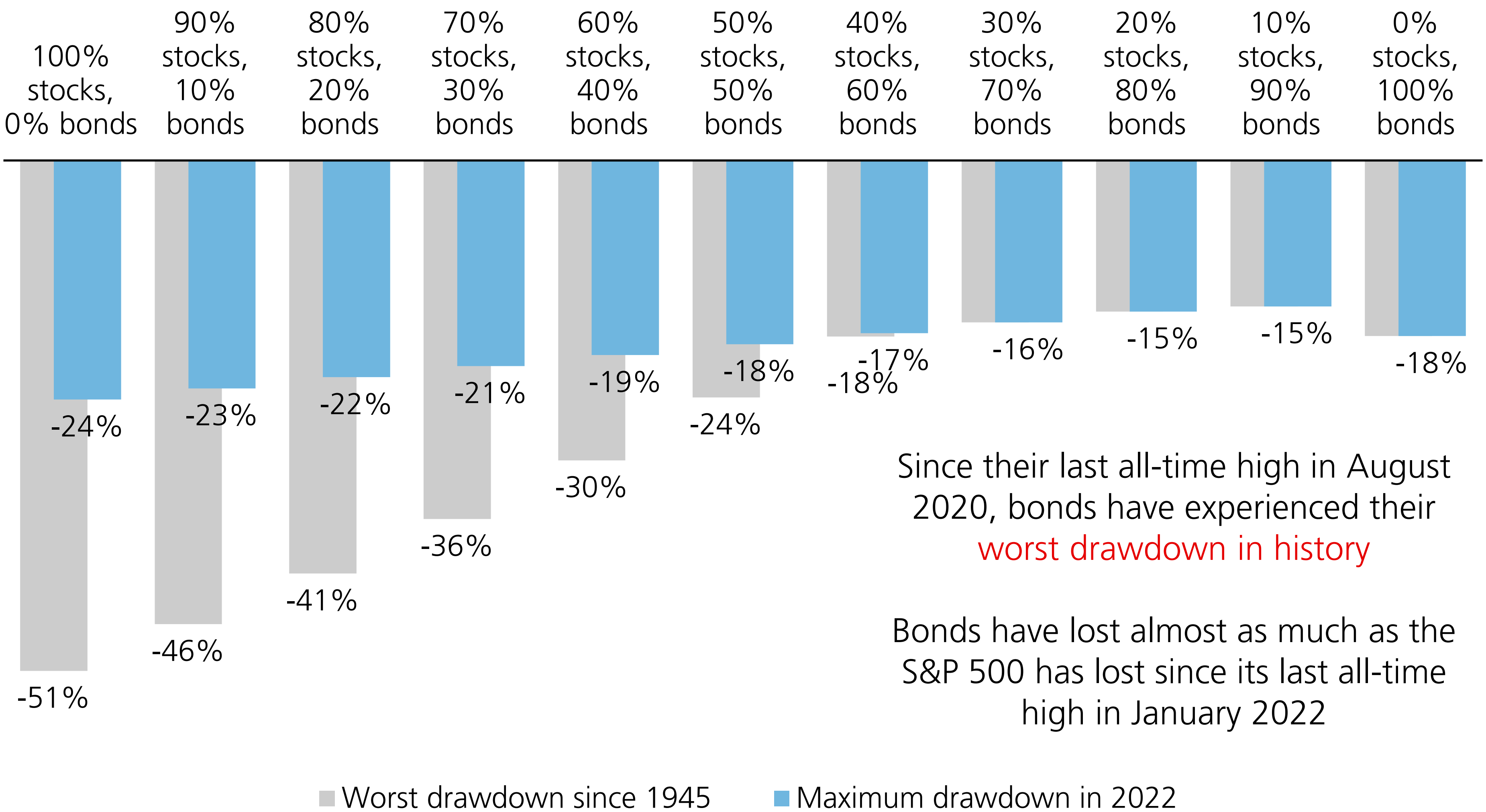
All diversified portfolios endured heavy losses

Drawdowns (losses from last all-time high) for various stock/bond portfolios, composed of US large-cap stocks and US intermediate-duration government bonds



Since their last all-time high in August 2020, bonds have experienced their worst drawdown in history

Bonds have lost almost as much as the S&P 500 has lost since its last all-time high in January 2022

Source: Bloomberg, MorningstarDirect, UBS as of 20 January 2023.
Note: These historical drawdowns are based on month-end observations of total return indexes (which include the impact of reinvested dividends). This analysis assumes that each portfolio is rebalanced monthly.

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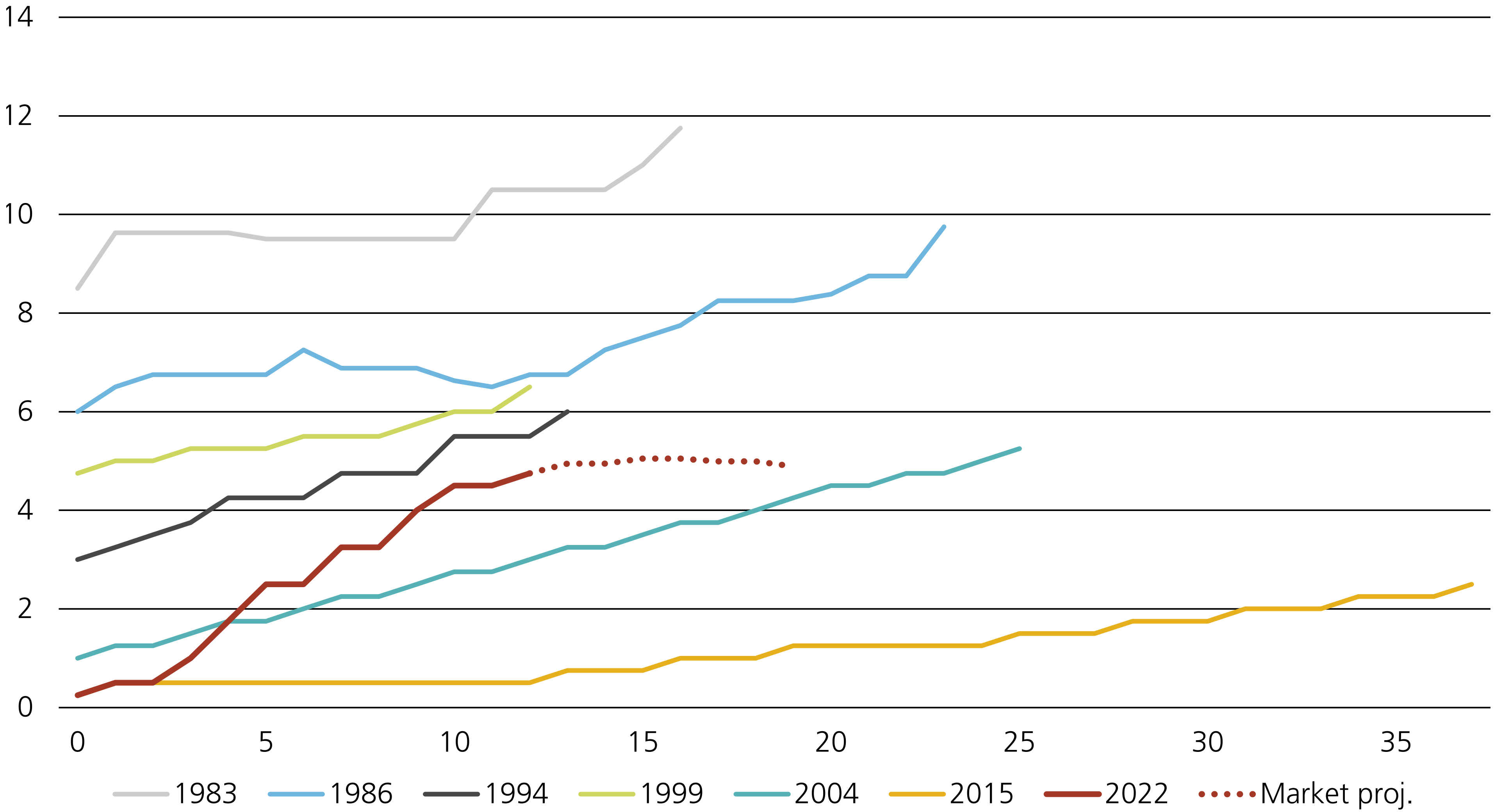
The FOMC has hiked rates at an unprecedented pace

Fed funds rate-hiking cycles since 1980; t=0 months represent the start of the rate-hiking cycle



Source: Bloomberg, UBS, as of 1 February 2023

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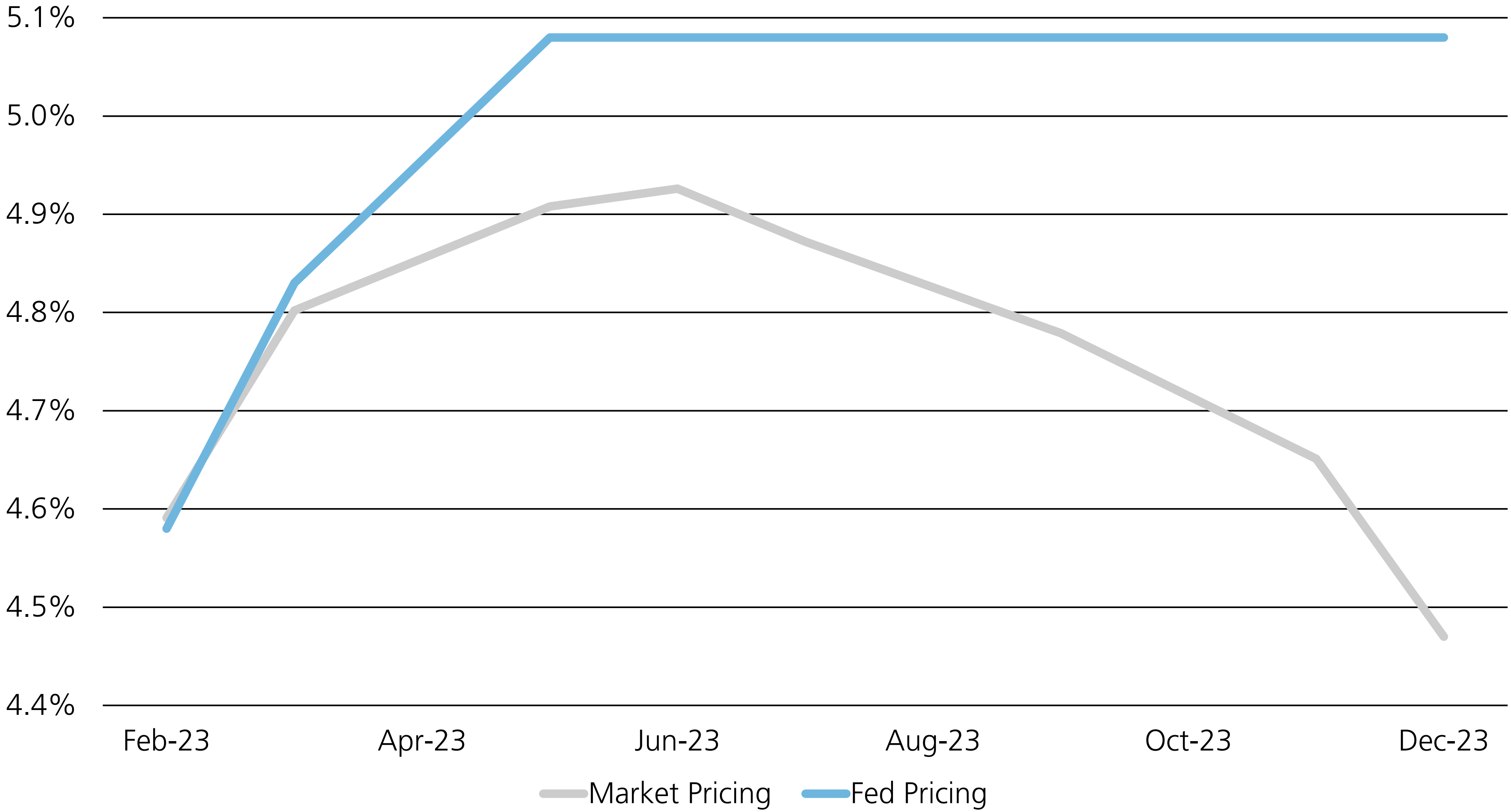
Markets are pricing rate cuts despite Fed rhetoric

Estimated federal funds rate by June 2023 based on federal funds futures and Fed rhetoric. Fed pricing assumes 25bps hikes until the median year-end dot is reached; based on recent Fed official comments and December 2022 meeting minutes, which indicated no FOMC members anticipated cuts before 2024



Source: Bloomberg, UBS, as of 23 January 2023

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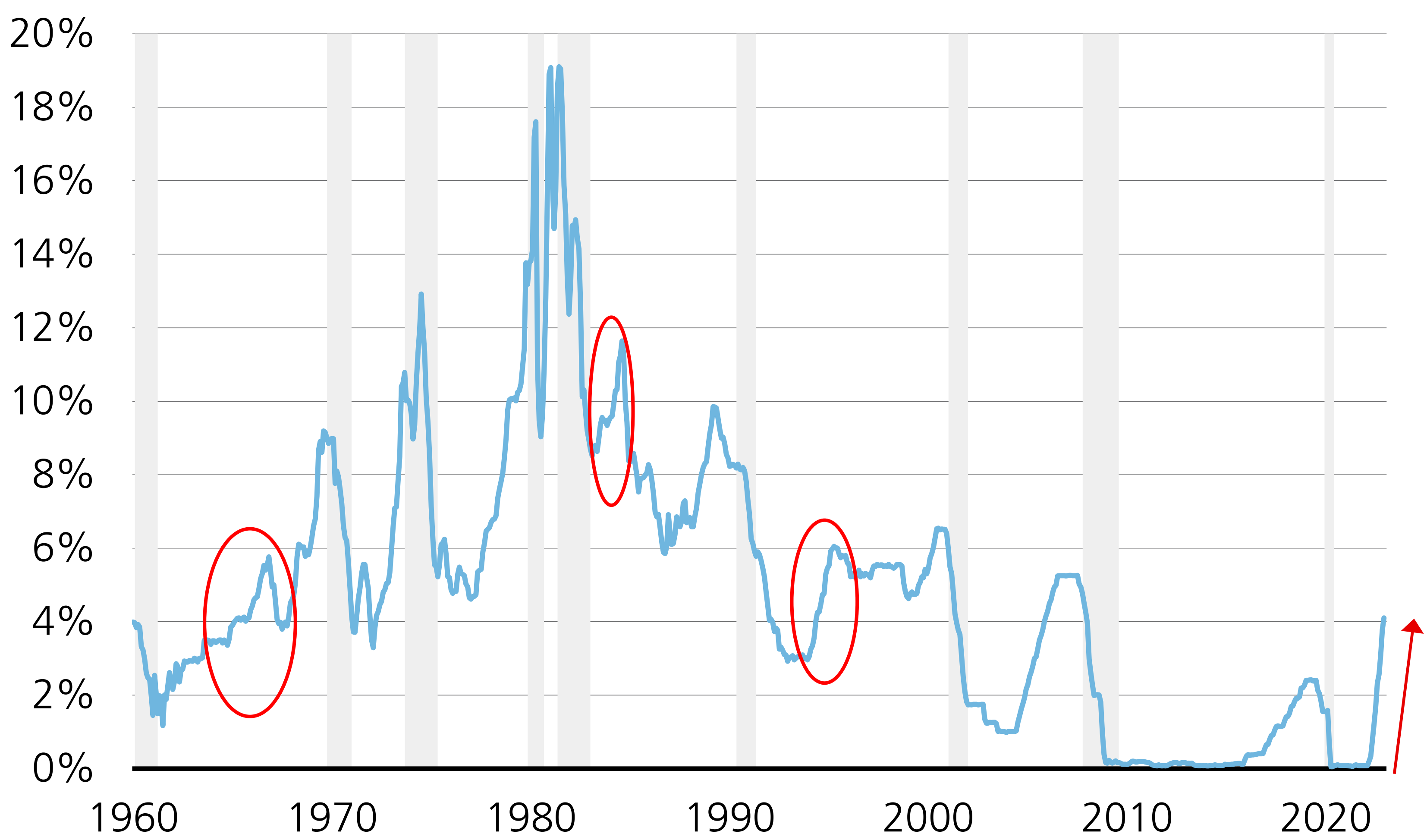
The Fed is a crucial variable for the economy

Federal funds rate — circles denote Fed hikes that did not lead to recession



Source: UBS, as of 23 January 2023

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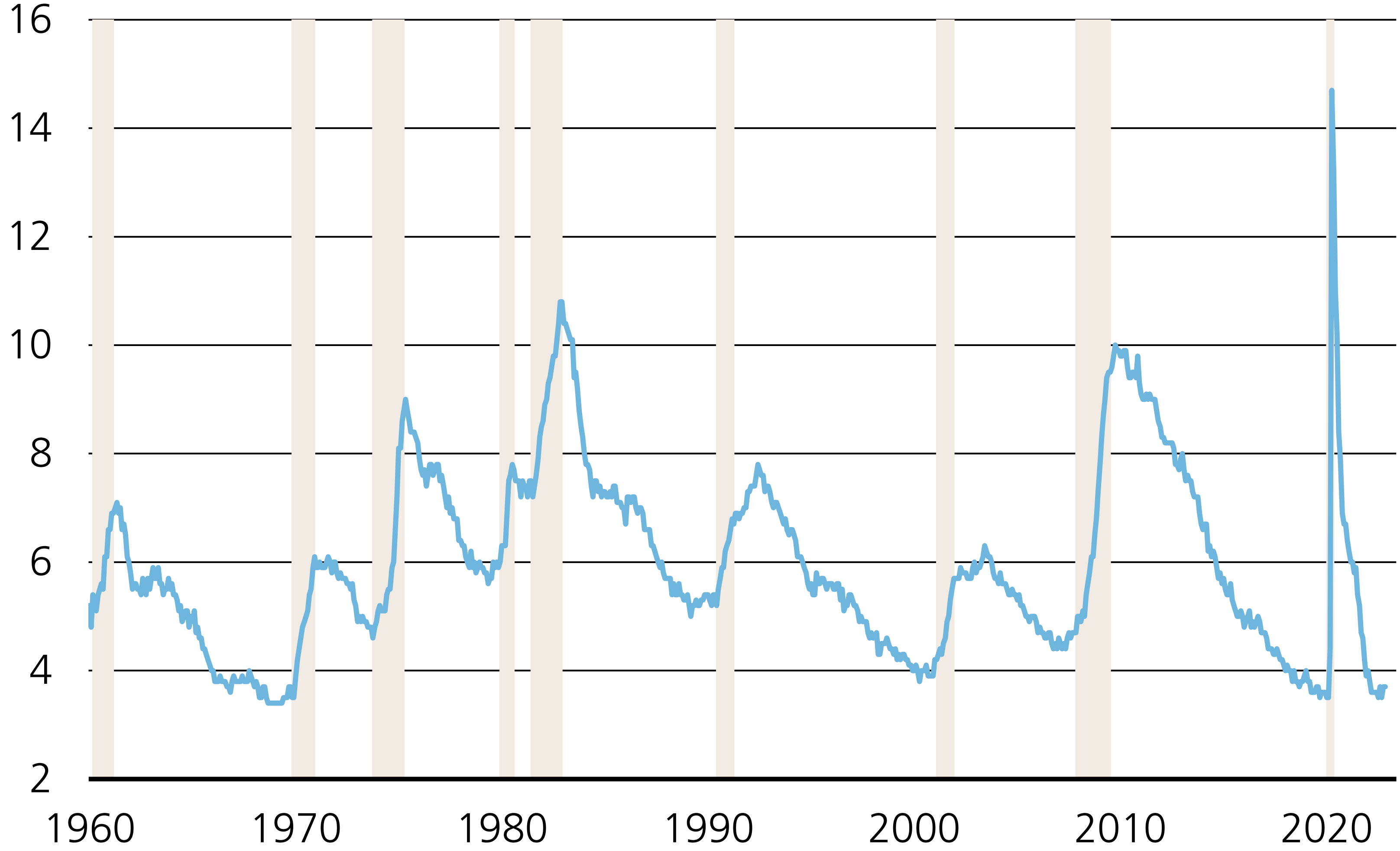
A true recession leads to an increase in unemployment

