

# Plymouth County Retirement Association

December 21, 2022

Meeting Materials

## Agenda

1. Estimated Retirement Association Performance As of November 30, 2022
2. Performance Update As of October 31, 2022
3. Appendices
  - Economic Market Update As of October 31, 2022
  - Disclaimer, Glossary, and Notes

**Estimated Retirement Association Performance  
As of November 30, 2022**

### Estimated Aggregate Performance<sup>1</sup>

	November (%)	QTD (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
Total Retirement Association	4.0	6.5	-4.8	-1.2	8.7	6.7	7.8

### Benchmark Returns

	November (%)	QTD (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
Russell 3000	5.2	13.9	-14.2	-10.8	10.3	10.3	13.0
MSCI EAFE	11.3	17.3	-14.5	-10.1	1.9	1.9	5.0
MSCI Emerging Markets	14.8	11.3	-19.0	-17.4	0.1	-0.4	2.1
Bloomberg Aggregate	3.7	2.3	-12.6	-12.8	-2.6	0.2	1.1
Bloomberg TIPS	1.8	3.1	-10.9	-10.7	1.7	2.5	1.2
Bloomberg High Yield	2.2	4.8	-10.6	-9.0	0.9	2.5	4.3
JPM EMBI Global Diversified (Hard Currency)	7.1	6.2	-13.6	-12.2	-5.5	-2.5	-2.0
S&P Global Natural Resources	9.8	20.9	13.8	21.9	15.0	9.2	5.5

### Estimated Total Assets

	Estimate
Total Retirement Association	1,344,453,220

<sup>1</sup> The November performance estimates are calculated using index returns as of November 30, 2022, for each asset class. No performance estimate was included for private equity, real estate, infrastructure, and private natural resources asset classes.

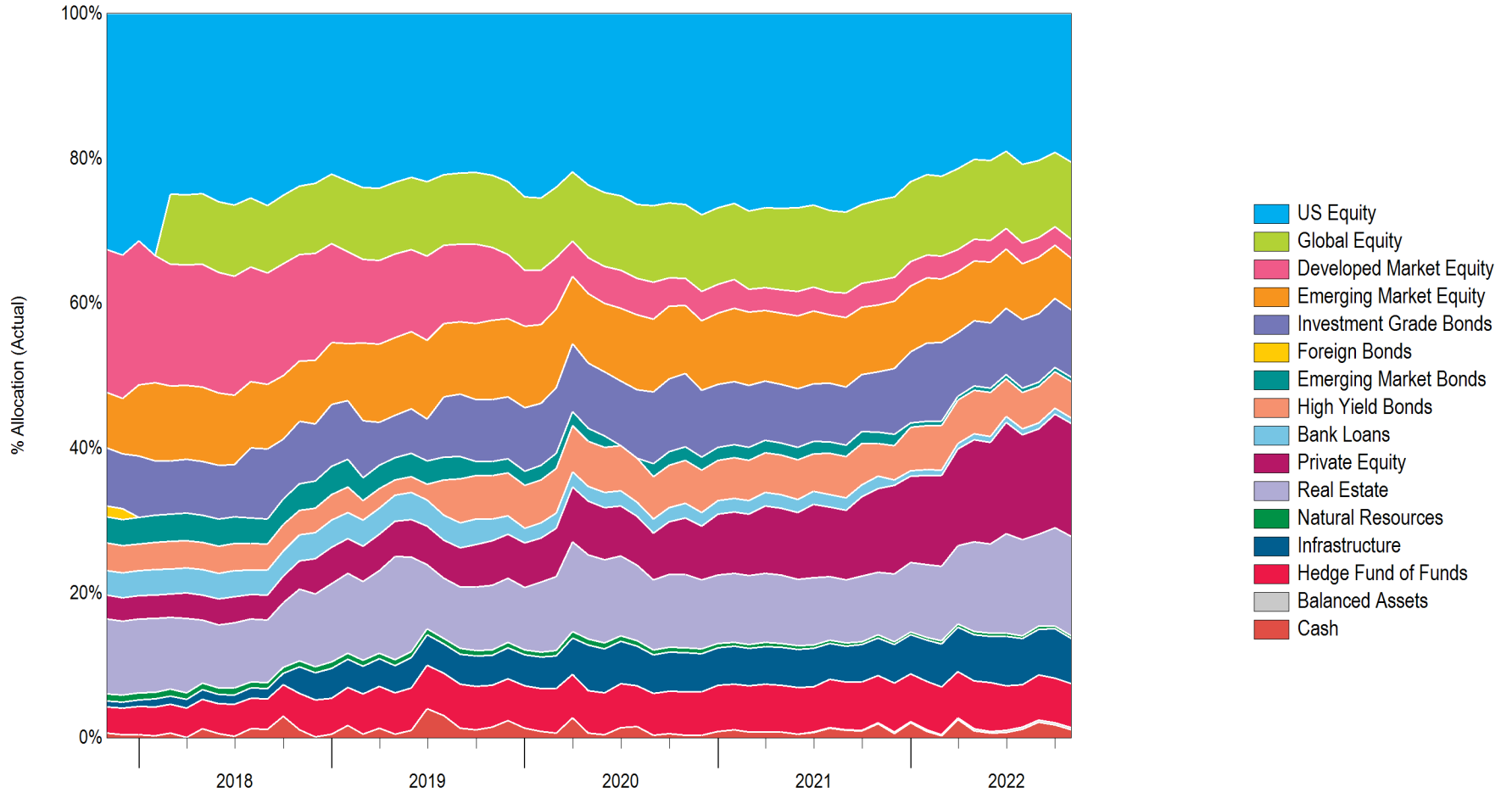
**Performance Update  
As of October 31, 2022**

