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PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

PERIOD ENDING: SEPTEMBER 30, 2022

Investment Performance Review for

San Mateo County Employees’ Retirement Association

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3rd quarter summary

THE ECONOMIC CLIMATE

— U.S. real GDP fell in Q2 for a second consecutive quarter, down -0.6% annualized (+1.6% over the past full year). Forecasts suggest a potential growth turnaround in the third quarter; the Atlanta Fed GDPNow forecast indicated a growth rate of 2.8% and economists expected 0.9% as of October 14th.

— The U.S. dollar delivered an impressive rally year-to-date, appreciating approximately 15% relative to major currencies. A stronger dollar may result in slowing U.S. exports as domestic goods become more expensive to foreign buyers, and lower inflation as American businesses and households are able to purchase foreign goods at cheaper prices.

PORTFOLIO IMPACTS

— September inflation figures conveyed two stories: first, U.S. core CPI (excludes food & energy) remained elevated, rising 0.6% during the month to a new 40-year high of 6.6% year-over-year; second, headline inflation (includes all prices) continued to show another more moderate monthly print of 0.4% but remained high at 8.2% year-over-year.

— Credit performance was mixed during Q3, with lower duration exposures faring better than higher duration. Fears of a looming recession remained as the Fed's 75 basis point rate hikes in both July and September reinforced its intention to fight inflation until the "job is done."

THE INVESTMENT CLIMATE

— The Russia Ukraine war may be taking a turn, as Ukraine's counteroffensive gains steam. In a rare admission, Russia's Defense Ministry spokesman Igor Konashenkov acknowledged recent defeats: "With numerically superior tank units in the direction of Zolata Balka and Oleksandrivka, the enemy managed to forge deep into our defenses."

— The broad market selloff increased in intensity as global central banks hiked interest rates, effectively withdrawing liquidity from the financial system. Higher interest rates and central bank balance sheet winddowns mark a major change from the liquidity-driven environment of the past decade.

ASSET ALLOCATION ISSUES

— Markets year-to-date have delivered sharp losses across nearly every asset class, including double digit losses of core fixed income (Bloomberg US Aggregate Bond -10.8%). Historically speaking, these moves have been highly unusual and reflect an environment where diversification has not served investors well.

— Growth stocks outperformed value stocks during the quarter (Russell 1000 Growth -3.6% vs Russell 1000 Value -5.6%), and small capitalization stocks outperformed large capitalization stocks (Russell 2000 -2.2%, Russell 1000 -4.7%).

The broad market selloff has increased in severity, as central banks remove liquidity from the global financial system

U.S. economics summary

- U.S. real GDP fell in Q2 for a second consecutive quarter, down -0.6% annualized (+1.6% over the past full year). Forecasts suggest a potential growth turnaround in the third quarter; the Atlanta Fed GDPNow forecast indicated a growth rate of 2.8% and economists expected 0.9% as of October 14th.
- U.S. core CPI remained elevated in September, rising 0.6% during the month to a new 40-year high of 6.6% year-over-year. Headline inflation continued to show another more moderate monthly print of 0.4% but remained high at 8.2% year-over-year.
- Unemployment fell slightly from 3.6% in June to 3.5% in September, which did not reflect an increase in employment but rather the departure of some Americans from the job market altogether. Weekly initial jobless claims—a measure of the number of workers who filed for unemployment during any given week—moved higher during Q2 to 244,000 in early July but has since fallen to 193,000 in late September.
- The U.S. dollar has appreciated roughly 15% relative to major currencies. A stronger dollar may result in slowing U.S. exports as domestic goods become more expensive to foreign buyers, and lower inflation as American businesses and households are able to purchase foreign goods at cheaper prices.
- Coverage of COVID-19 has tended to focus on the health impacts in a binary way: either the infected individual recovers (and lives) or does not recover (and is deceased). There is a growing body of research by medical experts that suggests a significant portion of survivors face longer-term, often severe, health problems. These issues are known as “long COVID” and may be the primary cause for a severe shrinking of the U.S. labor force.

	Most Recent	**12 Months Prior**
Real GDP *(YoY)*	1.6% *6/30/22*	12.5% *6/30/21*
Inflation *(CPI YoY, Core)*	6.6% *9/30/22*	4.0% *9/30/21*
Expected Inflation *(5yr-5yr forward)*	2.1% *9/30/22*	2.2% *9/30/21*
Fed Funds Target Range	3.00% – 3.25% *9/30/22*	0.00% – 0.25% *9/30/21*
10-Year Rate	3.83% *9/30/22*	1.49% *9/30/21*
U-3 Unemployment	3.5% *9/30/22*	4.7% *9/30/21*
U-6 Unemployment	6.7% *9/30/22*	8.5% *9/30/21*

International economics summary

— Economic growth expectations continue to weaken around the world, and recession appears possible in some developed countries. High inflation has placed central banks in a corner, requiring a choice between tightening (lower inflation with possible recession) or accommodation (stronger economic activity with possibly continued high inflation).

— Multi-decade high inflation continues to spread across Europe, as consumer prices in September rose 10% from the prior year. Food and energy were major drivers, although the core inflation number is also elevated at 4.8%. Inflation remains a challenge in Europe and the U.S., as prices have been relatively stable in the Asia-pacific region.

— Unemployment rates have been stable and tight in most markets, though this may now be seen as a problem as central bankers work to slow economies and weaken labor markets in order to fight inflation.

— The Russia Ukraine war may be taking a turn, as Ukraine's counteroffensive gains steam. In a rare admission, Russia's Defense Ministry spokesman Igor Konashenkov acknowledged recent defeats: "With numerically superior tank units in the direction of Zolata Balka and Oleksandrivka, the enemy managed to forge deep into our defenses."

— Still dealing with the highest inflation seen in four-decades, the U.K. economy continues to struggle, especially as the Bank of England tightens economic conditions in the face of a recession. The situation worsened following newly elected Prime Minister Liz Truss' new growth plan announcement, which introduced a large tax cut initiatives without additional funding sources secured.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	1.8% *6/30/22*	8.2% *9/30/22*	3.5% *9/30/22*
Eurozone	4.1% *6/30/22*	10.0% *9/30/22*	6.6% *8/31/22*
Japan	1.6% *6/30/22*	2.8% *9/30/22*	2.5% *8/31/22*
BRICS Nations	1.9% *6/30/22*	4.5% *9/30/22*	5.2% *12/31/21*
Brazil	3.2% *6/30/22*	7.2% *9/30/22*	8.9% *8/31/22*
Russia	(4.1)% *6/30/22*	13.7% *9/30/22*	3.8% *8/31/22*
India	13.5% *6/30/22*	7.4% *9/30/22*	6.4% *9/30/22*
China	0.4% *6/30/22*	2.8% *9/30/22*	5.3% *8/31/22*

NOTE: India lacks reliable government unemployment data. Unemployment rate shown above is estimated from the Centre for Monitoring Indian Economy. The Chinese unemployment rate represents the monthly surveyed urban unemployment rate in China.

Equity environment

— Equity markets saw further losses during Q3, extending the selloff deeper into bear market territory. Emerging market equities (MSCI Emerging Markets -11.6%) experienced the greatest drawdown, on an unhedged currency basis, followed by international developed (MSCI EAFE -9.4%) and domestic equities (S&P 500 -4.9%).

— Many markets now trade at valuation levels below their historical average. According to FactSet, the S&P 500 sat at a forward price/earnings of 15.4 as of September 30th, below the five-year average of 18.6 and 10-year average of 17.1. Interestingly, earnings expectations have been fairly resilient at 7.4% for calendar year 2022 and 7.9% for 2023.

— Investors with unhedged foreign currency exposure have seen extreme losses recently. A U.S. investor with an international developed equity investment (MSCI EAFE) suffered a loss of -15.7% over the past year from currency movements. Investors in non-US equity (MSCI ACWI ex-US) saw a -12.0% loss. Currency risk is typically the second largest risk in institutional portfolios and is not expected to be compensated over the long term. We continue to believe that more forward-thinking currency solutions can materially improve portfolio outcomes.

— Value stocks underperformed growth stocks mildly during the quarter (Russell 1000 Value -5.6% vs Russell 1000 Growth -3.6%), and small capitalization stocks outperformed large capitalization stocks (Russell 2000 -2.2%, Russell 1000 -4.7%).

— Volatility remained elevated as the Cboe VIX Index rose further from 28.7% to 31.6%. Risk assets sold-off on concerns of Federal Reserve tightening and liquidity being broadly removed from the global financial system.

	QTD TOTAL RETURN		**1 YEAR TOTAL RETURN**	
	(unhedged)	**(hedged)**	**(unhedged)**	**(hedged)**
U.S. Large Cap (S&P 500)	(4.9%)		(15.5%)	
U.S. Small Cap (Russell 2000)	(2.2%)		(23.5%)	
U.S. Equity (Russell 3000)	(4.5%)		(17.6%)	
U.S. Large Value (Russell 1000 Value)	(5.6%)		(11.4%)	
US Large Growth (Russell 1000 Growth)	(3.6%)		(22.6%)	
Global Equity (MSCI ACWI)	(6.8%)	(4.6%)	(20.7%)	(15.9%)
International Large (MSCI EAFE)	(9.4%)	(2.8%)	(25.1%)	(9.4%)
Eurozone (Euro Stoxx 50)	(9.8%)	(3.1%)	(28.9%)	(14.1%)
U.K. (FTSE 100)	(10.6%)	(2.3%)	(16.5%)	1.8%
Japan (NIKKEI 225)	(7.2%)	0.2%	(31.0%)	(8.5%)
Emerging Markets (MSCI Emerging Markets)	(11.6%)	(8.2%)	(28.1%)	(22.5%)

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 9/30/22

Domestic equity

U.S. equities experienced further losses during the quarter (S&P 500 -4.9%), while outperforming international (MSCI EAFE -9.4%) and emerging markets (MSCI Emerging Markets -11.6%).

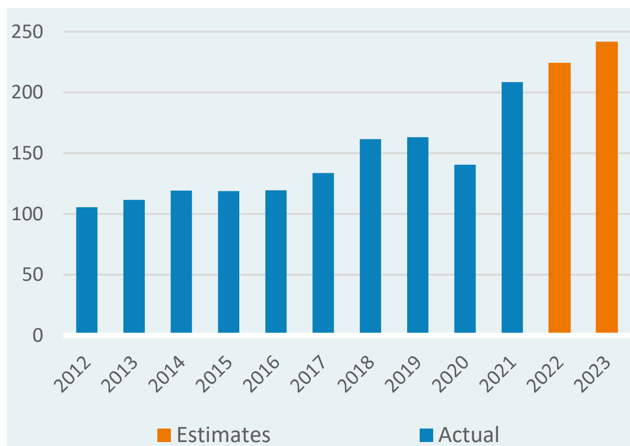
Earnings expectations have been fairly resilient at 7.4% for calendar year 2022 and 7.9% for 2023, though these forecasts have been consistently revised lower for three consecutive quarters. The energy sector continues to lift the earnings growth of the S&P 500, as overall growth would have been negative in recent quarters if energy sector profits were excluded. According to corporate earnings calls, an increasing number of businesses reported labor costs & shortages as a significant issue, followed by supply chain disruptions & costs, and FX movement. During Q2, businesses with more than 50% of revenues from outside of the U.S. generated 13.3% earnings growth, while those with less than 50% of revenues from outside the U.S. saw only a 2.1% growth rate.

Sector performance during Q3 was disparate. Consumer discretionary (4.4%) and energy (2.3%) sectors lifted the overall index while all other sectors were in the red.

S&P 500 PRICE INDEX

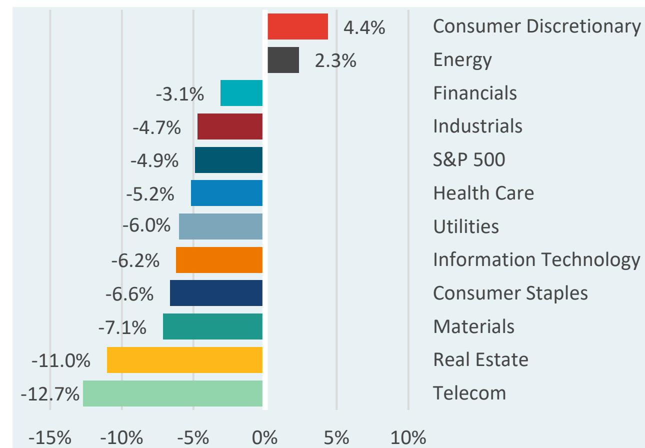
Source: Standard & Poor's, as of 9/30/22

S&P BOTTOM-UP EARNINGS & ESTIMATES



Source: FactSet, as of 9/30/22

Q3 SECTOR PERFORMANCE



Source: Morningstar, as of 9/30/22

Domestic equity size & style

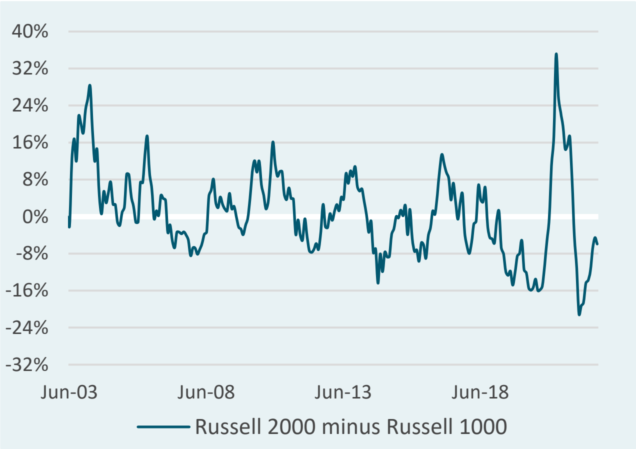
Reversing the trend from last quarter, growth stocks outperformed value stocks, although the divergence was relatively mild (Russell 1000 Growth -3.6% vs. Russell 1000 Value -5.6%). Growth outperformed despite struggles within the Telecommunications and Information Technology sectors (-12.7% and -6.2%), fueled by positive returns from Consumer Discretionary +4.4% (with Amazon and Tesla being the largest weights).

Despite this quarter, value has outperformed significantly over the past year. The Russell 1000 Value Index is down -17.8%, while the growth equivalent has lost -30.7%. With the Federal Reserve continuing to tighten conditions and hike rates, companies with cash flows further out in the future (those with higher durations) have seen larger negative impacts to their multiples.

Looking at size, small capitalization stocks outperformed large capitalization stocks (Russell 2000 -2.2%, Russell 1000 -4.7%), diverging from the trend seen in the second quarter of 2022.

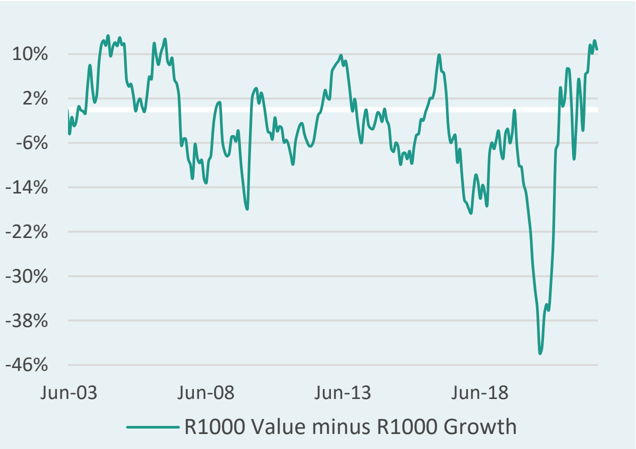
Domestic equities have continued to be challenged regardless of size and style, as investors weigh the impacts of a tighter economic environment on company earnings.

SMALL CAP VS LARGE CAP (YOY)



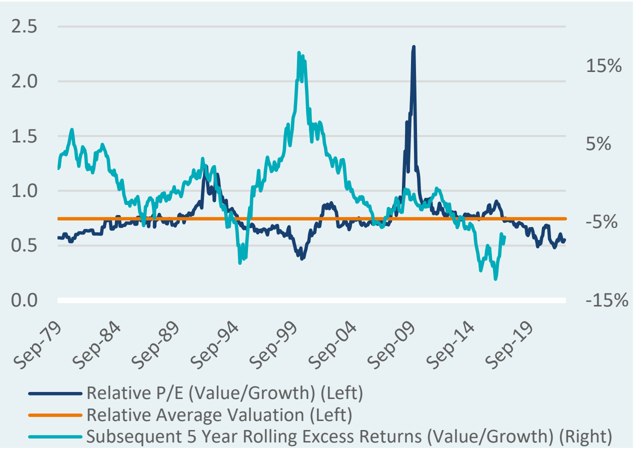
Source: FTSE, as of 9/30/22

VALUE VS GROWTH (YOY)



Source: FTSE, as of 9/30/22

VALUE VS. GROWTH RELATIVE VALUATIONS



Source: Standard & Poor's, as of 9/30/22

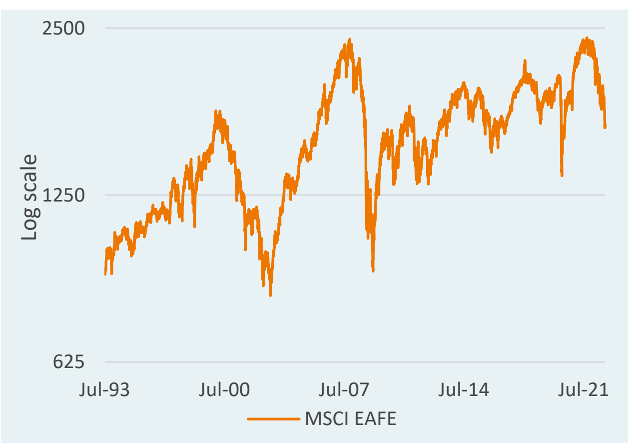
International developed equity

International developed equities fell alongside the global opportunity set in the third quarter. The MSCI EAFE Index dropped -9.4% in U.S. dollar terms, although most of those losses can be attributed to currency impacts, with hedged returns only experiencing a -2.8% loss. The Federal Reserve continues to set the tone for global central bank rate hikes, which has pushed the dollar higher.

Looking at sub-regional performance, Japanese equities were the best performing markets in local terms, being one of the few asset classes with positive Q3 return (+0.2%). Despite strong local returns, diverging rate policy between the BOJ and Federal Reserve has crushed the Japanese yen, resulting in a seven percent spread between hedged and unhedged equity outcomes.

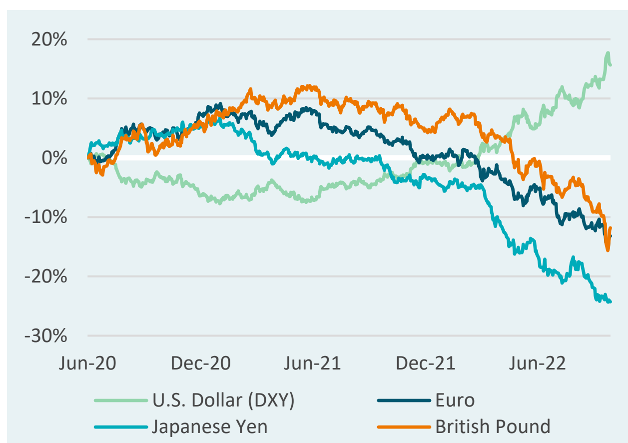
European equities also saw losses over the quarter, although local returns were strong relative to U.S. and Emerging market equities. The flash crash of the British pound had a material impact on FTSE 100 performance in U.S. dollar terms, with U.K. equities closing the quarter down -10.6%, lagging the broader European benchmark (Euro Stoxx 50 -9.8%)

INTERNATIONAL DEVELOPED EQUITY



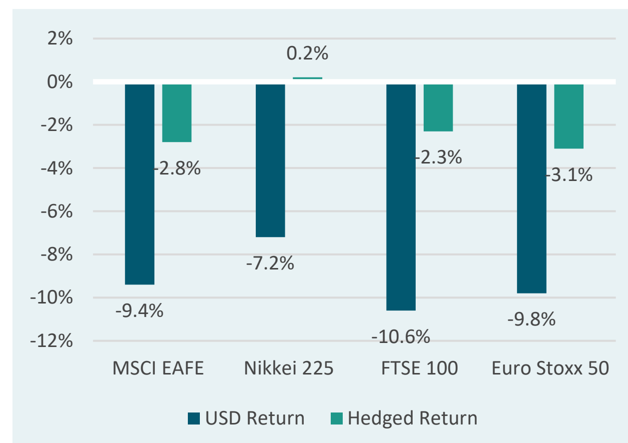
Source: MSCI, as of 9/30/22

FX MOVEMENTS RELATIVE TO THE U.S. DOLLAR



Source: Bloomberg, as of 9/30/22

Q3 2022 SUBREGIONAL INDEX RETURNS



Source: MSCI, STOXX, FTSE, Nikkei, as of 9/30/22

Emerging market equity

Emerging market equities fell during the third quarter, dragged lower by a steep Chinese equity bear market (-22.5%). The MSCI EM index ended the quarter down -11.6% in U.S. dollar terms, bringing one-year total losses to -28.1%. A strong dollar had a -3.4% impact in the third quarter; significant, but not to the same extent seen in the International developed space.

Growing risks of a global recession hit equities across the board, though emerging markets have suffered more than their developed counterparts. China faces its own set of unique problems, including the continuation of its zero-COVID policy, a property crisis, and geopolitical risks with Taiwan (though we view an invasion as highly unlikely). Despite these headwinds, the People's Bank of China is one of the few central banks implementing accommodative policy, which should provide a tailwind to the local economy.

Performance variability has significantly changed some country weights. China's weight in the index fell by 3.7%, while India moved up 2.6%, replacing Taiwan as the second largest weight.

EMERGING MARKET EQUITY

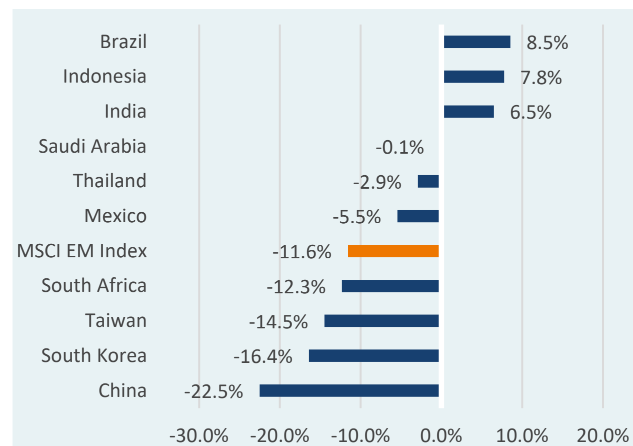
Source: MSCI, as of 9/30/22

MSCI EM INDEX TOP 10 COUNTRY WEIGHTS

Country	9/30/2022	6/30/2022	Rank Change
1. China	29.5%	33.2%	
2. India	15.3%	12.7%	↑
3. Taiwan	13.7%	14.3%	↓
4. South Korea	10.6%	11.3%	
5. Brazil	5.8%	4.9%	
6. Saudi Arabia	4.8%	4.3%	
7. South Africa	3.4%	3.5%	
8. Mexico	2.2%	2.1%	
9. Indonesia	2.2%	1.8%	
10. Thailand	2.1%	1.9%	

Source: Bloomberg, MSCI as of 9/30/22

Q3 2022 MSCI COUNTRY RETURNS (USD)



Source: Bloomberg, MSCI as of 9/30/22, performance in USD terms

Fixed income environment

— The 10-year U.S. Treasury yield rose materially from 2.89% to 3.83% as the Federal Reserve reaffirmed its aggressive stance and markets questioned whether interest rates might be held at higher levels for longer than previously anticipated.

— Credit performance was mixed over Q3 with lower duration exposures faring better than higher duration exposures. Fears of a looming recession remained as the Fed's 75 basis point rate hikes in July and September reinforced its intention to fight inflation until the "job is done." Leveraged loans performed the best, returning 1.2%, followed by high yield credit and investment grade credit which returned -0.6% and -4.9%, respectively.

— Default activity continued to pick up in the third quarter with seven companies defaulting on loans and bonds totaling $16.5 billion. This was the highest quarterly total seen since the second quarter of 2020. Activity represented a significant jump from the $1.6 billion and $10.4 billion shown in Q1 and Q2, respectively.

— The U.S. Yield Curve inverted during the quarter, with the 10-year 2-year spread falling from 0.1% to -0.4%. An inverted curve has historically suggested recession within two years or so.

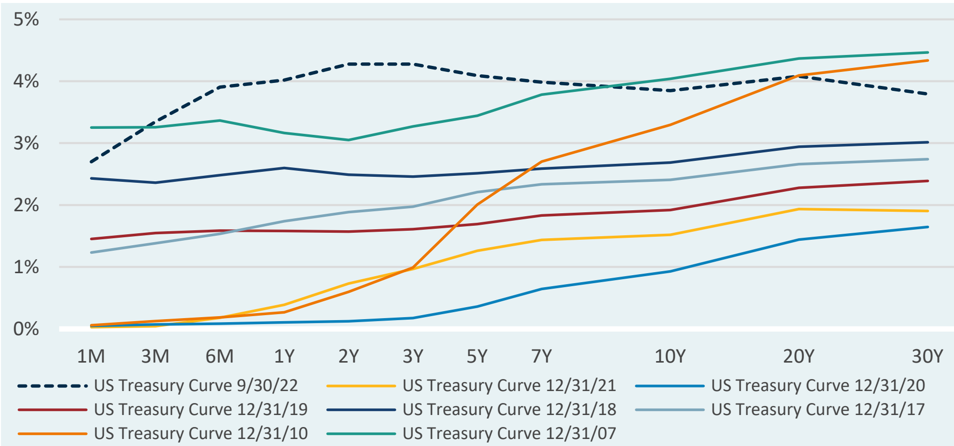
— Throughout the third quarter, the Federal Reserve continued its path to reduce the balance sheet, beginning in June with the paced redemption of maturing securities. The initial June monthly redemption caps of $30 billion for Treasuries and $17.5 billion for agency MBS were increased to $60 billion and $35 billion in September. Markets have seemingly digested the reduction well, although the total drawdown has been relatively small so far, around $200 billion against the peak size of $8.97 trillion in April 2022.

	QTD Total Return	1 Year Total Return
Core Fixed Income (Bloomberg U.S. Aggregate)	(4.8%)	(14.6%)
Core Plus Fixed Income (Bloomberg U.S. Universal)	(4.5%)	(14.9%)
U.S. Treasuries (Bloomberg U.S. Treasury)	(4.3%)	(12.9%)
U.S. High Yield (Bloomberg U.S. Corporate HY)	(0.6%)	(14.1%)
Bank Loans (S&P/LSTA Leveraged Loan)	(1.4%)	(2.5%)
Emerging Market Debt Local (JPM GBI-EM Global Diversified)	(4.7%)	(20.6%)
Emerging Market Debt Hard (JPM EMBI Global Diversified)	(4.6%)	(24.3%)
Mortgage-Backed Securities (Bloomberg MBS)	(5.3%)	(9.0%)

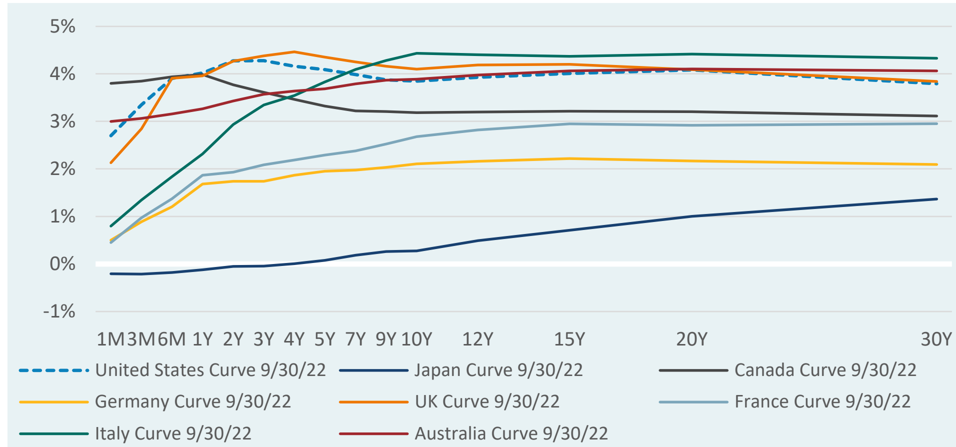
Source: Bloomberg, as of 9/30/22

Yield environment

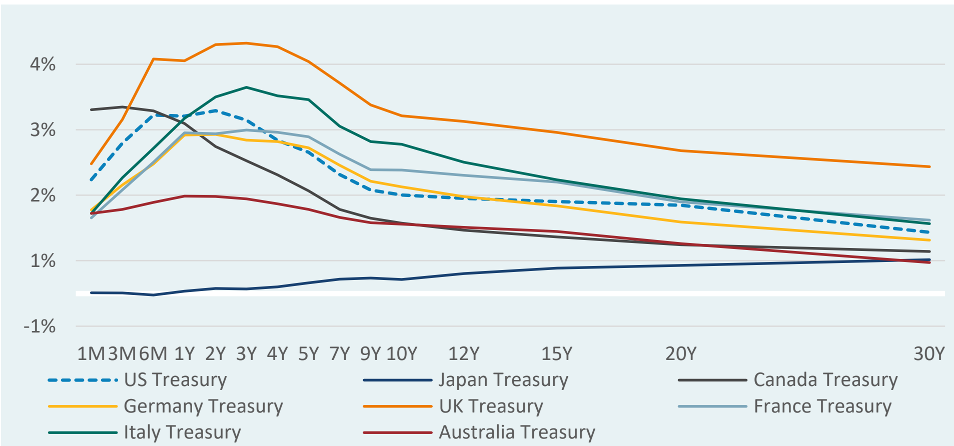
U.S. YIELD CURVE



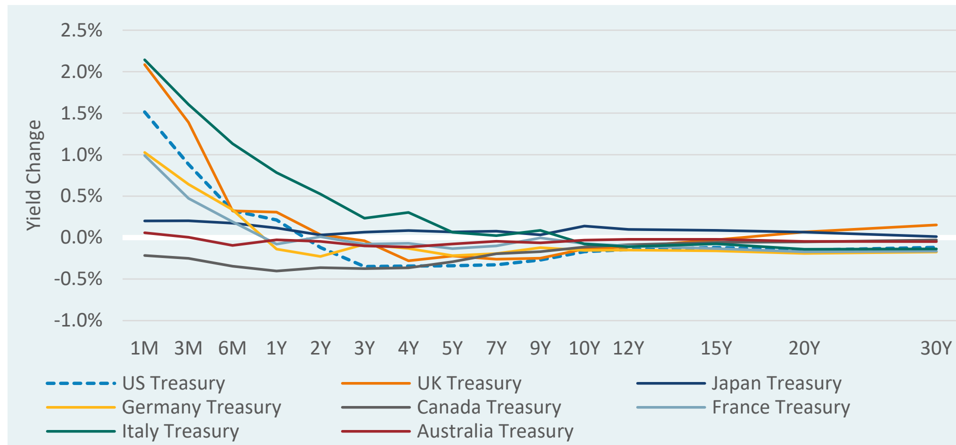
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



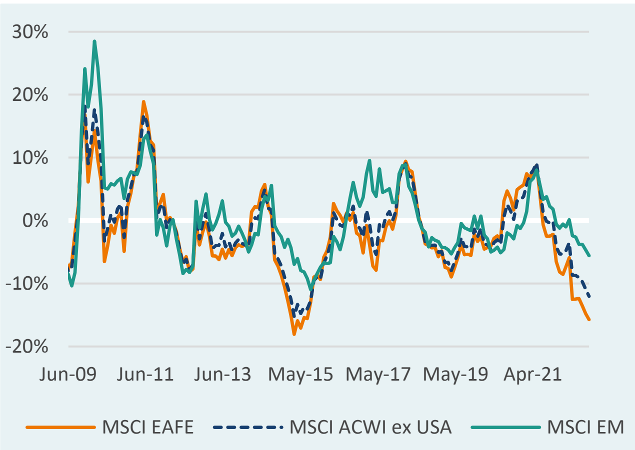
Source: Bloomberg, as of 9/30/22

Currency

Investors with unhedged foreign currency exposure have seen extreme losses over recent periods. For example, a U.S. investor with an international developed equity investment (MSCI EAFE) suffered a loss of -15.7% over the past year *just from currency movements*. An investor in non-US equity (MSCI ACWI ex-US) would have seen a -12.0% loss. Currency risk is typically the second largest risk in institutional portfolios, and is not expected to be compensated over the long term.

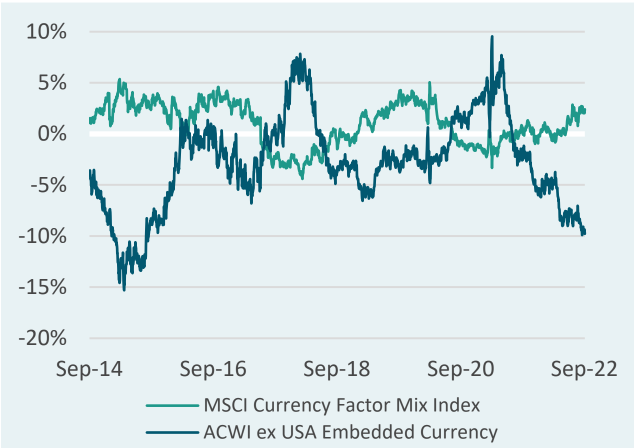
We continue to believe that forward-thinking currency solutions can materially improve portfolio outcomes. Specifically, a currency program may allow an investor to reduce their portfolio risk while also increasing the expected return of the portfolio. These characteristics are demonstrated below by comparing the unhedged currency exposure that most investors own (we refer to this as “embedded” currency) to the MSCI Currency Factor Mix Index which represents a passive investment in the currency market. This program aims to systematically capture the *return premia* within currency markets. Over the past 10 years, an unhedged exposure to foreign currencies has resulted in 5.8% portfolio volatility and a return of -4.4% per year. Meanwhile, a passive allocation the MSCI Currency Factor Mix Index has resulted in less than half of that volatility (2.5%) and with an average return of +1.2% per year.

EFFECT OF CURRENCY (1-YEAR ROLLING)



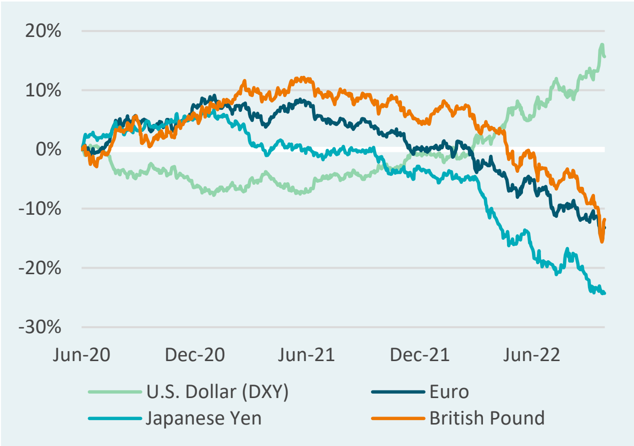
Source: MSCI, as of 9/30/22

UNHEDGED CURRENCY VS CURRENCY FACTOR MIX



Source: MSCI, as of 9/30/22

FOREIGN CURRENCY MOVEMENT



Source: Bloomberg, as of 9/30/22

— The Total Fund, net of manager fees, returned -4.0% in the third quarter of 2022 and ranked in the 49th percentile among other public plans greater than $1 billion (median of -4.0%). It beat the policy index return of –4.6%. The Total Fund ex Overlay returned -3.9% for the quarter. The Total Fund one-year return of -9.2% beat the policy index return of -9.9% and ranked in the 31st percentile of its peer universe. The three-year return of 4.0% (68th percentile) lagged the median large public plan (4.7%) and the policy index (4.2%).

— Third quarter results were enhanced by the following factors:

1. The absolute return portfolio continues to produce uncorrelated alpha adding 4.6% as an asset class in Q3 during a time where equities and fixed income were both down sharply.
2. Western TRU lost -3.8% beating the Bloomberg Aggregate which lost -4.8%. The strategy's TIPS exposure and yield curve positioning both contributed to outperformance versus the benchmark.

— Third quarter results were hindered by the following factors:

1. Mondrian lost -13.9%% trailing the MSCI ACWI ex US Value (-10.3%). An overweight to China hurt relative returns versus the MSCI ACWI ex US Value during Q3 as China was down 22.5% for the quarter (the worst performing EM country.)

	3 Mo (%)	Rank	YTD (%)	Rank*	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Total Fund**	**-4.0**	**49**	**-11.5**	**16**	**-9.2**	**31**	**4.1**	**55**	**4.0**	**68**	**4.4**	**70**	**6.6**	**57**
Policy Index[1]	*-4.6*	*66*	*-13.0*	*31*	*-9.9*	*40*	*3.3*	*61*	*4.2*	*62*	*4.9*	*59*	*6.9*	*53*
InvMetrics Public DB > $1B Net Median	*-4.0*		*-14.4*		*-10.7*		*4.3*		*4.7*		*5.1*		*7.0*	
Total Fund ex Overlay	**-3.9**	**46**	**-11.3**	**15**	**-8.9**	**27**	**4.3**	**51**	**4.1**	**66**	**4.5**	**69**	**6.6**	**58**
Policy Index[1]	*-4.6*	*66*	*-13.0*	*31*	*-9.9*	*40*	*3.3*	*61*	*4.2*	*62*	*4.9*	*59*	*6.9*	*53*
InvMetrics Public DB > $1B Net Median	*-4.0*		*-14.4*		*-10.7*		*4.3*		*4.7*		*5.1*		*7.0*	
Public Equity	**-6.7**	**71**	**-23.2**	**13**	**-18.8**	**29**	**1.5**	**60**	**3.3**	**78**	**4.2**	**76**	**7.9**	**69**
Blended Public Equity Index[1]	*-5.6*	*16*	*-23.1*	*12*	*-18.6*	*26*	*2.4*	*38*	*4.7*	*30*	*5.1*	*49*	*8.4*	*53*
InvMetrics All DB Total Eq Net Median	*-6.4*		*-25.1*		*-20.0*		*2.1*		*4.1*		*5.0*		*8.5*	
US Equity	**-4.5**	**44**	**-20.6**	**5**	**-13.0**	**4**	**5.9**	**31**	**6.5**	**67**	**7.7**	**59**	**10.7**	**51**
Blended US Equity Index[1]	*-4.5*	*48*	*-24.6*	*60*	*-17.6*	*52*	*4.2*	*64*	*7.7*	*23*	*8.6*	*17*	*11.3*	*22*
Russell 3000	*-4.5*	*48*	*-24.6*	*60*	*-17.6*	*52*	*4.2*	*64*	*7.7*	*23*	*8.6*	*17*	*11.4*	*19*
InvMetrics All DB US Eq Net Median	*-4.5*		*-24.3*		*-17.6*		*5.0*		*7.1*		*7.9*		*10.7*	
Large Cap Equity	**-4.8**	**44**	**-20.9**	**44**	**-12.9**	**42**	**5.2**	**50**	**6.6**	**50**	**8.3**	**44**	**11.3**	**32**
Russell 1000	*-4.6*	*38*	*-24.6*	*62*	*-17.2*	*63*	*4.1*	*57*	*7.9*	*31*	*9.0*	*35*	*11.6*	*27*
eV US Large Cap Equity Net Median	*-5.1*		*-22.3*		*-15.0*		*5.1*		*6.5*		*7.9*		*10.5*	
Acadian US MGD V	-5.5	62	-20.1	22	-10.7	19	3.8	60	2.1	97	--	--	--	--
BlackRock Russell 1000	-4.6	35	-24.6	67	-17.2	70	4.1	57	7.9	30	9.0	33	--	--
DE Shaw	-2.9	8	-21.5	34	-13.2	34	5.7	35	7.6	36	8.1	52	11.9	12
PanAgora Defuseq	-6.0	79	-12.9	3	-5.0	4	7.5	14	4.4	88	--	--	--	--
Russell 1000	*-4.6*	*35*	*-24.6*	*67*	*-17.2*	*70*	*4.1*	*57*	*7.9*	*30*	*9.0*	*33*	*11.6*	*20*
eV US Large Cap Core Equity Net Median	*-5.1*		*-23.1*		*-15.5*		*4.6*		*7.0*		*8.2*		*10.7*	

* *Total Fund and asset class aggregates are ranked in InvMetrics universes. Managers are ranked in eVest (eA) manager universes.*

** *Includes Parametric Minneapolis manager funded in August 2013.*

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees) — Period Ending: September 30, 2022

	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Small Cap Equity	**-2.3**	**34**	**-20.6**	**28**	**-16.7**	**37**	**13.1**	**36**	**4.0**	**71**	**2.3**	**85**	**7.2**	**88**
Russell 2000	*-2.2*	*31*	*-25.1*	*57*	*-23.5*	*67*	*6.3*	*67*	*4.3*	*67*	*3.6*	*67*	*8.6*	*67*
eV US Small Cap Equity Net Median	*-3.5*		*-23.8*		*-19.3*		*10.0*		*5.6*		*4.8*		*9.4*	
PGIM Quant Solutions	-2.3	32	-20.6	18	-16.7	28	13.1	26	4.0	78	2.3	90	--	--
Russell 2000	*-2.2*	*26*	*-25.1*	*61*	*-23.5*	*81*	*6.3*	*83*	*4.3*	*73*	*3.6*	*76*	*8.6*	*70*
eV US Small Cap Core Equity Net Median	*-3.3*		*-23.8*		*-19.3*		*9.7*		*6.2*		*5.4*		*9.5*	
Domestic Equity Overlay	4.6	--	79.5	--	82.1	--	59.5	--	--	--	--	--	--	--
International Equity	**-9.5**	**30**	**-26.3**	**25**	**-25.1**	**27**	**-3.3**	**36**	**-0.3**	**31**	**0.2**	**17**	**3.8**	**28**
Blended International Equity Index[1]	*-6.9*	*5*	*-21.5*	*5*	*-19.8*	*4*	*0.3*	*8*	*1.1*	*8*	*0.9*	*10*	*4.3*	*18*
MSCI EAFE Gross	*-9.3*	*25*	*-26.8*	*36*	*-24.7*	*19*	*-2.5*	*26*	*-1.4*	*59*	*-0.4*	*27*	*4.2*	*19*
InvMetrics All DB ex-US Eq Net Median	*-10.0*		*-27.5*		*-26.5*		*-3.9*		*-1.2*		*-0.8*		*3.4*	
Baillie Gifford	-8.9	53	-39.5	79	-38.8	79	-14.3	82	-1.9	67	-0.4	67	4.6	57
MSCI ACWI ex US[1]	*-9.8*	*78*	*-26.2*	*8*	*-24.8*	*11*	*-3.3*	*7*	*-1.1*	*60*	*-0.3*	*65*	*4.2*	*72*
MSCI ACWI ex US Growth[1]	*-9.3*	*69*	*-31.6*	*34*	*-30.0*	*34*	*-9.4*	*47*	*-1.1*	*61*	*0.5*	*55*	*5.0*	*50*
eV ACWI ex-US Growth Equity Net Median	*-8.7*		*-35.3*		*-34.0*		*-9.7*		*-0.2*		*0.8*		*4.9*	
Mondrian	-13.9	95	-24.4	65	-24.3	67	-1.8	79	-3.6	80	-2.5	55	2.1	78
MSCI ACWI ex USA Value Gross	*-10.3*	*38*	*-20.5*	*17*	*-19.5*	*10*	*3.2*	*26*	*-1.5*	*55*	*-1.5*	*35*	*2.5*	*62*
MSCI ACWI ex USA Gross	*-9.8*	*29*	*-26.2*	*83*	*-24.8*	*70*	*-3.3*	*83*	*-1.1*	*48*	*-0.3*	*25*	*3.5*	*37*
eV ACWI ex-US Value Equity Net Median	*-11.0*		*-24.0*		*-23.6*		*1.0*		*-1.3*		*-2.1*		*3.0*	
BlackRock MSCI ACWI EX-US IMI	-9.7	61	-26.7	36	-25.5	40	-3.3	36	--	--	--	--	--	--
MSCI ACWI ex USA IMI	*-9.7*	*61*	*-26.9*	*39*	*-25.7*	*49*	*-3.6*	*39*	*-1.3*	*73*	*-0.8*	*75*	*3.2*	*83*
eV ACWI ex-US All Cap Core Eq Net Median	*-9.3*		*-28.6*		*-26.0*		*-3.8*		*-0.1*		*-0.1*		*4.3*	
Int'l Equity Currency Overlay														
International Equity Overlay	-11.7	--	-26.1	--	-24.6	--	-10.8	--	--	--	--	--	--	--

