

California Public Employees' Retirement System

Performance Review

Fourth Quarter 2021

Inflation Roundup



CPI
+7.0%



PPI
+12.2%



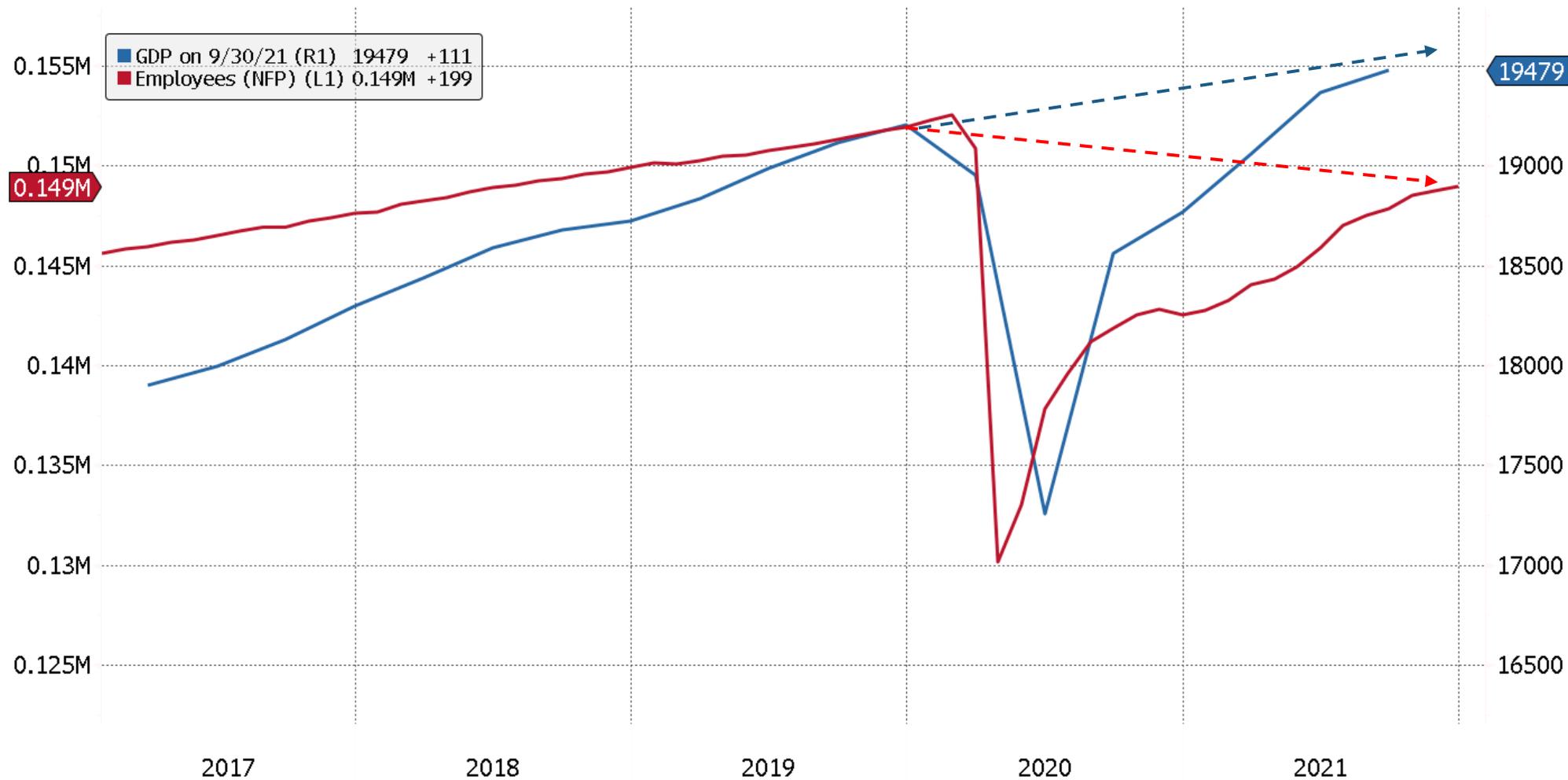
Home Prices
+18.4%



Commodities
+27.1%

Data Source: Bloomberg

Employment Lagging Economic Growth



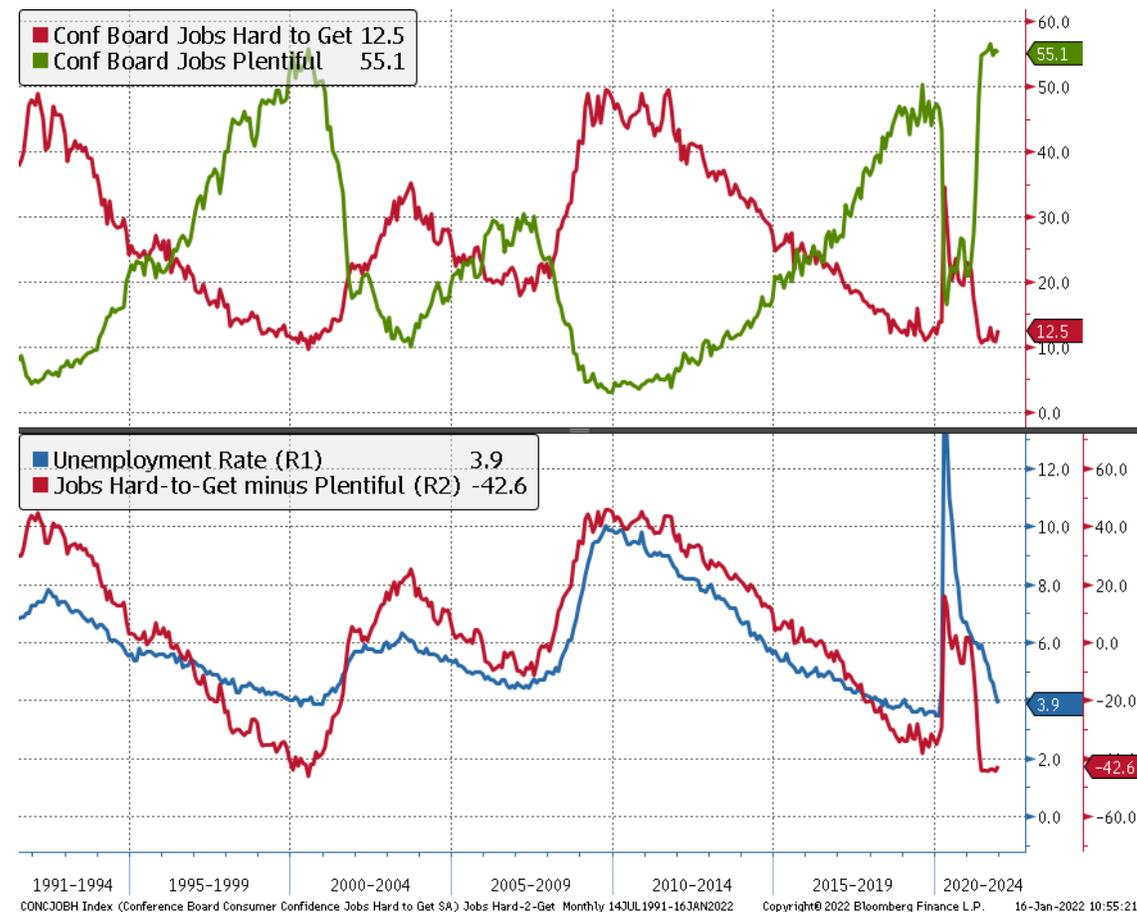
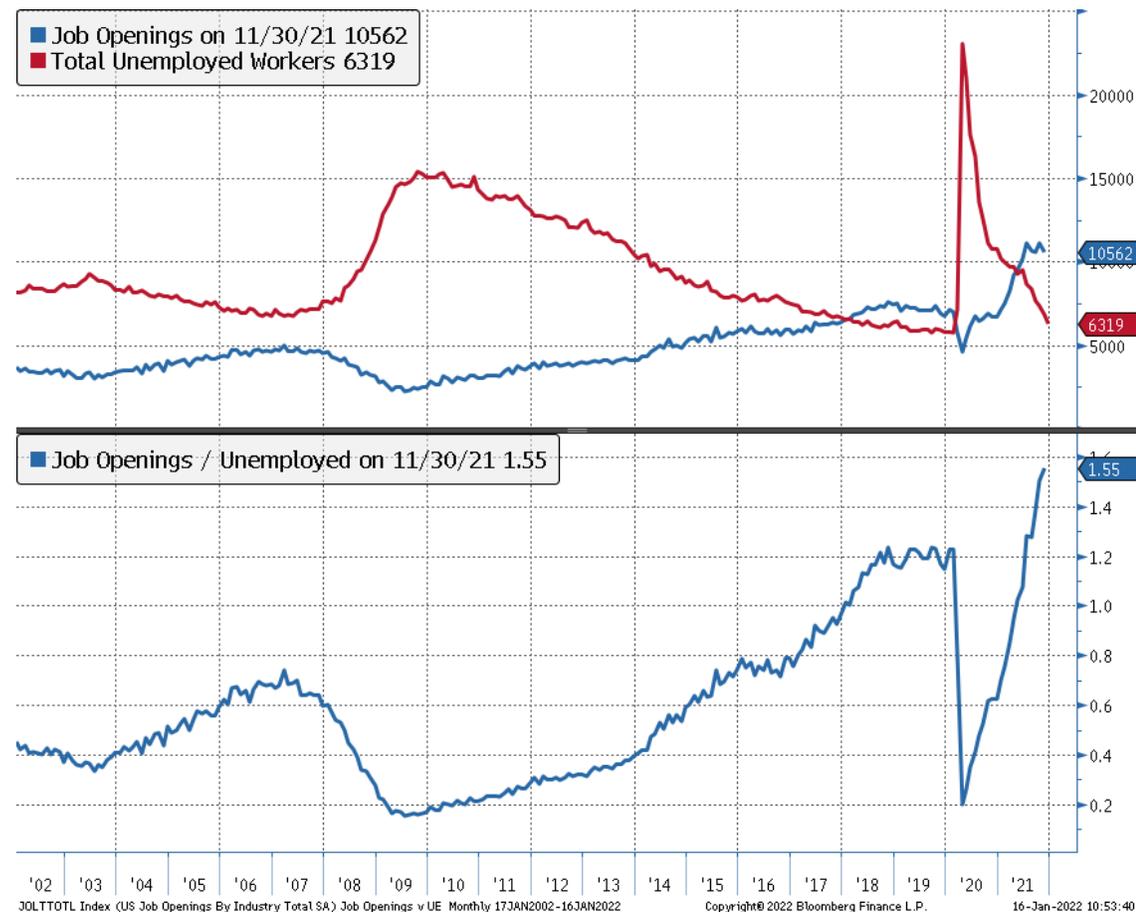
GDP CHWG Index (GDP US Chained 2012 Dollars SAAR) GDP v Emp Monthly 17JAN2017-16JAN2022

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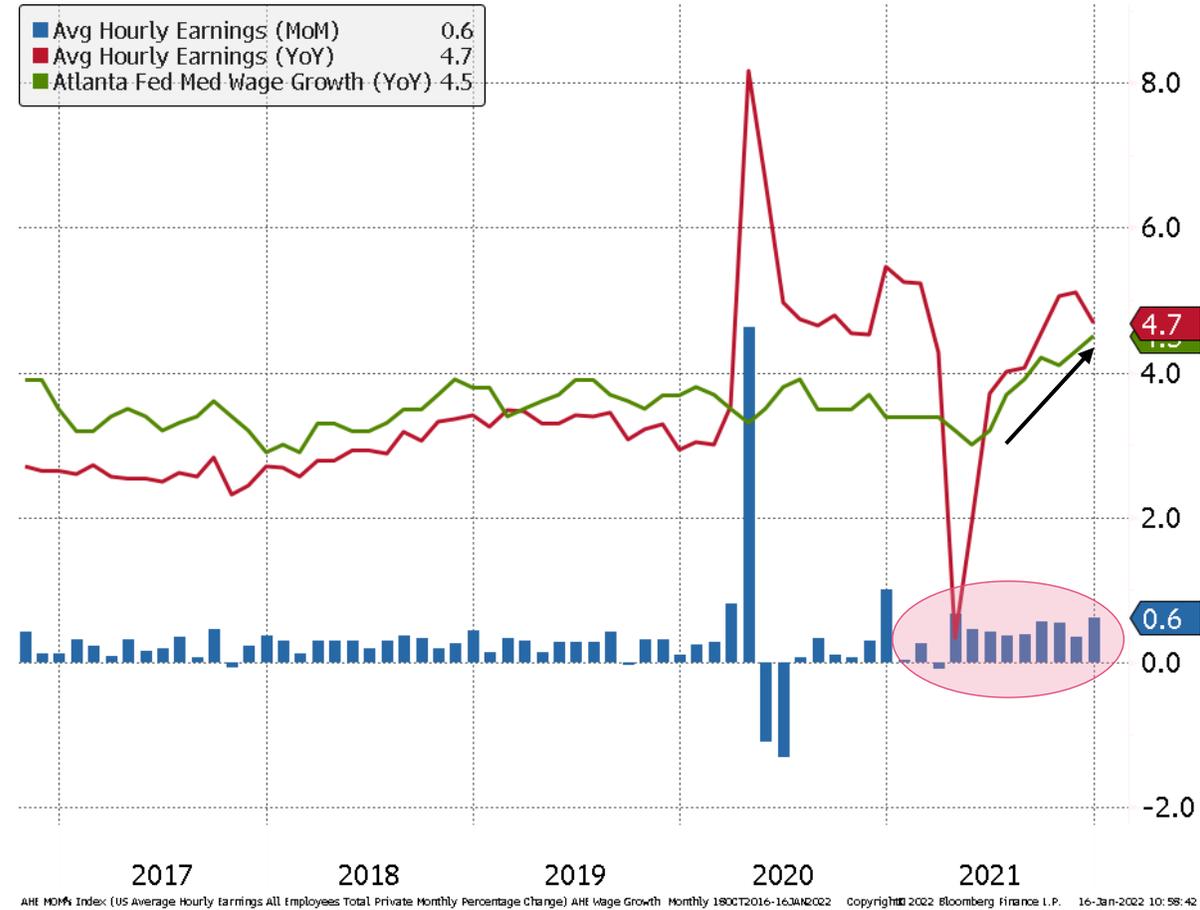
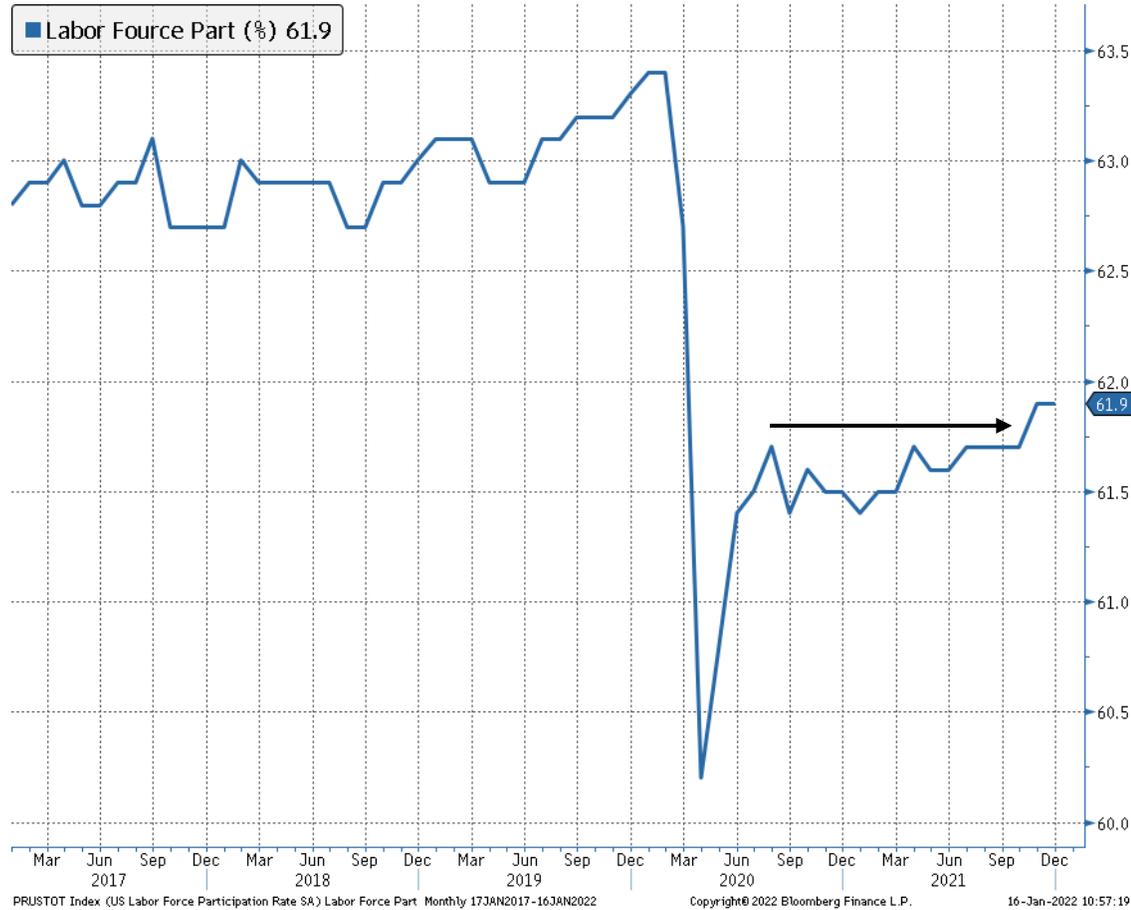
Data Source: Bloomberg

Employment Dynamics



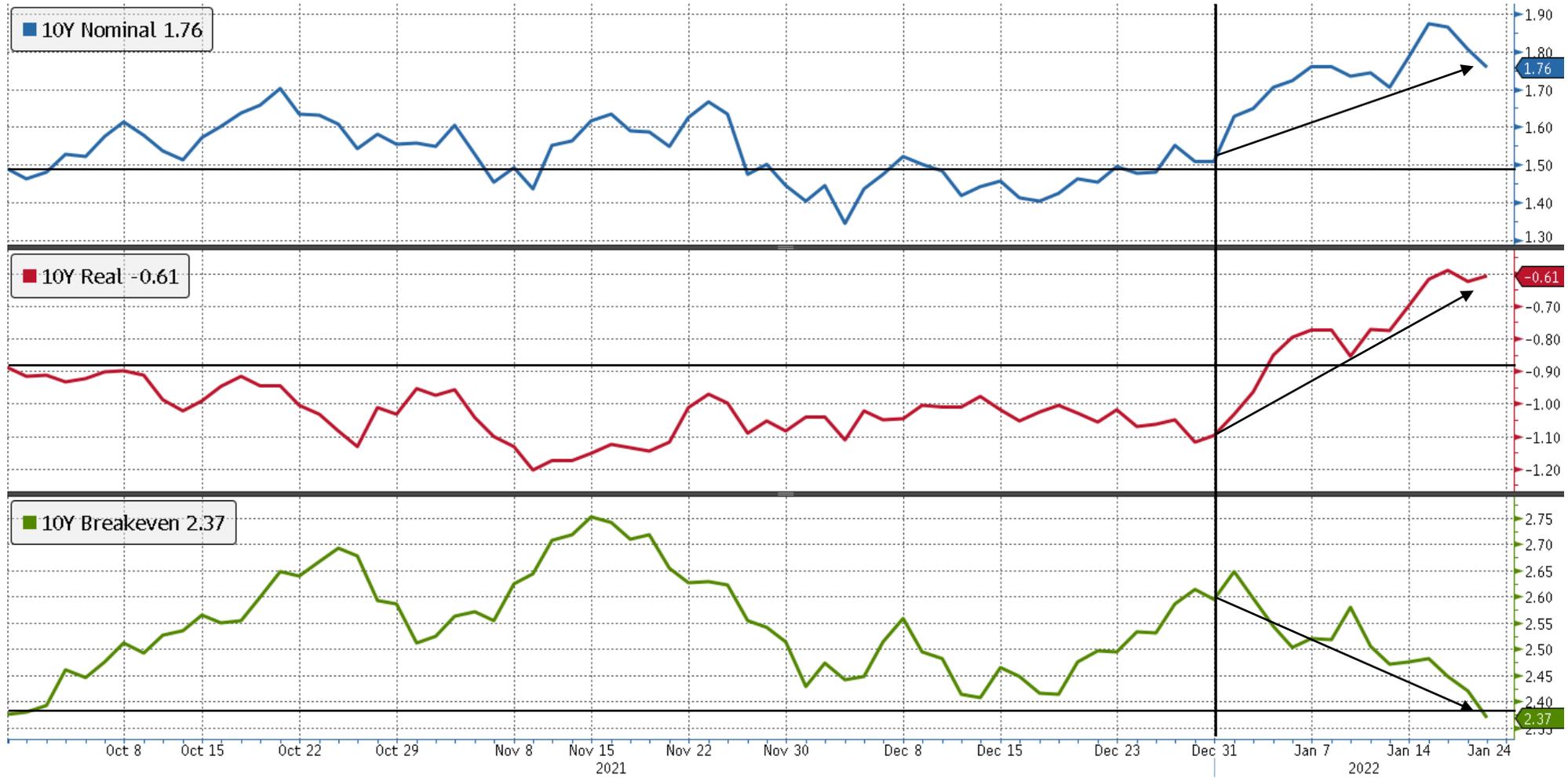
Data Source: Bloomberg

What Will It Take to Get Employees Back in Labor Force?



Data Source: Bloomberg

Rate Splits: Yield / Inflation Environment



USGG10YR Index (US Generic Govt 10 Yr) 10yr Splits Daily 30SEP2021-21JAN2022

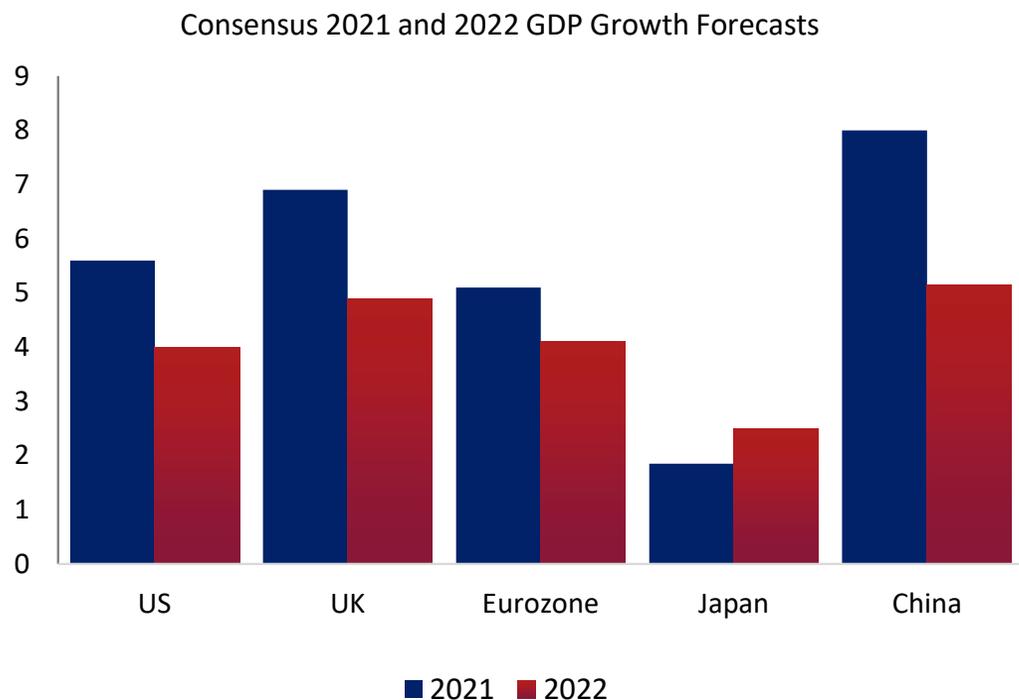
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Data Source: Bloomberg

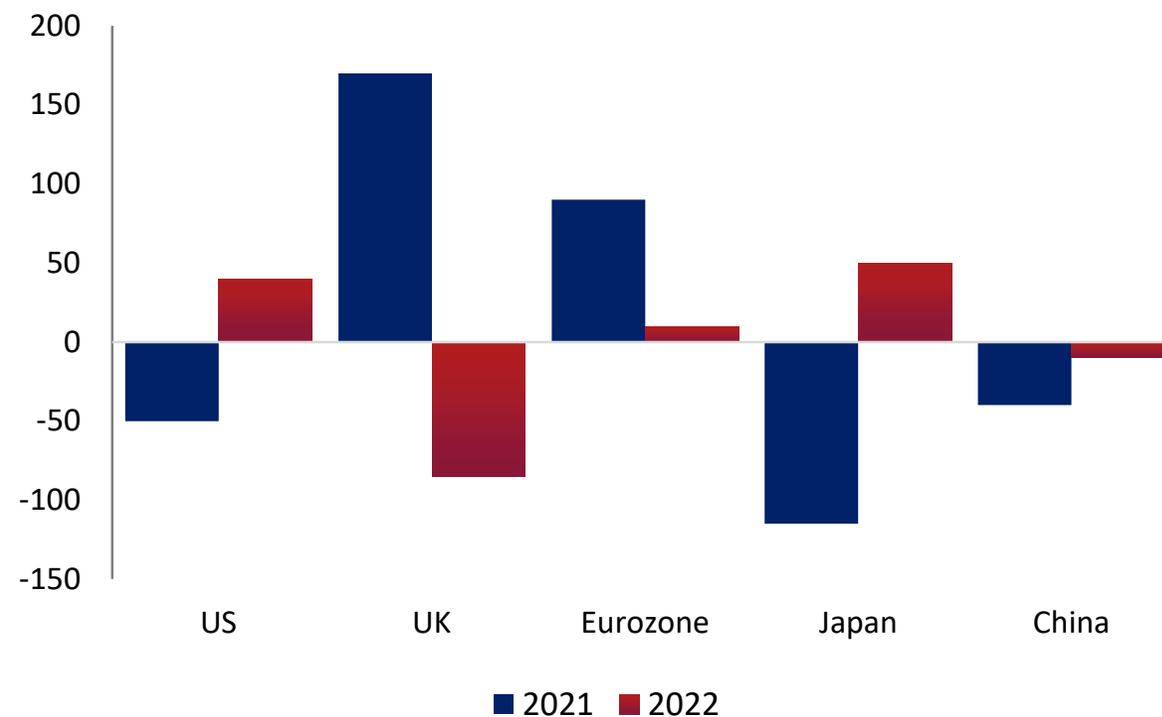
Growth Expectations – Growth Rates and Changes

2021 & 2022 regional consensus growth forecasts(%)



Growth rate changes (bps)

Changes to 2021 and 2021 GDP Growth Forecasts (vs Q1 2021)



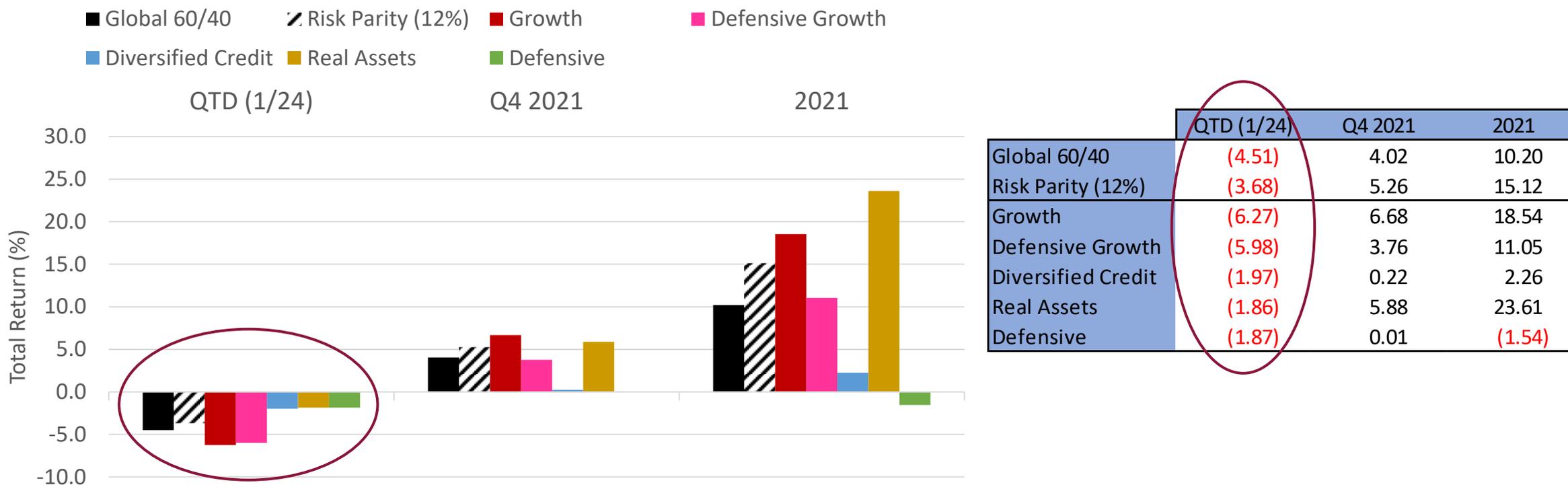
Source: Wilshire, Factset - 31 December 2021

2022 Environmental Risk: A Year of Transition?

If some/much of COVID market returns have been liquidity fueled, can we expect to hang on to these gains when support is withdrawn?