DRAFT

	Allocation vs. Target		Policy	Policy Range	Within IPS Range?
	Current Balance	Current Allocation			
Domestic Equity	\$264,720,746	20%	26%	21% - 36%	No
International Developed Market Equity	\$33,810,293	3%	6%	1% - 16%	Yes
International Emerging Market Equity	\$92,450,943	7%	10%	5% - 20%	Yes
Global Equity	\$137,947,304	11%	10%	5% - 20%	Yes
Core Bonds	\$120,202,625	9%	9%	4% - 14%	Yes
Value-Added Fixed Income	\$82,658,057	6%	6%	2% - 12%	Yes
Private Equity	\$204,784,076	16%	13%	4% - 18%	Yes
Real Estate	\$177,251,427	14%	10%	5% - 15%	Yes
Real Assets	\$85,882,061	7%	6%	2% - 10%	Yes
Hedge Fund of Funds	\$78,370,913	6%	4%	2% - 8%	Yes
Cash	\$14,354,150	1%	0%	0% - 3%	Yes
<b>Total</b>	<b>\$1,292,432,596</b>	<b>100%</b>	<b>100%</b>		

	Current Balance	Current Allocation	Policy	Policy Range	Within IPS Range?
Total Equity	\$790,261,133	61%	69%	60% - 80%	Yes
Total Fixed Income	\$202,860,682	16%	15%	5% - 25%	Yes
Total Real Assets and Real Estate	\$284,956,630	22%	16%	7% - 25%	Yes
Cash	\$14,354,150	1%	0%	0% - 3%	Yes

Asset Allocation History  
5 Years Ending October 31, 2022



Asset Class Net Performance Summary										
	Market Value (\$)	% of Portfolio	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Retirement Association</b>	<b>1,292,432,596</b>	<b>100.0</b>	<b>2.4</b>	<b>-8.5</b>	<b>-6.7</b>	<b>7.8</b>	<b>6.1</b>	<b>7.4</b>	<b>7.7</b>	<b>Nov-89</b>
Policy Benchmark (Net) (1)			3.7	-13.6	-12.6	5.1	5.3	7.1	--	Nov-89
Actual Allocation (Net)			3.3	-12.8	-11.1	5.1	4.8	--	--	Nov-89
<b>Domestic Equity Assets</b>	<b>264,720,746</b>	<b>20.5</b>	<b>8.8</b>	<b>-19.7</b>	<b>-19.1</b>	<b>10.2</b>	<b>9.3</b>	<b>--</b>	<b>11.3</b>	<b>Jan-16</b>
Russell 3000			8.2	-18.4	-16.5	9.8	9.9	12.5	11.5	Jan-16
<b>International Developed Market Equity Assets</b>	<b>33,810,293</b>	<b>2.6</b>	<b>3.6</b>	<b>-28.8</b>	<b>-27.6</b>	<b>-5.8</b>	<b>-4.1</b>	<b>--</b>	<b>0.4</b>	<b>Jan-16</b>
MSCI EAFE			5.4	-23.2	-23.0	-1.3	-0.1	4.1	3.0	Jan-16
<b>International Emerging Market Equity Assets</b>	<b>92,450,943</b>	<b>7.2</b>	<b>-1.3</b>	<b>-27.7</b>	<b>-29.0</b>	<b>-1.7</b>	<b>-2.0</b>	<b>--</b>	<b>3.7</b>	<b>Jan-16</b>
MSCI Emerging Markets			-3.1	-29.4	-31.0	-4.4	-3.1	0.8	3.4	Jan-16
<b>Global Equity Assets</b>	<b>137,947,304</b>	<b>10.7</b>	<b>6.1</b>	<b>-14.9</b>	<b>-14.8</b>	<b>5.5</b>	<b>--</b>	<b>--</b>	<b>4.1</b>	<b>Feb-18</b>
MSCI ACWI			6.0	-21.1	-20.0	4.8	5.2	8.0	3.5	Feb-18
<b>Core Fixed Income</b>	<b>120,202,625</b>	<b>9.3</b>	<b>-0.3</b>	<b>-10.7</b>	<b>-10.7</b>	<b>-1.6</b>	<b>0.6</b>	<b>--</b>	<b>1.5</b>	<b>Jan-16</b>
75% Bbg Aggregate/25% Bbg US TIPs 1-10 year			-0.7	-13.8	-13.6	-2.3	0.2	0.9	1.0	Jan-16
<b>Value Added Fixed Income</b>	<b>82,658,057</b>	<b>6.4</b>	<b>0.9</b>	<b>-11.0</b>	<b>-10.6</b>	<b>-0.2</b>	<b>1.4</b>	<b>--</b>	<b>3.7</b>	<b>Jan-16</b>
Custom Benchmark - Global Fixed Income (2)			0.8	-15.0	-14.8	-2.2	0.6	1.6	2.7	Jan-16
<b>Hedge Funds</b>	<b>78,370,913</b>	<b>6.1</b>	<b>1.1</b>	<b>-20.3</b>	<b>-20.6</b>	<b>-1.9</b>	<b>-0.7</b>	<b>3.0</b>	<b>2.9</b>	<b>Feb-10</b>
Custom Benchmark			0.2	-6.5	-6.9	4.3	3.1	3.6	3.0	Feb-10
<b>Real Estate (3)</b>	<b>177,251,427</b>	<b>13.7</b>	<b>-0.1</b>	<b>16.9</b>	<b>28.1</b>	<b>16.9</b>	<b>13.0</b>	<b>--</b>	<b>10.7</b>	<b>Jan-16</b>
Custom Benchmark			0.0	13.1	22.1	12.0	9.9	--	8.7	Jan-16
<b>Private Equity (4)</b>	<b>204,784,076</b>	<b>15.8</b>	<b>0.0</b>	<b>16.0</b>	<b>22.8</b>	<b>25.9</b>	<b>18.0</b>	<b>--</b>	<b>13.7</b>	<b>Jan-16</b>
MSCI ACWI IMI (1Q Lagged) +2%			7.3	-8.0	-9.2	10.5	9.7	11.5	11.8	Jan-16
<b>Real Assets (5)</b>	<b>85,882,061</b>	<b>6.6</b>	<b>0.2</b>	<b>9.2</b>	<b>14.9</b>	<b>11.0</b>	<b>7.0</b>	<b>--</b>	<b>4.0</b>	<b>Jan-16</b>
CPI + 3%			0.6	9.4	10.7	8.0	6.9	5.6	6.4	Jan-16
<b>Cash and Cash Equivalent</b>	<b>14,354,150</b>	<b>1.1</b>								