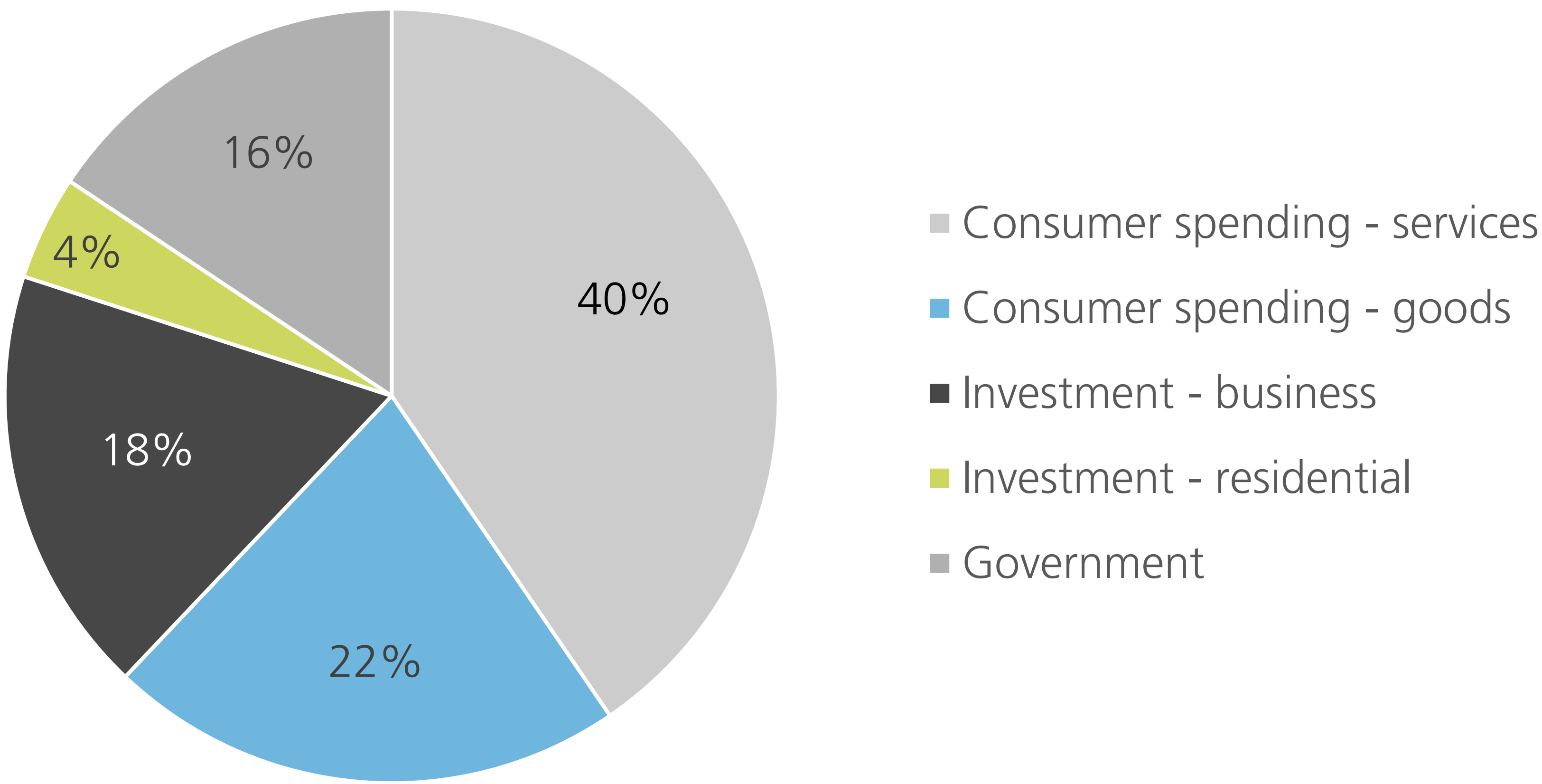
US unemployment rate, in %



Source: Bloomberg, UBS, as of 30 November 2022

Consumer spending dominates economic activity

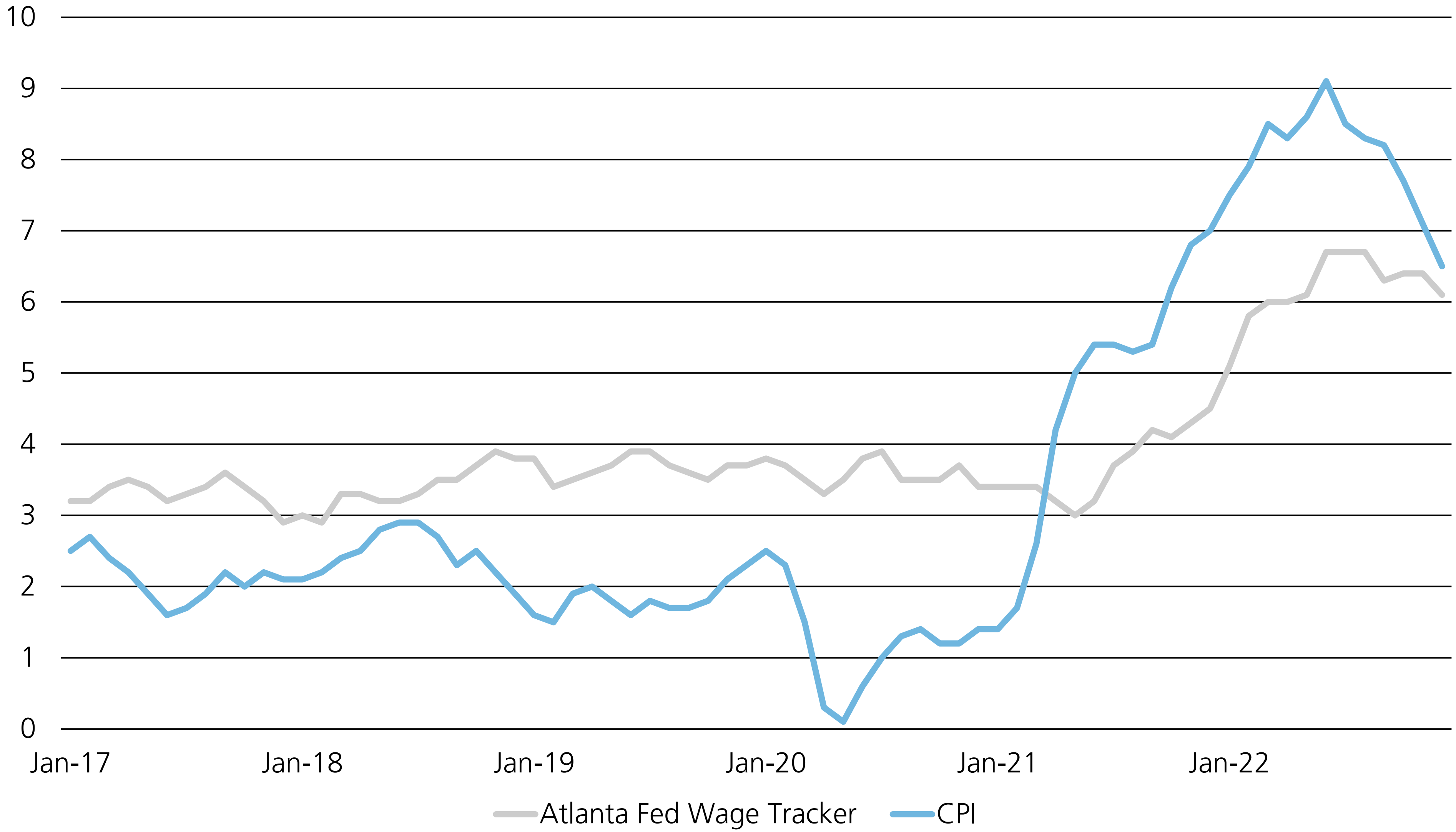
Components of US gross domestic product (GDP)



Source: UBS, as of 23 January 2023

Wage growth appears to be stagnating

Atlanta Fed Wage Tracker vs. CPI inflation, in %



Source: Bloomberg, UBS, as of 1 February 2023

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Consumer debt levels are benign

Source: Bloomberg, UBS, as of 31 October 2022

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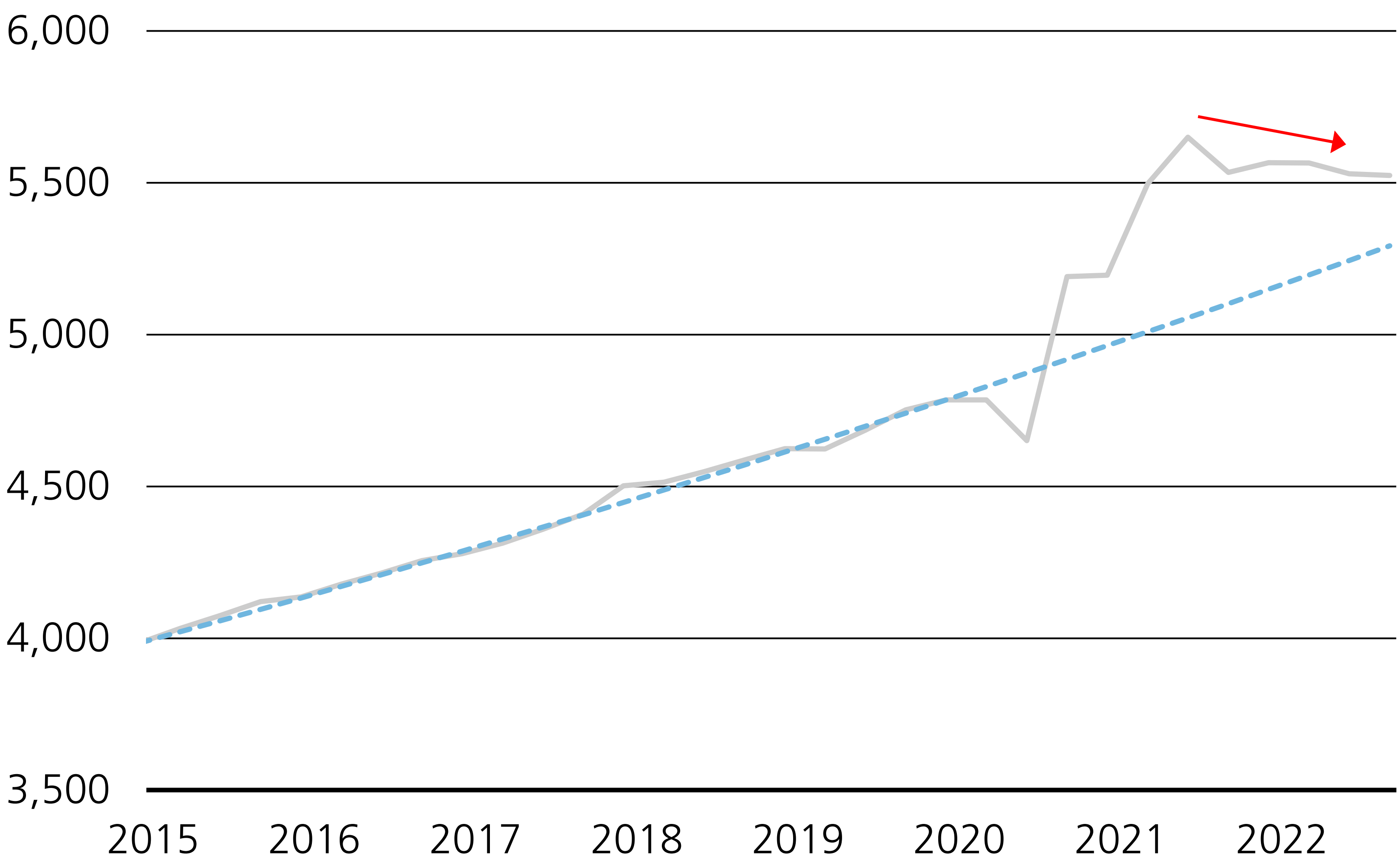
Demand for goods is normalizing

GDP US personal consumption total goods, in billions, vs. trend (dashed line)



Source: Bloomberg, UBS, as of 23 January 2023

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Given the uncertainty, we have low market conviction

Upside

- Inflation falls faster than expected, allowing central banks to cut rates sooner.
- Economic activity reaccelerates as falling inflation boosts real incomes.
- Financial conditions ease, lifting market valuations.
- The corporate earnings outlook im-proves.
- The war in Ukraine deescalates, e.g., via a ceasefire agreement.
- A quicker-than-expected reacceleration in China boosts global demand.
- Risk assets are lifted by easing financial conditions and a brightening outlook for growth.

Central

- Inflation continues to slow, allowing central banks to complete their hiking cycles in 1H23.
- The US economy enters a mild recession in 2H23, owing to the lagged impact of monetary policy.
- Economic activity in China reaccelerates from 2Q23 onwards.
- In the Eurozone and the UK, lower energy prices pose up-side risk to growth.
- The war in Ukraine drags on and keeps markets volatile for the foreseeable future.
- Markets remain volatile in 1H23 owing to uncertainty about inflation, monetary tightening, and economic growth. Risk assets start trending higher in 2H23 amid turning points in growth, inflation, and interest rates.

Downside

- Inflation proves more persistent than central banks and markets expect, resulting in a protracted period of tighter monetary policy.
- Growth in Europe and the US falls more sharply than expected owing to tight monetary policy and a deepening cost-of living crisis.
- Financial conditions tighten further, causing stress in the financial system.
- Central banks cut interest rates in 2H23 as recession deepens and unemployment and defaults rise.
- Economic recovery starts in 2024. China takes a U-turn in its economic reopening as COVID cases soar.
- The war in Ukraine escalates or US-China tensions intensify.
- Markets experience a severe downturn.

Source: UBS, as of 1 February 2023

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Markets have a difficult path ahead

UBS CIO central, downside, and upside June 2023 expectations

Index	Current (2 February)	June 2023 forecasts, projected change		
		Central scenario	Upside scenario	Downside scenario
S&P 500	4,180	3,700 –11.5%	4,400 5.3%	3,300 –21%
Euro Stoxx 50	4,241	3,800 –10.4%	4,550 7.3%	3,300 –22.2%
MSCI EM	1,043	1,050 0.7%	1,150 10.3%	820 –21.4%
Swiss Market Index	11,188	10,400 –7%	12,200 9%	9,000 –19.6%
US IG spread (bps)	125	155bps 30	90bps –35	225bps 100
US HY spread (bps)	433	550bps 117	300bps –133	850bps 417
EM USD bonds spread (bps)	413	425bps 12	300bps –113	600bps 187

Source: UBS, Bloomberg, as of 2 February 2023

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Appendix: Investment committees

Global Investment Process and Committee Description
The UBS investment process is designed to achieve replicable, high-quality results through applying intellectual rigor, strong process governance, clear responsibility, and a culture of challenge.

Based on the analyses and assessments conducted and vetted throughout the investment process, the Chief Investment Officer (CIO) formulates the UBS Wealth Management Investment House View (e.g., overweight, neutral, underweight stances for asset classes and market segments relative to their benchmark allocation) at the Global Investment Committee (GIC). Senior investment professionals from across UBS, complemented by selected external experts, debate and rigorously challenge the investment strategy to ensure consistency and risk control.

Global Investment Committee Composition
The GIC comprises top market and investment expertise from across all divisions of UBS:
- Mark Haefele (Chair)
- Paul Donovan
- Tan Min Lan
- Themis Themistocleous
- Bruno Marxer
- Adrian Zürcher
- Mark Andersen
- Solita Marcelli

GWMA Asset Allocation Committee Description
We recognize that a globally derived house view is most effective when complemented by local perspective and application. As such, UBS has formed a Wealth Management Americas Asset Allocation Committee (WMA AAC). WMA AAC is responsible for the development and monitoring of UBS WMA's strategic asset allocation models and capital market assumptions. The WMA AAC sets parameters for the CIO Americas, WM Investment Strategy Group to follow during the translation process of the GIC's House Views and the incorporation of US-specific asset class views into the US-specific tactical asset allocation models.

GWMA Asset Allocation Committee Composition
The GWMA Asset Allocation Committee comprises nine members:
- Solita Marcelli
- Jason Draho
- Leslie Falconio
- David Lefkowitz
- Dan Scansaroli
- Tom McLoughlin
- Brian Rose

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Investment Performance

Period Ending February 28, 2023

Prepared for:
City of Columbia, MO Police & Fire Pension
March 13, 2023

Prepared by:
L. Marc Shegoski & David Sears

Consolidated Account Report

Please contact your UBS Institutional Consultant if you have any questions regarding this report, if your financial situation, individual needs or investment objectives have changed, or if you would like to initiate or modify any investment restrictions on this account.

City of Columbia, MO Police & Fire Pension
February 28, 2023

Accounts Included in this Report

UBS account statements represent the only official record of holdings, balances, transactions and security values of assets in your UBS Financial Services Inc. account and are not replaced, amended or superseded by any information presented in this report. As an accommodation to you, values of accounts that you hold at other financial institutions may be included as part of your UBS IC Consulting Services Agreement based on information, including pricing information, provided to us. This report does not include assets held in your UBS account(s) that are not a part of the Institutional Consulting program unless you have requested that those accounts be included in this report. UBS does not independently verify or guarantee the accuracy or validity of any information provided by sources other than UBS Financial Services Inc. Please see the 'Important Information' section at the end of this report for detailed pricing information.

Account Name	Account Number	Custodian Name
Delaware Intl Val	PTxxx70	UBS Financial Services
BREIT	ptxxx26	UBS Financial Services
Canyon Partners Distressed Debt	PTxxx64	UBS Financial Services
Chartwell Low Duration HY BB	PTxxx01	UBS Financial Services
Metlife STAMP 1-5	PTxxx12	UBS Financial Services
DSAM Core Plus	PTxxx10	UBS Financial Services
Capital Group Intl	PTxxx16	UBS Financial Services
MFS Large Value	PTxxx67	UBS Financial Services
Kayne Anderson Small Cap Core	PTxxx84	UBS Financial Services
Eagle Asset Management	PTxxx46	UBS Financial Services
Goldman Sachs Mid Value	PTxxx73	UBS Financial Services
S&P 500 Index	PTxxx11	UBS Financial Services
Vanguard Growth	PTxxx35	UBS Financial Services
O'Shaughnessy LCV	PTxxx95	UBS Financial Services

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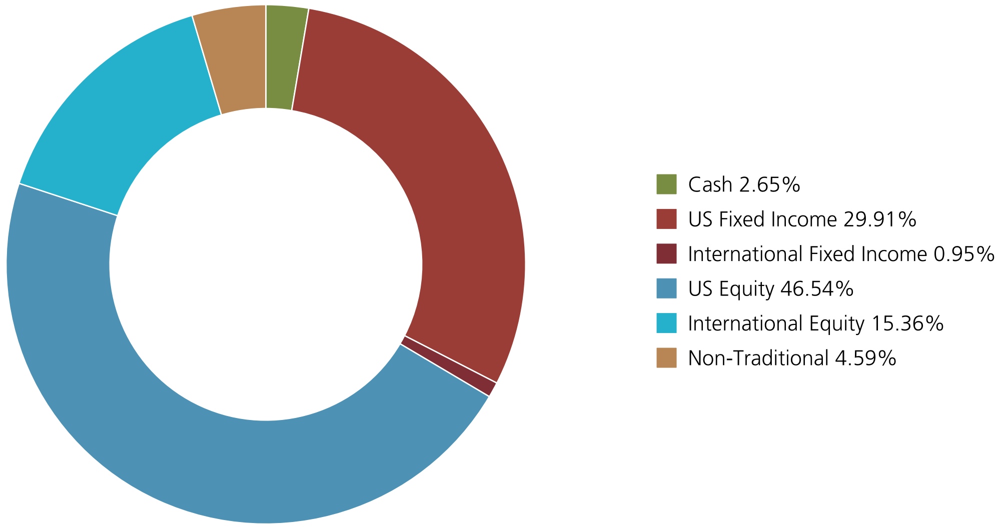
Asset allocation review

as of March 10, 2023

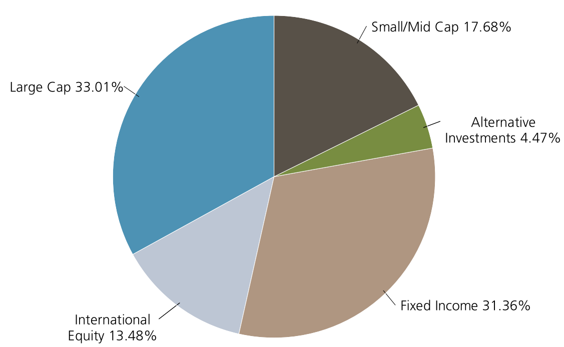
Summary of asset allocation

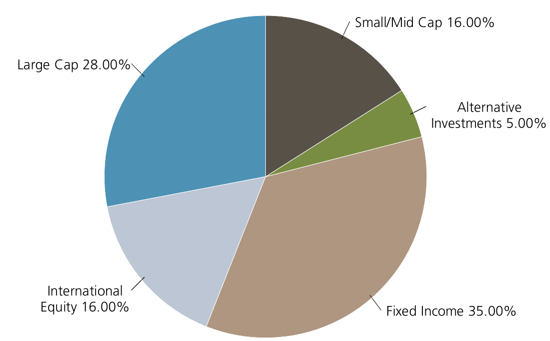
	Market value ($)	% of Portfolio
Cash	**4,294,586.31**	**2.65**
Cash	**4,294,586.31**	**2.65**
US	4,294,586.31	2.65
Fixed Income	**50,083,076.15**	**30.87**
US	**48,538,542.87**	**29.91**
US Fixed Income	5,271,232.24	3.25
Government	26,683,667.59	16.44
Municipals	1,895,101.51	1.17
Corporate IG Credit	11,042,045.30	6.81
Corporate High Yield	3,623,524.98	2.23
Preferreds	22,971.25	0.01
International	**1,544,533.28**	**0.96**
International	166,192.28	0.10
Developed Markets	1,347,609.26	0.83
Emerging Markets	30,731.74	0.03
Equity	**100,432,993.93**	**61.89**
US	**75,515,253.24**	**46.53**
Large Cap	46,314,507.16	28.53
Mid Cap	21,901,262.78	13.50
Small Cap	7,299,483.30	4.50
International	**24,917,740.69**	**15.36**
International	867,774.16	0.53
Developed Markets	23,415,587.48	14.43
Emerging Markets	634,379.05	0.40
Commodities	**0.00**	**0.00**
Non-Traditional	**7,445,521.26**	**4.59**
Non-Traditional	**7,445,521.26**	**4.59**
Private Equity	4,855,132.00	2.99
Private Real Estate	2,590,389.26	1.60
Other	**0.00**	**0.00**
Total Portfolio	**$162,256,177.65**	**100%**



Report created on: March 13, 2023

Actual vs Target Asset Allocation
As of February 28, 2023





	Market Value Actual	Percent Actual	Market Value Target	Percent Target	Market Value Difference	Percent Difference
Large Cap	54,400,335.3	33.0%	46,144,021.4	28.0%	8,256,313.9	5.0%
Fixed Income	51,676,283.5	31.4%	57,680,026.7	35.0%	(6,003,743.2)	(3.6%)
Small/Mid Cap	29,130,524.0	17.7%	26,368,012.2	16.0%	2,762,511.8	1.7%
International Equity	22,221,853.9	13.5%	26,368,012.2	16.0%	(4,146,158.4)	(2.5%)
Alternative Investments	7,371,079.7	4.5%	8,240,003.8	5.0%	(868,924.1)	(0.5%)
TOTAL FUND	**$164,800,076.4**	**100.0%**	**$164,800,076.4**	**100.0%**	**$0.0**	**0.0%**

Asset Allocation

Name	Incept. Date	Benchmark	Market Value	% Portfolio	$ Target	$ Difference	% Allocation Target
Large Cap							
Large Cap Value							
MFS Large Value	9/22/2011	Russell 1000 Value	$16,542,399	10.0%	$6,592,003	$9,950,396	4.0%
O'Shaughnessy LCV	7/3/2014	Russell 1000 Value	$11,186,038	6.8%	$6,592,003	$4,594,035	4.0%
Large Cap Growth							
Vanguard Growth	3/25/2021	CRSP US Large Cap Gr	$12,685,751	7.7%	$13,184,006	($498,255)	8.0%
Large Cap Core							
S&P 500 Index	10/29/2018	S&P 500 Index	$13,986,147	8.5%	$19,776,009	($5,789,862)	12.0%
Total Large Cap	9/22/2011	Large Cap Index	$54,400,335	33.0%	$46,144,021	$8,256,314	28.0%
Small/Mid Cap							
Goldman Sachs Mid Value	9/22/2011	Russell Midcap Value	$8,794,825	5.3%	$8,240,004	$554,821	5.0%
Eagle Asset Management	3/29/2017	Russell Midcap Grwth	$7,628,815	4.6%	$8,240,004	($611,189)	5.0%
Kayne Anderson Small Cap Core	3/26/2019	Russell 2000	$12,706,884	7.7%	$9,888,005	$2,818,880	6.0%
Total Small/Mid Cap	9/22/2011	Small/Mid Index	$29,130,524	17.7%	$26,368,012	$2,762,512	16.0%
International Equity							
Delaware Intl Val	9/22/2011	MSCI EAFE NR USD	$11,033,995	6.7%	$13,184,006	($2,150,012)	8.0%
Capital Group Intl	10/26/2018	MSCI EAFE	$11,187,859	6.8%	$13,184,006	($1,996,147)	8.0%
Total International Equity	9/22/2011	International Index	$22,221,854	13.5%	$26,368,012	($4,146,158)	16.0%
Fixed Income							
DSAM Core Plus	1/5/2015	BB Agg Bond	$17,342,009	10.5%	$26,368,012	($9,026,003)	16.0%
Metlife STAMP 1-5	12/4/2019	ICE BAML Treas 1-5 Y	$29,504,386	17.9%	$26,368,012	$3,136,373	16.0%
Chartwell Low Duration HY BB	5/15/2014	ICE BofAML 1	$4,829,889	2.9%	$4,944,002	($114,114)	3.0%
Total Fixed Income	9/22/2011	Fixed Income Index	$51,676,284	31.4%	$57,680,027	($6,003,743)	35.0%
Alternative Investments							
Canyon Partners Distressed Debt	12/31/2020	BoA ML US High Yield	$4,716,955	2.9%	$4,944,002	($227,047)	3.0%
BREIT	10/27/2022	NCREIF Open-End Dive	$2,654,125	1.6%	$3,296,002	($641,877)	2.0%
Total Alternative Investments	12/31/2020		$7,371,080	4.5%	$8,240,004	($868,924)	5.0%
TOTAL:	12/31/2000	Policy Index	$164,800,076	100.0%	$164,800,076	$0	100.0%