- YTD market activity provides a glimpse at the potential challenges of the 2022 environment

Asset Allocation & Thematic Returns

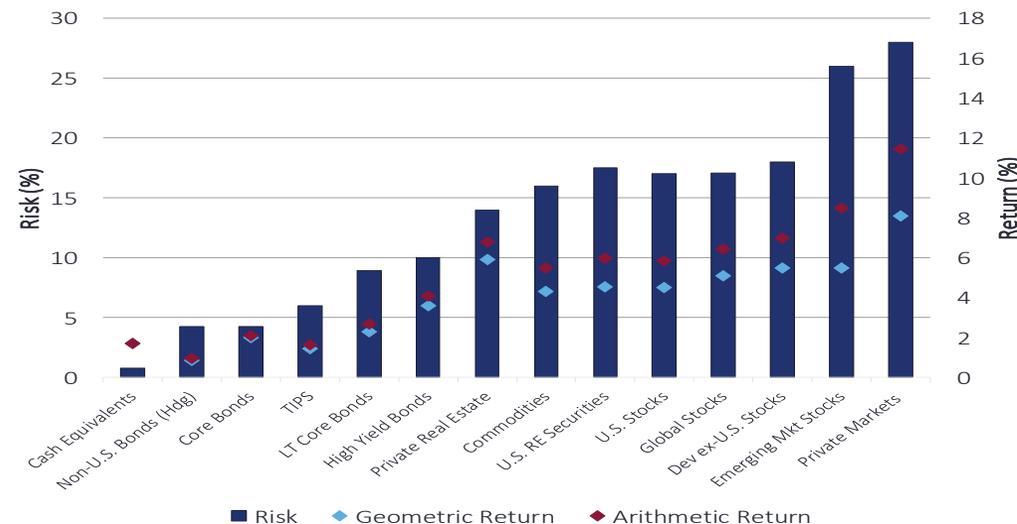


Data Source: Bloomberg, Wilshire

Summary of Changes in Asset Class Expectations

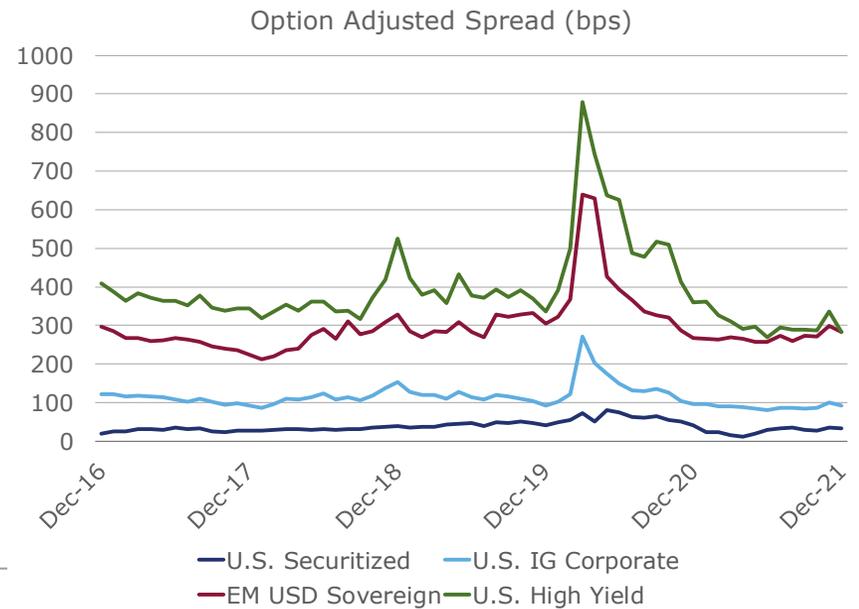
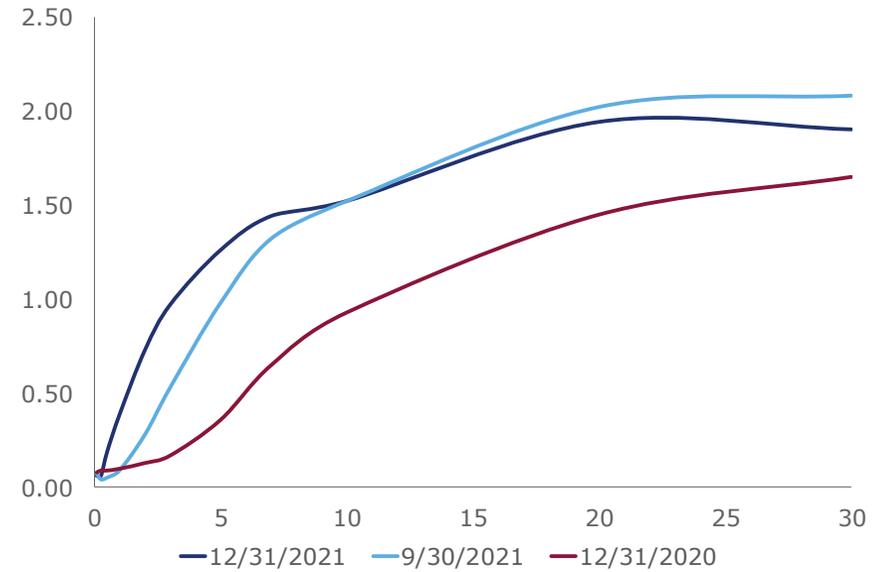
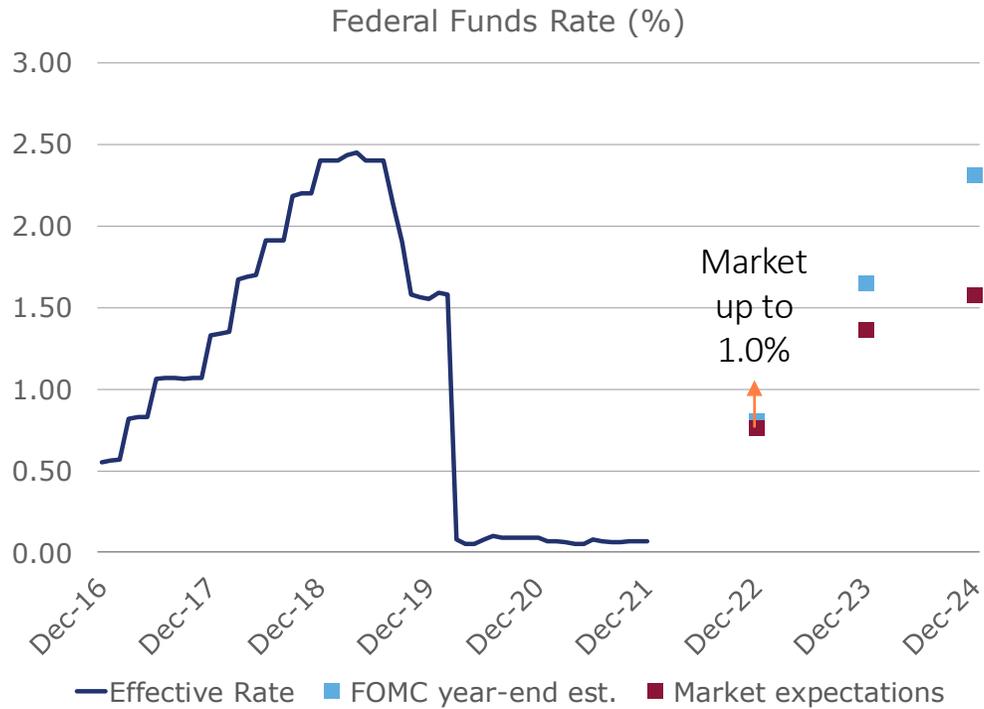
- Short end of the yield curve rose while longer-term rates fell
 - Yield curve movements resulted in an increased assumption for Core Bonds but a drop in the Long-Core forecast
 - Credit spreads tightened somewhat in the broad High Yield market
- Inflation expectation continued to move higher
- Equity assumptions are lower on higher valuations
 - Risk premium versus bonds has fallen to 2.5% from 3.7% at the start of 2021
 - Equity return relative to inflation fell below 2%

December 2021 Return and Risk Assumptions



Implied Risk Premia	Relative Return (%)		
	Sep 2021	Change	Dec 2021
Cash - Inflation	-0.95	0.05	-0.90
Treasury - Cash	-0.40	0.05	-0.35
Core - Treasury	0.70	-0.05	0.65
Long-Term Core - Core	0.50	-0.20	0.30
High Yield - Core	1.75	-0.15	1.60
Global RESI - Core	3.05	-0.35	2.70
U.S. Stocks - Core	3.15	-0.65	2.50
Private Equity - U.S. Stocks	3.40	0.20	3.60
Implied Real Return (ACA - CPI)			
U.S. Stocks	2.50	-0.60	1.90
U.S. Bonds	-0.65	0.05	-0.60
Cash Equivalents	-0.95	0.05	-0.90

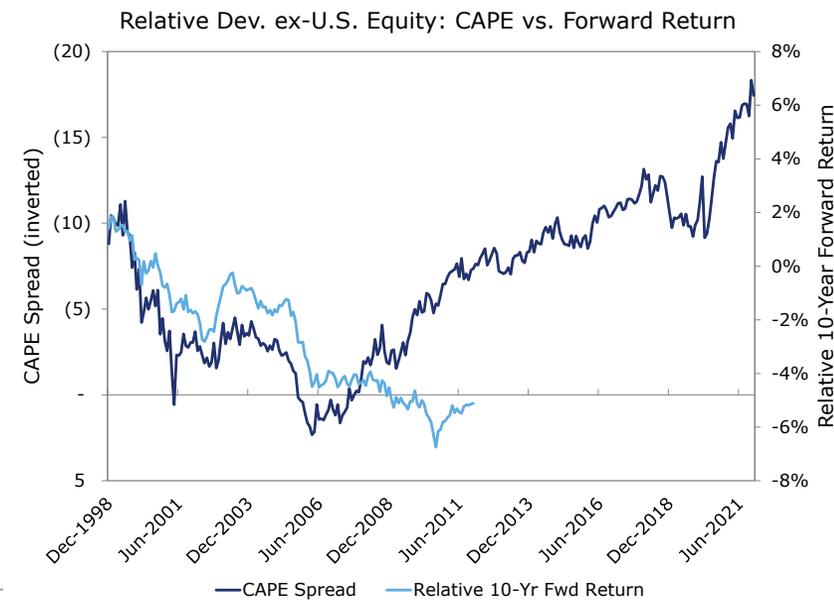
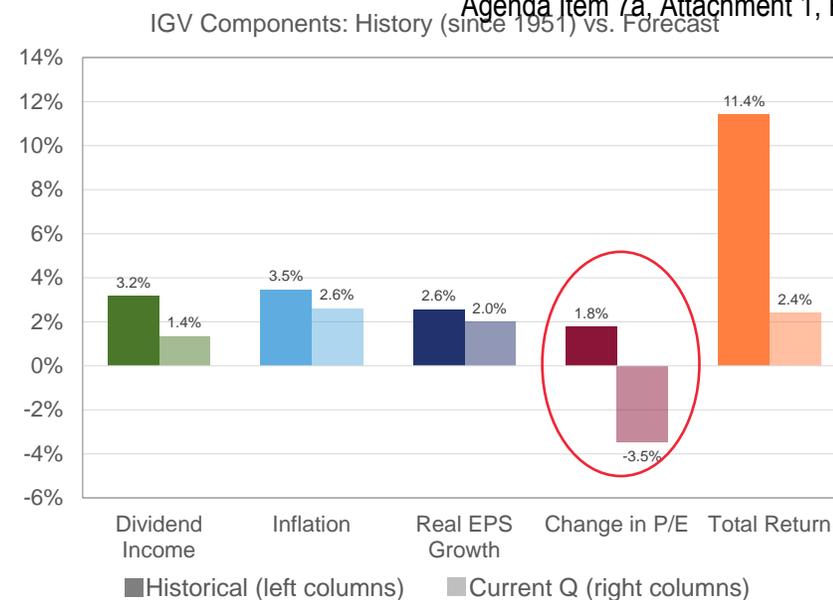
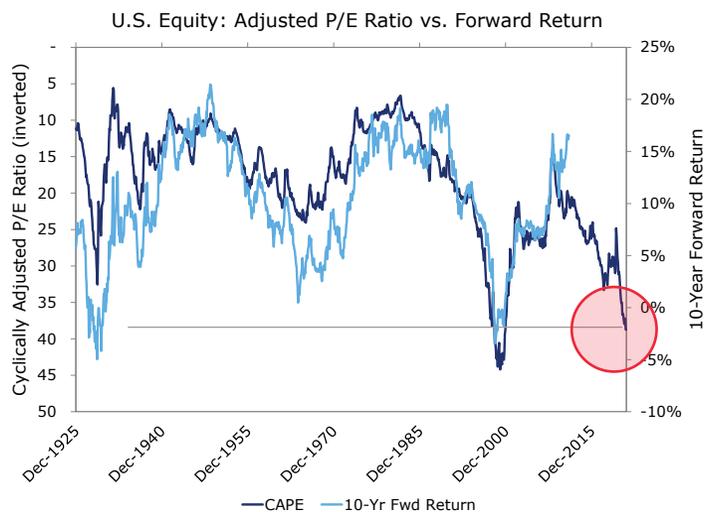
Fixed Income Environment



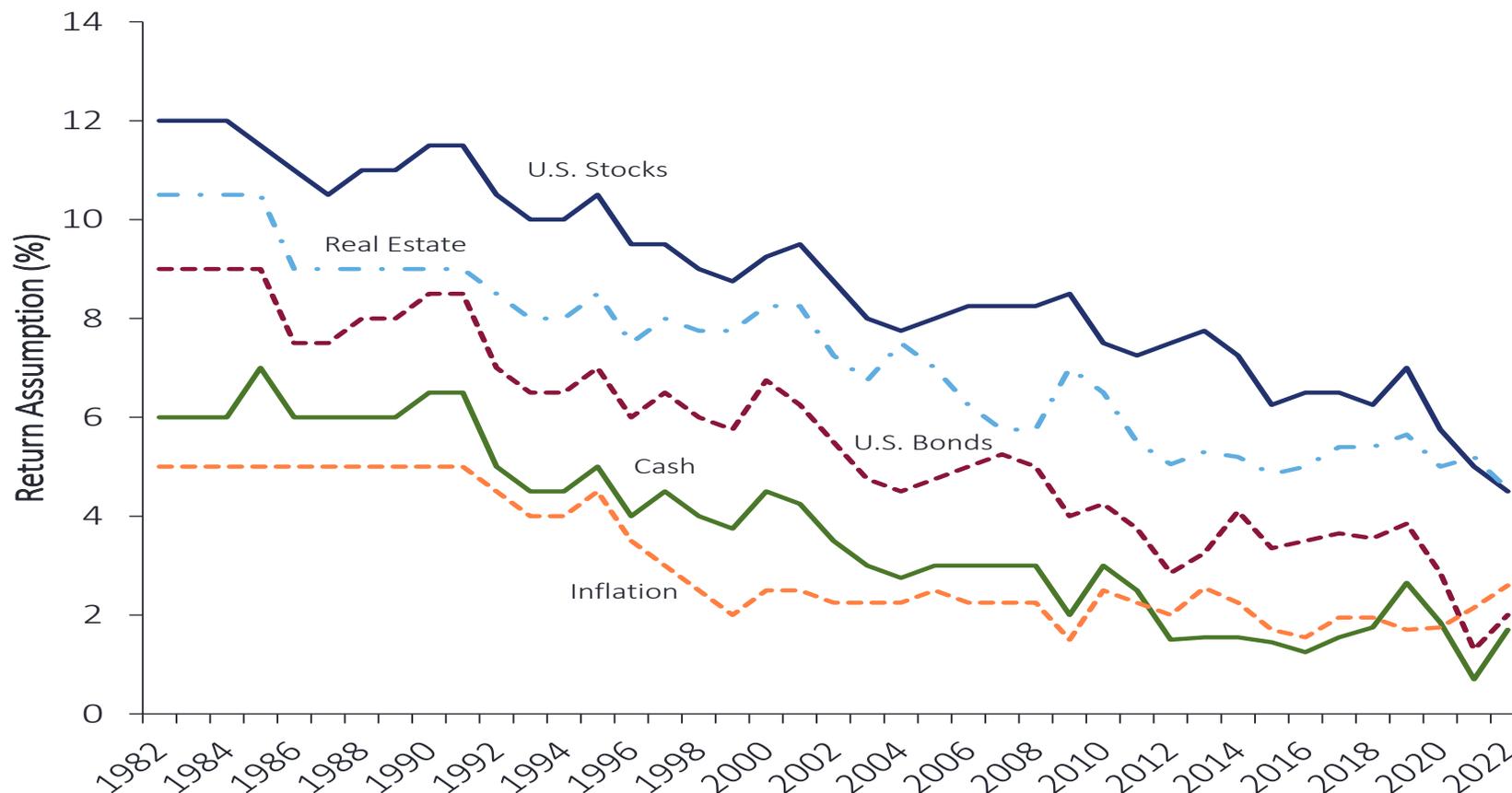
Data Source: Bloomberg

Equity Markets

Equity: Public & Private		Sep 2021	Change	Dec 2021
Equity	DDM	7.50	0.00	7.50
	IGV	3.25	(0.85)	2.40
	CAPE	0.75	(0.50)	0.25
	U.S. Equity Forecast	5.00	(0.50)	4.50
	Dev-ex-US Equity Forecast	6.00	(0.50)	5.50
EM Equity Forecast	6.00	(0.50)	5.50	
Private	Cost of Debt (Public)	3.55	(0.10)	3.45
	Cost of Debt (Private)	5.50	0.15	5.65
Private Market Basket Forecast		8.40	(0.30)	8.10



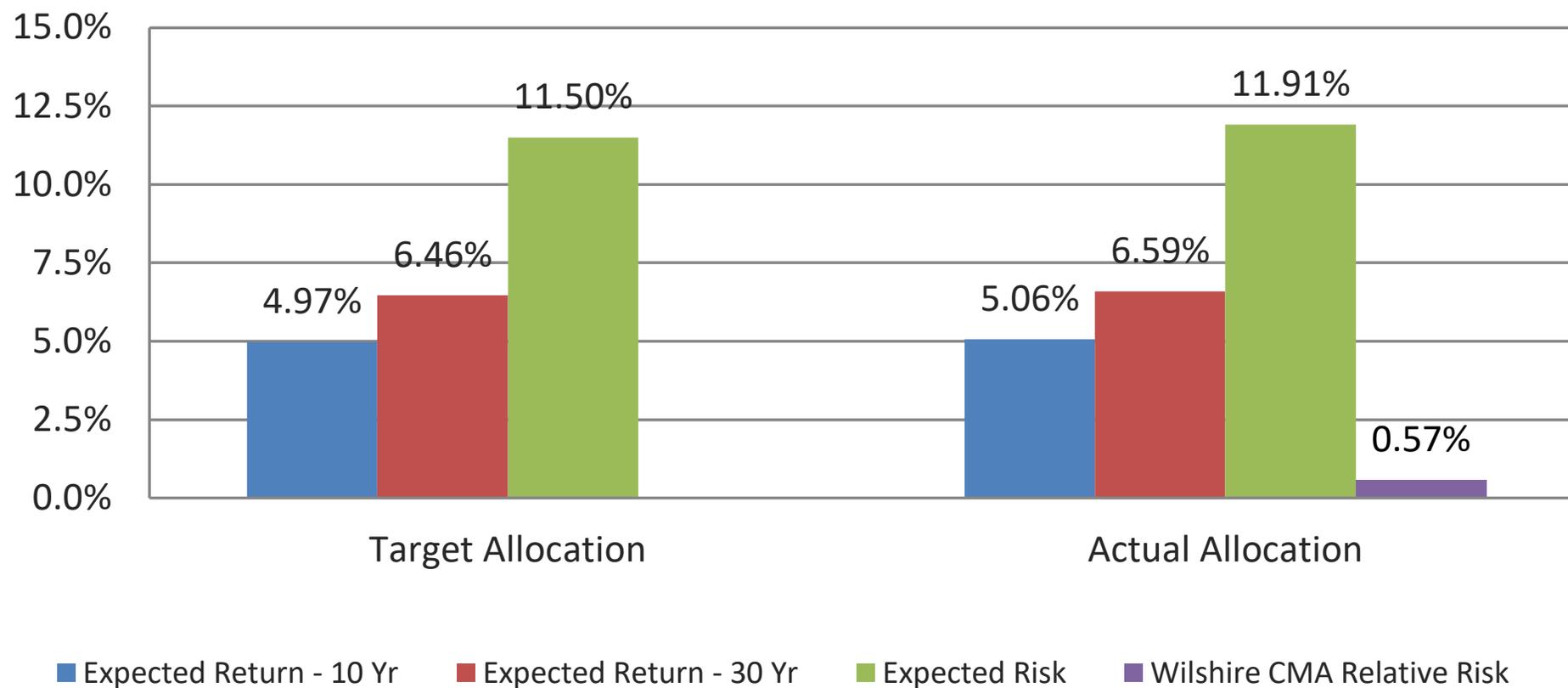
Historical Asset Class Expectations



- Long term review illustrates a secular decline in asset class expected returns, leading to an environment Wilshire has referred to as the “Investor’s Challenge”
- Wilshire’s annual asset allocation return and risk assumptions paper provides additional detail on our forecasting methodology and results