(1) The custom benchmark is comprised of 26% Russell 3000/ 6% MSCI EAFE/ 10% MSCI Emerging Markets/ 13% MSCI ACWI IMI (Lagged) + 2%/ 10% MSCI ACWI/ 4% Hedge Funds Custom Benchmark/ 9% (75/25 Barclays Aggregate and Barclays Tips 1-10yr)/ 6% Value Added FI Custom Benchmark/ 10% (80/20 NCREIF ODCE and Wilshire REIT)/ 6% CPI+3%

(2) The Custom Benchmark - Global Fixed Income is comprised of 25% BBgBarc/ US High Yield, 25% / Credit Suisse Leveraged Loans / 25% JP Morgan EMBI Global diversified / and 25% BBgBarc Multiverse TR

(3) The market value and performance is one quarter lagged.

(4) The market value and performance is one quarter lagged.

(5) The market value and performance is one quarter lagged.



Trailing Net Performance											
	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Retirement Association</b>	<b>1,292,432,596</b>	<b>100.0</b>	<b>--</b>	<b>2.4</b>	<b>-8.5</b>	<b>-6.7</b>	<b>7.8</b>	<b>6.1</b>	<b>7.4</b>	<b>7.7</b>	<b>Nov-89</b>
<i>Policy Benchmark (Net)</i>				3.7	-13.6	-12.6	5.1	5.3	7.1	--	Nov-89
<i>Actual Allocation (Net)</i>				3.3	-12.8	-11.1	5.1	4.8	--	--	Nov-89
<b>Domestic Equity Assets</b>	<b>264,720,746</b>	<b>20.5</b>	<b>20.5</b>	<b>8.8</b>	<b>-19.7</b>	<b>-19.1</b>	<b>10.2</b>	<b>9.3</b>	<b>--</b>	<b>11.3</b>	<b>Jan-16</b>
<i>Russell 3000</i>				8.2	-18.4	-16.5	9.8	9.9	12.5	11.5	Jan-16
Rhumblin Russell 1000 Value	71,511,158	5.5	27.0	10.2	-9.3	-7.0	7.3	7.2	--	9.0	Apr-13
<i>Russell 1000 Value</i>				10.3	-9.3	-7.0	7.3	7.2	10.3	9.1	Apr-13
Rhumblin Russell 1000 Growth	47,143,396	3.6	17.8	5.8	-26.6	-24.6	11.8	12.6	14.6	14.6	Jul-09
<i>Russell 1000 Growth</i>				5.8	-26.6	-24.6	11.7	12.6	14.7	14.7	Jul-09
Fisher Midcap Value	58,495,930	4.5	22.1	9.3	-20.3	-18.1	13.2	9.8	11.8	8.5	Apr-07
<i>Russell MidCap Value</i>				9.4	-12.8	-10.2	7.5	6.5	10.4	7.0	Apr-07
<i>Russell MidCap</i>				8.9	-17.5	-17.2	7.8	7.9	11.4	8.0	Apr-07
Newton Small Cap Growth	45,527,288	3.5	17.2	7.0	-24.6	-29.3	11.8	12.1	14.0	13.7	Aug-09
<i>Russell 2000 Growth</i>				9.5	-22.6	-26.0	5.1	5.2	10.1	11.2	Aug-09
Vulcan Partners Small Cap Value	13,757,208	1.1	5.2	9.8	--	--	--	--	--	-29.1	Apr-22
<i>Russell 2000 Value</i>				12.6	-11.2	-10.7	8.1	5.3	9.4	-9.0	Apr-22
Systematic Small Cap Free Cash Flow	28,285,766	2.2	10.7	12.2	--	--	--	--	--	-2.2	Apr-22
<i>Russell 2000 Value</i>				12.6	-11.2	-10.7	8.1	5.3	9.4	-9.0	Apr-22