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Performance Summary
As of February 28, 2023

Asset Class/Portfolio	Inception	Allocation Percent	11/30/2022 Market Value	Net Cash Flows	Investment Gain/Loss	02/28/2023 Market Value	3 mo.	YTD	Fiscal 09/30/2022 02/28/2023	1 Yr	3 Yr	5 yr	Inception
Large Cap													
Large Cap Value													
MFS Large Value	09/22/2011	10.04%	17,009,202	$0	-$466,803	$16,542,399	-3.80%	-0.96%	12.72%	-0.07%	9.72%	7.22%	12.06%
Russell 1000 Value							-2.62%	1.47%	14.08%	-2.81%	10.96%	7.22%	11.85%
O'Shaughnessy LCV	07/03/2014	6.79%	11,299,445	$0	-$113,407	$11,186,038	-1.00%	4.22%	19.12%	0.29%	15.03%	7.76%	8.87%
Russell 1000 Value							-2.62%	1.47%	14.08%	-2.81%	10.96%	7.22%	7.87%
Large Cap Growth													
Vanguard Growth	03/25/2021	7.70%	12,728,452	$0	-$42,701	$12,685,751	-0.34%	8.74%	8.48%	-16.48%	--	--	-5.20%
CRSP US Large Cap Gr							-0.42%	8.79%	8.63%	-15.85%	--	--	-4.67%
Large Cap Core													
S&P 500 Index	10/29/2018	8.49%	14,835,373	-$505,270	-$343,956	$13,986,147	-2.26%	3.68%	11.98%	-7.74%	12.08%	--	11.16%
S&P 500 Index							-2.28%	3.69%	11.53%	-7.69%	12.15%	--	11.12%
Total Large Cap	***09/22/2011***	***33.01%***	***55,872,472***	***-$505,270***	***-$966,867***	***$54,400,335***	***-2.04%***	***3.45%***	***12.72%***	***-2.09%***	***12.11%***	***8.04%***	***12.24%***
Large Cap Index							-2.03%	3.67%	12.08%	-7.30%	11.83%	9.43%	13.05%
Small/Mid Cap													
Goldman Sachs Mid Value	09/22/2011	5.34%	8,886,970	$0	-$92,145	$8,794,825	-1.04%	3.68%	14.34%	-2.64%	14.52%	9.97%	11.41%
Russell Midcap Value							-0.70%	4.62%	15.55%	-3.42%	11.96%	7.27%	12.09%
Eagle Asset Management	03/29/2017	4.63%	7,706,257	$0	-$77,442	$7,628,815	-0.91%	5.94%	10.20%	-8.56%	8.19%	8.24%	11.16%
Russell Midcap Grwth							1.19%	7.65%	15.08%	-8.31%	8.66%	8.74%	10.68%
Kayne Anderson Small Cap Core	03/26/2019	7.71%	12,037,898	$0	$668,986	$12,706,884	5.56%	11.78%	21.05%	10.76%	15.94%	--	13.28%
Russell 2000							0.89%	7.89%	14.61%	-6.02%	10.08%	--	6.83%
Total Small/Mid Cap	***09/22/2011***	***17.68%***	***28,631,125***	***$0***	***$499,399***	***$29,130,524***	***1.77%***	***7.68%***	***15.99%***	***0.63%***	***13.22%***	***10.19%***	***12.31%***
Small/Mid Index							0.48%	6.80%	15.04%	-5.83%	10.35%	7.24%	11.65%
International Equity													
Delaware Intl Val	09/22/2011	6.70%	10,297,513	$0	$736,481	$11,033,995	5.18%	6.41%	24.38%	-3.51%	4.77%	1.98%	5.36%
MSCI EAFE							5.93%	5.84%	24.20%	-3.14%	6.84%	2.65%	6.38%
Capital Group Intl	10/26/2018	6.79%	10,838,738	$3,197	$345,925	$11,187,859	3.19%	5.54%	23.83%	-3.44%	6.45%	--	7.62%
MSCI EAFE							5.93%	5.84%	24.20%	-3.14%	6.84%	--	5.47%
Total International Equity	***09/22/2011***	***13.48%***	***21,136,251***	***$3,197***	***$1,082,406***	***$22,221,854***	***4.16%***	***5.97%***	***24.09%***	***-3.48%***	***5.60%***	***3.57%***	***6.08%***
International Index							5.93%	5.84%	24.20%	-3.14%	6.84%	2.42%	6.39%
Fixed Income													

Performance Summary
As of February 28, 2023

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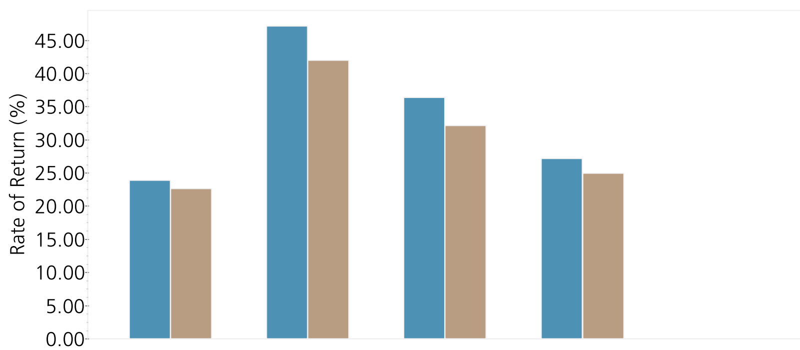
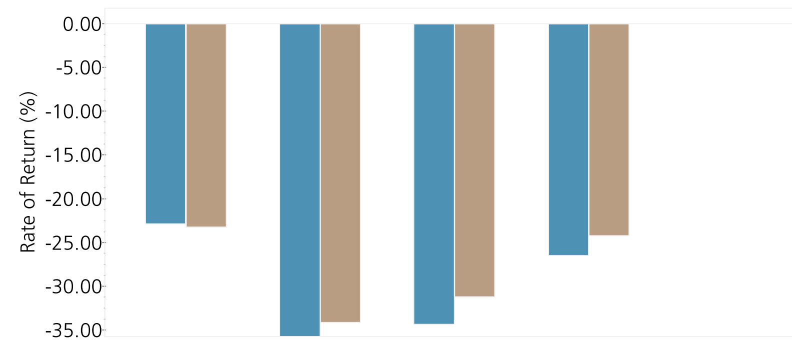
DSAM Core Plus	01/05/2015	10.52%	15,022,141	$897	$2,318,971	$17,342,009	0.05%	0.22%	1.53%	-10.57%	-3.56%	0.69%	1.02%
Barclays Aggregate							-0.04%	0.41%	2.29%	-9.72%	-3.77%	0.53%	0.63%
Metlife STAMP 1-5	12/04/2019	17.90%	29,464,600	-$290	$40,076	$29,504,386	0.23%	0.01%	1.42%	-3.46%	-0.95%	--	-0.38%
ICE BAML Treas 1-5 Y							-0.10%	-0.16%	0.78%	-4.13%	-1.50%	--	-0.78%
Chartwell Low Duration HY BB	05/15/2014	2.93%	4,788,116	$0	$41,773	$4,829,889	0.87%	0.65%	3.34%	-0.78%	1.64%	2.47%	2.23%
BofA ML 1-3 BB US Ca							1.39%	1.56%	4.30%	0.46%	2.72%	3.40%	3.44%
Total Fixed Income	***09/22/2011***	***31.36%***	***49,274,858***	***$607***	***$2,400,819***	***$51,676,284***	***0.19%***	***0.08%***	***1.61%***	***-6.81%***	***-2.04%***	***1.39%***	***1.90%***
Fixed Income Index							0.08%	0.19%	1.64%	-6.47%	-2.16%	1.13%	1.32%
Alternative Investments													
Canyon Partners Distressed Debt	12/31/2020	2.86%	4,212,516	$505,270	-$831	$4,716,955	-0.02%	-0.02%	1.22%	-2.21%	--	--	8.61%
BoA ML US High Yield							1.81%	2.58%	6.65%	-5.51%	--	--	-1.89%
BREIT	10/27/2022	1.61%	2,625,542	$290	$28,293	$2,654,125	1.08%	2.26%	--	--	--	--	1.10%
NCREIF Open-End Dive							-4.97%	0.00%	--	--	--	--	-4.97%
Total Alternative Investments	***12/31/2020***	***4.47%***	***6,838,058***	***$505,560***	***$27,462***	***$7,371,080***	***0.36%***	***0.81%***	***1.37%***	***-2.34%***	***--***	***--***	***8.35%***
TOTAL:	**12/31/2000**	**100.00%**	**161,752,763**	**$4,094**	**$3,043,220**	**$164,800,076**	**0.18%**	**3.29%**	**10.69%**	**-4.52%**	**6.61%**	**5.60%**	**6.10%**
Policy Index							0.36%	3.16%	9.55%	-5.95%	5.31%	5.19%	--
Columbia Composite Benchmark							0.10%	3.27%	10.39%	-5.88%	6.72%	5.74%	--

Market Cycle Analysis

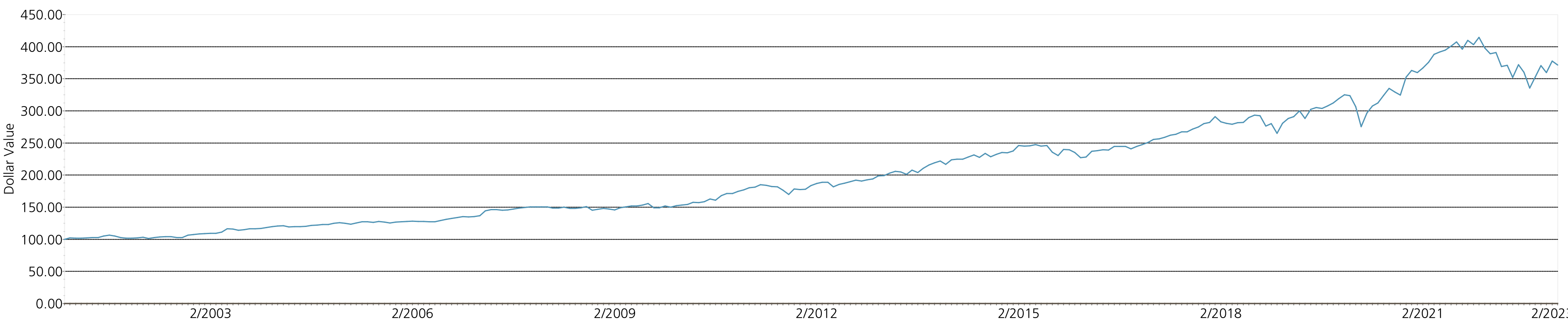


	One Year	Three Years	Five Years	Ten Years	Since Inception
Total Fund	23.90	47.18	36.45	27.23	N/A
Policy Index	22.62	42.01	32.23	25.01	N/A
Difference	1.28	5.18	4.22	2.22	N/A
Ratio	1.06	1.12	1.13	1.09	N/A
Up Periods	6	22	39	81	N/A



	One Year	Three Years	Five Years	Ten Years	Since Inception
Total Fund	-22.94	-35.77	-34.39	-26.57	N/A
Policy Index	-23.30	-34.17	-31.22	-24.25	N/A
Difference	0.36	-1.60	-3.18	-2.31	N/A
Ratio	0.98	1.05	1.10	1.10	N/A
Down Periods	6	14	21	39	N/A

Growth of $100 Dollars



	Latest Month	Latest Quarter	One Year	Three Years	Five Years	Ten Years	Since Inception
TOTAL FUND	$ 98	$ 103	$ 95	$ 121	$ 131	$ 186	$ 371
Policy Index	$ 98	$ 103	$ 94	$ 117	$ 129	$ 183	N/A
CPI	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*While the CPI measures changes in the prices for goods and services, movements in the CPI that have occurred in the past are not necessarily indicative of changes that may occur in the future.
Policy Index: 32% Bloomberg Barclays Aggregate Bond, 27% Russell 1000, 15% MSCI Net EAFE, 8% Russell Midcap, 5% HFRI Fund of Funds Composite Index, 5% NFI-ODCE-EQ, 5% Russell 2000, 3% ICE BofAML High Yield Master Index

This report is provided for informational purposes only. The information shown was obtained from sources believed to be reliable, the accuracy of which is not guaranteed. Account statements provided by UBS or other financial institutions are the official record of your holdings, balances, transactions and security values and are not amended or superseded by the information in this report. Information is current as of the date shown. Past performance is no guarantee of future returns. See IMPORTANT INFORMATION for assumptions and limitations of the analysis in this report, risk considerations, valuation, fees and other details regarding this report. For historical primary index information, see Benchmark Comparisons Used in this Report.

Account Values

	Latest Quarter	Fiscal YTD	Year to Date	One Year	Three Years	Five Years	Since Inception
Beginning Mkt Value	$158,635,952.35	$148,967,958.68	$158,635,952.35	$176,696,478.41	$141,891,754.94	$134,570,794.51	$29,386,201.26
Net Contributions	$3,361.39	$10,788,938.65	$3,361.39	$8,172,649.62	$5,000,136.24	$10,335,193.97	$37,687,256.08
Investment Earnings	$6,160,762.66	$5,043,179.07	$6,160,762.66	($20,069,051.63)	$17,440,331.89	$19,426,234.59	$97,258,669.13
Ending Mkt Value	$164,800,076.40	$164,800,076.40	$164,800,076.40	$164,800,076.40	$164,800,076.40	$164,800,076.40	$164,800,076.40

Returns

	Latest Quarter	Fiscal YTD	Calendar YTD	One Year	Three Years	Five Years	Ten Years	Fifteen Years	Since Inception
Account	3.30%	10.69%	3.30%	-4.52%	6.61%	5.60%	6.42%	6.02%	6.10%
Policy Index	3.16%	9.55%	3.16%	-5.95%	5.31%	5.19%	6.23%		
Difference	0.15%	1.14%	0.15%	1.42%	1.30%	0.41%	0.19%		

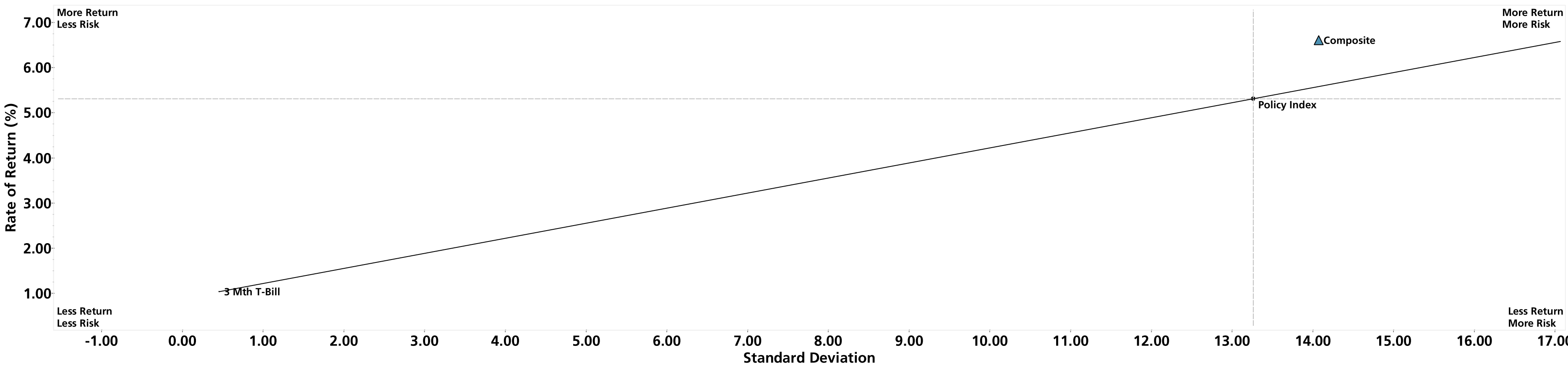
Calendar Year Returns

	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Account	3.30%	-13.32%	14.33%	11.56%	22.76%	-6.10%	13.95%	5.24%	0.18%	5.87%	14.17%	9.25%
Policy Index	3.16%	-13.92%	11.58%	13.43%	19.53%	-4.59%	13.23%	7.88%	-0.54%	6.70%	13.38%	10.38%
Difference	0.15%	0.60%	2.74%	-1.87%	3.23%	-1.51%	0.72%	-2.64%	0.72%	-0.84%	0.79%	-1.12%

Policy Index: 32% Bloomberg Barclays Aggregate Bond, 27% Russell 1000, 15% MSCI Net EAFE, 8% Russell Midcap, 5% HFRI Fund of Funds Composite Index, 5% NFI-ODCE-EQ, 5% Russell 2000, 3% ICE BofAML High Yield Master Index

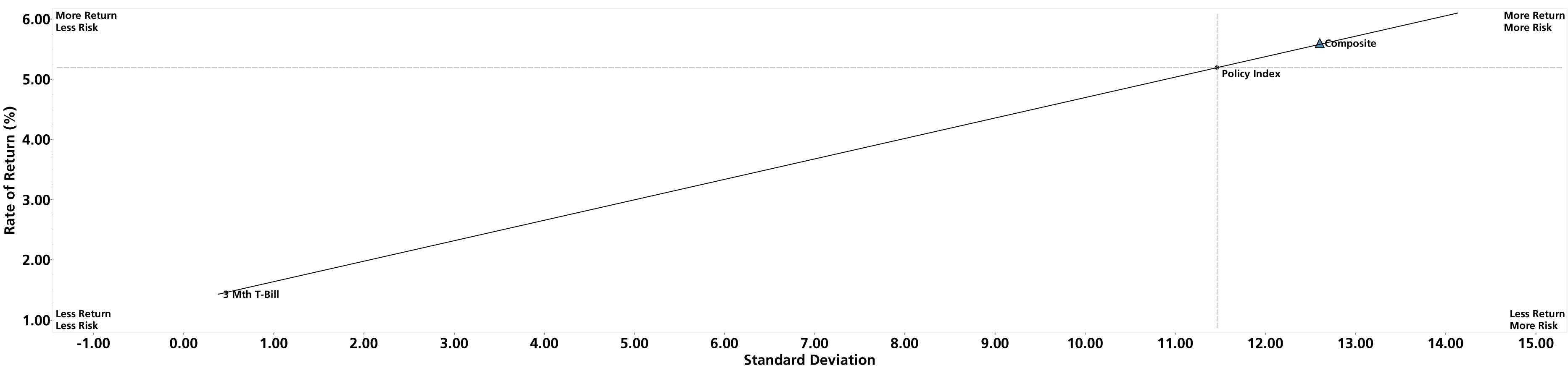
Risk vs Reward

Three Years



	Return	Sharpe Ratio	Std Dev	Alpha	Beta	R-Squared	Info Ratio
Composite	6.61	0.40	14.07	1.08	1.05	98.74	0.77

Five Years



	Return	Sharpe Ratio	Std Dev	Alpha	Beta	R-Squared	Info Ratio
Composite	5.60	0.33	12.60	0.14	1.09	98.08	0.25

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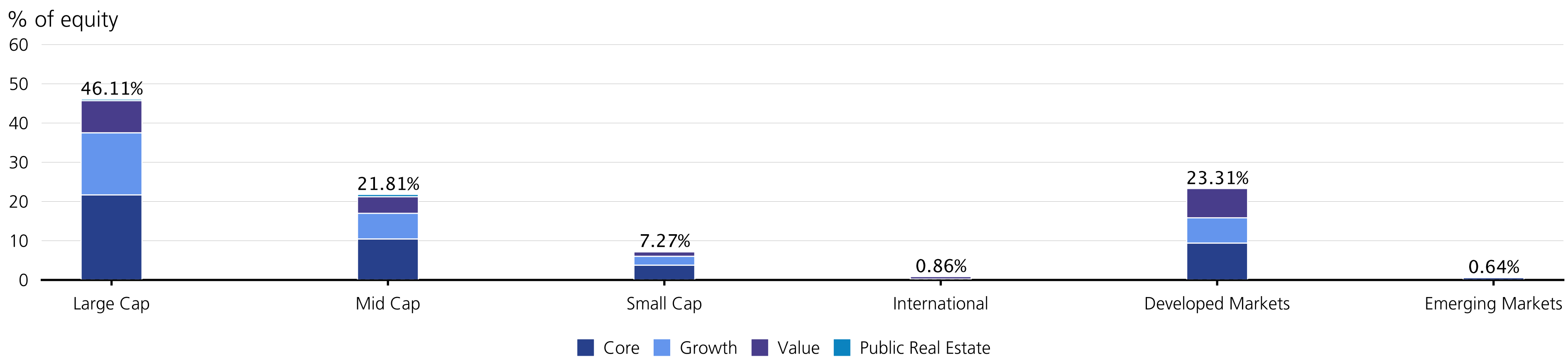
UBS

Equity summary

as of March 10, 2023

Equity capitalization and style analysis



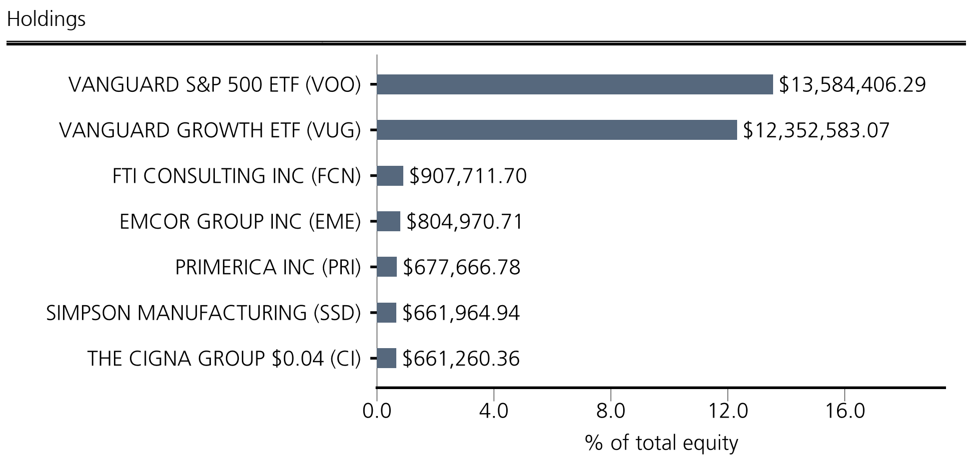
Balanced mutual funds are allocated in the 'Other' category