CalPERS Expected Return and Risk Estimates

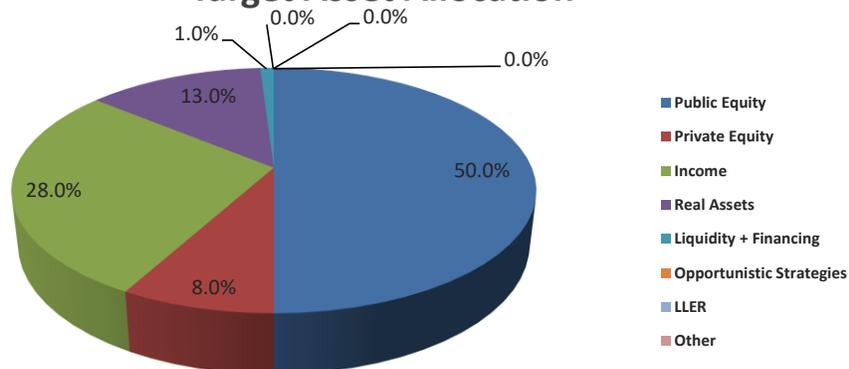
As of December 31, 2021



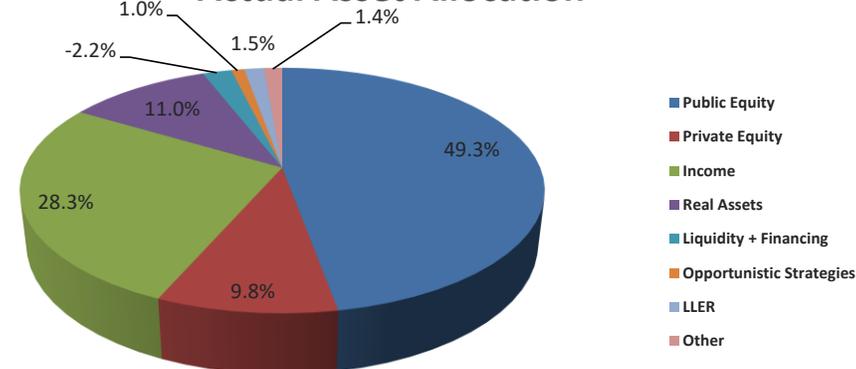
CalPERS Assets and Risk Allocation

As of December 31, 2021

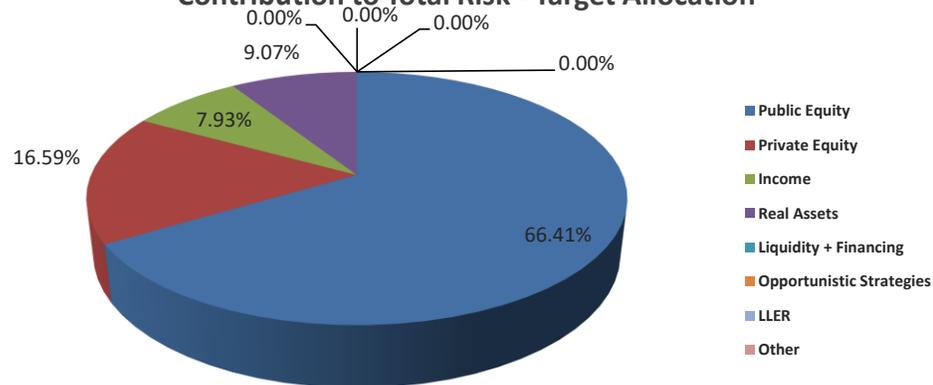
Target Asset Allocation



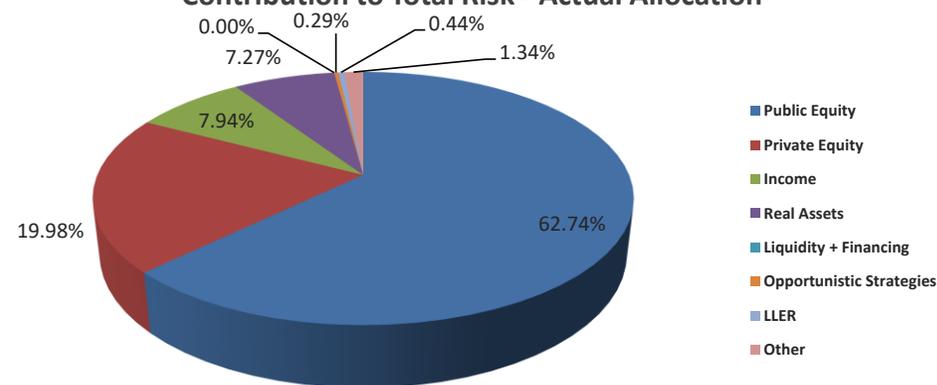
Actual Asset Allocation



Contribution to Total Risk - Target Allocation

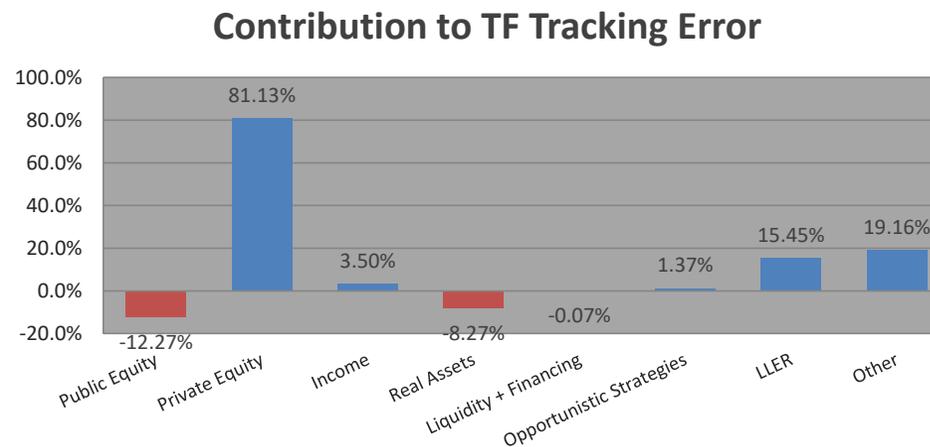
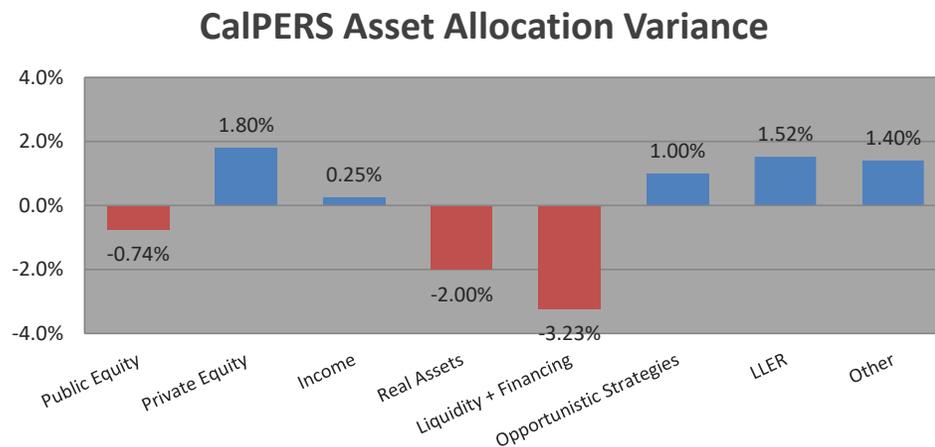


Contribution to Total Risk - Actual Allocation



CalPERS Drivers of Expected Excess Risk

As of December 31, 2021



- This excess risk forecast is based on asset allocation variance only.
- Other sources of risk (structural within asset classes, manager/program specific source of tracking error, covariance, etc.) are not considered here.

CalPERS PERF – Performance

As of December 31, 2021

	Asset Value							VaR	5-Year Ratios	
	(\$Billion)	Quarter	1-Year	3-Year	5-Year	10-Year	(\$Billion)	Sharpe	Info	
CalPERS PERF	\$ 500.7	4.7%	13.3%	14.3%	10.8%	9.7%	\$ 69.8	1.3	0.1	
<i>CalPERS PERF Policy Benchmark</i>		4.1%	12.1%	13.9%	10.7%	9.7%		1.3	0.0	
<i>Actuarial Rate</i>		1.7%	6.9%	7.0%	7.2%	7.3%				
PUBLIC EQUITY *	\$ 246.6	6.4%	17.9%	19.0%	13.7%	12.1%	\$ 52.0	0.9	-0.3	
<i>Public Equity Policy Benchmark</i>		6.4%	17.6%	18.9%	13.8%	12.0%		0.9	0.0	
PRIVATE EQUITY	\$ 49.0	5.9%	39.3%	17.3%	16.5%	13.9%	\$ 19.9	1.9	0.0	
<i>Private Equity Policy Benchmark</i>		-0.7%	31.4%	14.6%	15.9%	16.1%		1.0	0.0	
INCOME *	\$ 141.5	1.0%	-1.4%	7.5%	5.5%	4.4%	\$ 12.4	0.9	1.5	
<i>Income Policy Benchmark</i>		1.1%	-1.6%	7.1%	5.1%	3.7%		0.8	0.0	
REAL ASSETS	\$ 55.1	6.4%	15.8%	7.1%	6.8%	9.0%	\$ 8.0	1.7	0.1	
<i>Real Assets Policy Benchmark</i>		6.3%	13.4%	6.0%	6.4%	8.5%		1.3	0.0	
TOTAL FUND	\$ 19.6									
LLER	\$ 7.6	0.3%	1.8%	2.8%	2.8%	-.%	\$ 1.1	0.6	0.7	
<i>LIBOR 1 Month Rate</i>		0.0%	0.1%	0.7%	0.9%	-.%		-1.5	0.0	
OPPORTUNISTIC STRATEGIES	\$ 5.0	2.1%	15.2%	-.%	-.%	-.%	\$ 0.3	N/A	N/A	
<i>Custom Opportunistic Strategies Benchmark</i>		1.7%	7.0%	-.%	-.%	-.%		N/A	N/A	
OTHER *	\$ 7.0	NM	NM	NM	NM	NM		N/A	N/A	
LIQUIDITY	\$ 11.6	0.0%	0.1%	1.0%	1.3%	0.9%	\$ (0.1)	0.5	3.6	
<i>Liquidity Policy Benchmark</i>		0.0%	0.0%	0.8%	1.0%	0.9%		-0.5	0.0	
TRUST LEVEL FINANCING	\$ (22.8)	-0.1%	-0.1%	-.%	-.%	-.%		N/A	N/A	
TERMINATED AGENCY POOL	\$ 0.2	3.4%	3.3%	10.2%	6.7%	-.%		N/A	N/A	
PERF PLUS TAP	\$ 500.9	4.7%	13.3%	14.3%	10.8%	9.7%		N/A	N/A	

* The CalPERS PERF asset values shown include derivative exposure.

** More details on investments included in OTHER can be found in the program section, page 57.

CalPERS PERF – Attribution (Quarter)

As of December 31, 2021

Asset Class	Actual (%)		Benchmark (%)		Difference (%)		Total Fund Return Contribution (%)		
	Weight *	Return	Weight *	Return	Weight	Return	Actual Allocation	Active Management	Total
Public Equity	50.27	6.39	50.68	6.36	-0.42	0.03	-0.01	0.01	0.00
Public Equity - Cap Weighted	35.32	6.41	35.67	6.39	-0.35	0.02	-0.01	0.01	0.00
Public Equity - Factor Weighted	14.95	6.32	15.02	6.28	-0.07	0.04	0.00	0.01	0.00
Private Equity	9.39	5.87	9.07	-1.04	0.32	6.91	-0.03	0.64	0.61
Income	29.09	1.05	29.27	1.10	-0.18	-0.06	0.01	-0.02	0.00
Spread	14.86	0.24	14.85	0.30	0.02	-0.07	0.00	-0.01	-0.01
Treasury	9.79	2.20	11.47	2.20	-1.69	0.00	0.04	0.00	0.04
Total Fund Income	1.49	1.86	0.00	2.20	1.49	-0.34	-0.03	-0.01	-0.03
High Yield	2.95	0.92	2.95	0.92	0.00	0.00	0.00	0.00	0.00
Real Assets	10.28	6.38	9.99	6.31	0.29	0.08	0.03	0.00	0.02
Total Fund	2.39	NM	0.00	0.00	2.39	NM	-0.09	0.01	-0.08
Opportunistic Strategies	0.74	2.12	0.00	1.72	0.74	0.40	-0.02	0.00	-0.01
LLER	1.56	0.29	0.00	0.02	1.56	0.27	-0.06	0.00	-0.06
Other	0.04	NM **	0.00	0.00	0.04	NM **	0.00	0.00	0.00
Liquidity	1.53	0.02	0.99	0.02	0.55	0.01	-0.02	0.00	-0.02
Trust Level Financing	-2.96	-0.08	0.00	NM	-2.96	NM	0.13	0.00	0.13
Monthly Linked Return	100.00	4.75	100.00	4.09		0.66	0.03	0.64	0.66
Residual		-0.02		0.00		-0.02			-0.02
Total PERF		4.74		4.09		0.64			0.64

* Average period weight displayed.

** More details of the OTHER program can be found in the program section, page 57.

CalPERS PERF – Attribution (Fiscal YTD)

As of December 31, 2021

Asset Class	Actual (%)		Benchmark (%)		Difference (%)		Total Fund Return Contribution (%)		
	Weight *	Return	Weight *	Return	Weight	Return	Actual Allocation	Active Management	Total
Public Equity	50.72	5.68	51.08	5.65	-0.36	0.03	0.01	0.01	0.03
Public Equity - Cap Weighted	35.71	5.31	35.92	5.28	-0.21	0.03	0.01	0.01	0.02
Public Equity - Factor Weighted	15.00	6.58	15.03	6.54	-0.04	0.03	0.00	0.01	0.01
Private Equity	8.93	16.66	8.73	6.09	0.20	10.57	0.04	0.79	0.83
Income	29.25	1.33	29.47	1.31	-0.21	0.02	0.01	0.01	0.02
Spread	14.87	0.39	14.91	0.31	-0.04	0.08	0.00	0.01	0.01
Treasury	9.93	2.51	11.59	2.51	-1.66	0.00	0.05	0.00	0.05
Total Fund Income	1.50	2.12	0.00	2.51	1.50	-0.38	-0.03	-0.01	-0.04
High Yield	2.96	1.74	2.97	1.76	-0.01	-0.01	0.00	0.00	0.00
Real Assets	10.05	11.47	9.86	10.12	0.18	1.34	0.04	0.10	0.14
Total Fund	2.41	NM	0.00	0.00	2.41	NM	-0.10	0.02	-0.08
Opportunistic Strategies	0.63	4.87	0.00	3.47	0.63	1.41	-0.01	0.01	0.00
LLER	1.70	0.71	0.00	0.03	1.70	0.68	-0.08	0.01	-0.07
Other	0.04	NM **	0.00	0.00	0.04	NM **	0.00	-0.01	-0.01
Liquidity	1.55	0.05	0.99	0.02	0.56	0.03	-0.03	0.00	-0.03
Trust Level Financing	-2.90	-0.14	0.00	NM	-2.90	NM	0.15	0.00	0.15
Monthly Linked Return	100.00	5.88	100.00	4.82		1.06	0.13	0.93	1.06
Residual		-0.02		0.00		-0.02			-0.02
Total PERF		5.86		4.82		1.04			1.04

* Average period weight displayed.

** More details of the OTHER program can be found in the program section, page 57.

CalPERS PERF – Attribution (2021 YTD)

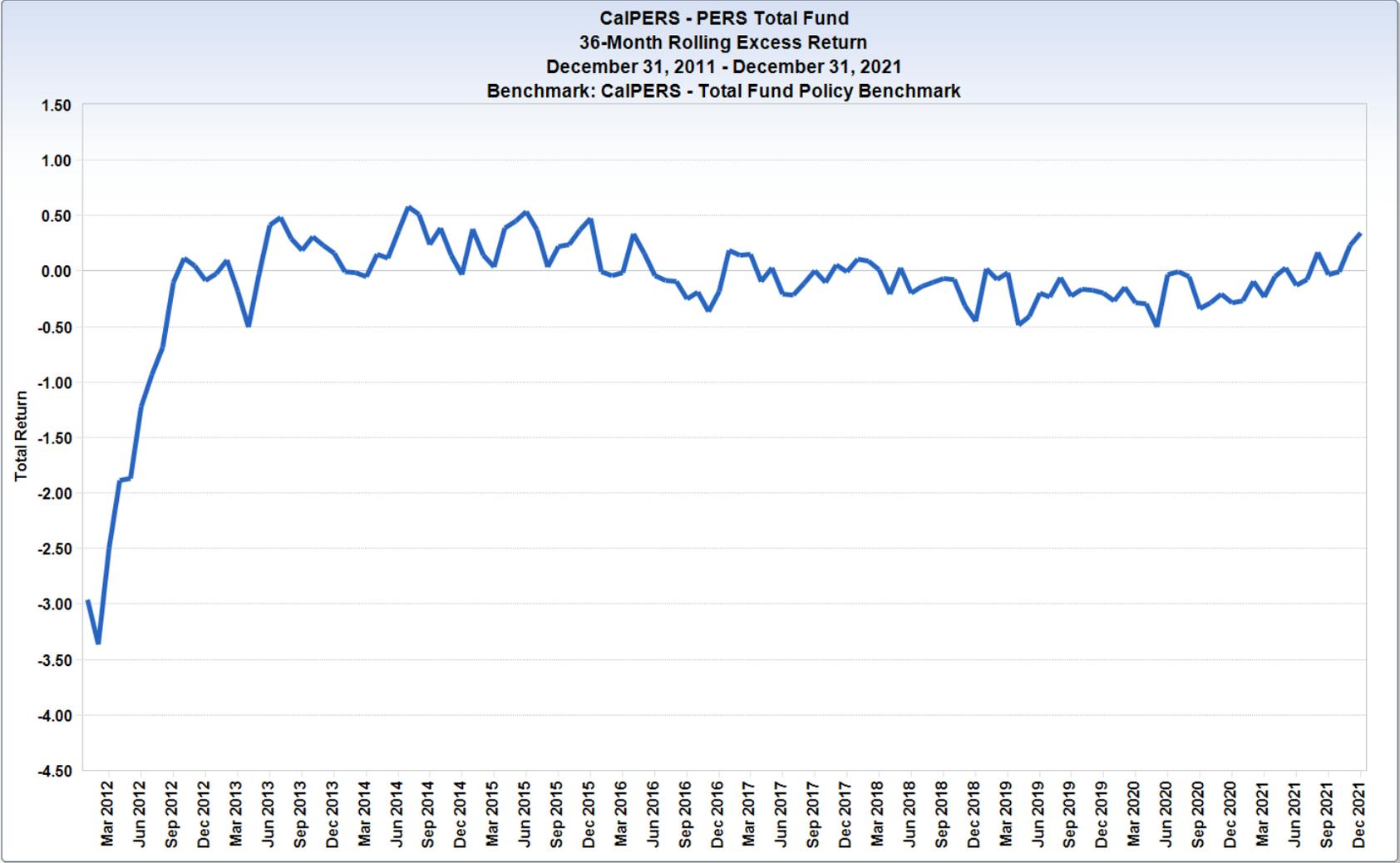
As of December 31, 2021

Asset Class	Actual (%)		Benchmark (%)		Difference (%)		Total Fund Return Contribution (%)		
	Weight *	Return	Weight *	Return	Weight	Return	Actual Allocation	Active Management	Total
Public Equity	51.61	17.86	51.87	17.60	-0.26	0.26	0.02	0.13	0.15
Public Equity - Cap Weighted	36.60	19.14	36.83	18.81	-0.23	0.32	0.02	0.12	0.13
Public Equity - Factor Weighted	15.01	14.67	15.04	14.55	-0.02	0.12	0.00	0.02	0.02
Private Equity	8.19	39.33	7.94	29.51	0.25	9.83	0.11	0.53	0.64
Income	29.13	-1.41	29.28	-1.56	-0.14	0.15	0.03	0.05	0.07
Spread	14.83	-0.64	14.88	-0.92	-0.05	0.28	0.00	0.05	0.05
Treasury	9.86	-4.14	11.42	-4.14	-1.57	0.00	0.27	0.00	0.27
Total Fund Income	1.48	-4.34	0.00	-4.14	1.48	-0.19	-0.25	0.00	-0.25
High Yield	2.97	4.61	2.98	4.53	-0.01	0.08	0.00	0.00	0.00
Real Assets	10.03	15.79	9.93	13.37	0.10	2.42	0.04	0.22	0.25
Total Fund	2.54	NM	0.00	0.00	2.54	NM	-0.29	0.06	-0.23
Opportunistic Strategies	0.44	15.20	0.00	7.00	0.44	8.20	-0.02	0.03	0.01
LLER	2.04	1.81	0.00	0.07	2.04	1.74	-0.26	0.04	-0.22
Other	0.05	NM **	0.00	0.00	0.05	NM **	-0.01	-0.02	-0.02
Liquidity	1.57	0.09	0.99	0.04	0.58	0.05	-0.06	0.00	-0.06
Trust Level Financing	-3.07	-0.09	0.00	NM	-3.07	NM	0.39	0.00	0.39
Monthly Linked Return	100.00	13.29	100.00	12.07		1.22	0.24	0.98	1.22
Residual		-0.01		0.00		-0.01			-0.01
Total PERF		13.27		12.07		1.20			1.20

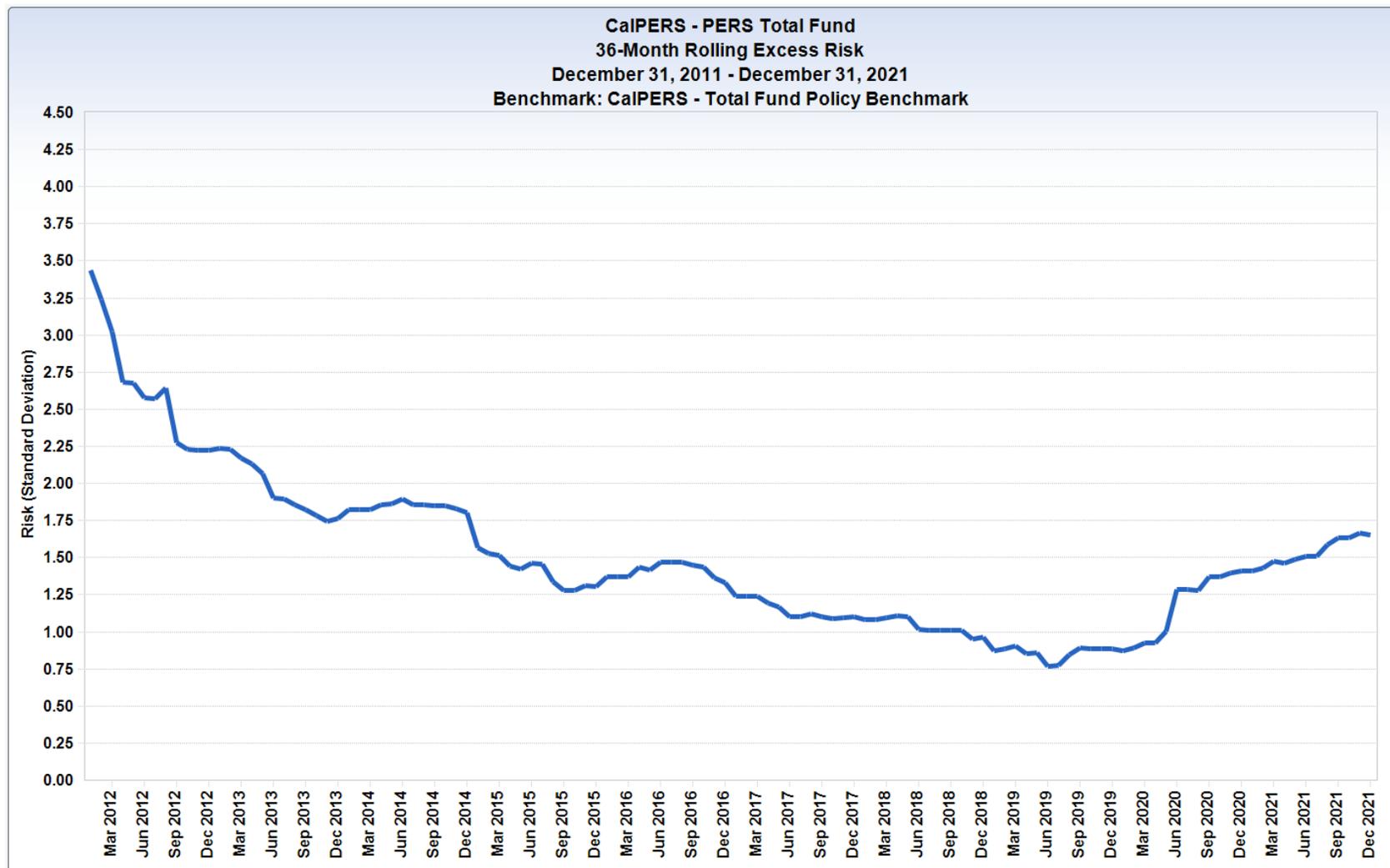
* Average period weight displayed.