### Summary | As of October 31, 2022

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>International Developed Market Equity Assets</b>	<b>33,810,293</b>	<b>2.6</b>	<b>2.6</b>	<b>3.6</b>	<b>-28.8</b>	<b>-27.6</b>	<b>-5.8</b>	<b>-4.1</b>	<b>--</b>	<b>0.4</b>	<b>Jan-16</b>
<i>MSCI EAFE</i>				5.4	-23.2	-23.0	-1.3	-0.1	4.1	3.0	Jan-16
Aristotle International Equity	18,248,162	1.4	54.0	4.7	-27.2	-26.3	--	--	--	-9.7	Mar-21
<i>MSCI EAFE</i>				5.4	-23.2	-23.0	-1.3	-0.1	4.1	-9.6	Mar-21
Walter Scott International Equity	15,562,131	1.2	46.0	2.3	-30.5	-29.1	--	--	--	-12.7	Mar-21
<i>MSCI EAFE</i>				5.4	-23.2	-23.0	-1.3	-0.1	4.1	-9.6	Mar-21
<b>International Emerging Market Equity Assets</b>	<b>92,450,943</b>	<b>7.2</b>	<b>7.2</b>	<b>-1.3</b>	<b>-27.7</b>	<b>-29.0</b>	<b>-1.7</b>	<b>-2.0</b>	<b>--</b>	<b>3.7</b>	<b>Jan-16</b>
<i>MSCI Emerging Markets</i>				-3.1	-29.4	-31.0	-4.4	-3.1	0.8	3.4	Jan-16
ABS Emerging Markets	47,992,270	3.7	51.9	-2.5	-30.1	-30.5	-1.0	--	--	2.4	Dec-18
<i>MSCI Emerging Markets</i>				-3.1	-29.4	-31.0	-4.4	-3.1	0.8	-1.6	Dec-18
Driehaus Emerging Markets Growth	44,458,672	3.4	48.1	0.0	-25.0	-27.4	0.5	--	--	2.3	Mar-19
<i>MSCI Emerging Markets</i>				-3.1	-29.4	-31.0	-4.4	-3.1	0.8	-3.3	Mar-19
<b>Global Equity Assets</b>	<b>137,947,304</b>	<b>10.7</b>	<b>10.7</b>	<b>6.1</b>	<b>-14.9</b>	<b>-14.8</b>	<b>5.5</b>	<b>--</b>	<b>--</b>	<b>4.1</b>	<b>Feb-18</b>
<i>MSCI ACWI</i>				6.0	-21.1	-20.0	4.8	5.2	8.0	3.5	Feb-18
First Eagle Global Value Fund	22,397,070	1.7	16.2	6.2	-12.4	-11.9	3.0	--	--	2.4	Feb-18
<i>MSCI ACWI Value NR USD</i>				8.5	-12.2	-10.3	3.3	3.1	6.2	1.5	Feb-18
Kopernik Global All Cap Fund	31,396,989	2.4	22.8	3.4	-16.3	-19.6	12.5	--	--	5.4	Feb-18
<i>MSCI ACWI Value NR USD</i>				8.5	-12.2	-10.3	3.3	3.1	6.2	1.5	Feb-18
Lee Munder Global Multi-Cap Strategy	42,788,739	3.3	31.0	5.9	-20.2	-18.3	4.2	--	--	3.3	Mar-18
<i>MSCI ACWI</i>				6.0	-21.1	-20.0	4.8	5.2	8.0	4.6	Mar-18
Wellington Durable Enterprises, L.P.	41,364,505	3.2	30.0	8.4	-9.4	-8.5	4.5	--	--	7.1	Mar-18
<i>MSCI ACWI</i>				6.0	-21.1	-20.0	4.8	5.2	8.0	4.6	Mar-18