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: September 30, 2022

	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Fixed Income	**-3.6**	**47**	**-12.6**	**38**	**-12.3**	**36**	**-4.6**	**25**	**-1.2**	**22**	**0.8**	**20**	**2.3**	**12**
Blended Fixed Income Index[1]	*-3.2*	*36*	*-14.0*	*55*	*-13.8*	*53*	*-6.2*	*53*	*-2.3*	*51*	*0.4*	*38*	*1.3*	*57*
InvMetrics All DB Total Fix Inc Net Median	*-3.7*		*-13.5*		*-13.6*		*-6.0*		*-2.3*		*0.1*		*1.4*	
Core Fixed	**-4.4**	**--**	**-14.6**	**--**	**-14.8**	**--**	**-7.6**	**--**	**-2.8**	**--**	**-0.3**	**--**	**1.3**	**--**
Bloomberg US Aggregate TR	*-4.8*	--	*-14.6*	--	*-14.6*	--	*-8.0*	--	*-3.3*	--	*-0.3*	--	*0.9*	--
DoubleLine	-4.5	57	-14.8	94	-15.1	94	-8.2	97	--	--	--	--	--	--
Bloomberg US Aggregate TR	*-4.8*	*63*	*-14.6*	*93*	*-14.6*	*90*	*-8.0*	*96*	*-3.3*	*66*	*-0.3*	*57*	*0.9*	*65*
eV US Securitized Fixed Inc Net Median	*-3.9*		*-11.3*		*-11.6*		*-5.2*		*-2.5*		*0.1*		*1.4*	
FIAM Bond	-4.4	32	-14.5	46	-14.4	38	-7.2	25	-2.1	11	0.5	9	1.6	12
NISA Core Bond	-4.5	48	-14.2	33	-14.2	30	-7.8	50	--	--	--	--	--	--
Bloomberg US Aggregate TR	*-4.8*	*73*	*-14.6*	*53*	*-14.6*	*52*	*-8.0*	*66*	*-3.3*	*74*	*-0.3*	*76*	*0.9*	*78*
eV US Core Fixed Inc Net Median	*-4.6*		*-14.6*		*-14.6*		*-7.8*		*-3.0*		*0.0*		*1.1*	
Western TRU	-3.8	10	-14.7	61	-15.7	88	-6.6	9	-2.9	39	-0.9	99	--	--
3-Month Libor Total Return USD	*0.8*	*1*	*1.4*	*1*	*1.5*	*1*	*0.8*	*1*	*0.9*	*1*	*1.5*	*1*	*1.0*	*66*
Bloomberg US Aggregate TR	*-4.8*	*73*	*-14.6*	*53*	*-14.6*	*52*	*-8.0*	*66*	*-3.3*	*74*	*-0.3*	*76*	*0.9*	*78*
eV US Core Fixed Inc Net Median	*-4.6*		*-14.6*		*-14.6*		*-7.8*		*-3.0*		*0.0*		*1.1*	
Core Fixed Income Overlay	-6.2	--	-12.2	--	-11.0	--	-6.6	--	--	--	--	--	--	--
Opportunistic Credit	**-2.3**	**--**	**-9.1**	**--**	**-7.9**	**--**	**1.2**	**--**	**1.6**	**--**	**2.8**	**--**	**5.5**	**--**
Bloomberg BA Intermediate HY	*-0.6*	--	*-13.3*	--	*-12.7*	--	*-2.7*	--	*-0.2*	--	*1.8*	--	*3.0*	--
AG CSF II* +	-2.4	--	--	--	--	--	--	--	--	--	--	--	--	--
Bloomberg BA Intermediate HY	*-0.6*	--	*-13.3*	--	*-12.7*	--	*-2.7*	--	*-0.2*	--	*1.8*	--	*3.0*	--
Angelo Gordon Opportunistic+	6.9	--	1.0	--	15.5	--	20.8	--	8.9	--	13.3	--	--	--
Bloomberg US Aggregate TR	*-4.8*	--	*-14.6*	--	*-14.6*	--	*-8.0*	--	*-3.3*	--	*-0.3*	--	*0.9*	--

* *Funded February 2022*

\+ *Preliminary return as of 9/30/2022.*

1. See Appendix for Benchmark History.

	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Angelo Gordon Credit Solutions+	-1.8	98	-5.2	4	-2.6	3	13.0	1	--	--	--	--	--	--
Bloomberg BA Intermediate HY	*-0.6*	*59*	*-13.3*	*44*	*-12.7*	*47*	*-2.7*	*73*	*-0.2*	*46*	*1.8*	*36*	*3.0*	*86*
eV US High Yield Fixed Inc Net Median	*-0.5*		*-13.5*		*-12.9*		*-1.9*		*-0.3*		*1.5*		*3.6*	
Beach Point Select	-2.8	99	-8.4	19	-4.5	5	7.3	2	6.4	1	6.2	1	--	--
Bloomberg BA Intermediate HY	*-0.6*	*59*	*-13.3*	*44*	*-12.7*	*47*	*-2.7*	*73*	*-0.2*	*46*	*1.8*	*36*	*3.0*	*86*
eV US High Yield Fixed Inc Net Median	*-0.5*		*-13.5*		*-12.9*		*-1.9*		*-0.3*		*1.5*		*3.6*	
Brigade Capital	-2.7	99	-10.0	25	-8.7	21	5.5	3	3.2	3	3.0	8	4.2	16
Bloomberg BA Intermediate HY	*-0.6*	*59*	*-13.3*	*44*	*-12.7*	*47*	*-2.7*	*73*	*-0.2*	*46*	*1.8*	*36*	*3.0*	*86*
50% Barclays HY/ 50% Bank Loan	*0.3*	*16*	*-9.1*	*21*	*-8.5*	*20*	*0.3*	*19*	*0.9*	*23*	*2.3*	*17*	*3.8*	*31*
eV US High Yield Fixed Inc Net Median	*-0.5*		*-13.5*		*-12.9*		*-1.9*		*-0.3*		*1.5*		*3.6*	
PIMCO Diversified	-2.5	99	-17.7	99	-17.6	99	-7.1	99	-3.6	99	-0.2	99	--	--
Blended PIMCO Diversified Index[1]	*-3.0*	*99*	*-17.5*	*99*	*-17.3*	*99*	*-6.9*	*99*	*-3.4*	*99*	*-0.2*	*99*	*2.4*	*98*
Bloomberg BA Intermediate HY	*-0.6*	*59*	*-13.3*	*44*	*-12.7*	*47*	*-2.7*	*73*	*-0.2*	*46*	*1.8*	*36*	*3.0*	*86*
eV US High Yield Fixed Inc Net Median	*-0.5*		*-13.5*		*-12.9*		*-1.9*		*-0.3*		*1.5*		*3.6*	
Franklin Templeton	-7.9	87	-19.0	64	-19.9	66	-11.7	83	-9.5	99	-6.1	99	-1.4	87
Bloomberg Multiverse TR	*-6.8*	*75*	*-19.8*	*68*	*-20.4*	*68*	*-11.0*	*78*	*-5.6*	*80*	*-2.3*	*75*	*-0.8*	*77*
eV All Global Fixed Inc Net Median	*-3.7*		*-17.0*		*-17.3*		*-6.6*		*-3.0*		*-0.2*		*1.5*	
Private Credit	**0.1**	**--**	**1.5**	**--**	**2.9**	**--**	**5.7**	**--**	**5.9**	**--**	**6.6**	**--**	**--**	**--**
Cliffwater Direct Lending Index+	*0.5*	*--*	*2.8*	*--*	*5.2*	*--*	*9.7*	*--*	*7.6*	*--*	*8.0*	*--*	*8.9*	*--*
Blackrock DL Feeder IX-U+	1.5	1	2.9	1	4.0	1	5.8	2	--	--	--	--	--	--
Cliffwater Direct Lending Index	*0.5*	*13*	*2.8*	*1*	*5.2*	*1*	*9.7*	*1*	*7.6*	*1*	*8.0*	*1*	*8.9*	*1*
eV US High Yield Fixed Inc Net Median	*-0.5*		*-13.5*		*-12.9*		*-1.9*		*-0.3*		*1.5*		*3.6*	
PIMCO Private Income	-0.3	40	0.4	1	1.7	1	8.6	1	7.5	1	--	--	--	--
Bloomberg BA Intermediate HY	*-0.6*	*59*	*-13.3*	*44*	*-12.7*	*47*	*-2.7*	*73*	*-0.2*	*46*	*1.8*	*36*	*3.0*	*86*
Cliffwater Direct Lending Index	*0.5*	*13*	*2.8*	*1*	*5.2*	*1*	*9.7*	*1*	*7.6*	*1*	*8.0*	*1*	*8.9*	*1*
eV US High Yield Fixed Inc Net Median	*-0.5*		*-13.5*		*-12.9*		*-1.9*		*-0.3*		*1.5*		*3.6*	

+ *Preliminary return as of 9/30/2022.*

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: September 30, 2022

	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
TCP Direct Lending VIII+	-0.7	66	-1.1	2	1.0	1	4.2	4	4.5	3	5.5	2	--	--
White Oak Yield+	0.0	29	3.1	1	5.0	1	5.2	3	5.4	1	6.3	1	--	--
White Oak YSF V+	0.0	29	1.7	1	2.4	1	--	--	--	--	--	--	--	--
Cliffwater Direct Lending Index	*0.5*	*13*	*2.8*	*1*	*5.2*	*1*	*9.7*	*1*	*7.6*	*1*	*8.0*	*1*	*8.9*	*1*
eV US High Yield Fixed Inc Net Median	*-0.5*		*-13.5*		*-12.9*		*-1.9*		*-0.3*		*1.5*		*3.6*	
Alternatives	**-1.7**	**--**	**2.1**	**--**	**0.2**	**--**	**17.5**	**--**	**14.4**	**--**	**11.4**	**--**	**8.7**	**--**
Blended Alternatives Index[1]	*-7.6*	*--*	*-4.1*	*--*	*-3.1*	*--*	*9.1*	*--*	*8.7*	*--*	*9.0*	*--*	*8.6*	*--*
Private Equity ++**	**-8.5**	**96**	**-9.6**	**93**	**-12.4**	**91**	**21.5**	**55**	**23.2**	**15**	**22.0**	**4**	**18.7**	**4**
Blended Private Equity Index[1]	*-16.2*	*99*	*-11.7*	*93*	*-10.9*	*91*	*14.5*	*83*	*12.8*	*81*	*12.4*	*69*	*14.8*	*24*
InvMetrics All DB Private Eq Net Median	*-0.2*		*0.5*		*5.4*		*22.4*		*19.0*		*15.4*		*12.2*	
Hedge Fund/Absolute Return	**4.6**	**4**	**14.2**	**2**	**13.6**	**2**	**9.7**	**7**	**2.4**	**75**	**-1.1**	**83**	**2.8**	**75**
Absolute Return Custom Index[1]	*1.6*	*21*	*3.7*	*10*	*4.8*	*6*	*4.4*	*48*	*4.6*	*38*	*5.2*	*11*	*4.8*	*38*
InvMetrics All DB Hedge Funds Net Median	*-0.4*		*-9.3*		*-7.7*		*4.4*		*3.7*		*3.6*		*4.3*	
Aberdeen Standard GARS	-2.9	64	-9.8	65	-8.4	63	-4.6	88	-1.4	82	-0.2	79	--	--
Acadian MAAR Fund LLC	3.1	16	3.6	27	2.5	34	--	--	--	--	--	--	--	--
CFM Systematic Global Macro	9.2	2	26.2	6	19.0	8	--	--	--	--	--	--	--	--
Graham Quant Macro	0.4	36	23.4	6	20.6	7	12.2	25	--	--	--	--	--	--
PIMCO MAARS Fund LP	9.4	2	21.4	6	27.8	5	16.4	16	--	--	--	--	--	--
Absolute Return Custom Index	*1.6*	*24*	*3.7*	*27*	*4.8*	*29*	*4.4*	*56*	*4.6*	*48*	*5.2*	*43*	*4.8*	*56*
eV Alt All Multi-Strategy Median	*-1.0*		*-5.6*		*-3.3*		*5.1*		*4.2*		*4.4*		*5.0*	

+ Preliminary return as of 9/30/2022.

*** Returns are one-quarter lag.*

++ Excludes EnCap Energy Capital Fund and Sheridan Production Partners.

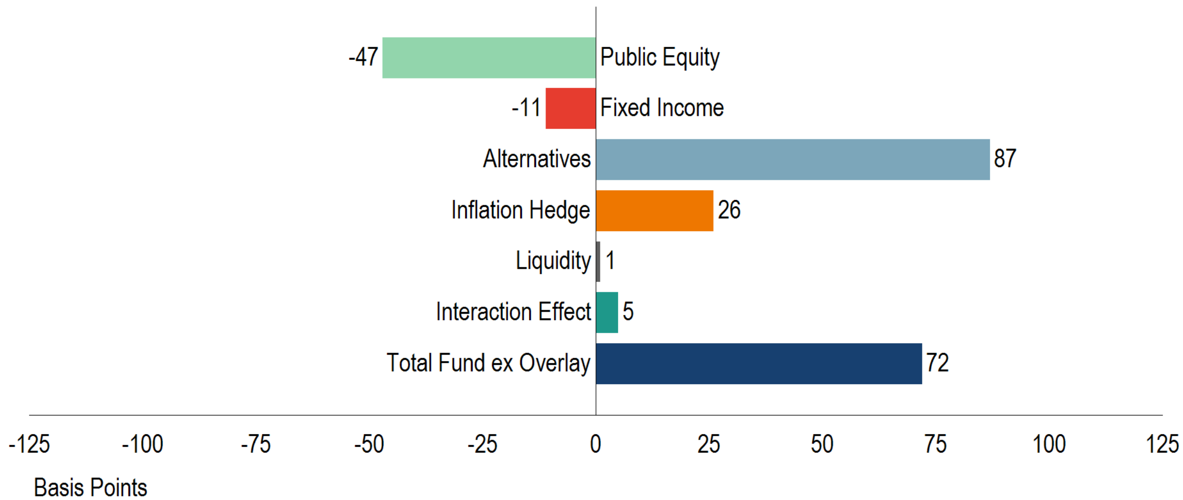
1. See Appendix for Benchmark History.

	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Inflation Hedge	**-1.5**	**--**	**6.7**	**--**	**10.0**	**--**	**14.8**	**--**	**6.4**	**--**	**5.1**	**--**	**--**	**--**
Blended Inflation Hedge Index[1]	*-3.0*	--	*8.2*	--	*13.9*	--	*17.7*	--	*10.4*	--	*8.0*	--	--	--
Real Estate	**1.4**	**35**	**10.9**	**58**	**15.9**	**65**	**14.6**	**53**	**9.8**	**63**	**8.9**	**44**	**10.2**	**13**
NCREIF ODCE	*0.5*	*65*	*13.1*	*17*	*22.1*	*10*	*18.3*	*5*	*12.4*	*5*	*10.2*	*3*	*10.9*	*4*
InvMetrics All DB Real Estate Pub Net Median	*1.0*		*11.1*		*17.9*		*14.8*		*10.3*		*8.8*		*9.5*	
Harrison Street Core Property	2.0	--	11.0	--	13.8	--	11.1	--	--	--	--	--	--	--
Invesco	1.4	--	13.2	--	19.7	--	17.8	--	11.1	--	9.7	--	10.5	--
NCREIF ODCE	*0.5*	--	*13.1*	--	*22.1*	--	*18.3*	--	*12.4*	--	*10.2*	--	*10.9*	--
Invesco US Val IV	-38.0	--	-41.3	--	-37.9	--	-16.5	--	-11.2	--	-2.7	--	--	--
Invesco US Val V	0.1	--	4.0	--	8.8	--	19.7	--	13.0	--	--	--	--	--
NCREIF ODCE	*0.5*	--	*13.1*	--	*22.1*	--	*18.3*	--	*12.4*	--	*10.2*	--	*10.9*	--
NCREIF ODCE + 2%	*1.0*	--	*14.8*	--	*24.5*	--	*20.6*	--	*14.6*	--	*12.4*	--	*13.1*	--
Invesco US Val VI*	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NCREIF ODCE	*0.5*	--	*13.1*	--	*22.1*	--	*18.3*	--	*12.4*	--	*10.2*	--	*10.9*	--
PGIM RE US Debt Fund	1.6	--	4.2	--	5.4	--	5.4	--	5.2	--	5.7	--	--	--
Stockbridge Value IV	3.2	--	21.5	--	33.2	--	--	--	--	--	--	--	--	--
NCREIF ODCE	*0.5*	--	*13.1*	--	*22.1*	--	*18.3*	--	*12.4*	--	*10.2*	--	*10.9*	--
Private Real Asset**	**-2.5**	**--**	**11.9**	**--**	**9.5**	**--**	**20.8**	**--**	**12.8**	**--**	**5.4**	**--**	**--**	**--**
Blended Private Real Asset Index[1]	*-9.0*	--	*7.0*	--	*8.1*	--	*18.7*	--	*6.7*	--	*5.9*	--	--	--
Blended Secondary CA Private RA Index[1]	*1.8*	--	*15.8*	--	*19.5*	--	*20.5*	--	*9.0*	--	*8.0*	--	--	--
Public Real Assets	**-5.4**	**--**	**-2.7**	**--**	**0.6**	**--**	**13.0**	**--**	**0.7**	**--**	**0.5**	**--**	**--**	**--**
Blended Public Real Asset Index[1]	*-5.4*	--	*-2.9*	--	*0.5*	--	*13.0*	--	*4.9*	--	*3.4*	--	--	--
SSgA Custom Real Asset	-5.4	--	-2.7	--	0.6	--	13.0	--	4.9	--	3.5	--	--	--
SSgA Custom Real Asset Index[1]	*-5.4*	--	*-2.9*	--	*0.5*	--	*13.0*	--	*4.9*	--	*3.4*	--	--	--

* *Funded September 2022*
** *Returns are one-quarter lag.*
1. See Appendix for Benchmark History

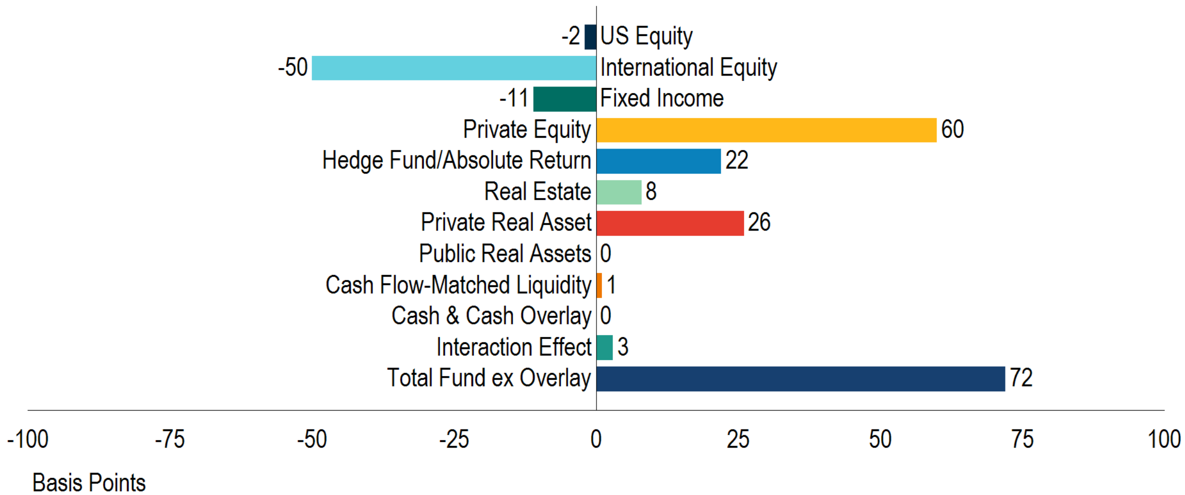
	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Liquidity	**-0.1**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
Blended Liquidity Index[1]	*-0.7*	--	--	--	--	--	--	--	--	--	--	--	--	--
Cash Flow-Matched Liquidity	**-0.6**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
Bloomberg US Govt/Credit 1-3 Yr. TR	*-1.5*	--	*-4.5*	--	*-5.1*	--	*-2.4*	--	*-0.4*	--	*0.7*	--	*0.8*	--
Bloomberg US Credit 1-3 Yr TR	*-1.3*	--	*-4.6*	--	*-5.1*	--	*-2.1*	--	*-0.2*	--	*1.0*	--	*1.3*	--
Insight Investment*	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bloomberg US Credit 1-3 Yr TR	*-1.3*	--	*-4.6*	--	*-5.1*	--	*-2.1*	--	*-0.2*	--	*1.0*	--	*1.3*	--
County Treasury Pool+	0.1	--	0.5	--	0.9	--	1.1	--	1.3	--	2.2	--	1.5	--
91 Day T-Bills	*0.5*	--	*0.6*	--	*0.6*	--	*0.3*	--	*0.5*	--	*1.1*	--	*0.6*	--
Cash & Cash Overlay	**0.5**	**--**	**0.8**	**--**	**0.8**	**--**	**0.6**	**--**	**0.7**	**--**	**0.9**	**--**	**0.8**	**--**
91 Day T-Bills	*0.5*	--	*0.6*	--	*0.6*	--	*0.3*	--	*0.5*	--	*1.1*	--	*0.6*	--
General Account	0.6	--	1.0	--	1.0	--	0.7	--	1.0	--	2.2	--	1.6	--
91 Day T-Bills	*0.5*	--	*0.6*	--	*0.6*	--	*0.3*	--	*0.5*	--	*1.1*	--	*0.6*	--
Currency Hedge Cash Overlay	0.4	--	0.5	--	0.4	--	0.1	--	--	--	--	--	--	--

** Funded July 2022.*
+ Moved from Cash & Cash Overlay to Cash Flow-Matched Liquidity in July 2022. Reflects linked historical returns up to June 2022.
1. See Appendix for Benchmark History.



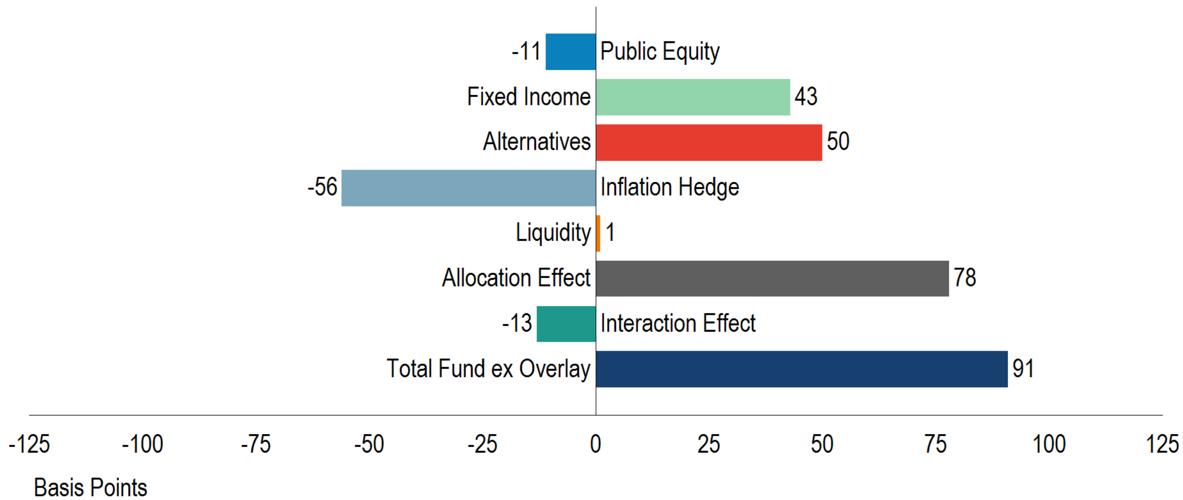
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction* Effects	Total Effects
Public Equity	-6.74%	-5.57%	-1.16%	-0.47%	0.01%	0.03%	-0.43%
Fixed Income	-3.60%	-3.20%	-0.40%	-0.11%	-0.02%	0.00%	-0.13%
Alternatives	-1.73%	-7.57%	5.84%	0.87%	-0.07%	-0.03%	0.76%
Inflation Hedge	-1.49%	-3.04%	1.55%	0.26%	0.01%	0.03%	0.30%
Liquidity	-0.15%	-0.70%	0.56%	0.01%	0.17%	0.02%	0.21%
Total	**-3.85%**	**-4.57%**	**0.72%**	**0.56%**	**0.11%**	**0.05%**	**0.72%**

Attribution does not include the impact of the Parametric Minneapolis strategy.
** Interaction Effects include Residual Effects.*



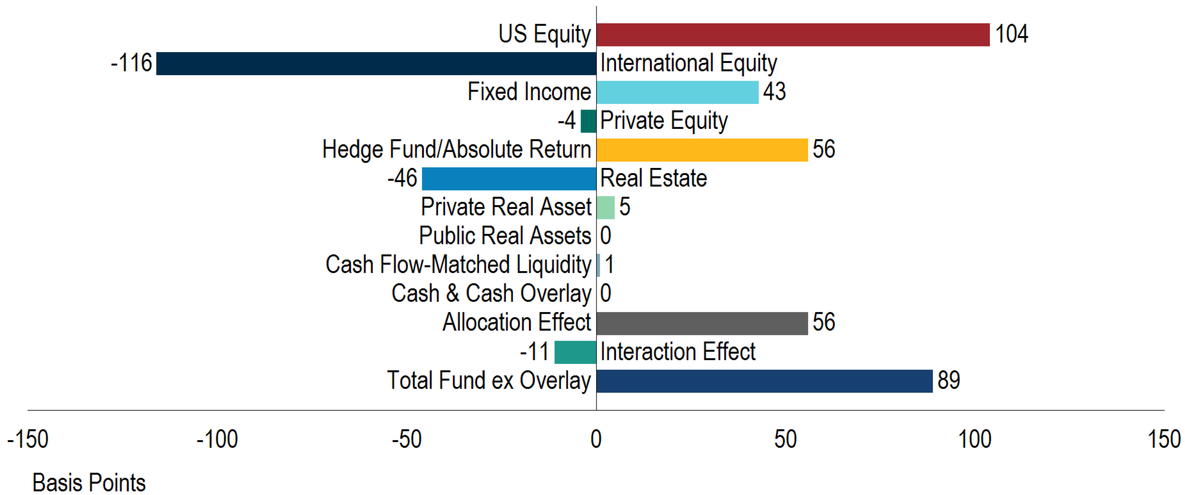
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction* Effects	Total Effects
US Equity	-4.45%	-4.46%	0.01%	-0.02%	-0.02%	0.01%	-0.04%
International Equity	-9.49%	-6.86%	-2.63%	-0.50%	0.06%	0.06%	-0.38%
Fixed Income	-3.60%	-3.20%	-0.40%	-0.11%	-0.02%	0.00%	-0.13%
Private Equity	-8.49%	-16.24%	7.75%	0.60%	-0.01%	-0.07%	0.52%
Hedge Fund/Absolute Return	4.57%	1.55%	3.02%	0.22%	0.02%	0.01%	0.24%
Real Estate	1.38%	0.52%	0.86%	0.08%	-0.02%	0.00%	0.06%
Private Real Asset	-2.49%	-9.04%	6.55%	0.26%	0.00%	-0.01%	0.25%
Public Real Assets	-5.41%	-5.38%	-0.03%	0.00%	-0.02%	0.00%	-0.02%
Cash Flow-Matched Liquidity	-0.65%	-1.48%	0.83%	0.01%	0.14%	0.03%	0.18%
Cash & Cash Overlay	0.53%	0.46%	0.06%	0.00%	0.02%	0.00%	0.03%
Total	**-3.85%**	**-4.57%**	**0.72%**	**0.54%**	**0.15%**	**0.03%**	**0.72%**

Attribution does not include the impact of the Parametric Minneapolis strategy.
** Interaction Effects include Residual Effects.*



	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction* Effects	Total Effects
Public Equity	-18.82%	-18.57%	-0.25%	-0.11%	0.33%	0.00%	0.22%
Fixed Income	-12.31%	-13.82%	1.51%	0.43%	0.40%	-0.06%	0.77%
Alternatives	0.22%	-3.10%	3.33%	0.50%	0.02%	-0.05%	0.47%
Inflation Hedge	9.96%	13.93%	-3.97%	-0.56%	0.06%	-0.05%	-0.56%
Liquidity	-0.15%	--	--	0.01%	-0.03%	0.02%	0.01%
Total	**-8.94%**	**-9.85%**	**0.91%**	**0.26%**	**0.78%**	**-0.13%**	**0.91%**

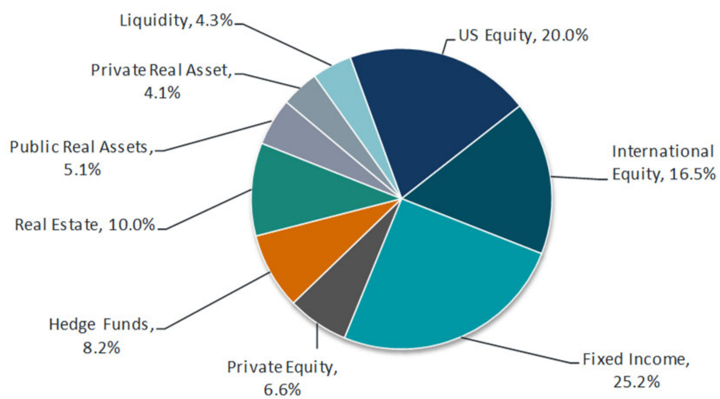
Attribution does not include the impact of the Parametric Minneapolis strategy.
** Interaction Effects include Residual Effects.*



	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction * Effects	Total Effects
US Equity	-12.97%	-17.63%	4.66%	1.04%	0.00%	-0.02%	1.02%
International Equity	-25.13%	-19.79%	-5.33%	-1.16%	0.11%	0.06%	-0.99%
Fixed Income	-12.31%	-13.82%	1.51%	0.43%	0.11%	-0.06%	0.48%
Private Equity	-12.39%	-10.87%	-1.52%	-0.04%	0.08%	-0.16%	-0.12%
Hedge Fund/Absolute Return	13.63%	4.76%	8.87%	0.56%	0.02%	0.01%	0.58%
Real Estate	15.89%	22.09%	-6.20%	-0.46%	-0.20%	0.06%	-0.60%
Private Real Asset	9.48%	8.10%	1.38%	0.05%	-0.16%	-0.04%	-0.15%
Public Real Assets	0.55%	0.50%	0.05%	0.00%	0.31%	0.00%	0.31%
Cash Flow-Matched Liquidity	--	-1.48%	--	0.01%	0.13%	0.03%	0.17%
Cash & Cash Overlay	0.84%	0.62%	0.23%	0.00%	0.17%	0.01%	0.18%
Total	**-8.96%**	**-9.85%**	**0.89%**	**0.44%**	**0.56%**	**-0.11%**	**0.89%**

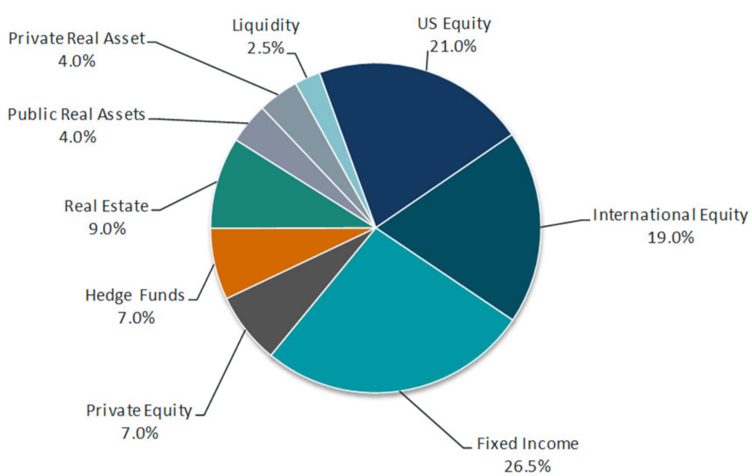
Attribution does not include the impact of the Parametric Minneapolis strategy.
** Interaction Effects include Residual Effects.*

Current w/ Overlay

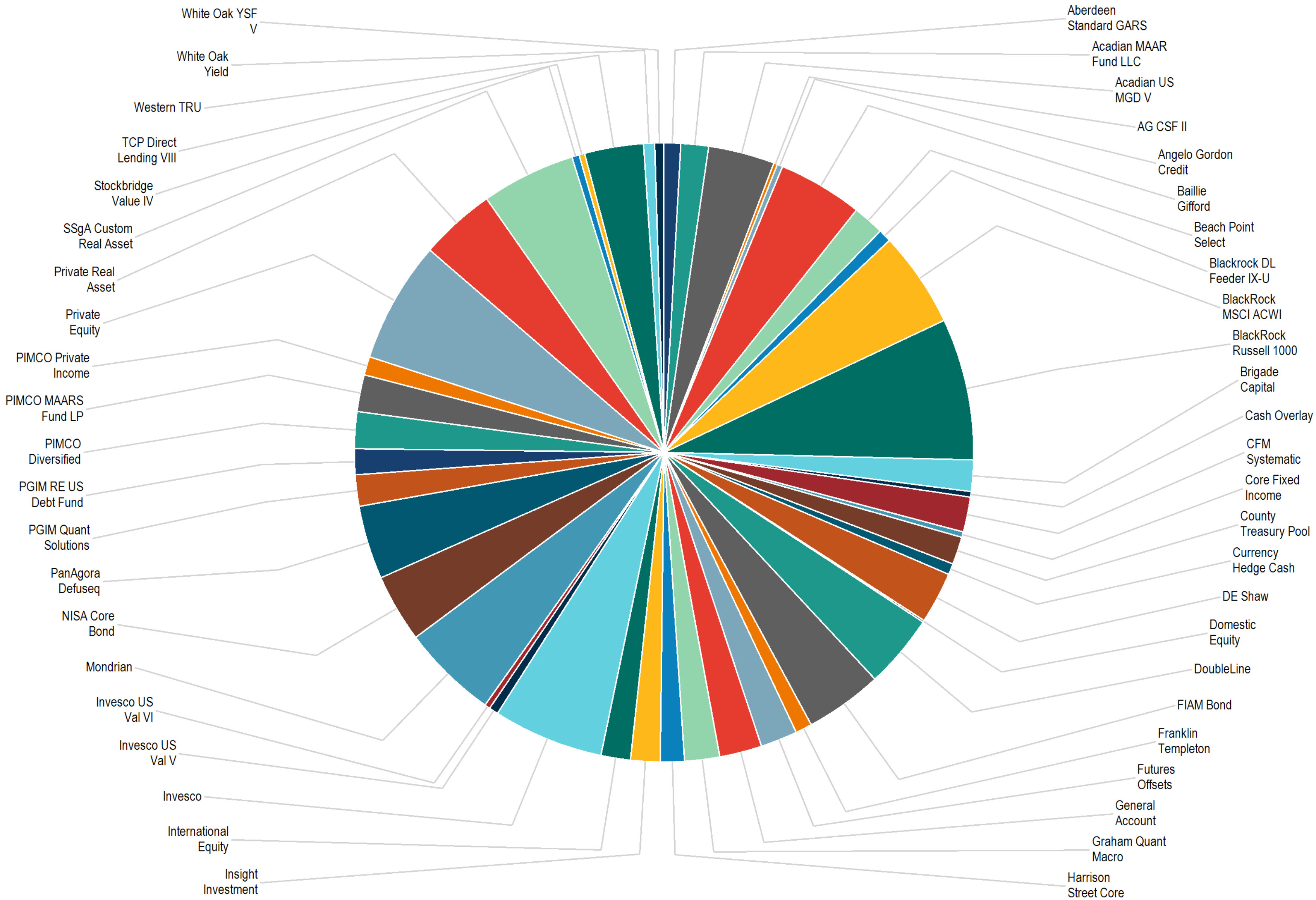


ASSET ALLOCATION	MARKET VALUE W/ OVERLAY	W/ OVERLAY	W/O OVERLAY
US Equity	1,100,513,142	20.0%	19.9%
International Equity	911,956,826	16.5%	15.0%
Fixed Income	1,391,507,940	25.2%	24.9%
Private Equity	363,387,123	6.6%	6.6%
Hedge Funds	452,530,497	8.2%	8.2%
Real Estate	551,271,893	10.0%	10.0%
Public Real Assets	281,700,897	5.1%	5.1%
Private Real Asset	223,902,087	4.1%	4.1%
Liquidity	235,295,845	4.3%	6.3%
TOTAL	**5,512,066,250**	**100.0%**	**100.0%**

Target



ASSET ALLOCATION	W/ OVERLAY	TARGET	DIFF
US Equity	20.0%	21.0%	-1.0%
International Equity	16.5%	19.0%	-2.5%
Fixed Income	25.2%	26.5%	-1.3%
Private Equity	6.6%	7.0%	-0.4%
Hedge Funds	8.2%	7.0%	1.2%
Real Estate	10.0%	9.0%	1.0%
Public Real Assets	5.1%	4.0%	1.1%
Private Real Asset	4.1%	4.0%	0.1%
Liquidity	4.3%	2.5%	1.8%
TOTAL	**100.0%**	**100.0%**	**0.0%**


White Oak YSF V
White Oak Yield
Western TRU
TCP Direct Lending VIII
Stockbridge Value IV
SSgA Custom Real Asset
Private Real Asset
Private Equity
PIMCO Private Income
PIMCO MAARS Fund LP
PIMCO Diversified
PGIM RE US Debt Fund
PGIM Quant Solutions
PanAgora Defuseq
NISA Core Bond
Mondrian
Invesco US Val VI
Invesco US Val V
Invesco
International Equity
Insight Investment
Aberdeen Standard GARS
Acadian MAAR Fund LLC
Acadian US MGD V
AG CSF II
Angelo Gordon Credit
Baillie Gifford
Beach Point Select
Blackrock DL Feeder IX-U
BlackRock MSCI ACWI
BlackRock Russell 1000
Brigade Capital
Cash Overlay
CFM Systematic
Core Fixed Income
County Treasury Pool
Currency Hedge Cash
DE Shaw
Domestic Equity
DoubleLine
FIAM Bond
Franklin Templeton
Futures Offsets
General Account
Graham Quant Macro
Harrison Street Core

Total Fund
Manager Allocation Analysis

Period Ending: September 30, 2022

Name	Market Value	% of Portfolio
Acadian US MGD V	$198,868,718	3.6%
BlackRock Russell 1000	$426,175,027	7.7%
DE Shaw	$153,817,147	2.8%
PanAgora Defuseq	$220,117,740	4.0%
PGIM Quant Solutions	$95,574,020	1.7%
Domestic Equity Overlay	$5,960,490	0.1%
Baillie Gifford	$251,609,374	4.6%
Mondrian	$288,013,059	5.2%
BlackRock MSCI ACWI EX-US IMI	$284,969,809	5.2%
International Equity Overlay	$87,364,584	1.6%
DoubleLine	$221,557,175	4.0%
FIAM Bond	$231,153,009	4.2%
NISA Core Bond	$204,436,929	3.7%
Western TRU	$174,962,458	3.2%
Core Fixed Income Overlay	$16,439,633	0.3%
AG CSF Annex Dislocation Fund	$360	0.0%
AG CSF II	$11,700,000	0.2%
Angelo Gordon Opportunistic	$243,044	0.0%
Angelo Gordon Credit Solutions	$15,200,000	0.3%
Beach Point Select	$94,847,689	1.7%
Brigade Capital	$95,448,801	1.7%
PIMCO Diversified	$110,968,582	2.0%
Franklin Templeton	$48,534,655	0.9%
Blackrock DL Feeder IX-U	$35,886,150	0.7%
PIMCO Private Income	$52,605,798	1.0%
TCP Direct Lending VIII	$15,902,003	0.3%
White Oak Yield	$32,081,157	0.6%
White Oak YSF V	$29,540,498	0.5%
Private Equity	$363,387,123	6.6%

Manager Allocation Analysis

Name	Market Value	% of Portfolio
Aberdeen Standard GARS	$47,653,109	0.9%
Acadian MAAR Fund LLC	$85,165,510	1.5%
CFM Systematic Global Macro	$106,182,154	1.9%
Graham Quant Macro	$105,511,190	1.9%
PIMCO MAARS Fund LP	$108,018,535	2.0%
Harrison Street Core Property	$72,606,874	1.3%
Invesco	$329,726,685	6.0%
Invesco US Val IV	$1,347,468	0.0%
Invesco US Val V	$30,297,027	0.5%
Invesco US Val VI	$16,563,296	0.3%
PGIM RE US Debt Fund	$75,990,888	1.4%
Stockbridge Value IV	$24,739,655	0.4%
Private Real Asset	$223,902,087	4.1%
SSgA Custom Real Asset	$281,700,897	5.1%
Insight Investment	$88,625,570	1.6%
County Treasury Pool	$83,841,395	1.5%
General Account	$126,665,050	2.3%
Currency Hedge Cash Overlay	$31,077,125	0.6%
Cash Overlay	$14,838,272	0.3%
Transition Account	$13,139	0.0%
Futures Offsets (SMCE02001)	-$109,764,707	-2.0%
Total	**$5,512,066,250**	**100.0%**

Statistics Summary

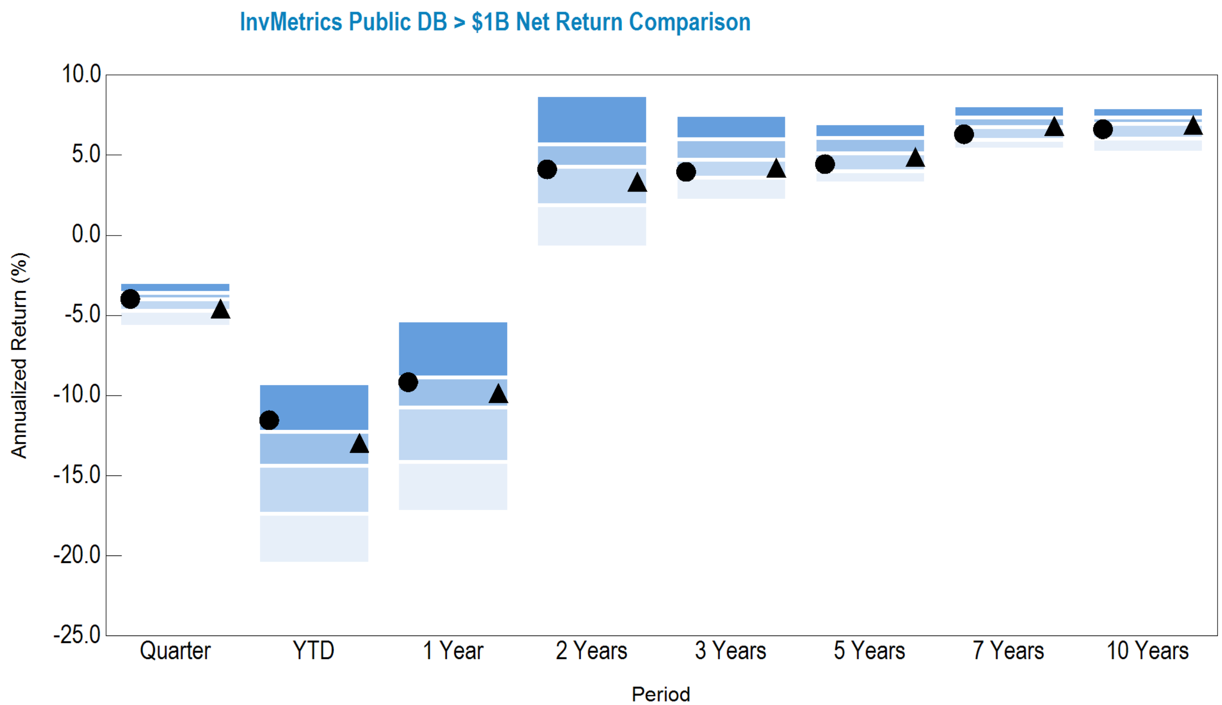
3 Years

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Information Ratio	Information Ratio Rank	Tracking Error	Tracking Error Rank
Total Fund	4.0%	68	9.7%	24	0.4	55	-0.1	88	2.5%	53
Policy Index	4.2%	62	10.0%	25	0.4	50	--	--	0.0%	1
Policy Index II	3.8%	72	10.4%	35	0.3	64	-0.8	99	0.5%	1
InvMetrics Public DB > $1B Net Median	4.7%	--	11.4%	--	0.4	--	0.3	--	2.3%	--