Equity sector analysis

Compared to S&P 500 index

	Value on 03/10/2023 ($)	Actual (%)	Model (%)	Gap (%)
Communication Services	5,531,756.02	5.52	7.99	-2.47
Consumer Discretionary	10,805,792.87	10.78	10.72	0.06
Consumer Staples	5,585,102.91	5.57	7.42	-1.85
Energy	4,931,238.68	4.92	4.77	0.15
Financials	16,788,680.53	16.74	10.67	6.07
Health Care	12,551,566.85	12.52	14.15	-1.63
Industrials	16,187,246.79	16.14	8.54	7.60
Information Technology	17,211,333.09	17.16	27.69	-10.53
Materials	4,482,457.40	4.47	2.67	1.80
Real Estate	2,816,341.74	2.81	2.57	0.24
Utilities	3,388,110.66	3.37	2.81	0.56
Total classified equity	**$100,279,627.54**			
Unclassified Securities	71,837.31			

Largest equity holdings



Bond summary

as of March 10, 2023

Bond overview

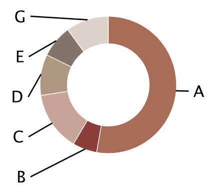
Total quantity	66,931,549
Total market value	$51,250,443.69
Total accrued interest	$297,308.46
Total market value plus accrued interest	$51,547,752.15
Total estimated annual bond interest	$1,425,453.37
Average coupon	2.78%
Average current yield	2.78%
Average yield to maturity	5.01%
Average yield to worst	5.01%
Average modified duration	3.77
Average effective maturity	7.22

Investment type allocation

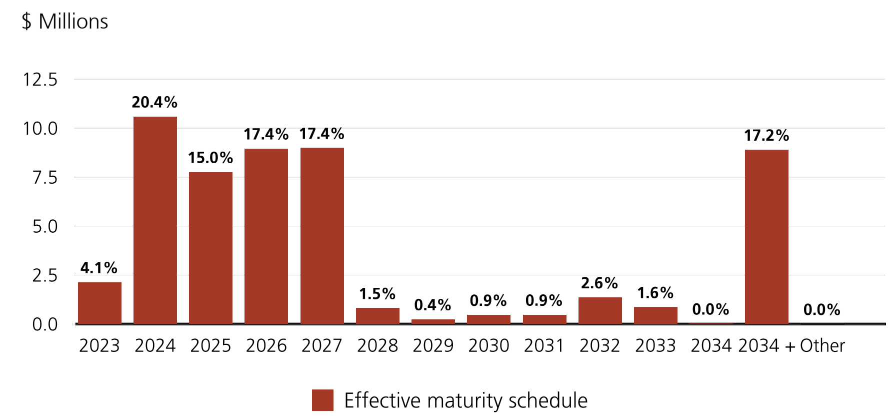
Investment type	Taxable ($)	Tax-exempt / deferred ($)	Total ($)	% of bond port.
Asset/Mortgage	0.00	11,500,671.16	11,500,671.16	22.31
Municipals	0.00	1,895,101.51	1,895,101.51	3.68
U.S. corporates	0.00	16,683,074.81	16,683,074.81	32.36
U.S. federal agencies	0.00	882,519.29	882,519.29	1.71
U.S. treasuries	0.00	20,586,385.39	20,586,385.39	39.94
Total	**$0.00**	**$51,547,752.16**	**$51,547,752.16**	**100%**

Credit quality of bond holdings

	Effective credit rating	Issues	Value on 03/10/2023 ($)	% of port.
A	Aaa/AAA/AAA	84	27,184,643.76	52.82
B	Aa/AA/AA	30	2,974,901.73	5.78
C	A/A/A	65	7,226,600.34	13.99
D	Baa/BBB/BBB	80	4,980,861.02	9.63
E	Non-investment grade	71	3,964,980.08	7.61
F	Certificate of deposit	0	0.00	0.00
G	Not rated	112	5,215,765.23	10.17
Total		**442**	**$51,547,752.15**	**100%**



Bond maturity schedule



Cash, mutual funds and some preferred securities are not included.

Includes all fixed income securities in the selected porfolio. Average yields and durations exclude Structured Product, Pass-Through, Perpetual Preferred, and Foreign securities.

Report created on: March 13, 2023

UBS

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Financial Advisor:
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6094528188

UBS Client Review

as of March 10, 2023

Prepared for

City of Columbia

Accounts included in this review

Account	Name	Type
PX XX612	• MetLife	• UBSIC All-Inclusive Fee
PX XX210	• DSAM	• ACCESS
PX XX367	• MFS LCV	• ACCESS
PX XX611	• 500 INDEX	• UBSIC All-Inclusive Fee
PX XX735	• Vanguard Growth	• UBSIC All-Inclusive Fee
PX XX284	• Kayne SCC	• ACCESS
PX XX616	• CAP GROUP INTL	• ACCESS
PX XX370	• Delaware Intl	• ACCESS
PX XX095	• O'Shaughnessy	• ACCESS
PX XX373	• Goldman MCV	• ACCESS
PX XX746	• Eagle	• ACCESS
PX XX364	• Canyon Partners	• UBSIC All-Inclusive Fee
PX XX801	• Chartwell HY BB	• UBSIC All-Inclusive Fee
PX XX026	• BREIT	• UBSIC All-Inclusive Fee
PX XX568	• Operating Cash	• Defined Benefit
PX XX371	• Argent LCG	• Defined Benefit
PX XX376	• Kayne Ander SCV	• Defined Benefit
PX XX377	• Ryan Labs	• Defined Benefit
PX XX283	• Clearbridge LG	• Defined Benefit
PX XX363	• Bahl Gaynor LCG	• Defined Benefit
PX XX366	• Master DB	• Defined Benefit

What's inside

Asset allocation review. 2
Equity summary. 4
Bond summary. 5
Important information about this report. 6

Asset allocation review - as of March 10, 2023 (continued)

	Market value ($)	% of Portfolio

Balanced mutual funds are allocated in the 'Other' category

Disclosures applicable to accounts at UBS Financial Services Inc.

This section contains important disclosures regarding the information and valuations presented here. All information presented is subject to change at any time and is provided only as of the date indicated. The information in this report is for informational purposes only and should not be relied upon as the basis of an investment or liquidation decision. UBS FS account statements and official tax documents are the only official record of your accounts and are not replaced, amended or superseded by any of the information presented in these reports. You should not rely on this information in making purchase or sell decisions, for tax purposes or otherwise.

UBS FS offers a number of investment advisory programs to clients, acting in our capacity as an investment adviser, including fee-based financial planning, discretionary account management, non-discretionary investment advisory programs, and advice on the selection of investment managers and mutual funds offered through our investment advisory programs. When we act as your investment adviser, we will have a written agreement with you expressly acknowledging our investment advisory relationship with you and describing our obligations to you. At the beginning of our advisory relationship, we will give you our Form ADV brochure(s) for the program(s) you selected that provides detailed information about, among other things, the advisory services we provide, our fees, our personnel, our other business activities and financial industry affiliations and conflicts between our interests and your interests.

In our attempt to provide you with the highest quality information available, we have compiled this report using data obtained from recognized statistical sources and authorities in the financial industry. While we believe this information to be reliable, we cannot make any representations regarding its accuracy or completeness. Please keep this guide as your Advisory Review.

Please keep in mind that most investment objectives are long term. Although it is important to evaluate your portfolio's performance over multiple time periods, we believe the greatest emphasis should be placed on the longer period returns.

Please review the report content carefully and contact your Financial Advisor with any questions.

Portfolio: For purposes of this report "portfolio" is defined as all of the accounts presented on the cover page or the header of this report and does not necessarily include all of the client's accounts held at UBS FS or elsewhere.

Percentage: Portfolio (in the "% Portfolio / Total" column) includes all holdings held in the account(s) selected when this report was generated. Broad asset class (in the "% broad asset class" column) includes all holdings held in that broad asset class in the account(s) selected when this report was generated.

Pricing: All securities are priced using the closing price reported on the last business day preceding the date of this report. Every reasonable attempt has been made to accurately price securities; however, we make no warranty with respect to any security's price. Please refer to the back of the first page of your UBS FS account statement for important information regarding the pricing used for certain types of securities, the sources of pricing data and other qualifications concerning the pricing of securities. To determine the value of securities in your account, we generally rely on third party quotation services. If a price is unavailable or believed to be unreliable, we may determine the price in good faith and may use other sources such as the last recorded transaction. When securities are held at another custodian or if you hold illiquid or restricted securities for which there is no published price, we will generally rely on the value provided by the custodian or issuer of that security.

Cash: Cash on deposit at UBS Bank USA is protected by the Federal Deposit Insurance Corporation (FDIC) up to $250,000 in principal and accrued interest per depositor for each ownership type. Deposits made in an individual's own name, joint name, or individual retirement account are each held in a separate type of ownership. Such deposits are not guaranteed by UBS FS. More information is available upon request.

Margin: The quantity value may indicate that all or part of this position is held on margin or held in the short account. When an account holds a debit balance, this debit balance is incorporated into the account's total market value and deducted from the total value. When calculating the percent of portfolio on each security, the percentage will be impacted by the total market value of the account. Therefore, if the account's market value is reduced by a debit value of a holding the percent of portfolio will be greater and if the account's market value is increased by a holding then the percent of portfolio will be less.

Asset Allocation: Your allocation analysis is based on your current portfolio. The Asset Allocation portion of this report shows the mix of various investment classes in your account. An asset allocation that shows a significantly higher percentage of equity investments may be more appropriate for an investor with a more aggressive investment strategy and higher tolerance for risk. Similarly, the asset allocation of a more conservative investor may show a higher percentage of fixed income investments.

Separately Managed Accounts and Pooled Investment Vehicles (such as mutual funds, closed end funds and exchanged traded funds): The asset classification displayed is based on firm's proprietary methodology for classifying assets. Please note that the asset classification assigned to rolled up strategies may include individual investments that provide exposure to other asset classes. For example, an International Developed Markets strategy may include exposure to Emerging Markets, and a US Large Cap strategy may include exposure to Mid Cap and Small Cap, etc.

Mutual Fund Asset Allocation: If the option to unbundle balanced mutual funds is selected and if a fund's holdings data is available, mutual funds will be classified by the asset class, subclass, and style breakdown of their underlying holdings. Where a mutual fund or ETF contains equity holdings from multiple equity sectors, this report will proportionately allocate the underlying holdings of the fund to those sectors measured as a percentage of the total fund's asset value as of the date shown.

This information is supplied by Morningstar, Inc. on a daily basis to UBS FS based on data supplied by the fund which may not be current. Mutual funds change their portfolio holdings on a regular (often daily) basis. Accordingly, any analysis that includes mutual funds may not accurately reflect the current composition of these funds. If a fund's underlying holding data is not available, it will be classified based on its corresponding overall Morningstar classification. All data is as of the date indicated in the report.

All pooled investment vehicles (such as mutual funds, closed end mutual funds, and exchange traded funds) incorporate internal management and operation expenses, which are reflected in the performance returns. Please see relevant fund prospectus for more information. Please note, performance for mutual funds is inclusive of multiple share classes.

Variable Annuity Asset Allocation: If the option to unbundle a variable annuity is selected and if a variable annuity's holdings data is available, variable annuities will be classified by the asset class, subclass, and style breakdown for their underlying holdings. Where a variable annuity contains equity holdings from multiple equity sectors, this report will proportionately allocate the underlying holdings of the variable annuity to those sectors measured as a percentage of the total variable annuity's asset value as of the date shown.

This information is supplied by Morningstar, Inc. on a weekly basis to UBS FS based on data supplied by the variable annuity which may not be current. Portfolio holdings of variable annuities change on a regular (often daily) basis. Accordingly, any analysis that includes variable annuities may not accurately reflect the current composition of these variable annuities. If a variable annuity's underlying holding data is not available, it will remain classified as an annuity. All data is as of the date indicated in the report.

Equity Style: The Growth, Value and Core labels are determined by Morningstar. If an Equity Style is unclassified, it is due to non-availability of data required by Morningstar to assign it a particular style.

Equity Capitalization: Market Capitalization is determined by Morningstar. Equity securities are classified as Large Cap, Mid Cap or Small Cap by Morningstar. Unclassified securities are those for which no capitalization is available on Morningstar.

Equity Sectors: The Equity sector analysis may include a variety of accounts, each with different investment and risk parameters. As a result, the overweighting or underweighting in a particular sector or asset class should not be viewed as an isolated factor in making investment/liquidation decisions; but should be assessed on an account by account basis to determine the overall impact on the account's portfolio.

Classified Equity: Classified equities are defined as those equities for which the firm can confirm the specific industry and sector of the underlying equity instrument.

Largest Equity Holdings: The Largest Equity Holdings exhibit may include the equity portions of balanced mutual funds if the option to unbundle mutual funds has been selected. In such cases, the market value represented is that of the equity portion and not the total market value of the mutual fund.

Current Yield: Current yield is defined as the estimated annual income divided by the total market value.

Bond Rating: These ratings are obtained from independent industry sources and are not verified by UBS FS. Securities without rating information are left blank. Rating agencies may discontinue ratings on high yield securities.

NR: When NR is displayed under bond rating column, no ratings are currently available from that rating agency.

High Yield: This report may designate a security as a high yield fixed income security even though one or more rating agencies rate the security as an investment grade security. Further, this report may incorporate a rating that is no longer current with the rating agency. For more information about the rating for any high yield fixed income security, or to consider whether to hold or sell a high yield fixed income security, please contact your financial advisor or representative and do not make any investment decision based on this report.

Credit/Event Risk: Investments are subject to event risk and changes in credit quality of the issuer. Issuers can experience economic situations that may have adverse effects on the market value of their securities.

Interest Rate Risk: Bonds are subject to market value fluctuations as interest rates rise and fall. If sold prior to maturity, the price received for an issue may be less than the original purchase price.

Reinvestment Risk: Since most corporate issues pay interest semiannually, the coupon payments over the life of the bond can have a major impact on the bond's total return.

Effective Maturity: Effective maturity is the expected redemption due to pre-refunding, puts, or maturity and does not reflect any sinking fund activity, optional or extraordinary calls. Securities without a maturity date are left blank and typically include Preferred Securities, Mutual Funds and Fixed Income UITs.

Yields: Yield to Maturity and Yield to Worst are calculated to the worst call.

Accrued Interest: Interest that has accumulated between the most recent payment and the report date may be reflected in market values for interest bearing securities.

Bond Averages: All averages are weighted averages calculated based on market value of the holding, not including accrued interest.

Tax Status: "Taxable" includes all securities held in a taxable account that are subject to federal and/or state or local taxation. "Tax-exempt" includes all securities held in a taxable account that are exempt from federal, state and local taxation. "Tax-deferred" includes all securities held in a tax-deferred account, regardless of the status of the security.

Accounts Included in this Report: The account listing may or may not include all of your accounts with UBS FS. The accounts included in this report are listed under the "Accounts included in this review" shown on the first page or listed at the top of each page. If an account number begins with "@" this denotes assets or liabilities held at other financial institutions. Information about these assets, including valuation, account type and cost basis, is based on the information you provided to us, or provided to us by third party data aggregators or custodians at your direction. We have not verified, and are not responsible for, the accuracy or completeness of this information.

Account name(s) displayed in this report and labels used for groupings of accounts can be customizable "nicknames" chosen by you to assist you with your recordkeeping or may have been included by your financial advisor for reference purposes only. The names used have no legal effect, are not intended to reflect any strategy, product, recommendation, investment objective or risk profile associated with your accounts or any group of accounts, and are not a promise or guarantee that wealth, or any financial results, can or will be achieved. All investments involve the risk of loss, including the risk of loss of the entire investment.

For more information about account or group names, or to make changes, contact your Financial Advisor.

Account changes: At UBS, we are committed to helping you work toward your financial goals. So that we may continue providing you with financial advice that is consistent with your investment objectives, please consider the following two questions:
1) Have there been any changes to your financial situation or investment objectives?
2) Would you like to implement or modify any restrictions regarding the management of your account?
If the answer to either question is "yes," it is important that you contact your Financial Advisor as soon as possible to discuss these changes. For MAC advisory accounts, please contact your investment manager directly if you would like to impose or change any investment restrictions on your account.

ADV disclosure: A complimentary copy of our current Form ADV Disclosure Brochure that describes the advisory program and related fees is available through your Financial Advisor. Please contact your Financial Advisor if you have any questions.

Important information for former Piper Jaffray and McDonald Investments clients: As an accommodation to former Piper Jaffray and McDonald Investments clients, these reports include performance history for their Piper Jaffray accounts prior to August 12, 2006 and McDonald Investments accounts prior to February 9, 2007, the date the respective accounts were converted to UBS FS. UBS FS has not independently verified this information nor do we make any representations or warranties as to the accuracy or completeness of that information and will not be liable to you if any such information is unavailable, delayed or inaccurate.

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UBS

Investment Solutions Portfolio Analysis

City of Columbia 2023 Equilibrium Asset Allocation Study

March 10, 2023

Prepared By : UBS Institutional Consulting

UBS Asset Allocation Study

IMPORTANT: The projections or other information generated by the Zephyr Asset Allocation Tool regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results and are not guarantees of future results. Results will vary with each use and over time.

Results reflect the reinvestment of income, but not the impact of transaction costs, advisory fees, taxes and inflation (unless otherwise indicated). If these factors were included, the results shown would be lower.

Historic results are provided for illustrative purposes only and are based on the retroactive application of historic index data to the asset allocation(s) analyzed. The Zephyr tool calculates hypothetical portfolio performance results for the period shown using long-term performance of representative indices as proxies for the hypothetical performance of the asset classes included in the portfolio(s) analyzed. The calculation assumes that the portfolio was rebalanced monthly, which does not necessarily reflect how an actual portfolio would have been managed. Allocations were developed with the benefit of hindsight and results do not consider the impact that material economic and market factors might have had on investment decision-making during the time period. Actual results may be lower than the hypothetical returns and will vary depending on market conditions and the specific composition and implementation of the portfolio. Past performance or historic results provide no guarantee of future returns.

Please see Appendix for important information about this report.
The information herein is based on data and computations by Zephyr Associates and is believed to be reliable but UBS does not warrant its completeness or accuracy.

UBS Capital Market Assumptions

The asset class return, risk, and correlation results used and displayed in this report are based on UBS's estimated forward-looking return, riskas measured by standard deviationand correlation assumptions ("capital market assumptions") as vetted and approved by the Wealth Management Americas Asset Allocation Committee ("UBS WMA AAC"), which are based on UBS proprietary research. The development process includes a review of a variety of factors, including the return, risk, correlations and historical performance of various asset classes, inflation and risk premium.

UBS WMA AAC has developed two sets of return assumptions that are designed for different investment time horizons. The "strategic" returns in the UBS capital market assumptions reflect UBS WMA AAC's expectations for the average annual total return for various asset classes over one full business cycle. The "equilibrium" return assumptions reflect our expectations for average annual returns over multiple business cycles based on certain structural assumptions about the economy, including the long-term potential growth rate and the neutral rate of interest.

UBS WMA AAC's risk assumptions and asset class correlation assumptions remain the same when using strategic or equilibrium return assumptions.

This Analysis uses Equilibrium Return Assumptions

The strategic return assumptions are applicable for short- to long-term investment horizons over a full business cycle, such as when constructing strategic asset allocations or performing custom portfolio analysis or risk monitoring. In contrast, equilibrium return assumptions are appropriate for multi-cycle investment horizons that are typical of long-term planning. You have requested that this analysis use"equilibrium" return assumptions which are shown on the following "Scenario Analysis" page. Using equilibrium return assumptions may be appropriate in certain circumstances for multi-cycle investment horizons to help assess the potential success of a long-term financial plan or the funding status of an institutional pension plan; however, equilibrium return assumptions have limitations for portfolio construction because they do not consider cyclical developments or current economic or market conditions. We recommend using strategic return assumptions to construct and evaluate strategic asset allocations because strategic return assumptions reflect our current return expectations for the cycle.

You should review this analysis in conjunction with the analysis you received using UBS WMA AAC's strategic return assumptions. Please contact your UBS Consultant if you have not received a report using strategic return assumptions.

UBS capital market assumptions are not guarantees and are subject to change at any time at our discretion and without notice. UBS has changed its return, risk and correlation assumptions in the past and may do so in the future. Neither UBS nor your UBS Consultant is required to provide you with an updated analysis based upon changes to these or other underlying assumptions.

Capital market assumptions set by the UBS WMA AAC may differ or be contrary to those established by other business areas or divisions of UBS as a result of using different assumptions and/or criteria. In addition, UBS has a variety of analyses and services that provide portfolio review, including asset allocation strategies. The recommendations and types of analysis may vary depending on the asset allocation analysis used.

Since assumptions are subject to uncertainty, including market forces and factors outside of our control, you should also understand that the assumptions used are estimates, are not guarantees or projections of future results. There is no certainty that the assumptions for the model will accurately estimate asset class return rates going forward. Actual long-term results for each asset class may differ from our assumptions, with those for classes with limited histories potentially diverging more. As a result, UBS will not be responsible for omissions in the analysis, regardless of the source of such inaccuracies, errors, or omissions. In addition, capital market assumptions pertain to the asset or sub-asset class in general, not the performance of specific securities or investments. Particular investment products may have higher or lower returns than the range for the corresponding asset class used in this analysis. Your actual results may vary significantly from the results shown in this report.