### Summary | As of October 31, 2022

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Core Fixed Income</b>	<b>120,202,625</b>	<b>9.3</b>	<b>9.3</b>	<b>-0.3</b>	<b>-10.7</b>	<b>-10.7</b>	<b>-1.6</b>	<b>0.6</b>	<b>--</b>	<b>1.5</b>	<b>Jan-16</b>
<i>75% Bbg Aggregate/25% Bbg US TIPs 1-10 year</i>				-0.7	-13.8	-13.6	-2.3	0.2	0.9	1.0	Jan-16
Lord Abbett Short Duration Credit Trust II	58,776,665	4.5	48.9	-0.3	-6.0	-6.1	-0.5	--	--	-0.1	Aug-19
<i>Bloomberg US Credit 1-3 Yr TR</i>				-0.2	-4.8	-5.0	-0.4	1.0	1.2	0.1	Aug-19
Lord Abbett Core Fixed Income Trust II	38,673,775	3.0	32.2	-1.3	-15.8	--	--	--	--	-15.7	Dec-21
<i>Bloomberg US Aggregate TR</i>				-1.3	-15.7	-15.7	-3.8	-0.5	0.7	-15.9	Dec-21
Rhumblin TIPS Trust	22,752,185	1.8	18.9	1.2	-12.5	-11.4	--	--	--	-2.9	Sep-20
<i>Bloomberg US TIPS TR</i>				1.2	-12.5	-11.5	1.1	2.2	1.0	-2.9	Sep-20
<b>Value Added Fixed Income</b>	<b>82,658,057</b>	<b>6.4</b>	<b>6.4</b>	<b>0.9</b>	<b>-11.0</b>	<b>-10.6</b>	<b>-0.2</b>	<b>1.4</b>	<b>--</b>	<b>3.7</b>	<b>Jan-16</b>
<i>Custom Benchmark - Global Fixed Income</i>				0.8	-15.0	-14.8	-2.2	0.6	1.6	2.7	Jan-16
Eaton Vance High Yield	11,460,363	0.9	13.9	2.6	-10.8	-9.9	0.4	2.0	4.1	5.7	Apr-06
<i>ICE BofA US High Yield TR</i>				2.8	-12.2	-11.4	0.2	1.9	4.1	5.9	Apr-06
First Eagle Bank Loan Select Fund	10,497,022	0.8	12.7	0.2	-3.4	-2.9	2.6	2.7	4.0	4.5	Sep-10
<i>Credit Suisse Leveraged Loans</i>				0.8	-2.5	-2.0	2.6	3.0	3.7	4.2	Sep-10
Manulife Strategic Fixed Income	39,270,707	3.0	47.5	0.6	-11.9	-11.6	-1.1	--	--	-0.4	Jul-19
<i>Bloomberg Multiverse TR</i>				-0.6	-20.2	-20.6	-6.0	-2.3	-0.8	-5.1	Jul-19
Mesirow High Yield	13,972,130	1.1	16.9	0.9	-11.4	-10.9	3.6	--	--	3.7	Aug-19
<i>Bloomberg US Corporate High Yield TR</i>				2.6	-12.5	-11.8	0.3	2.0	4.1	0.6	Aug-19
Eaton Vance EMD Opportunities Fund	7,457,836	0.6	9.0	0.7	-16.3	-16.2	--	--	--	-3.3	Aug-20
<i>JP Morgan EMBI Global Diversified</i>				0.2	-23.8	-24.2	-7.2	-2.7	1.0	-10.4	Aug-20