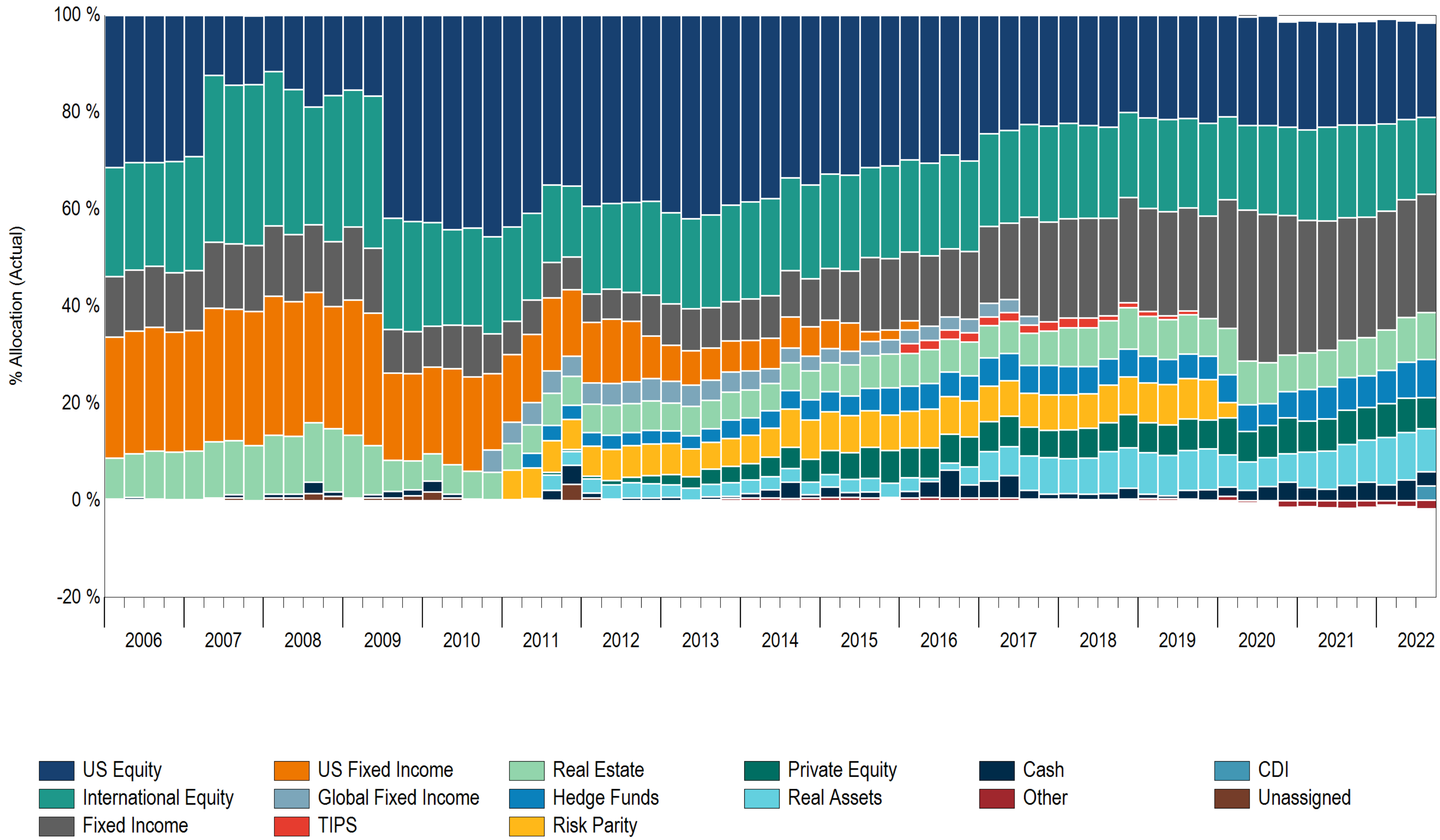
Statistics Summary

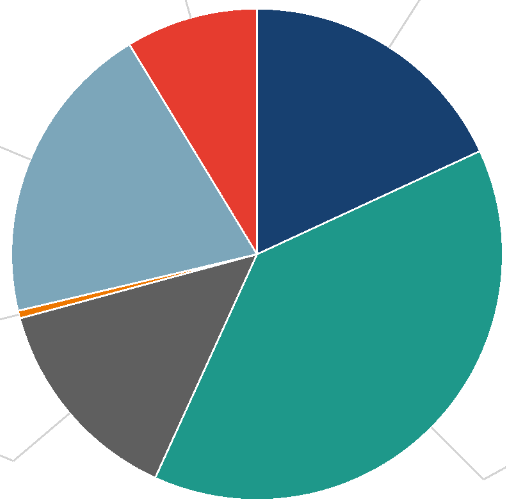
5 Years

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Information Ratio	Information Ratio Rank	Tracking Error	Tracking Error Rank
Total Fund	4.4%	70	8.6%	24	0.4	51	-0.2	86	2.0%	53
Policy Index	4.9%	59	8.9%	26	0.4	45	--	--	0.0%	1
Policy Index II	--	--	--	--	--	--	--	--	--	--
InvMetrics Public DB > $1B Net Median	5.1%	--	10.0%	--	0.4	--	0.1	--	1.9%	--



	Return (Rank)															
5th Percentile	-2.9		-9.3		-5.3		8.7		7.5		7.0		8.1		8.0	
25th Percentile	-3.6		-12.2		-8.8		5.7		6.0		6.1		7.4		7.4	
Median	-4.0		-14.4		-10.7		4.3		4.7		5.1		6.8		7.0	
75th Percentile	-4.7		-17.4		-14.1		1.9		3.6		4.0		6.0		6.1	
95th Percentile	-5.7		-20.5		-17.3		-0.7		2.2		3.2		5.4		5.2	
# of Portfolios	59		59		59		58		57		57		57		54	
● Total Fund	-4.0	(49)	-11.5	(16)	-9.2	(31)	4.1	(55)	4.0	(68)	4.4	(70)	6.3	(65)	6.6	(57)
▲ Policy Index	-4.6	(66)	-13.0	(31)	-9.9	(40)	3.3	(61)	4.2	(62)	4.9	(59)	6.8	(48)	6.9	(53)


100 %
80 %
60 %
40 %
20 %
0 %
-20 %
% Allocation (Actual)
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
US Equity
International Equity
Fixed Income
US Fixed Income
Global Fixed Income
TIPS
Real Estate
Hedge Funds
Risk Parity
Private Equity
Real Assets
Cash
Other
CDI
Unassigned



	Actual $	Actual %	Manager Contribution to Excess Return %
Acadian US MGD V	$198,868,718	18.1%	-0.2%
BlackRock Russell 1000	$426,175,027	38.7%	0.0%
DE Shaw	$153,817,147	14.0%	0.2%
PanAgora Defuseq	$220,117,740	20.0%	-0.3%
PGIM Quant Solutions	$95,574,020	8.7%	0.0%
Domestic Equity Overlay	$5,960,490	0.5%	0.0%
Actual vs. Policy Weight Difference			0.2%
Total	**$1,100,513,142**	**100.0%**	**0.0%**

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
US Equity	6.5%	19.7%	0.3	-0.5	2.6%
Blended US Equity Index	7.7%	21.0%	0.3	--	0.0%
Russell 3000	7.7%	21.0%	0.3	--	0.0%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Large Cap Equity	6.6%	19.3%	0.3	-0.5	2.6%
Russell 1000	7.9%	20.8%	0.4	--	0.0%
Acadian US MGD V	2.1%	17.8%	0.1	-0.9	6.2%
Russell 1000	7.9%	20.8%	0.4	--	0.0%
BlackRock Russell 1000	7.9%	20.8%	0.4	-0.3	0.0%
Russell 1000	7.9%	20.8%	0.4	--	0.0%
DE Shaw	7.6%	20.7%	0.3	-0.1	3.2%
Russell 1000	7.9%	20.8%	0.4	--	0.0%
PanAgora Defuseq	4.4%	17.5%	0.2	-0.4	8.0%
Russell 1000	7.9%	20.8%	0.4	--	0.0%
Small Cap Equity	4.0%	26.7%	0.1	0.0	5.8%
Russell 2000	4.3%	25.5%	0.1	--	0.0%
PGIM Quant Solutions	4.0%	26.7%	0.1	0.0	5.8%
Russell 2000	4.3%	25.5%	0.1	--	0.0%

Statistics Summary

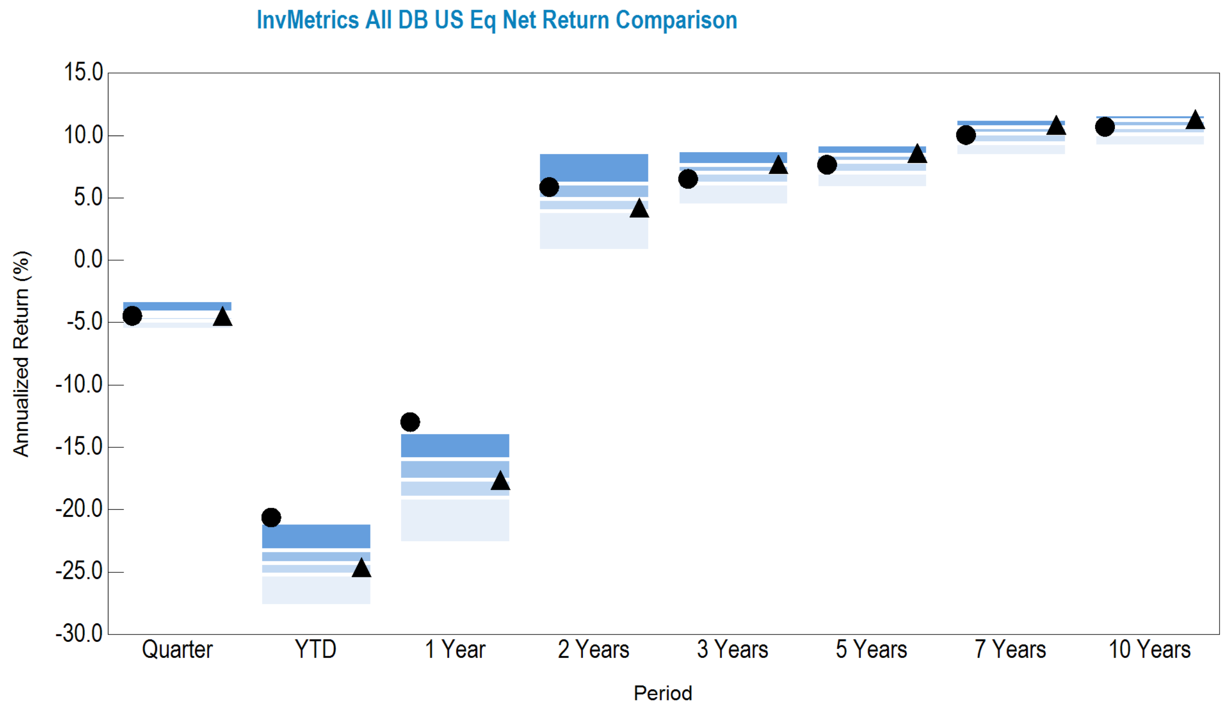
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
US Equity	7.7%	17.6%	0.4	-0.5	2.1%
Blended US Equity Index	8.6%	18.6%	0.4	--	0.0%
Russell 3000	8.6%	18.6%	0.4	--	0.0%

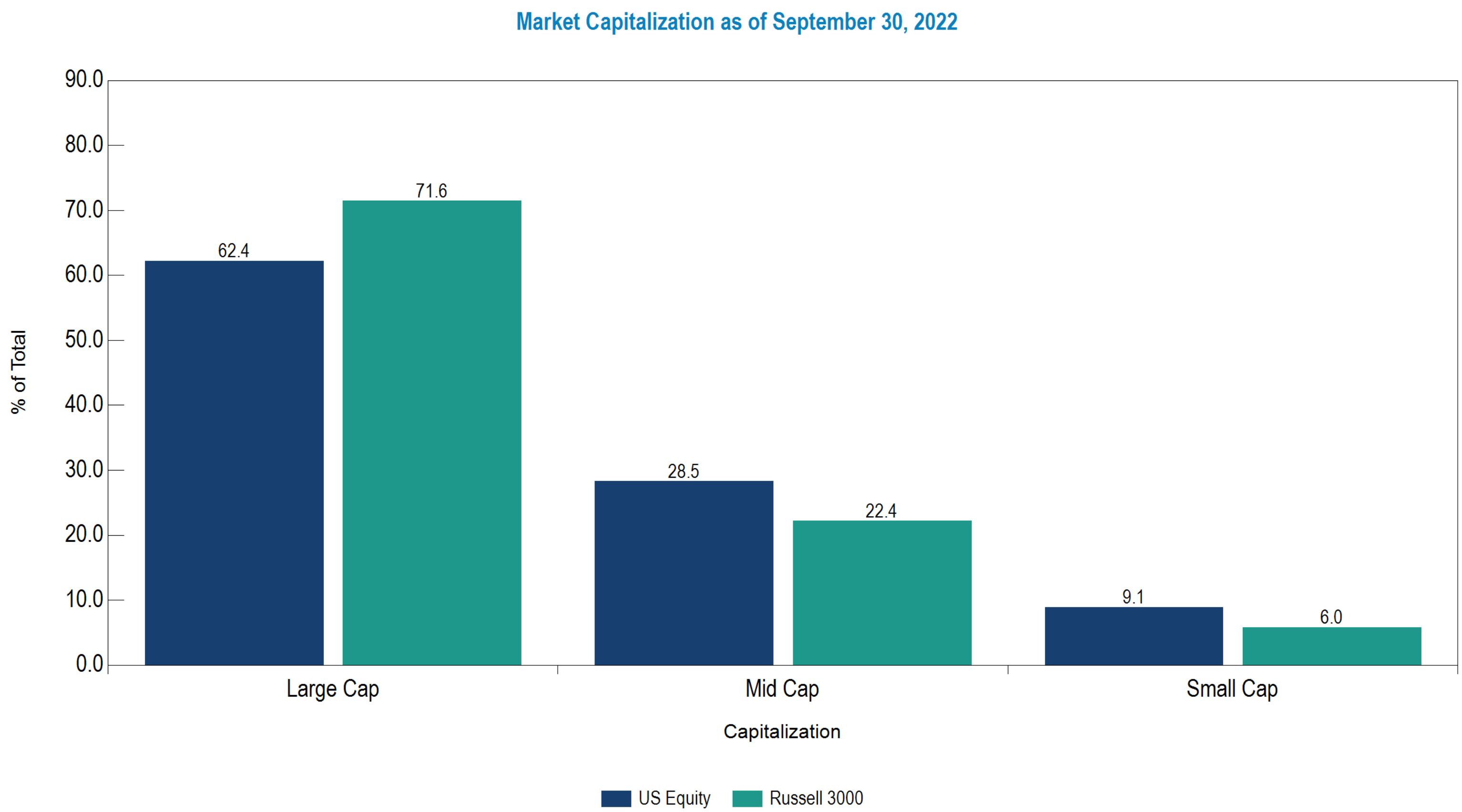
Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Large Cap Equity	8.3%	17.2%	0.4	-0.3	2.1%
Russell 1000	9.0%	18.5%	0.4	--	0.0%
BlackRock Russell 1000	9.0%	18.4%	0.4	0.1	0.0%
Russell 1000	9.0%	18.5%	0.4	--	0.0%
DE Shaw	8.1%	18.2%	0.4	-0.3	2.8%
Russell 1000	9.0%	18.5%	0.4	--	0.0%
Small Cap Equity	2.3%	23.7%	0.1	-0.3	4.8%
Russell 2000	3.6%	22.8%	0.1	--	0.0%
PGIM Quant Solutions	2.3%	23.7%	0.1	-0.3	4.8%
Russell 2000	3.6%	22.8%	0.1	--	0.0%



	Quarter		YTD		1 Year		2 Years		3 Years		5 Years		7 Years		10 Years	
	Return (Rank)															
5th Percentile	-3.2		-21.0		-13.8		8.6		8.8		9.3		11.3		11.7	
25th Percentile	-4.2		-23.2		-15.9		6.2		7.7		8.5		10.7		11.2	
Median	-4.5		-24.3		-17.6		5.0		7.1		7.9		10.2		10.7	
75th Percentile	-4.8		-25.2		-19.0		4.0		6.2		7.1		9.4		10.1	
95th Percentile	-5.6		-27.7		-22.7		0.8		4.4		5.8		8.4		9.2	
# of Portfolios	463		441		434		425		424		410		365		282	
● **US Equity**	-4.5	(44)	-20.6	(5)	-13.0	(4)	5.9	(31)	6.5	(67)	7.7	(59)	10.0	(56)	10.7	(51)
▲ **Blended US Equity Index**	-4.5	(48)	-24.6	(60)	-17.6	(52)	4.2	(64)	7.7	(23)	8.6	(17)	10.9	(17)	11.3	(22)



See appendix for the market capitalization breakpoints.

Characteristics

	Portfolio	Russell 3000
Number of Holdings	2,870	2,986
Weighted Avg. Market Cap. ($B)	295.4	402.3
Median Market Cap. ($B)	4.0	2.3
Price To Earnings	16.4	17.5
Price To Book	3.3	3.5
Price To Sales	1.5	1.7
Return on Equity (%)	24.3	24.7
Yield (%)	2.0	1.8

Top Holdings

APPLE INC	4.0%
MICROSOFT CORP	3.6%
ALPHABET INC	1.7%
AMAZON.COM INC	1.6%
TESLA INC	1.3%
JOHNSON & JOHNSON	1.2%
BERKSHIRE HATHAWAY INC	0.9%
CHEVRON CORP	0.9%
ALPHABET INC	0.9%
PROCTER & GAMBLE CO (THE)	0.8%

Best Performers

	Return %
RHYTHM PHARMACEUTICALS INC (RYTM)	490.4%
AKERO THERAPEUTICS INC (AKRO)	260.3%
FORMA THERAPEUTICS HOLDINGS INC (FMTX)	189.6%
MINERVA NEUROSCIENCES INC (NERV)	178.9%
SPERO THERAPEUTICS INC (SPRO)	169.9%
PLIANT THERAPEUTICS INC (PLRX)	160.8%
G1 THERAPEUTICS INC (GTHX)	152.8%
AVENUE THERAPEUTICS INC (ATXI)	149.5%
PROTHENA CORP PLC (PRTA)	123.3%
TARGET HOSPITALITY CORP (TH)	121.0%

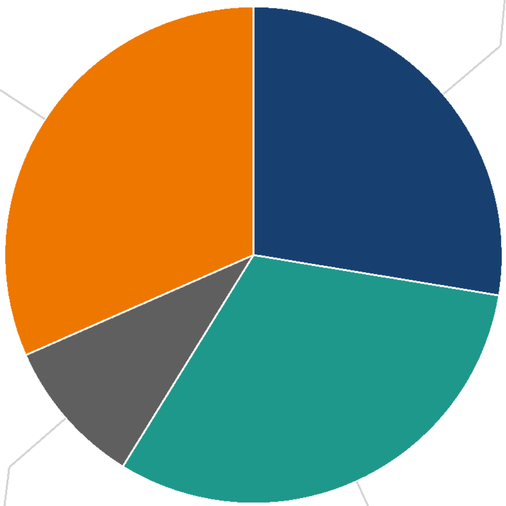
Worst Performers

	Return %
CONTRAFECT CORP (CFRX)	-94.5%
HUMANIGEN INC (HGEN)	-89.8%
ALLENA PHARMACEUTICALS INC (ALNAQ)	-89.5%
VISTAGEN THERAPEUTICS INC (VTGN)	-82.7%
EXELA TECHNOLOGIES INC (XELA)	-80.2%
AGILE THERAPEUTICS INC (AGRX)	-74.5%
AYTU BIOPHARMA INC (AYTU)	-73.2%
ATHERSYS INC (ATHX)	-71.5%
PHASEBIO PHARMACEUTICALS INC (PHASQ)	-70.7%
SELECTQUOTE INC (SLQT)	-70.6%

US Equity Performance Attribution vs. Russell 3000

	Attribution Effects					Returns		Sector Weights	
	Total Effects		Selection Effect		Allocation Effect		Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	0.1%		0.0%		0.1%		0.0%	2.2%	2.5%	4.8%	3.9%
Materials	0.0%		0.0%		-0.1%		0.0%	-5.8%	-7.0%	5.1%	2.9%
Industrials	0.0%		0.0%		0.0%		0.0%	-2.9%	-3.3%	9.7%	8.9%
Consumer Discretionary	-0.3%		-0.3%		0.0%		0.0%	1.0%	3.5%	10.4%	10.5%
Consumer Staples	0.0%		0.0%		-0.1%		0.0%	-6.4%	-6.5%	9.1%	6.4%
Health Care	0.1%		0.1%		0.0%		0.0%	-4.0%	-4.5%	14.0%	15.0%
Financials	0.0%		0.0%		0.0%		0.0%	-2.7%	-2.9%	10.1%	11.7%
Information Technology	0.3%		0.3%		0.1%		-0.1%	-4.4%	-5.7%	21.1%	25.7%
Communication Services	-0.1%		-0.1%		0.0%		0.0%	-13.4%	-12.4%	8.5%	8.2%
Utilities	-0.1%		-0.1%		0.0%		0.0%	-8.1%	-5.8%	4.4%	3.1%
Real Estate	0.1%		0.0%		0.1%		0.0%	-11.0%	-10.9%	2.7%	3.6%
Cash	0.0%		--		--		--	--	--	0.0%	0.0%
Unclassified	0.0%		0.0%		0.0%		0.0%	-5.1%	--	0.1%	0.0%
Portfolio	**0.0%**	**=**	**0.1%**	**+**	**0.0%**	**+**	**-0.1%**	**-4.5%**	**-4.5%**	**100.0%**	**100.0%**

U.S. Effective Style Map



	Actual $	Actual %	Manager Contribution to Excess Return %
Baillie Gifford	$251,609,374	27.6%	0.3%
Mondrian	$288,013,059	31.6%	-1.3%
BlackRock MSCI ACWI EX-US IMI	$284,969,809	31.2%	0.0%
International Equity Overlay	$87,364,584	9.6%	0.0%
Actual vs. Policy Weight Difference			-1.6%
Total	**$911,956,826**	**100.0%**	**-2.6%**

Statistics Summary

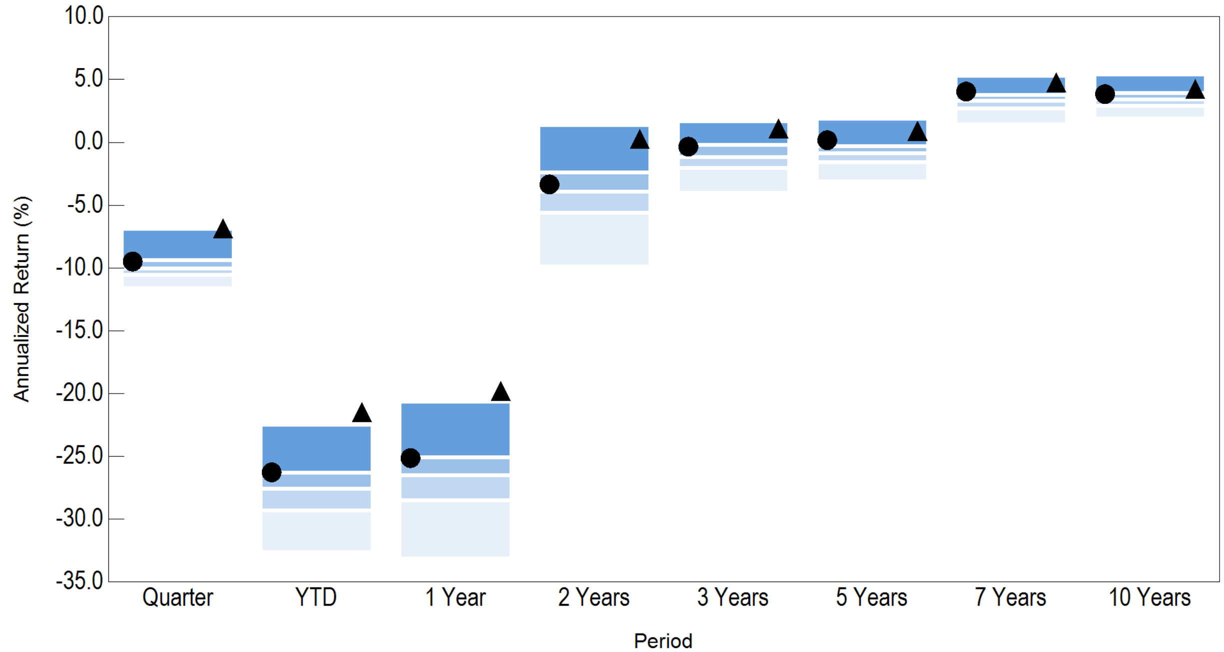
3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
International Equity	-0.3%	17.6%	0.0	-0.6	2.4%
Blended International Equity Index	1.1%	16.9%	0.0	--	0.0%
Baillie Gifford	-1.9%	22.0%	-0.1	-0.1	9.3%
MSCI ACWI ex US	-1.1%	18.5%	-0.1	--	0.0%
Mondrian	-3.6%	19.6%	-0.2	-0.6	3.2%
MSCI ACWI ex USA Value Gross	-1.5%	20.4%	-0.1	--	0.0%

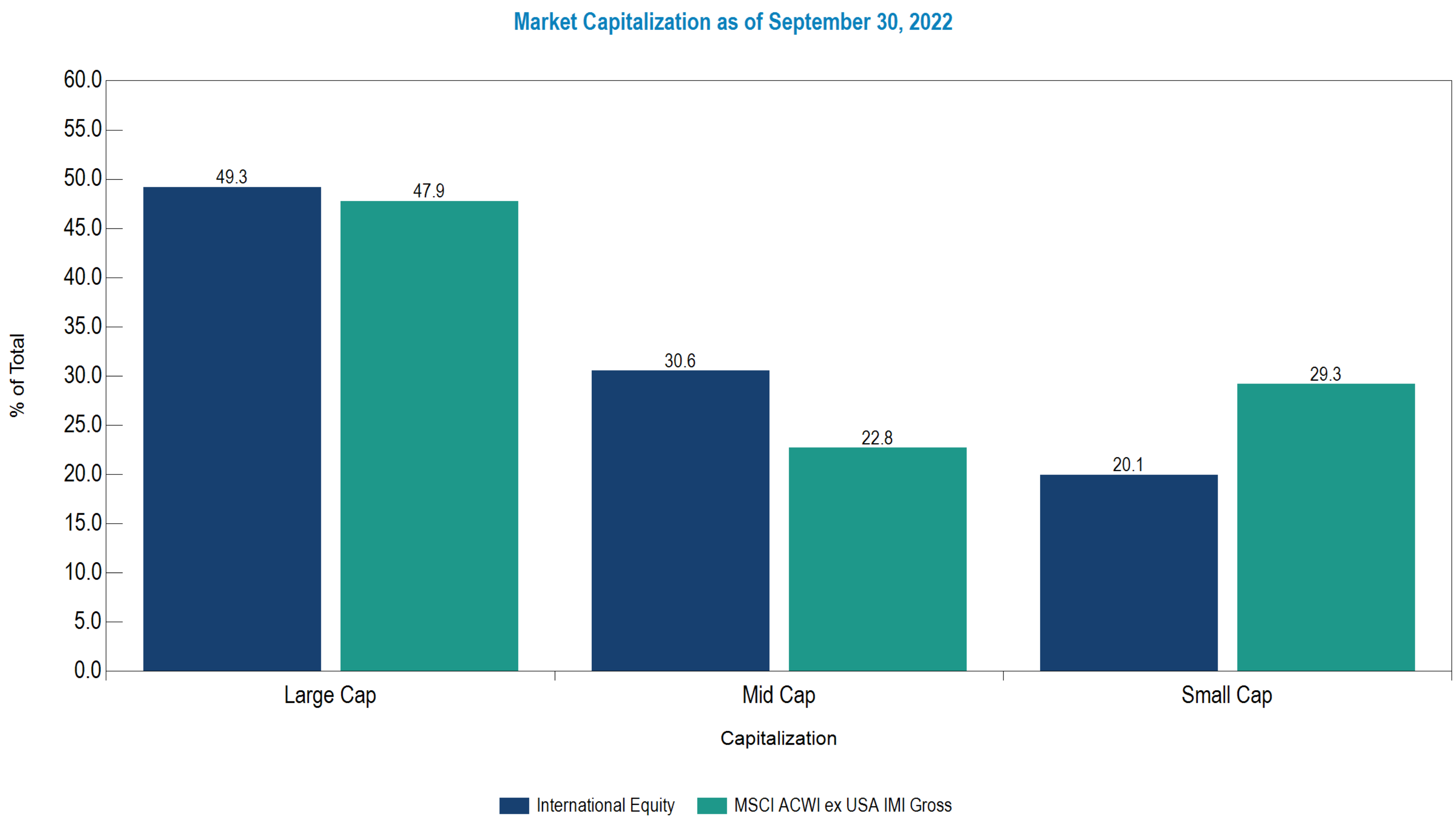
Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
International Equity	0.2%	15.6%	-0.1	-0.4	2.0%
Blended International Equity Index	0.9%	15.2%	0.0	--	0.0%
Baillie Gifford	-0.4%	19.2%	-0.1	0.0	7.9%
MSCI ACWI ex US	-0.3%	16.4%	-0.1	--	0.0%
Mondrian	-2.5%	17.1%	-0.2	-0.4	2.8%
MSCI ACWI ex USA Value Gross	-1.5%	17.9%	-0.1	--	0.0%



	Return (Rank)															
5th Percentile	-6.9		-22.5		-20.6		1.4		1.7		1.8		5.3		5.4	
25th Percentile	-9.3		-26.3		-25.0		-2.4		-0.2		-0.3		3.8		4.0	
Median	-10.0		-27.5		-26.5		-3.9		-1.2		-0.8		3.4		3.4	
75th Percentile	-10.5		-29.3		-28.5		-5.6		-2.0		-1.5		2.7		2.9	
95th Percentile	-11.6		-32.6		-33.1		-9.8		-4.0		-3.1		1.5		1.9	
# of Portfolios	312		299		293		287		286		276		253		187	
● **International Equity**	-9.5	(30)	-26.3	(25)	-25.1	(27)	-3.3	(36)	-0.3	(31)	0.2	(17)	4.0	(20)	3.8	(28)
▲ **Blended International Equity Index**	-6.9	(5)	-21.5	(5)	-19.8	(4)	0.3	(8)	1.1	(8)	0.9	(10)	4.8	(10)	4.3	(18)



See appendix for the market capitalization breakpoints.

Characteristics

	Portfolio	MSCI ACWI ex USA IMI Gross
Number of Holdings	6,679	6,650
Weighted Avg. Market Cap. ($B)	57.1	61.5
Median Market Cap. ($B)	1.5	1.4
Price To Earnings	12.3	11.2
Price To Book	2.3	2.3
Price To Sales	1.1	1.1
Return on Equity (%)	14.3	14.4
Yield (%)	3.3	3.7

Top Holdings

UNITED OVERSEAS BANK LTD	1.6%
HOUSING DEVELOPMENT FINANCE CORP LTD	1.3%
TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	1.2%
ALIBABA GROUP HOLDING LTD	1.2%
TAKEDA PHARMACEUTICAL CO LTD	1.1%
TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	1.1%
CK HUTCHISON HOLDINGS LTD	1.0%
NOVARTIS AG	1.0%
BP PLC	1.0%
ASML HOLDING NV	0.9%

Best Performers

	Return %
BIOARCTIC AB (PUBL)	223.6%
TYRO PAYMENTS LTD	102.6%
MIGROS TICARET AS	90.0%
GRUPO MATEUS S.A COM NPV	88.7%
PILBARA MINERALS LTD	86.2%
MAGAZINE LUIZA S/A	85.1%
DELTA ELECTRONICS (THAILAND) PUBLIC CO LTD	84.0%
WHITEHAVEN COAL (A:WHCX)	82.9%
NEARMAP LTD	82.5%
KARUR VYSYA BANK LTD	82.1%

Worst Performers

	Return %
HUIJING HOLDINGS CO LTD	-95.6%
SUNKWAN PROPERTIES GROUP LTD	-94.8%
CINEWORLD GROUP (UKIR:CINE)	-87.2%
CIFI HOLDINGS GROUP CO LTD	-79.7%
SAIPEM SPA	-76.6%
LOGAN GROUP COMPANY LTD	-74.8%
UNIPER SE	-74.1%
Kizilbuk Gayrimenkul Yatirim Ortakligi Anonim Sirketi	-72.7%
CIFI EVER SUNSHINE SERVICES GROUP LTD	-70.4%
BICO GROUP AB (PUBL)	-69.2%

International Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross

	Attribution Effects						Returns		Sector Weights	
	Total Effects		Selection Effect		Allocation Effect		Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	0.1%		0.1%		-0.1%		0.0%	-3.7%	-5.5%	3.9%	5.7%
Materials	0.2%		0.1%		-0.1%		0.2%	-6.0%	-7.2%	5.0%	8.5%
Industrials	-0.3%		-0.4%		0.0%		0.0%	-10.4%	-8.0%	13.7%	12.9%
Consumer Discretionary	-0.2%		-0.1%		-0.1%		-0.1%	-12.5%	-12.3%	14.4%	11.6%
Consumer Staples	-0.2%		-0.1%		0.0%		-0.1%	-8.1%	-6.6%	9.4%	8.6%
Health Care	-0.3%		-0.2%		0.0%		-0.1%	-12.1%	-11.1%	11.4%	9.4%
Financials	0.2%		-0.1%		-0.1%		0.3%	-7.6%	-7.8%	15.1%	19.0%
Information Technology	-0.4%		-0.2%		0.0%		-0.1%	-13.2%	-11.8%	13.3%	11.0%
Communication Services	-0.3%		-0.1%		-0.1%		-0.1%	-17.6%	-16.1%	7.8%	6.1%
Utilities	-0.2%		-0.2%		0.0%		0.0%	-15.6%	-10.5%	3.4%	3.4%
Real Estate	0.2%		0.0%		0.1%		0.1%	-13.6%	-13.8%	1.2%	3.6%
Cash	0.1%		0.0%		0.1%		0.0%	0.5%	--	1.3%	0.0%
Unclassified	0.0%		0.0%		0.0%		0.0%	-72.7%	--	0.0%	0.0%
Portfolio	**-1.2%**	**=**	**-1.0%**	**+**	**-0.3%**	**+**	**0.2%**	**-10.8%**	**-9.6%**	**100.0%**	**100.0%**

Int'l Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross

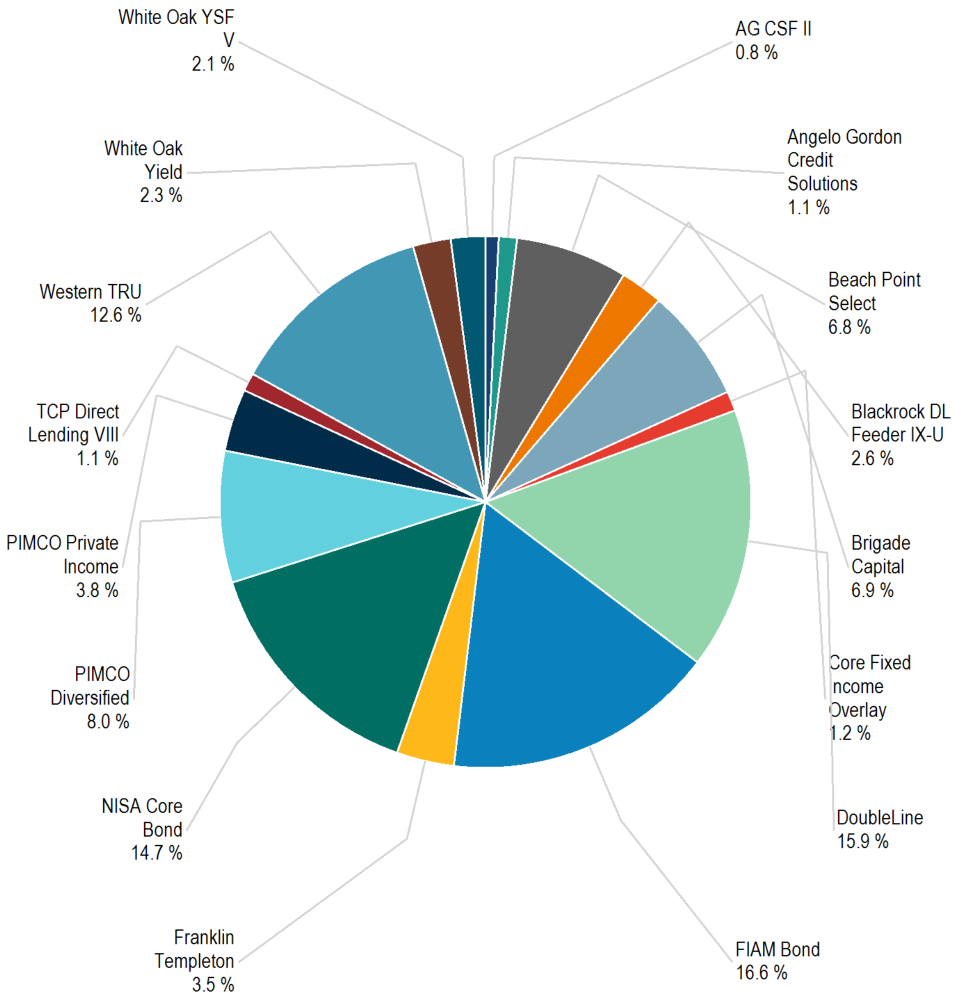
	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
Europe									
Austria	-12.5%	-11.4%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Belgium	-14.8%	-13.6%	0.2%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Czech Republic*	-18.3%	-17.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Denmark	-9.9%	-12.0%	0.7%	1.6%	0.0%	0.0%	0.1%	0.0%	0.1%
Finland	-7.7%	-8.6%	0.3%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
France	-13.3%	-9.1%	5.8%	6.3%	-0.3%	0.0%	0.0%	0.0%	-0.2%
Germany	-18.4%	-13.1%	3.3%	4.6%	-0.3%	0.0%	0.1%	0.1%	-0.1%
Greece*	-7.5%	-7.5%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Hungary*	-15.2%	-15.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Ireland	-0.9%	-4.6%	0.5%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Italy	-17.5%	-9.4%	2.3%	1.5%	-0.1%	0.0%	0.0%	-0.1%	-0.2%
Luxembourg	-9.0%	-9.6%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Netherlands	-11.8%	-10.7%	4.6%	2.4%	0.0%	0.0%	-0.2%	0.0%	-0.2%
Norway	-15.2%	-14.5%	0.2%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Poland*	-24.7%	-24.2%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Portugal	-13.8%	-12.9%	0.5%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Spain	-15.5%	-14.2%	1.4%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Sweden	-6.3%	-10.2%	1.9%	2.3%	0.1%	0.0%	0.0%	0.0%	0.1%
Switzerland	-7.4%	-7.4%	4.1%	6.0%	0.0%	0.0%	0.0%	0.0%	0.1%
United Kingdom	-13.7%	-11.8%	12.5%	10.1%	-0.2%	0.0%	-0.2%	-0.1%	-0.4%

Int'l Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross

	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
AsiaPacific									
Australia	-6.7%	-5.9%	2.5%	5.1%	0.0%	-0.1%	0.2%	0.0%	0.0%
China*	-21.2%	-22.6%	8.5%	9.4%	0.2%	0.1%	0.0%	0.0%	0.3%
Hong Kong	-21.3%	-16.9%	5.3%	2.0%	-0.1%	-0.4%	0.0%	-0.1%	-0.6%
India*	6.7%	7.6%	4.2%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Indonesia*	6.6%	6.4%	0.5%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Japan	-8.6%	-7.0%	19.4%	14.8%	-0.3%	0.2%	-0.3%	-0.1%	-0.4%
Korea*	-17.0%	-17.2%	3.0%	3.4%	0.0%	0.0%	0.0%	0.0%	0.1%
Malaysia*	-7.4%	-6.9%	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
New Zealand	-9.9%	-5.8%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Philippines*	-11.8%	-12.4%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Singapore	-1.6%	-3.1%	1.9%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Taiwan*	-12.9%	-13.1%	4.7%	4.5%	-0.1%	0.0%	0.1%	0.0%	0.0%
Thailand*	-6.2%	-4.2%	0.4%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Americas									
Argentina*	30.0%	19.9%	0.4%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%
Brazil*	7.3%	8.4%	1.6%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Canada	-8.4%	-7.6%	3.4%	8.0%	-0.1%	-0.1%	0.3%	0.1%	0.1%
Chile*	3.1%	3.1%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Colombia*	-20.6%	-21.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mexico*	3.8%	-4.8%	0.6%	0.6%	0.1%	0.0%	0.0%	0.0%	0.1%
Peru*	2.4%	-1.6%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
United States	-0.4%	-4.8%	1.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%

Int'l Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross

	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
Other									
Egypt*	-2.0%	-0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Israel	-3.0%	-3.0%	0.2%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Kuwait*	-6.5%	-6.5%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Qatar*	0.7%	0.7%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Saudi Arabia*	-0.2%	-0.2%	0.4%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%
South Africa*	-11.6%	-11.3%	0.4%	1.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Turkey*	17.4%	17.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
United Arab Emirates*	-2.4%	-2.4%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Totals									
Americas	-0.5%	-5.0%	7.3%	10.3%	0.2%	-0.1%	0.3%	-0.1%	0.4%
Europe	-12.8%	-10.7%	38.9%	39.5%	-0.8%	0.0%	0.0%	0.0%	-0.8%
Asia/Pacific	-11.2%	-10.3%	51.0%	46.2%	-0.6%	-0.1%	0.0%	-0.1%	-0.7%
Other	-3.7%	-3.7%	1.4%	4.0%	0.0%	-0.1%	0.1%	0.0%	0.0%
Cash	0.5%	--	1.3%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%
Unclassified	--	--	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Total	**-10.8%**	**-9.6%**	**100.0%**	**100.0%**	**-1.1%**	**-0.2%**	**0.4%**	**-0.1%**	**-1.1%**
Totals									
Developed	-11.4%	-9.2%	73.0%	70.9%	-1.8%	0.0%	0.1%	-0.1%	-1.7%
Emerging*	-9.6%	-10.8%	25.7%	29.1%	0.2%	0.1%	0.2%	0.0%	0.5%
Cash	0.5%	--	1.3%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%



	Actual $	Actual %	Manager Contribution to Excess Return %
AG CSF Annex Dislocation Fund	$360	0.0%	0.0%
AG CSF II	$11,700,000	0.8%	0.0%
Angelo Gordon Credit Solutions	$15,200,000	1.1%	0.0%
Angelo Gordon Opportunistic	$243,044	0.0%	0.0%
Beach Point Select	$94,847,689	6.8%	-0.1%
Blackrock DL Feeder IX-U	$35,886,150	2.6%	0.0%
Brigade Capital	$95,448,801	6.9%	-0.1%
DoubleLine	$221,557,175	15.9%	0.0%
FIAM Bond	$231,153,009	16.6%	0.1%
Franklin Templeton	$48,534,655	3.5%	0.0%
NISA Core Bond	$204,436,929	14.7%	0.0%
PIMCO Diversified	$110,968,582	8.0%	0.0%
PIMCO Private Income	$52,605,798	3.8%	0.0%
TCP Direct Lending VIII	$15,902,003	1.1%	0.0%
Western TRU	$174,962,458	12.6%	-0.6%
White Oak Yield	$32,081,157	2.3%	0.0%
White Oak YSF V	$29,540,498	2.1%	0.0%
Core Fixed Income Overlay	$16,439,633	1.2%	0.0%
Actual vs. Policy Weight Difference			0.3%
Total	**$1,391,507,940**	**100.0%**	**-0.4%**