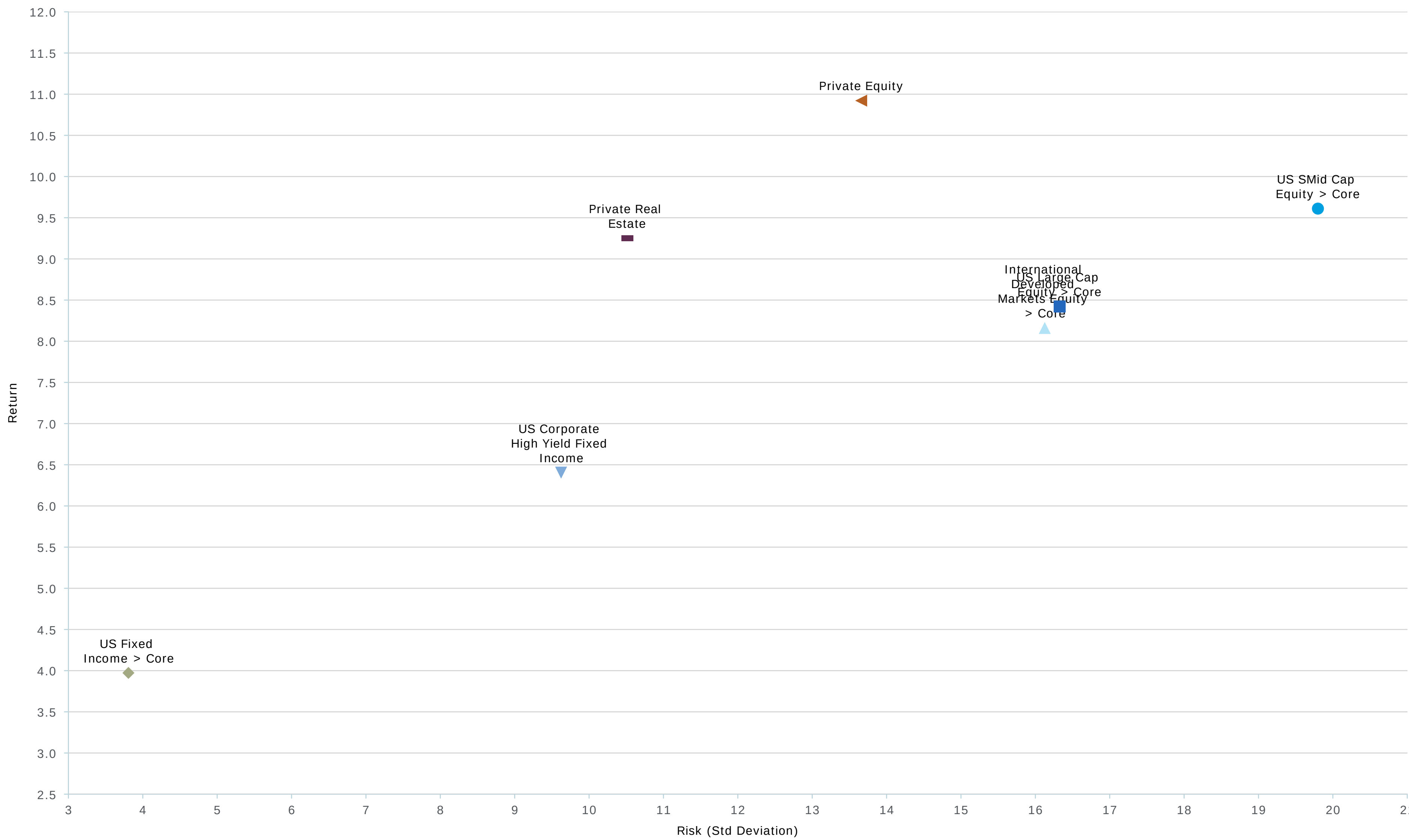
Scenario Assumptions

				CONSTRAINTS	
NAME	PROXY	RETURN	STDEV	MIN	MAX
UNGROUPED					
US Large Cap Equity > Core	Russell 1000	8.42%	16.33%	15.00%	45.00%
US SMid Cap Equity > Core	Russell 2500	9.61%	19.80%	5.00%	20.00%
International Developed Markets Equity > Core	MSCI EAFE (Net)	8.16%	16.13%	10.00%	25.00%
US Fixed Income > Core	Bloomberg U.S. Aggregate	3.97%	3.81%	22.00%	40.00%
US Corporate High Yield Fixed Income	ICE BofA US High Yield Constrained Index (USD Hedged)	6.40%	9.62%	0.00%	5.00%
Private Real Estate	FTSE Nareit All REITs	9.25%	10.51%	0.00%	1.00%
Private Equity	S&P Listed Private Equity	10.92%	13.66%	0.00%	1.00%

Scenario Assumptions - Correlation Matrix

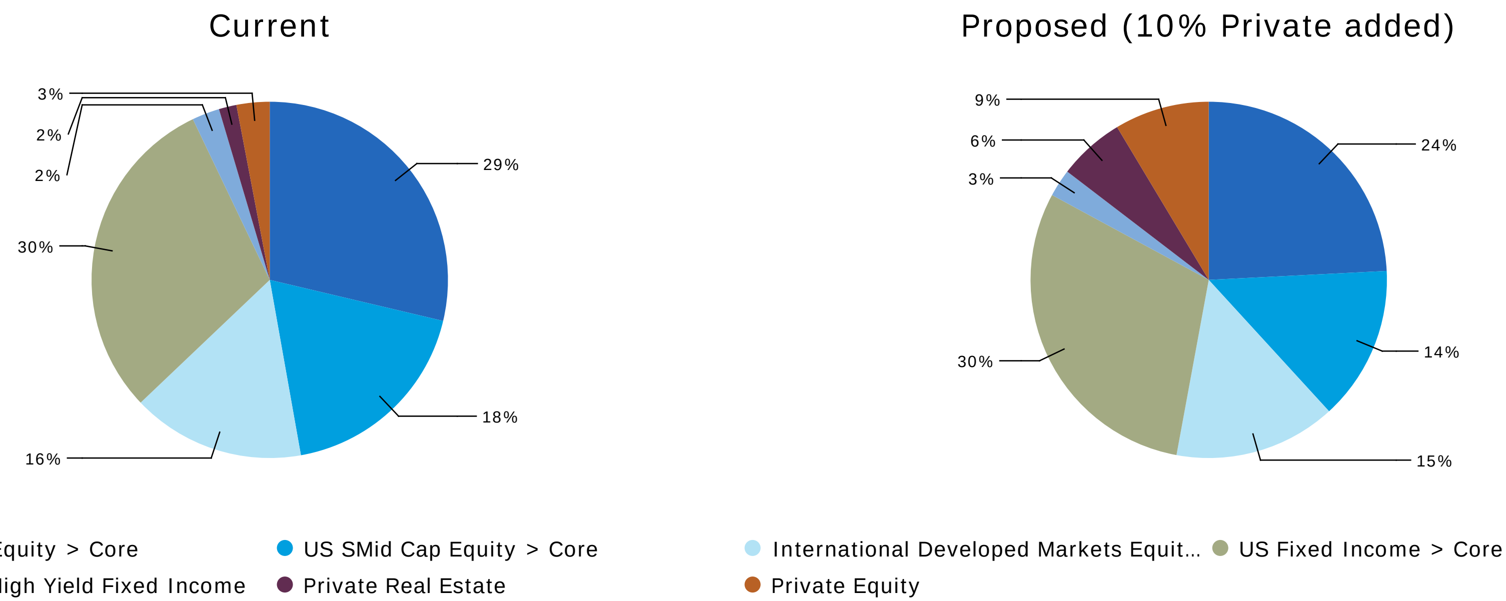
ASSETS	A	B	C	D	E	F	G
A. US Large Cap Equity > Core	1.00	0.93	0.82	0.06	0.69	0.60	0.52
B. US SMid Cap Equity > Core	0.93	1.00	0.79	0.06	0.66	0.59	0.51
C. International Developed Markets Equity > Core	0.82	0.79	1.00	0.05	0.62	0.53	0.48
D. US Fixed Income > Core	0.06	0.06	0.05	1.00	0.45	0.00	0.01
E. US Corporate High Yield Fixed Income	0.69	0.66	0.62	0.45	1.00	0.41	0.37
F. Private Real Estate	0.60	0.59	0.53	0.00	0.41	1.00	0.81
G. Private Equity	0.52	0.51	0.48	0.01	0.37	0.81	1.00

Scenario Return & Risk Assumptions



Allocation Case: City of Columbia 2023 Equilibrium Asset Allocation Study

Portfolio Allocations



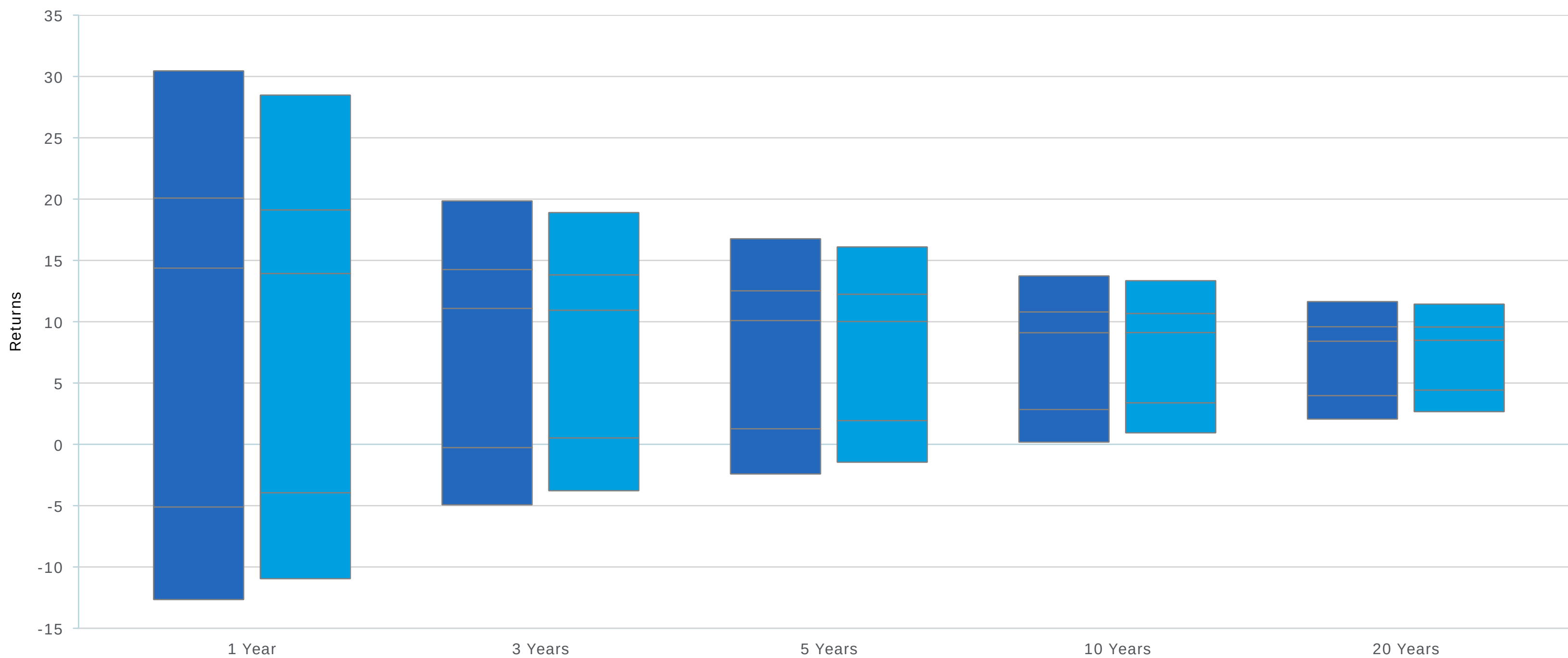
	CURRENT	PROPOSED (10% PRIVATE ADDED)
Return	7.30%	7.43%
Standard Deviation	11.01%	10.07%
Sharpe Ratio	0.63	0.70

Allocation Case: City of Columbia 2023 Equilibrium Asset Allocation Study

Portfolio Allocations

ALLOCATIONS WEIGHTS	CURRENT	PROPOSED (10% PRIVATE ADDED)
US Large Cap Equity > Core	28.70	24.20
US SMid Cap Equity > Core	18.50	14.00
International Developed Markets Equity > Core	15.70	14.70
US Fixed Income > Core	30.00	30.00
US Corporate High Yield Fixed Income	2.50	2.50
Private Real Estate	1.60	6.00
Private Equity	3.00	8.60
Return	7.30	7.43
Standard Deviation	11.01	10.07
Sharpe Ratio	0.63	0.70

Multiple Portfolio Range of Returns



Current	30.46	19.85	16.76	13.73	11.64	Best Case
	7.30	6.93	6.86	6.80	6.77	Expected
	(12.66)	(4.93)	(2.42)	0.18	2.06	Worst Case
Proposed (10% Private added)	28.48	18.90	16.10	13.34	11.44	Best Case
	7.43	7.12	7.05	7.01	6.98	Expected
	(10.96)	(3.78)	(1.46)	0.94	2.66	Worst Case

Allocation Case: City of Columbia 2023 Equilibrium Asset Allocation Study

Important Information About Your Report

The projections and other information contained in this report have been generated by a digital asset allocation analysis tool developed by Zephyr Associates (the "Zephyr Asset Allocation Tool" or "Zephyr tool"). The goal of the tool is to aid and educate our UBS Consultants, clients and prospective clients in understanding the scope of our service offerings, the issues that should be considered before engaging in an investment strategy or transaction, the basic tenants of investing (particularly with a view towards long-term investing), our views of long-term economic trends and projections and, subject to certain assumptions, the potential effects that a particular strategy, investment program or product or series of transactions may have on a portfolio. You and your UBS Consultant can use this tool to analyze the composition and hypothetical growth of an asset allocation or series of several asset allocations (e.g., your current allocation, a UBS strategic asset allocation model, a custom allocation develop by you and your UBS Consultant based on your individual investment policy, etc.).

The information in this report is based on data and computations provided by Zephyr Associates and other third parties. UBS believes this information to be reliable but we have not independently verified and do not guarantee the accuracy or completeness of the data and computations.

IMPORTANT: The projections or other information generated by the Zephyr Asset Allocation Tool regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results and are not guarantees of future results.

Actual results may vary with each use and over time depending on the specific composition of the investor's portfolio, when the portfolio is implemented, and with changing market conditions. All results reflect realized and unrealized gains and losses and the reinvestment of income. Unless otherwise indicated, results do not include the impact of transaction costs (e.g., commissions, mark-ups, mark-downs, fees), advisory fees, or taxes. If these factors were included, the results shown would be lower. Assets are classified based on UBS' proprietary classification methodology (assets held at UBS) or as identified by you (assets held at other financial institutions). Rebalancing to the asset allocation shown is assumed to have occurred at the beginning of each month for the period shown.

Scope of our Services

UBS Financial Services Inc. ("UBS") makes the interactive Zephyr Asset Allocation Tool available to certain UBS Consultants, clients and prospective clients to conduct certain asset allocation analyses. This Zephyr Asset Allocation Tool report is provided for informational purpose only and is not an offer to buy or sell any security or investment strategy, is not meant to be a comprehensive financial plan, and does not create an investment advisory relationship between you and UBS or your UBS Consultant.

This report is intended to aid (and be used by) your UBS Consultant in providing you with actual individualized investment advice. Therefore, the report should only be considered in conjunction with the actual recommendations and advice of your UBS Consultant, our standard account documents, agreements and disclosures and the additional factors that warrant consideration for your particular financial situation, including costs.

If this output is provided as part of a proposal, it is marketing material. You must make independent decisions with respect to any proposals contained within this report. In making those decisions you have reviewed the terms of any Plan with respect to which you are a fiduciary and your obligations to any such Plan under ERISA. This report should be used solely for the purposes of discussion with your prospective UBS Consultant and your independent consideration. UBS does not intend this to be fiduciary or best interest investment advice or a recommendation that you take a particular course of action. If you would like more details about any of the information provided, or personalized recommendations or advice, please contact your UBS Financial Advisor.

Conflicts of Interest. UBS Financial Services Inc. is in the business of establishing and maintaining investment accounts and we will receive compensation from you in connection with investments that you make, as well as additional compensation from third parties whose investments we distribute. This presents a conflict of interest when we recommend that you move your assets to UBS from another financial institution, and also when we make investment recommendations for assets you hold at, or purchase through, UBS. For more information on how we are compensated by clients and third parties, conflicts of interest and investments available at UBS please refer to the 'Your relationship with UBS' booklet provided at ubs.com/relationshipwithubs, or ask your UBS Financial Advisor for a copy.

Neither UBS Financial Services nor any of its employees provide tax or legal advice. You must consult with your legal or tax advisors regarding your personal circumstances.

You are not required to implement any of the asset allocation strategies modeled in this report. If you would like UBS to assist you in making any changes to your current asset allocation strategy, the capacity in which we act will depend on, and vary by, the nature of the product, service or account that you select for implementation (i.e., brokerage or advisory). Understanding the ways in which we can conduct business under applicable laws and regulations is essential to the relationship between You and Us.

As a firm providing wealth management services to clients in the U.S., UBS Financial Services Inc. is registered with the U.S. Securities and Exchange Commission as an investment adviser and a broker-dealer, offering both investment advisory and brokerage services. Investment advisory services and brokerage services are separate and distinct, differ in material ways and are governed by different laws and separate arrangements. At the end of this report you will find a detailed explanation regarding the distinctions between investment advisory programs and brokerage service, including how we charge for these services and our respective responsibilities to you. See Conducting Business with UBS: Investment Advisory and Broker-Dealer Services. **It is important that you review and understand the agreements and disclosures we provide to you about the products or services offered. If at any time you would like clarification on the nature of your accounts or the services you are receiving, please speak with your UBS Consultant or visit our website at [http://www.ubs.com/workingwithus.](http://www.ubs.com/workingwithus)**

Overview

This report is presented for illustrative purposes as a general assessment of the asset allocation strategies displayed. The asset allocations analyzed may include a number of your existing accounts, each with a potentially different investment objective and risk parameter. Where applicable, these accounts have been considered as a whole in helping you develop an overall asset allocation strategy. When considering whether or not to implement any of the asset allocation strategies presented, to buy or sell securities, or to participate in any UBS program, you should carefully review the impact of such changes on each account involved and the impact on the overall portfolio.

Please note that it is your responsibility to determine whether to implement any of the allocation strategies identified in this report and how such implementation would be accomplished. UBS will not track or monitor specific investments you make to determine whether they complement your existing investment objectives, investment policy or any asset allocation strategy you may adopt, unless you have specifically engaged us to provide such monitoring. In addition, this report will not be updated to reflect any changes in your investment strategies, risk tolerances or market conditions.

If your assets are held at UBS Financial Services Inc., your UBS Financial Services Inc. account statements are the only official record of your UBS holdings and account and are not replaced, amended or superseded by any of the information presented in this report.

This report is not intended to provide you with consolidated information or reporting regarding your holdings at other firms. However, at your request, this report may include information regarding assets that you hold at other financial institutions so that we may review your asset allocation and/or investment strategy in the context of your overall holdings. If your assets are held at other financial institutions, this report will be based on information regarding holdings, balances and values of assets you provided to us. We have not verified, and are not responsible for, the accuracy or completeness of this information. If the information you provided is not current, inclusion of these assets will impact the accuracy of the current asset allocation and other analysis presented. You should review the account statements and other documentation you receive from your third party custodian for their record of the assets and asset values held in your accounts. The account statements you receive from your third party custodian regarding the assets you hold with them are the official record of your holdings and accounts and are not impacted or superseded by the information in this report.

UBS's SIPC coverage only applies to assets held at UBS. If you maintain assets at other firms that may be SIPC members, you should contact their financial representative or the other entity or refer to the other entity's statement regarding SIPC membership.

Asset Allocation Presented and Analysis Assumptions:

The results in this report are based on information regarding your investment objectives (as reflected by your allocation criteria), risk tolerance, cash flow requirements, time horizon and other views and requirements. We rely on the accuracy of the information you provide to us in developing this report. Please review the client inputs described in this report carefully as inaccuracies can materially impact the analysis, and advise your UBS Consultant if any change is necessary.

The asset allocation(s) analyzed can be your current asset allocation, a UBS strategic asset allocation or a customized asset allocation developed by you and your UBS Consultant based on your investment policy and risk profile. All asset allocations analyzed were identified by you and/or your UBS Consultant. You should understand that the asset allocation can be modeled at the asset class (e.g., equities, fixed income, etc.) or the sub-asset class (e.g., large-cap equities, emerging market equities) and that there may be asset or sub-asset classes not presented that have characteristics similar or superior to those analyzed in this report. Your UBS Consultant can provide additional information regarding the allocation model(s) analyzed in this report.

UBS strategic asset allocation models are developed using a proprietary process based on UBS capital market assumptions (see Return, Risk, and Correlation Assumptions). UBS has changed its asset allocation models in the past and may do so in the future as circumstances warrant. If UBS strategic asset allocations are used in this report, neither UBS nor your UBS Consultant is required to provide you with an updated analysis based upon changes to asset allocation or other underlying assumptions.

Asset allocation does not assure a profit or eliminate the risk of a loss.

Efficient Frontier Analysis:

Mean-Variance Optimization tools may be used to help determine optimal allocations to different asset classes within a portfolio given a certain level of acceptable risk. The Efficient Frontier analysis is a mean-variance optimization methodology that calculates a series of optimal portfolios that offer the highest expected return for a given level of risk or the lowest risk for a given level of expected return. The Efficient Frontier is determined based on estimated forward-looking risk, return, and correlation of assets assumptions established by UBS (see Return, Risk, and Correlation Assumptions section) and your specific guidelines regarding time horizon and investment objective/ risk tolerance (as reflected in allocation constraints). Each point on the frontier is theoretically efficient based on the given assumptions. An "inefficient portfolio" does not lie on the frontier because alternate portfolios can be found that offers more return for the same amount of risk or the same expected return with a less risk. "Efficient" portfolios on the frontier line are more desirable to investors trying to maximize return and minimize risk. The selection of a proper portfolio depends upon the investor's goals and risk tolerance.

Mean-variance optimization is very sensitive to changes in the forward-looking capital market assumptions and may result in asset allocations and portfolios that are highly concentrated. Your UBS Consultant can provide additional information regarding the Efficient Frontier analysis in this report.

Deterministic Analysis:

Except for any probabilistic analysis sections of this report, a deterministic analysis is used to illustrate the hypothetical growth of the asset allocation strategies presented based on an assumed rate of return, risk and correlation for each asset or sub-asset class identified within the strategy. The rate of return, risk and correlations used are based on estimated forward-looking assumptions established by UBS (see Return, Risk, and Correlation Assumptions section below).

In order to create the analysis presented, the rates of return for each asset or sub-asset class are combined in the same proportion as the asset allocation(s) illustrated (e.g., if the asset allocation indicates 40% equities, then 40% of the results shown for the allocation will be based on the estimated forward-looking risk, return, and correlation assumptions for equities based on UBS proprietary research).

Simulated Portfolio Value Probability Analysis:

Simulated Portfolio Value Probability Analysis (frequently referred to as "Monte Carlo" simulations), is another tool for evaluating the potential future performance of the asset allocation strategies presented. Monte Carlo analyses incorporate future uncertainty by simulating possible return scenarios for a portfolio under variable market conditions. Monte Carlo analysis generally performs several thousand simulations, each simulating the growth of the modeled asset allocation over a specified period of time and assuming certain client inputs and a variety of returns and scenarios, all of which are subject to change as a result of market volatility, economic factors and world events. Monte Carlo results present the probability of achieving certain targets based on the results of the simulations.

IMPORTANT: The projections or other information in this report regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investments results and are not guarantees of future results.

Monte Carlo simulations are based on estimated forward-looking return, risk and correlation assumptions established by UBS (see Return, Risk and Correlation Assumptions section).

Unless noted otherwise, the analysis assumes a constant rate of inflation and does not account for variations in inflation rate over time. Monte Carlo simulations also account for certain client inputs and assumptions regarding inflation and cash flows, the accuracy of which will materially impact the results of the analysis. Please review the client inputs described and advise your UBS Consultant if any change is necessary. Unless specifically included as an outflow, the analysis will not account for investment advisory fees, transaction fees or taxes.

Monte Carlo results are intended to represent a spectrum of possible return outcomes for the modeled asset classes based on the established assumptions. The portfolio value at the end of each scenario is recorded and compared against the established portfolio target. The probability of achieving a target is calculated by dividing the number of scenarios where the portfolio value equaled or exceeded the target by the total number of scenarios. Note that the highest likelihood of success is 99% because there is never a guarantee that a particular result will be actualized. Results should only be viewed as reasonable estimates of possible outcomes and not as a guarantee, prediction or projection. The results shown may vary with each use and over time and if any of the underlying assumptions change. Your actual results can vary materially from the results shown in this analysis.

Monte Carlo analysis does not take into account actual market conditions that may severely affect your portfolio results over the long-term. It does not reflect the average periods of bull and bear markets, which can be longer than those modeled.