### Summary | As of October 31, 2022

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Hedge Funds</b>	<b>78,370,913</b>	<b>6.1</b>	<b>6.1</b>	<b>1.1</b>	<b>-20.3</b>	<b>-20.6</b>	<b>-1.9</b>	<b>-0.7</b>	<b>3.0</b>	<b>2.9</b>	<b>Feb-10</b>
<i>Custom Benchmark</i>				<i>0.2</i>	<i>-6.5</i>	<i>-6.9</i>	<i>4.3</i>	<i>3.1</i>	<i>3.6</i>	<i>3.0</i>	<i>Feb-10</i>
ABS Offshore SPC - Global Segregated Portfolio	33,535,806	2.6	42.8	1.1	-11.6	-12.9	2.6	2.5	4.8	4.6	Aug-10
<i>HFRI Equity Hedge (Total) Index</i>				<i>2.0</i>	<i>-12.1</i>	<i>-13.0</i>	<i>6.5</i>	<i>4.6</i>	<i>5.6</i>	<i>5.2</i>	<i>Aug-10</i>
<i>HFRI FOF: Strategic Index</i>				<i>0.2</i>	<i>-13.7</i>	<i>-15.3</i>	<i>2.8</i>	<i>1.9</i>	<i>3.3</i>	<i>3.0</i>	<i>Aug-10</i>
Entrust Special Opportunities Fund III, Ltd.	11,925,266	0.9	15.2	0.0	-34.0	-35.1	-8.7	-5.6	--	0.3	Oct-16
<i>HFRI Fund of Funds Composite Index (QTR)</i>				<i>0.0</i>	<i>-6.8</i>	<i>-6.4</i>	<i>4.2</i>	<i>3.1</i>	<i>3.5</i>	<i>3.6</i>	<i>Oct-16</i>
Old Farm Partners Master Fund, L.P.	15,452,532	1.2	19.7	3.4	-9.3	-10.3	5.9	--	--	4.2	Oct-18
<i>HFRI Fund of Funds Composite Index</i>				<i>0.5</i>	<i>-6.3</i>	<i>-7.4</i>	<i>4.2</i>	<i>3.0</i>	<i>3.6</i>	<i>3.2</i>	<i>Oct-18</i>
EnTrustPermal Special Opportunities Evergreen Fund, Ltd.	17,457,309	1.4	22.3	0.0	-29.3	-27.0	-6.7	--	--	-0.5	Jan-19
<i>HFRI Fund of Funds Composite Index (QTR)</i>				<i>0.0</i>	<i>-6.8</i>	<i>-6.4</i>	<i>4.2</i>	<i>3.1</i>	<i>3.5</i>	<i>4.6</i>	<i>Jan-19</i>
<b>Real Estate</b>	<b>177,251,427</b>	<b>13.7</b>	<b>13.7</b>	<b>-0.1</b>	<b>16.9</b>	<b>28.1</b>	<b>16.9</b>	<b>13.0</b>	<b>--</b>	<b>10.7</b>	<b>Jan-16</b>
<i>Custom Benchmark</i>				<i>0.0</i>	<i>13.1</i>	<i>22.1</i>	<i>12.0</i>	<i>9.9</i>	<i>--</i>	<i>8.7</i>	<i>Jan-16</i>
<b>Core Real Estate</b>	<b>118,340,588</b>	<b>9.2</b>	<b>66.8</b>	<b>-0.2</b>	<b>12.0</b>	<b>20.5</b>	<b>13.8</b>	<b>11.5</b>	<b>--</b>	<b>10.3</b>	<b>Jan-16</b>
TA Realty Core Property Fund, L.P.	81,796,191	6.3	69.1	0.0	13.8	23.3	16.5	--	--	14.5	Apr-18
<i>NCREIF ODCE</i>				<i>0.0</i>	<i>13.1</i>	<i>22.1</i>	<i>12.4</i>	<i>10.2</i>	<i>10.9</i>	<i>10.2</i>	<i>Apr-18</i>
JPMorgan Strategic Property	36,544,397	2.8	30.9	-0.6	8.7	15.9	9.9	--	--	8.6	Apr-19
<i>NCREIF ODCE</i>				<i>0.0</i>	<i>13.1</i>	<i>22.1</i>	<i>12.4</i>	<i>10.2</i>	<i>10.9</i>	<i>11.0</i>	<i>Apr-19</i>
<b>Non-Core Real Estate</b>	<b>58,910,839</b>	<b>4.6</b>	<b>33.2</b>	<b>0.0</b>	<b>28.0</b>	<b>44.4</b>	<b>22.8</b>	<b>14.8</b>	<b>--</b>	<b>9.6</b>	<b>Jan-16</b>

Entrust Special Opportunities Fund III and EntrustPermal Special Opportunities Evergreen Fund: Data is based on September 30, 2022 fair market value, adjusted for subsequent cash flows.

Note: The data for JPMorgan Strategic Property is as of October 31, 2022.

Note: The data for Real Estate is based on June 30, 2022 fair market value, adjusted for subsequent cash flows.

Note: TA Realty Core Property Fund is reported in real time.