** More details of the OTHER program can be found in the program section, page 57.

CalPERS PERF – Rolling Excess Return



CalPERS PERF – Rolling Tracking Error



CalPERS Affiliate Investment Programs – Performance

As of December 31, 2021

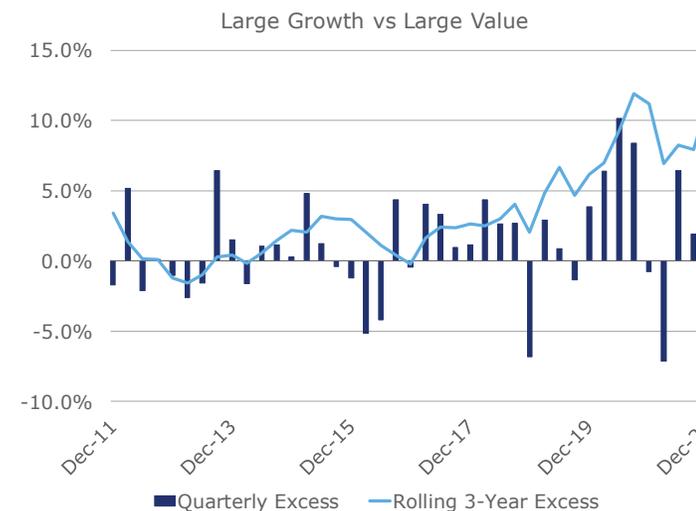
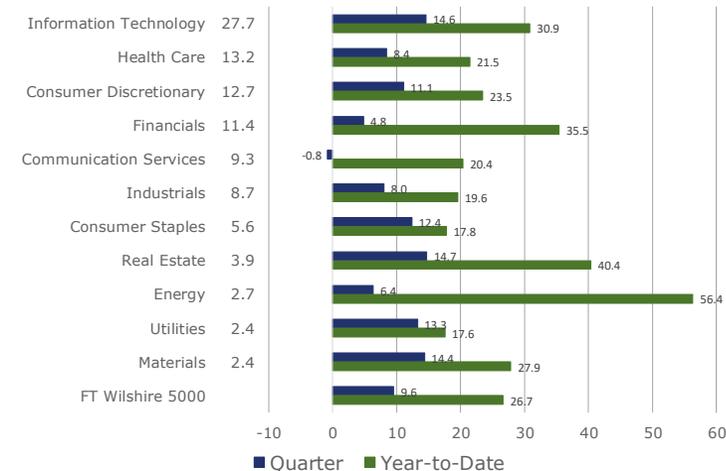
	Asset Value (\$Million)	Quarter	1-Year	3-Year	5-Year	10-Year
Judges I	\$ 57.3	0.0%	0.1%	1.0%	1.2%	0.7%
91-Day Treasury Bill		0.0%	0.0%	1.0%	1.1%	0.6%
Judges II	\$ 2,522.8	4.5%	12.3%	15.4%	10.8%	9.3%
Weighted Policy Benchmark		4.5%	12.1%	15.1%	10.5%	9.0%
Legislators' Retirement System	\$ 122.9	3.1%	7.7%	11.5%	8.0%	6.8%
Weighted Policy Benchmark		3.1%	7.6%	11.4%	7.8%	6.5%
Long-Term Care ("LTC")	\$ 5,623.0	2.9%	7.9%	10.7%	7.2%	5.8%
Weighted Policy Benchmark		2.9%	7.4%	10.6%	7.1%	5.6%
CERBT Strategy 1	\$ 14,783.8	4.9%	13.7%	16.2%	11.2%	9.5%
CERBT Strategy 1 Policy Benchmark		4.8%	13.5%	16.0%	10.9%	9.2%
CERBT Strategy 2	\$ 2,010.2	3.9%	10.1%	13.7%	9.6%	8.1%
CERBT Strategy 2 Policy Benchmark		3.9%	10.0%	13.6%	9.3%	7.8%
CERBT Strategy 3	\$ 879.9	3.1%	7.7%	11.5%	7.9%	6.6%
CERBT Strategy 3 Policy Benchmark		3.1%	7.6%	11.4%	7.7%	6.3%
CEPPT Strategy 1	\$ 50.7	3.4%	8.6%	-.%	-.%	-.%
CEPPT Strategy 1 Policy Benchmark		3.4%	8.6%	-.%	-.%	-.%
CEPPT Strategy 2	\$ 21.5	1.8%	3.6%	-.%	-.%	-.%
CEPPT Strategy 2 Policy Benchmark		1.8%	3.6%	-.%	-.%	-.%
Health Care Fund	\$ 518.5	0.0%	-1.6%	4.8%	3.6%	3.2%
Barclays U.S. Aggregate		0.0%	-1.5%	4.8%	3.6%	2.9%
Supplemental Contribution Plan	\$ 125.6	NM	NM	NM	NM	NM
CalPERS Custom SCP Plan Index		NM	NM	NM	NM	NM
457 Program	\$ 2,228.5	NM	NM	NM	NM	NM
CalPERS Custom 457 Plan Index		NM	NM	NM	NM	NM

Appendix 1: CalPERS Performance Detail

U.S. Equity Market

As of 12/31/2021	Quarter	YTD	1 Year	3 Year	5 Year	10 Year
FT Wilshire 5000	9.6	26.7	26.7	26.1	18.1	16.4
Wilshire U.S. Large Cap	10.2	27.5	27.5	26.6	18.7	16.7
Wilshire U.S. Small Cap	3.3	19.2	19.2	20.9	12.3	13.9
Wilshire U.S. Large Growth	11.6	28.9	28.9	33.3	23.9	19.5
Wilshire U.S. Large Value	8.6	24.5	24.5	19.5	13.3	13.7
Wilshire U.S. Small Growth	1.8	10.1	10.1	22.7	14.8	14.5
Wilshire U.S. Small Value	4.8	29.2	29.2	19.1	9.8	13.2
Wilshire REIT Index	17.1	46.2	46.2	19.2	10.9	11.5
MSCI USA Min. Vol. Index	10.4	21.0	21.0	17.9	14.7	14.2
FTSE RAFI U.S. 1000 Index	9.0	31.6	31.6	22.1	14.2	14.8

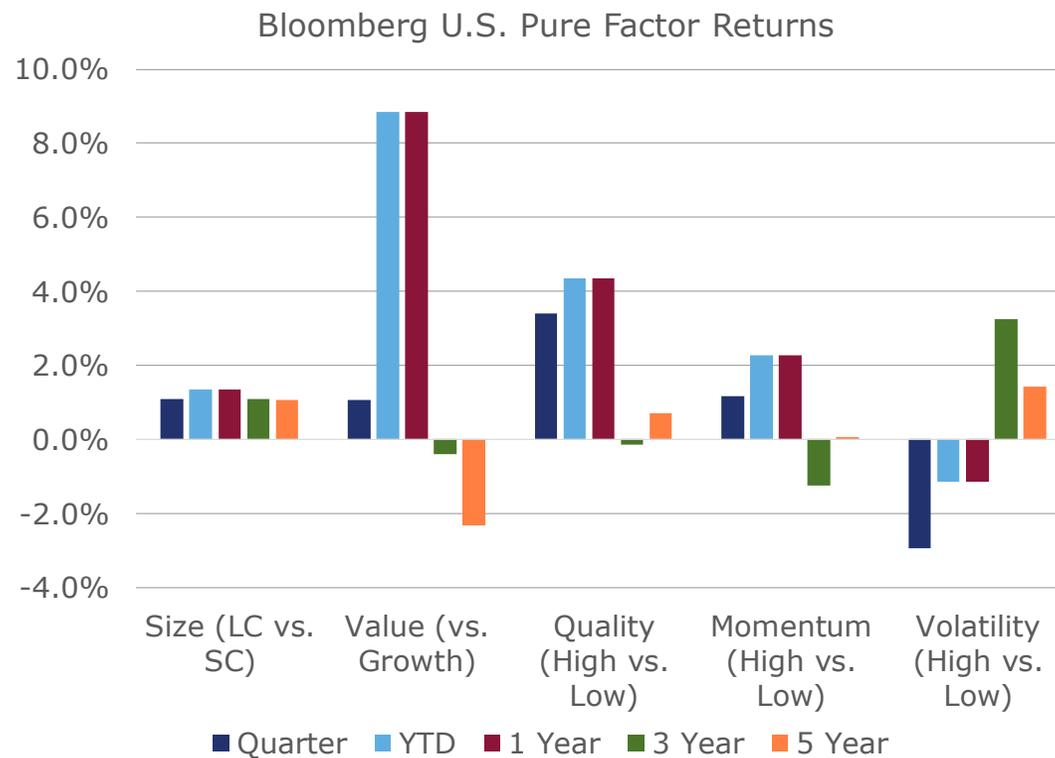
U.S. Sector Weight and Return (%)



Data Sources: Bloomberg, Wilshire Atlas

U.S. Factor Returns

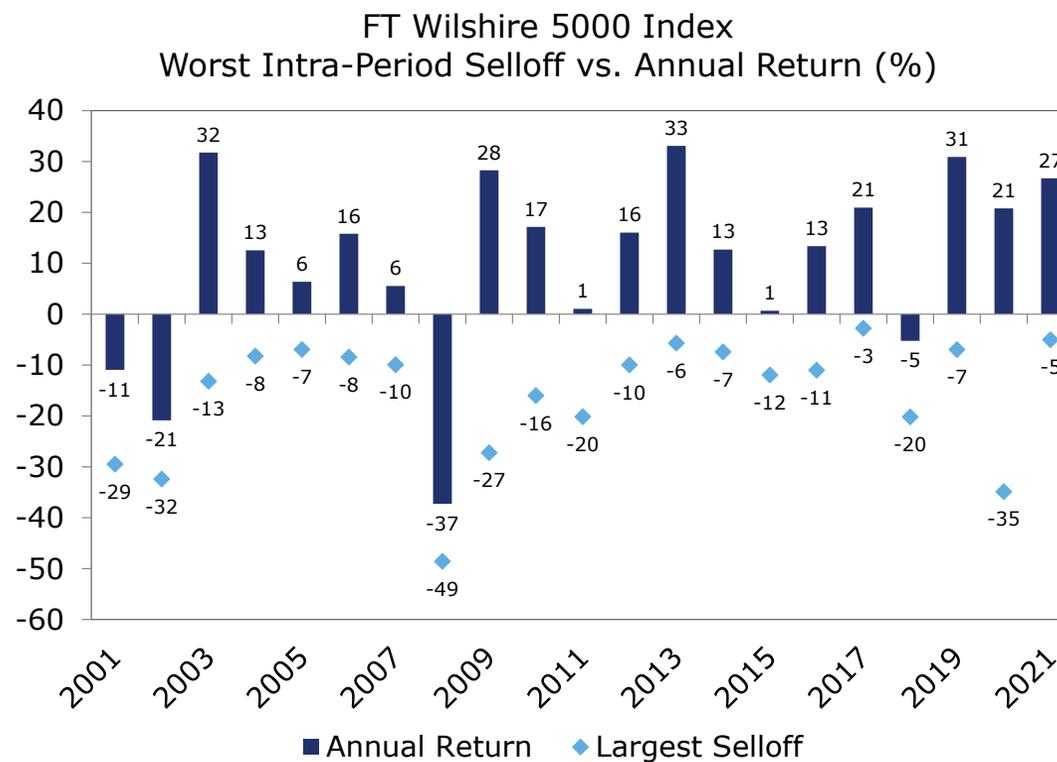
- Factor returns represent the contribution from large cap, value, etc. stocks within Bloomberg's Portfolio & Risk Analytics module
- Value stocks have rebounded during the past year



Data Sources: Bloomberg

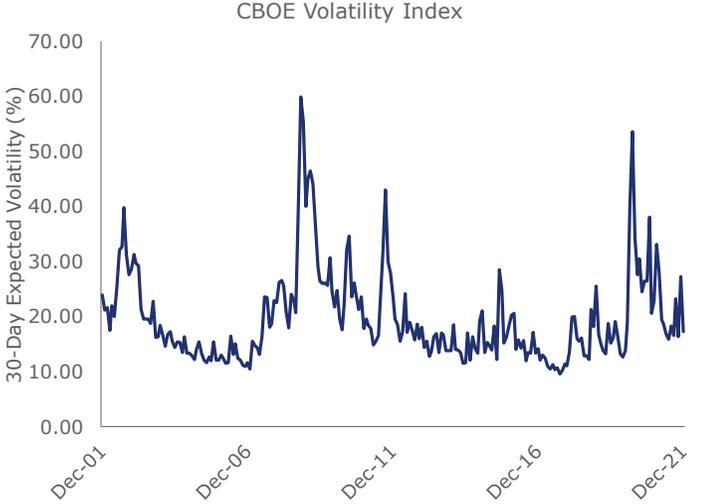
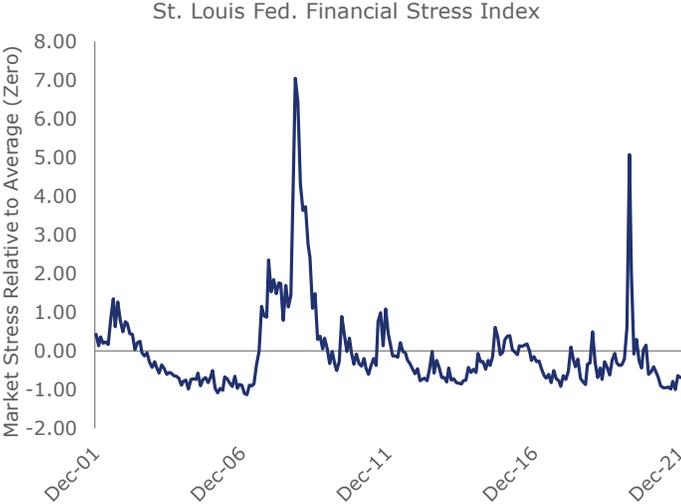
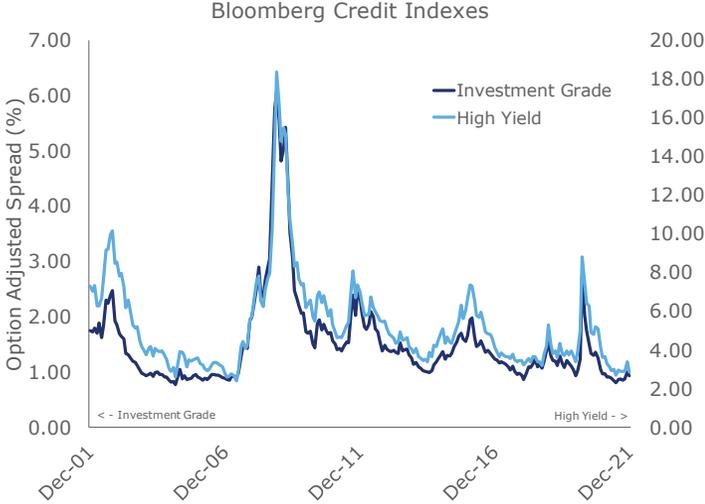
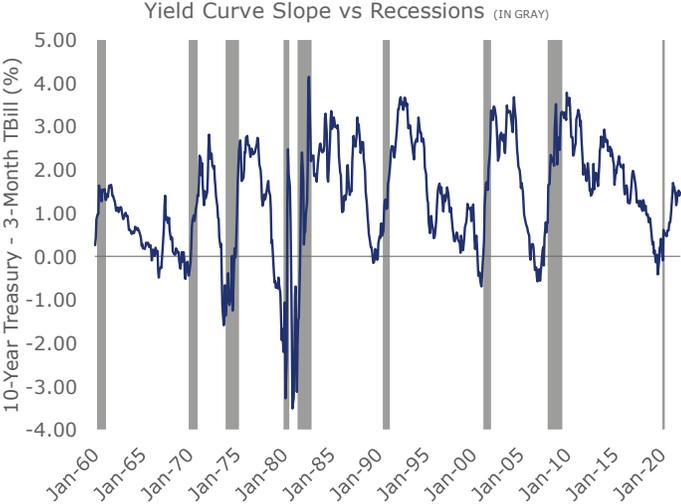
Annual Equity Market Selloffs

Third consecutive year of very strong performance; relatively minor selloff compared to previous years



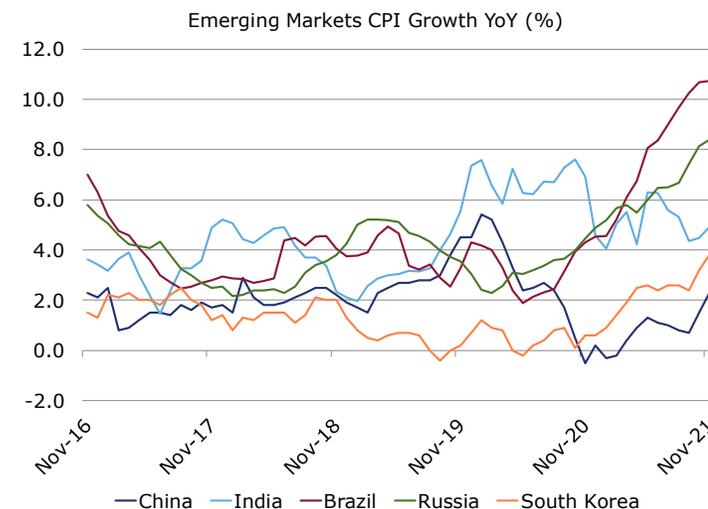
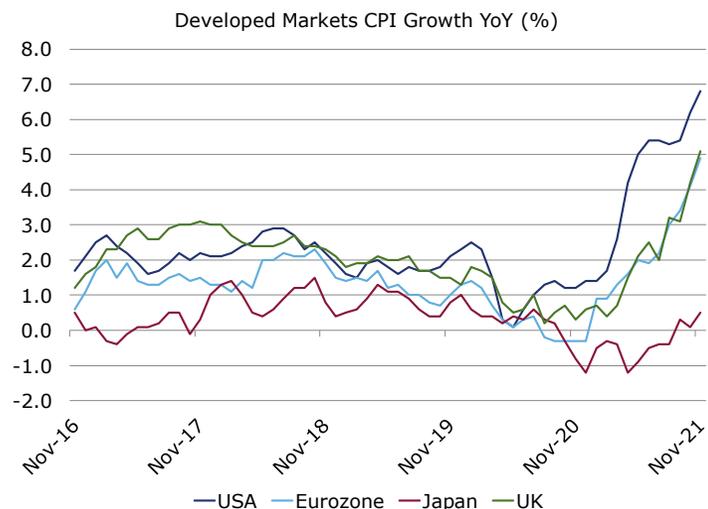
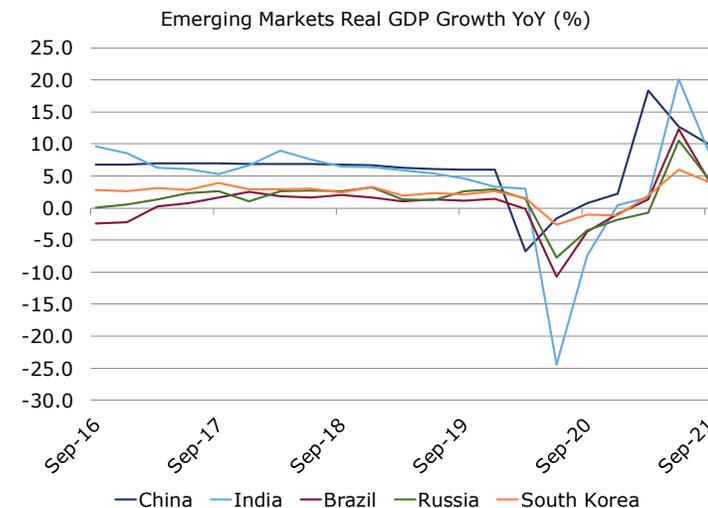
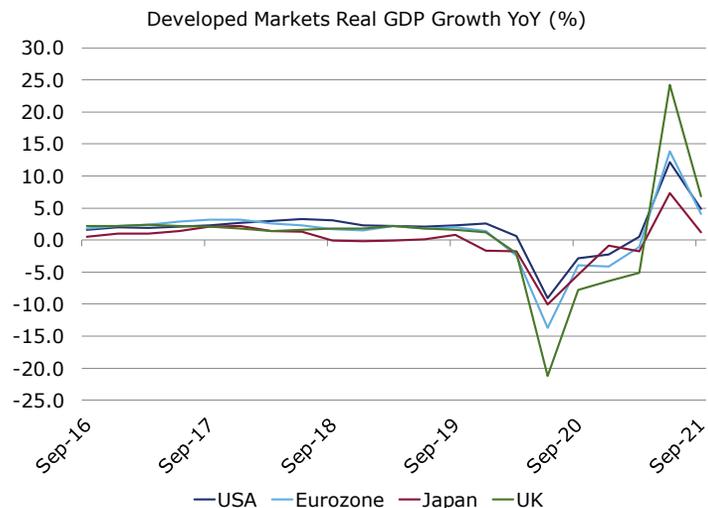
Data Sources: Wilshire Web, Bloomberg

Risk Monitor



Data Sources: Bloomberg

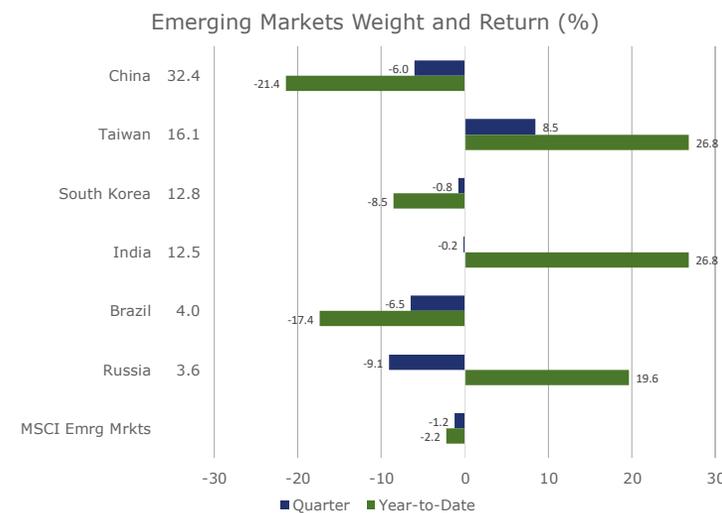
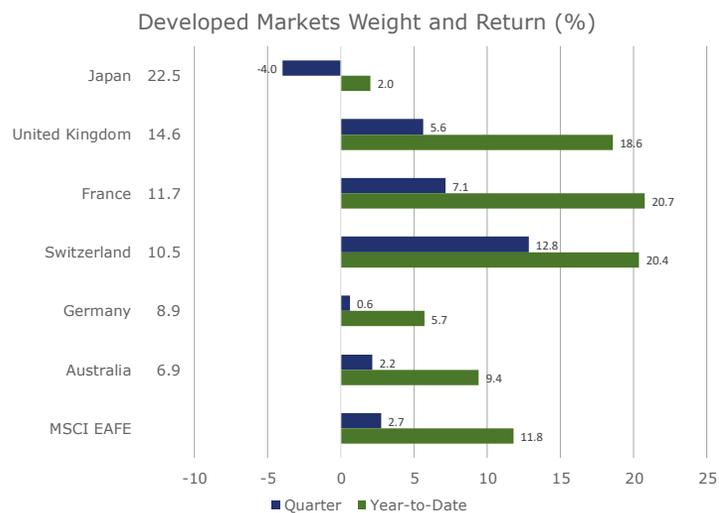
Non-U.S. Growth and Inflation



Data Sources: Bloomberg

Non-U.S. Equity Market

As of 12/31/2021	Quarter	YTD	1 Year	3 Year	5 Year	10 Year
MSCI ACWI ex-US (\$G)	1.9	8.3	8.3	13.7	10.1	7.8
MSCI EAFE (\$G)	2.7	11.8	11.8	14.1	10.1	8.5
MSCI Emerging Markets (\$G)	-1.2	-2.2	-2.2	11.3	10.3	5.9
MSCI Frontier Markets (\$G)	2.0	4.6	4.6	5.3	5.0	4.1
MSCI ACWI ex-US Growth (\$G)	2.4	5.4	5.4	18.2	13.4	9.5
MSCI ACWI ex-US Value (\$G)	1.2	11.6	11.6	9.5	7.0	6.3
MSCI ACWI ex-US Small (\$G)	0.7	13.4	13.4	16.9	11.6	9.9
MSCI ACWI Minimum Volatility	6.4	14.5	14.5	13.0	11.1	10.7
MSCI EAFE Minimum Volatility	2.5	7.6	7.6	8.3	8.0	8.0
FTSE RAFI Developed ex-US	2.6	15.5	15.5	12.0	8.3	7.5
MSCI EAFE LC (G)	4.0	19.2	19.2	13.9	8.9	10.6
MSCI Emerging Markets LC (G)	-0.8	0.1	0.1	12.3	10.9	8.4