The analysis also does not consider short-term correlations among asset class returns and does not consider the results that could occur from an extreme market event, either positive or negative, due to the low probability of such an occurrence. A market crises can cause asset classes to perform similarly, lowering the accuracy of our return assumptions and diminishing the benefits of diversification in ways not captured by the analysis. As a result, returns actually experienced by the investor may be more volatile than those used in our analysis.

Your UBS Consultant can provide additional information regarding the Monte Carlo/Simulated Portfolio Value Probability analysis reflected in this report.

Historic Asset Allocation Backtest:

If the historical performance of an asset allocation is provided, the historical performance does not reflect your actual performance but, rather, was calculated by the retroactive application of historic index results to the asset allocation(s) analyzed. This performance is based on the long-term performance of certain indexes that have been selected by UBS (or as requested by the Client) as a representative proxy for the asset classes in the asset allocation(s) or portfolio(s) analyzed. See the Scenario Assumptions section for a description of the index proxies used for each asset class in this analysis. UBS selects proxy indices based on our research and understanding of the asset class or the allocation and strategy of the investments in your portfolio, or as requested by the client. Because the asset allocations were structured with the benefit of knowing how each asset class and benchmark performed during the period shown, the hypothetical returns may be higher than the returns of a portfolio that would have been recommended during the time period shown. In addition, backtested performance does not reflect the impact that past economic and market factors might have had on investment decision-making. The results shown reflect realized and unrealized gains and losses and the reinvestment of income, but do not include the impact of transaction costs, advisory fees, taxes and inflation. If these were included, the results shown would be lower. Please note that the historical backtest analysis considers data over the period shown and assumes that the asset allocation was rebalanced at the beginning of each month back to the initial asset allocation. This rebalancing frequency does not necessarily reflect how an actual portfolio would have been managed. There is no guarantee that these backtested results could, or would, have been achieved had this asset allocation been used during the years presented.

Past performance or historic results provide no guarantee of future returns.

Return, Risk and Correlation – Assumptions Forward-Looking Estimates:

The asset class risk and return results used and displayed in this report, as well as the asset class correlations, are based on estimated forward-looking return, risk?as measured by standard deviation?and correlation assumptions ("capital market assumptions"), which are based on UBS proprietary research. The development process includes a review of a variety of factors, including the return, risk, correlations and historical performance of various asset classes, inflation and risk premium.

The strategic returns in the UBS capital market assumptions consider returns over a full business cycle. The capital market assumptions are subject to change at any time at our discretion and without notice. UBS has changed its return, risk and correlation assumptions in the past and may do so in the future. Neither UBS nor your UBS Consultant is required to provide you with an updated analysis based upon changes to these or other underlying assumptions.

Since assumptions are subject to uncertainty, including market forces and factors outside of our control, you should also understand that the assumptions used are estimates, are not guarantees or projections of future results. There is no certainty that the assumptions for the model will accurately estimate asset class return rates going forward. Actual long-term results for each asset class may differ from our assumptions, with those for classes with limited histories potentially diverging more. As a result, UBS will not be responsible for omissions in the analysis, regardless of the source of such inaccuracies, errors, or omissions. In addition, capital market assumptions pertain to the asset or sub-asset class in general, not the performance of specific securities or investments. Particular investment products may have higher or lower returns than the range for the corresponding asset class used in this analysis.

Your actual results may vary significantly from the results shown in this report.

Periodic Reviews:

This report is based on information you have provided as of the date indicated. Over time, your financial circumstances or the other assumptions and estimates that underlie this report may change. For this reason, you should periodically meet with your UBS Consultant to re-evaluate your financial situation, reassess your asset allocation strategy, and review the assumptions upon which this information is based.

Asset Class Risk Considerations:

Some of the general risk considerations associated with the asset classes included in this report are described below. The descriptions are not meant to be a complete list of all investment risks. Individual funds and investments will have specific risks related to their investment programs that will vary from fund to fund. Clients should familiarize themselves with the particular market risks and the other risks associated with the specific investment. All investments contain risk and may lose value.

Alternative Investment Strategies –Alternative investment strategies are investment vehicles that are formed by professional money managers to afford them greater flexibility to manage money in any market environment. These strategies typically have flexibility regarding the types of securities in which they can invest (e.g., options and futures contracts), the types of positions they can take (e.g., long and short positions) and the amount of leverage they are permitted to employ. A professional money manager can use these and other techniques to modify market exposure and create portfolio characteristics that may be desirable for certain clients (e.g., reduced correlation to financial markets, potential lower volatility, and better performance in "down" markets). This flexibility can add value when used skillfully. This flexibility does, however, add additional elements of risk and complexity, including that alternative investments are often long-term, illiquid investments that are subject to restrictions on transfer and not easily valued. Note that due to the nature of alternative investments, the risk and return assumptions used in this analysis may tend to overstate potential benefits but not fully reflect potential risks.

Interests of Non-Traditional Investment Strategies are sold only to qualified investors, and only by means of offering documents that include information about the risks, performance and expenses of the funds, and which Clients are urged to read carefully before subscribing and retain. An investment in a fund is speculative and involves significant risks. The funds' performance may be volatile, and investors may lose all or a substantial amount of their investment in a fund. The funds may engage in leveraging and other speculative investment practices that may increase the risk of investment loss. The funds are subject to high fees, including management fees and other fees and expenses, all of which will reduce profits. Prospective investors should understand these risks and have the financial ability and willingness to accept them for an extended period of time before making an investment in a fund. Investors should consider a fund as a supplement to an overall investment program.

Investing in the fixed income market is subject to risks including market, interest rate, issuer, credit, default and inflation risk. An investment in a portfolio may be worth more or less than its original cost when redeemed. Derivatives may involve certain costs and risks such as liquidity, interest rate, market, credit, management, default risk, and the risk that the position could not be closed when most advantageous. Investing in derivatives could lose more than the amount invested.

Equity investments represent ownership interest in a company. Historically, equities are more risky than fixed income or cash investments as they experience greater volatility risk, which is the risk that the value of your investment may fluctuate over time. The value of investments in equity securities will fluctuate in response to general economic conditions and to changes in the prospects of particular companies and/or sectors in the economy. The risk of equity investments can vary based on the market capitalization (market value) of the company, for example, Large, Mid, and Smid. Investments in small cap and medium company stocks can be more volatile over the short term than investments in large company stocks.

Non-U.S. Equity and Fixed Income represent ownership interests and debt, respectively, of foreign governments and corporations that can be sub-divided into those from countries that have "Developed Markets" or "Emerging Markets." Foreign investing involves risks, including, but not limited to, risks related to foreign currency, limited liquidity, less government regulation and the possibility of substantial volatility due to adverse political, economic or other developments. Investors in securities of issuers located outside of the United States should be aware that even for securities denominated in U.S. dollars, changes in the exchange rate between the U.S. dollar and the issuer's "home" currency can have unexpected effects on the market value and liquidity of those securities. Those securities may also be affected by other risks.

Calculation Definitions

This section includes descriptions for the terms and calculations used within this report. Your UBS Consultant can provide additional information regarding the terms, calculations, and results contained within this report.

Alpha: Alpha is a measure of risk-adjusted return. It measures the difference between a portfolio's returns and the returns the portfolio might be expected to deliver based on the portfolio's level of risk (beta) and a benchmark index over the date range shown. Unless otherwise described, the Zephyr tool uses the S&P 500 as the market benchmark for calculating alpha. A positive alpha means the portfolio outperformed expectations for the period shown, while a negative alpha indicates that the portfolio underperformed expectations during the period shown. If two portfolios have the same return, but one has a lower beta, that portfolio would have a higher alpha.

Annualized Returns: An annualized return is the geometric average return of a portfolio for each year over the time period shown. Annualized returns take into account compounding returns by considering the portfolio's cumulative return (the total compounded portfolio return over the time period) and expressing that as a per year figure. Annualized returns only provide a snapshot of investment performance as of a given date and do not indicate volatility over the time period analyzed.

Average Positive Return/Average Positive Return: To calculate the average positive return and average negative return for a portfolio over a given date range, the Zephyr Asset Allocation Tool partitions the portfolio's series of returns into two parts, one made up of the positive periods of returns (up periods), the other of the zero and negative periods of returns (down periods). The average positive/up and negative /down returns are the respective averages of these two series.

Batting Average: The batting average of a portfolio is the ratio between the number of periods where the portfolio outperforms a benchmark and the total number of periods. Unless otherwise described, the Zephyr tool uses the S&P 500 as the market benchmark for calculating batting average.

Best Case/Worse Case: See Range of Returns.

Best Month Return/Worse Month Return: The best month return is simply the maximum of the monthly returns inside the given date range. Similarly, the worst month return is the minimum of the monthly returns inside the date range.

Best Quarter Return/Worse Quarter Return: The best quarter return is simply the maximum of the quarterly returns inside the given date range. Similarly, the worst month return is the minimum of the quarter returns inside the date range.

Best Year Return/Worse Year Return: To calculate the best one-year return for a given portfolio, the Zephyr Asset Allocation moves a one-year time window along the series and calculates the compound return for each of these windows. The best one-year return is the maximum of the returns thus found. Similarly, the worst one-year return is the minimum of the returns thus found. Note that best and worst one-year returns do not refer to calendar years. Rather, they refer to arbitrarily placed one-year periods.

Beta: Beta represents the systematic risk of an analyzed portfolio. Beta measures how the analyzed portfolio performed in relation to the performance of a benchmark index during the time period shown. Unless otherwise described, the Zephyr tool uses the S&P 500 as the benchmark index for calculating beta. A portfolio with a beta of one is considered to be as volatile (risky) as the benchmark and would therefore have provided returns equal to those of the market benchmark during both up and down periods over the date range analyzed. A portfolio with a beta of two would have moved approximately twice as much as the benchmark.

Conditional Value at Risk: See Value at Risk.

Constraints, Min and Max: Portfolio asset class constraints established by the Client to force minimum or maximum allocations to selected asset classes when generating an Efficient Frontier.

Correlation (R): Correlation represents the degree to which an investment's return moves in tandem with another and is a critical component of diversified portfolio construction. The Correlation of assets varies between a minimum of -1 (move in opposite direction) and a maximum of 1 (completely correlated). A correlation of 0 indicates no relationship between the investments. When included within a portfolio, assets with lower Correlations to the other assets in the portfolio enhance diversification and result in better risk-adjusted expected returns for the portfolios. An R of less than 0.3 is often considered low Correlation. Correlation may also be used to represent the degree to which a portfolio's return moves in tandem with a benchmark or an asset class moves in tandem with another asset class.

Cumulative Distribution of Return: See Omega.

Cumulative Excess Return: See Excess Return.

Distribution of Returns: The range of possible outcomes that may be expected for a portfolio compounded over the time period(s) shown based on the asset class return, risk (standard deviation), and correlation assumptions set by UBS (and accounting for any Constraints imposed by the Client). The distribution of returns presents the annualized returns after the period(s) shown and displays various percentiles which represent the percentage of possible return outcomes that may be expected to be equal to or lower than the stated return. The percentiles displayed include the 5th percentile, 25th percentile, 50th percentile (which is a median return), 75th percentile, and 95th percentile.

Down Capture: See Up Capture/Down Capture.

Drawdown: Any sub-period of time during the date range analyzed where the portfolio had a negative loss percentage starting from the date of the loss began (drawdown start date) and ending on the date of the lowest value before the portfolio recovered to its value before the loss began (drawdown end date). Conceptually, this is the "peak to trough" of the drawdown when displayed on a graph. Drawdown measures the loss percentage (compounded, not annualized) that a portfolio incurred during any sub-period of the date range analyzed. See Maximum Drawdown.

Drawdown Average: The arithmetic average of all returns during all drawdowns over the date range analyzed. The drawdown average is based on drawdowns that begin with a drawdown start date and end with a drawdown end date. Compare to Average Negative Return which is the arithmetic return of all periods (e.g., calendar months) that had a negative return during that period.

Efficient Frontier: Nobel Laureate Harry Markowitz developed mean-variance optimization as a way to create optimal portfolios based on risk-return trade-offs. The optimization, which results in an Efficient Frontier, uses three inputs – returns, standard deviations (risk), and correlations – to combine assets into portfolios that maximize return for any given level of risk.

Excess Return: Excess return represents the difference between the return of the analyzed portfolio and the return of a benchmark. Unless otherwise described, the Zephyr tool uses the S&P 500 as the market benchmark for calculating excess return. A positive excess return implies that the portfolio outperformed the benchmark. Cumulative excess returns represent the difference between the total returns in the portfolio and the total returns for the benchmark during a given date range and annualized excess returns represent the difference between the annualized returns of the portfolio series and the annualized returns of the benchmark during a given date range.

Expected Return:See Range of Returns.

Expected Risk: See Range of Returns.

Information Ratio: Information Ratio measures the consistency of excess returns of a portfolio compared to a benchmark. The information ratio is the portfolio's annualized excess return over a benchmark divided by the portfolio's annualized standard deviation of excess return over the benchmark (i.e. tracking error). Unless otherwise described, the Zephyr tool uses the S&P 500 as the market benchmark for calculating the information ratio.

Inflation: The Monte Carlo simulation projections can include an inflation rate that would be applied to each year being simulated.

Interpolate: The Monte Carlo Simulation allows Clients to use multiple expected return distributions using the interpolate option. Clients can enter supplementary mean and standard deviation values in addition to the mean and standard deviation values established by the UBS capital market assumptions. The mean and standard deviation define a distribution that represents possible future returns. Clients can also choose the distribution type as either normal or log-normal. Log-normal distribution intends to account for observations that returns are never less than -100% and that over longer time periods (such as a year) returns are positively skewed. Please speak with your UBS Consultant for more information regarding additional mean and standard deviation values and log-normal distribution.

Kurtosis: Kurtosis characterizes the relative peakedness or flatness of a distribution of returns compared with a normal distribution. Positive kurtosis indicates a relatively peaked distribution. Negative kurtosis indicates a relatively flat distribution.

MAR (minimal acceptable return): A minimal return figure established to assess a portfolio's ability to achieve a certain target. See Sortino Ratio and Omega.

Maximum Drawdown: Maximum drawdown is the maximum loss percentage (compounded, not annualized) that a portfolio incurred during any sub-period of the date range analyzed. Conceptually, this is the biggest "peak to trough" loss, beginning with the maximum drawdown start date (the date the maximum loss percentage started) and ending with the maximum drawdown end date (the date that the portfolio hit its lowest point before recovering to the peak level reached before the maximum drawdown). The calculation looks at all sub-periods of the entire time period analyzed and calculates the compounded return of the portfolio or index over that period. The maximum drawdown loss value is the largest negative value of all these compounded return periods (or zero if there were no drawdowns during the period analyzed). The maximum drawdown length is the number of periods (days, months, or quarters depending on the periodicity of the data) between the maximum drawdown start date and the maximum drawdown end date. The maximum drawdown recovery date is the date that the portfolio returns to the drawdown start date (the date at which the compounded returns regain the peak level that was reached before the maximum drawdown began). The maximum drawdown recovery length is the number of periods it takes to reach the recovery level from maximum drawdown end date.

Monte Carlo Percentiles: Probability distributions of asset value outcomes generated from the Monte Carlo Simulations.

Monte Carlo Probabilities: The probability of the wealth goal (or target) is the number of simulation trials that meet or exceed the wealth goal (or target) divided by the total number of trials.

Omega: Omega relative to a given minimal acceptable return (MAR) is the ratio between the price of a European call option written against the investment and the price of a European put option written against the investment, with the strike price being equal to the MAR in both cases. Omega is represented graphically as a cumulative distribution of returns function where the x-axis (horizontal axis) of the graph displays returns and the y-axis (vertical axis) of the graph displays the probability that a given portfolio will achieve or exceed that return figure. Upside Omega is the area on a cumulative distribution between the vertical minimum acceptable return (MAR) line and the distribution above the MAR. This is highlighted in green on the Cumulative Distribution of Returns slide(s). It is the numerator in the omega calculation. Downside Omega is the area on a cumulative distribution between the vertical minimum acceptable return line (MAR) and the distribution below the MAR. This is highlighted in red on the Cumulative Distribution of Returns slide(s). It is the numerator in the omega calculation.

Pain Index: The Pain Index is a statistic developed by Zephyr exclusively for use within the Zephyr Asset Allocation tool. It represents the frequency, the depth, and the width of the portfolio's drawdowns by calculating the area enclosed by the downward drawdown graph and the zero drawdown line, divided by the length of the time interval. The pain index is an attempt to capture in one single number as much of the information that is contained in the drawdown graph as possible, rather than just the maximum drawdown number. This number increases as the spikes grow more frequent, deeper, or wider during the same time period.

Pain Ratio: The Pain Ratio indicates the excess return per unit of total risk as measured by the pain index of the portfolio. It is a ratio of the portfolio's annualized excess returns over the risk-free rate to the portfolio's pain index. The pain ratio is a measure of the premium earned for the risk incurred by the portfolio.

Range of Returns: A Range of Returns indicates the range of possible outcomes calculated by the cumulative returns compounded over the period(s) shown for a given portfolio based on UBS return, risk, and correlation assumptions (and Client Constraints). The expected return is the annualized return after the period(s) shown under a base case scenario. The best/worst case return is the annualized return after the period(s) shown under a best/worst case scenario, and the expected risk is the standard deviation of the expected return. As the time horizon increases, the expected risk moves towards zero. For any given portfolio, the expected return for a time period is represented by the 50th percentile (which is a mean return) and the expected best case scenario by the 95th percentile and the expected worst case scenario by the 5th percentile. The likelihood of obtaining a total portfolio value that is more extreme than the best/worst case cumulative value (given the capital market assumptions and Constraints) is approximately 2.5%.

R-Squared: The R-Squared (R2) of a portfolio measures the variance of the portfolio's returns compared to the variance of a benchmark's returns in order to determine how closely the portfolio tracks the benchmark. R2 ranges between zero and 100%. An R2 of 100% indicates perfect tracking, while an R2 of zero indicates no tracking at all. Unless otherwise described, the Zephyr tool uses the S&P 500 as the benchmark for calculating R2.

Relative Constraints: These are portfolio asset allocation constraints established by the Client indicating the allocation to an asset class or asset class group has to be less than, greater than or equal to another asset class or asset class group.

Return, Risk, and Correlation assumptions: Mean-Variance optimization uses three inputs to generate the Efficient Frontier: Returns, Standard Deviations (Risk) and Correlations. These are commonly referred to as the Capital Market Assumptions for generating the Efficient Frontier. These values are based on UBS estimated forward-looking assumptions based on UBS proprietary research (see the Return, Risk, and Correlation Assumptions – Forward-looking Estimates section for more information).

Sharpe Ratio: The Sharpe Ratio indicates the excess return per unit of total risk as measured by standard deviation. It is a ratio of the portfolio's arithmetic average of excess returns over the risk-free rate to the portfolio's standard deviation. The Sharpe Ratio is a measure of the premium earned for the risk incurred by the portfolio. The Sharpe Ratio – Internal is similar to the Sharpe Ratio, but the denominator is the standard deviation of the portfolio's excess returns over the risk-free rate (i.e. tracking error). This captures the risk associated with the excess returns instead of the risk solely associated with the portfolio.

Skewness: Skewness characterizes the degree of asymmetry of a distribution around its mean. Positive skewness indicates a distribution with an asymmetric tail extending toward more positive values. Negative skewness indicates a distribution with an asymmetric tail extending toward more negative values.

Sortino Ratio: The Sortino Ratio indicates the excess return per unit of total risk as measured by downside deviation. It is a ratio of the portfolio's arithmetic average of excess returns over a minimum acceptable return (MAR) to the portfolio's downside deviation. The Sortino ratio uses the downside deviation with a constant MAR indicated. Downside deviation measures the deviation between returns that are less than the MAR and the MAR.

Standard Deviation: A measure of the extent to which observations in a series vary from the mean of the series. The standard deviation of a series of asset returns is a measure of volatility or risk of the asset. A large standard deviation implies that there have been large swings in the return series. The standard deviation calculation assumes that the return series is a sample of possible returns, while the population standard deviation assumes that the series has all of the returns in the population.

Tracking Error: Tracking Error measures the difference between the returns of the analyzed portfolio and those of a benchmark. Tracking error is calculated as the annualized standard deviation of the excess return of the portfolio compared to the benchmark return. The lower the tracking error, the more closely the portfolio's returns tracked those of the benchmark. Unless otherwise described, the Zephyr tool uses the S&P 500 as the market benchmark for calculating tracking error.

Trailing Year Returns: Returns trailing from the date analyzed. All returns over one year are annualized.

Treynor Ratio: The Treynor Ratio is a risk-adjusted measure of return which uses beta to represent risk. It is the portfolio's excess return over the risk-free rate divided by the portfolio's beta to the selected benchmark. The Treynor Ratio differs from the Sharpe Ratio insofar as the beta to the market benchmark is used as the measure of risk rather than the standard deviation of the portfolio series.

Up Capture/Down Capture: The up and down capture measure how well the portfolio was able to replicate or improve on phases of positive benchmark returns and how badly the portfolio was affected by phases of negative benchmark returns. To calculate the up capture, we first form a new return series from the portfolio and benchmark return series by dropping all time periods where the benchmark return is zero or negative. The up capture is then the ratio of the annualized return of the resulting portfolio series to the annualized return of the resulting benchmark series. The down capture is calculated analogously. Unless otherwise described, the Zephyr tool uses the S&P 500 as the benchmark for calculating the up capture and down capture.

Upside/Downside Deviation: Downside deviation measures the deviation between returns that are less than a target return and the target return. Upside deviation measures the deviation between returns that are more than a target return and the target return. Target returns may be referred to as a minimal acceptable return (MAR).

Value at Risk: Nonparametric Value at Risk (VaR) attempts to evaluate risk by applying historical returns for a portfolio and determining a VaR value where a certain percentage (called the confidence level) of the rest of the portfolio's returns exceeded that VaR value. For example, if the confidence level is 95%, that means that 95% of the portfolio's historical returns over the given date range were more than the VaR and analogously that 5% of the portfolio's historical returns over the given time frame were less than the VaR. If the confidence level is 99%, that means that 99% of the portfolio's historical returns exceeded the VaR and 1% of the portfolio's returns were less than the VaR. Conditional Value at Risk (CVaR) quantifies the amount of tail risk for an investment portfolio by calculating the average return of the portion of the portfolio's historical returns that exceeded a given confidence level. For example, if the confidence level is 95%, the CVaR calculates the average return of the worst 5% of historical returns over the given time frame. CVaR provides an average historical loss whereas VaR provides a range of the historical losses.

Worst Month Return/Worst Quarter Return: See Upside/Downside.