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Fixed Income	-1.2%	5.1%	-0.3	0.5	2.3%
Blended Fixed Income Index	-2.3%	6.3%	-0.4	--	0.0%
Core Fixed	-2.8%	5.0%	-0.7	0.3	1.4%
Bloomberg US Aggregate TR	-3.3%	5.4%	-0.7	--	0.0%
FIAM Bond	-2.1%	5.8%	-0.5	0.7	1.5%
Bloomberg US Aggregate TR	-3.3%	5.4%	-0.7	--	0.0%
Western TRU	-2.9%	7.5%	-0.4	-0.5	7.6%
3-Month Libor Total Return USD	0.9%	0.3%	1.4	--	0.0%
Opportunistic Credit	1.6%	7.4%	0.2	0.3	5.5%
Bloomberg BA Intermediate HY	-0.2%	10.0%	-0.1	--	0.0%
Angelo Gordon Opportunistic	8.9%	20.2%	0.4	0.6	20.8%
Bloomberg US Aggregate TR	-3.3%	5.4%	-0.7	--	0.0%
Beach Point Select	6.4%	9.5%	0.6	1.0	6.3%
Bloomberg BA Intermediate HY	-0.2%	10.0%	-0.1	--	0.0%
Brigade Capital	3.2%	12.5%	0.2	0.4	7.9%
Bloomberg BA Intermediate HY	-0.2%	10.0%	-0.1	--	0.0%
PIMCO Diversified	-3.6%	8.9%	-0.5	-0.2	1.2%
Blended PIMCO Diversified Index	-3.4%	9.5%	-0.4	--	0.0%
Franklin Templeton	-9.5%	7.5%	-1.3	-0.7	5.7%
Bloomberg Multiverse TR	-5.6%	7.0%	-0.9	--	0.0%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Private Credit	5.9%	4.2%	1.3	-0.8	2.3%
Cliffwater Direct Lending Index	7.6%	5.6%	1.3	--	0.0%
PIMCO Private Income	7.5%	8.6%	0.8	0.7	10.5%
Bloomberg BA Intermediate HY	-0.2%	10.0%	-0.1	--	0.0%
TCP Direct Lending VIII	4.5%	3.4%	1.2	-0.6	4.8%
Cliffwater Direct Lending Index	7.6%	5.6%	1.3	--	0.0%
White Oak Yield	5.4%	2.9%	1.7	-0.6	3.6%
Cliffwater Direct Lending Index	7.6%	5.6%	1.3	--	0.0%

Statistics Summary

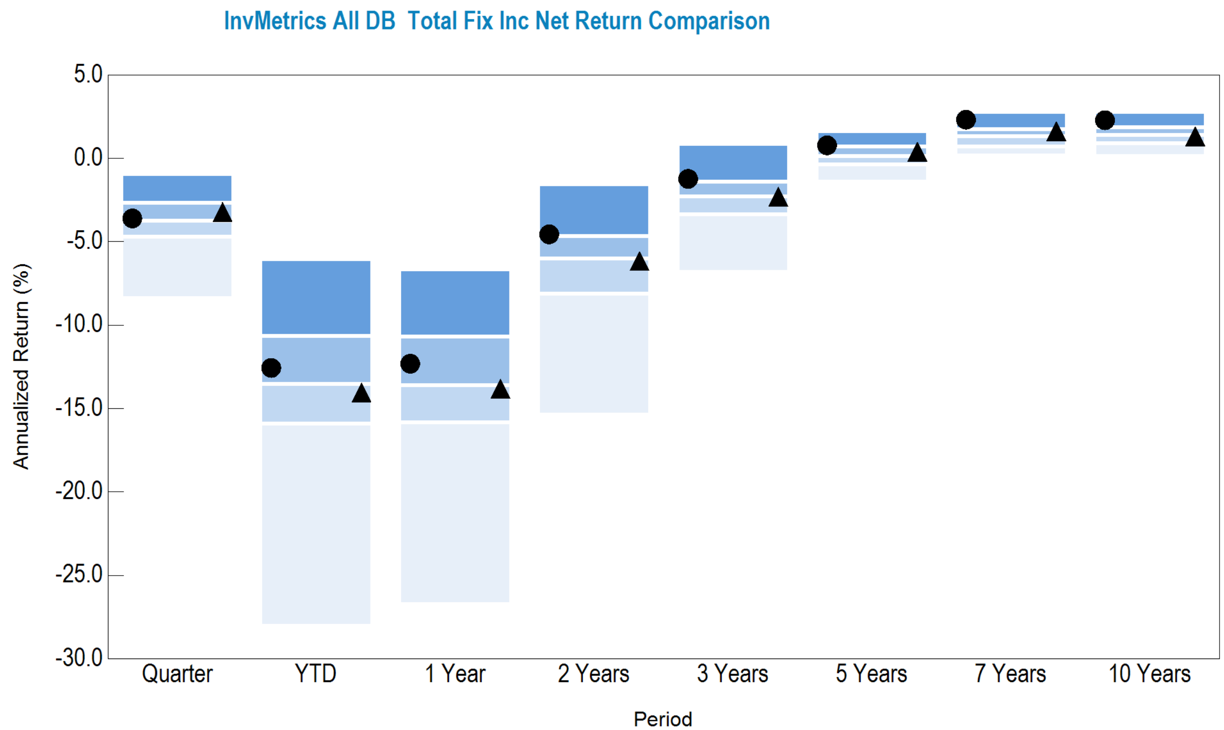
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Fixed Income	0.8%	4.2%	-0.1	0.2	2.1%
Blended Fixed Income Index	0.4%	5.3%	-0.1	--	0.0%
Core Fixed	-0.3%	4.3%	-0.3	0.0	1.4%
Bloomberg US Aggregate TR	-0.3%	4.8%	-0.3	--	0.0%
FIAM Bond	0.5%	5.0%	-0.1	0.6	1.2%
Bloomberg US Aggregate TR	-0.3%	4.8%	-0.3	--	0.0%
Western TRU	-0.9%	6.3%	-0.3	-0.4	6.3%
3-Month Libor Total Return USD	1.5%	0.3%	1.2	--	0.0%
Opportunistic Credit	2.8%	6.0%	0.3	0.2	4.6%
Bloomberg BA Intermediate HY	1.8%	8.1%	0.1	--	0.0%
Angelo Gordon Opportunistic	13.3%	16.8%	0.7	0.8	17.4%
Bloomberg US Aggregate TR	-0.3%	4.8%	-0.3	--	0.0%
Beach Point Select	6.2%	7.6%	0.7	0.8	5.2%
Bloomberg BA Intermediate HY	1.8%	8.1%	0.1	--	0.0%
Brigade Capital	3.0%	10.0%	0.2	0.2	6.5%
Bloomberg BA Intermediate HY	1.8%	8.1%	0.1	--	0.0%
PIMCO Diversified	-0.2%	7.3%	-0.2	0.0	1.1%
Blended PIMCO Diversified Index	-0.2%	7.8%	-0.2	--	0.0%
Franklin Templeton	-6.1%	7.6%	-0.9	-0.5	7.1%
Bloomberg Multiverse TR	-2.3%	6.0%	-0.6	--	0.0%

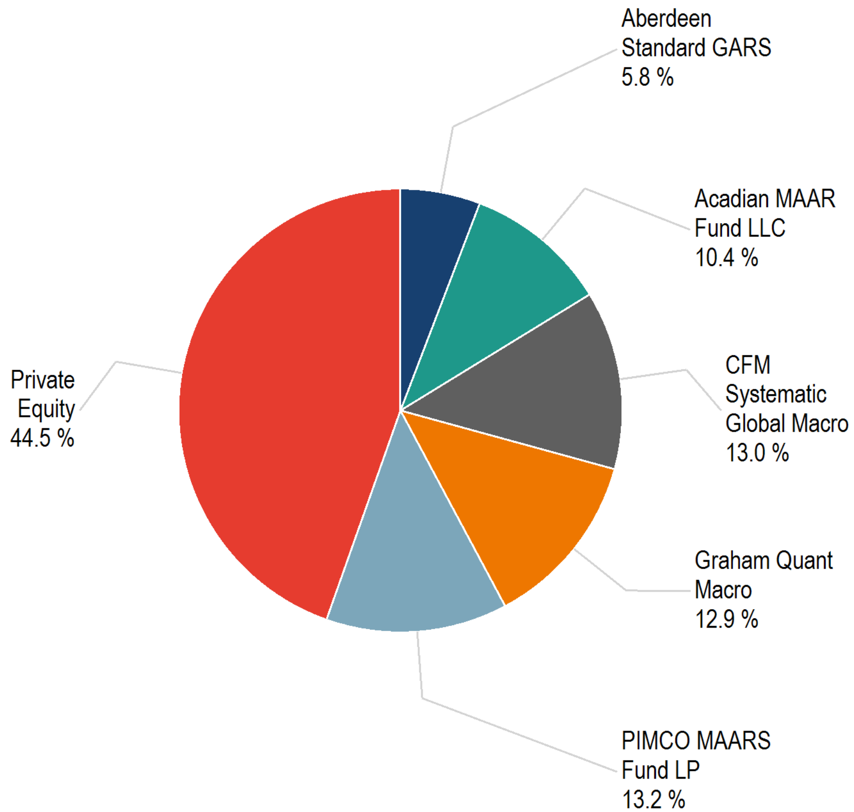
Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Private Credit	6.6%	3.5%	1.6	-0.6	2.3%
Cliffwater Direct Lending Index	8.0%	4.9%	1.4	--	0.0%
TCP Direct Lending VIII	5.5%	2.8%	1.6	-0.6	4.5%
Cliffwater Direct Lending Index	8.0%	4.9%	1.4	--	0.0%
White Oak Yield	6.3%	3.1%	1.7	-0.6	2.9%
Cliffwater Direct Lending Index	8.0%	4.9%	1.4	--	0.0%



	Return (Rank)															
5th Percentile	-1.0		-6.1		-6.7		-1.6		0.8		1.6		2.8		2.8	
25th Percentile	-2.7		-10.6		-10.7		-4.7		-1.4		0.7		1.8		1.9	
Median	-3.7		-13.5		-13.6		-6.0		-2.3		0.1		1.3		1.4	
75th Percentile	-4.7		-15.9		-15.8		-8.1		-3.3		-0.3		0.7		0.9	
95th Percentile	-8.4		-28.0		-26.7		-15.4		-6.8		-1.4		0.2		0.2	
# of Portfolios	245		230		221		219		217		205		185		147	
● **Fixed Income**	-3.6	(47)	-12.6	(38)	-12.3	(36)	-4.6	(25)	-1.2	(22)	0.8	(20)	2.3	(8)	2.3	(12)
▲ **Blended Fixed Income Index**	-3.2	(36)	-14.0	(55)	-13.8	(53)	-6.2	(53)	-2.3	(51)	0.4	(38)	1.6	(33)	1.3	(57)



	Actual $	Actual %	Manager Contribution to Excess Return %
Aberdeen Standard GARS	$47,653,109	5.8%	-0.3%
Acadian MAAR Fund LLC	$85,165,510	10.4%	0.2%
CFM Systematic Global Macro	$106,182,154	13.0%	0.9%
Graham Quant Macro	$105,511,190	12.9%	-0.1%
PIMCO MAARS Fund LP	$108,018,535	13.2%	0.9%
Private Equity	$363,387,123	44.5%	3.8%
Actual vs. Policy Weight Difference			0.5%
Total	**$815,917,620**	**100.0%**	**5.8%**

Statistics Summary

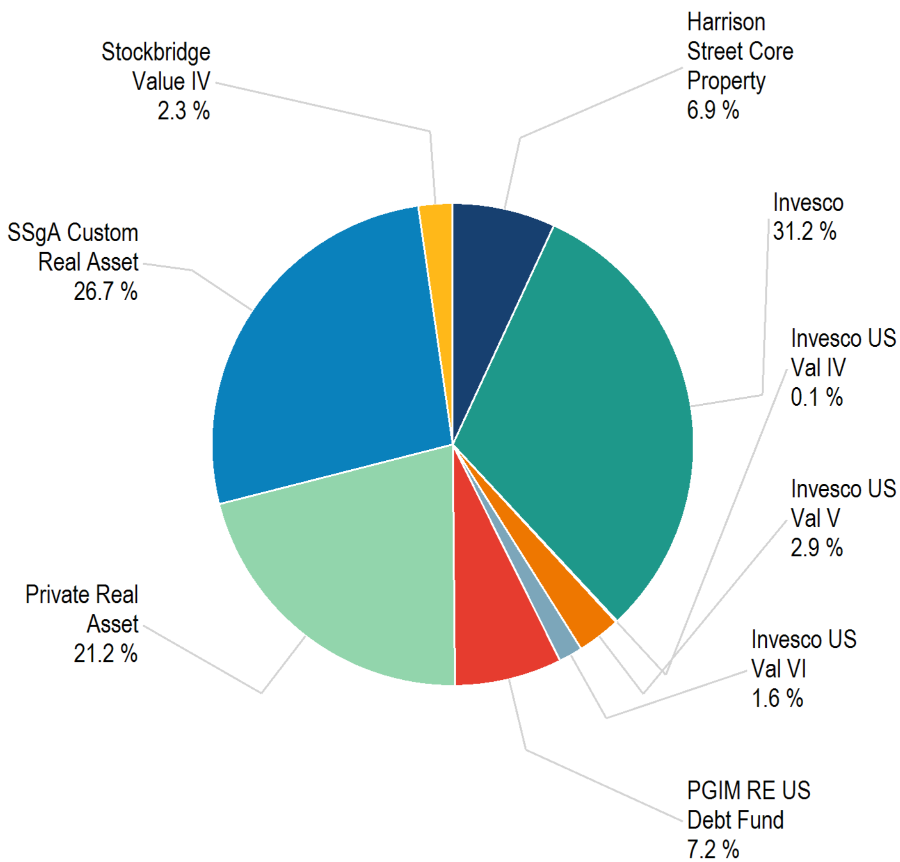
3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Alternatives	14.4%	14.7%	0.9	0.4	14.3%
Blended Alternatives Index	8.7%	9.2%	0.9	--	0.0%
Private Equity	23.2%	25.5%	0.9	0.4	24.6%
Blended Private Equity Index	12.8%	18.9%	0.7	--	0.0%
Hedge Fund/Absolute Return	2.4%	7.6%	0.2	-0.3	7.7%
Absolute Return Custom Index	4.6%	0.2%	16.4	--	0.0%
Aberdeen Standard GARS	-1.4%	5.1%	-0.4	-1.2	5.1%
Absolute Return Custom Index	4.6%	0.2%	16.4	--	0.0%

Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Alternatives	11.4%	12.3%	0.8	0.2	12.3%
Blended Alternatives Index	9.0%	8.5%	0.9	--	0.0%
Private Equity	22.0%	21.2%	1.0	0.4	21.3%
Blended Private Equity Index	12.4%	17.3%	0.7	--	0.0%
Hedge Fund/Absolute Return	-1.1%	6.7%	-0.3	-0.9	6.8%
Absolute Return Custom Index	5.2%	0.3%	13.8	--	0.0%
Aberdeen Standard GARS	-0.2%	4.7%	-0.3	-1.1	4.7%
Absolute Return Custom Index	5.2%	0.3%	13.8	--	0.0%



	Actual $	Actual %	Manager Contribution to Excess Return %
Harrison Street Core Property	$72,606,874	6.9%	0.1%
Invesco	$329,726,685	31.2%	0.3%
Invesco US Val IV	$1,347,468	0.1%	-0.1%
Invesco US Val V	$30,297,027	2.9%	0.0%
Invesco US Val VI	$16,563,296	1.6%	0.0%
PGIM RE US Debt Fund	$75,990,888	7.2%	0.1%
Stockbridge Value IV	$24,739,655	2.3%	0.0%
Private Real Asset	$223,902,087	21.2%	1.3%
SSgA Custom Real Asset	$281,700,897	26.7%	0.0%
Actual vs. Policy Weight Difference			-0.2%
Total	**$1,056,874,877**	**100.0%**	**1.5%**

Statistics Summary

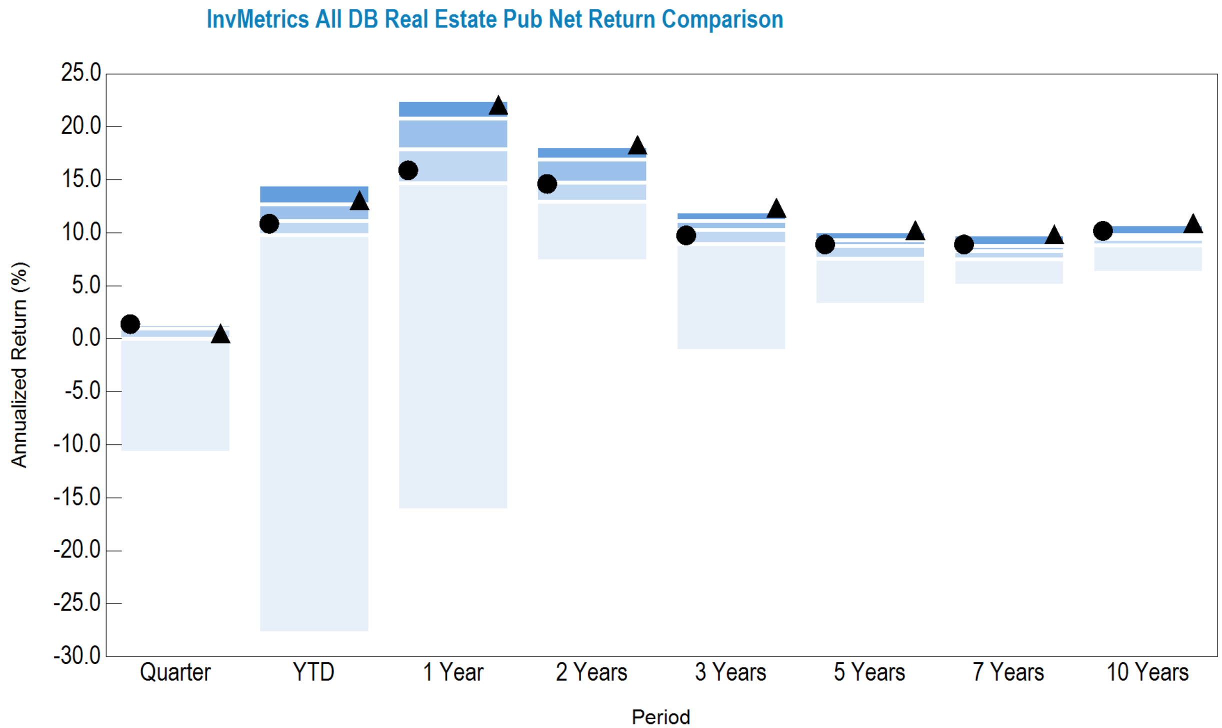
3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Inflation Hedge	6.4%	7.7%	0.8	-0.9	4.6%
Blended Inflation Hedge Index	10.4%	8.0%	1.2	--	0.0%
Real Estate	9.8%	5.9%	1.6	-0.9	2.8%
NCREIF ODCE	12.4%	7.8%	1.5	--	0.0%
Invesco	11.1%	7.9%	1.3	-0.5	2.5%
NCREIF ODCE	12.4%	7.8%	1.5	--	0.0%
Invesco US Val IV	-11.2%	23.3%	-0.5	-1.0	23.4%
NCREIF ODCE	12.4%	7.8%	1.5	--	0.0%
Invesco US Val V	13.0%	9.4%	1.3	0.1	7.0%
NCREIF ODCE	12.4%	7.8%	1.5	--	0.0%
PGIM RE US Debt Fund	5.2%	1.3%	3.6	-0.9	7.6%
NCREIF ODCE	12.4%	7.8%	1.5	--	0.0%
Private Real Asset	12.8%	13.1%	0.9	0.3	22.5%
Blended Private Real Asset Index	6.7%	20.7%	0.3	--	0.0%
Public Real Assets	0.7%	20.4%	0.0	-1.0	4.2%
Blended Public Real Asset Index	4.9%	17.5%	0.3	--	0.0%
SSgA Custom Real Asset	4.9%	17.3%	0.3	0.0	0.9%
SSgA Custom Real Asset Index	4.9%	17.5%	0.3	--	0.0%

Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error Rank
Inflation Hedge	5.1%	6.6%	0.6	-0.8	--
Blended Inflation Hedge Index	8.0%	6.8%	1.0	--	--
Real Estate	8.9%	5.0%	1.6	-0.6	38
NCREIF ODCE	10.2%	6.3%	1.5	--	1
Invesco	9.7%	6.4%	1.3	-0.3	--
NCREIF ODCE	10.2%	6.3%	1.5	--	--
Invesco US Val IV	-2.7%	18.4%	-0.2	-0.7	--
NCREIF ODCE	10.2%	6.3%	1.5	--	--
PGIM RE US Debt Fund	5.7%	2.0%	2.3	-0.8	--
NCREIF ODCE	10.2%	6.3%	1.5	--	--
Private Real Asset	5.4%	11.9%	0.4	0.0	--
Blended Private Real Asset Index	5.9%	17.8%	0.3	--	--
Public Real Assets	0.5%	17.3%	0.0	-0.9	--
Blended Public Real Asset Index	3.4%	15.1%	0.2	--	--
SSgA Custom Real Asset	3.5%	15.0%	0.2	0.0	--
SSgA Custom Real Asset Index	3.4%	15.1%	0.2	--	--



	Return (Rank)															
5th Percentile	1.7		14.5		22.5		18.2		12.0		10.1		9.8		10.8	
25th Percentile	1.4		12.7		20.8		17.0		11.1		9.3		8.8		9.8	
Median	1.0		11.1		17.9		14.8		10.3		8.8		8.3		9.5	
75th Percentile	0.0		9.8		14.7		12.9		8.9		7.6		7.5		8.9	
95th Percentile	-10.7		-27.8		-16.1		7.3		-1.1		3.2		5.1		6.2	
# of Portfolios	73		71		71		69		69		68		63		59	
● Real Estate	1.4	(35)	10.9	(58)	15.9	(65)	14.6	(53)	9.8	(63)	8.9	(44)	8.9	(24)	10.2	(13)
▲ NCREIF ODCE	0.5	(65)	13.1	(17)	22.1	(10)	18.3	(5)	12.4	(5)	10.2	(3)	9.8	(4)	10.9	(4)

Aberdeen Standard (ASI) Global Absolute Return Strategy (GARS)

The Aberdeen Standard Global Absolute Return Strategy (GARS) was designed in 2005 to address the needs of Standard Life's own Defined Benefit pension plan, with an objective to generate absolute returns with significantly less volatility than equity investments. The GARS investment process is designed to capitalize on an array of research and investment techniques and draws together the team's three-year investment insights. The team then examines and reviews position proposals to approve a high conviction, short list of positions that should work well together. The GARS strategy is built using a broad range of return-seeking positions (i.e. multi-strategy) that incorporate multiple risk views when constructing the portfolio.The strategy will take some directional risk at times if the portfolio management team believes that it will earn positive returns over their three-year time horizon. Given the scale of the GARS portfolio, the team requires all investment positions to be both scalable and suitably liquid. In addition, the strategy's risk-based approach requires the team to be able to reliably model the risk behavior of each selected investment, so all assets used must be well-understood from a risk perspective before going into the portfolio.

Acadian Asset Management – Acadian U.S. Managed Volatility

Acadian's goal is to build a portfolio focused on absolute return and risk with the aim of achieving an absolute return similar to or better than that of a domestic equity index but with lower volatility over the long term. Acadian targets absolute risk to be 25-35% less than a typical capitalization-weighted benchmark. That said, tracking error is not a major consideration and can appear relatively high due in part to Acadian's comfort with carrying large sector variations versus the benchmark. Acadian seeks to combine the values of all of the security-level factors to determine a peer-relative return forecast for each stock. Separately they make a top-down forecast for the stock's peer group, and then add that forecast to the stock's score. Acadian's managed volatility strategies utilize the same alpha forecasts as Acadian's active equity strategies but with risk being the initial consideration when constructing portfolios. Alpha forecasts play a modest role relative to the importance of risk estimates but are important to the goal of achieving a higher risk-adjusted return. Incorporation of alpha forecasts generally results in higher exposure to value, size and quality.

Acadian Asset Management – MAARS Fund

Acadian Multi-Asset Absolute Return (MAARS) strategy was incepted in November 2017. MAARS targets a volatility of 6%-8% and a return of cash plus 5%. This is a multi-factor strategy that aims to exploit behavioral inefficiencies within and across global markets and is designed to be diversifying, dynamic and defensive. It is market neutral, implemented using long and short positions across five primary asset classes (equity, fixed income, currency, commodities, and volatility) and over 100 underlying assets with a focus on liquid instruments. Return forecasts incorporate asset-specific and macroeconomic insights and are utilized to harvest active returns from within and across asset classes through market selection and directional positioning. The strategy integrates risk and return across asset classes. Avoidance of downside events is highlighted in the approach with a greater weighting in their models allocated to down market beneficiaries, such as quality factors, and asymmetric positioning which reduces positions when risk rises. Differentiated attributes of this approach are its approach and weighting to commodities and its volatility sleeve which can incorporate long volatility.

Angelo, Gordon & Co. – AG Opportunistic Whole Loan Fund

The Angelo Gordon Opportunistic Whole Loan (OWL) Fund was established to make investments primarily in a portfolio of non-performing loans (NPLs) and re-performing loans (RPLs). AG sees a lot of operational inefficiency in the market place. By acquiring these loans at a discounted price and replacing original servicers with better-focused special servicers, AG believes it can improve operational efficiency and generate attractive returns. In addition, OWL may also include investments in new residential mortgage loans and excess mortgage servicing rights. Opportunistic investments in commercial mortgage loans and other mortgage related investments may also be included in the Fund's portfolio. OWL is towards the end of its fund life and is continuing to sell down the fund's holdings and distribute proceeds to LPs.

Angelo, Gordon & Co. – Credit Solutions

The Angelo Gordon (AG) Credit Solutions Fund (CSF) expects to hold concentrated positions of 5-8% of NAV (averaging 30 positions over the life of the Fund with recycling). The Fund is targeting a net 15% IRR with a 5-7% current yield. The Fund should be 70% concentrated in the U.S. with the balance in Europe. Finally, while the opportunities can be sourced from both the public markets and the private markets, AG is finding compelling sources of return at this time through structuring new privately placed secured term loans out of public investments made by the firm. CSF will address corporate credit-based opportunities created in three main areas: 1) trading-based price dislocations that reduce creation multiples (price through the debt that must be repaid before value accrues to other stakeholders) while generating high current income; 2) opportunities in issuers tied to industries directly impacted by COVID-19 where the market's perception of the impact differs from the actual impact; and 3) corporate debt issuers that will be materially impacted by the pandemic and will need to restructure, but whose creation value is materially lower than the issuer's intrinsic value.

Angelo, Gordon & Co. – CSF (Annex) Dislocation

Angelo Gordon completed syndication of its AG Credit Solutions Fund ("CSF") in December of 2019. CSF was designed to capture opportunities in a late-cycle credit market and the initial stages of a market dislocation. Angelo Gordon designed and documented CSF to allow the placement of an annex fund in times of dislocation and credit deterioration. Given the price movements in the credit markets in March of 2020, driven by the lack of liquidity, financing needs of investment grade and non-investment grade borrowers, and anticipated impacts (restructurings, rescue financings, liquidations, etc.), Angelo Gordon came to market with the $1.8 billion AG CSF Annex Dislocation Fund ("ADF"). ADF's investment aim is to target senior securities of world-class businesses with irreplaceable assets and strong cash flow profiles which, because of market stress, can be purchased at a material discount to what they believe is a company's long-term intrinsic value. ADF will address corporate credit-based opportunities created in three main areas: 1) trading-based price dislocations that reduce creation multiples (price through the debt that must be repaid before value accrues to other stakeholders) while generating high current income; 2) opportunities in issuers tied to industries directly impacted by COVID-19 where the market's perception of the impact differs from the actual impact; and 3) corporate debt issuers that will be materially impacted by the pandemic and will need to restructure, but whose creation value is materially lower than the issuer's intrinsic value.

Angelo, Gordon & Co. – Credit Solutions II

Like its predecessor funds, the Angelo Gordon (AG) Credit Solutions Fund II (CSF II) is an all-weather, solutions-based strategy that targets net returns of 14+% with 5-7% current yield. The Fund will invest in single-name opportunities where price movements and credit documents afford creative financing solutions. This could include companies with upcoming debt maturities, working capital issues, or inefficient capital structures that are inflating financing costs.In these cases, AG will seek to work with management and other creditors to structure a bespoke transaction that avoids bankruptcy and solves the issue for the company in exchange for debt securities with conservative attachment points and healthy yield. While the opportunities are likely to be sourced 75% from the public markets and 25% from the private markets, the "solutions" will likely be private products. During periods of dislocation, the Fund can pivot towards trading-oriented strategies where there is not a need for additional financing, such as sourcing debt in the secondary markets at discounts to intrinsic value.CSF II expects to hold concentrated positions of 5-8% of NAV (averaging 30 positions over the life of the Fund with recycling). The fund should be 70% concentrated in the U.S. with the balance in Europe.

Baillie Gifford – ACWI ex US Focus Equities

ACWI ex US Focus is a fundamental growth strategy. Research is organized primarily by regional teams, with each member of the ACWI ex US Focus Portfolio Construction Group representing a regional team. Four global sector groups also contribute research. Baillie Gifford conducts approximately 2000 company meetings annually both in Edinburgh and onsite. Companies are evaluated on their growth opportunity relative to the average company, their ability to execute on that opportunity, and the degree to which probability of future success is already valued by the market. Baillie Gifford's basic philosophy is that share prices ultimately follow earnings. They believe that the stock market has a recurring tendency to under-appreciate the value of long-term compound growth. The process seeks to add value through use of proprietary fundamental research to identify companies exhibiting some combination of sustained above average growth, and attractive financial characteristics. The portfolio generally holds 60-90stocks, with country and sector weights +/-10% relative to the index and stock weights +/- 5% relative to the index.

Beach Point Capital Management, L.P. - Beach Point Select Fund

Beach Point Select Fund is a commingled fund vehicle within the firm's Opportunistic Credit strategy. This fund focuses on off-the-run, complex, and less-liquid securities. It is a best ideas portfolio of distressed debt, special situations, private/direct loans, catalyst-driven high yield bonds and bank loans, and credit-informed equities with a North American and European focus. The Select Fund differs from other funds and accounts in the Opportunistic Credit strategy by pursuing a more concentrated portfolio and emphasizing a higher percentage of less-liquid/private investments. Beach Point invests up and down the entire capital structure and it constructs portfolios with a bottom-up, research-driven approach that also takes into account top-down macro considerations. Its investment process includes idea generation, detailed credit analysis, relative value decision making and investment selection, portfolio construction and on-going monitoring. The ultimate goal of its investment process is to produce a well-diversified investment portfolio with limited downside risk and substantial upside potential.

BlackRock – MSCI ACWI ex US IMI Index

The ACWI ex US IMI Index Fund seeks to replicate the return of the MSCI ACWI ex US IMI Index. This index represents the developed equity markets outside of North America, including small cap equity. BlackRock monitors their funds daily to ensure that additions and deletions to the indexes, mergers and acquisitions, restructurings and other capitalization changes are made to the fund in such a way as to minimize tracking error and transactions costs.

BlackRock – Russell 1000 Index

The Russell 1000 Index Fund tracks large U.S. companies and achieve broad diversification with low costs by fully replicating the Russell 1000 Index. BlackRock monitors their funds daily to ensure that additions and deletions to the indexes, mergers and acquisitions, restructurings and other capitalization changes are made to the fund in such a way as to minimize tracking error and transactions costs.

BlackRock (formerly Tennenbaum Capital Partners) - Direct Lending Funds VIII and IX

TCP Direct Lending Fund VIII is a private investment fund managed by Tennenbaum Capital Partners ("TCP"). The Fund is designed to continue TCP's successful strategy of investing in privately-originated, performing senior secured debt primarily in North America-based companies with target enterprise values between $100 million and $1.5 billion. The Fund will include positions in 1st lien, 2nd lien and unitranche debt, with a preference for floating-rate debt, which TCP believes provides better flexibility to adapt to market conditions. TCP's direct lending strategy has generated attractive investment opportunities across market cycles, as evidenced by the Firm's prior direct lending track record. Fund VIII targets an unlevered annual yield of approximately 9-12%, with its return primarily driven by current income. SamCERA committed $35 million to DLF VIII in June 2016 in its unlevered fund sleeve and $35 million to the DLF IX in June 2019.

Brigade – Opportunistic Credit

Opportunistic Credit is a fundamental, bottom-up strategy focused on high yield corporate bonds and bank loans with tactical allocations to structured securities, convertibles, and other sectors of the bond markets as they become attractive on a relative value basis. While performing credits represent the majority, Brigade will invest up to 35% of the portfolio in distressed securities and restructuring situations if these types of opportunities are attractive on a risk-adjusted basis and the timing is right with respect to the credit cycle. The portfolio is comprised of mostly North American issuers, but they are not restricted geographically and expect to have a moderate allocation to Europe over time. Although the portfolio is generally long-only, Brigade has the ability to implement a limited amount of tactical macro hedges.

CFM - Systematic Global Macro

Capital Fund Management (CFM) Systematic Global Macro (SCM) is a directional strategy that takes long and short positions in liquid future and forwards across 130+ markets and across equities, bonds, currencies, and commodities. It is a new strategy that draws on model signals from existing strategies at the firm – Discus (diversified CTA), CFM ISTrends (trend following) and CFM ISTrend Equity Capped (defensive trend following) - and SamCERA is a seed investor with an attractive fee. SGM's objective is to provide absolute returns that are uncorrelated with traditional asset classes over a long time horizon with an annualized volatility target between 8% and 12%. SGM uses a diverse set of trading strategies that are based on factors (momentum, value, carry, macro and sentiment) across asset classes. These technical and fundamental factors operate at different time scales and can have varying degrees of influence on performance depending on market and economic conditions. An additional global macro defensive overlay is combined with these outputs in constructing the final portfolio. CFM uses a form of portfolio construction known as agnostic risk parity to ensure that the SGM portfolio is diversified on an out-of-sample basis. The goal of SGM is to generate consistent returns while limiting drawdowns.

DE Shaw – DE Shaw US Broad Market Core Alpha Extension Fund

The D. E. Shaw group believes that there exist some market inefficiencies that may be identified through quantitative analysis, advanced technology, and the insight of practitioners. Identifying these inefficiencies involves a process of hypothesis formulation, testing, and validation. Importantly, to avoid data-mining, the hypothesis formulation precedes the analysis of the historical data. D.E. Shaw's Structured Equity strategies rely largely on quantitative and computational investment techniques developed by the D. E. Shaw over the last two decades in the course of research conducted for purposes of managing the firm's hedge funds. D.E. Shaw's investment process involves a suite of quantitative models, each designed to capitalize on a distinct and uncorrelated set of market inefficiencies. Some of these models are technical in nature and involve price and volume inputs. Other models rely on fundamental data, such as figures gleaned from corporate balance sheets or income statements. Still others, again quantitative, anticipate or react to a particular corporate event or set of events. These models typically operate with forecast horizons of a few weeks to many months. The ability to trade on shorter-term signals distinguishes D.E. Shaw from many of its long only and 130/30 peers. Portfolio construction involves the use of a proprietary optimizer which runs dynamically throughout the trading day. The portfolio is broadly diversified with several hundred long and short positions. Over- and under-weighting of sectors and industries relative to the benchmark will be quite modest, with the intention that most of the alpha be generated by security selection. The US Broad Market Core Alpha Extension Fund is a 130/30 strategy which maintains a beta that is approximately neutral to the Russell 1000 Index.

DoubleLine – Securitized Income

The DoubleLine Securitized Income strategy is an actively managed, liquid, long only, intermediate-term fixed income product. The primary objective of the strategy is to seek and maximize current income and total return by utilizing a combination of Agency MBS and structured credit. The DoubleLine Structured Products team aims to offer clients investment grade exposure to both interest rate duration and credit spread to provide a more attractive total return profile compared to the benchmark. Securitized Income seeks to maximize income and total return by investing across the structured products universe, focusing on agency mortgage-backed securities (MBS) and investment grade securitized credit. DoubleLine takes a barbelled approach to investing in the securitized market, and they will separate rates from credit and will adjust the allocations to both at the based on the economic cycle and opportunities. Duration positioning is achieved through Agency MBS, Agency CMBS, and treasuries while credit exposure is attained through all areas of structured credit.

Fidelity (FIAM) – Broad Market Duration Commingled Pool

Pyramis' Broad Market Duration (BMD) investment strategy seeks to achieve absolute and risk-adjusted returns in excess of the BC U.S. Aggregate Index, focusing its investments in US Treasuries, agencies, investment grade corporate bonds, mortgage-backed and asset-backed securities. The BMD commingled pool can also hold small, opportunistic positions in out-of-benchmark securities, such as inflation-linked bonds. The investable universe includes all US dollar denominated, investment grade debt securities. The BMD investment approach emphasizes issuer and sector valuation and individual security selection. Through the integration of fundamental and quantitative research and trading, the BMD strategy is implemented in a team environment. Risk management technology is utilized to explicitly quantify benchmark exposures on a daily basis, and Pyramis uses the same analytical framework to assess both index and portfolio risk. Tracking error should range between 40 and 60 basis points per annum over the benchmark, and stringent portfolio construction risk control rules are strictly adhered to.

Franklin Templeton Investments – Global Fixed Income

Franklin Templeton manages the global bond mandate in an unconstrained fashion using a top-down, fundamental framework. In the short term and on a country-by-country basis there are often inefficiencies in global bond and currency markets, however, over the longer term the market will generally price to fundamentals. Thus, FT focuses on fundamental research to identify long-term opportunities and uses short-term market inefficiencies to build positions in such investments. The investment and portfolio construction process begin with the determination of the Fund's or institutional client's investment objectives, resulting in a set of risk-return parameters and exposure limits within which the portfolio is managed. Next the firm's global economic outlook for the industrialized countries is developed, with a focus on interest rate and exchange rate forecasts. The portfolio's interest rate outlook is a function of global general equilibrium macroeconomic analysis as well as country-specific research. Macroeconomic conditions in the G-3 economies are analyzed first, primarily with respect to how current and projected growth and inflation dynamics are expected to influence monetary policy. This analysis is then extended out to the rest of the industrialized countries (G-13) as well as emerging markets, which results in broad targets for cash, duration, currencies and the developed/emerging market mix. Using the firm's interest rate and exchange rate outlook, probability-weighted horizon returns for bonds of various countries are then calculated. This analysis is used to establish specific country weights and duration targets based on risk-adjusted expected total return measured in the portfolio's base currency. Analysis of emerging markets includes sovereign credit analysis along with greater emphasis on capital flows, inter-market dynamics and trends in the level of risk aversion in the market.

Graham – Quant Macro Fund

Graham Quant Macro ("GQM") is a directional, long and short strategy that utilizes fundamental and price-based indicators to establish return forecasts across global interest rates, foreign exchange, stock indices and commodities. The strategy incorporates a variety of submodels that generate macro fundamental forecasts, assess yield and earnings differentials, compare current valuations relative to historic fair value, and analyze directional price trends across markets. Quantitative risk management and portfolio construction techniques are used to diversify risk across the portfolio and enhance risk-adjusted returns. Historically, the average holding period has been approximately eight to ten weeks, although the sub-models will make daily adjustments to positions. The strategy is designed to have low correlation to traditional markets and other alternative strategies and has the potential to provide significant portfolio diversification benefits.

Harrison Street Core Property

Based in Chicago, Harrison Street's exclusive focus since inception in 2005 has been investing in non-core property sectors of the real estate market. The Harrison Street Core Fund is an open-end fund that invests primarily in stabilized education, healthcare, and self-storage real estate assets in the United States using modest leverage with an emphasis on generating current income. The focus on these alternative property types is intended to concentrate on areas of the real estate market that are less GDP sensitive with demand drivers that are more demographic driven such as aging populations, education growth and healthcare delivery. Each of these areas tend to be less tied to the business cycle, have fragmented ownership and more operationally intensive. The fund acts as a diversifier within real estate portfolios with sector exposures that are not a typical focus of other core ODCE funds.

INVESCO Realty Advisors – INVESCO Core Equity, LLC

SamCERA is a founding member of INVESCO's open-end Core Equity real estate fund and rolled its separate account properties into the fund. INVESCO Core Equity, LLC (the "Fund") is a perpetual life, open-end vehicle which invests in a diversified portfolio of institutional quality office, retail, industrial and multifamily residential real estate assets. The Fund buys core properties that are located within the United States, typically requiring an investment of $10 million or more. The portfolio cannot be more than 30% leveraged.

INVESCO Realty Advisors – INVESCO US Val IV, V, & VI

Invesco has provided SamCERA with Core Real Estate exposure since 2004 through the Invesco Core Equity Fund. The Invesco real estate team manages around $62B in assets with investments and offices around the globe. Invesco Value Fund's looks to acquire fundamentally sound but broken "core" assets that can be repositioned into institutional-quality, income producing properties. Investments are limited to direct equity interests in office, multi-family, retail and industrial properties across the US. The Fund is expected to be geographically concentrated in U.S. gateway cities and top 25 Metropolitan Statistical Areas (MSA's). Invesco Value Fund's provide a complement to the more conservative Invesco Core Fund and offers the potential of enhanced returns to the SamCERA Real Estate portfolio.

Insight Investments – Cash Flow Matched Liquidity

Insight is the fixed income sleeve of Mellon Capital. The strategy seeks to invest in short duration fixed income securities that match the negative cash flows of the Plan (similar to an LDI plan). Insight receives estimates of three years of cash flows from the actuarial report. Once a year, if market conditions allow, SamCERA will re-invest "year 3" net cash flows. Insight uses their credit analysis team for analyzing all credits or potential investments to the fund.

Mondrian Investment Partners – International Equity

Mondrian is a value-oriented, defensive manager whose investment philosophy is based on the principle that investments must be evaluated for their fundamental long-term value. The firm's philosophy involves three stated investment objectives: 1) provide a rate of return meaningfully greater than the client's domestic rate of inflation, 2) structure client portfolios that preserve capital during protracted international market declines, and 3) provide portfolio performance that is less volatile than benchmark indices and other international managers. Mondrian applies typical value screening criteria to a universe of 1,500 stocks, from which 500 are selected for more detailed work. Through fundamental research, and the deliberations of the Investment Committee, the universe is further reduced to a list of 150 stocks. The investment team conducts detailed fundamental analysis on the remaining stocks, a process which includes applying the firm's dividend discount model consistently across all markets and industries. Mondrian also uses a purchasing power parity model to give an accurate currency comparison of the value of the stocks under consideration. The firm will only consider buying stocks in countries with good investor protection practices and relatively simple repatriation procedures. A computer-based optimization program is employed in the portfolio construction process. Mondrian's portfolio holds 80-125 issues.

NISA – Core Bond

NISA applies a risk-controlled approach to all of its fixed income portfolios. This approach does not permit large bets or positions that generate significant tracking error versus the benchmark. Instead, NISA invests in a large number of small, diversified, active positions which seek tight tracking error to the chosen benchmark. Benchmark weight is a significant consideration when constructing and managing portfolios. The investment strategy is comprised of strategic (top-down) and tactical (bottom-up) decisions. Strategic decisions include sector selection and yield curve positioning while tactical decisions include industry and security selection and trading activity. Review of both strategic and tactical decisions is continual. The amount of portfolio risk budget devoted to one aspect versus the other will change as market conditions warrant. In general, strategic decisions change relatively infrequently, while tactical decisions, especially security selection, will change fairly often as market conditions provide opportunities. Over a typical market cycle, the bottom-up is expected to contribute to 70% of value-added while top-down is roughly 30%.

PanAgora Asset Management – Defensive U.S. Equity Low Volatility

PanAgora's Defensive Equity strategy seeks to harness the 'low-volatility premium' through a systematic, factor-based investment approach focused on achieving market-like returns with less risk. This is accomplished by leveraging PanAgora's proprietary Risk Parity portfolio construction methodology, which seeks to efficiently capture the equity premium associated with low volatility, while taking minimal unintended risks. Since the firm's inception, PanAgora has been using quantitative techniques to integrate fundamental insights with large amounts of dynamic market data. They score individual securities on a factor basis and also on a diversification basis, in the context of a broadly diversified portfolio. The portfolio construction process optimizes the portfolio around the intended factor exposure (volatility) while maintaining equal risk contribution across sectors (ex., overweight utilities and consumer staples, underweight financials and technology). Shorter term volatility and longer term correlation analysis is combined in the approach. The result for the US Defensive Equity strategy is a portfolio expected to have lower volatility (beta around 0.65-0.75), and similar returns relative to the capitalization-weighted benchmark over a full market cycle. PanAgora expects the strategy to participate in approximately 75% of up markets and 55% in down markets.