Data Sources: Bloomberg

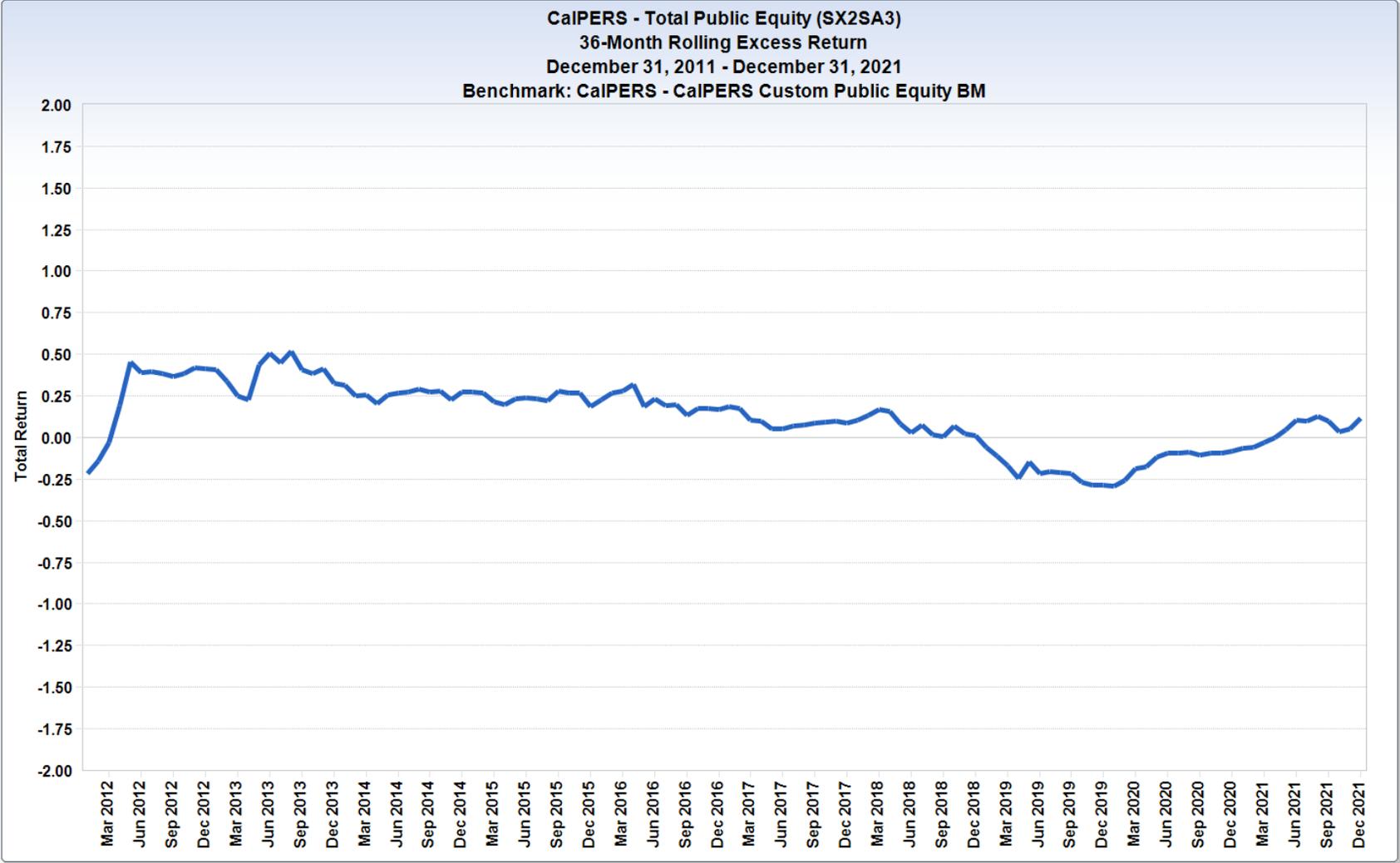
CalPERS Public Equity – Performance

As of December 31, 2021

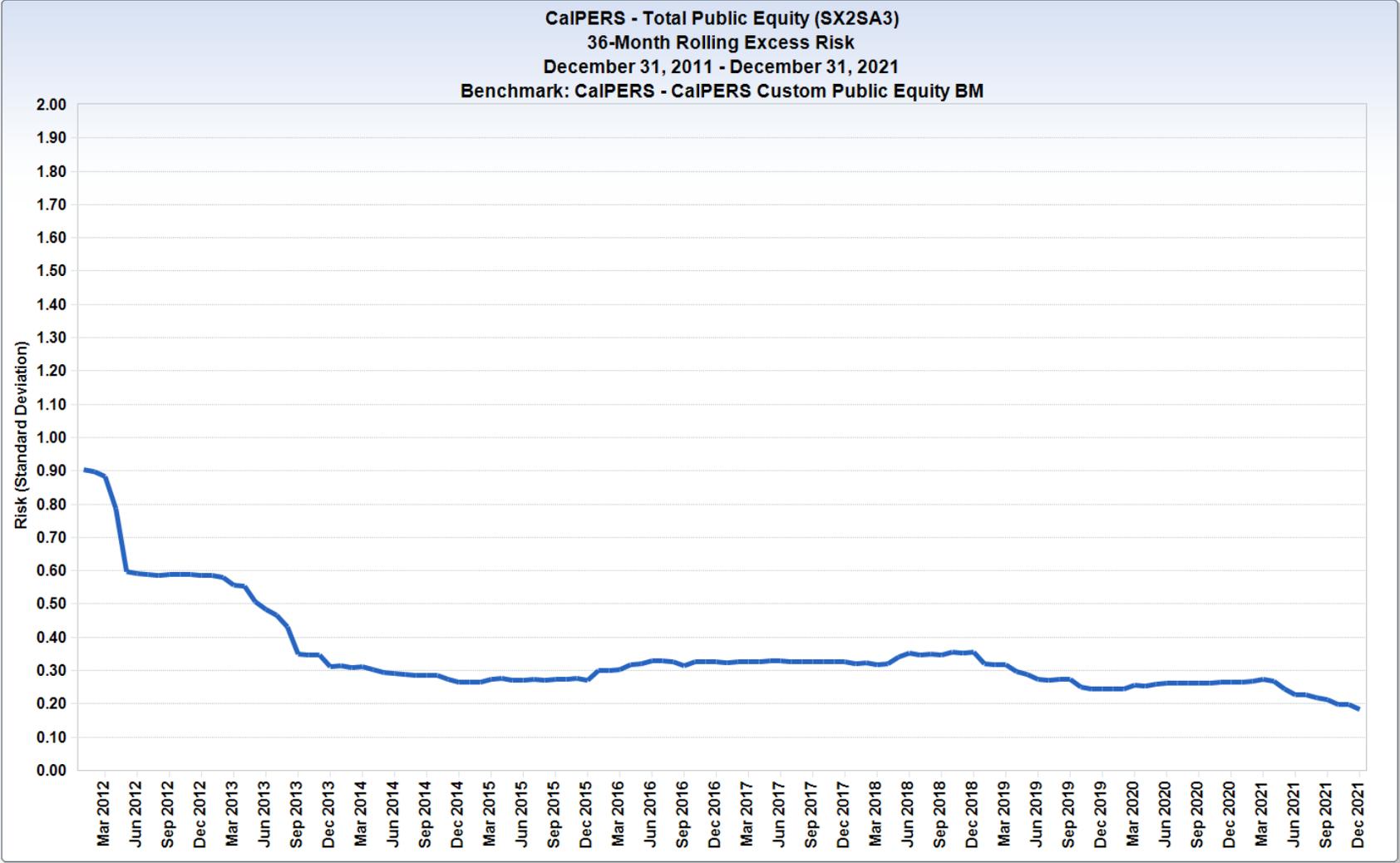
	Asset Value (\$Billion)	Quarter	1-Year	3-Year	5-Year	10-Year	VaR (\$Billion)	5-Year Ratios	
								Sharpe	Info
PUBLIC EQUITY*	\$ 246.6	6.4%	17.9%	19.0%	13.7%	12.1%	\$ 52.0	0.9	-0.3
<i>Public Equity Policy Benchmark</i>		6.4%	17.6%	18.9%	13.8%	12.0%		0.9	0.0
Public Equity - Cap Weighted*	\$ 171.6	6.4%	19.1%	21.0%	14.7%	12.6%	\$ 39.5	0.9	-0.2
<i>CalPERS Custom FTSE Global Benchmark</i>		6.4%	18.8%	20.9%	14.7%	12.5%		0.9	0.0
Public Equity - Factor Weighted	\$ 75.1	6.3%	14.7%	13.7%	-.-%	-.-%	\$ 12.9	N/A	N/A
<i>MSCI ACWI Select Factor Weighted Index</i>		6.3%	14.5%	13.6%	-.-%	-.-%		N/A	N/A

* The CalPERS asset values shown include derivative exposure.

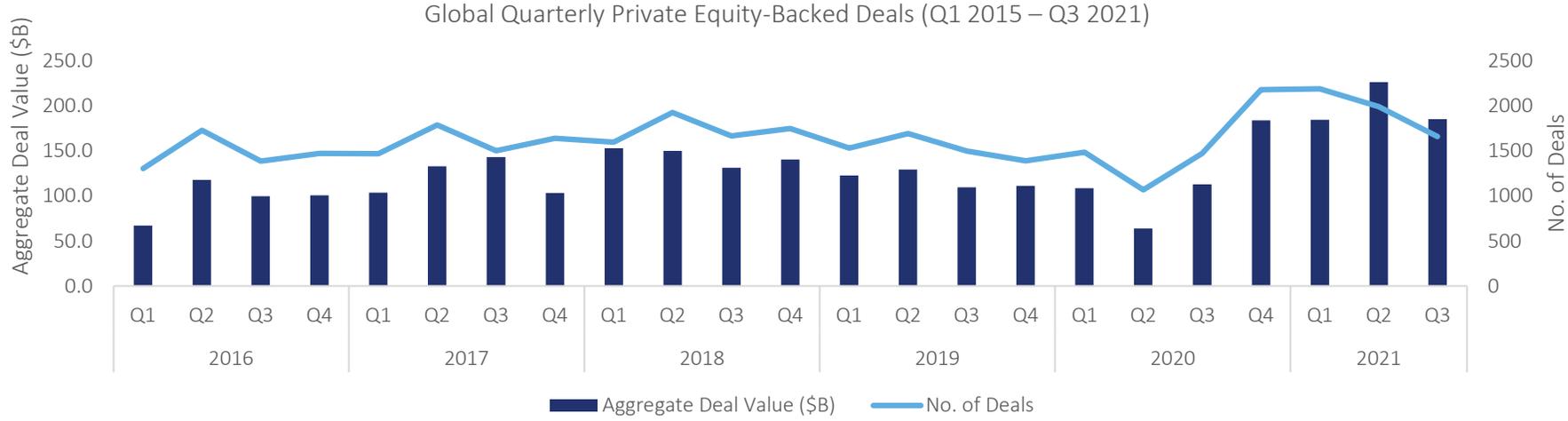
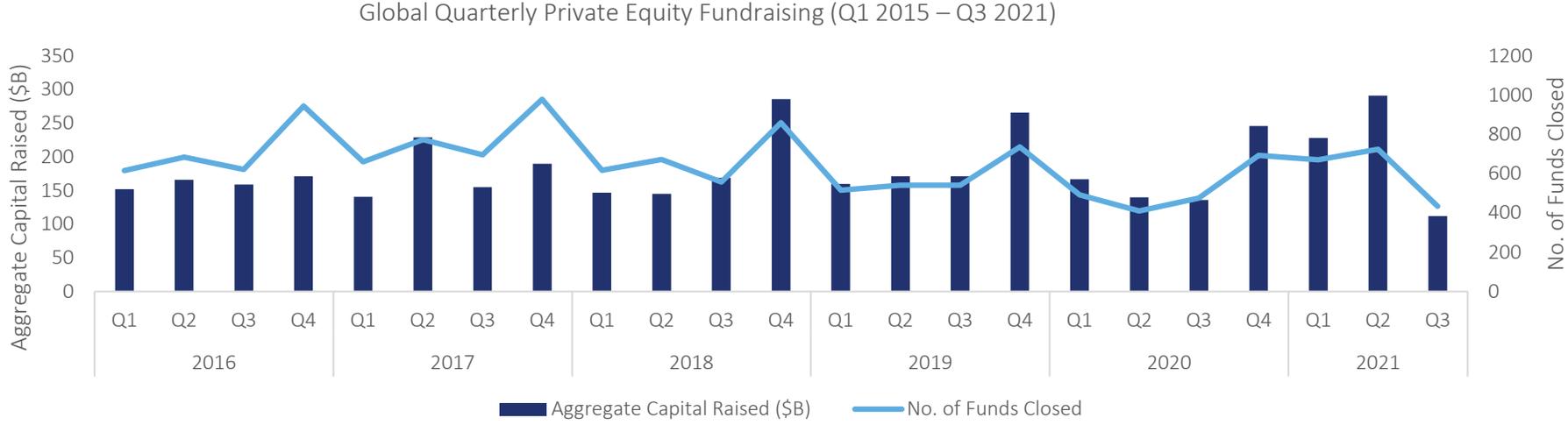
CalPERS Public Equity – Rolling Excess Return



CalPERS Public Equity – Rolling Tracking Error

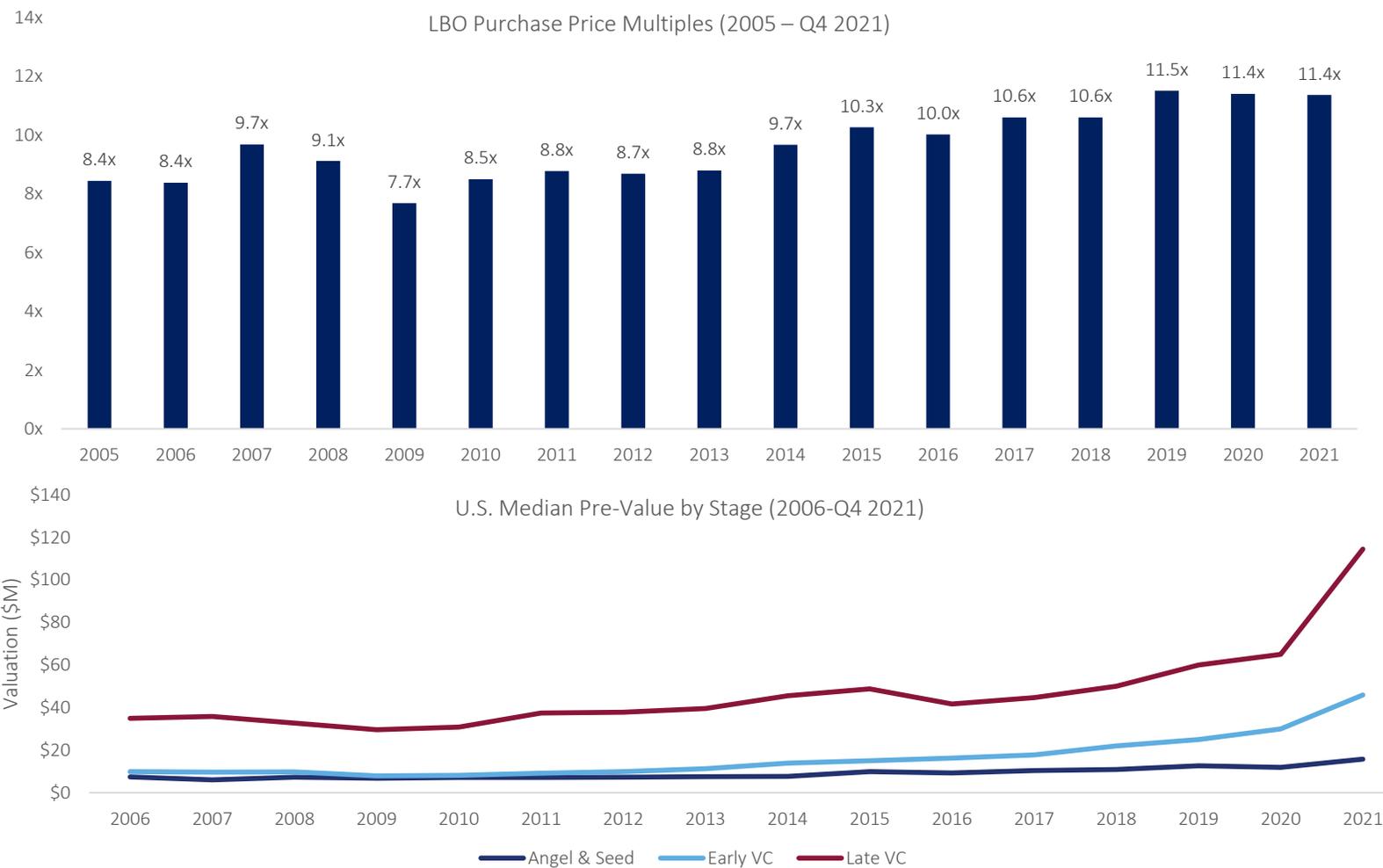


Private Equity – Fundraising & Investment Activity



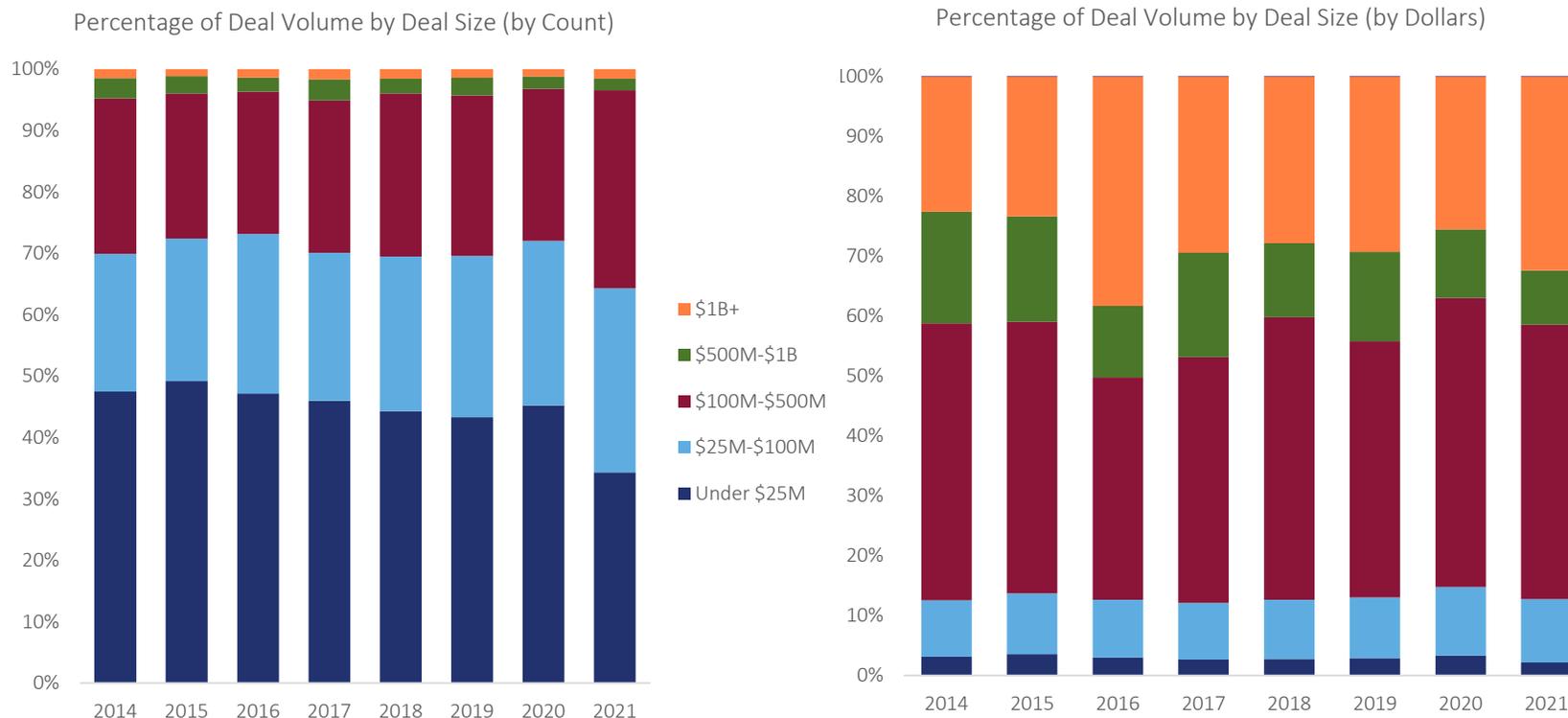
Source: Preqin, as of September 30, 2021.

Private Equity – Pricing & Valuations



Source: S&P LBO; Pitchbook, *as of December 31, 2021.

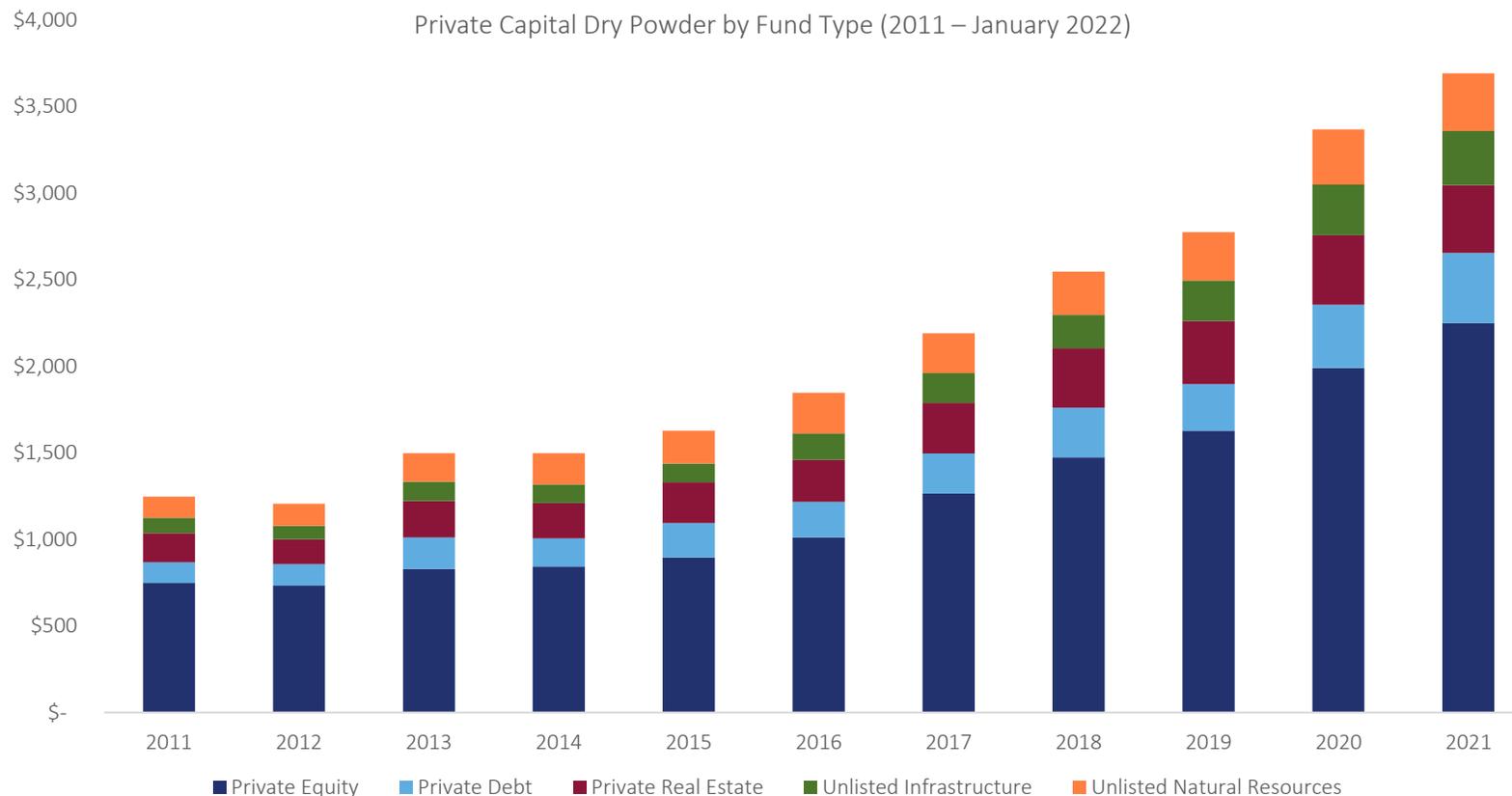
U.S. Investment Activity by Deal Size



- Deal volume continues to be dominated by lower middle market deals with investment sizes below \$100 million through the fourth quarter of 2021
- However, deals with below \$100 million check sizes comprised only 13% of all deal volume by amount of capital invested in 2021

Source: Pitchbook, *as of December 31, 2021.

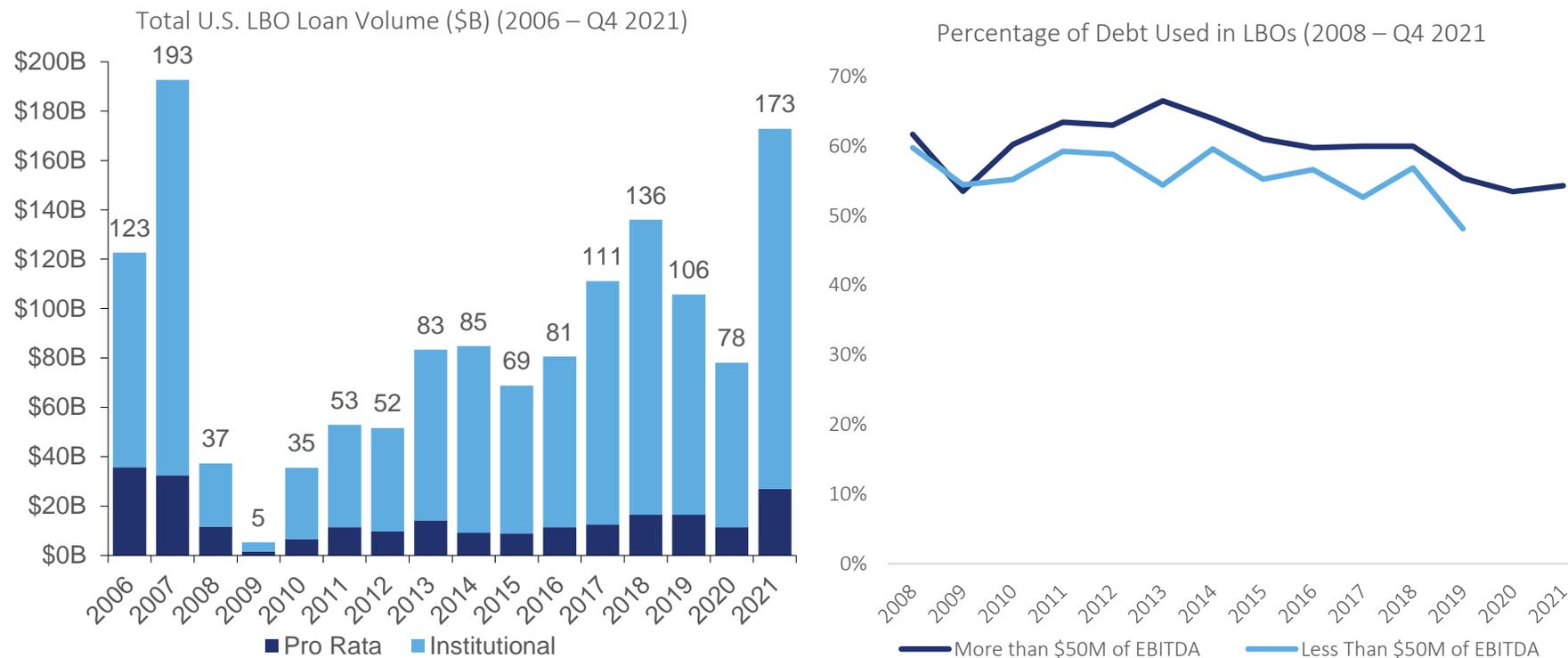
Private Capital Dry Powder



- Global private capital dry power continues to increase, topping \$3.7 trillion across all fund types
- Private equity comprises just under 61% of total dry powder in the market as of January 2022

Source: Preqin, *as of January 27, 2022.

Private Equity – U.S. Debt Markets

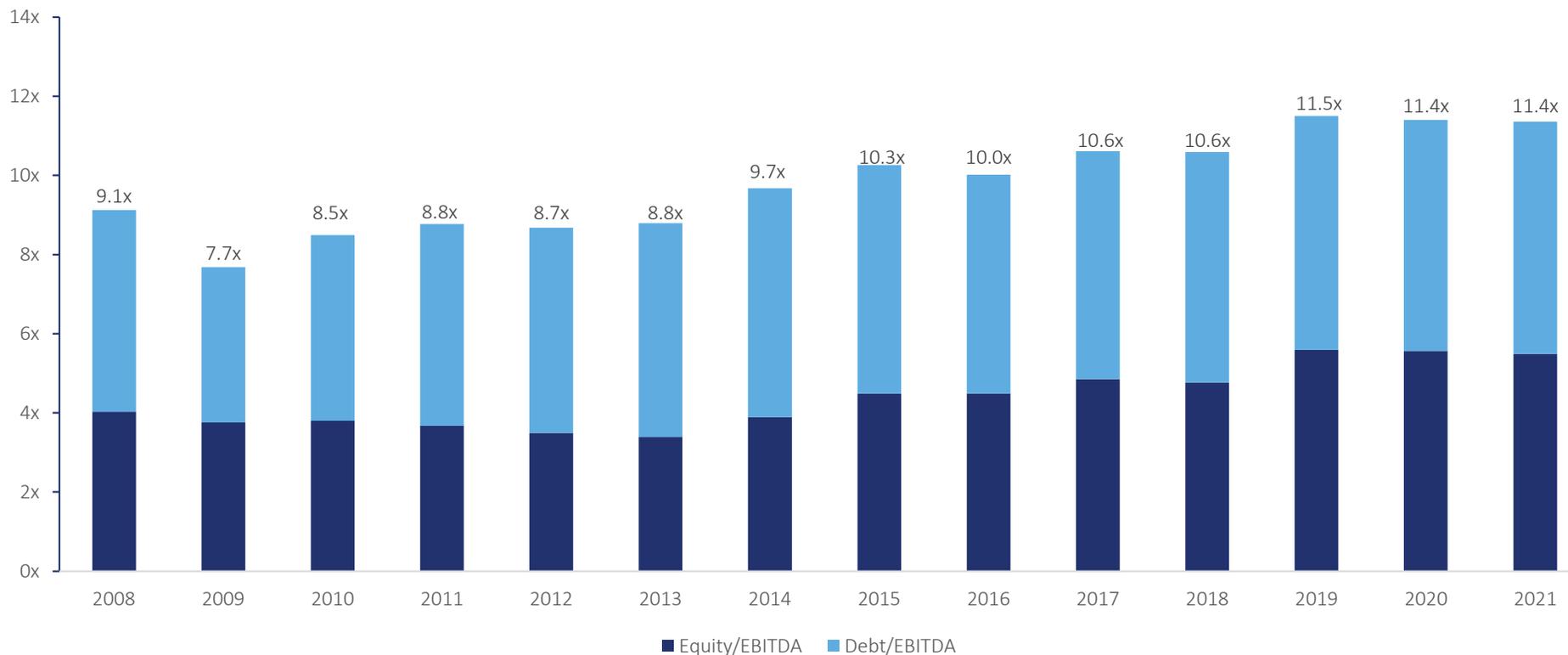


- 2021 has generated approximately \$173 billion in loan volume so far, has surpassed the loan volume from all prior years since 2008
- As debt multiples have increased, the percentage of debt used to finance leveraged buyouts through Q4 2021 has minimally increased from 2020 marks

Source: S&P LBO, *as of December 31, 2021. "Less than \$50M of EBITDA" data for 2020 and 2021 not yet available.