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- **We must have a reasonable basis for believing that any securities recommendations we make to you are suitable and appropriate for you, given your individual financial circumstances, needs and goals.**
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Appendix: Statement of risk

1. Equity markets are difficult to forecast because of fluctuations in the economy, investor psychology, geopolitical conditions, and other important variables.
2. Bond market returns are difficult to forecast because of fluctuations in the economy, investor psychology, geopolitical conditions and other important variables. Corporate bonds are subject to a number of risks, including credit risk, interest rate risk, liquidity risk, and event risk. Though historical default rates are low on investment grade corporate bonds, perceived adverse changes in the credit quality of an issuer may negatively affect the market value of securities. As interest rates rise, the value of a fixed coupon security will likely decline. Bonds are subject to market value fluctuations, given changes in the level of risk-free interest rates. Not all bonds can be sold quickly or easily on the open market. Prospective investors should consult their tax advisors concerning the federal, state, local, and non-U.S. tax consequences of owning any securities referenced in this report.
3. Prospective investors should consult their tax advisors concerning the federal, state, local, and non-U.S. tax consequences of owning preferred stocks. Preferred stocks are subject to market value fluctuations, given changes in the level of interest rates. For example, if interest rates rise, the value of these securities could decline. If preferred stocks are sold prior to maturity, price and yield may vary. Adverse changes in the credit quality of the issuer may negatively affect the market value of the securities. Most preferred securities may be redeemed at par after five years. If this occurs, holders of the securities may be faced with a reinvestment decision at lower future rates. Preferred stocks are also subject to other risks, including illiquidity and certain special redemption provisions.
4. Although historical default rates are very low, all municipal bonds carry credit risk, with the degree of risk largely following the particular bond's sector. Additionally, all municipal bonds feature valuation, return, and liquidity risk. Valuation tends to follow internal and external factors, including the level of interest rates, bond ratings, supply factors, and media reporting. These can be difficult or impossible to project accurately. Also, most municipal bonds are callable and/or subject to earlier than expected redemption, which can reduce an investor's total return. Because of the large number of municipal issuers and credit structures, not all bonds can be easily or quickly sold on the open market.

Appendix: explanations about asset allocations

Sources of strategic asset allocations and investor risk profiles

Strategic asset allocations represent the longer-term allocation of assets that is deemed suitable for a particular investor. The strategic asset allocation models discussed in this publication, and the capital market assumptions used for the strategic asset allocations, were developed and approved by the Global Wealth Management Americas Asset Allocation Committee (GWMA AAC).

The strategic asset allocations are provided for illustrative purposes only and were designed by the GWMA AAC for hypothetical US investors with a total return objective under five different Investor Risk Profiles ranging from conservative to aggressive. In general, strategic asset allocations will differ among investors according to their individual circumstances, risk tolerance, return objectives and time horizon. Therefore, the strategic asset allocations in this publication may not be suitable for all investors or investment goals and should not be used as the sole basis of any investment decision. Minimum net worth requirements may apply to allocations to non-traditional assets. As always, please consult your UBS Financial Advisor to see how these weightings should be applied or modified according to your individual profile and investment goals.

The process by which the strategic asset allocations were derived is described in detail in the publication entitled "2019 Capital Market Assumptions Update," published on 4 February 2019 by the GWMA AAC. Your Financial Advisor can provide you with a copy.

Deviations from strategic asset allocation or benchmark allocation

The recommended tactical deviations from the strategic asset allocation or benchmark allocation are provided by the Global Investment Committee and the Investment Strategy Group within CIO Americas, Wealth Management. They reflect the short- to medium-term assessment of market opportunities and risks in the respective asset classes and market segments. Positive/zero/negative tactical deviations correspond to an overweight/neutral/underweight stance for each respective asset class and market segment relative to their strategic allocation. The current allocation is the sum of the strategic asset allocation and the tactical deviation.

Note that the regional allocations on the Equities and Bonds pages in UBS House View are provided on an unhedged basis (i.e., it is assumed that investors carry the underlying currency risk of such investments) unless otherwise stated. Thus, the deviations from the strategic asset allocation reflect the views of the underlying equity and bond markets in combination with the assessment of the associated currencies. The detailed asset allocation tables integrate the country preferences within each asset class with the asset class preferences in UBS House View.

Asset allocation does not assure profits or prevent against losses from an investment portfolio or accounts in a declining market.

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If this output is provided as part of a proposal, it is marketing material. It is provided to you for discussion and consideration and is intended to aid (and be used by) your UBS Consultant or Financial Advisor in providing you with actual individualized investment recommendations. Therefore, they should only be considered in conjunction with the actual recommendations and advice of your UBS Consultant or Financial Advisor, our standard account documents, agreements, disclosures, including the ADV Disclosure for applicable advisory programs, and the additional factors that warrant consideration for your particular financial situation, including costs. The options presented are for discussion purposes only and do not constitute a recommendation to buy, hold, or sell any securities or investment products. This material is not intended and should not be construed to constitute investment advice and does not itself create a fiduciary relationship between you and UBS. You must make independent decisions with respect to any proposals contained within this report. In making those decisions you have reviewed the terms of any Plan with respect to which you are a fiduciary and your obligations to any such Plan under ERISA. If you would like more details about any of the information provided, or personalized recommendations or advice, please contact your UBS Financial Advisor.

Accounts and Assets Included: UBS account statements are the only official records of holdings, balances, transactions, and security values of assets held in UBS accounts and are not replaced, amended or superseded by any of the information presented in this report. If assets that you hold at other financial institutions are included in this report, they are being provided as part of your IC or CAP Services Agreement or you have asked us to include those assets as an accommodation but they are not included as part of your IC or CAP Services Agreement with us. If assets are included solely as an accommodation, those assets are identified as such in this report. In either situation, the inclusion of assets held at another financial institution is based on information, including valuation and transactional information, furnished to UBS by you or your custodian. We have not verified, and are not responsible for, the accuracy or completeness of this information. This report is not intended to provide you with consolidated information or reporting regarding your holdings at other firms. You should review and maintain the original documents for those assets, such as account statements for individual accounts held away from UBS. Those documents contain their record of holdings, balances, transactions, and security values of assets held in those accounts, as well as notices, disclosures and other information important to you, and may also serve as a reference should questions arise regarding the accuracy of the information in this report. UBS Financial Services Inc. SIPC coverage would only apply to those assets held at UBS Financial Services Inc. You should contact your financial representative at any other financial institution where you hold an account to determine the availability of SIPC coverage, if any. We require that you hold and purchase only eligible managed assets in your UBS advisory accounts.

Investment Monitoring: Your IC or CAP Agreement defines the investment monitoring performed as part of your respective investment advisory program. If we have included assets held in UBS brokerage accounts, it is important that you understand that we do not act as an investment adviser or fiduciary on brokerage assets. We do not monitor brokerage account investments through the IC or CAP Programs and we do not monitor investments as a brokerage service unless specifically agreed to in writing. This report is provided solely to help you evaluate your account performance and/or progress toward your financial objectives. By providing this report to you, we are not agreeing to monitor any brokerage account investments contained within the report. If you want ongoing monitoring of your brokerage investments, please speak with your financial advisor about the possibility of including such investments as part of an investment advisory relationship with us. Inclusion of brokerage assets in this report also distorts the actual performance of your advisory assets.

Valuation: Values shown are not inclusive of margin balances. Every reasonable effort has been made to accurately price securities; however, we make no guarantee with respect to any security's price. To determine the value of securities in your account, we generally rely on third party quotation services. If a price is unavailable or believed to be unreliable, we may determine the price in good faith and may use other sources such as the last recorded transaction. We will generally rely on the value provided by you, the custodian or issuer of that security, when (i) securities are held at another custodian; (ii) investments not available through UBS or that our systems do not recognize. To obtain current quotations, when available, contact your Institutional Consultant or Financial Advisor. Such pricing may impact the performance information provided in these reports. If pricing is indicated as "NA", the required data for that field was not provided by the other financial institution or you; this will impact the performance information provided in these reports.

Performance Analytics: Unless otherwise noted, performance shown is based on Time Weighted Rate of Return. Periods greater than one year have been annualized, but annual performance may not represent a full calendar year depending on the inception date of the first account included in these reports. Standard deviations are shown only for periods of 12 months or longer. When you hold your assets at UBS, this report will generally show performance net of manager and UBS Institutional Consulting fees, unless you and your UBS Financial Advisor decided to reflect fee information differently. If you hold your assets away from UBS, this report will generally show performance net of manager and UBS Institutional Consulting fees if your custodian provides that level of fee information, unless you and your UBS Financial Advisor decided to reflect fee information differently. Therefore, this report may reflect performance before the deduction of manager fees and/or UBS Institutional Consulting advisory fees. The payment of fees and expenses will reduce the performance of the account and the reduction in performance will have a cumulative effect over time. The net effect of the payment of fees on the annualized performance, and the compounded or cumulative effect over time, is dependent on the amount of the fee and the account's investment performance. For example, an account that experiences an annual gross performance of 10% but incurs a 2.8% annual fee that is deducted quarterly on a prorated basis, will experience net annual performance of 7.1%, a reduction of 2.9% per year. Compounding will similarly affect the account's performance on a cumulative basis.

Performance information incorporates data as of the date your accounts became available for these reports, not as of your initial acquisition of a particular investment unless performance history is imported at client's instruction. For reports that reflect combined account information, the inception date will be the earliest performance start date of any of the individual accounts selected for the consolidation time period. If an individual account's performance information is not available for a full reporting time period (month to date, quarter to date, year to date or performance to date), that account's information will only be included for the period when available. For consolidated accounts that include different account inception dates, the consolidated Additions/Withdrawals, Income Earned and Investment Appreciation/ Depreciation will include all activity that occurred during the consolidated reporting time period. The inception date of each account is listed at the beginning of this report. Accounts that hold or held insurance products will be reported on from the month end date of when insurance and annuity activity could be obtained from the carrier. To the extent that your historical data contains a mixture of net and gross performance history related to manager or advisory fees, those distinctions will impact your performance reports to the extent that the different methods of reporting are blended. Note that various factors, including unpriced securities and certain holdings, adjustments or activity may cause the results shown in this report to differ from actual performance (see the Performance Reconciliation Adjustments section for detail on differences between your Custodial statement and information used to create this performance report). Note that these results may differ from other performance reports provided to you by UBS. Performance information may be impacted by the different ways each UBS entity or third party financial institution respectively records trade executions. Past performance is no guarantee of future results. Neither the UBS entities nor any of their respective representatives provide tax or legal advice. You must consult with your legal or tax advisors regarding your personal circumstances.

You have discussed the receipt of this individually customized report with your Financial Advisor. Your UBS account statements and trade confirmation are the official records of your accounts at UBS. We assign index benchmarks to our asset allocations, strategies in our separately managed accounts and discretionary programs based on our understanding of the allocation, strategy, the investment style and our research. The benchmarks included in this report can differ from those assigned through our research process. As a result, you may find that the performance comparisons may differ, sometimes significantly, from that presented in performance reports and other materials that are prepared and delivered centrally by the Firm. Depending upon the composition of your portfolio and your investment objectives, the indexes used in this report may not be an appropriate measure for comparison purposes, and as such, are represented for illustration only. Your portfolio holdings and performance may vary significantly from the index. Your financial advisor can provide additional information about how benchmarks within this report were selected.

Using Margin in your IC or CAP Investment Advisory Accounts. Using margin in an advisory account is a more aggressive, higher risk approach to pursuing your investment objectives. Unless you have selected a strategy that requires the use of margin as part of its implementation, we do not recommend the use of margin in advisory accounts, including IC and CAP accounts. The decision to leverage in an advisory account rests solely with you and is made against our recommendation. Your decision should be made only if you understand: (1) the risks of margin in an advisory account; (2) how margin may affect your ability to achieve investment objectives; (3) that you may lose more than your original investment. You will pay interest to UBS on the outstanding margin loan balance. Using margin to purchase securities in an advisory account increases the amount of (but not the percentage of) the advisory fee you pay. Positive or negative performance of a margined advisory account will be magnified by virtue of using margin. You will not benefit from using margin in an advisory account if the performance of your account does not exceed the interest expense being charged on the loan plus the additional advisory account fees incurred by your account as a result of the deposit of the loan proceeds.

Using Advisory Accounts as collateral for a credit line. If you currently have UBS Bank USA Credit Line collateralized by advisory accounts, UBS Bank USA pays UBS Financial Services a servicing fee based on the amount of outstanding loan balances to compensate UBS for referring clients and for administrative and operational support relating to the loan. If you maintain a balance on a non-purpose loan, your Financial Advisor will receive compensation primarily based upon the outstanding balance and the corresponding spread on the loan. This provides an incentive for your Financial Advisor to refer you for a non-purpose loan and to draw down on the loan. As UBS and your Financial Advisor are compensated primarily through advisory fees paid on your account, we (and your Financial Advisor) benefit if you draw down on your loan to meet liquidity needs rather than sell securities or other investments in your UBS account, which would reduce our advisory fee. A draw down would preserve your Financial Advisor's advisory fee revenue and may generate additional loan-related compensation for him. This presents a potential conflict of interest for your Financial Advisor when addressing your needs for liquidity. Please consider your options and these conflicts of interest carefully when deciding whether to liquidate assets or draw down on a non-purpose loan.

UBS Financial Services Inc. is in the business of establishing and maintaining investment accounts and we will receive compensation from you in connection with investments that you make, as well as additional compensation from third parties whose investments we distribute. This presents a conflict of interest when we recommend that you move your assets to UBS from another financial institution, and also when we make investment recommendations for assets you hold at, or purchase through, UBS. For more information on how we are compensated by clients and third parties, conflicts of interest and investments available at UBS please refer to the 'Your relationship with UBS' booklet provided at ubs.com/relationshipwithubs,or ask your UBS Financial Advisor for a copy.Neither UBS, our affiliates nor our Financial Advisors will act as investment adviser to you with respect to the liquidation of securities held in an advisory account to meet a margin call or credit line loan demand

Benchmark Index Information: For comparison purposes, these reports may contain a number of general broad market indices, which were selected to demonstrate the performance of broad market indicators that are readily recognized, rather than for direct performance comparisons, and do not reflect the performance of actual investments. The selection and use of benchmarks is not a promise or guarantee that your accounts will meet or exceed the stated benchmarks. Benchmark information is illustrative and relates to historical performance of market indexes and not the performance of actual investments. Indexes are not available for direct investment and reflect an unmanaged universe of securities. Indices assume no management, custody, transaction fees or expenses that would lower the performance results, and assume reinvestment of dividends and capital gains. Information about indices is based on information obtained from sources believed to be reliable, but no independent verification has been made. UBS does not guarantee the accuracy or completeness of any index information presented. Market index data is subject to review and revision, and UBS reserves the right to substitute indices or display only those indices for which current updated information is available. Information regarding the indexes shown in this report can be found at the end of this report.

Risk Considerations: Some of the general risk considerations associated with the investment options included in this report are described below. The descriptions are not meant to be a complete list of all investment risks. For more complete information regarding fees, expenses, risks and restrictions associated with these investments please review the offering documents and marketing materials. Investors should consult their tax advisor about their specific tax situation before investing in any securities. In addition, clients should familiarize themselves with the particular market risks and the other risks associated with the specific investment. All investments contain risk and may lose value.

Cash and cash alternatives: Cash and cash alternatives typically include money market securities or three-month T-Bills. These securities have short maturity dates and they typically provide a stable investment value as compared to other investments and current interest income. These investments may be subject to credit risks and inflation risks. Treasuries also carry liquidity risks for sales prior to maturity. Investments in money market funds are neither insured not guaranteed by the Federal Deposit Insurance Corporation ("FDIC"), the U.S. government or any other government agency. There can be no assurance that the funds will be able to maintain a stable net asset value at $1.00 per share or unit.

Alternative Investments: Non-traditional asset classes are alternative investments that include hedge funds, private equity, and private real estate (collectively, non-traditional or alternative investments). These investments can be subject to substantial risks (including the risks associated with limited liquidity, the use of leverage, short-sales and concentrated positions), may involve complex tax structures and strategies, and may not be easily valued. The risks of alternative investments should be carefully considered in light of your investment objectives, risk tolerance and net worth. Alternative investments are speculative and entail substantial risks, which may place your capital at risk. Alternative investments may not have been registered with the Securities and Exchange Commission or under any state securities laws. The market for such investments may be highly illiquid and subjectively valued, and these reports provide values for informational purposes only. Accuracy is not guaranteed. These values may differ substantially from prices, if any, at which a unit may be bought or sold and do not necessarily represent the value you would receive from the issuer upon liquidation. Issuer estimated values, if any, are generally updated on a regular (annual or semi-annual) basis and are supplied to us by the issuer, but may be calculated based on different information from what is used by third parties to derive their estimated values.

U.S. Fixed Income: Fixed income represents exposure (whether direct or indirect) to debt issued by private corporations, governments or federal agencies. Historically, fixed income has higher return than cash investments but their value can fluctuate dramatically as they are subject to risks including market, interest rate, issuer, credit, default and inflation risk. An investment in a portfolio may be worth more or less than its original cost when redeemed. In addition, fixed income generally has less volatility and long-term return than equities. U.S. fixed income may be further classified as high yield. These investments are high yielding but may also carry more risk. A bond funds yield and value of its portfolio fluctuate and can be affected by changes in interest rates, general market conditions and other political, social and economic developments.

U.S. Equity: Equities represent exposure (whether direct or indirect) to ownership interest in a corporation. Historically, equities are more risky than fixed income or cash investments as they experience greater volatility risk, which is the risk that the value of your investment may fluctuate over time. However, they have had higher returns. Investments in small and medium company stocks can be more volatile over the short term than investments in large company stocks, however, they may offer greater potential for appreciation.

Non-U.S. equity and fixed income: Non-U.S. equity and fixed income represent exposure (whether direct or indirect) to ownership interests and debt, respectively, of foreign governments and corporations that can be sub-divided into those from countries that have developed markets or emerging markets. Further, non-U.S. companies not reporting with the SEC may be subject to accounting, auditing, and financial reporting standards and requirements that differ from companies reporting with the SEC and may have less publicly available information about them than companies reporting with the SEC.

International: Investors in securities of issuers located outside of the United States should be aware that even for securities denominated in U.S. dollars, changes in the exchange rate between the U.S. dollar and the issues "home" currency can have unexpected effects on the market value and liquidity of those securities. Those securities may also be affected by other risks (such as political =, economic or regulatory changes) that may not be readily known to a U.S investor.

Variable Annuities: A variable deferred annuity is a long-term financial product designed for retirement purposes. It is a contractual agreement in which payment(s) are made to an insurance company, which agrees to pay out an income or a lump sum amount at a later date. There are fees and charges associated with a variable annuity contract, which include, but are not limited to, operations charges, sales and surrender charges, administrative fees, and additional charges for optional benefits. Variable annuities are sold by prospectus and you should carefully consider important information on the sub-accounts' investment objectives, risk, charges and expenses.

Please read the prospectus and offering documents carefully before you invest. Your Financial Advisor can provide a copy of the prospectus. For current month-end returns: <http://advisor.morningstar.com/familyinfo.asp <http://advisor.morningstar.com/familyinfo.asp>> <http://advisor.morningstar.com/familyinfo.asp> <http://advisor.morningstar.com/familyinfo.asp>. Withdrawals from an annuity contract are taxable as ordinary income, not as capital gains and, if made prior to age 59 and 1/2, may be subject to an additional 10% federal income tax penalty. Withdrawals may also be subject to surrender charges. Withdrawals will reduce the death benefit, living benefits and cash surrender value. For tax purposes, withdrawals will come from any gain in the contract first. Please see the prospectus for complete details. Amounts in the annuity's variable investment portfolios are subject to fluctuation in value and market risk, including loss of principal. Unregistered group variable annuities and registered group variable annuities that are solely available for use in qualified plans are rated and ranked based on their position within the bell curve of the open end fund peer group (a.k.a. category), rather than the variable annuity subaccount peer group. These ratings and ranks are calculated by using an overlay of the open end fund peer group break points and therefore do not contribute to the category average or number of funds within the peer group. For variable annuity subaccounts, standardized return is total return based on its inception date within the separate account and is adjusted to reflect recurring and non-recurring charges such as surrender fees, contract charges, maximum front-end load, maximum deferred load, maximum M&E risk charge, administration fees, and actual ongoing fund-level expenses. The benchmark used for each individual subaccount performance is an index that has been assigned to the particular manager or fund.

Mutual Fund Performance Information: Mutual Funds are sold by prospectus and you should carefully consider important information on the fund's investment objectives, risk, charges and expenses. Please read the prospectus and offering documents carefully before you invest. Your UBS Institutional Consultant can provide a copy of the prospectus. For current month-end returns: <<http://advisor.morningstar.com/familyinfo.asp>> <http://advisor.morningstar.com/familyinfo.asp> <http://advisor.morningstar.com/familyinfo.asp>. This analysis may incorporate mutual fund and exchange traded fund performance results. Analyticsshown are calculated based on the fund's Net Asset Value, which may reflect the reinvestment of dividends and capital gains, as well as the deduction of 12b-1 fees and fund internal expenses (e.g. fund management fees). The analytics do not reflect the deduction of the sales load, where applicable, the UBS Consulting fee(s), where applicable, or the impact of taxes. Had the sales load, fee or taxes been included, the results used in this analysis would have been reduced.

Wilshire Trust Universe Comparison Service Information: These reports may contain comparative peer performance data provided by Wilshire Associates Incorporated (Wilshire®), entitled "Quartile Ranking Comparison." Output will be presented as a universe organized by asset type, plan type, plan size or other basis. Wilshire®, the Wilshire Trust Universe Comparison Service® and TUCS® are service marks of Wilshire Associates Incorporated and have been licensed for use by UBS Financial Services Inc. All content of TUCS is ©2021 Wilshire Associates Incorporated, all rights reserved.
Ranking Methodology: Universe ranking assigns a whole number rank between 1 and 99 for a set of values. This is the distribution. Ranking is determined by comparing a value to the values in the set, and using the rank assigned to the value that is equal to or 'better' than the value being compared. A 'better' value is based on whether a higher value is better or a lower vale is better. A set of values can be ranked either high to low (as in rates of return, where a higher value is better than a lower value) or low to high (such as Beta).**Policy Index**: A point of reference for evaluating a portfolio's investment performance. A policy Index can be comprised of single or multiple benchmarks (weighted blend). Portfolios with multiple benchmarks will be depicted with a description of benchmarks and weights that comprise the policy. **The benchmarks that constitute the policy index change over time as your portfolio changes. For historical policy index information, see the Benchmark Comparisons Used in this Report exhibit.**
Gain/(Loss) Information: When data is available from UBS, estimated unrealized gains/losses are calculated for individual security lots. For assets transferred from another financial institution, gain/loss information will be reflected only for the period of time the assets have been held at UBS entities. For assets held at other financial institutions, information provided by you or that entity, if any, is reflected. Total realized gain/loss information may include calculations based upon non-UBS entities cost basis information. UBS Financial Services Inc. does not independently verify or guarantee the accuracy or validity of any information provided by sources other than UBS Financial Services Inc. When original cost information is unavailable, gain/loss amounts will represent current market value and total gains/losses may be inaccurate. Date information for when a particular security was acquired, when available, appears on these reports. When no acquisition date is provided for a security, these reports reflect "N/A" and omit this information. As a result, these figures may not be accurate and are provided for informational purposes only.
Interest and Dividend Income: When shown on this report, information does not reflect your account's tax status or reporting requirements. You should use only official IRS forms for tax reporting purposes. The classification of private investment distributions can only be determined by referring to the official year-end tax-reporting document provided by the issuer.
Contributions and Withdrawals: When shown on a report, information regarding contributions and withdrawals may represent the net value of all cash and securities contributions and withdrawals, and may include program fees (including wrap fees) and other fees added to or subtracted from your accounts from the first day to the last day of the period covered by these reports. Program fees may be separately identified or included in withdrawals except when paid via an invoice or through a separate account billing arrangement.
Cash Flow: Cash Flow analysis is based on the historical dividend, coupon and interest payments you have received as of the Record Date in connection with the securities listed and assumes that you will continue to hold the securities for the periods for which cash flows are projected. This may or may not include principal paybacks for the securities listed. These potential cash flows are subject to change due to a variety of reasons, including but not limited to, contractual provisions, changes in corporate policies, changes in the value of the underlying securities and interest rate fluctuations. The effect of a call on any security(s) and the consequential impact on its potential cash flow(s) is not reflected in this report. Payments that occur in the same month in which the report is generated -- but prior to the report run ("As of") date -- are not reflected in this report. In determining the potential cash flows, UBS relies on information obtained from third party services it believes to be reliable but does not independently verify or guarantee the accuracy or validity of any information provided by third parties. Cash flows for mortgage-backed, asset-backed, factored, and other pass-through securities are based on the assumptions that the current face amount, principal pay-down, interest payment and payment frequency remain constant.
Calculations may include principal payments, are intended to be an estimate of future projected interest cash flows and do not in any way guarantee accuracy.