Parametric Overlay – Cash Overlay and Currency Hedge

Parametric's cash overlay program is an efficient way for SamCERA to maintain its target asset allocation in a systematic fashion through cash securitization at the fund and manager level, transition/reallocation support and asset class rebalancing back to target within defined bands. The cash overlay program is invested synthetically using liquid futures with cash balances reviewed daily. A combination of large and small cap futures implementation is the proxy for private equity. SamCERA's investment guidelines initially allowed only for cash overlay. Rebalancing was added to the SamCERA program in January 2014. Cash overlay and rebalancing is expected to add 10-20 bps to the portfolio over time. An additional currency overlay hedge placed on half of the notional value of developed international equities. The addition of currency hedging started in September 2018 and was fully implemented on 10/1/2019. The purpose of the currency is first and foremost to lower portfolio risk and secondarily to add incremental performance.

PIMCO Diversified

PIMCO's Diversified Income (DI) Fund is a multi-sector strategy that invests across a broad spectrum of global credit market sectors, including investment grade and high yield corporate debt, as well as emerging markets. The allocation among these will vary based on PIMCO's assessment of global trends and relative valuations. This active and dynamic approach allows for increased responsiveness in asset allocation to changing economic and market conditions while remaining anchored by PIMCO's investment process and longer-term orientation. The ability to invest globally helps to improve diversification and may allow investors to benefit from differences in business cycles across regions and credit quality trends across credit sectors. PIMCO's DI investment strategy seeks to provide high yield-like returns with lower volatility against a blended index (1/3 Bloomberg Barclays Global Agg Credit ex-EM; 1/3 BofA Merrill Lynch BB-B rated Developed Markets High Yield; 1/3 JPMorgan EMBI Global). The fund allows for a duration band of 3-8 years. The team focuses its investments into these groups: credit strategies (investment grade, high yield, emerging markets and non-core credits including MBS, municipals and other govt-related sectors); duration strategies (U.S. and non-U.S. duration) and currencies (tactical non-USD exposure).

PIMCO – MAARS

PIMCO MAARS is an alternative risk premia strategy that looks for risks associated with: (1) Supply and Demand Constraints, (2) Behavioral Biases, and (3) Asymmetric Risks (event risk). As reflected in the design of the MAARS strategies, PIMCO believes that alternative risk premia strategies are best implemented using a systematic approach that minimizes the discretionary inputs in day-to-day portfolio management. MAARS places a greater emphasis and weighting on global interest rates, currencies and commodities and a lesser emphasis on equities than many of its Alt Beta peers. Relative to Alt Beta peers, the strategy's rates and currency (FX) models are particularly robust, reflective of PIMCO's core competency and long history managing these asset classes using derivative instruments.

PIMCO Private Income Fund

PIMCO Private Income Fund (PIF) uses an opportunistic and flexible approach to global private credit. PIF provides a total return oriented global credit exposure utilizing both top-down sector relative value and bottom up security selection. The strategy invests across private residential, commercial, corporate and specialty finance markets. PIMCO's Private Income Fund (PIF) is targeting 8-12% net returns with income providing most of the fund's returns. The Private Income Investment Committee (IC) identifies market themes and direction for their relative value framework, and sector specialists provide recommendations to the PM team within that construct. PIF has the ability to invest throughout the capitalization structure. The fund can use a moderate amount of leverage to enhance portfolio returns (1.5 times with a hard cap of 2 times).

PGIM RE Debt

PGIM Real Estate US Debt Fund (PREDS) focuses on a loan origination strategy with a mix of 20% senior long duration loans on stable assets, 60% senior short/medium duration loans on stable and transitional assets, and 20% mezzanine mid/long duration debt. SamCERA was a founding investor in the PREDS strategy which invests in US commercial real estate debt in an open-ended vehicle with a return target of 7-8% (gross) coming from stable current income. The fund makes investments in first lien mortgages and mezzanine debt. First lien mortgages can be floating rate or fixed rate, but only floating rate loans will use leverage. Subordinate investments (mezzanine debt and preferred equity) will be limited by design. The fund can source and invest in secondary loans through a variety of Prudential real estate professionals, but the primary focus will be on direct origination through the real estate finance team.

Quantitative Management Associates – QMA Small-Cap Core

Quantitative Management Associates (QMA) utilizes a bottom-up quantitative framework in order provide a diversified exposure to core U.S. small-cap stocks, while attempting to produce consistent outperformance versus the benchmark with moderate tracking error levels. QMA uses an adaptive, systematic investment process to exploit opportunities created by mispriced securities to consistently add value over long time periods. Bottom-up stock selection drives exposure to key sources of alpha (valuation, growth, and quality). The QMA stock selection model adapts to changes in company growth rates and market environments by putting more emphasis on valuation for slowly growing companies, and more emphasis on future growth projections for companies with higher projected growth rates.

State Street Global Advisors (SSgA) Custom Real Asset

SSgA Custom Real Asset portfolio uses a portfolio of liquid real assets to proxy private real assets. The portfolio is comprised of equal weightings of the Bloomberg Roll Select Commodity Index, S&P Global Mid-Large Cap Natural Resources Index, S&P Global Infrastructure Index, and Bloomberg Barclays TIPS Index. SSgA provides beta exposure through these underlying liquid components which can be customized to changing client needs (ex., TIPS was added in May 2020 with the other three parts of the portfolio reduced pro-rata). The portfolio is used to fund upcoming private real asset mandates.

Stockbridge Value IV

Stockbridge Value IV will implement a value-added strategy that will seek to own assets that are undervalued, underutilized, and/or not operating to their full potential. The manager will add value with their internal asset management team through active strategies including additional capital investment, leasing, recapitalization, renovation and/or development. The fund will target three to five year holding periods for investments, with disposition taking place after the completion of the value-add strategy. The fund will target 15 to 25 mid-sized investments, diversified by geography and property type. The strategy will target 21 markets in the United States in which the firm has boots on the ground coverage with dedicated acquisitions professionals and asset managers responsible for knowing each market extensively with a vast network of relationships.

Western Asset Management – Total Return Unconstrained (TRU)

Western Asset's Total Return Unconstrained strategy (TRU) seeks to provide bond-like risk and return over the long term but does not have a benchmark. This allows for asset allocation based on value rather than using the construction of a benchmark as baseline positioning. The investment approach is active with very broad latitude on duration (-3 to +8 years) and on asset allocation across all of the eligible sectors in a core plus mandate. The portfolio must have at least 50% of its holdings in investment-grade securities. The flexibility offered by this strategy allows for defensive positioning in rising rate environments and opportunistic deployment of capital when value opportunities arise. It also allows the portfolio managers to emphasize (or deemphasize) either credit or rates when one or the other appears to offer greater (or lesser) value.um non-US exposure.

White Oak - White Oak Yield Spectrum Fund

The White Oak Yield Spectrum Fund's objective is to earn substantial current income by originating, extending, and/or investing in a diversified portfolio of primarily senior secured corporate credit and debt instruments consisting of term loans, asset-based loans and equipment leases and loans issued by small to middle-market companies located primarily in the United States and Canada. It focuses on providing self-originated deals for predominantly non-sponsored, privately-held borrowers.

White Oak - White Oak Yield Spectrum Fund V

The White Oak Yield Spectrum Fund's objective is to earn substantial current income by originating, extending, and/or investing in a diversified portfolio of primarily senior secured corporate credit and debt instruments consisting of term loans, asset-based loans and equipment leases and loans issued by small to middle-market companies located primarily in the United States and Canada. It focuses on providing self-originated deals for predominantly non-sponsored, privately-held borrowers.

Policy Index and Benchmark History

Period Ending: September 30, 2022

Total Plan Policy Index	As of 7/1/22	2/1/21	1/1/21	7/1/20	4/1/20	10/1/19	7/1/19	4/1/19	1/1/19	10/1/18	4/1/18	10/1/17	2/1/17	1/1/17
10 Year Treasury +2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
60/40 MSCI World/Bloomberg Global Aggregate (RP)	0.0%	0.0%	0.0%	0.0%	4.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
60/40 Russell 3000/Bloomberg US Aggregate (RP)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
91 Day T-Bills	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg US Govt/Credit 1-3 Yr. TR	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Aggregate	16.5%	18.0%	21.0%	21.0%	18.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	12.0%	10.0%
Bloomberg BA Intermediate HY	10.0%	10.0%	10.0%	10.0%	8.0%	8.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	6.0%	6.0%
Bloomberg BBB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Credit BAA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Multiverse	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%	3.0%
Bloomberg TIPS	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Bloomberg Commodity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Citigroup non-US WGBI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CPI + 5% (RA)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Blended Public Real Asset	4.0%	4.0%	4.0%	4.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	0.0%	0.0%	0.0%
Blended Private Real Asset	4.0%	4.0%	3.0%	3.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	8.0%	7.0%	5.0%
Libor +4% (HF)	0.0%	0.0%	0.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	5.0%
SOFR +4% (HF)	7.0%	7.0%	6.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex US IMI 100% Hedged (Net)	9.5%	9.5%	9.0%	9.0%	9.0%	9.0%	7.6%	5.7%	3.8%	1.9%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US IMI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	19.0%	19.0%
MSCI ACWI ex-US IMI (Net)	9.5%	9.5%	9.0%	9.0%	9.0%	9.0%	11.4%	13.3%	15.2%	17.1%	19.0%	19.0%	0.0%	0.0%
MSCI EAFE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NCREIF ODCE	9.0%	9.0%	10.0%	10.0%	9.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	7.0%	7.0%
NCREIF Property	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 1000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 1000 Value	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 2000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 3000	21.0%	22.0%	21.0%	21.0%	22.0%	22.0%	22.0%	22.0%	22.0%	22.0%	21.0%	21.0%	23.0%	28.0%
Russell 3000 +3% (PE)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.0%	7.0%	7.0%
Russell 3000 +3% 1Q Lag (PE)	7.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	7.0%	0.0%	0.0%	0.0%
S&P 500	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Total Plan Policy Index	As of: 10/1/16	9/1/16	1/1/16	7/1/14	1/1/14	2/1/13	1/1/11	10/1/10	1/1/09	5/1/07	6/1/00	3/1/99	9/1/98	7/1/96
10 Year Treasury +2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.0%	10.0%	10.0%
60/40 MSCI World/Bloomberg Global Aggregate (RP)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
60/40 Russell 3000/Bloomberg US Aggregate (RP)	8.0%	8.0%	8.0%	8.0%	8.0%	6.0%	6.0%	6.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
91 Day T-Bills	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg US Govt/Credit 1-3 Yr. TR	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Aggregate	10.0%	10.0%	10.0%	10.0%	9.3%	11.0%	11.0%	12.9%	27.0%	27.0%	29.0%	25.0%	21.0%	21.0%
Bloomberg BA Intermediate HY	6.0%	5.0%	5.0%	5.0%	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg BBB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Credit BAA	0.0%	0.0%	0.0%	0.0%	0.0%	3.5%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Multiverse	3.0%	3.0%	3.0%	3.0%	3.8%	4.4%	4.4%	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg TIPS	2.0%	2.0%	2.0%	2.0%	2.0%	3.1%	3.3%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Commodity	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Citigroup non-US WGBI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	9.0%	9.0%
CPI + 5% (RA)	0.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Blended Public Real Asset	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Blended Private Real Asset	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Libor +4% (HF)	5.0%	5.0%	5.0%	4.0%	4.0%	3.0%	3.0%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SOFR +4% (HF)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US	0.0%	0.0%	0.0%	0.0%	0.0%	18.0%	18.0%	18.0%	21.0%	21.0%	15.0%	0.0%	0.0%	0.0%
MSCI ACWI ex US IMI 100% Hedged (Net)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US IMI	19.0%	20.0%	20.0%	20.0%	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US IMI (Net)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI EAFE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%	20.0%	20.0%
NCREIF ODCE	7.0%	7.0%	7.0%	6.0%	6.0%	5.0%	5.0%	5.0%	6.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NCREIF Property	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.0%	6.0%	0.0%	0.0%	0.0%
Russell 1000	0.0%	0.0%	24.0%	24.0%	24.0%	28.0%	28.0%	28.0%	37.0%	37.0%	40.0%	22.0%	20.0%	20.0%
Russell 1000 Value	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	5.0%	0.0%
Russell 2000	0.0%	0.0%	4.0%	6.0%	6.0%	7.0%	7.0%	7.0%	9.0%	9.0%	10.0%	15.0%	15.0%	15.0%
Russell 3000	28.0%	28.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 3000 +3% (PE)	7.0%	7.0%	7.0%	7.0%	7.0%	8.0%	8.0%	8.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 3000 +3% 1Q Lag (PE)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
S&P 500	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Policy Index and Benchmark History

Period Ending: September 30, 2022

Public Equity Benchmark (As of:)	7/1/22	2/1/21	7/1/20	10/1/19	7/1/19	4/1/19	1/1/19	10/1/18	10/1/17	2/1/17	10/1/16	9/1/16	1/1/16	1/1/14	10/1/10	5/1/07	6/1/00	3/1/99	9/1/98	1/1/96
MSCI ACWI ex-US	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	34.0%	31.3%	23.1%	0.0%	0.0%	0.0%
MSCI ACWI ex US IMI 100% Hedged (Net)	23.8%	23.2%	23.1%	22.5%	18.5%	13.9%	9.3%	4.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US IMI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	47.5%	45.2%	40.4%	41.7%	41.7%	40.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex US IMI (Net)	23.8%	23.2%	23.1%	22.5%	27.8%	32.4%	37.0%	41.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI EAFE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	32.3%	33.3%	33.3%
Russell 1000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	48.0%	52.8%	55.2%	61.5%	35.5%	33.3%	33.3%
Russell 1000 Value	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.0%	8.4%	0.0%
Russell 2000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.3%	12.0%	13.2%	13.5%	15.4%	24.2%	25.0%	25.0%
Russell 3000	52.5%	53.7%	53.9%	55.0%	53.7%	53.7%	53.7%	53.7%	52.5%	54.8%	59.6%	58.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
S&P 500	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.4%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

US Equity Benchmark (As of:)	9/1/16	1/1/16	6/1/00	3/1/99	9/1/98	7/1/96	1/1/95
Russell 1000	0.0%	85.7%	80.0%	52.0%	50.0%	50.0%	69.0%
Russell 1000 Value	0.0%	0.0%	0.0%	12.0%	12.5%	0.0%	0.0%
Russell 2000	0.0%	14.3%	20.0%	36.0%	37.5%	37.5%	14.0%
Russell 3000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
S & P 500	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%	17.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

International Equity Benchmark (As of:)	10/1/19	7/1/19	4/1/19	1/1/19	10/1/18	10/1/17	1/1/14	6/1/00	1/1/96
MSCI ACWI ex US	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
MSCI ACWI ex US IMI 100% Hedged (Net)	50.0%	40.0%	30.0%	20.0%	10.0%	0.0%	0.0%	100.0%	0.0%
MSCI ACWI ex US IMI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MSCI ACWI ex US IMI (Net)	50.0%	60.0%	70.0%	80.0%	90.0%	100.0%	0.0%	0.0%	0.0%
MSCI EAFE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Fixed Income Benchmark (As of:)	7/1/22	2/1/21	7/1/20	4/1/20	10/1/19	10/1/17	2/1/17	10/1/16	4/1/16	7/1/14	1/1/14	2/1/13	1/1/11	10/1/10	6/1/00	3/1/99	7/1/96
Bloomberg Aggregate	62.3%	64.3%	67.7%	69.2%	63.6%	66.7%	57.1%	52.6%	55.5%	50.0%	46.3%	50.0%	50.0%	58.6%	100.0%	83.3%	70.0%
Bloomberg BA Intermediate HY	37.7%	35.7%	32.3%	30.8%	36.4%	33.3%	28.6%	31.6%	27.8%	25.0%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg BBB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.3%	0.0%	0.0%	0.0%
Bloomberg Credit BAA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.0%	15.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Multiverse	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.3%	15.8%	16.7%	15.0%	18.8%	20.0%	20.0%	20.5%	0.0%	0.0%	0.0%
Bloomberg TIPS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	10.0%	14.0%	15.0%	13.6%	0.0%	0.0%	0.0%
Citigroup non-US WGBI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.7%	30.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Opportunistic Credit Benchmark (As of:)	1/1/14	12/1/09
Bloomberg BA Intermediate HY	100.0%	0.0%
Bloomberg Credit BAA	0.0%	100.0%
	100.0%	100.0%

Alternatives Benchmark (As of:)	7/1/22	2/1/21	1/1/21	10/1/18	4/1/18	2/1/17	4/1/16	1/1/16	1/1/14	1/1/11
60/40 Russell 3000/Bloomberg US Aggregate (RP)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	30.0%
Bloomberg Commodity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	17.7%	18.8%	15.0%
CPI + 5% (RA)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.8%	12.5%	0.0%
Libor +4% (HF)	0.0%	0.0%	0.0%	50.0%	46.2%	46.2%	41.7%	29.4%	25.0%	15.0%
SOFR +4% (HF)	50.0%	53.8%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 3000 +3% (PE)	0.0%	0.0%	0.0%	0.0%	0.0%	53.8%	58.3%	41.2%	43.8%	40.0%
Russell 3000 +3% 1Q Lag (PE)	50.0%	46.2%	50.0%	50.0%	53.8%	0.0%	0.0%	0.0%	0.0%	0.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Private Equity Benchmark	As of: 4/1/18	10/1/10
Russell 3000 +3% 1Q Lag	100.0%	0.0%
Russell 3000 +3%	0.0%	100.0%
	100.0%	100.0%

Hedge Fund Benchmark	As of: 1/1/21	10/1/10
Libor +4%	0.00%	100.00%
SOFR +4%	100.0%	0.0%
	100.0%	0.0%

Inflation Hedge Benchmark	As of: 2/1/21	7/1/20	4/1/20	10/1/19	4/1/18	2/1/17	10/1/16	4/1/16
Bloomberg TIPS	0.00%	0.00%	0.00%	5.88%	11.1%	12.5%	14.3%	14.3%
Bloomberg Commodity	0.00%	0.00%	0.00%	0.00%	0.0%	0.0%	0.0%	21.4%
CPI + 5% (RA)	0.00%	0.00%	0.00%	0.00%	0.0%	0.0%	0.0%	14.3%
Blended Public Real Asset	23.53%	23.53%	35.29%	35.29%	33.3%	0.0%	0.0%	0.0%
Blended Private Real Asset	23.53%	17.65%	11.77%	11.77%	11.1%	43.8%	35.7%	0.0%
NCREIF ODCE	52.94%	58.82%	52.94%	47.06%	44.4%	43.8%	50.0%	50.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Public Real Asset Benchmark	As of: 5/1/20	10/1/16	1/1/14
Bloomberg Roll Select Commodity	25.0%	34.0%	0.0%
S&P Global Large-MidCap Commodity and Resources	25.0%	33.0%	0.0%
S&P Global Infrastructure	25.0%	33.0%	0.0%
CPI + 5%	0.0%	0.0%	100.0%
Bloomberg TIPS	25.0%	0.0%	0.0%
	100.0%	100.0%	100.0%

Private Real Asset Benchmark	As of: 1/1/21	4/1/18	10/1/16	1/1/14
Bloomberg Roll Select Commodity	0.00%	0.00%	34.00%	0.0%
S&P Global Large-MidCap Commodity and Resources	0.00%	0.00%	33.00%	0.0%
S&P Global Infrastructure	0.00%	0.00%	33.00%	0.0%
50/50 S&P Global Infra & Lrg-MidCap Com & Resources +2% 1QL	0.00%	100.00%	0.00%	0.0%
75/25 S&P Global Infra & Lrg-MidCap Com & Resources +2% 1QL	100.00%	0.00%	0.00%	0.0%
CPI + 5%	0.00%	0.00%	0.00%	100.0%
	100.0%	100.0%	100.0%	100.0%

Private RA Secondary Benchmark	As of: 9/1/14
Cambridge Associates Private Natural Resources 1 Qtr Lag	50.0%
Cambridge Associates Private Infrastructure 1 Qtr Lag	50.0%
	100.0%

Real Estate Benchmark	As of: 1/1/09	6/1/00	7/1/96
10 Year Treasury +2%	0.0%	0.0%	100.0%
NCREIF ODCE	100.0%	0.0%	0.0%
NCREIF Property	0.0%	100.0%	0.0%
	100.0%	100.0%	100.0%

Liquidity Benchmark	As of: 7/1/22
Bloomberg US Govt/Credit 1-3 Yr. TR	60.0%
91 Day T-Bills	40.0%
	100.0%

Baillie Gifford Benchmark	As of:	
	1/1/14	5/1/12
MSCI ACWI ex-US	100.0%	0.0%
MSCI EAFE	0.0%	100.0%
	100.0%	100.0%

Baillie Gifford Secondary Benchmark	As of:	
	1/1/14	5/1/12
MSCI ACWI ex-US Growth	100.0%	0.0%
MSCI EAFE Growth	0.0%	100.0%
	100.0%	100.0%

Brigade Secondary Benchmark	As of:
	8/1/10
Bloomberg High Yield	50.0%
Credit Suisse Leveraged Loans	50.0%
	100.0%

PIMCO Diversified	As of:
	9/1/17
JPMorgan EMBI Global	33.333%
BofAMLBB-BRatedDvlpdMktsHYHdgdUSD	33.333%
Global Agg Credit Ex EM USD hedged	33.334%
	100.0%

SSgA Custom Real Asset	As of:	
	5/1/20	11/1/16
Bloomberg Roll Select Commodity	25.00%	33.33%
S&P Global Large-MidCap Commodity and Resources	25.00%	33.33%
S&P Global Infrastructure	25.00%	33.34%
Bloomberg TIPS	25.00%	0.00%
	100.0%	100.0%

Acadian Asset Management

First $50 million:	0.27% per annum
Next $50 million:	0.225% per annum
Thereafter:	0.18% per annum

Baillie Gifford

First $25 million:	0.60% per annum
Next $75 million:	0.50% per annum
Next $300 million:	0.40% per annum
Thereafter:	0.30% per annum

BlackRock-Russell 1000 Index Fund

On All Assets:	0.01% per annum

BlackRock-MSCI ACWI ex US IMI Index Fund

On All Assets:	0.045% per annum

DoubleLine

On All Assets:	0.30% per annum

NISA

First $500 million:	0.15% per annum
Next $1 billion:	0.125% per annum
Next $1 billion:	0.105% per annum
Next $1.5 billion	0.085% per annum
Thereafter:	0.065% per annum

Franklin Templeton Investment

First $50 million:	0.40% per annum
Next $50 million:	0.30% per annum
Thereafter:	0.25% per annum

FIAM Bond

First $50 million:	0.25% per annum
Next $50 million:	0.20% per annum
Next $100 million:	0.125% per annum
Thereafter:	0.10% per annum

PanAgora Asset Management

First $50 million:	0.25% per annum
Next $50 million:	0.15% per annum
Thereafter:	0.10% per annum

Parametric Overlay

First $50 million:	0.12% per annum
Next $100 million:	0.10% per annum
Thereafter:	0.05% per annum
Plus monthly reporting fee of $1500	

Parametric Currency Overlay

First $250 million:	0.05% per annum
Thereafter:	0.03% per annum

PIMCO Diversified

On All Assets:	0.75% per annum

QMA

First $100 million:	0.55% per annum
Next $100 million:	0.53% per annum
Thereafter:	0.49% per annum

Western Asset Management

On All Assets:	0.25% per annum
Performance Fee:	20.00%

Mondrian Investment Partners

First $50 million:	1.00% per annum
Next $150 million:	0.19% per annum
Thereafter:	0.33% per annum

Insight Investment

First $200 million:	0.09% per annum
Next $300 million:	0.08% per annum
Thereafter:	0.06% per annum

Manager Compliance (Net)

Period Ending: September 30, 2022

Name	Primary Benchmark	Rule 1	Rule 2	Rule 3
Acadian US MGD V	Russell 1000	--	--	--
DE Shaw	Russell 1000	⚐	⚐	⚐
PanAgora Defuseq	Russell 1000	--	--	--
PGIM Quant Solutions	Russell 2000	⚐	⚐	⚐
Baillie Gifford	MSCI ACWI ex US	⚐	⚐	✓
Mondrian	MSCI ACWI ex USA Value Gross	⚐	⚐	⚐
DoubleLine	Bloomberg US Aggregate TR	--	--	--
FIAM Bond	Bloomberg US Aggregate TR	✓	✓	✓
NISA Core Bond	Bloomberg US Aggregate TR	--	--	--
Western TRU	3-Month Libor Total Return USD	⚐	⚐	⚐
AG CSF II	Bloomberg BA Intermediate HY	--	--	--
Angelo Gordon Opportunistic	Bloomberg US Aggregate TR	✓	--	✓
Angelo Gordon Credit Solutions	Bloomberg BA Intermediate HY	--	--	--
Beach Point Select	Bloomberg BA Intermediate HY	✓	✓	✓
Brigade Capital	Bloomberg BA Intermediate HY	✓	✓	✓
PIMCO Diversified	Blended PIMCO Diversified Index	⚐	⚐	⚐
Franklin Templeton	Bloomberg Multiverse TR	⚐	⚐	⚐
Blackrock DL Feeder IX-U	Cliffwater Direct Lending Index	--	--	--
PIMCO Private Income	Bloomberg BA Intermediate HY	--	--	--
TCP Direct Lending VIII	Cliffwater Direct Lending Index	⚐	✓	⚐
White Oak Yield	Cliffwater Direct Lending Index	⚐	✓	✓
White Oak YSF V	Cliffwater Direct Lending Index	--	--	--
Aberdeen Standard GARS	Absolute Return Custom Index	⚐	⚐	⚐
Acadian MAAR Fund LLC	Absolute Return Custom Index	--	--	--
CFM Systematic Global Macro	Absolute Return Custom Index	--	--	--
Graham Quant Macro	Absolute Return Custom Index	--	--	--
PIMCO MAARS Fund LP	Absolute Return Custom Index	--	--	--

Rule 1 - Manager has underperformed the benchmark index for the five year period.
Rule 2 - Manager has underperformed the 50th percentile in the appropriate style universe for the five year period.
Rule 3 - Excess 5 Year Sharpe Ratio vs. Benchmark is positive

Name	Primary Benchmark	Rule 1	Rule 2	Rule 3
Acadian US MGD V	Russell 1000	--	--	--
DE Shaw	Russell 1000	⚐	✓	⚐
PanAgora Defuseq	Russell 1000	--	--	--
PGIM Quant Solutions	Russell 2000	⚐	⚐	⚐
Baillie Gifford	MSCI ACWI ex US	✓	⚐	✓
Mondrian	MSCI ACWI ex USA Value Gross	⚐	⚐	⚐
DoubleLine	Bloomberg US Aggregate TR	--	--	--
FIAM Bond	Bloomberg US Aggregate TR	✓	✓	✓
NISA Core Bond	Bloomberg US Aggregate TR	--	--	--
Western TRU	3-Month Libor Total Return USD	⚐	⚐	⚐
AG CSF II	Bloomberg BA Intermediate HY	--	--	--
Angelo Gordon Opportunistic	Bloomberg US Aggregate TR	✓	--	✓
Angelo Gordon Credit Solutions	Bloomberg BA Intermediate HY	--	--	--
Beach Point Select	Bloomberg BA Intermediate HY	✓	✓	✓
Brigade Capital	Bloomberg BA Intermediate HY	✓	✓	✓
PIMCO Diversified	Blended PIMCO Diversified Index	⚐	⚐	⚐
Franklin Templeton	Bloomberg Multiverse TR	⚐	⚐	⚐
Blackrock DL Feeder IX-U	Cliffwater Direct Lending Index	--	--	--
PIMCO Private Income	Bloomberg BA Intermediate HY	--	--	--
TCP Direct Lending VIII	Cliffwater Direct Lending Index	⚐	✓	⚐
White Oak Yield	Cliffwater Direct Lending Index	⚐	✓	✓
White Oak YSF V	Cliffwater Direct Lending Index	--	--	--
Aberdeen Standard GARS	Absolute Return Custom Index	⚐	⚐	⚐
Acadian MAAR Fund LLC	Absolute Return Custom Index	--	--	--
CFM Systematic Global Macro	Absolute Return Custom Index	--	--	--
Graham Quant Macro	Absolute Return Custom Index	--	--	--
PIMCO MAARS Fund LP	Absolute Return Custom Index	--	--	--

Rule 1 - Manager has underperformed the benchmark index for the five year period.
Rule 2 - Manager has underperformed the 50th percentile in the appropriate style universe for the five year period.
Rule 3 - Excess 5 Year Sharpe Ratio vs. Benchmark is positive

Verus

PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

4TH QUARTER 2022
Investment Landscape

Verus business update

Since our last Investment Landscape webinar:

— *Chief Investment Officer* has nominated Verus for its **2022 Innovation Awards** in the Diversity category, recognizing Verus President, Shelly Heier's work to progress the Institutional Investing Diversity Cooperative (iidcoop.org) mission promote greater diversity in the institutional asset management industry.

— The firm continues to grow with two new clients, located on the West Coast and in the Midwest.

— Verus has hired several new employees. **Colleen Flannery**, Associate Director | Public Markets; **Jason Fajardo**, Performance Analyst; **Sam Geschickter**, Portfolio Management Associate; **Linda Wu, CFA**, Senior Consulting Associate; and **Amanda Schroeder**, Director of Marketing.

— Recent research, found at *verusinvestments.com/insights*

- In August, we put out a short video on our ***Perspectives on the recession and the economy***
- In September, we released a whitepaper on ***Opportunities in small caps***
- *This month, we shared our* ***2022 Private Equity Outlook*** and a paper called, ***Minding the gap: Insights into actuarial assumed rate of return***

Recent Verus research

Visit: https://www.verusinvestments.com/insights/

Topics of interest papers

OPPORTUNITIES IN SMALL CAPS

In this Topic of Interest white paper, we first briefly walk through the original small cap premium thesis and research that led to its industry-wide recognition. Forty years have passed since much of this analysis was conducted, so in this section we take a look at whether the small cap effect has remained statistically significant. Next, we discuss active management opportunities in small caps, as these businesses are smaller and less covered by analysts. Last, many U.S. companies are staying private for longer. We cover this trend and its implications for the small cap market, which is directly impacted by the private/public decisions of younger businesses.

MINDING THE GAP: INSIGHTS INTO ACTUARIAL ASSUMED RATE OF RETURN

As consultants, we are often asked "how can we support a strategic asset allocation with an expected return (ER) that is different from the actuarial assumed rate of return (AARR)?" We believe Plan sponsors with a gap between these two metrics should work to bring the ER and AARR in line. Boards may face modest differences for three distinct reasons – each have countervailing reasons for closing the gap they cause. First, it might be argued that these forecasts are built for different purposes. Second, there is variability in ER forecasts as markets fluctuate year-to-year. Third, the timeframe over which the forecasts are used differs. In this paper, we further explain this reasoning and conclude by offering approaches for Plans to reduce any mismatch between ER and AARR to a reasonable level, which we generally believe to be less than 0.5%.

Annual research

2022 PRIVATE EQUITY OUTLOOK

In the 2022 Private Equity Outlook, we focus attention on the rise of GP-led continuation funds and what investors should consider when evaluating such opportunities. The outlook also addresses the following observations:

- Late-stage venture valuations have increased, and involvement of nontraditional investors has shifted
- Private equity deal activity has slowed in the face of rising interest rates and falling public markets
- Venture capital activity has slowed while fundraising remains strong
- Direct lending continues to drive investor interest while distressed debt and special situations credit have received more attention
- As many factors continue to impact the public markets and create volatility, the secondary market continues to grow

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LOS ANGELES 310.297.1777
SAN FRANCISCO 415.362.3484

3rd quarter summary

THE ECONOMIC CLIMATE

— U.S. real GDP fell in Q2 for a second consecutive quarter, down -0.6% annualized (+1.6% over the past full year). Forecasts suggest a potential growth turnaround in the third quarter; the Atlanta Fed GDPNow forecast indicated a growth rate of 2.8% and economists expected 0.9% as of October 14th. ***p. 9***

— The U.S. dollar delivered an impressive rally year-to-date, appreciating approximately 15% relative to major currencies. A stronger dollar may result in slowing U.S. exports as domestic goods become more expensive to foreign buyers, and lower inflation as American businesses and households are able to purchase foreign goods at cheaper prices. ***p. 9***

PORTFOLIO IMPACTS

— September inflation figures conveyed two stories: first, U.S. core CPI (excludes food & energy) remained elevated, rising 0.6% during the month to a new 40-year high of 6.6% year-over-year; second, headline inflation (includes all prices) continued to show another more moderate monthly print of 0.4% but remained high at 8.2% year-over-year. ***p. 10***

— Credit performance was mixed during Q3, with lower duration exposures faring better than higher duration. Fears of a looming recession remained as the Fed's 75 basis point rate hikes in both July and September reinforced its intention to fight inflation until the "job is done." ***p. 25***

THE INVESTMENT CLIMATE

— The Russia Ukraine war may be taking a turn, as Ukraine's counteroffensive gains steam. In a rare admission, Russia's Defense Ministry spokesman Igor Konashenkov acknowledged recent defeats: "With numerically superior tank units in the direction of Zolata Balka and Oleksandrivka, the enemy managed to forge deep into our defenses." ***p. 17***

— The broad market selloff increased in intensity as global central banks hiked interest rates, effectively withdrawing liquidity from the financial system. Higher interest rates and central bank balance sheet winddowns mark a major change from the liquidity-driven environment of the past decade. ***p. 22 & 23***

ASSET ALLOCATION ISSUES

— Markets year-to-date have delivered sharp losses across nearly every asset class, including double digit losses of core fixed income (Bloomberg US Aggregate Bond -10.8%). Historically speaking, these moves have been highly unusual and reflect an environment where diversification has not served investors well. ***p. 34***

— Growth stocks outperformed value stocks during the quarter (Russell 1000 Growth -3.6% vs Russell 1000 Value -5.6%), and small capitalization stocks outperformed large capitalization stocks (Russell 2000 -2.2%, Russell 1000 -4.7%). ***p. 30***

The broad market selloff has increased in severity, as central banks remove liquidity from the global financial system

What drove the market in Q3?

"U.S. Consumer Prices Rise Sharply Despite Fed Rate Increases"

HEADLINE CONSUMER PRICE INFLATION (YEAR-OVER-YEAR)

Apr	May	Jun	Jul	Aug	Sep
8.3%	8.6%	9.1%	8.5%	8.3%	8.2%

Article Source: Financial Times, October 13th, 2022

"U.S. Job Growth Eases, but Is Too Strong to Suit Investors"

CHANGE IN NON-FARM PAYROLLS

Apr	May	Jun	Jul	Aug	Sep
+368k	+386k	+293k	+526k	+315k	+263k

Article Source: New York Times, October 7th, 2022

"Dollar's Rise Spells Trouble for Global Economies"

U.S. DOLLAR INDEX PRICE LEVEL

Apr	May	Jun	Jul	Aug	Sep
103.0	101.8	104.7	105.9	108.8	112.1

Article Source: Wall Street Journal, September 19th, 2022

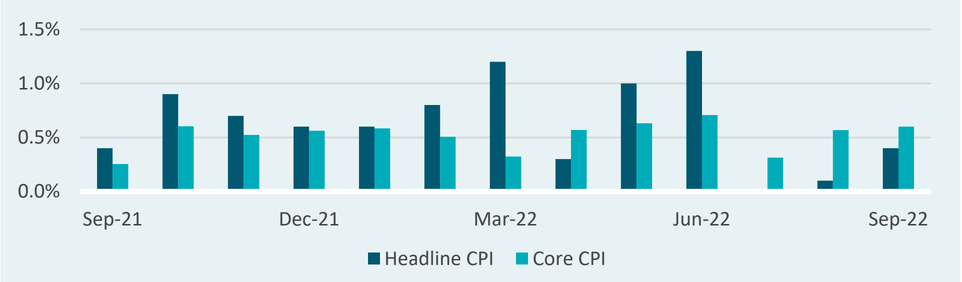
"Mortgage Demand Drops as Rates Top 6%"

FREDDIE MAC U.S. 30-YEAR FIXED RATE MORTGAGE RATE

Sep 2021	May	Jun	Jul	Aug	Sep
3.01%	5.10%	5.70%	5.30%	5.66%	6.70%

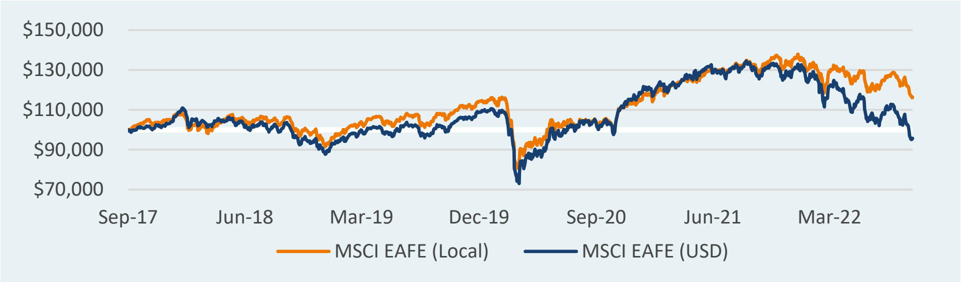
Article Source: CNBC, September 14th, 2022

U.S. HEADLINE & CORE CPI (MONTH-OVER-MONTH)



Source: Bureau of Labor Statistics, as of 9/30/22

MSCI EAFE LOCAL VS USD RETURNS, GROWTH OF $100,000



Source: MSCI, Bloomberg, as of 9/30/22

U.S. EXISTING HOME SALES (YEAR-OVER-YEAR % CHANGE)

Source: National Association of Realtors, as of 8/31/22

Economic environment

U.S. economics summary

— U.S. real GDP fell in Q2 for a second consecutive quarter, down -0.6% annualized (+1.6% over the past full year). Forecasts suggest a potential growth turnaround in the third quarter; the Atlanta Fed GDPNow forecast indicated a growth rate of 2.8% and economists expected 0.9% as of October 14th.

— U.S. core CPI remained elevated in September, rising 0.6% during the month to a new 40-year high of 6.6% year-over-year. Headline inflation continued to show another more moderate monthly print of 0.4% but remained high at 8.2% year-over-year.

— Unemployment fell slightly from 3.6% in June to 3.5% in September, which did not reflect an increase in employment but rather the departure of some Americans from the job market altogether. Weekly initial jobless claims—a measure of the number of workers who filed for unemployment during any given week—moved higher during Q2 to 244,000 in early July but has since fallen to 193,000 in late September.

— The U.S. dollar has appreciated roughly 15% relative to major currencies. A stronger dollar may result in slowing U.S. exports as domestic goods become more expensive to foreign buyers, and lower inflation as American businesses and households are able to purchase foreign goods at cheaper prices.

— Coverage of COVID-19 has tended to focus on the health impacts in a binary way: either the infected individual recovers (and lives) or does not recover (and is deceased). There is a growing body of research by medical experts that suggests a significant portion of survivors face longer-term, often severe, health problems. These issues are known as "long COVID" and may be the primary cause for a severe shrinking of the U.S. labor force.

	Most Recent	12 Months Prior
Real GDP *(YoY)*	1.6% *6/30/22*	12.5% *6/30/21*
Inflation *(CPI YoY, Core)*	6.6% *9/30/22*	4.0% *9/30/21*
Expected Inflation *(5yr-5yr forward)*	2.1% *9/30/22*	2.2% *9/30/21*
Fed Funds Target Range	3.00% – 3.25% *9/30/22*	0.00% – 0.25% *9/30/21*
10-Year Rate	3.83% *9/30/22*	1.49% *9/30/21*
U-3 Unemployment	3.5% *9/30/22*	4.7% *9/30/21*
U-6 Unemployment	6.7% *9/30/22*	8.5% *9/30/21*

GDP growth

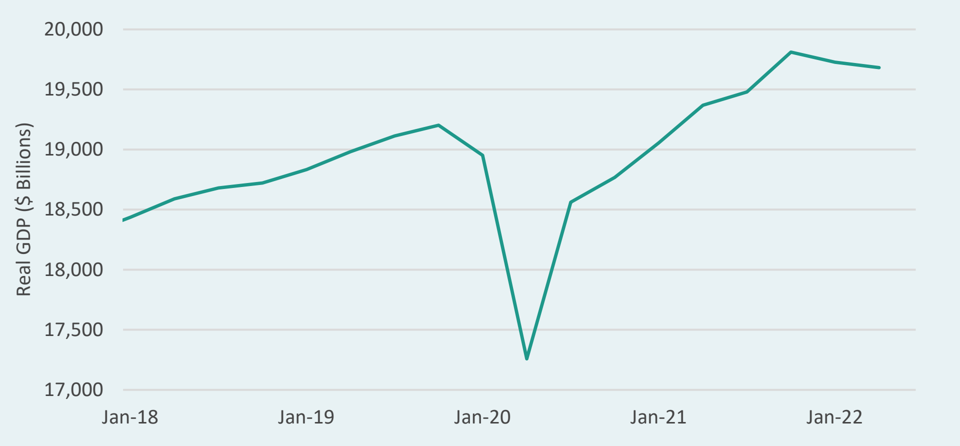
U.S. real GDP fell in Q2 for a second consecutive quarter, down -0.6% annualized (+1.6% over the past full year). Most aspects of economic activity showed decline, including private investment (-2.7%), government spending (-0.3%), and imports (-0.5%). Forecasts suggest a potential growth turnaround in the third quarter; the Atlanta Fed GDPNow forecast indicated a growth rate of 2.8% and economists expected 0.9% as of October 14th.

It is possible that the U.S. has avoided technical recession, for now, especially if third quarter GDP growth shows a positive figure. Pundits remain primarily focused on the relatively strong labor market to justify their claims that the U.S. is not in fact experiencing recession, and slightly positive consumer spending growth during 2022 also adds to their argument.

The U.S. dollar has delivered an impressive rally year-to-date, appreciating approximately 15% relative to other major currencies. Two expected economic impacts of a rising U.S. dollar, all else equal, include: a slowdown in U.S. exports as domestic goods become more expensive to foreign buyers; and lower inflation as American businesses and households are able to purchase foreign goods at cheaper prices. Other countries such as the U.K. may be seeing the opposite of these effects as their domestic currencies fall in value.

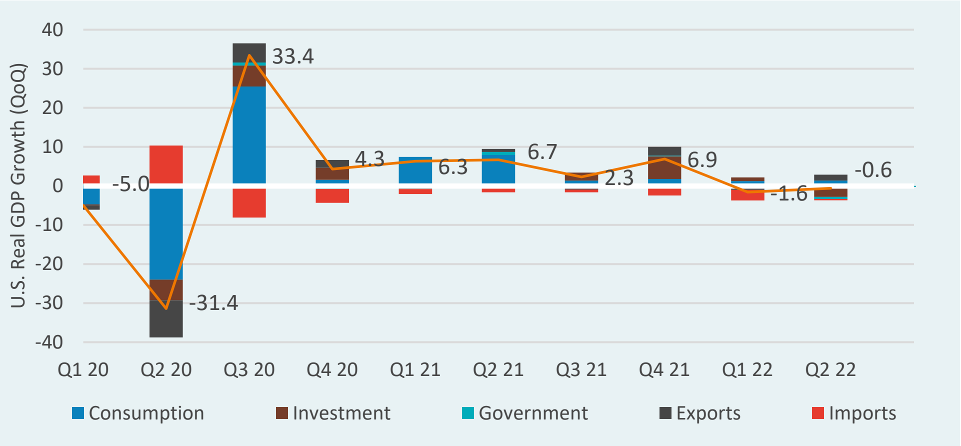
It remains unclear whether the U.S. has entered recession

U.S. REAL GROSS DOMESTIC PRODUCT



Source: FRED, as of 6/30/22

U.S. REAL GDP COMPONENTS (QOQ)



Source: FRED, as of 6/30/22

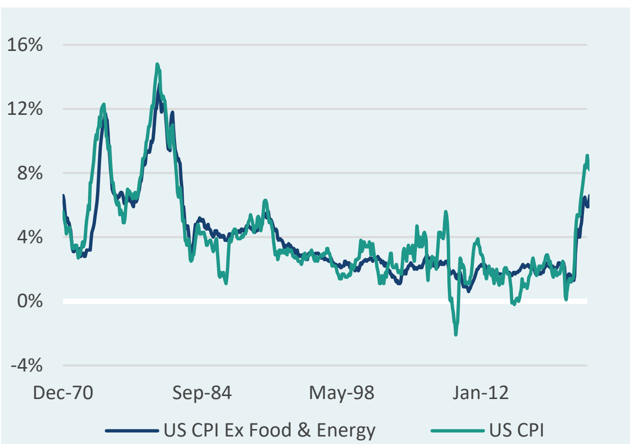
Inflation

The September inflation print conveyed two separate stories: first, that U.S. core CPI (excludes food & energy) remained elevated, rising 0.6% during the month to a new 40-year high of 6.6% year-over-year; second, headline inflation (includes all prices) continued to show another more moderate monthly print of 0.4%, but remains high at 8.2% year-over-year.