Private Equity – U.S. LBO Purchase Price Multiples

Purchase Price Multiples of U.S. LBO Transactions (2008 – Q4 2021)



- Purchase price multiples for U.S. LBOs have remained steady through Q4 2021, relative to 2020 levels.

Source: S&P LBO, *as of December 31, 2021.

CalPERS Private Equity – Performance

As of December 31, 2021

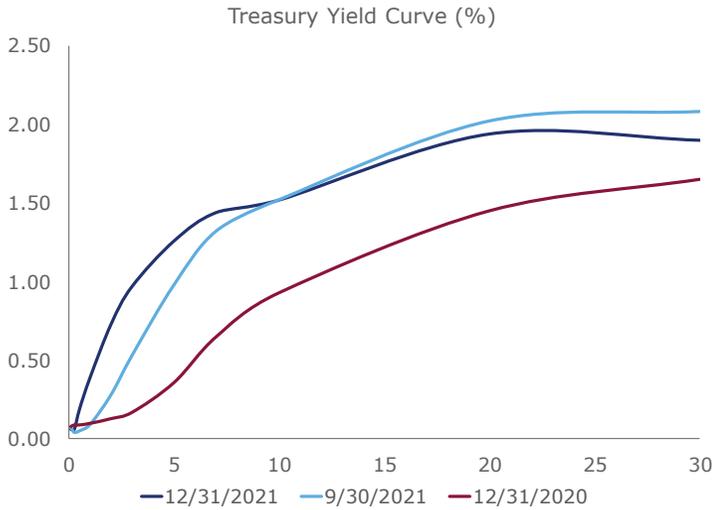
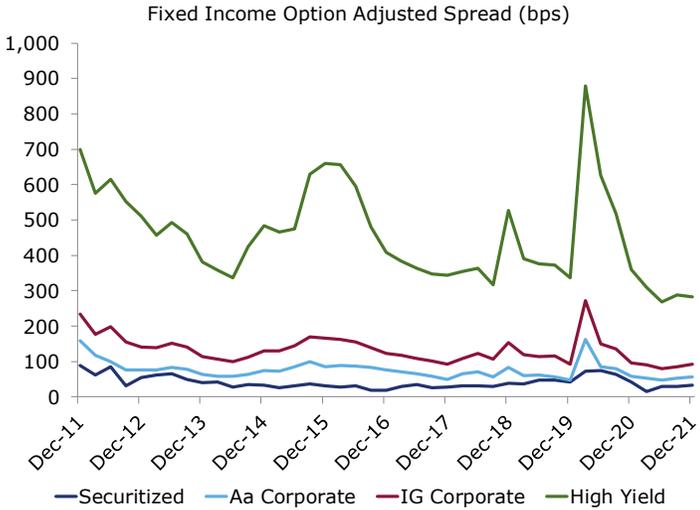
	Asset Value (\$Billion)	Quarter	1-Year	3-Year	5-Year	10-Year	VaR (\$Billion)	5-Year Ratios Sharpe	Info
PRIVATE EQUITY	\$ 49.0	5.9%	39.3%	17.3%	16.5%	13.9%	\$ 19.9	1.9	0.0
<i>CalPERS Custom Private Equity Benchmark</i>		-0.7%	31.4%	14.6%	15.9%	16.1%		1.0	0.0

	Asset Value (\$Billion)	Quarter	1-Year	3-Year	5-Year	10-Year	VaR (\$Billion)	5-Year Ratios Sharpe	Info
<i>Private Equity</i>									
Private Equity Partnership Investments	\$ 49.0	5.9%	39.5%	17.4%	16.5%	14.0%		N/A	N/A
Private Equity Distribution Stock	\$ 0.0	-25.4%	-41.3%	-14.7%	1.2%	-16.8%		N/A	N/A

U.S. Fixed Income

As of 12/31/2021	YTW	DUR.	QTR	YTD	1 YR	3 YR	5 YR	10 YR
Bloomberg Aggregate	1.8	6.8	0.0	-1.5	-1.5	4.8	3.6	2.9
Bloomberg Treasury	1.2	7.1	0.2	-2.3	-2.3	4.1	3.1	2.1
Bloomberg Gov't-Rel.	1.6	6.1	0.0	-1.3	-1.3	4.5	3.6	2.8
Bloomberg Securitized	2.0	4.8	-0.4	-1.0	-1.0	3.1	2.6	2.4
Bloomberg Corporate	2.3	8.7	0.2	-1.0	-1.0	7.6	5.3	4.7
Bloomberg LT Gov't/Credit	2.6	16.5	2.2	-2.5	-2.5	10.6	7.4	5.7
Bloomberg LT Treasury	1.9	18.6	3.1	-4.6	-4.6	8.8	6.5	4.5
Bloomberg LT Gov't-Rel.	3.0	13.6	1.9	-1.5	-1.5	8.6	6.8	5.5
Bloomberg LT Corporate	3.1	15.2	1.5	-1.1	-1.1	11.8	7.7	6.5
Bloomberg U.S. TIPS *	1.4	8.2	2.4	6.0	6.0	8.4	5.3	3.1
Bloomberg High Yield	4.2	3.8	0.7	5.3	5.3	8.8	6.3	6.8
S&P/LSTA Leveraged Loan	3.9	0.3	0.7	5.2	5.2	5.6	4.3	4.7
Treasury Bills	0.1	0.3	0.0	0.0	0.0	1.0	1.2	0.7

* Yield and Duration statistics are for a proxy index based on similar maturity, the Bloomberg Barclays U.S. Treasury 7-10 Year Index

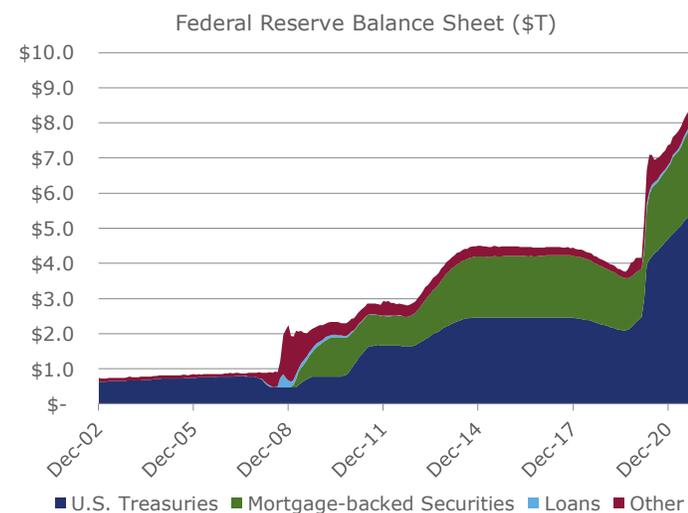
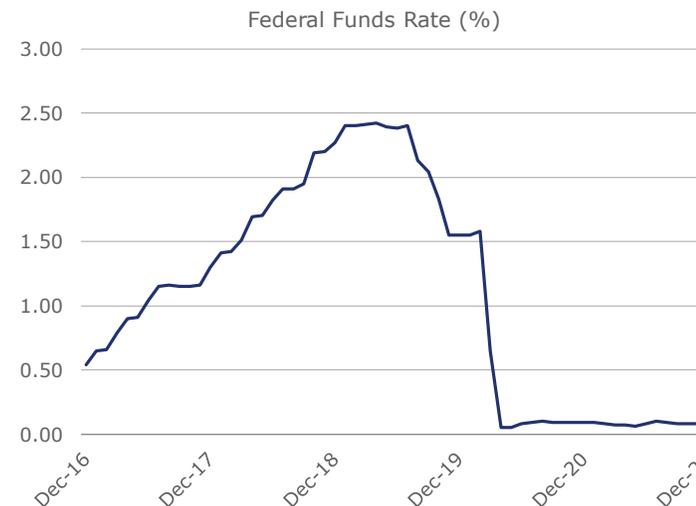


Data Sources: Bloomberg

Federal Reserve

- Current FOMC expectation is for three 25 basis point increases (or 0.75%) in the Fed-funds rate during 2022
- Federal Reserve has added more than \$4.5 trillion in assets to their balance sheet during the past 21 months
- QE4 is now larger than the 3 phases of quantitative easing – combined – following the global financial crisis

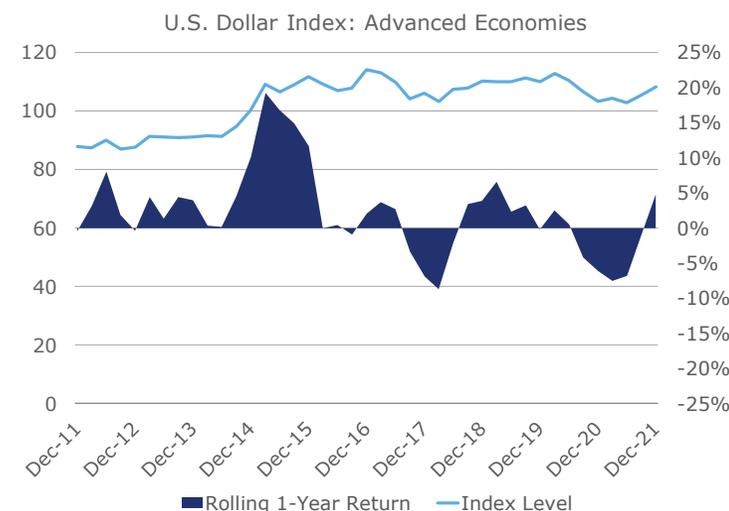
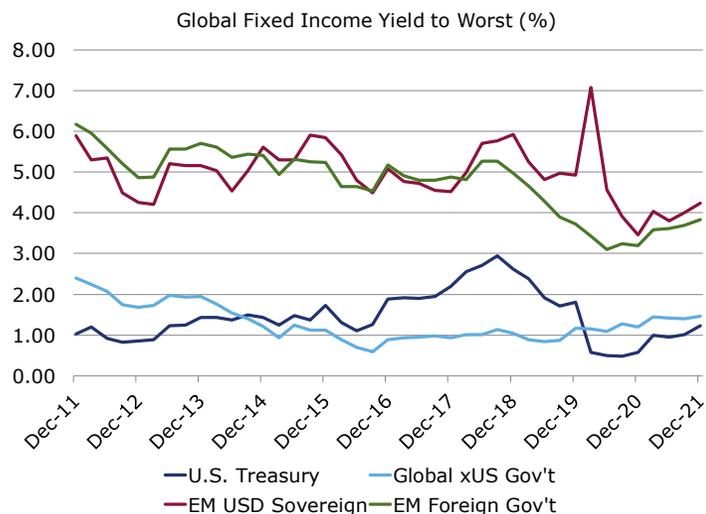
	Announced	Closed	Amount (bil)
QE1	11/25/2008	3/31/2010	\$1,403
QE2	11/3/2010	6/29/2012	\$568
QE3	9/13/2012	10/29/2014	\$1,674
QE4	3/23/2020		\$4,599



Non-U.S. Fixed Income

As of 12/31/2021	Quarter	YTD	1 Year	3 Year	5 Year	10 Year
Developed Markets						
Bloomberg Global Aggregate xUS	-1.2	-7.0	-7.0	2.5	3.1	0.8
Bloomberg Global Aggregate xUS *	0.1	-1.4	-1.4	3.3	3.1	3.8
Bloomberg Global Inflation Linked xUS	2.9	0.7	0.7	7.2	5.5	3.6
Bloomberg Global Inflation Linked xUS *	3.5	4.9	4.9	7.1	5.2	5.8
Emerging Markets (Hard Currency)						
Bloomberg EM USD Aggregate	-0.5	-1.7	-1.7	5.8	4.6	5.1
Emerging Markets (Foreign Currency)						
Bloomberg EM Local Currency Gov't	0.4	-1.6	-1.6	4.3	4.6	2.5
Bloomberg EM Local Currency Gov't *	-0.4	-1.4	-1.4	3.4	3.3	2.9
Euro vs. Dollar	-1.8	-6.9	-6.9	-0.3	1.6	-1.3
Yen vs. Dollar	-3.3	-10.3	-10.3	-1.6	0.3	-3.9
Pound vs. Dollar	0.4	-1.0	-1.0	2.0	1.9	-1.4

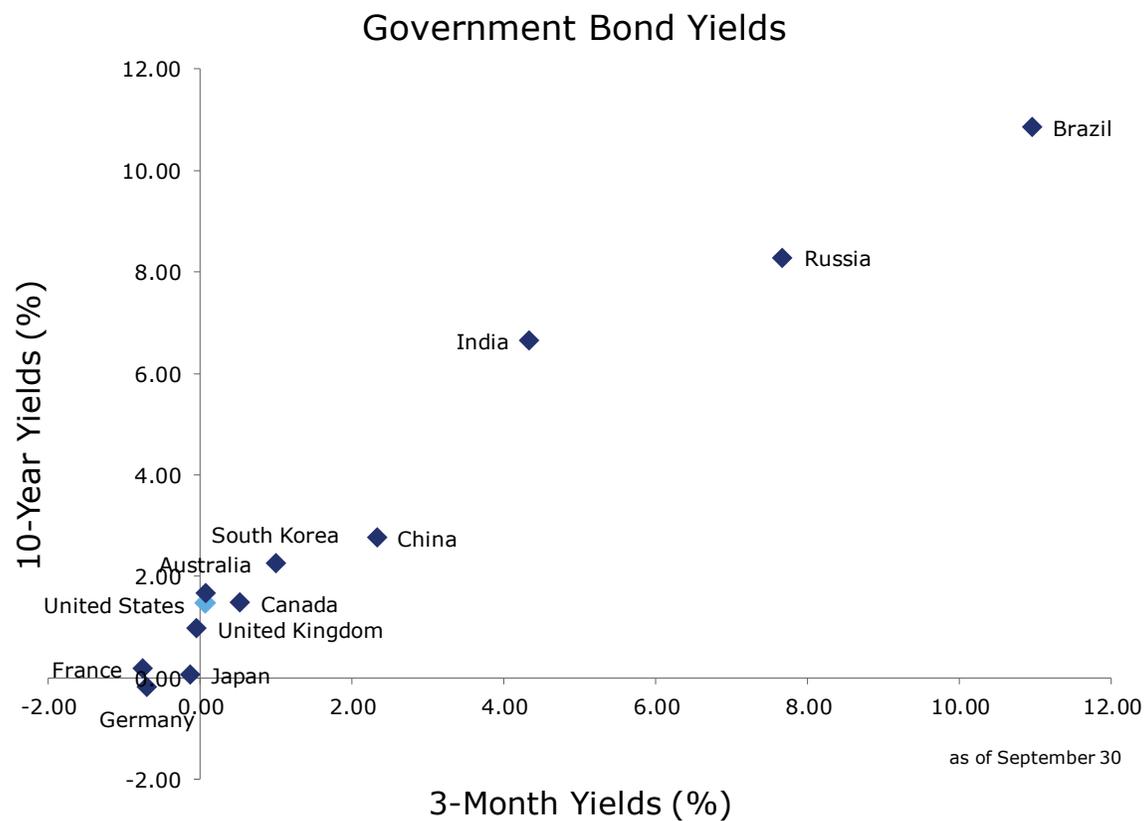
* Returns are reported in terms of local market investors, which removes currency effects.



Data Sources: Bloomberg

Global Interest Rates

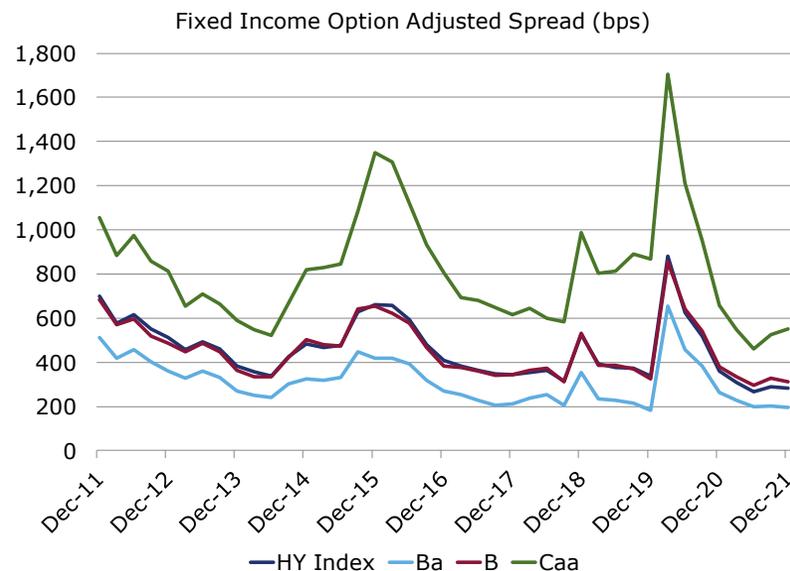
Negative rates found in Germany and France; low but positive rates, and at similar levels, in the U.S., Australia and in the U.K.



Data Sources: Bloomberg

High Yield Bond Market

As of 12/31/2021		YTW	QTR	YTD	1 YR	3 YR	5 YR	10 YR
Bloomberg High Yield		4.2	0.7	5.3	5.3	8.8	6.3	6.8
S&P LSTA Leveraged Loan		3.7	0.4	3.5	3.5	5.6	3.9	4.3
High Yield Quality Distribution	Weight							
Ba U.S. High Yield	52.8%	3.3	0.7	4.6	4.6	10.0	6.9	7.0
B U.S. High Yield	35.7%	4.6	0.8	4.8	4.8	8.0	5.8	6.3
Caa U.S. High Yield	11.3%	6.8	0.5	8.6	8.6	6.7	5.2	7.1
Ca to D U.S. High Yield	0.3%	27.8	-12.9	12.5	12.5	4.8	5.3	-1.4
Non-Rated U.S. High Yield	0.0%	0.0	0.0	0.0	0.0	-0.2	1.9	2.5



Data Sources: Bloomberg

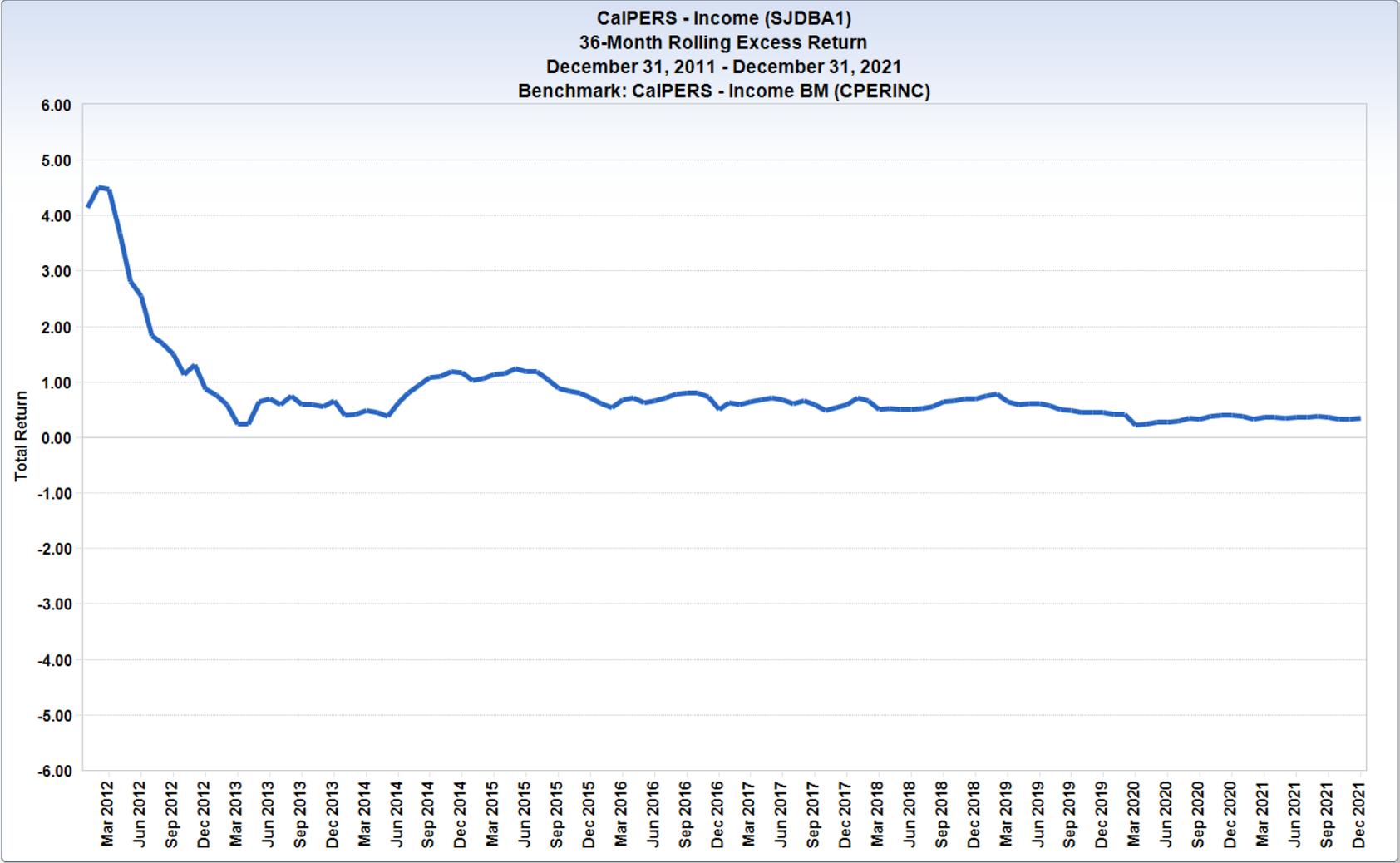
CalPERS Income – Performance

As of December 31, 2021

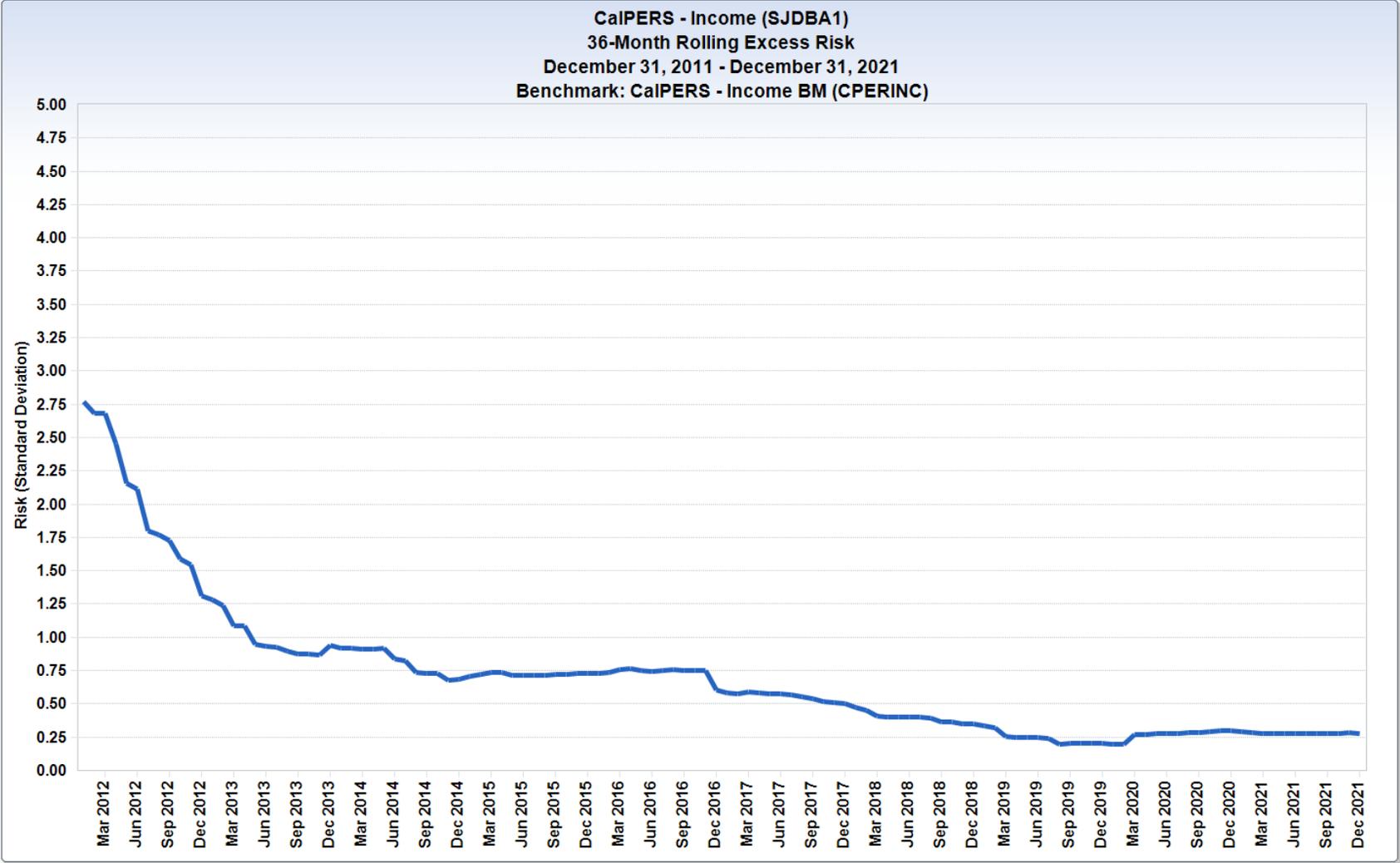
	Asset Value (\$Billion)	Quarter	1-Year	3-Year	5-Year	10-Year	VaR (\$Billion)	5-Year Ratios	
								Sharpe	Info
INCOME*	\$ 141.5	1.0%	-1.4%	7.5%	5.5%	4.4%	\$ 12.4	0.9	1.5
<i>Income Policy Benchmark</i>		1.1%	-1.6%	7.1%	5.1%	3.7%		0.8	0.0
Spread	\$ 72.6	0.2%	-0.6%	7.0%	-.-%	-.-%	\$ 5.4	N/A	N/A
<i>BBG Barc Custom Global Long Spread Index</i>		0.3%	-0.9%	6.3%	-.-%	-.-%		N/A	N/A
Treasury*	\$ 46.4	2.2%	-4.1%	7.2%	5.2%	3.6%	\$ 6.1	0.5	-0.2
Total Fund Income	\$ 7.5	1.9%	-4.3%	-.-%	-.-%	-.-%	\$ 1.0	N/A	N/A
<i>CalPERS Custom Treasury Benchmark</i>		2.2%	-4.1%	7.3%	5.3%	3.6%		0.5	0.0
High Yield	\$ 15.0	0.9%	4.6%	8.2%	-.-%	-.-%	\$ 1.9	N/A	N/A
<i>BBG Barclays US High Yield BB/B Liquid Index</i>		0.9%	4.5%	8.0%	-.-%	-.-%		N/A	N/A

* The CalPERS asset values shown include derivative exposure.