Important information about advisory & brokerage services: As a firm providing wealth management services to clients, UBS Financial Services Inc. offers investment advisory services in its capacity as an SEC-registered investment adviser and brokerage services in its capacity as an SEC-registered broker-dealer. Investment advisory services and brokerage services are separate and distinct, differ in material ways and are governed by different laws and separate arrangements. It is important that clients understand the ways in which we conduct business and that they carefully read the agreements and disclosures that we provide to them about the products or services we offer. A small number of our financial advisors are not permitted to offer advisory services to you, and can only work with you directly as UBS broker-dealer representatives. Your financial advisor will let you know if this is the case and, if you desire advisory services, will be happy to refer you to another financial advisor who can help you. Our agreements and disclosures will inform you about whether we and our financial advisors are acting in our capacity as an investment adviser or broker-dealer. For more information, please review the PDF document at ubs.com/relationshipsummary. While we strive to make sure the nature of our services is clear in the materials we publish, if at any time you would like clarification on the nature of your accounts or the services you are receiving, please speak with your UBS Institutional Consultant.The ACCESS, SWP, AAP, MAC and Institutional Consulting ("IC") programs offer some of the same Separately Manage Account ("SMA") Managers for different SMA Manager fees. The amount of the fee paid to each SMA Manager is a function of that SMA Manager's investment style and the fee negotiated with the SMA Manager either by UBS (in ACCESS, SWP) or by you (in MAC or IC). Depending on your asset level and ability to negotiate the investment management fee with the SMA Manager in the dual-contract structure of the MAC or IC program, you may find that the single-contract structure in ACCESS and SWP provides a more cost-effective option or vice versa. In addition, based on the combination of our fees and your SMA Manager's fees, the overall fee for your SMA account in ACCESS, SWP, MAC or IC may exceed 3% of the account value. Please review your options and overall costs carefully with your Financial Advisor before investing

Calculation Definitions
Accrued Interest: In accounting, accrued interest refers to the amount of interest that has been incurred, as of a specific date, on a loan or other financial obligation but has not yet been paid out. Accrued interest can either be in the form of accrued interest revenue, for the lender, or accrued interest expense, for the borrower. The term accrued interest can also refer to the amount of bond interest that has accumulated since the last time a bond interest payment was made.
Alpha: Alpha measures the difference between an investment's actual performance, and its expected performance as indicated by the returns of a selected market index. A positive Alpha indicates the risk-adjusted performance is above that index. In calculating Alpha, Standard Deviation (total risk) is used as risk measure. Alpha is often used to judge the value added or subtracted by a manager.
Annual Income is money (or some equivalent value) that an individual or business receives, usually in exchange for providing a good or service or through investing capital. Income is used to fund day-to-day expenditures. Investments, pensions, and Social Security are primary sources of income for retirees. For individuals, income is most often received in the form of wages or salary. Business income can refer to a company's remaining revenues after paying all expenses and taxes. In this case, income is referred to as "earnings." Most forms of income are subject to taxation.
Appreciation/Depreciation: Appreciation or Depreciation is the change in market value minus net cash flows. The value indicates by how much the portfolio value has changed due to changes in asset values. Appreciation would be an increase, Depreciation would be a decrease.
Average Exposure: Average Exposure is generally, the average allocation to a segment or an asset. Calculated as the beginning market value plus the weighted net cash flows as a percentage of the total portfolio market value.
Beta: Beta is defined as a Manager's sensitivity to market movements and is used to evaluate market related, or systematic risk. Beta is a measure of the linear relationship, over time, of the Manager's returns and those of the Benchmark. Beta is computed by regressing the Manager's excess returns over the risk free rate (cash proxy) against the excess returns of the Benchmark over the risk free rate. An investment that is as equally volatile as the market will have a Beta of 1.0; an investment half as volatile as the market will have a Beta of 0.5; and so on. Thus, Betas higher than 1.0 indicate that the fund is more volatile than the market.
Composite Benchmark: The Composite Benchmark is a weighted average benchmark based on the allocation of funds within each of the portfolios in the composite and the risk index assigned to each portfolio.
Correlation (R): The Correlation represents the degree to which investments move in tandem with one another and is a critical component of diversified portfolio construction. The Correlation varies between a minimum of -1 (move in opposite direction) and a maximum of 1 (completely correlated). Lower Correlations enhance diversification and lead to better risk-adjusted returns within diversified portfolios. An R of less than 0.3 is often considered low Correlation.
Cost: This is the Cost basis information. Cost basis is the original value of an asset for tax purposes, usually the purchase price, adjusted for stock splits, dividends, and return of capital distributions. This value is used to determine the capital gain, which is equal to the difference between the asset's cost basis and the current market value.
Coupon Rate: A coupon rate is the yield paid by a fixed-income security; a fixed-income security's coupon rate is the annual coupon payments paid by the issuer relative to the bond's face or par value. The coupon rate, or coupon payment, is the yield the bond paid on its issue date. This yield changes as the value of the bond changes, thus giving the bond's **Yield to Maturity**. The portfolio's coupon rate is the weighted average of the assets' coupon rates.
Current Yield: This measure looks at the current price of a bond instead of its face value and represents the return an investor would expect if he or she purchased the bond and held it for a year. This measure is not an accurate reflection of the actual return that an investor will receive in all cases because bond and stock prices are constantly changing due to market factors.
Distribution of Excess Returns: Distribution of Excess Returns displays an arrangement of statistical data that exhibits the frequency of occurrence of the investment's returns in excess of the selected Market Index.
Distribution of Assets: Distribution of Assets displays monthly data related to net contributions, market values, rates of return, and Index Values.
Down Market (Mkt) Capture Ratio: Down Market Capture Ratio is a measure of an investment's performance in down markets relative to the market itself. A down market is one in which the market's return is less than zero. The lower the investment's Down Market Capture Ratio, the better the investment protected capital during a market decline. A negative Down Market Capture Ratio indicates that an investment's returns rose while the market declined.
Downside Capture Return: The downside capture return is the cumulative performance of the portfolio in all periods during which the risk benchmark posted a negative return.
Downside Probability: The downside probability is the ratio of the number of periods during which the portfolio posted a negative return to the total number of periods under study. If, for example, during a 12 month span, the portfolio realized 5 months of negative returns, the downside probability would be equal to 5/12 or 42 percent. The sum of the downside and upside probabilities must equal 1.0. The downside probability does not consider the extent to which the portfolio will fail to exceed the target index. It merely considers the likelihood that the target will not be exceeded. It is important to bear in mind this point when comparing the downside probabilities of more than one portfolio. It is not necessarily correct, for example, to deem portfolio A riskier than portfolio B simply because A has a higher downside probability.
Downside Risk (Semi Standard Deviation, Semi Std Dev, or Downside Deviation): Downside Risk only identifies volatility on the down side. Downside Risk measures the variability of returns below zero, whereas Standard Deviation attributes volatility in either direction to risk. The Downside Risk method calculates the deviations below zero for each observed return. Each time a return falls below zero, the sum is divided by the number of observations and the square root is taken. This result is then shown on an annualized basis.
Dynamic Index: A weighted average blended benchmark of the risk indices assigned to each asset class, based on the asset allocation of the portfolio for a given period. The benchmark index weighting adjusts with changes to the asset allocation. A Dynamic Index should not be used when measuring against the client's *Investment Policy Statement.*
Effective Duration: A duration calculation for bonds with embedded options. Effective duration takes into account that expected cash flows will fluctuate as interest rates change.
Excess: Denotes that a statistic is being measured relative to the Market Index selected. The data set analyzed consists of the periodic differences between the investment's measure and the selected Market Index's definition. **Expense Ratio:** Often referred to as the Net Expense Ratio, Morningstar pulls the net annual expense ratio from the fund's audited annual report. Annual-report expense ratios reflect the actual fees charged during a particular fiscal year. The annual report expense ratio for a fund of funds is the wrap or sponsor fee only. The expense ratio expresses the percentage of assets deducted each fiscal year for fund expenses, including 12b-1 fees, management fees, administrative fees, operating costs, and all other asset-based costs incurred by the fund. Portfolio transaction fees, or brokerage costs, as well as initial or deferred sales charges are not included in the expense ratio. The expense ratio, which is deducted from the fund's average net assets, is accrued on a daily basis. If the fund's assets are small, its expense ratio can be quite high because the fund must meet its expenses from a restricted asset base. Conversely, as the net assets of the fund grow, the expense percentage should ideally diminish as expenses are spread across the wider base. Funds may also opt to waive all or a portion of the expenses that make up their overall expense ratio.
Gross Dollar Weighted Return: Gross Dollar Weighted Return is the internal rate of return, excluding money manager fees.
Gross Expense Ratio: Represents the total gross expenses (net expenses with waivers added back in) divided by the fund's average net assets. If it is not equal to the net expense ratio, the gross expense ratio portrays the fund's expenses had the fund not waived a portion, or all, of its fees. Thus, to some degree, it is an indication of fee contracts. Some fee waivers have an expiration date; other waivers are in place indefinitely.
Gross Time Weighted Return: Gross Time Weighted Return is the Modified Dietz return, excluding money manager fees.
Index Value: Index Value is the unit value series based on the return stream. It can be used to calculate rates of return between any two dates in the report.

Information Ratio: The Information Ratio is a measure of value added by an investment manager. It is the ratio of (annualized) excess return above the selected Market Index to (annualized) Tracking Error. Excess return is calculated by linking the difference of the manager's return for each period minus the selected Market Index return for each period, then annualizing the result.
Investment Class: Group of financial instruments which have similar financial characteristics and which tend to behave similarly in the marketplace.
Investment Style: Method and philosophy followed by a manager when selecting financial instruments.
Management Firm: Professional organization managing various assets in order to meet specified investment goals for the benefit of its clients.
Manager Capture Ratio: The Manager Capture Ratio is manager return divided by the selected Market Index return. It shows what portion of the market performance was captured by the manager under certain market conditions: up market, down market, or both.
Market Experience: Market Experience is the presumable market value of the portfolio if it and its cash flows had grown at the policy index rate of return. It lets the reader know if active management has aided or hurt the portfolio.
Maturity Date: The maturity date is the date on which the principal amount of a note, draft, acceptance bond or other debt instrument becomes due. On this date, which is generally printed on the certificate of the instrument in question, the principal investment is repaid to the investor, while the interest payments that were regularly paid out during the life of the bond, cease to roll in. The maturity date also refers to the termination date (due date) on which an installment loan must be paid back in full.
Net Cash Flow: For the total portfolio, net cash flow is aggregate contributions minus aggregate withdrawals. At the asset class level, net cash flow is aggregate purchases minus aggregate sales minus aggregate income. It is used in the numerator of the Modified Dietz return calculation. It is the same as "New Money" and "Flow".
Net Dollar Weighted Return: Net Dollar Weighted Returns is the internal rate of return, including money manager fees.
Net Time Weighted Return: Net Time Weighted Return is the Modified Dietz return, including money manager fees.
New Money: For the total portfolio, New Money is aggregate contributions minus aggregate withdrawals. At the asset class level, New Money is aggregate purchases minus aggregate sales minus aggregate income. It is used in the numerator of the Modified Dietz return calculation. It is the same as "Net Cash Flow" and "Flow".
Par value: Par value is the face value of a bond. The market price of a bond may be above or below par, depending on factors such as the level of interest rates and the bond's credit status. Par value for a bond is typically $1,000 or $100 because these are the usual denominations in which they are issued.
Performance Attribution: Attribution analysis is a sophisticated method for evaluating the performance of a portfolio or fund manager. Manager Contribution focuses on three factors: the manager's investment style, their specific asset selections, and the market timing of those selections. It attempts to provide a quantitative analysis of the aspects of a fund manager's investment selections and philosophy that lead to that fund's performance. Asset Allocation provides an analysis of the effects on relative performance (i.e., performance vs. an index) that are related to a portfolio's allocation between asset classes. Total Fund Attribution combines the Manager Contribution results with the impacts of Asset Allocation decisions.
Real rate of return is the annual percentage of profit earned on an investment, adjusted for inflation. Therefore, the real rate of return accurately indicates the actual purchasing power of a given amount of money over time. Adjusting the nominal return to compensate for inflation allows the investor to determine how much of a nominal return is real return. In addition to adjusting for inflation, investors also must consider the impact of other factors such as taxes and investing fees in order to calculate real returns on their money or to choose among various investing options.
Tracking error is the divergence between the price behavior of a position or a portfolio and the price behavior of a benchmark. This is often in the context of a hedge fund, mutual fund, or exchange-traded fund (ETF) that did not work as effectively as intended, creating an unexpected profit or loss. Tracking error is reported as a standard deviation percentage difference, which reports the difference between the return an investor receives and that of the benchmark they were attempting to imitate.
Treynor ratio, also known as the reward-to-volatility ratio, is a performance metric for determining how much excess return was generated for each unit of risk taken on by a portfolio. Excess return in this sense refers to the return earned above the return that could have been earned in a risk-free investment. Although there is no true risk-free investment, treasury bills are often used to represent the risk-free return in the Treynor ratio. Risk in the Treynor ratio refers to systematic risk as measured by a portfolio's beta. Beta measures the tendency of a portfolio's return to change in response to changes in return for the overall market. **Upside market Capture ratio:** The Upside Capture Ratio is the ratio of the Upside Capture Return -of a portfolio against a benchmark index- divided by the Market Benchmark Index's return (from zero or positive returns).
Upside Capture Return; The Upside Capture Return, which is measured based a related benchmark index's returns, is the portfolio's compound return for returns in periods, in which the respective benchmark index's return is above or equal to zero.
Yield to maturity (YTM) is the total return anticipated on a bond if the bond is held until it matures. Yield to maturity is considered a long-term bond yield but is expressed as an annual rate. In other words, it is the internal rate of return (IRR) of an investment in a bond if the investor holds the bond until maturity, with all payments made as scheduled and reinvested at the same rate.
Policy Index: A point of reference for evaluating a portfolio's investment performance. A policy Index can be comprised of single or multiple benchmarks (weighted blend). Portfolios with multiple benchmarks will be depicted with a description of benchmarks and weights that comprise the policy.
Rate of Return, ROR, Return %, ROI: All Return terms refer to the Modified Dietz return.
Relative Risk: Relative risk is simply the ratio of the standard deviation of the portfolio to the standard deviation of the risk index. The statistic reveals how much of the variation of the risk index is "shared" by the portfolio. A relative risk of 1.0 indicates that the portfolio has the same level of return variability as the risk index. A relative risk of less than 1.0 indicates that the portfolio has shown a lower dispersion of returns than the index. A relative risk in excess of 1.0 indicates that the portfolio returns have been more dispersed than those of the index.
Riskless Index: The theoretical rate of return of an investment with zero risk. The risk-free rate represents the interest an investor would expect from an absolutely risk-free investment over a specified period of time. The 3 month T-Bill is the usual index used for riskless.
R-Squared (R2): The diversification measure R2 indicates the percentage of volatility in portfolio returns which can be "explained" by market volatility. This statistic indicates the degree to which the observed values of one variable, such as the returns of a managed portfolio, can be explained by, or are associated with the values of another variable, such as a Market Index. It is especially helpful in assessing how likely it is that Alpha and Beta are statistically significant. The R2 values generally range from 0.0 to 1.0. An investment with an R2 of 1.0 is perfectly correlated with the market whereas an investment with an R2 of 0.0 will behave independently of the market. An R2 of 0.95, for example, implies that 95% of the fluctuations in a portfolio are explained by fluctuations in the market.

Sector Allocations: The percentage a manager has allocated to specific economic sectors.
Sharpe Ratio: The Sharpe Ratio indicates the excess return per unit of total risk as measured by Standard Deviation. It is a ratio of the arithmetic average of excess returns over the risk free rate to the Standard Deviation. The Sharpe Ratio is a measure of the premium earned for the risk incurred by the portfolio.
Sortino Ratio: The Sortino Ratio is a measure of reward per unit of risk. With Sortino, the numerator (i.e., reward) is defined as the incremental compounded average return over the minimum acceptable return (MAR). The denominator (i.e., risk) is defined as the downside deviation of the returns below the MAR. Since the downside deviation is the standard deviation of those returns which fail to exceed the MAR, the result of the Sortino Ratio is a measure of the average reward per unit of loss. As with Sharpe and Treynor, the Sortino Ratio only has value when it is used as the basis of comparison between portfolios. The higher the Sortino Ratio, the better.
Standard Deviation: A measure of the extent to which observations in a series vary from the arithmetic mean of the series. The Standard Deviation of a series of asset returns is a measure of volatility or risk of the asset.
Target Allocation: The Target Allocation is the allocation goal of the portfolio approaches and long- and short-term holding periods.
HFRI Relative Value: Equally weighted index of investment managers who maintain positions in which the investment thesis is predicated on realization of a valuation discrepancy in the relationship between multiple securities. Managers employ a variety of fundamental and quantitative techniques to establish investment theses, and security types range broadly across equity, fixed income, derivative or other security types.
Unit Values: Unit Value links periodic rates of return, beginning with an initial value of 100. It can be used to calculate rates of return between any two dates in the report.

Index Definitions
JP Morgan Global Ex-U.S. Bond Index: Consists of regularly traded, fixed-rate domestic government debt instruments from 12 international bond markets. Countries included are Austria, Belgium, Canada, Denmark, France, Germany, Italy, Japan, the Netherlands, Spain, Sweden and the United Kingdom.
MSCI AC World Index ex USA: Consists of approximately 2,000 securities across 47 markets, with emerging markets representing approximately 18%. MSCI attempts to capture approximately 85% of the market capitalization in each country.
MSCI EAFE Index (Europe, Australasia, Far East): A free float-adjusted market capitalization index that is designed to measure the equity market performance of developed markets, excluding the U.S. and Canada. As of June 2007, the MSCI EAFE Index consisted of the following 21 developed market country indexes: Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland and the United Kingdom.
MSCI Emerging Markets Index: A free float-adjusted market capitalization index that is designed to measure equity market performance of emerging markets. As of November 2008, the MSCI Emerging Markets Index consisted of the following 24 emerging market country indexes: Argentina, Brazil, Chile, China, Colombia, Czech Republic, Egypt, Hungary, India, Indonesia, Israel, Korea, Malaysia, Mexico, Morocco, Pakistan, Peru, Philippines, Poland, Russia, South Africa, Taiwan, Thailand and Turkey.
MSCI Europe Index: A free float-adjusted market capitalization-weighted index that is designed to measure the equity market performance of the developed markets in Europe. As of June 2007, the MSCI Europe Index consisted of the following 16 developed market country indexes: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.
MSCI Japan Index: A free float-adjusted market capitalization-weighted index that is designed to measure the equity market performance of Japan.
NAREIT Index: Benchmarks the performance of the REIT industry since its inception in 1972. It was designed to provide a comprehensive assessment of overall industry performance. Some REITs available from over-the-counter markets are not included due to the lack of real-time pricing.
NCREIF Property Index (NPI): A quarterly time series composite total rate of return measure of investment performance of a large pool of individual commercial real estate properties acquired in the private market for investment purposes only. All properties in the NPI have been acquired, at least in part, on behalf of tax-exempt institutional investors - the great majority being pension funds. As such, all properties are held in a fiduciary environment.
Russell 1000® Index: Measures the performance of the large-cap segment of the U.S. equity universe. It is a subset of the Russell 3000® Index and includes approximately 1000 of the largest securities based on a combination of their market cap and current index membership. The Russell 1000 represents approximately 92% of the U.S. market.
Russell 1000® Growth Index: Measures the performance of the large-cap growth segment of the U.S. equity universe. It includes those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values.
Russell 1000® Value Index: Measures the performance of the large-cap value segment of the U.S. equity universe. It includes those Russell 1000 companies with lower price-to-book ratios and lower expected growth values. **Russell 2000® Growth Index:** Measures the performance of the small-cap growth segment of the U.S. equity universe. It includes those Russell 2000 companies with higher price-to-book ratios and higher forecasted growth values.
Russell 2000® Value Index: Measures the performance of the small-cap value segment of the U.S. equity universe. It includes those Russell 2000 companies with lower price-to-book ratios and lower forecasted growth values.
Russell Mid-Cap® Growth Index: Measures the performance of the mid-cap growth segment of the U.S. equity universe. It includes those Russell mid-cap companies with higher price-to-book ratios and higher forecasted growth values.
Russell Mid-Cap® Value Index: Measures the performance of the mid-cap value segment of the U.S. equity universe. It includes those Russell mid-cap companies with lower price-to-book ratios and lower forecasted growth values.
S&P 500 Index: Covers 500 large cap industrial, utility, transportation, and financial companies of the US markets. The index represents about 75% of NYSE market capitalization and 30% of NYSE issues. It is a capitalization weighted index calculated on a total return basis with dividends reinvested.
TASS Index of CTAs: Is a dollar-weighted index based on historical managed futures performance of CTAs with established track records.
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Performance Reconciliation Adjustments

This section provides a record of differences between information reported by your custodian and information used to create this performance report, whether at your direction or as prescribed by your Institutional Consultant on your behalf.

Scenario	Description	Net Adjustment (+/-)

No differences in information were used in the creation of this performance report.

This report is provided for informational purposes only. The information shown was obtained from sources believed to be reliable, the accuracy of which cannot be guaranteed. Account statements provided by UBS or other financial institutions are the official record of your holdings, balances, transactions and security values and are not amended or superseded by any of the information presented in this report. Information is current as of the date shown. Past performance is no guarantee of future returns. See IMPORTANT INFORMATION at end of report for assumptions and limitations of the analysis in this report, risk considerations, valuation, fees and other details regarding this report.

City of Columbia, MO Police & Fire Pension - Investments Not Reviewed by UBS

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At the time of report creation, all investments in your portfolio are reviewed.

Cash and Money Market Funds are not included in this analysis. UBS does not research any money market mutual funds, other than those offered by UBS and its affiliates.

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