We see a variety of economic developments that suggest inflation is abating, although the level of inflation may not fall to pre-pandemic levels due to the breadth of price movement. These developments include: lower commodity prices, dramatically lower international shipping costs, and the general slowdown of economic activity on the back of Federal Reserve tightening.

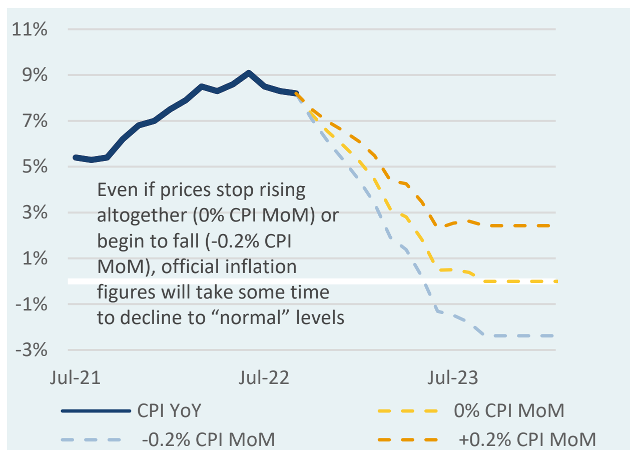
Inflation will take some time to fall back to normal levels, even if *monthly* inflation is 0% in the future. Below we illustrate a few scenarios of *monthly* future price movement. Even if prices stop rising completely (a monthly inflation rate of 0%), the U.S. inflation rate will still likely take until spring of 2023 to fall back to 2%.

U.S. CPI (YOY)



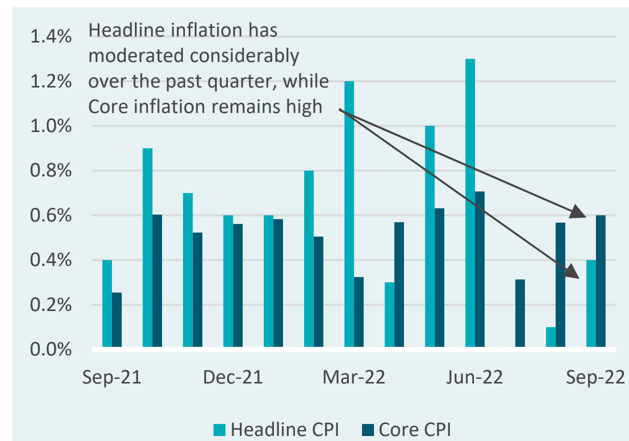
Source: BLS, as of 9/30/22

INFLATION IS A SLOW-MOVING METRIC



Source: Verus, BLS, as of 9/30/22

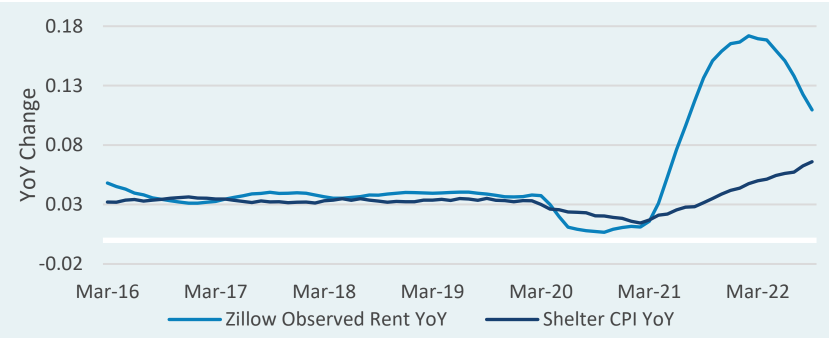
MONTHLY PRICE MOVEMENT



Source: BLS, as of 9/30/22

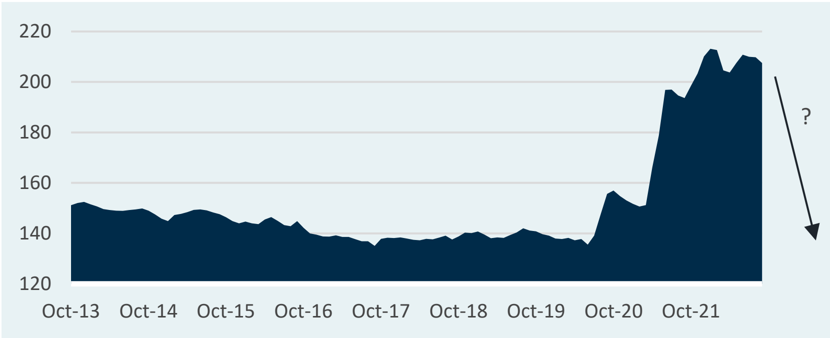
How are inflation conditions evolving?

CPI SHELTER COSTS (YEAR-OVER-YEAR)



Shelter costs account for approx. 32% of the CPI gauge and have moved considerably higher along with the broader real estate boom. However, only a small portion of these costs have been captured in official data, so far. While there is evidence that home prices and rents have stopped rising, it is not yet clear whether/when the jump in costs of recent years will flow into official CPI data.

CPI USED CAR & TRUCK PRICES



Used auto prices have been dropping materially according to the Mannheim Used Auto Value Index, down more than 13% from highs. If falling prices soon are reflected in official CPI statistics, this would place downward pressure on official inflation figures.

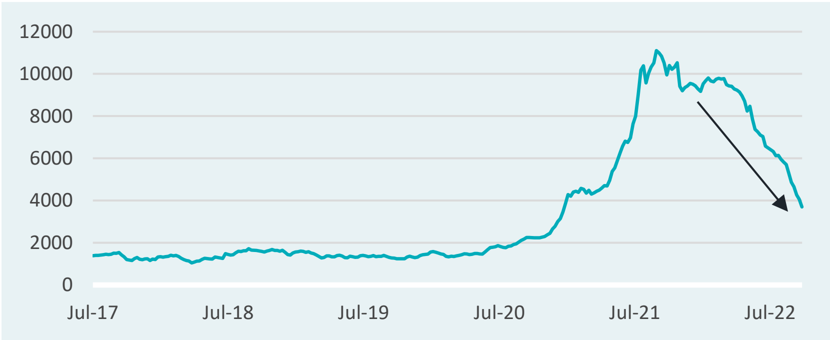
Inflation dynamics are complex. This slide shows a few potentially *inflationary* forces and *deflationary* forces

BLOOMBERG COMMODITY SPOT INDEX

Fears of recession and its impact on commodity demand, as well as some potential easing of uncertainty around Ukraine, have likely contributed to a sharp drop in commodity prices. If weaker conditions persist, the reversal in commodity markets should have a deflationary impact on broader consumer prices, though this effect may take time to flow through to broader goods and services prices.

Source: Zillow, FRED, as of 9/30/22 (upper), Bloomberg, as of 9/30/22 (lower)

FREIGHTOS SHIPPING CONTAINER COST INDEX



Pandemic-related supply and demand complexities initially contributed to many supply shortages and price spikes. These shipping costs are quickly falling back towards pre-pandemic levels. We would expect the mitigation of shipping problems to have a deflationary effect on prices, assuming businesses begin to pass these cost savings on to customers.

Source: FRED, as of 9/30/22 (upper), Freightos, as of 10/7/22 (lower)

Labor market

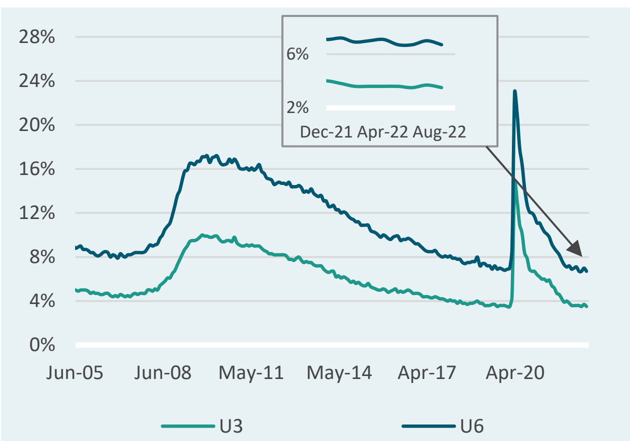
The U.S. labor market continues to be strong, which is arguably the biggest factor empowering the Federal Reserve's aggressive policy stance. However, while employment is strong, high inflation has eaten away at household purchasing power, as demonstrated by the consistent decline in inflation-adjusted weekly earnings since mid-2020.

Unemployment fell slightly from 3.6% in June to 3.5% in September, which did not reflect an increase in employment but rather the departure of some Americans from the job market altogether. Weekly *initial jobless claims*—a measure of the number of workers who filed for unemployment on any given week—moved higher during Q2 to 244,000 in early July but has since fallen to 193,000 in late September.

The gap in labor force participation rates across different age cohorts remains notable, with the age 55+ cohort failing to recover. Previously we had assumed that abnormally early retirements of older workers during the pandemic was likely the main cause for this effect. However, as we propose on the next page, the apparently very widespread health effects of "Long COVID" may be playing a role in this story.

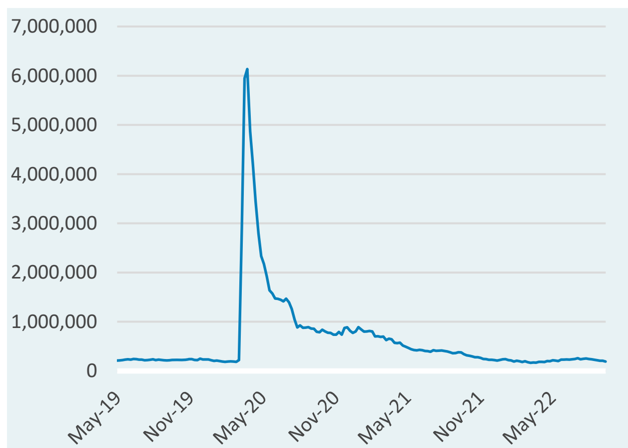
The labor market appears tight according to most metrics, but workers' wages are falling on an inflation-adjusted basis

U.S. UNEMPLOYMENT



Source: FRED, as of 9/30/22

INITIAL JOBLESS CLAIMS



Source: FRED, as of 9/25/22

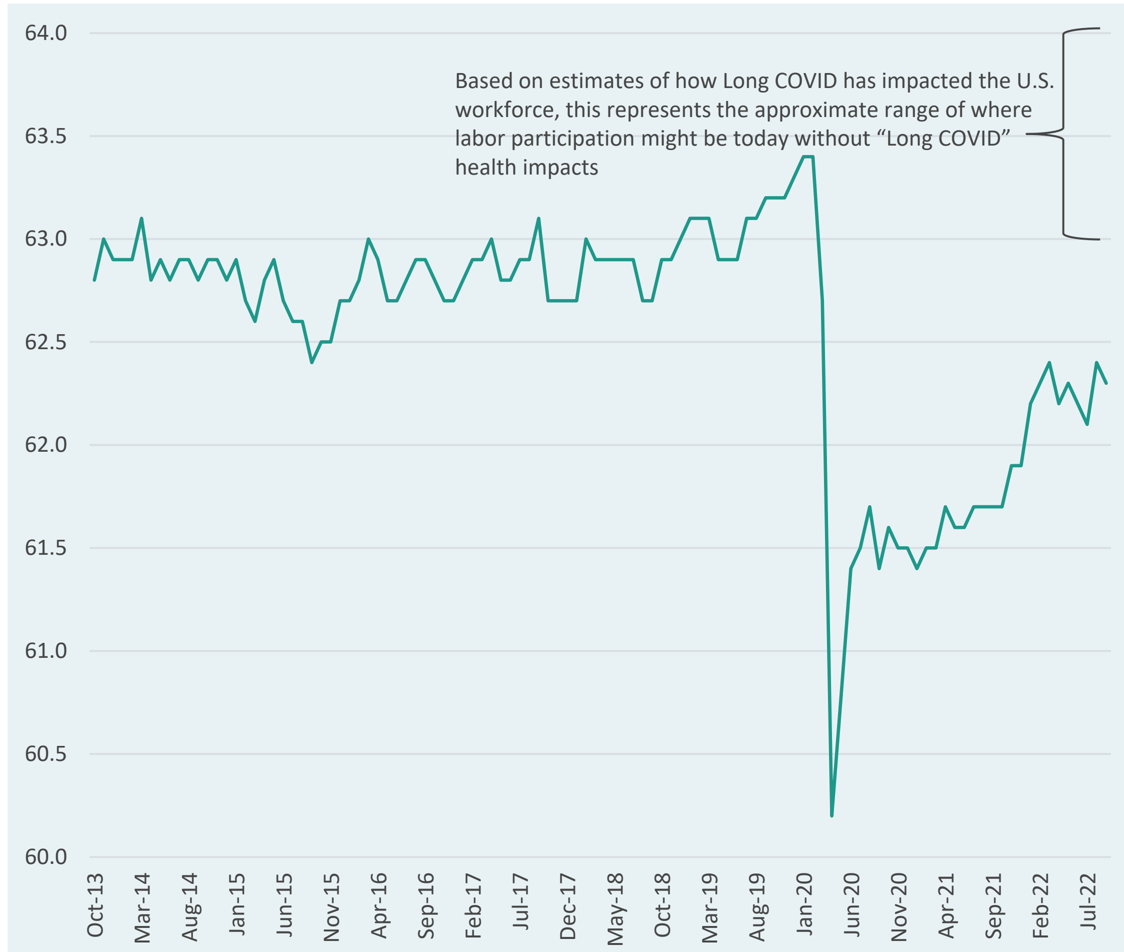
U.S. AVERAGE WEEKLY REAL WAGES

Source: FRED, as of 6/30/22

Labor dynamics: Long COVID-19

- Most coverage of COVID-19 has focused on the health impacts of COVID-19 in a binary way: either the infected individual recovers (and lives) or they do not recover (and is deceased). There is a growing body of research by medical experts that suggests a significant portion of COVID-19 survivors face longer-term, often severe, health problems. These issues are known as “Long COVID”.
- COVID-19 is broadly thought of as a virus that affects the lungs. However, it can severely impact the brain and heart as well. Studies vary in their projections regarding the number of Americans who are unable to work due to Long COVID health issues. We have observed estimates between half a million and 4 million workers. This chart illustrates that Long COVID could in fact be the primary reason for a shrunken American workforce and the unusual number of unfilled job openings.
- This topic should be seen as important to investors, because: a) the size of the U.S. labor force determines the productive capacity of the country and therefore the rate of economic growth, the direction of wage pressures, and likely also the actions of the Federal Reserve (as decided by metrics such as labor market tightness and household income/spending).
- We are continuing to closely follow these dynamics. Depending on the persistence of Long COVID, future expectations could vary from *permanently reduced U.S. workforce and commensurately reduced U.S. growth prospects* to *continued inflow of previously ill workers back into the workforce.*

LABOR PARTICIPATION RATE (%)



Source: FRED, Verus, as of 9/30/22

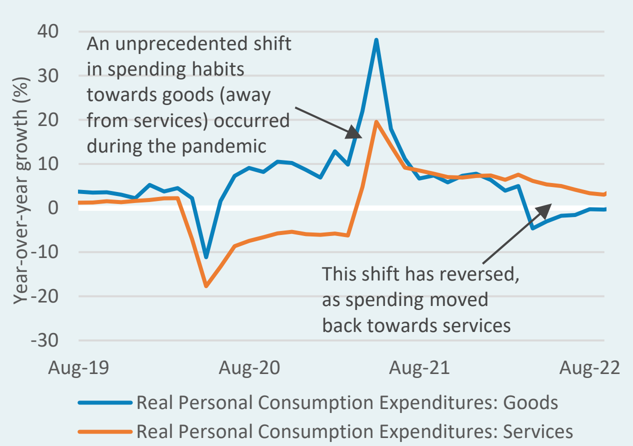
The consumer

U.S. real (inflation-adjusted) personal consumption expenditures slowed further to 1.8% year-over-year in August. The purchases of goods have fallen as consumers move back towards pre-pandemic spending habits (sales of goods have been consistently falling year-to-date, after adjusting for inflation). A moderation of goods purchased means less shipping volume and has likely helped mitigate overburdened supply chains and high international shipping costs, which have been easing materially.

Spending has slowed while savings rates have dropped to 3.5%—a level not seen since 2008—which seems to imply that household budgets are being hit hard by inflation and higher living costs.

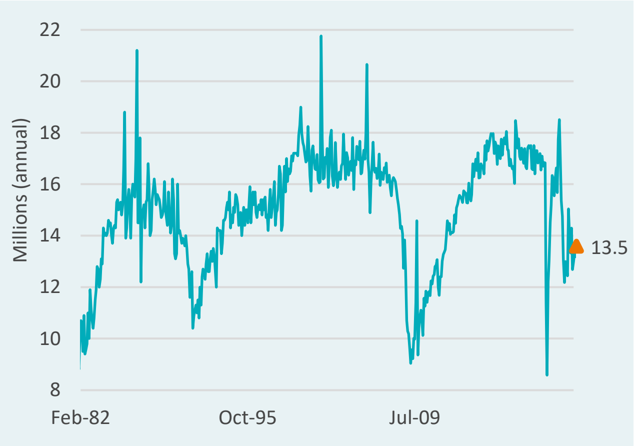
Auto sales activity remains very weak, although automakers have reported improvements in computer chip supplies that will allow production to rise. On the other hand, higher interest rates, diminished household budgets, and high car prices may constrain a recovery in auto sales activity despite new inventory coming online.

REAL PERSONAL CONSUMPTION EXPENDITURES



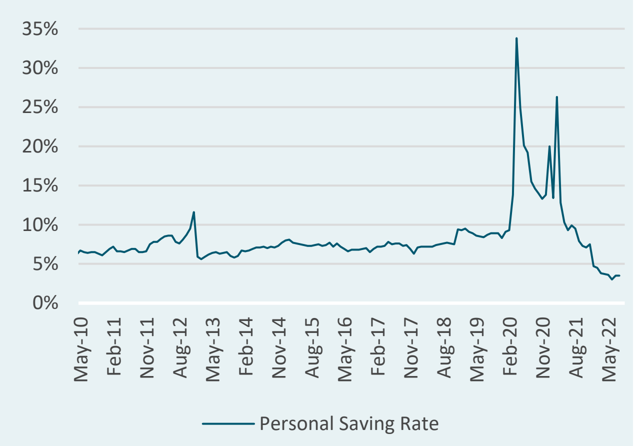
Source: FRED, as of 8/31/22

AUTO SALES



Source: Federal Reserve, as of 9/30/22

PERSONAL SAVINGS RATE



Source: FRED, as of 8/31/22

Sentiment

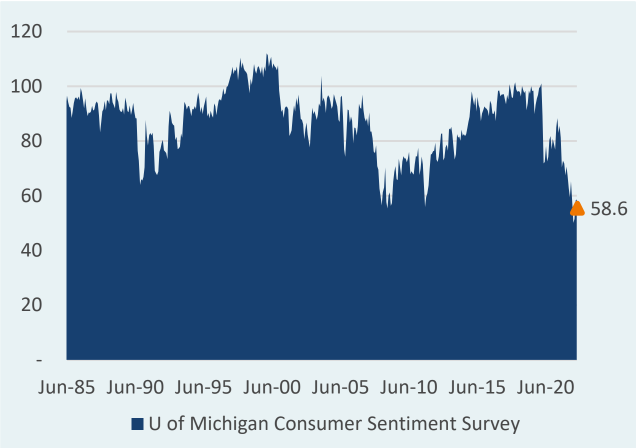
Consumer sentiment improved slightly from extremely depressed levels, according to the University of Michigan survey. In this survey, respondents mentioned better buying conditions for durable goods and a more optimistic one-year outlook, though this brighter sentiment was generally offset by a deteriorating outlook for business conditions.

Consumer confidence measured by the Conference Board ticked up in the third quarter, as inflation expectations lessened, and more specifically as households saw prices at the pump materially contract. Consumers' assessments of current conditions and the short-term outlook improved, although recession risks remain material. While improved confidence could bode well for spending in the fourth quarter of 2022, continued higher prices and global economic slowdowns will likely act as major headwinds.

The NFIB Small Business Optimism index improved slightly from very depressed levels. According to NFIB's Chief Economist Bill Dunkelberg, "Inflation and worker shortages continue to be the hardest challenges facing small business owners". Slightly more businesses expect healthier business conditions six months in the future (though overall sentiment is very negative on this topic), and more expect difficulties in filling open job postings.

Sentiment, by most measures, is extremely poor

CONSUMER SENTIMENT

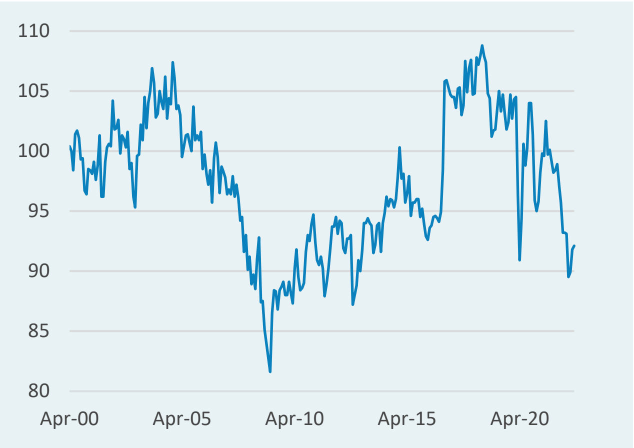


Source: University of Michigan, as of 9/30/22

CONFERENCE BOARD CONSUMER CONFIDENCE

Source: Conference Board, as of 9/30/22

NFIB SMALL BUSINESS SENTIMENT



Source: NFIB, as of 9/30/22

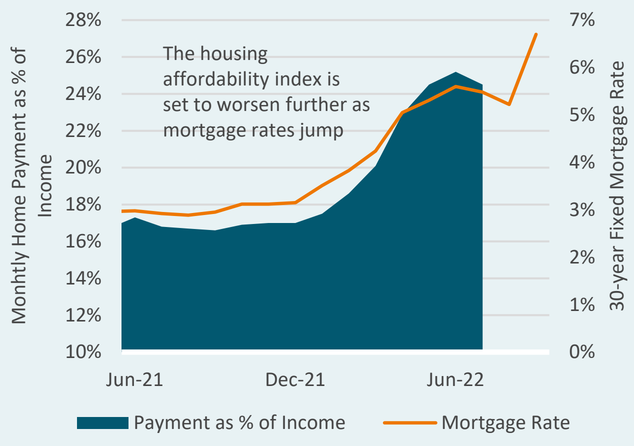
Housing

U.S. home prices fell -0.3% from June to July, according to the S&P CoreLogic Case-Shiller U.S. National Index, which might signal a reversal of the remarkable upward march in real estate values. The index suggested home prices were 15.8% higher over the past full year. Sales volumes have dropped precipitously since the beginning of 2022 which has coincided with a notable jump in monthly inventory levels.

Higher home prices and much higher mortgage interest rates have translated to the average monthly home payment rising from 16% of an average family's income to more than 24% in July, according to the National Association of Realtors. Further increases in mortgage rates since July suggest that affordability has likely deteriorated further.

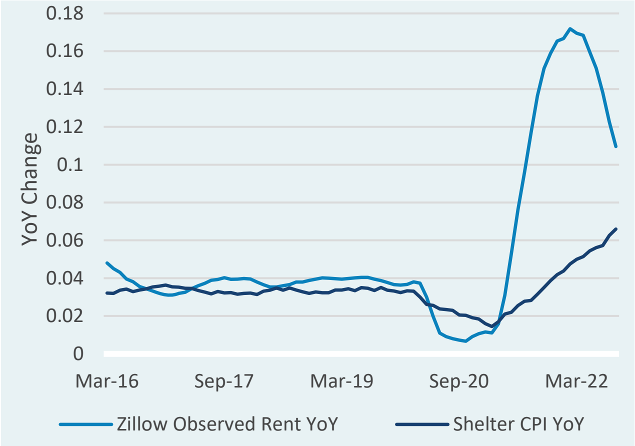
The housing market may be in the midst of a material slowdown as mortgage rates have more than doubled during 2022, from 3.1% at the beginning of the year to 6.7% at the end of the third quarter. Spiking mortgage rates in the past have coincided with a softening of the real estate market and placed downward pressure on home values. In recent years, low home inventories have been a support to markets, but this may be receding as inventories are now above average.

CHANGE IN HOUSING AFFORDABILITY



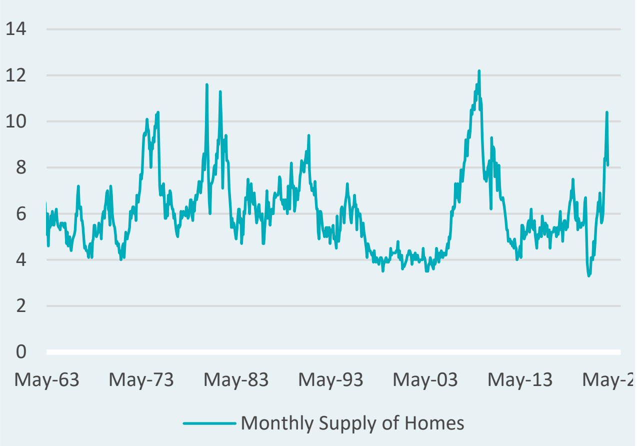
Source: NAR, as of 7/31/22, FRED as of 9/30/22

HOUSING & RENT COSTS



Source: Zillow, FRED, as of 9/30/22

SUPPLY OF HOMES



Source: FRED, as of 8/31/22

Census Bureau median family income is compared here to the monthly cost (principal + interest) of an average priced home

International economics summary

— Economic growth expectations continue to weaken around the world, and recession appears possible in some developed countries. High inflation has placed central banks in a corner, requiring a choice between tightening (lower inflation with possible recession) or accommodation (stronger economic activity with possibly continued high inflation).

— Multi-decade high inflation continues to spread across Europe, as consumer prices in September rose 10% from the prior year. Food and energy were major drivers, although the core inflation number is also elevated at 4.8%. Inflation remains a challenge in Europe and the U.S., as prices have been relatively stable in the Asia-pacific region.

— Unemployment rates have been stable and tight in most markets, though this may now be seen as a problem as central bankers work to slow economies and weaken labor markets in order to fight inflation.

— The Russia Ukraine war may be taking a turn, as Ukraine's counteroffensive gains steam. In a rare admission, Russia's Defense Ministry spokesman Igor Konashenkov acknowledged recent defeats: "With numerically superior tank units in the direction of Zolata Balka and Oleksandrivka, the enemy managed to forge deep into our defenses."

— Still dealing with the highest inflation seen in four-decades, the U.K. economy continues to struggle, especially as the Bank of England tightens economic conditions in the face of a recession. The situation worsened following newly elected Prime Minister Liz Truss' new growth plan announcement, which introduced a large tax cut initiatives without additional funding sources secured.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	1.8% *6/30/22*	8.2% *9/30/22*	3.5% *9/30/22*
Eurozone	4.1% *6/30/22*	10.0% *9/30/22*	6.6% *8/31/22*
Japan	1.6% *6/30/22*	2.8% *9/30/22*	2.5% *8/31/22*
BRICS Nations	1.9% *6/30/22*	4.5% *9/30/22*	5.2% *12/31/21*
Brazil	3.2% *6/30/22*	7.2% *9/30/22*	8.9% *8/31/22*
Russia	(4.1)% *6/30/22*	13.7% *9/30/22*	3.8% *8/31/22*
India	13.5% *6/30/22*	7.4% *9/30/22*	6.4% *9/30/22*
China	0.4% *6/30/22*	2.8% *9/30/22*	5.3% *8/31/22*

NOTE: India lacks reliable government unemployment data. Unemployment rate shown above is estimated from the Centre for Monitoring Indian Economy. The Chinese unemployment rate represents the monthly surveyed urban unemployment rate in China.

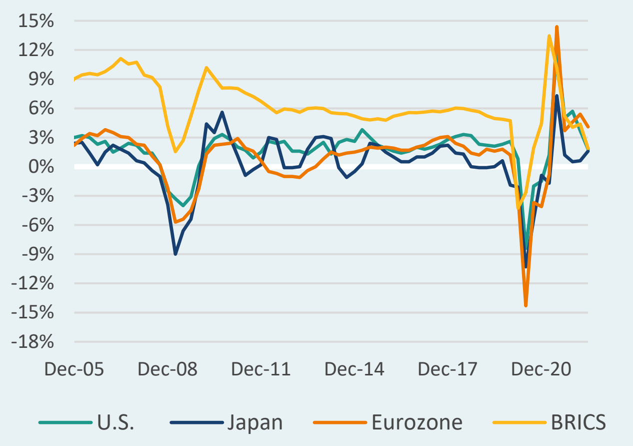
International economics

Growth expectations have further weakened around the world, and recession appears possible in some developed countries. Throughout 2022, headline inflation remained stubbornly high in many places such as the United States and Europe. Other areas, such as Japan, had avoided the initial wave of inflation but are now seeing larger price rises in recent months.

Many central banks are walking a tightrope in their fight against inflation since overly aggressive monetary policy could quickly send an economy into recession. Inflation has become a lightning rod for political leaders, as rising prices squeeze household budgets and standards of living. This is perhaps evident most recently in the U.K., where Prime Minister Liz Truss came under harsh scrutiny for a proposal to cut tax rates and spend which seemed to conflict with Bank of England efforts to combat inflation.

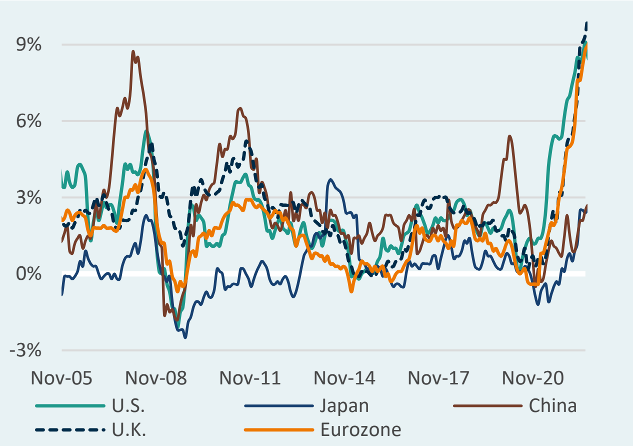
Unemployment rates are stable and tight in most markets, though central bankers may now see this as a problem standing in the way of efforts to slow economies and fight rising prices.

REAL GDP GROWTH (YOY)



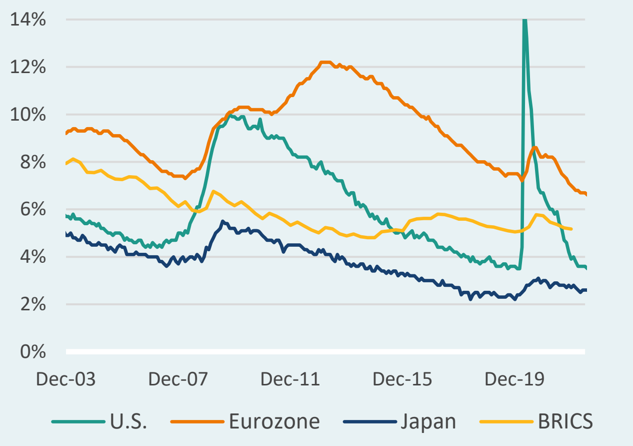
Source: Bloomberg, as of 6/30/22

INFLATION (CPI YOY)



Source: Bloomberg, as of 9/30/22 – or most recent release

UNEMPLOYMENT



Source: Bloomberg, as of 9/30/22 – or most recent release

U.K. flash crash

Inflationary pressures have continued within the broader European complex, as a dependence on imported energy has pushed up local energy prices dramatically. Within the U.K., the Bank of England has been forced into a difficult position. The central bank increased rates at every meeting since December 2021, but headline inflation still sits at 9.9% year-over-year.

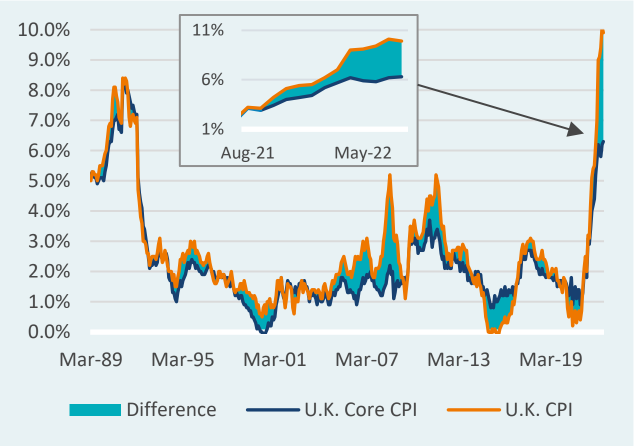
More recently, newly elected Prime Minister Liz Truss and the Chancellor of the Exchequer Kwasi Kwarteng unveiled a plan with to reignite growth and spur economic productivity through tax cuts, guarantees regarding household energy prices, and supply side reforms including infrastructure projects.

Markets reacted very poorly to the announcement. U.K. Gilt (U.K. treasury bond) yields soared, and the British pound sold off to its lowest level against the dollar in history. Markets stabilized following a commitment from the Bank of England to purchase long-dated bonds, given that many U.K. pension funds were facing margin calls on their liability-driven investment (LDI) derivative positions. The Bank of England also suspended its plans to reduce the balance sheet by selling Gilt holdings. The U.K. government then announced it would scrap its original plan to cut the top income tax rate, leading to increased volatility for the pound and U.K. sovereign debt.

U.K. BASELOAD ELECTRICITY FORWARD PRICES

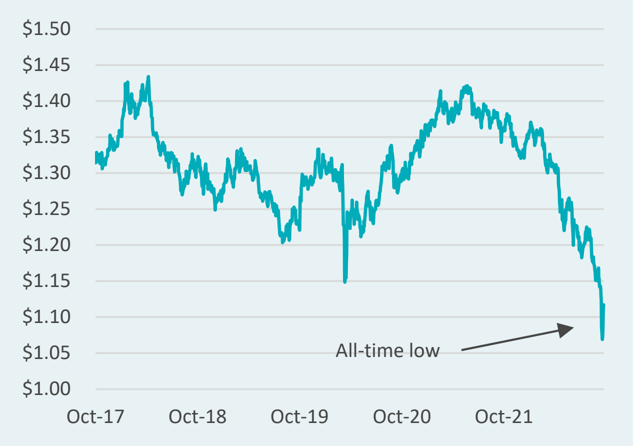
Source: Bloomberg, as of 10/4/22

U.K. INFLATION (CPI YOY)



Source: U.K. Office for National Statistics, as of 8/31/22

VALUE OF 1 GBP IN USD



Source: Bloomberg, as of 9/30/22

Fixed income rates & credit

Fixed income environment

— The 10-year U.S. Treasury yield rose materially from 2.89% to 3.83% as the Federal Reserve reaffirmed its aggressive stance and markets questioned whether interest rates might be held at higher levels for longer than previously anticipated.

— Credit performance was mixed over Q3 with lower duration exposures faring better than higher duration exposures. Fears of a looming recession remained as the Fed's 75 basis point rate hikes in July and September reinforced its intention to fight inflation until the "job is done." Leveraged loans performed the best, returning 1.2%, followed by high yield credit and investment grade credit which returned -0.6% and -4.9%, respectively.

— Default activity continued to pick up in the third quarter with seven companies defaulting on loans and bonds totaling $16.5 billion. This was the highest quarterly total seen since the second quarter of 2020. Activity represented a significant jump from the $1.6 billion and $10.4 billion shown in Q1 and Q2, respectively.

— The U.S. Yield Curve inverted during the quarter, with the 10-year 2-year spread falling from 0.1% to -0.4%. An inverted curve has historically suggested recession within two years or so.

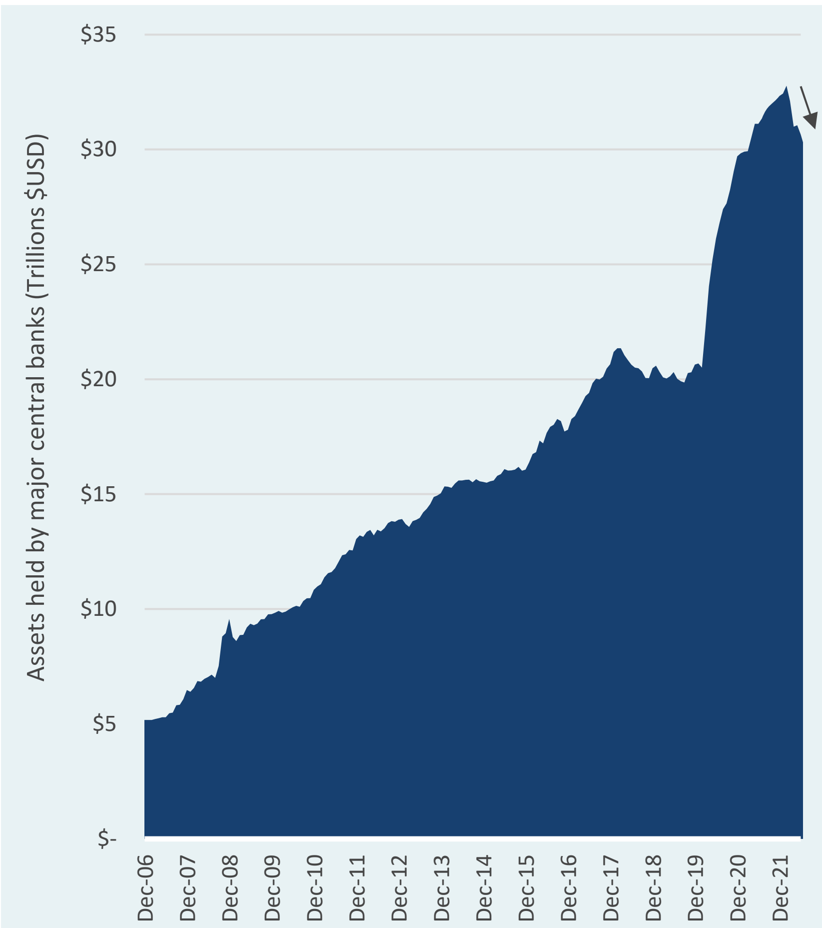
— Throughout the third quarter, the Federal Reserve continued its path to reduce the balance sheet, beginning in June with the paced redemption of maturing securities. The initial June monthly redemption caps of $30 billion for Treasuries and $17.5 billion for agency MBS were increased to $60 billion and $35 billion in September. Markets have seemingly digested the reduction well, although the total drawdown has been relatively small so far, around $200 billion against the peak size of $8.97 trillion in April 2022.