CalPERS Income – Rolling Excess Return

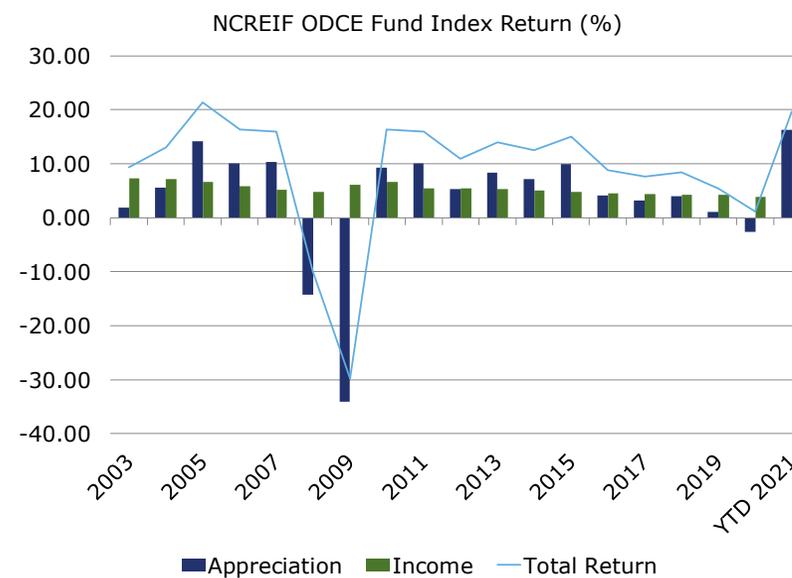
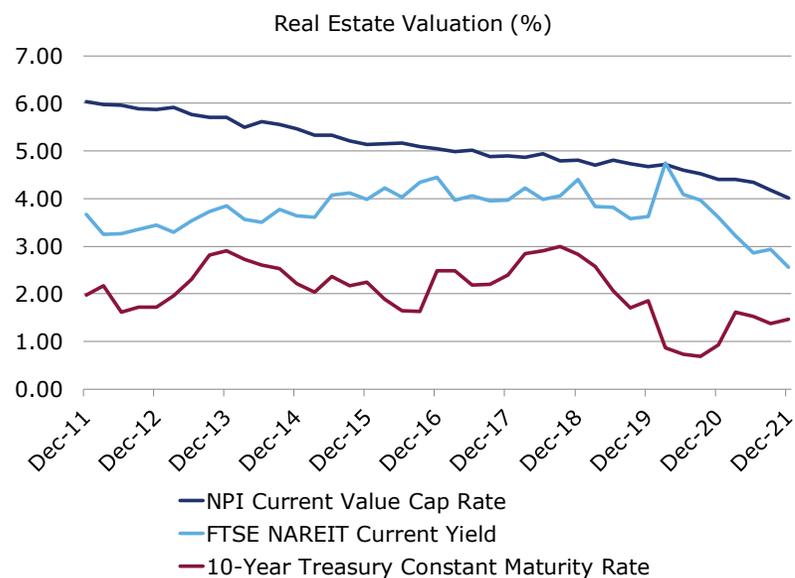


CalPERS Income – Rolling Tracking Error



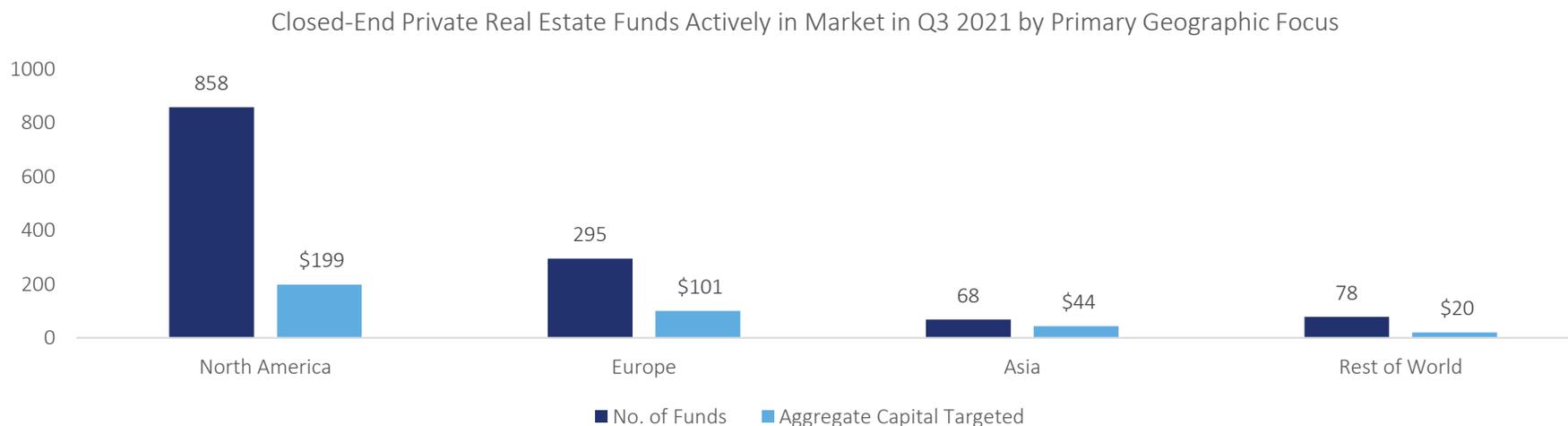
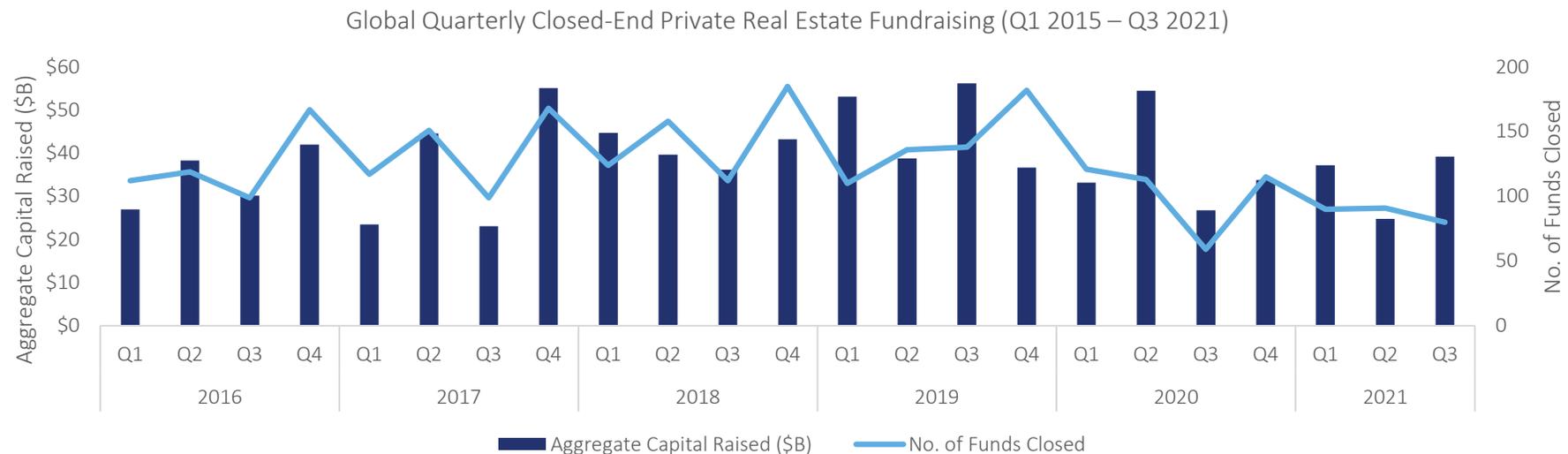
Real Assets

As of 12/31/2021	Quarter	YTD	1 Year	3 Year	5 Year	10 Year
Bloomberg U.S. TIPS	2.4	6.0	6.0	8.4	5.3	3.1
Bloomberg Commodity Index	-1.6	27.1	27.1	9.9	3.7	-2.9
Bloomberg Gold Index	4.0	-4.3	-4.3	11.0	8.4	0.7
Wilshire Global RESI Index	13.1	34.1	34.1	15.1	9.7	10.5
NCREIF ODCE Fund Index	8.0	22.2	22.2	9.2	8.7	10.4
NCREIF Timberland Index	4.6	9.2	9.2	3.7	3.6	5.3
FTSE Global Core Infrastructure 50/50	7.7	15.7	15.7	12.2	10.3	9.7
Alerian Midstream Energy	-0.4	38.4	38.4	9.6	2.2	n.a.
Bitcoin	6.7	59.8	59.8	132.8	117.5	153.4



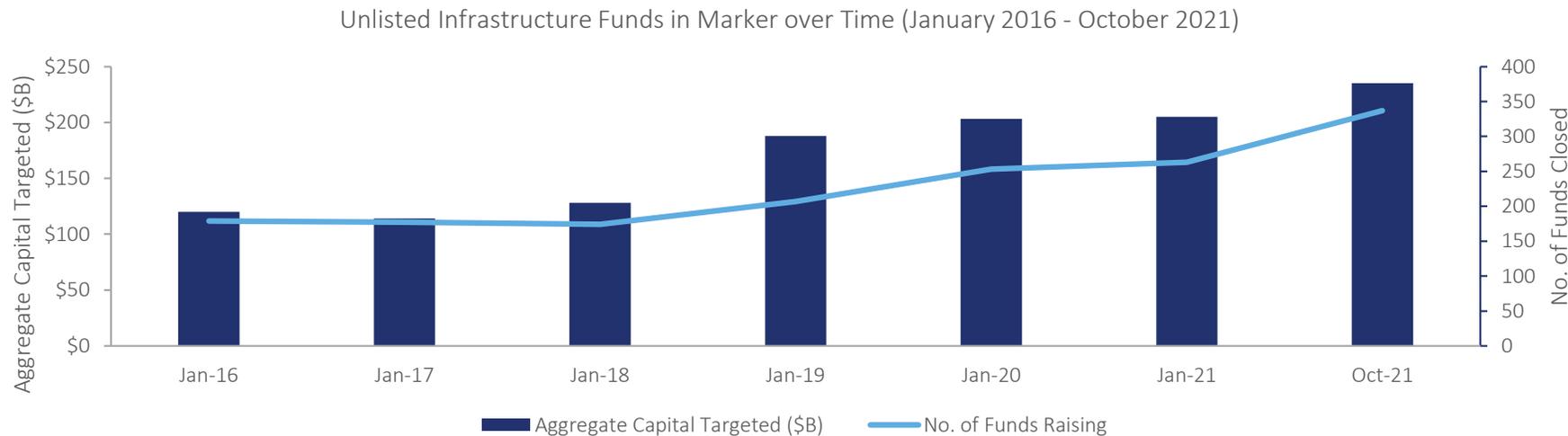
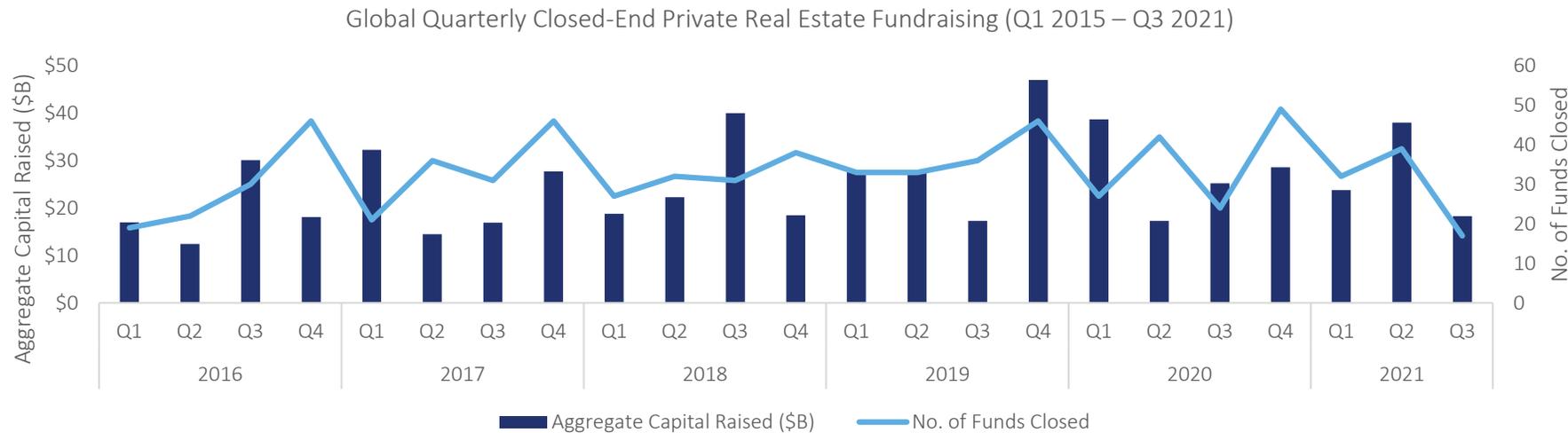
Data Sources: Bloomberg, National Council of Real Estate Investment Fiduciaries

Private Real Estate – Fundraising Activity



Source: Preqin, as of September 30, 2021.

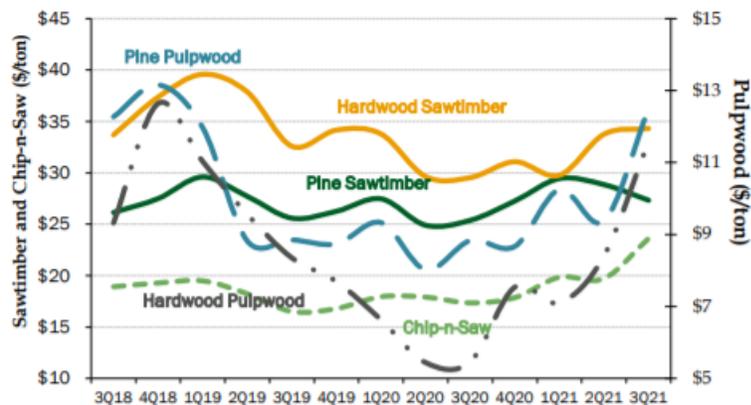
Unlisted Infrastructure – Fundraising & Investment Activity



Source: Preqin, as of September 30, 2021.

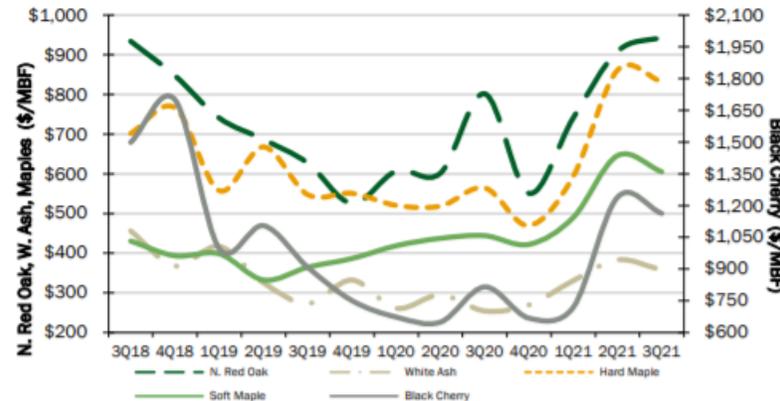
Timber Investments

Southeastern Timber Prices



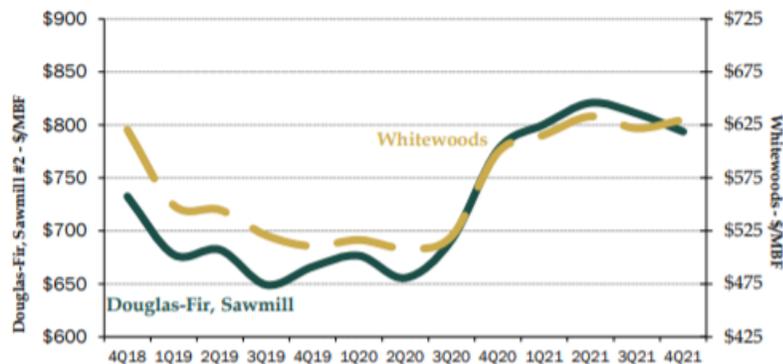
Source: Forest2Market®

Northeastern Hardwood Timber Prices



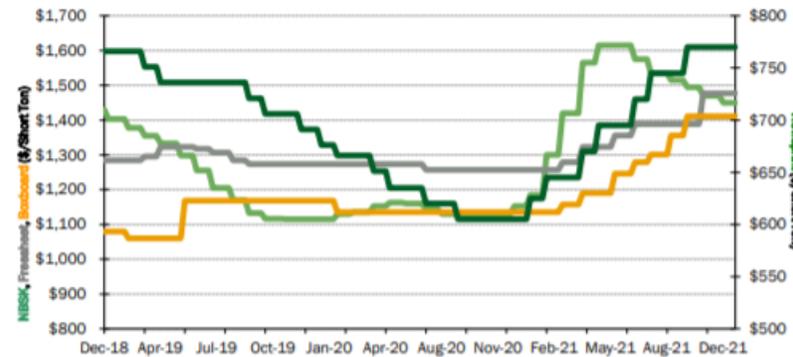
Source: Pennsylvania Woodlands Timber Market Report - Northwest Region

Pacific Northwest Timber Prices



Source: Fastmarkets RISI - Log Lines®

Pulp and Paper



Source: Fastmarkets RISI

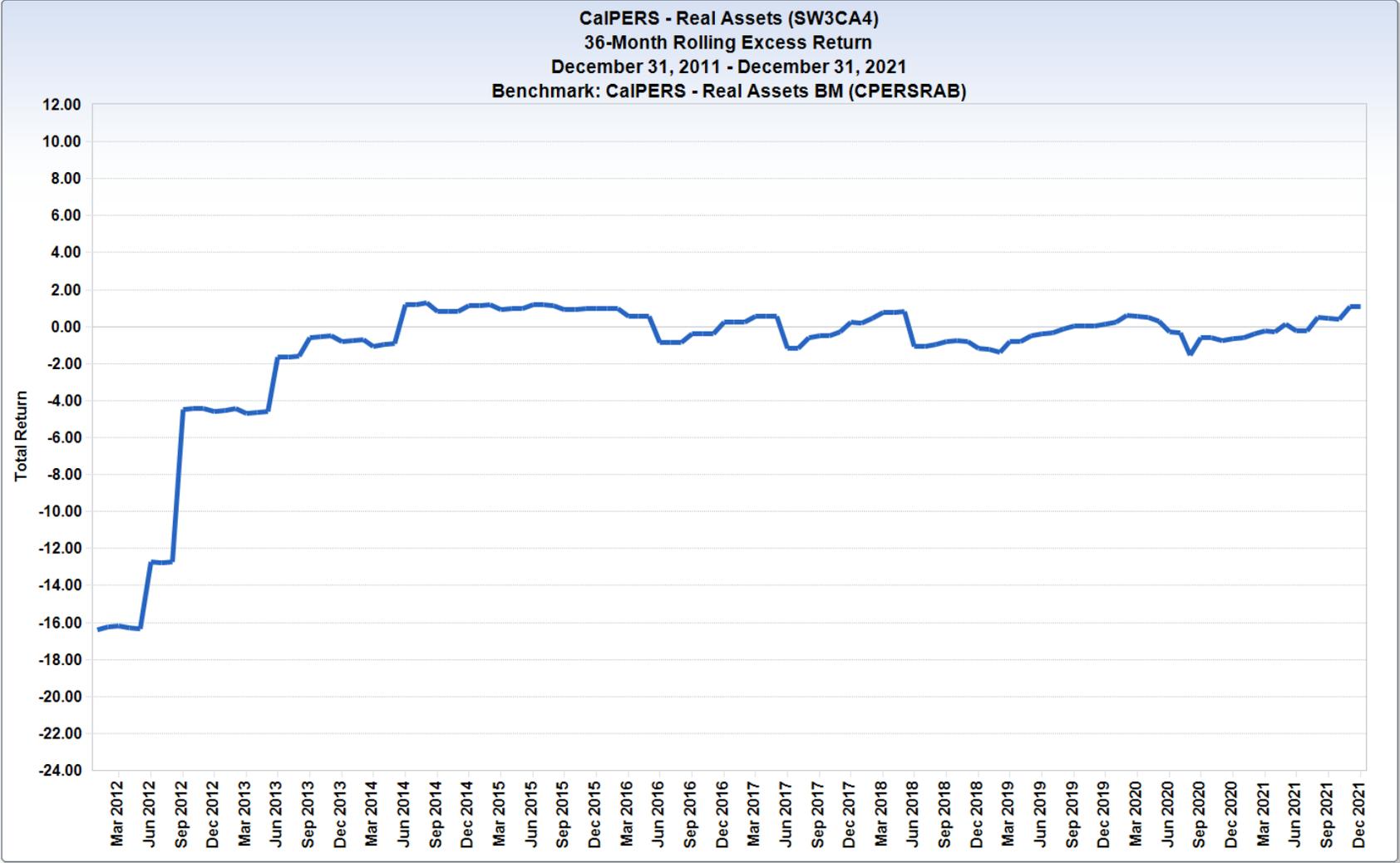
Data Sources: Forest Investment Associates

CalPERS Real Assets – Performance

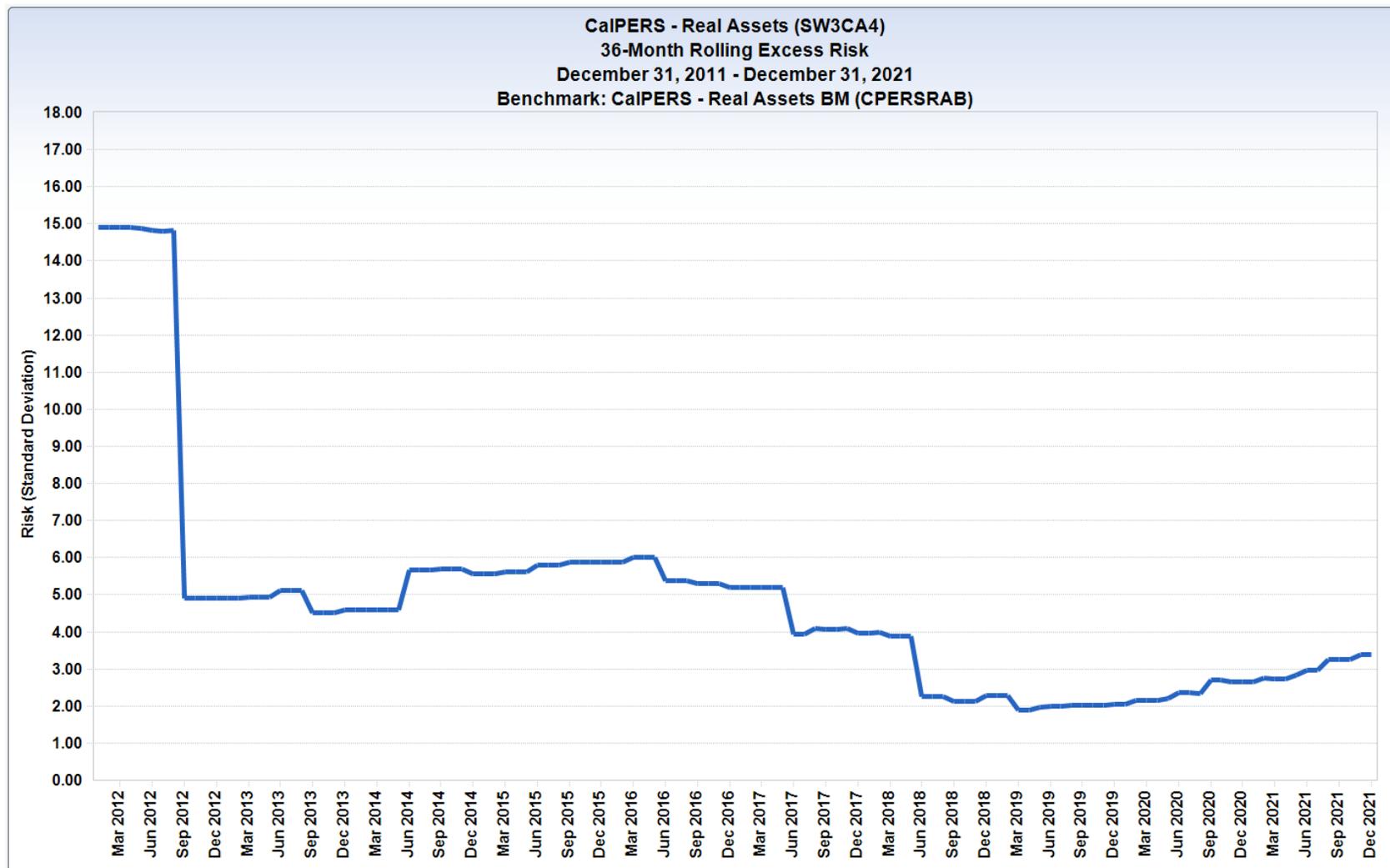
As of December 31, 2021

	Asset Value (\$Billion)	Quarter	1-Year	3-Year	5-Year	10-Year	VaR (\$Billion)	5-Year Ratios Sharpe	Info
REAL ASSETS	\$ 55.1	6.4%	15.8%	7.1%	6.8%	9.0%	\$ 8.0	1.7	0.1
<i>Real Assets Policy Benchmark</i>		6.3%	13.4%	6.0%	6.4%	8.5%		1.3	0.0
Real Estate	\$ 45.3	7.5%	16.5%	7.4%	6.8%	9.6%	\$ 6.6	1.5	0.1
<i>CalPERS Custom Real Estate Benchmark</i>		6.3%	13.4%	6.0%	6.5%	9.0%		1.3	0.0
Infrastructure	\$ 9.0	1.7%	14.9%	7.1%	10.1%	11.0%	\$ 1.3	1.3	0.5
<i>CalPERS Custom Infrastructure Benchmark</i>		6.3%	13.4%	6.0%	6.2%	5.8%		1.4	0.0
Forestland	\$ 0.8	0.0%	0.6%	1.1%	-1.5%	-1.6%	\$ 0.1	-0.5	-1.0
<i>CalPERS Custom Forestland Benchmark</i>		6.3%	13.4%	6.0%	5.5%	6.2%		1.2	0.0