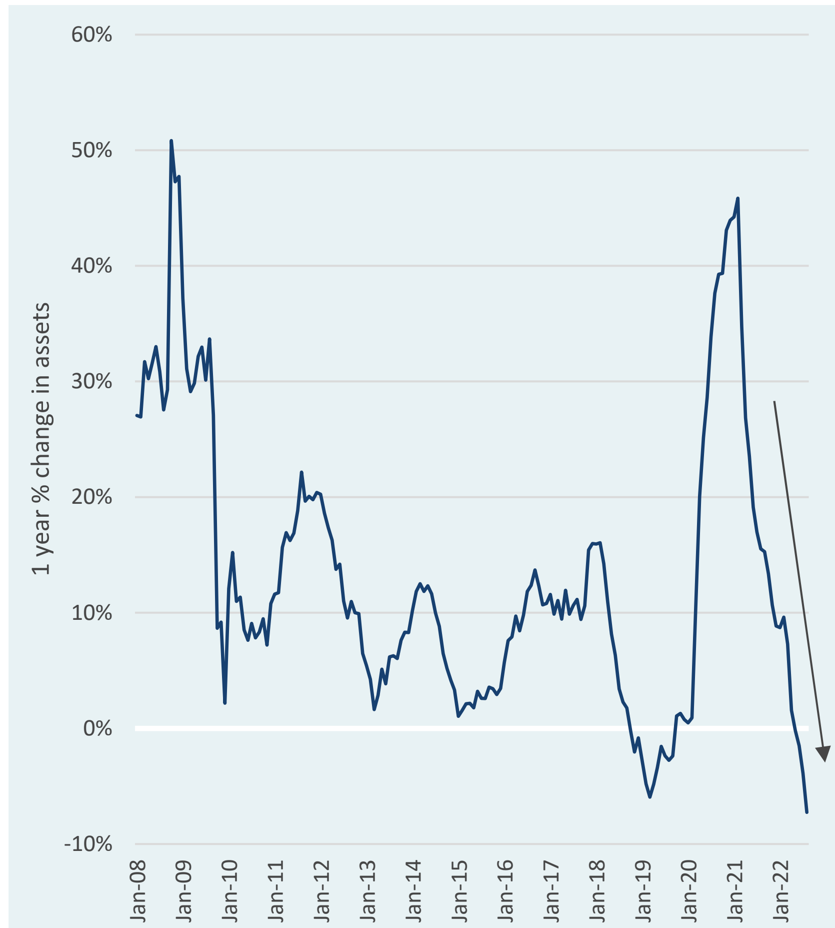
	QTD Total Return	1 Year Total Return
Core Fixed Income (Bloomberg U.S. Aggregate)	(4.8%)	(14.6%)
Core Plus Fixed Income (Bloomberg U.S. Universal)	(4.5%)	(14.9%)
U.S. Treasuries (Bloomberg U.S. Treasury)	(4.3%)	(12.9%)
U.S. High Yield (Bloomberg U.S. Corporate HY)	(0.6%)	(14.1%)
Bank Loans (S&P/LSTA Leveraged Loan)	(1.4%)	(2.5%)
Emerging Market Debt Local (JPM GBI-EM Global Diversified)	(4.7%)	(20.6%)
Emerging Market Debt Hard (JPM EMBI Global Diversified)	(4.6%)	(24.3%)
Mortgage-Backed Securities (Bloomberg MBS)	(5.3%)	(9.0%)

Source: Bloomberg, as of 9/30/22

The great liquidity withdrawal

Central banks are planning to remove substantial liquidity from the global financial system



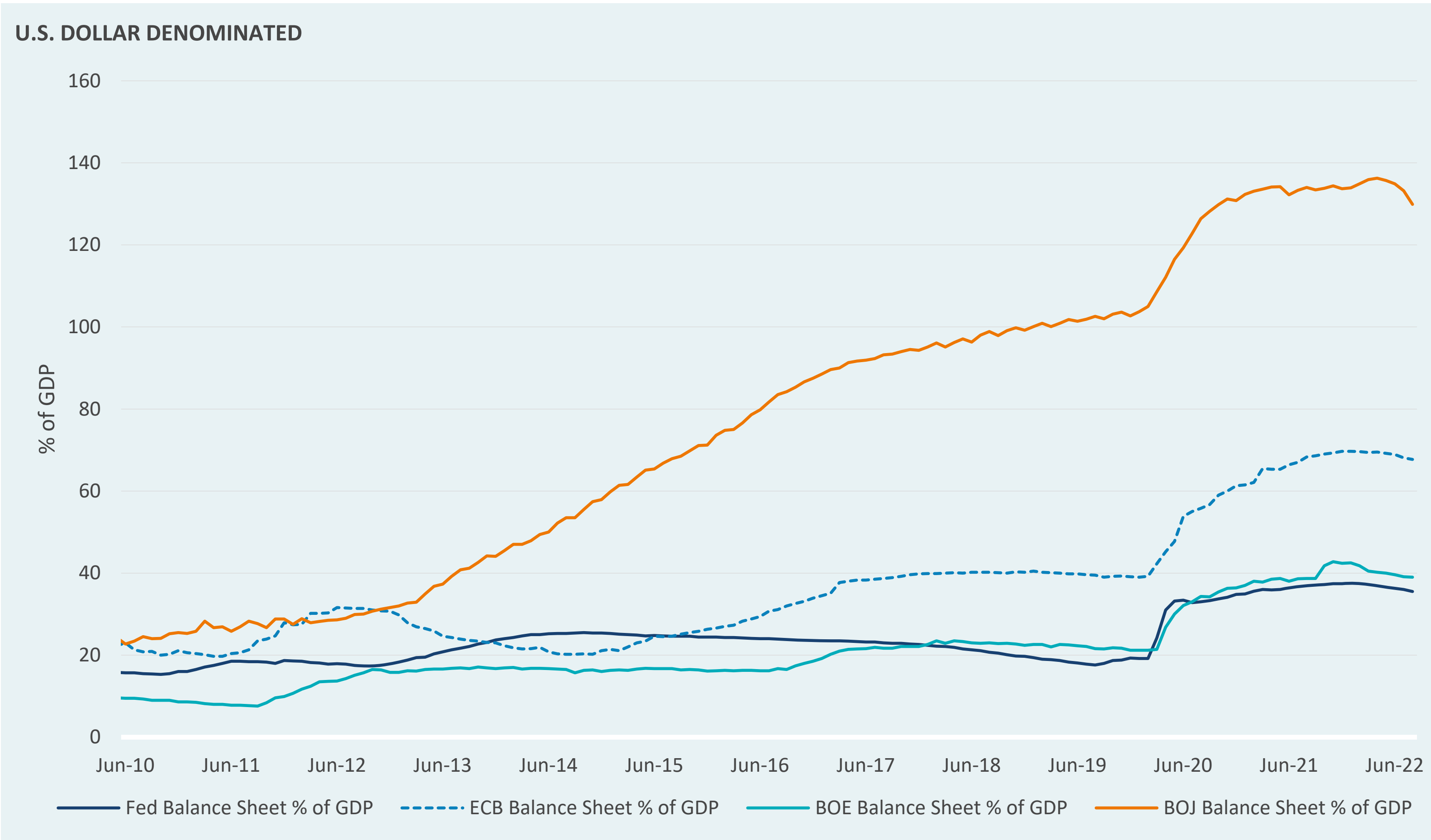


Markets are entering an unusual time of mass central bank asset roll-off

Source: Bloomberg, Verus, as of 9/30/22 – includes Fed, BOE, ECB, BoJ, PBOC

The great liquidity withdrawal (continued)

CENTRAL BANK ASSETS AS % OF GDP



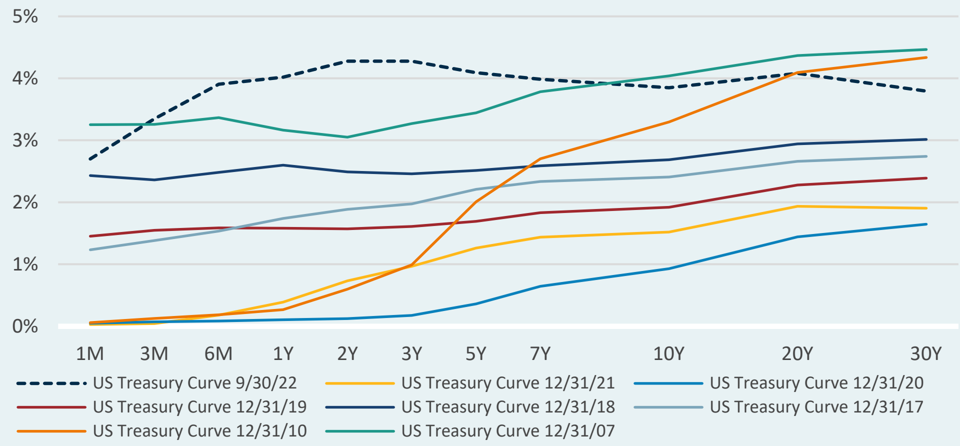
Central banks have accumulated very large balance sheets

Surprisingly, the U.S. Federal Reserve balance sheet is more moderate in size, relative to GDP

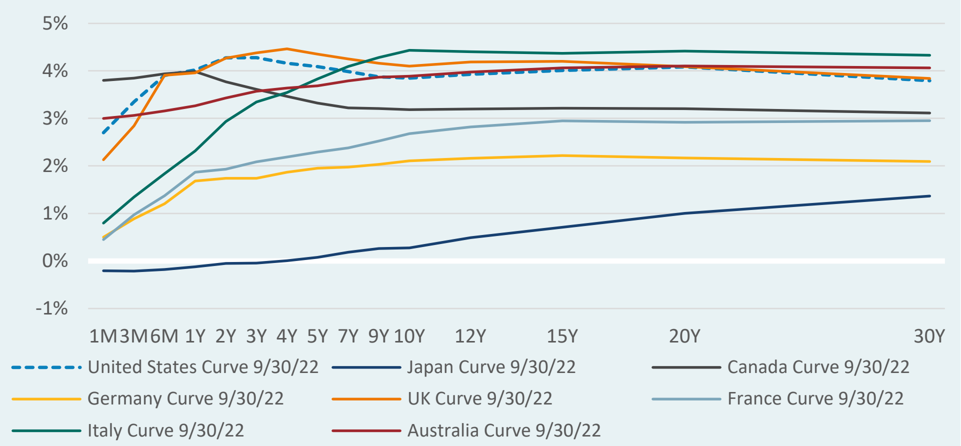
Source: Bloomberg, Verus, as of 9/30/22

Yield environment

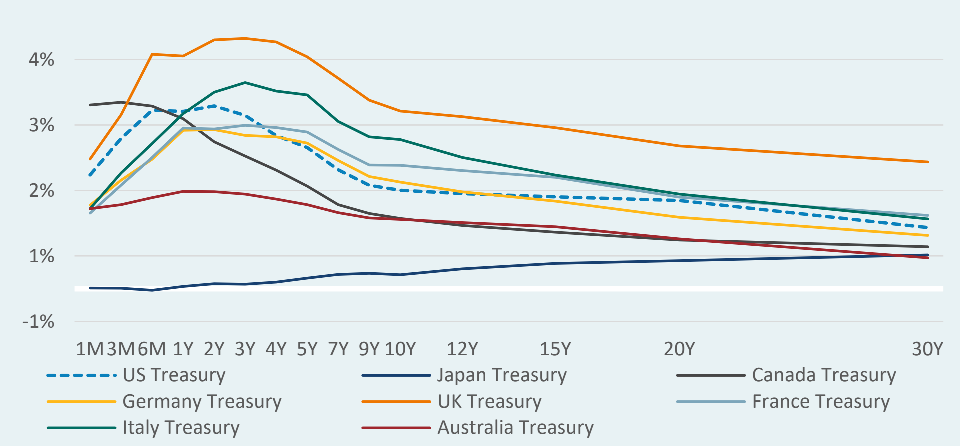
U.S. YIELD CURVE



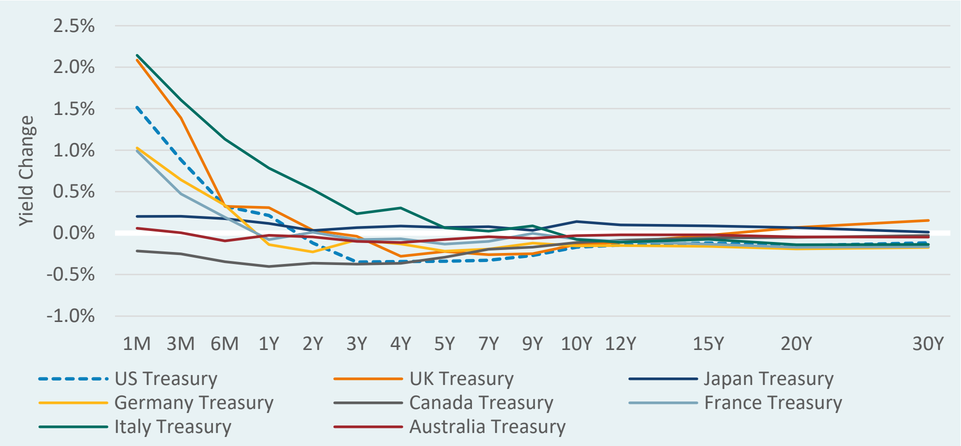
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 9/30/22

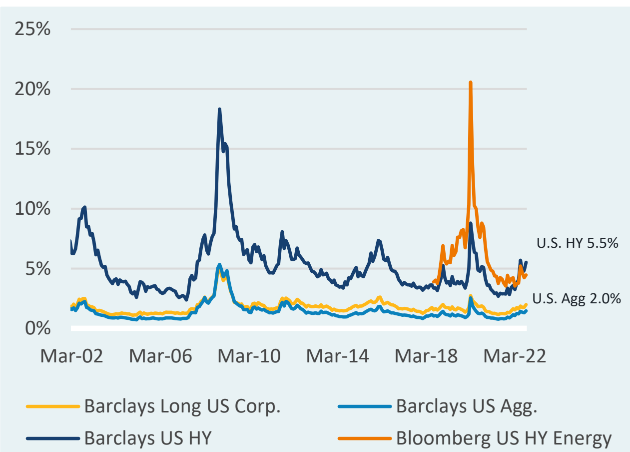
Credit environment

Credit market performance was mixed over the third quarter, with lower duration exposures faring better than higher duration exposures. Fears of a looming recession remained as the Fed's 75 basis point rate hikes in July and September reinforced its intention to fight inflation until the "job is done." Leveraged loans performed the best, returning 1.2%, followed by high yield corporate credit and investment grade credit which returned -0.6% and -4.9%, respectively.

Volatility and outflows contributed to investment grade credit spreads widening during the quarter. After reaching a 2022 high of 164 basis points in mid-September, investment grade credit spreads finished the third quarter at 159 basis points, an increase of 4 basis points from the previous quarter's end. High yield spreads decreased by 17 basis points throughout the quarter to 552 basis points, though remaining above the long term non-recessionary average of 454 bps. Despite this recent decline, high yield spreads remain up 269 basis points year-to-date.

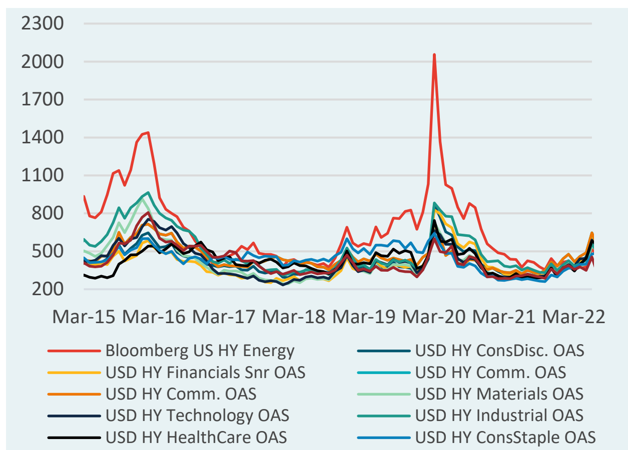
Over the course of the year, total yields have risen significantly within credit markets with the Bloomberg US High Yield Index now at 9.7%—almost double the levels of 4.9% seen at the start the year. Similarly, the yield of the Bloomberg US Corporate Investment Grade Index was 5.7%, up from 2.4% at the start of the year.

SPREADS



Source: Barclays, Bloomberg, as of 9/30/22

HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 9/30/22

	Credit Spread (OAS)	
Market	**9/30/22**	**9/30/21**
Long U.S. Corp	2.0%	1.2%
U.S. Inv Grade Corp	1.6%	0.8%
U.S. High Yield	5.5%	2.9%
U.S. Bank Loans*	6.0%	4.3%

Source: Barclays, Credit Suisse, Bloomberg, as of 9/30/22
**Discount margin (4-year life)*

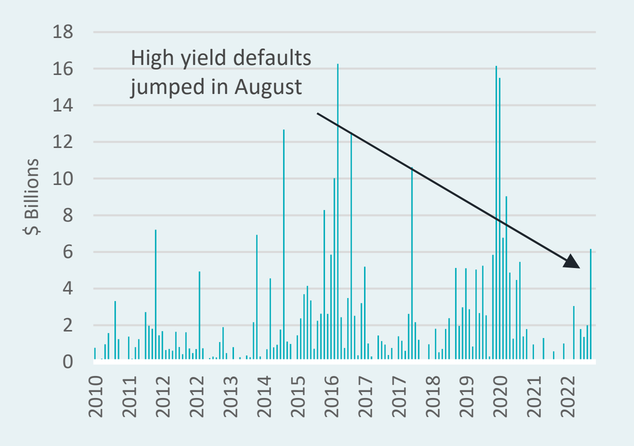
Default & issuance

Default activity continued to pick up in the third quarter with seven companies defaulting on loans and bonds totaling $16.5 billion. This was the highest quarterly total seen since the second quarter of 2020. Activity represented a significant jump from the $1.6 billion and $10.4 billion shown in Q1 and Q2, respectively.

Default rates for par-weighted US high yield and bank loans ended the quarter at 0.8% and 1.0%, respectively. While defaults rates reached a 15-month high, both values were well below the long-term historical averages of 3.2% and 3.1% for the high yield and loan markets. Given the prospects of tighter financial conditions and lower growth, default rates are expected to rise over the remainder of the year and into 2023 while remaining well below the previously stated long-term historical averages.

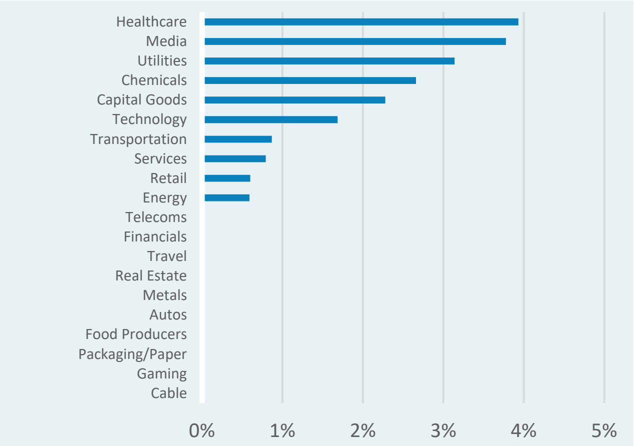
Leveraged credit issuance remained very light, which was consistent with the weaker trend of 2022. The third quarter total of $18.9 billion issued in high yield bonds marked the lightest issuance since the first quarter of 2009. A similar effect was observed in the bank loans market, which totaled $24 billion over the third quarter, down from $120.5 billion and $60.6 billion in the first and second quarters of this year. Additionally, the 2022 year-to-date loan issuance total of $205.0 billion was down 69% on a year-over-year basis.

U.S. HY MONTHLY DEFAULTS (PAR WEIGHTED)



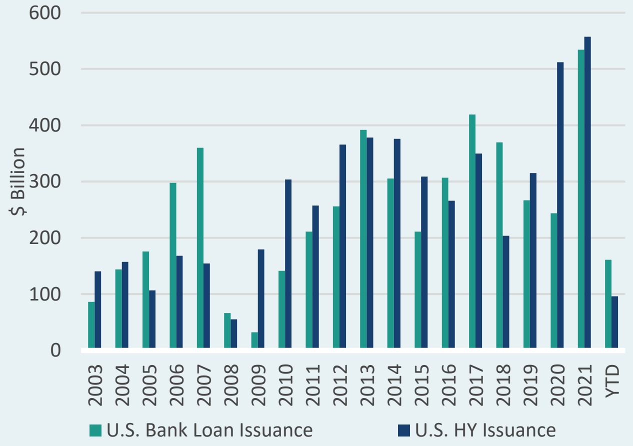
Source: BofA Merrill Lynch, as of 9/30/22

U.S. HY SECTOR DEFAULTS (LAST 12 MONTHS)



Source: BofA Merrill Lynch, as of 9/30/22 – par weighted

U.S. ISSUANCE ($ BILLIONS)



Source: BofA Merrill Lynch, as of 9/30/22

Equity

Equity environment

— Equity markets saw further losses during Q3, extending the selloff deeper into bear market territory. Emerging market equities (MSCI Emerging Markets -11.6%) experienced the greatest drawdown, on an unhedged currency basis, followed by international developed (MSCI EAFE -9.4%) and domestic equities (S&P 500 -4.9%).

— Many markets now trade at valuation levels below their historical average. According to FactSet, the S&P 500 sat at a forward price/earnings of 15.4 as of September 30th, below the five-year average of 18.6 and 10-year average of 17.1. Interestingly, earnings expectations have been fairly resilient at 7.4% for calendar year 2022 and 7.9% for 2023.

— Investors with unhedged foreign currency exposure have seen extreme losses recently. A U.S. investor with an international developed equity investment (MSCI EAFE) suffered a loss of -15.7% over the past year from currency movements. Investors in non-US equity (MSCI ACWI ex-US) saw a -12.0% loss. Currency risk is typically the second largest risk in institutional portfolios and is not expected to be compensated over the long term. We continue to believe that more forward-thinking currency solutions can materially improve portfolio outcomes.

— Value stocks underperformed growth stocks mildly during the quarter (Russell 1000 Value -5.6% vs Russell 1000 Growth -3.6%), and small capitalization stocks outperformed large capitalization stocks (Russell 2000 -2.2%, Russell 1000 -4.7%).

— Volatility remained elevated as the Cboe VIX Index rose further from 28.7% to 31.6%. Risk assets sold-off on concerns of Federal Reserve tightening and liquidity being broadly removed from the global financial system.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
U.S. Large Cap (S&P 500)	(4.9%)		(15.5%)	
U.S. Small Cap (Russell 2000)	(2.2%)		(23.5%)	
U.S. Equity (Russell 3000)	(4.5%)		(17.6%)	
U.S. Large Value (Russell 1000 Value)	(5.6%)		(11.4%)	
US Large Growth (Russell 1000 Growth)	(3.6%)		(22.6%)	
Global Equity (MSCI ACWI)	(6.8%)	(4.6%)	(20.7%)	(15.9%)
International Large (MSCI EAFE)	(9.4%)	(2.8%)	(25.1%)	(9.4%)
Eurozone (Euro Stoxx 50)	(9.8%)	(3.1%)	(28.9%)	(14.1%)
U.K. (FTSE 100)	(10.6%)	(2.3%)	(16.5%)	1.8%
Japan (NIKKEI 225)	(7.2%)	0.2%	(31.0%)	(8.5%)
Emerging Markets (MSCI Emerging Markets)	(11.6%)	(8.2%)	(28.1%)	(22.5%)

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 9/30/22

Domestic equity

U.S. equities experienced further losses during the quarter (S&P 500 -4.9%), while outperforming international (MSCI EAFE -9.4%) and emerging markets (MSCI Emerging Markets -11.6%).

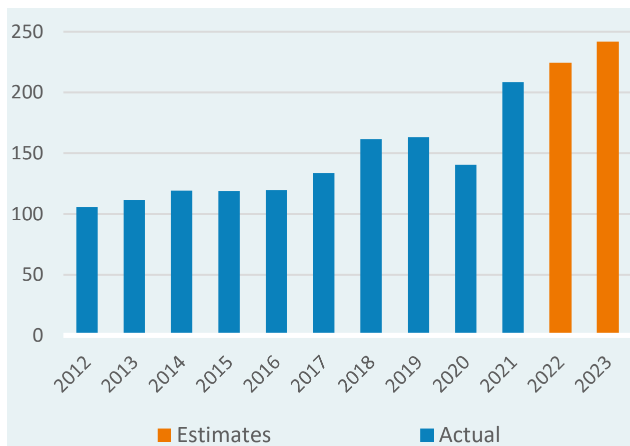
Earnings expectations have been fairly resilient at 7.4% for calendar year 2022 and 7.9% for 2023, though these forecasts have been consistently revised lower for three consecutive quarters. The energy sector continues to lift the earnings growth of the S&P 500, as overall growth would have been negative in recent quarters if energy sector profits were excluded. According to corporate earnings calls, an increasing number of businesses reported labor costs & shortages as a significant issue, followed by supply chain disruptions & costs, and FX movement. During Q2, businesses with more than 50% of revenues from outside of the U.S. generated 13.3% earnings growth, while those with less than 50% of revenues from outside the U.S. saw only a 2.1% growth rate.

Sector performance during Q3 was disparate. Consumer discretionary (4.4%) and energy (2.3%) sectors lifted the overall index while all other sectors were in the red.

S&P 500 PRICE INDEX

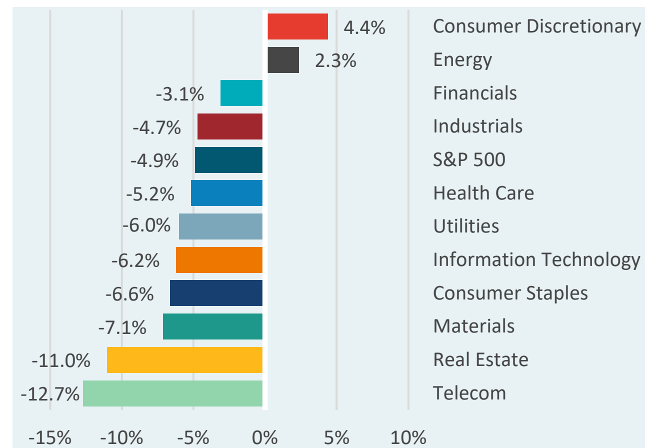
Source: Standard & Poor's, as of 9/30/22

S&P BOTTOM-UP EARNINGS & ESTIMATES



Source: FactSet, as of 9/30/22

Q3 SECTOR PERFORMANCE



Source: Morningstar, as of 9/30/22

Verus

Domestic equity size & style

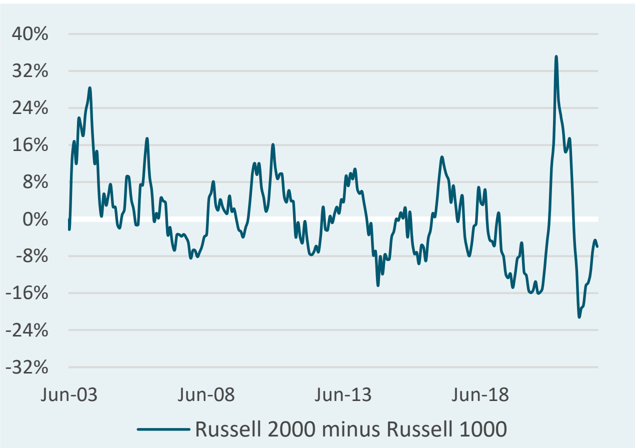
Reversing the trend from last quarter, growth stocks outperformed value stocks, although the divergence was relatively mild (Russell 1000 Growth -3.6% vs. Russell 1000 Value -5.6%). Growth outperformed despite struggles within the Telecommunications and Information Technology sectors (-12.7% and -6.2%), fueled by positive returns from Consumer Discretionary +4.4% (with Amazon and Tesla being the largest weights).

Despite this quarter, value has outperformed significantly over the past year. The Russell 1000 Value Index is down -17.8%, while the growth equivalent has lost -30.7%. With the Federal Reserve continuing to tighten conditions and hike rates, companies with cash flows further out in the future (those with higher durations) have seen larger negative impacts to their multiples.

Looking at size, small capitalization stocks outperformed large capitalization stocks (Russell 2000 -2.2%, Russell 1000 -4.7%), diverging from the trend seen in the second quarter of 2022.

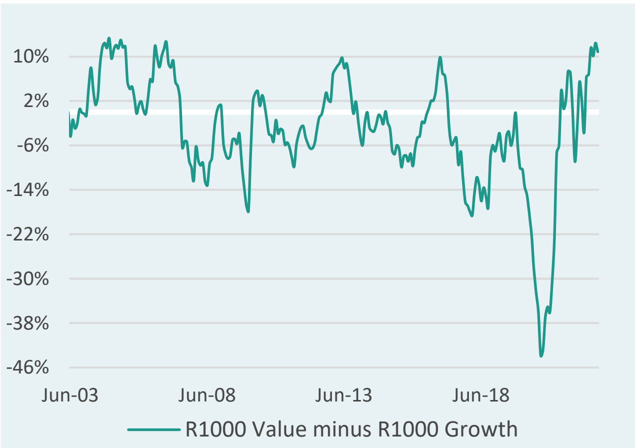
Domestic equities have continued to be challenged regardless of size and style, as investors weigh the impacts of a tighter economic environment on company earnings.

SMALL CAP VS LARGE CAP (YOY)



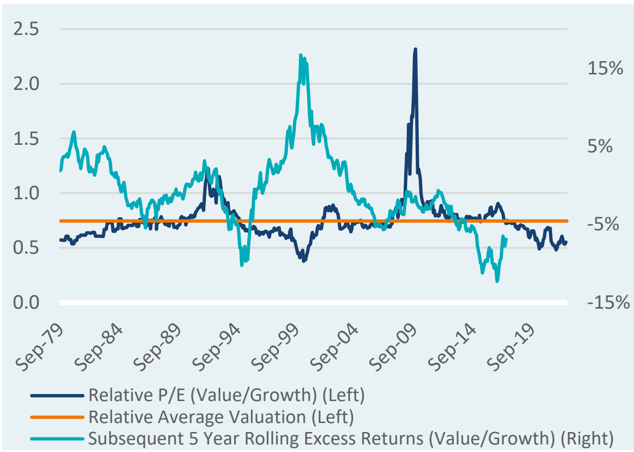
Source: FTSE, as of 9/30/22

VALUE VS GROWTH (YOY)



Source: FTSE, as of 9/30/22

VALUE VS. GROWTH RELATIVE VALUATIONS



Source: Standard & Poor's, as of 9/30/22

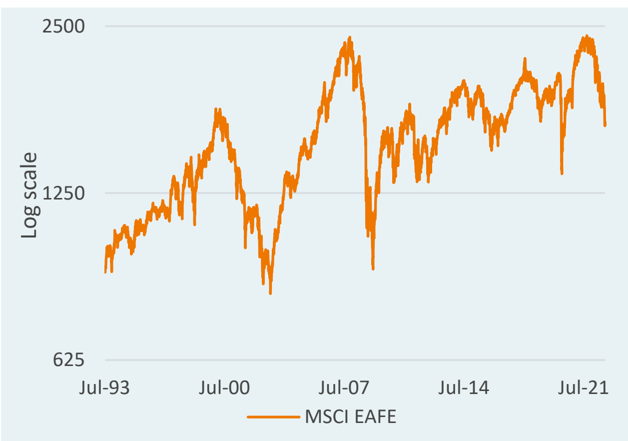
International developed equity

International developed equities fell alongside the global opportunity set in the third quarter. The MSCI EAFE Index dropped -9.4% in U.S. dollar terms, although most of those losses can be attributed to currency impacts, with hedged returns only experiencing a -2.8% loss. The Federal Reserve continues to set the tone for global central bank rate hikes, which has pushed the dollar higher.

Looking at sub-regional performance, Japanese equities were the best performing markets in local terms, being one of the few asset classes with positive Q3 return (+0.2%). Despite strong local returns, diverging rate policy between the BOJ and Federal Reserve has crushed the Japanese yen, resulting in a seven percent spread between hedged and unhedged equity outcomes.

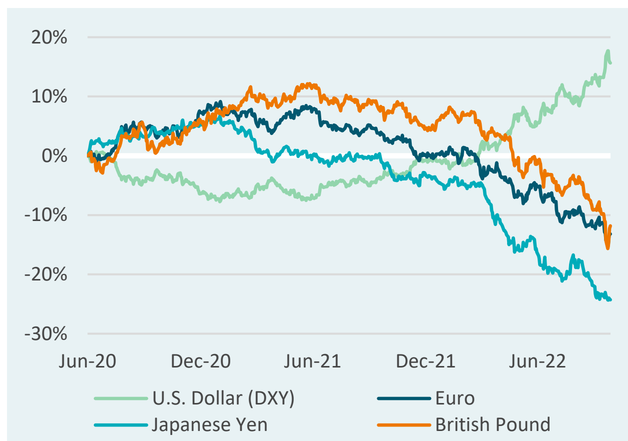
European equities also saw losses over the quarter, although local returns were strong relative to U.S. and Emerging market equities. The flash crash of the British pound had a material impact on FTSE 100 performance in U.S. dollar terms, with U.K. equities closing the quarter down -10.6%, lagging the broader European benchmark (Euro Stoxx 50 -9.8%)

INTERNATIONAL DEVELOPED EQUITY



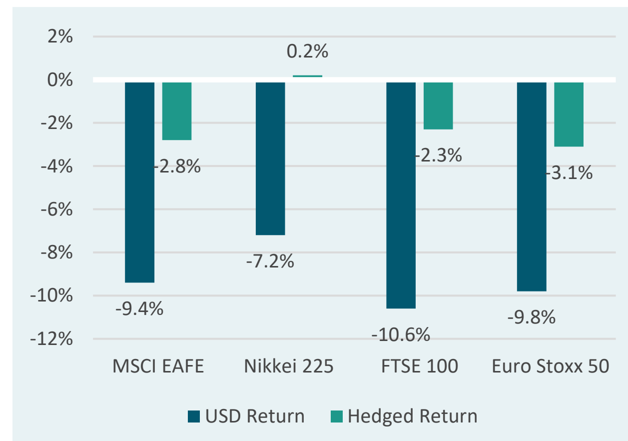
Source: MSCI, as of 9/30/22

FX MOVEMENTS RELATIVE TO THE U.S. DOLLAR



Source: Bloomberg, as of 9/30/22

Q3 2022 SUBREGIONAL INDEX RETURNS



Source: MSCI, STOXX, FTSE, Nikkei, as of 9/30/22

Emerging market equity

Emerging market equities fell during the third quarter, dragged lower by a steep Chinese equity bear market (-22.5%). The MSCI EM index ended the quarter down -11.6% in U.S. dollar terms, bringing one-year total losses to -28.1%. A strong dollar had a -3.4% impact in the third quarter; significant, but not to the same extent seen in the International developed space.

Growing risks of a global recession hit equities across the board, though emerging markets have suffered more than their developed counterparts. China faces its own set of unique problems, including the continuation of its zero-COVID policy, a property crisis, and geopolitical risks with Taiwan (though we view an invasion as highly unlikely). Despite these headwinds, the People's Bank of China is one of the few central banks implementing accommodative policy, which should provide a tailwind to the local economy.

Performance variability has significantly changed some country weights. China's weight in the index fell by 3.7%, while India moved up 2.6%, replacing Taiwan as the second largest weight.

EMERGING MARKET EQUITY

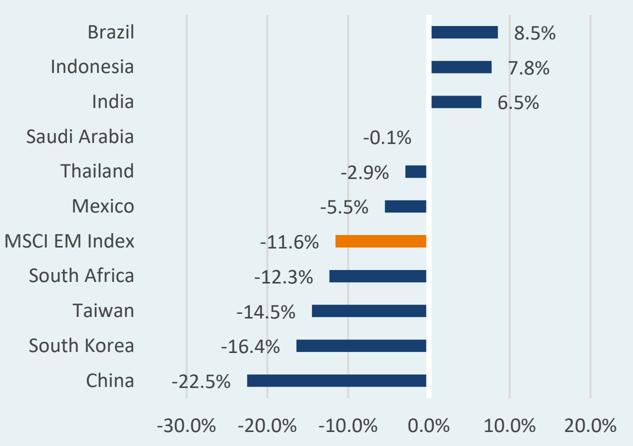
Source: MSCI, as of 9/30/22

MSCI EM INDEX TOP 10 COUNTRY WEIGHTS

Country	9/30/2022	6/30/2022	Rank Change
1. China	29.5%	33.2%	
2. India	15.3%	12.7%	↑
3. Taiwan	13.7%	14.3%	↓
4. South Korea	10.6%	11.3%	
5. Brazil	5.8%	4.9%	
6. Saudi Arabia	4.8%	4.3%	
7. South Africa	3.4%	3.5%	
8. Mexico	2.2%	2.1%	
9. Indonesia	2.2%	1.8%	
10. Thailand	2.1%	1.9%	

Source: Bloomberg, MSCI as of 9/30/22

Q3 2022 MSCI COUNTRY RETURNS (USD)



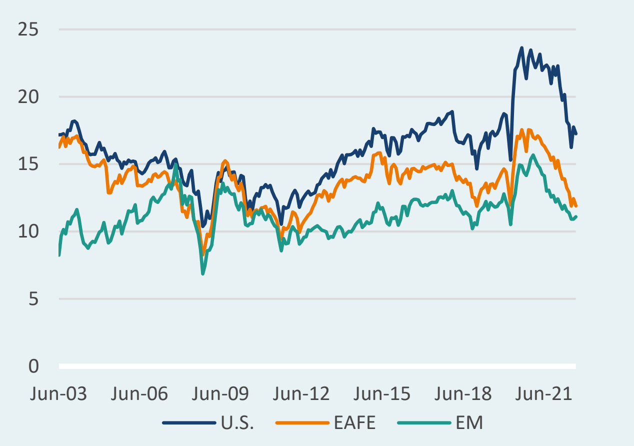
Source: Bloomberg, MSCI as of 9/30/22, performance in USD terms

Equity valuations

Many markets now trade at valuation levels below their historical average as inflation and rising rate concerns have translated to more attractive pricing. According to FactSet, the S&P 500 traded at a forward price/earnings of 15.4 as of September 30th, which was below the five-year average of 18.6 and 10-year average of 17.1. Valuations have continued to drop within the International and Emerging market space as well, although we believe International developed equities may have further to fall, given more acute inflation and energy issues in Europe. Emerging market valuations have reached very low levels, which may act as a floor to further losses, assuming healthy earnings.

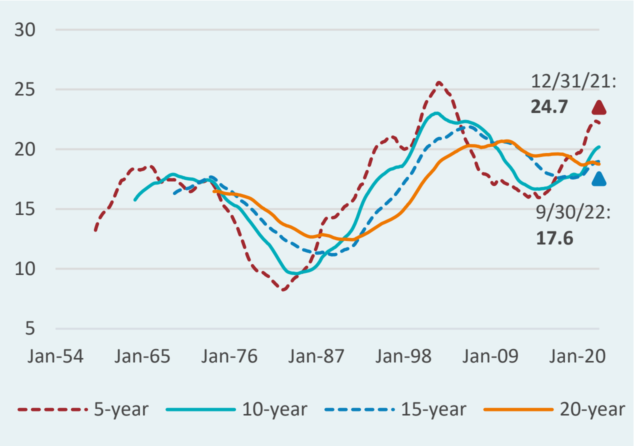
Domestic earnings were challenged in the second quarter. Businesses faced higher costs, large currency impacts, and a more budget-constrained consumer. While blended earnings grew at a 6.7% clip from the previous year, excluding the energy sector would bring that earnings figure down to -3.7%, per FactSet. While valuations have moved more in line with historical averages, all eyes are on third quarter earnings, which will likely help determine the market's direction from this point.

FORWARD P/E RATIOS



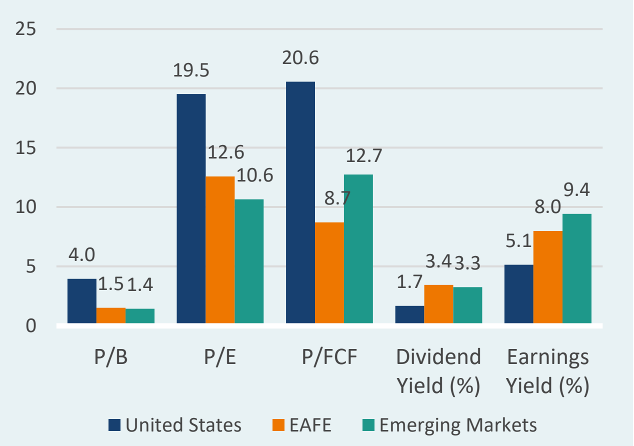
Source: MSCI, 12m forward P/E, as of 8/31/22

S&P 500 AVERAGE TRAILING P/E RATIOS



Source: Bloomberg, as of 9/30/22

VALUATION METRICS (3-MONTH AVERAGE)



Source: Bloomberg, MSCI as of 9/30/22 - trailing P/E

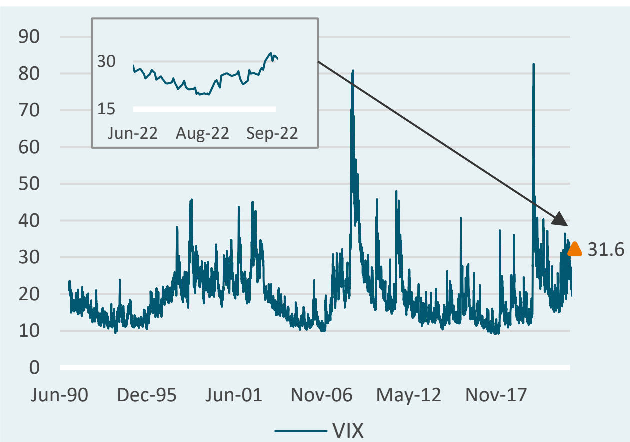
Equity volatility

Volatility remained elevated through the quarter as the Cboe VIX Index rose further from 28.7% to 31.6%. Risk assets sold-off into a deeper bear market and concerns focused on Federal Reserve tightening and liquidity being removed from the global financial system. Inflation and Fed actions seem to exist as the greatest risk to markets, although potential for recession or a corporate earnings drawdown are also likely contributing to choppiness.

Realized volatility of equity markets over the past year has picked up from low levels. U.S. markets have shown materially more volatility than developed or emerging markets, which has been rare historically.

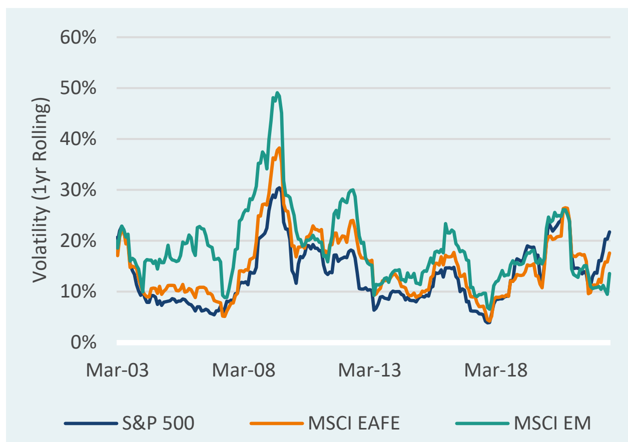
The current bear market has been particularly painful given the broadness of the selloff across equity fixed income, and real assets. Currency markets also moved against investors, with U.S. dollar appreciation delivering large losses for those with unhedged international asset exposure. Commodities remain a lone bright spot regarding 2022 year-to-date performance.

U.S. IMPLIED VOLATILITY (VIX)



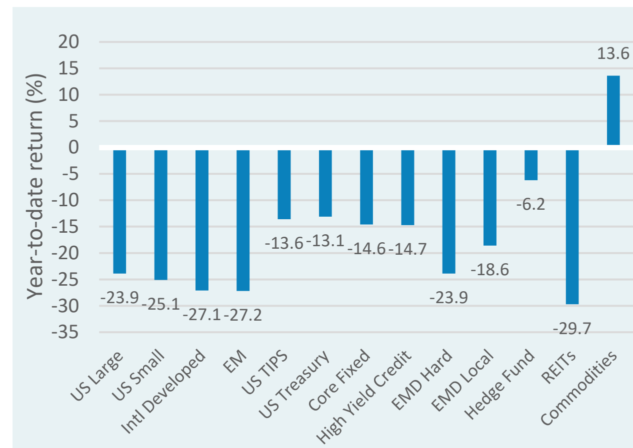
Source: Cboe, as of 9/30/22

REALIZED VOLATILITY



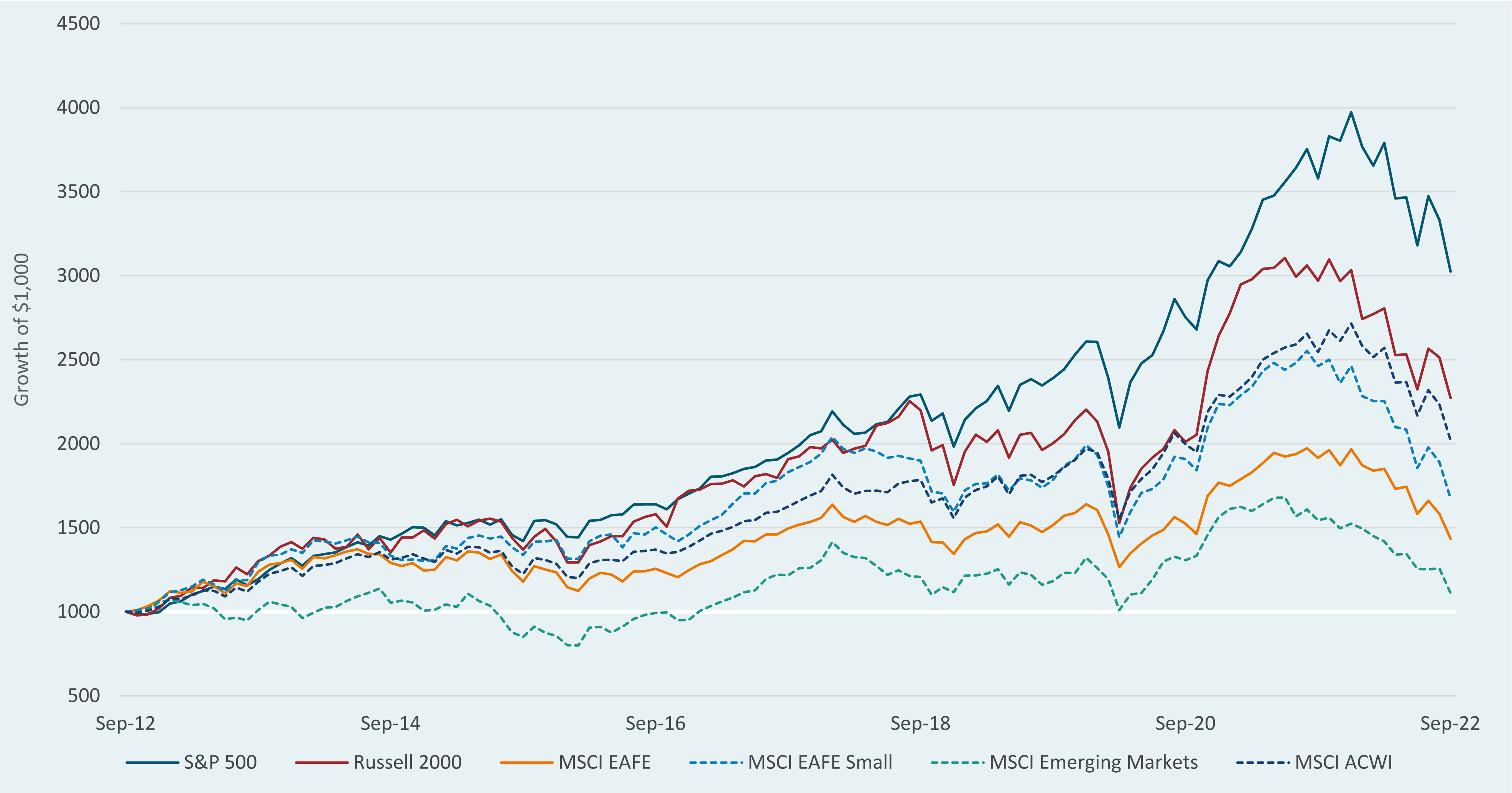
Source: Standard & Poor's, MSCI, as of 9/30/22

BROAD SELLOFF



Source: MPI, as of 9/30/22

Long-term equity performance



Source: Morningstar, as of 9/30/22

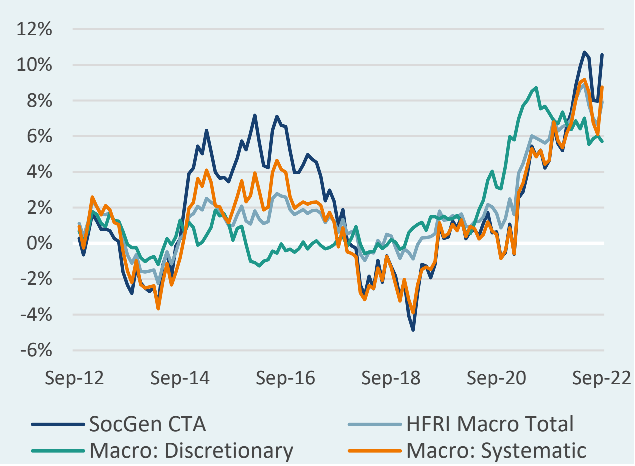
Other assets

Asymmetric macro strategies

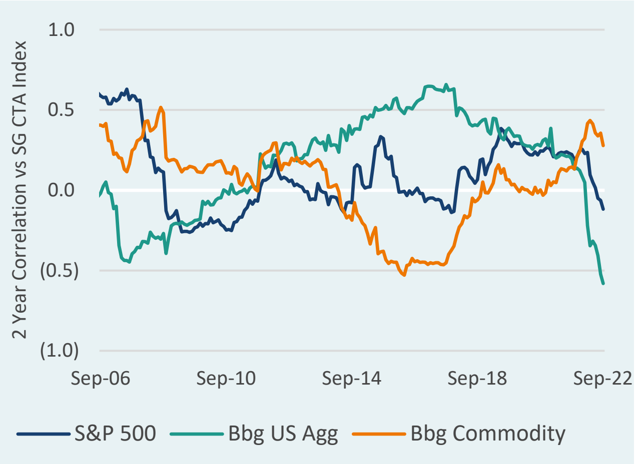
Macro strategies have been the top performing hedge fund strategy since 2021. Both parts of the Macro universe—Discretionary and Systematic—have done extremely well over the last 12-18 months. Systematic strategies have benefitted from strong trend following performance, which has returned to favor after a period of mediocre returns from 2016 to 2020. This periodicity is typical of trend following/CTA type strategies. Discretionary macro strategies have done well to capture the move in interest rates by shorting bonds as central banks reacted to high inflation by consistently hiking interest rates from ultra-low post-COVID levels.

Trend following funds can and have offered significant diversification from traditional asset classes due to their ability to go long or short markets depending on the current trends. As evidenced in the middle chart below, CTA funds had maintained long bond, short commodity positions for several years following the global financial crisis, though that changed significantly over the past year. Discretionary funds struggled when interest rates were zero-bound in the mid-2010s but have shown once again that they can perform well when central banks are taking action—either hiking or cutting rates—by taking positions based on fundamental economic data.

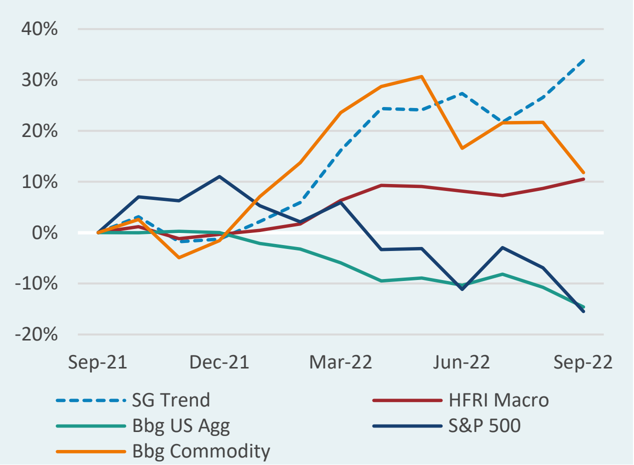
3 YEAR ROLLING RETURN FOR MACRO FUNDS



CTA FUNDS CORRELATION TO MARKETS



CUMULATIVE RETURN LAST 12 MONTHS



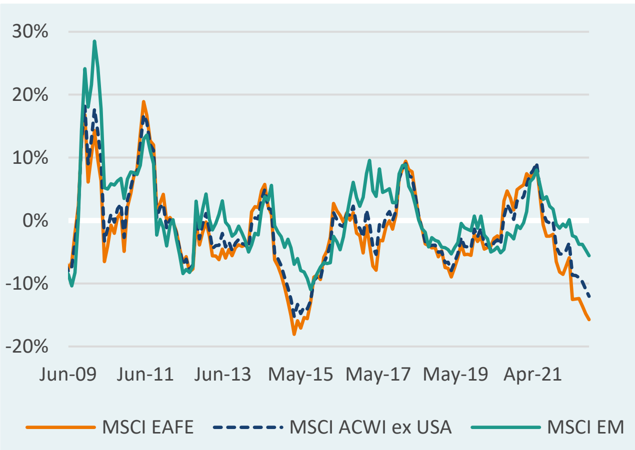
Source: HFR, MPI, Morningstar, SocGen, data as of 9/30/22

Currency

Investors with unhedged foreign currency exposure have seen extreme losses over recent periods. For example, a U.S. investor with an international developed equity investment (MSCI EAFE) suffered a loss of -15.7% over the past year *just from currency movements*. An investor in non-US equity (MSCI ACWI ex-US) would have seen a -12.0% loss. Currency risk is typically the second largest risk in institutional portfolios, and is not expected to be compensated over the long term.

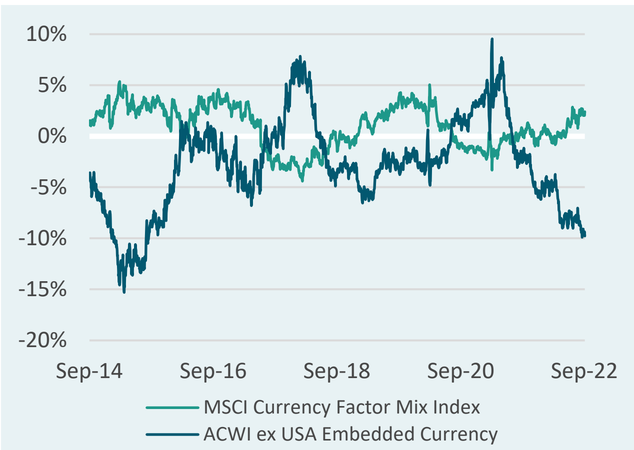
We continue to believe that forward-thinking currency solutions can materially improve portfolio outcomes. Specifically, a currency program may allow an investor to reduce their portfolio risk while also increasing the expected return of the portfolio. These characteristics are demonstrated below by comparing the unhedged currency exposure that most investors own (we refer to this as "embedded" currency) to the MSCI Currency Factor Mix Index which represents a passive investment in the currency market. This program aims to systematically capture the *return premia* within currency markets. Over the past 10 years, an unhedged exposure to foreign currencies has resulted in 5.8% portfolio volatility and a return of -4.4% per year. Meanwhile, a passive allocation the MSCI Currency Factor Mix Index has resulted in less than half of that volatility (2.5%) and with an average return of +1.2% per year.

EFFECT OF CURRENCY (1-YEAR ROLLING)



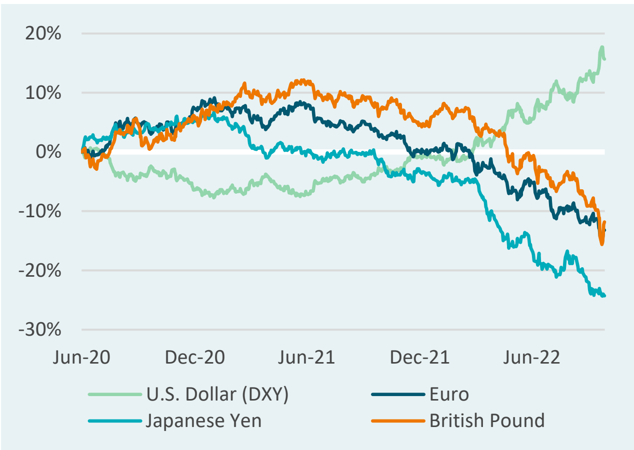
Source: MSCI, as of 9/30/22

UNHEDGED CURRENCY VS CURRENCY FACTOR MIX



Source: MSCI, as of 9/30/22

FOREIGN CURRENCY MOVEMENT



Source: Bloomberg, as of 9/30/22

Appendix

Periodic table of returns

BEST ↑ … ↓ WORST

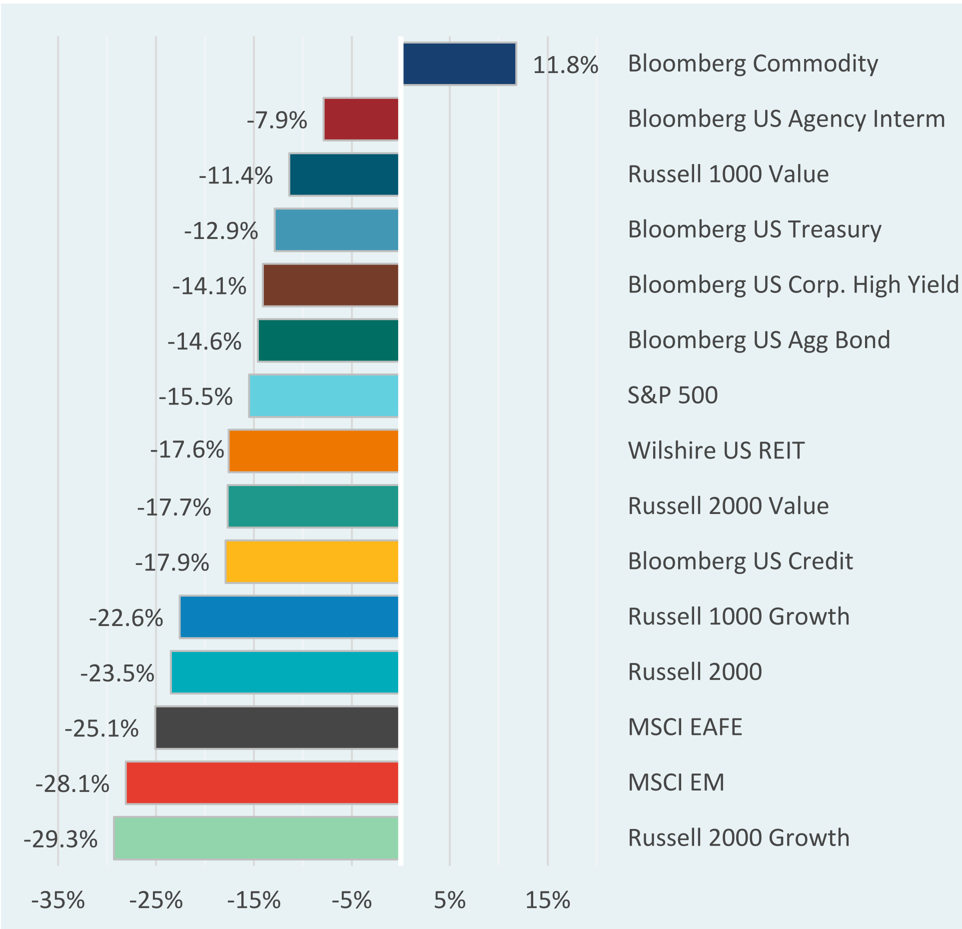
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	YTD	5-Year	10-Year
Commodities	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	37.3	6.7	36.4	38.5	28.3	13.6	12.2	13.7
Real Estate	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	21.3	30.2	1.9	31.4	34.6	27.6	8.7	9.0	11.6
Cash	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	34.5	13.0	0.9	17.3	25.0	0.0	28.5	21.0	27.1	0.6	8.9	9.7
Hedge Funds of Funds	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	33.5	11.8	0.6	12.1	22.2	-1.5	26.5	20.0	26.5	-5.9	7.0	9.2
Large Cap Value	7.0	2.8	1.0	39.2	16.5	7.5	18.4	11.6	-25.9	28.4	16.8	0.4	16.4	33.1	6.0	0.0	11.8	21.7	-3.5	25.5	18.3	25.2	-14.6	5.3	8.8
US Bonds	4.1	-2.4	-6.0	29.9	14.3	6.3	15.5	10.3	-33.8	23.3	16.1	-2.1	15.3	23.3	4.9	-0.8	11.2	14.6	-6.0	22.4	14.0	17.7	-17.8	3.6	8.6
Small Cap Value	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	11.3	17.1	-4.8	22.0	10.3	14.8	-21.1	3.6	7.9
60/40 Global Portfolio	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	13.7	-8.3	18.6	7.8	11.3	-23.3	3.3	4.1
Large Cap Equity	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	-9.3	18.4	7.5	8.9	-24.6	2.9	3.7
Small Cap Equity	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	7.7	-11.0	8.7	4.6	6.5	-25.1	2.0	3.6
Emerging Markets Equity	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.6	7.0	-11.2	7.8	2.8	2.8	-27.1	1.1	1.0
International Equity	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	-2.0	-1.8	-7.5	1.0	3.5	-12.9	7.7	0.5	0.0	-27.2	-0.3	0.9
Small Cap Growth	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	0.5	1.7	-13.8	6.4	0.5	-1.5	-29.3	-0.8	0.6
Large Cap Growth	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	0.3	0.9	-14.6	2.1	-3.1	-2.5	-30.7	-1.8	-2.1

- Large Cap Equity
- Large Cap Value
- Large Cap Growth
- Small Cap Equity
- Small Cap Value
- Small Cap Growth
- International Equity
- Emerging Markets Equity
- US Bonds
- Cash
- Commodities
- Real Estate
- Hedge Funds of Funds
- 60% MSCI ACWI/40% Bloomberg Global Bond

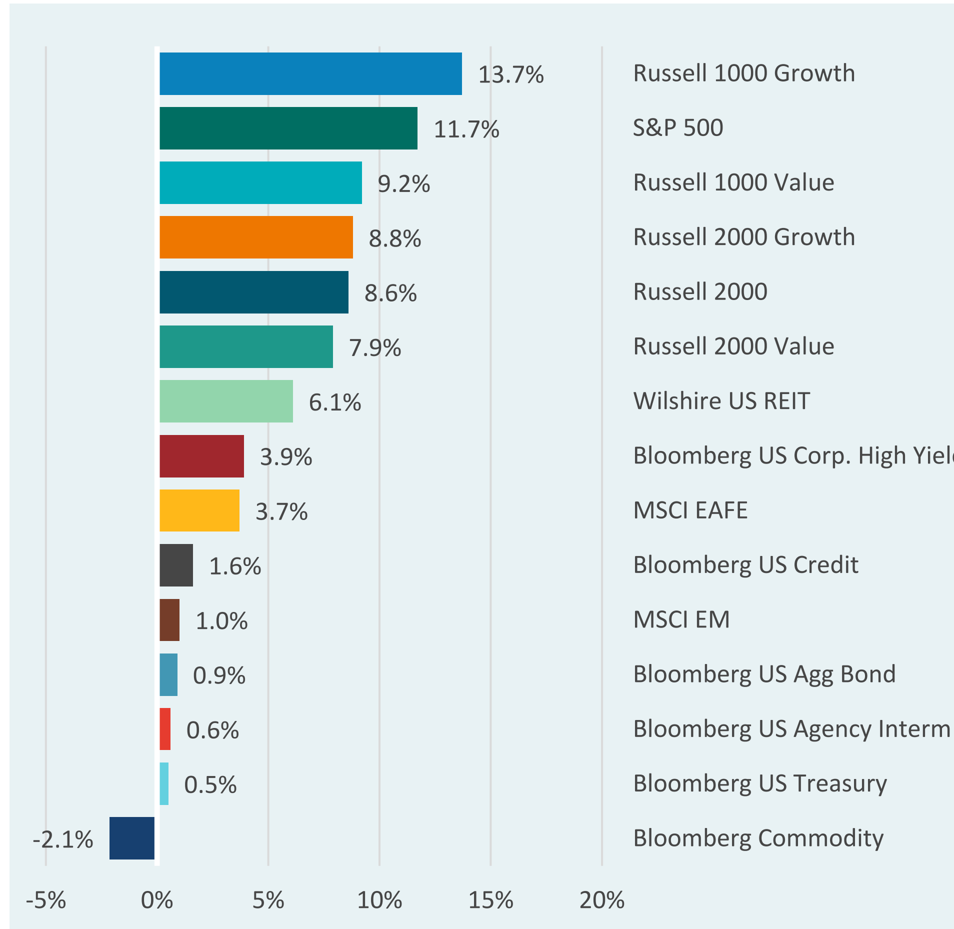
Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, Bloomberg US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, Bloomberg Global Bond. NCREIF Property Index performance data as of 6/30/22.

Major asset class returns

ONE YEAR ENDING SEPTEMBER



TEN YEARS ENDING SEPTEMBER



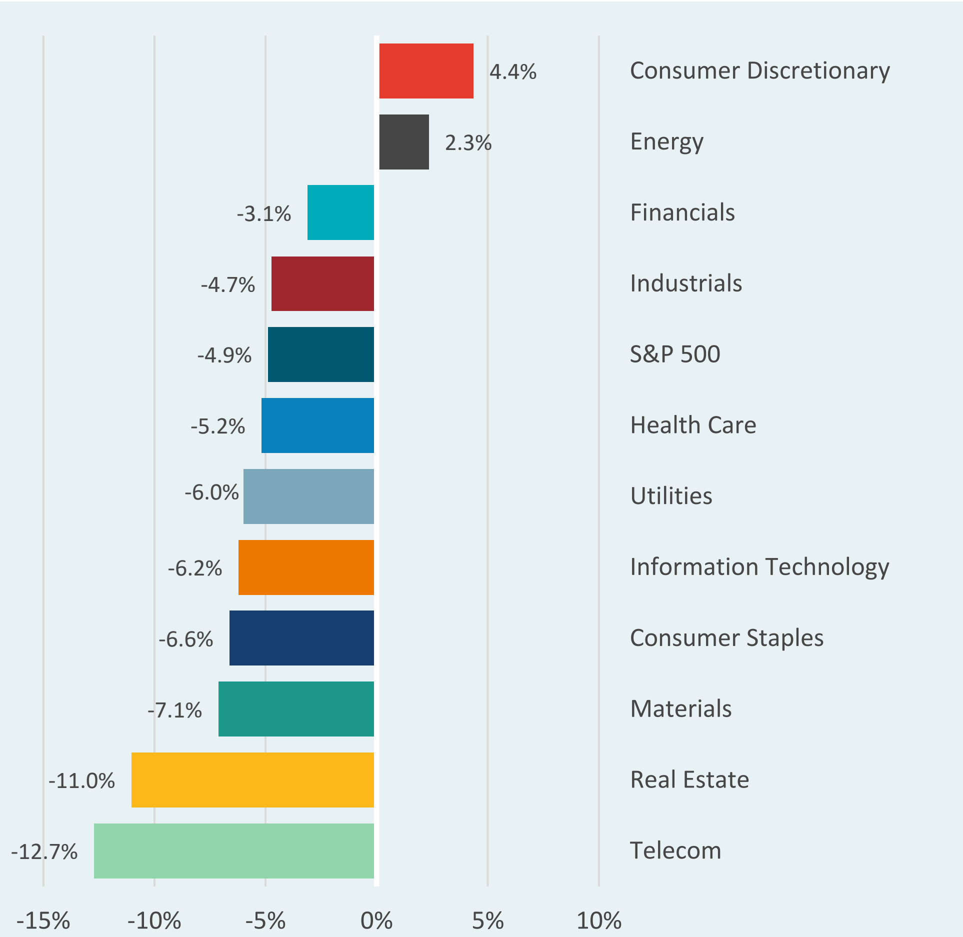
**Only publicly traded asset performance is shown here. Performance of private assets is typically released with a 3- to 6-month delay.*

Source: Morningstar, as of 9/30/22

Source: Morningstar, as of 9/30/22

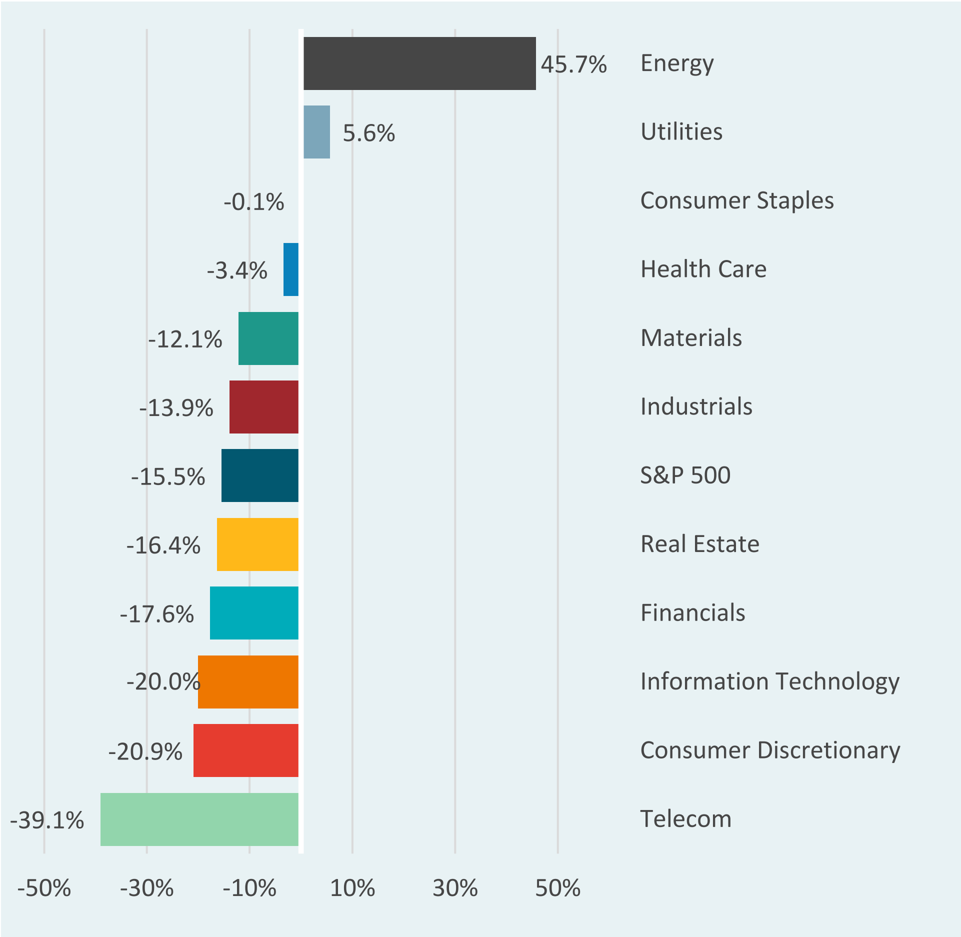
S&P 500 sector returns

QTD



Source: Morningstar, as of 9/30/22

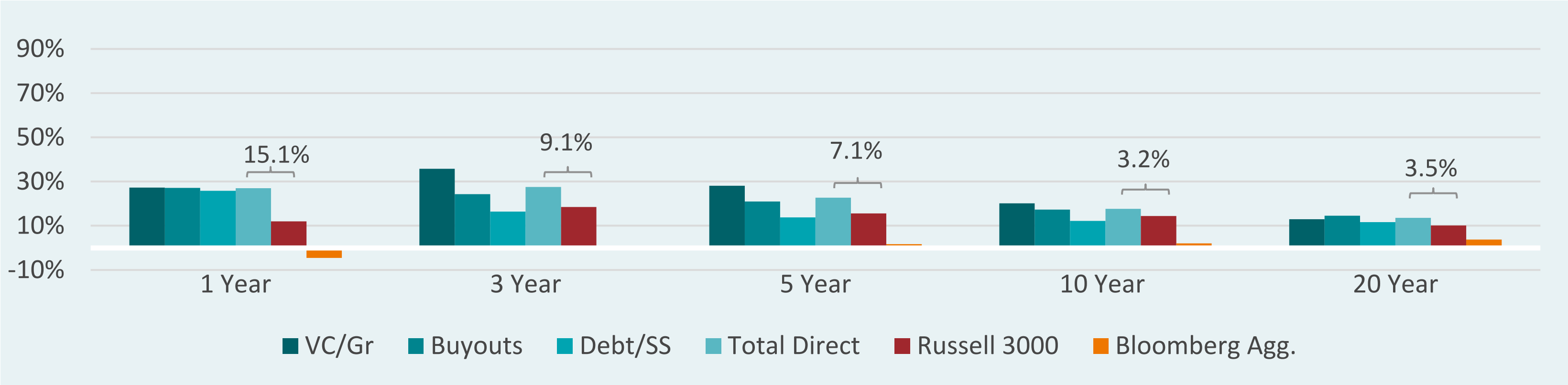
ONE YEAR ENDING SEPTEMBER



Source: Morningstar, as of 9/30/22

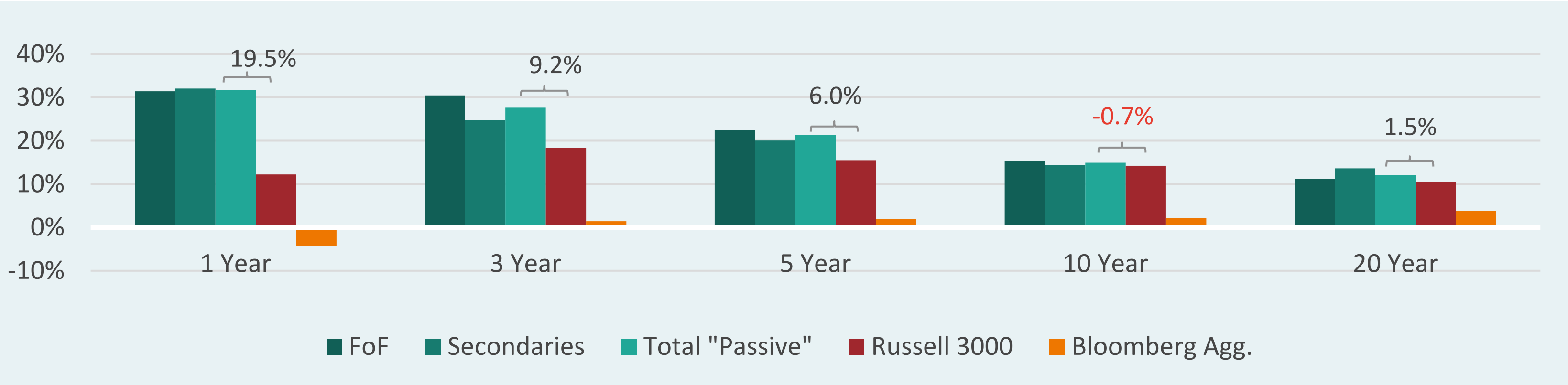
Private equity vs. traditional assets performance

DIRECT PRIVATE EQUITY FUND INVESTMENTS



Direct P.E Fund Investments outperformed comparable public equites across all time periods.

"PASSIVE" STRATEGIES

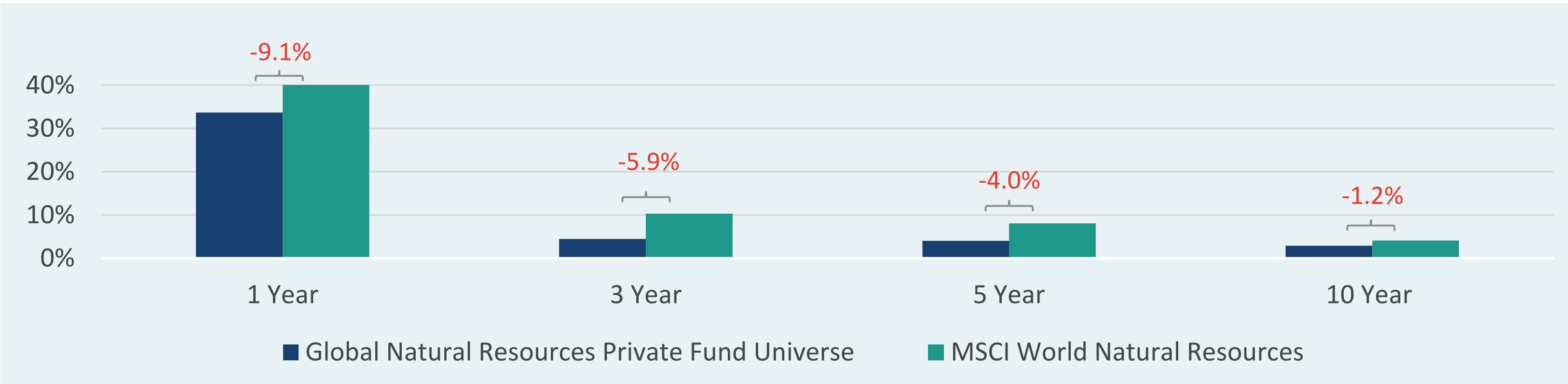


"Passive" strategies outperformed comparable public equities across all time periods, aside from the 10-year basis.

Sources: Refinitiv PME: U.S. Private Equity Funds sub asset classes as of March 31, 2022. Public Market Equivalent returns resulted from "Total Passive" and Total Direct's identical cash flows invested into and distributed from respective traditional asset comparable.

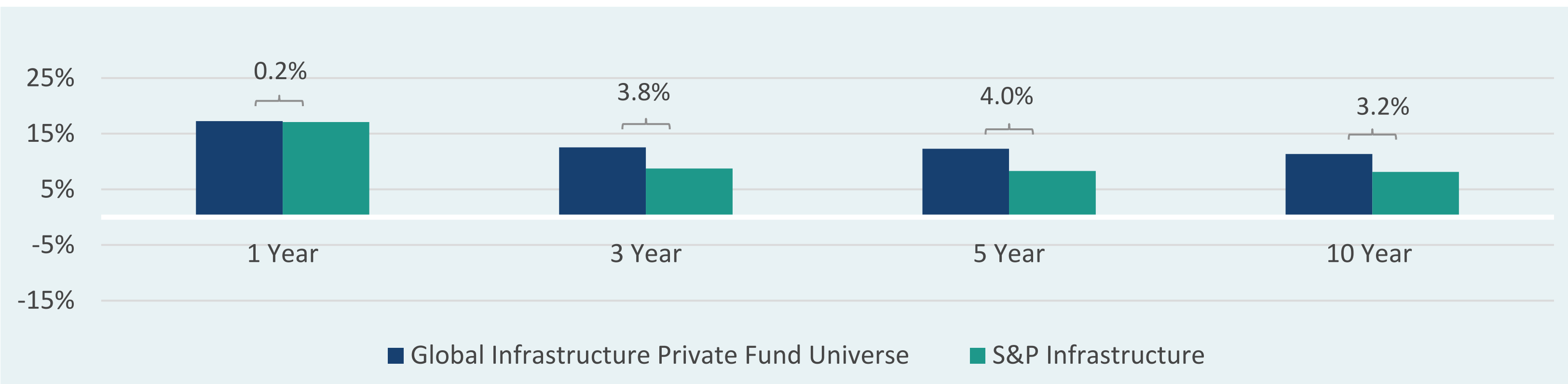
Private vs. liquid real assets performance

GLOBAL NATURAL RESOURCES FUNDS (N.R.)



N.R. funds underperformed the MSCI World Natural Resources benchmark across all time periods.

GLOBAL INFRASTRUCTURE FUNDS

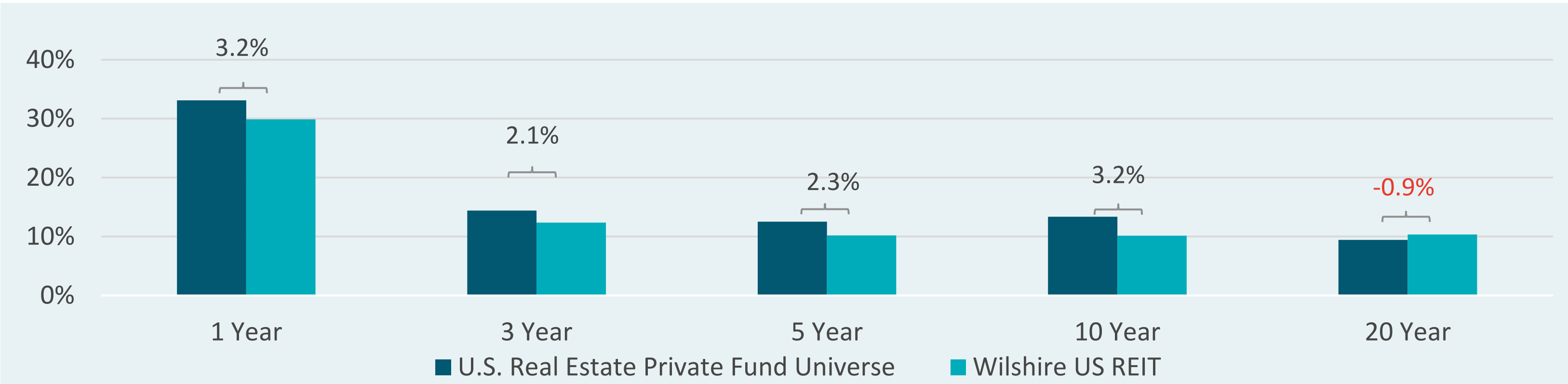


Infra. funds outperformed the S&P Infra. across all periods.

Sources: Refinitiv PME: Global Natural Resources (vintage 1999 and later, inception of MSCI World Natural Resources benchmark) and Global Infrastructure (vintage 2002 and later, inception of S&P Infrastructure benchmark) universes as of March 31, 2022. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real assets universes.

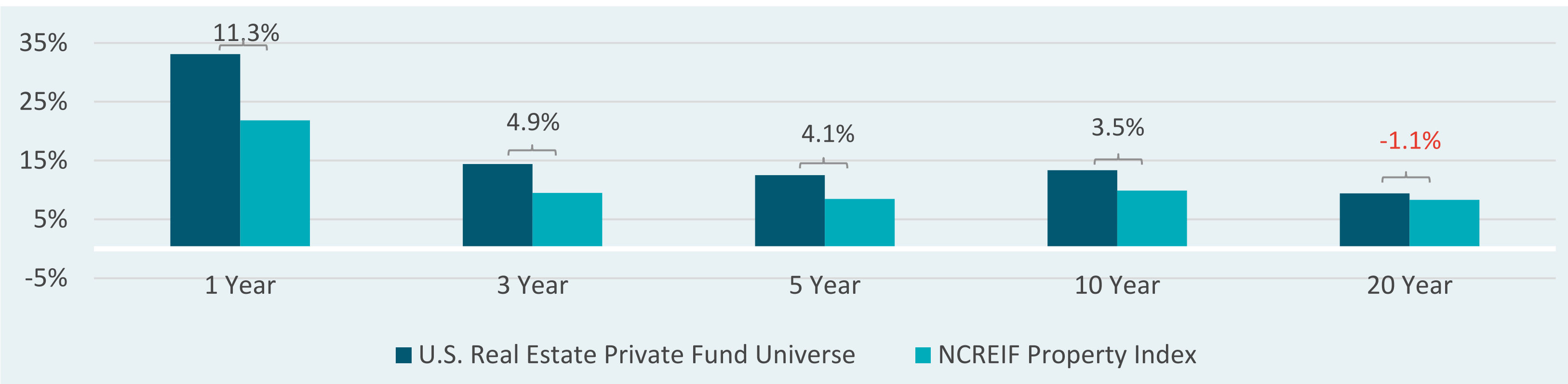
Private vs. liquid and core real estate performance

U.S. PRIVATE REAL ESTATE FUNDS VS. LIQUID UNIVERSE



U.S. Private R.E. funds underperformed the Wilshire U.S. REIT Index across all time periods, aside on a 20-year basis.

U.S. PRIVATE REAL ESTATE FUNDS VS. CORE FUNDS



U.S. Private R.E. Funds outperformed the NCREIF Property Index across all time periods, aside a 20-year basis.

Sources: Refinitiv PME: U.S. Real Estate universes as of March 31, 2022. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real estate universes.

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	(9.2)	(4.9)	(23.9)	(15.5)	8.2	9.2	11.7
S&P 500 Equal Weighted	(9.2)	(4.8)	(20.7)	(13.5)	7.7	8.0	11.5
DJ Industrial Average	(8.8)	(6.2)	(19.7)	(13.4)	4.4	7.4	10.5
Russell Top 200	(9.2)	(5.0)	(24.7)	(16.4)	9.0	10.0	12.1
Russell 1000	(9.3)	(4.6)	(24.6)	(17.2)	7.9	9.0	11.6
Russell 2000	(9.6)	(2.2)	(25.1)	(23.5)	4.3	3.6	8.6
Russell 3000	(9.3)	(4.5)	(24.6)	(17.6)	7.7	8.6	11.4
Russell Mid Cap	(9.3)	(3.4)	(24.3)	(19.4)	5.2	6.5	10.3
Style Index							
Russell 1000 Growth	(9.7)	(3.6)	(30.7)	(22.6)	10.7	12.2	13.7
Russell 1000 Value	(8.8)	(5.6)	(17.8)	(11.4)	4.4	5.3	9.2
Russell 2000 Growth	(9.0)	0.2	(29.3)	(29.3)	2.9	3.6	8.8
Russell 2000 Value	(10.2)	(4.6)	(21.1)	(17.7)	4.7	2.9	7.9

INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
MSCI ACWI	(9.6)	(6.8)	(25.6)	(20.7)	3.7	4.4	7.3
MSCI ACWI ex US	(10.0)	(9.9)	(26.5)	(25.2)	(1.5)	(0.8)	3.0
MSCI EAFE	(9.4)	(9.4)	(27.1)	(25.1)	(1.8)	(0.8)	3.7
MSCI EM	(11.7)	(11.6)	(27.2)	(28.1)	(2.1)	(1.8)	1.0
MSCI EAFE Small Cap	(11.5)	(9.8)	(32.1)	(32.1)	(2.2)	(1.8)	5.3
Style Index							
MSCI EAFE Growth	(9.7)	(8.5)	(33.0)	(30.3)	(1.5)	0.7	4.7
MSCI EAFE Value	(9.0)	(10.2)	(21.1)	(20.2)	(2.8)	(2.7)	2.4
Regional Index							
MSCI UK	(8.8)	(10.8)	(18.7)	(14.1)	(1.7)	(1.1)	1.9
MSCI Japan	(10.4)	(7.7)	(26.4)	(29.3)	(2.6)	(0.6)	4.8
MSCI Euro	(8.4)	(10.0)	(32.7)	(30.0)	(3.8)	(3.2)	3.2
MSCI EM Asia	(13.2)	(14.0)	(28.8)	(29.5)	(0.8)	(1.1)	3.1
MSCI EM Latin American	(3.3)	3.6	3.0	0.2	(3.4)	(2.6)	(2.3)

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
Bloomberg US TIPS	(6.6)	(5.1)	(13.6)	(11.6)	0.8	2.0	1.0
Bloomberg US Treasury Bills	0.2	0.4	0.4	0.4	0.6	1.1	0.7
Bloomberg US Agg Bond	(4.3)	(4.8)	(14.6)	(14.6)	(3.3)	(0.3)	0.9
Bloomberg US Universal	(4.3)	(4.5)	(14.9)	(14.9)	(3.1)	(0.2)	1.2
Duration							
Bloomberg US Treasury 1-3 Yr	(1.2)	(1.5)	(4.5)	(5.1)	(0.5)	0.5	0.6
Bloomberg US Treasury Long	(7.9)	(9.6)	(28.8)	(26.6)	(8.5)	(1.6)	0.6
Bloomberg US Treasury	(3.5)	(4.3)	(13.1)	(12.9)	(3.1)	(0.2)	0.5
Issuer							
Bloomberg US MBS	(5.1)	(5.3)	(13.7)	(14.0)	(3.7)	(0.9)	0.5
Bloomberg US Corp. High Yield	(4.0)	(0.6)	(14.7)	(14.1)	(0.5)	1.6	3.9
Bloomberg US Agency Interm	(1.8)	(2.4)	(7.2)	(7.9)	(1.4)	0.2	0.6
Bloomberg US Credit	(5.1)	(4.9)	(18.1)	(17.9)	(3.6)	(0.0)	1.6

OTHER

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Index							
Bloomberg Commodity	(8.1)	(4.1)	13.6	11.8	13.5	7.0	(2.1)
Wilshire US REIT	(12.3)	(10.2)	(29.7)	(17.6)	(2.2)	2.9	6.1
CS Leveraged Loans	(2.2)	1.2	(3.3)	(2.6)	2.1	3.0	3.7
S&P Global Infrastructure	(11.8)	(9.6)	(10.1)	(6.0)	(0.1)	2.1	5.7
Alerian MLP	(7.5)	8.4	19.0	20.0	3.1	1.2	1.7
Regional Index							
JPM EMBI Global Div	(6.4)	(4.6)	(23.9)	(24.3)	(7.2)	(2.6)	1.1
JPM GBI-EM Global Div	(4.9)	(4.7)	(18.6)	(20.6)	(7.1)	(3.9)	(2.4)
Hedge Funds							
HFRI Composite	(2.3)	(0.6)	(6.2)	(5.8)	6.2	4.5	4.6
HFRI FOF Composite	(0.6)	0.7	(5.9)	(5.5)	4.5	3.3	3.6
Currency (Spot)							
Euro	(2.6)	(3.9)	(13.9)	(15.5)	(3.5)	(3.7)	(2.7)
Pound Sterling	(4.1)	(8.3)	(17.6)	(17.2)	(3.2)	(3.6)	(3.6)
Yen	(4.2)	(7.7)	(20.4)	(22.9)	(9.3)	(4.9)	(6.0)

Source: Morningstar, HFRI, as of 9/30/22.

Definitions

***Bloomberg US Weekly Consumer Comfort Index** - tracks the public's economic attitudes each week, providing a high-frequency read on consumer sentiment. The index, based on cell and landline telephone interviews with a random, representative national sample of U.S. adults, tracks Americans' ratings of the national economy, their personal finances and the buying climate on a weekly basis, with views of the economy's direction measured separately each month. (www.langerresearch.com)*

***University of Michigan Consumer Sentiment Index** - A survey of consumer attitudes concerning both the present situation as well as expectations regarding economic conditions conducted by the University of Michigan. For the preliminary release approximately three hundred consumers are surveyed while five hundred are interviewed for the final figure. The level of consumer sentiment is related to the strength of consumer spending. (www.Bloomberg.com)*

***NFIB Small Business Outlook** - Small Business Economic Trends (SBET) is a monthly assessment of the U.S. small-business economy and its near-term prospects. Its data are collected through mail surveys to random samples of the National Federal of Independent Business (NFIB) membership. The survey contains three broad question types: recent performance, near-term forecasts, and demographics. The topics addressed include: outlook, sales, earnings, employment, employee compensation, investment, inventories, credit conditions, and single most important problem. (http://www.nfib-sbet.org/about/)*

***NAHB Housing Market Index –** the housing market index is a weighted average of separate diffusion induces for three key single-family indices: market conditions for the sale of new homes at the present time, market conditions for the sale of new homes in the next six months, and the traffic of prospective buyers of new homes. The first two series are rated on a scale of Good, Fair, and Poor and the last is rated on a scale of High/Very High, Average, and Low/Very Low. A diffusion index is calculated for each series by applying the formula "(Good-Poor + 100)/2" to the present and future sales series and "(High/Very High-Low/Very Low + 100)/2" to the traffic series. Each resulting index is then seasonally adjusted and weighted to produce the HMI. Based on this calculation, the HMI can range between 0 and 100.*

Notices & disclosures

Glossary

Allocation Effect: An attribution effect that describes the amount attributable to the managers' asset allocation decisions, relative to the benchmark.

Alpha: The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as: Portfolio Return - [Risk-free Rate + Portfolio Beta x (Market Return - Risk-free Rate)].

Benchmark R-squared: Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R-squared, the more appropriate the benchmark is for the manager.

Beta: A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

Book-to-Market: The ratio of book value per share to market price per share. Growth managers typically have low book-to-market ratios while value managers typically have high book-to-market ratios.

Capture Ratio: A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen (up market) or fallen (down market). The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

Correlation: A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

Excess Return: A measure of the difference in appreciation or depreciation in the price of an investment compared to its benchmark, over a given time period. This is usually expressed as a percentage and may be annualized over a number of years or represent a single period.

Information Ratio: A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as: excess return divided by tracking error.

Interaction Effect: An attribution effect that describes the portion of active management that is contributable to the cross interaction between the allocation and selection effect. This can also be explained as an effect that cannot be easily traced to a source.

Portfolio Turnover: The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

Price-to-Earnings Ratio (P/E): Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price-to-earnings ratios whereas value managers hold stocks with low price-to-earnings ratios.

R-Squared: Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another, i.e., the goodness of fit to a benchmark. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

Selection Effect: An attribution effect that describes the amount attributable to the managers' stock selection decisions, relative to the benchmark.

Sharpe Ratio: A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as: Portfolio Excess Return / Portfolio Standard Deviation.

Sortino Ratio: Measures the risk-adjusted return of an investment, portfolio, or strategy. It is a modification of the Sharpe Ratio, but penalizes only those returns falling below a specified benchmark. The Sortino Ratio uses downside deviation in the denominator rather than standard deviation, like the Sharpe Ratio.

Standard Deviation: A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

Style Analysis: A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds

Style Map: A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two-dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

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