CalPERS Real Assets – Rolling Excess Return



CalPERS Real Assets – Rolling Tracking Error



CalPERS Liquidity – Performance

As of December 31, 2021

	Asset Value (\$Billion)	Quarter	1-Year	3-Year	5-Year	10-Year	VaR (\$Billion)	5-Year Ratios	
								Sharpe	Info
LIQUIDITY	\$ 11.6	0.0%	0.1%	1.0%	1.3%	0.9%	\$ (0.1)	0.5	3.6
<i>Liquidity Policy Benchmark</i>		0.0%	0.0%	0.8%	1.0%	0.9%		-0.5	0.0
Internal Short Term Cash Portfolio	\$ 11.6	0.0%	0.1%	1.1%	1.3%	0.8%	\$ (0.1)	0.5	3.6
<i>CalPERS Short Term Benchmark</i>		0.0%	0.0%	0.8%	1.1%	0.6%		-0.5	0.0
Trust Level Financing	\$ (22.8)	-0.1%	-0.1%	-.%	-.%	-.%		N/A	N/A

CalPERS LLER – Performance

As of December 31, 2021

	Asset Value (\$Billion)	Quarter	1-Year	3-Year	5-Year	10-Year	VaR (\$Billion)	5-Year Ratios Sharpe	Info
LLER	\$ 7.6	0.3%	1.8%	2.8%	2.8%	--%	\$ 1.1	0.6	0.7
<i>LIBOR 1 Month Rate</i>		0.0%	0.1%	0.7%	0.9%	--%		-1.5	0.0
Enhanced Return	\$ 6.1	0.3%	1.7%	2.9%	2.8%	--%		N/A	N/A
Direct Lending Financing	\$ 1.3	0.3%	2.8%	2.7%	--%	--%		N/A	N/A
Senior Lending in Private Cre Debt	\$ 0.2	0.6%	2.4%	--%	--%	--%		N/A	N/A
<i>LIBOR 1 Month + 20 Basis Points</i>		0.1%	0.3%	0.9%	1.1%	--%		N/A	N/A
Federated Trade Finance	\$ 0.0	NM	NM	--%	--%	--%		N/A	N/A
Asset Based Lending	\$ 0.0	NM	NM	--%	--%	--%		N/A	N/A

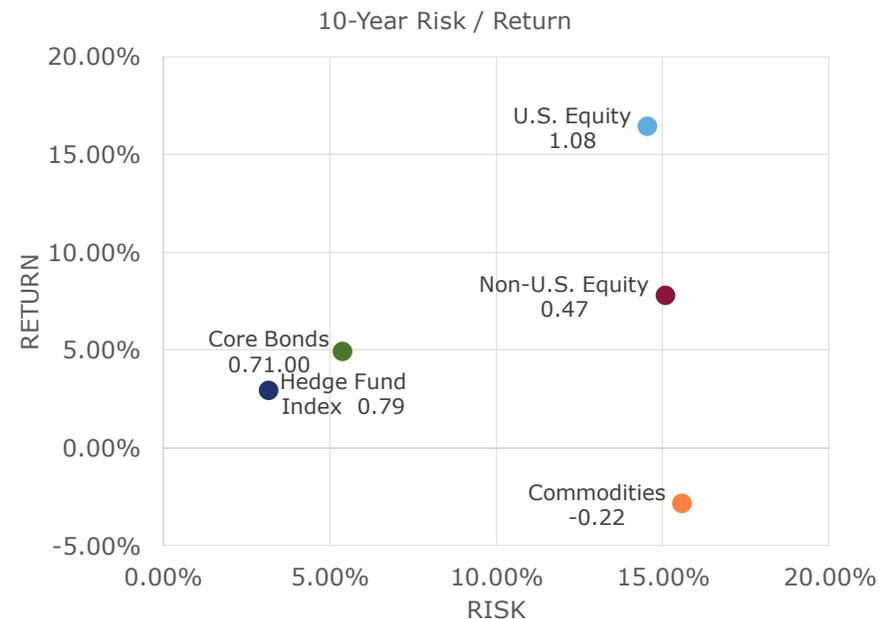
CalPERS Other – Performance

As of December 31, 2021

	Asset Value (\$Billion)	Quarter	1-Year	3-Year	5-Year	10-Year	VaR (\$Billion)	5-Year Ratios Sharpe	Info
OTHER	\$ 7.0	NM	NM	NM	NM	NM	\$ -	N/A	N/A
Absolute Return Strategies	\$ 0.2	1.4%	-5.5%	9.5%	6.1%	4.2%		0.2	0.0
<i>Total ARS Program Blended Benchmark</i>		1.0%	4.9%	6.6%	6.5%	5.9%		8.8	0.0
MHLP Loans	\$ 0.0	1.6%	3.9%	-0.3%	1.6%	-.-%		N/A	N/A
<i>Bloomberg LMTG</i>		-0.4%	-1.0%	3.1%	2.6%	-.-%		N/A	N/A
External Multi-Asset Class	\$ 0.0	-.-%	-.-%	-.-%	-.-%	-.-%		N/A	N/A
<i>CalPERS Reference Portfolio Benchmark</i>		-.-%	-.-%	-.-%	-.-%	-.-%		N/A	N/A
PE Premium Replication	\$ 0.0	0.4%	3.6%	4.2%	-.-%	-.-%		N/A	N/A
<i>CalPERS STIF</i>		0.0%	0.1%	1.0%	-.-%	-.-%		N/A	N/A
TLPM Strategic Completion Overlay	\$ 6.8	-.-%	-.-%	-.-%	-.-%	-.-%		N/A	N/A

Hedge Fund Performance

As of 12/31/2021	Quarter	YTD	1 Year	3 Year	5 Year	10 Year
Credit Suisse Hedge Fund Index	0.9	8.2	8.2	8.0	5.5	4.9
Event Driven	0.1	12.9	12.9	9.3	5.9	5.2
Global Macro	0.6	9.6	9.6	8.8	5.6	4.4
Long/Short Equity	2.1	8.3	8.3	9.4	7.2	6.7
Multi-Strategy	1.0	7.0	7.0	6.6	5.1	6.2
FT Wilshire 5000	9.6	26.7	26.7	26.1	18.1	16.4
MSCI ACWI ex-US (\$G)	1.9	8.3	8.3	13.7	10.1	7.8
Bloomberg Aggregate	0.0	-1.5	-1.5	4.8	3.6	2.9
Bloomberg Commodity Index	-1.6	27.1	27.1	9.9	3.7	-2.9



Note: Sharpe Ratio is included for each market segment

Data Source: Bloomberg

Asset Class Performance

Asset Class Returns - Best to Worst

2016	2017	2018	2019	2020	2021 YTD	Annualized 5-Year as of 12/21
High Yield 17.1%	Emrg Mrkts 37.7%	T-Bills 1.9%	U.S. Equity 31.0%	U.S. Equity 20.8%	REITs 46.2%	U.S. Equity 18.1%
U.S. Equity 13.4%	Developed 25.6%	Core Bond 0.0%	REITs 25.8%	Emrg Mrkts 18.7%	Commodities 27.1%	REITs 10.9%
Commodities 11.8%	U.S. Equity 21.0%	U.S. TIPS -1.3%	Developed 22.7%	U.S. TIPS 11.0%	U.S. Equity 26.7%	Emrg Mrkts 10.3%
Emrg Mrkts 11.6%	High Yield 7.5%	High Yield -2.1%	Emrg Mrkts 18.9%	Developed 8.3%	Developed 11.8%	Developed 10.1%
REITs 7.2%	REITs 4.2%	REITs -4.8%	High Yield 14.3%	Core Bond 7.5%	U.S. TIPS 6.0%	High Yield 6.3%
U.S. TIPS 4.7%	Core Bond 3.6%	U.S. Equity -5.3%	Core Bond 8.7%	High Yield 7.1%	High Yield 5.3%	U.S. TIPS 5.3%
Core Bond 2.6%	U.S. TIPS 3.0%	Commodities -11.2%	U.S. TIPS 8.4%	T-Bills 0.7%	T-Bills 0.0%	Commodities 3.7%
Developed 1.5%	Commodities 1.7%	Developed -13.4%	Commodities 7.7%	Commodities -3.1%	Core Bond -1.5%	Core Bond 3.6%
T-Bills 0.3%	T-Bills 0.8%	Emrg Mrkts -14.2%	T-Bills 2.3%	REITs -7.9%	Emrg Mrkts -2.2%	T-Bills 1.2%

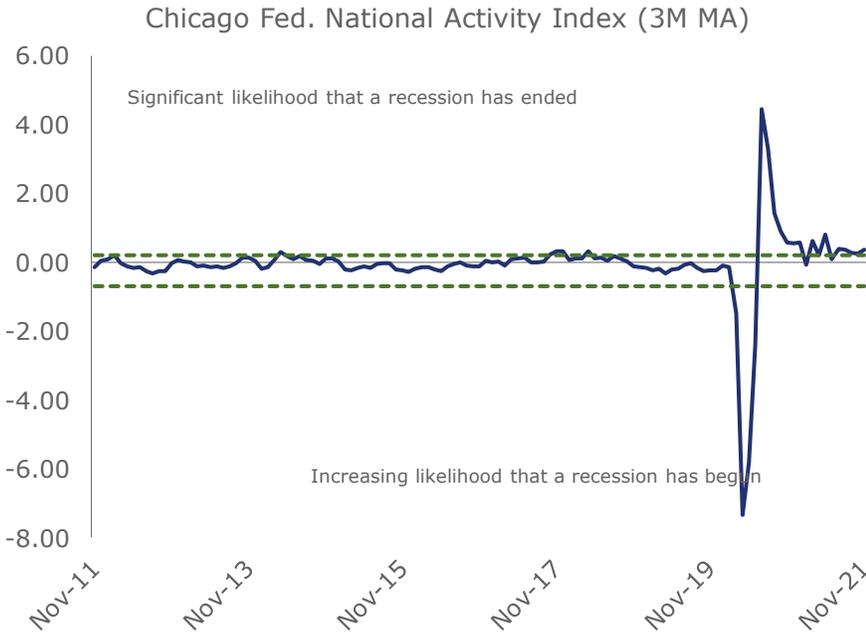
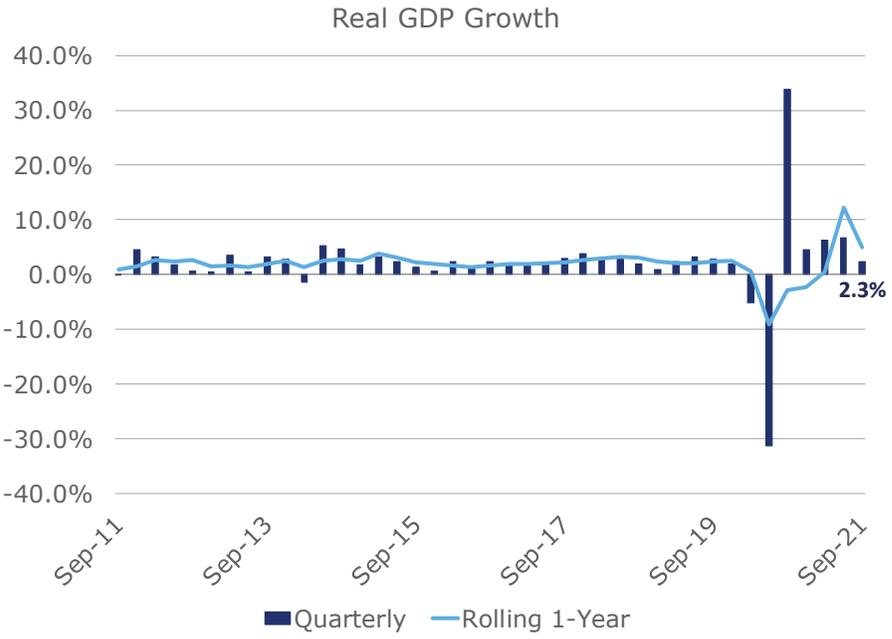
Data Sources: Bloomberg Note: Developed asset class is developed equity markets ex-U.S., ex-Canada

Appendix 2: Asset Assumptions Matrix

December 2021 Asset Class Assumptions

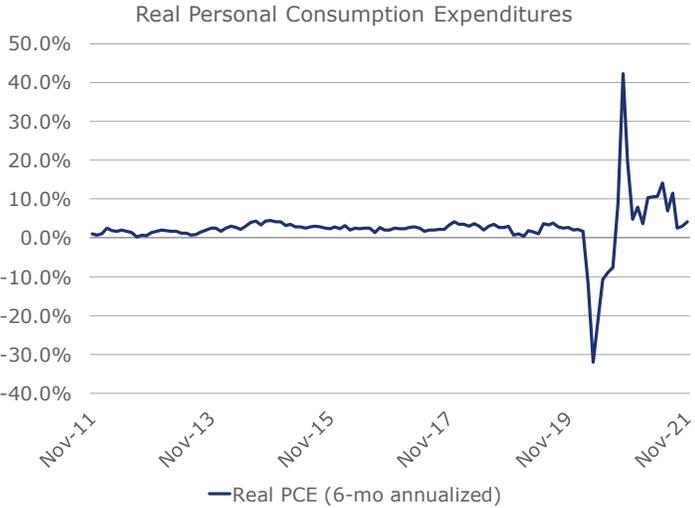
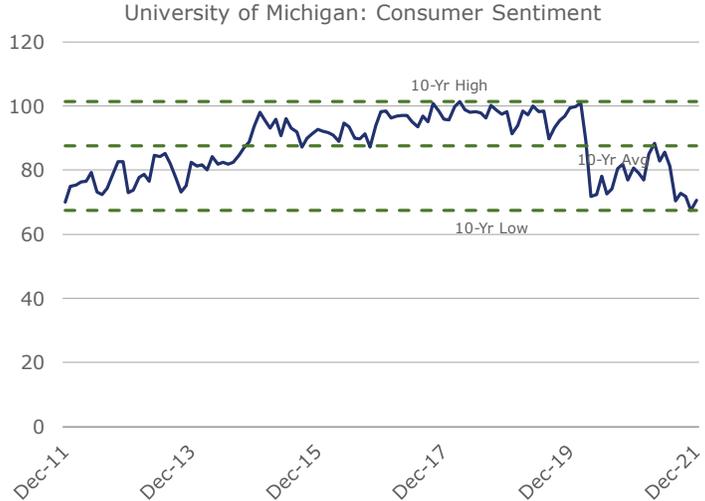
	Equity						Fixed Income					Real Assets						
	US Stock	Dev ex-US Stock	Emg Stock	Global ex-US Stock	Global Stock	Private Equity	Cash	Core Bond	LT Core Bond	TIPS	High Yield	Dev ex-US Bond (Hdg)	US RES	Global RES	Private RE	Cmdty	Real Assets	US CPI
Compound Return (%)	4.50	5.50	5.50	5.75	5.10	8.10	1.70	2.00	2.30	1.45	3.60	0.85	4.55	4.70	5.90	4.30	5.60	2.60
Expected Risk (%)	17.00	18.00	26.00	19.10	17.10	28.00	0.75	4.25	8.90	6.00	10.00	4.25	17.50	16.45	14.00	16.00	10.35	1.75
Cash Yield (%)	1.25	2.50	2.00	2.35	1.70	0.00	1.70	2.95	3.15	2.25	7.35	1.65	2.60	2.60	2.30	1.70	1.85	0.00
Growth Exposure	8.00	8.00	8.00	8.00	8.00	13.50	0.00	-0.85	-2.25	-3.00	4.00	-1.00	6.00	6.00	3.50	0.00	1.80	0.00
Inflation Exposure	-3.00	0.00	5.00	1.50	-1.25	-3.80	0.00	-2.50	-6.70	2.50	-1.00	-3.00	1.00	1.80	1.00	12.00	4.85	1.00
Correlations																		
US Stock	1.00																	
Dev ex-US Stock (USD)	0.81	1.00																
Emerging Mkt Stock	0.74	0.74	1.00															
Global ex-US Stock	0.83	0.96	0.87	1.00														
Global Stock	0.95	0.92	0.83	0.94	1.00													
Private Equity	0.74	0.64	0.62	0.67	0.74	1.00												
Cash Equivalents	-0.05	-0.09	-0.05	-0.08	-0.07	0.00	1.00											
Core Bond	0.28	0.13	0.00	0.09	0.20	0.31	0.19	1.00										
LT Core Bond	0.31	0.16	0.01	0.12	0.23	0.32	0.11	0.92	1.00									
TIPS	-0.05	0.00	0.15	0.05	0.00	-0.03	0.20	0.59	0.47	1.00								
High Yield Bond	0.54	0.39	0.49	0.45	0.51	0.34	-0.10	0.25	0.32	0.05	1.00							
Dev ex-US Bond (Hdg)	0.16	0.25	-0.01	0.17	0.18	0.26	0.10	0.66	0.65	0.39	0.26	1.00						
US RE Securities	0.58	0.47	0.44	0.49	0.56	0.50	-0.05	0.17	0.23	0.10	0.56	0.05	1.00					
Global RE Securities	0.64	0.58	0.56	0.61	0.65	0.58	-0.05	0.17	0.22	0.11	0.61	0.03	0.96	1.00				
Private Real Estate	0.54	0.44	0.44	0.47	0.52	0.51	-0.05	0.19	0.25	0.09	0.57	0.05	0.77	0.75	1.00			
Commodities	0.25	0.34	0.39	0.38	0.32	0.27	0.00	-0.02	-0.02	0.25	0.29	-0.10	0.25	0.28	0.25	1.00		
Real Assets	0.48	0.51	0.58	0.57	0.54	0.47	-0.02	0.23	0.25	0.39	0.56	0.05	0.70	0.75	0.70	0.65	1.00	
Inflation (CPI)	-0.10	-0.15	-0.13	-0.15	-0.13	-0.10	0.10	-0.12	-0.12	0.15	-0.08	-0.08	0.05	0.03	0.05	0.44	0.26	1.00

Economic Growth



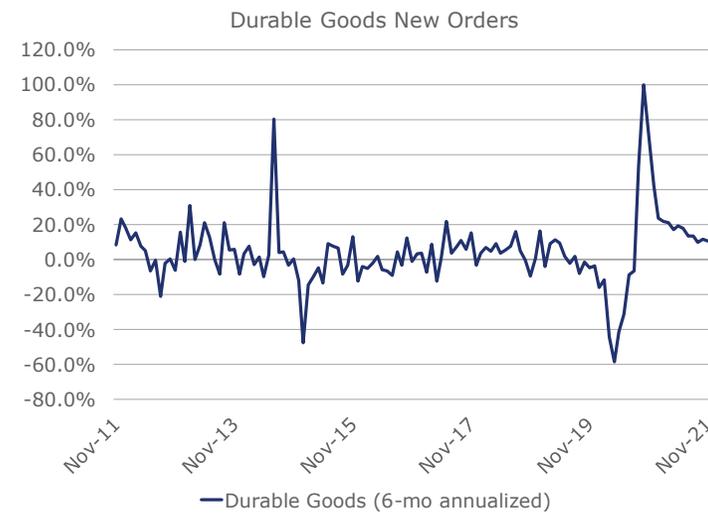
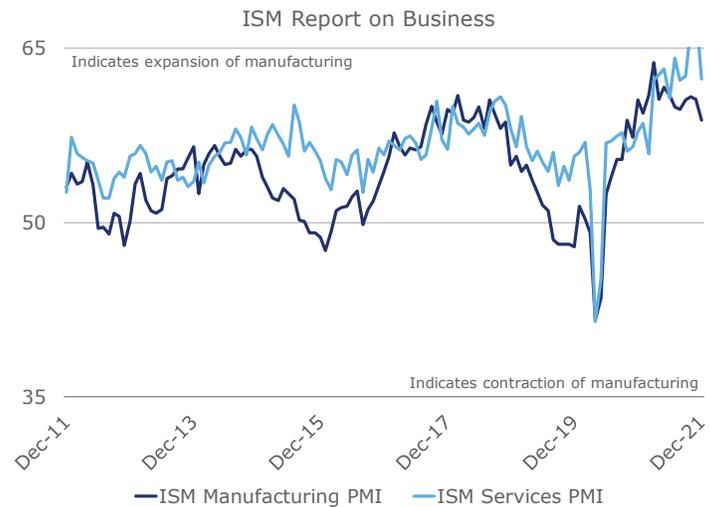
Data Sources: Bloomberg

Consumer Activity

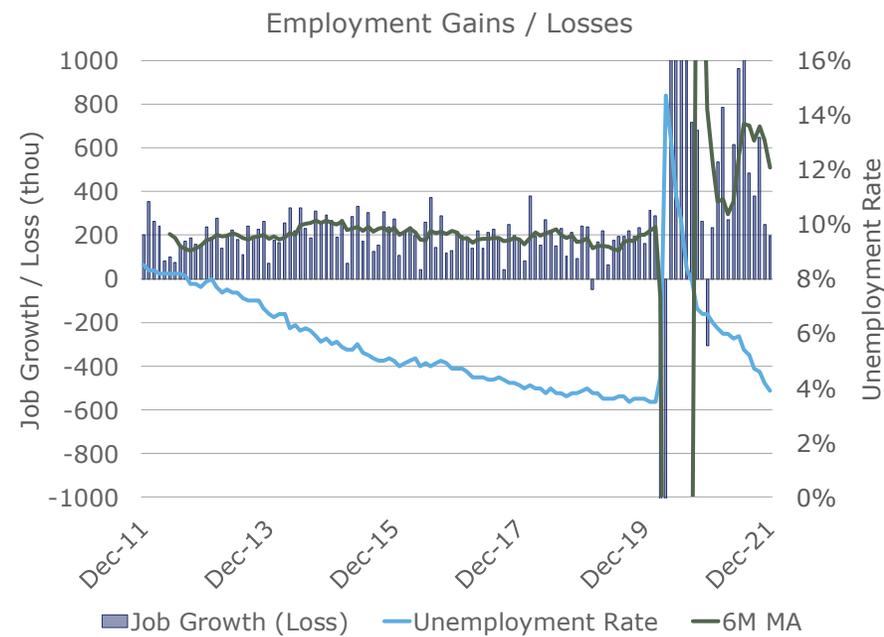
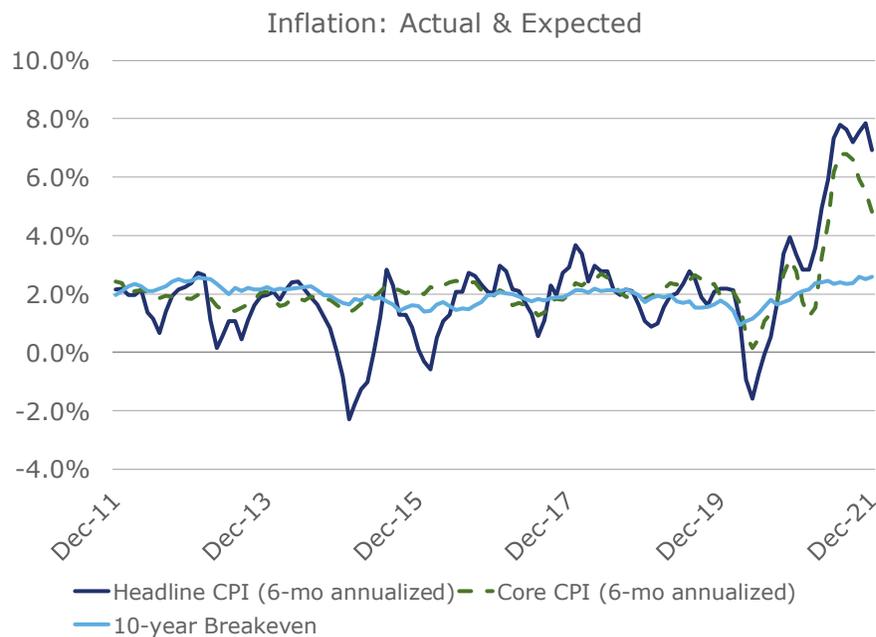


Data Sources: Bloomberg

Business Activity



Inflation and Employment



Data Sources: Bloomberg