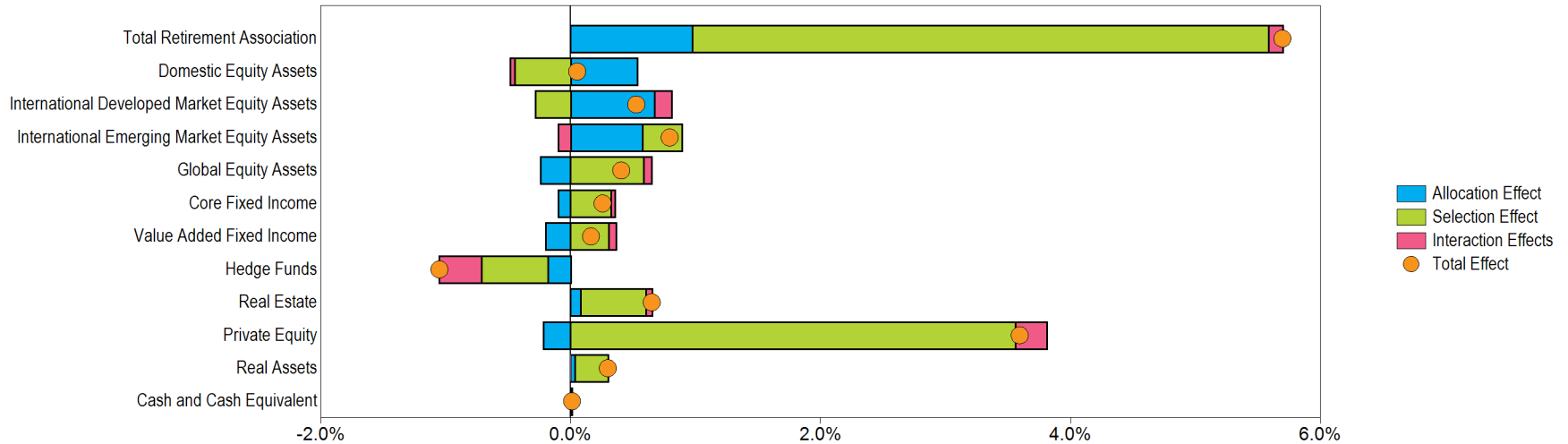
### Summary | As of October 31, 2022

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Private Equity</b>	<b>204,784,076</b>	<b>15.8</b>	<b>15.8</b>	<b>0.0</b>	<b>16.0</b>	<b>22.8</b>	<b>25.9</b>	<b>18.0</b>	--	<b>13.7</b>	<b>Jan-16</b>
<i>MSCI ACWI IMI (1Q Lagged) +2%</i>				7.3	-8.0	-9.2	10.5	9.7	11.5	11.8	Jan-16
<b>Private Equity</b>	<b>189,324,638</b>	<b>14.6</b>	<b>92.5</b>	<b>0.0</b>	<b>17.0</b>	<b>23.7</b>	<b>26.9</b>	<b>18.2</b>	--	<b>13.4</b>	<b>Jan-16</b>
<b>Venture Capital</b>	<b>15,459,438</b>	<b>1.2</b>	<b>7.5</b>	<b>0.0</b>	<b>4.0</b>	<b>12.3</b>	<b>16.5</b>	<b>13.4</b>	--	<b>12.3</b>	<b>Jan-16</b>
<b>Real Assets</b>	<b>85,882,061</b>	<b>6.6</b>	<b>6.6</b>	<b>0.2</b>	<b>9.2</b>	<b>14.9</b>	<b>11.0</b>	<b>7.0</b>	--	<b>4.0</b>	<b>Jan-16</b>
<i>CPI + 3%</i>				0.6	9.4	10.7	8.0	6.9	5.6	6.4	Jan-16
IFM Global Infrastructure	45,466,050	3.5	52.9	0.3	4.3	8.1	10.5	--	--	10.7	Oct-18
<i>CPI + 3%</i>				0.6	9.4	10.7	8.0	6.9	5.6	7.2	Oct-18
<b>Cash and Cash Equivalent</b>	<b>14,354,150</b>	<b>1.1</b>	<b>1.1</b>								
Cash	14,354,150	1.1	100.0								

Note: The data for Real Estate, Private Equity, and Real Assets is based on June 31, 2022 fair market value, adjusted for subsequent cash flows.

Note: The data for IFM Global Infrastructure is as of October 31, 2022.

#### Attribution Effects 1 Year Ending October 31, 2022



Attribution Summary 1 Year Ending October 31, 2022							
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Domestic Equity Assets	-19.1%	-17.1%	-1.9%	-0.5%	0.5%	0.0%	0.1%
International Developed Market Equity Assets	-27.6%	-23.6%	-4.1%	-0.3%	0.7%	0.1%	0.5%
International Emerging Market Equity Assets	-29.0%	-31.5%	2.5%	0.3%	0.6%	-0.1%	0.8%
Global Equity Assets	-14.8%	-20.5%	5.7%	0.6%	-0.2%	0.1%	0.4%
Core Fixed Income	-10.7%	-14.2%	3.6%	0.3%	-0.1%	0.0%	0.3%
Value Added Fixed Income	-10.6%	-15.5%	4.9%	0.3%	-0.2%	0.1%	0.2%
Hedge Funds	-20.6%	-7.5%	-13.0%	-0.5%	-0.2%	-0.3%	-1.1%
Real Estate	28.1%	21.2%	6.9%	0.5%	0.1%	0.0%	0.6%
Private Equity	22.8%	-9.2%	32.0%	3.6%	-0.2%	0.2%	3.6%
Real Assets	14.9%	10.0%	5.0%	0.3%	0.0%	0.0%	0.3%
Cash and Cash Equivalent	0.8%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Total</b>	<b>-6.8%</b>	<b>-12.5%</b>	<b>5.7%</b>	<b>4.6%</b>	<b>1.0%</b>	<b>0.1%</b>	<b>5.7%</b>

Annual Investment Expense Analysis				
As Of October 31, 2022				
Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
<b>Domestic Equity Assets</b>		<b>\$264,720,746</b>		
Rhumblin Russell 1000 Value	0.05% of First 25.0 Mil, 0.04% of Next 25.0 Mil, 0.03% Thereafter	\$71,511,158	\$28,953	0.04%
Rhumblin Russell 1000 Growth	0.05% of First 25.0 Mil, 0.04% of Next 25.0 Mil, 0.03% Thereafter	\$47,143,396	\$21,357	0.05%
Fisher Midcap Value	0.65% of Assets	\$58,495,930	\$380,224	0.65%
Newton Small Cap Growth	0.45% of Assets	\$45,527,288	\$204,873	0.45%
Vulcan Partners Small Cap Value	0.83% of Assets	\$13,757,208	\$114,185	0.83%
Systematic Small Cap Free Cash Flow	0.76% of Assets	\$28,285,766	\$214,972	0.76%
<b>International Developed Market Equity Assets</b>		<b>\$33,810,293</b>		
Aristotle International Equity	0.49% of Assets	\$18,248,162	\$89,416	0.49%
Walter Scott International Equity	0.75% of Assets	\$15,562,131	\$116,716	0.75%
<b>International Emerging Market Equity Assets</b>		<b>\$92,450,943</b>		
ABS Emerging Markets	Performance-based 0.35 and 0.10	\$47,992,270	\$167,973	0.35%
Driehaus Emerging Markets Growth	0.55% of Assets	\$44,458,672	\$244,523	0.55%
<b>Global Equity Assets</b>		<b>\$137,947,304</b>		
First Eagle Global Value Fund	0.75% of Assets	\$22,397,070	\$167,978	0.75%
Kopernik Global All Cap Fund	0.80% of First 50.0 Mil, 0.75% of Next 150.0 Mil, 0.70% of Next 250.0 Mil, 0.65% of Next 350.0 Mil	\$31,396,989	\$251,176	0.80%
Lee Munder Global Multi-Cap Strategy	0.45% of Assets	\$42,788,739	\$192,549	0.45%

Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
Wellington Durable Enterprises, L.P.	0.60% of Assets	\$41,364,505	\$248,187	0.60%
<b>Core Fixed Income</b>		<b>\$120,202,625</b>		
Lord Abbett Short Duration Credit Trust II	0.17% of Assets	\$58,776,665	\$99,920	0.17%
Lord Abbett Core Fixed Income Trust II		\$38,673,775		
Rhumblin TIPS Trust	0.04% of First 5.0 Mil, 0.03% Thereafter	\$22,752,185	\$7,326	0.03%
<b>Value Added Fixed Income</b>		<b>\$82,658,057</b>		
Eaton Vance High Yield	0.42% of Assets	\$11,460,363	\$48,134	0.42%
First Eagle Bank Loan Select Fund	0.40% of Assets	\$10,497,022	\$41,988	0.40%
Manulife Strategic Fixed Income	0.35% of Assets	\$39,270,707	\$137,447	0.35%
Mesirow High Yield	0.40% of Assets	\$13,972,130	\$55,889	0.40%
Eaton Vance EMD Opportunities Fund	0.30% of Assets	\$7,457,836	\$22,374	0.30%

Eaton Vance EMD Opportunities Fund: Stated fee of 0.30% with other operating expenses capped at 0.15%.



Note: The value is based on June 30, 2022 FMV.

Private Equity	Commitment	Total Contributions	Total Distributions	Value
Ascend Ventures II, L.P.	2,500,000	2,327,488	925,962	74,024
Ascent Venture Partners IV, L.P.	2,500,000	2,502,219	424,010	0
Ascent Venture Partners V, L.P.	5,000,000	5,004,731	4,054,562	3,847,278
Audax Mezzanine Fund IV, L.P.	10,000,000	8,584,434	7,222,086	3,037,349
Charles River Partnership XI, L.P.	1,839,000	1,820,323	2,532,884	0
Charlesbank Technology Opportunities Fund, L.P.	12,000,000	6,479,019	1,071,735	11,480,559
Ironsides Co-Investment Fund VI, L.P.	13,000,000	11,537,873	182,648	13,400,230
DN Partners II, L.P.	5,000,000	2,375,841	23,571	2,426,338
Euro Choice V, L.P.	6,071,849	5,919,759	4,770,239	4,199,072
FS Equity Partners VIII, L.P.	12,000,000	7,470,187	324,324	12,150,222
Globespan Capital Partners V, L.P.	5,000,000	4,852,500	8,895,488	4,394,697
HarbourVest Partners Co-Investment Fund V, L.P.	12,000,000	9,300,000	1,440,447	14,252,426
HarbourVest Partners Co-Investment Fund VI, L.P.	13,000,000	650,000	0	593,372
Ironsides Direct Investment Fund V, L.P.	12,000,000	11,244,326	1,191,166	20,037,080
Kohlberg Investors IX	10,000,000	4,772,024	294,108	6,007,993
Landmark Equity Partners XIV, L.P.	6,000,000	5,837,967	7,319,413	547,943
Leeds Equity Partners IV, L.P.	5,000,000	5,093,100	9,709,704	13,487
Leeds Equity Partners V, L.P.	2,500,000	3,525,207	5,478,607	363,528
Lexington Capital Partners VII, L.P.	10,000,000	8,940,588	13,047,876	1,611,106
LLR Equity Partners V, L.P.	12,000,000	11,040,000	3,065,757	15,486,248
Mesirow Financial Capital Partners IX, L.P.	4,000,000	3,840,731	2,021,056	78,038
Ridgemont Equity Partners III, L.P.	12,000,000	10,213,999	4,487,116	15,547,911
Ridgemont Equity Partners IV, L.P.	13,000,000	0	0	0
Rimco Production Company, Inc	2,000,000	2,000,000	7,651,066	1
Searchlight Capital III, L.P.	12,000,000	7,808,981	2,280,382	10,601,049
Siguler Guff Distressed Opportunities Fund III, L.P.	6,000,000	5,820,000	9,120,927	606,036
Summit Partners Growth Equity Fund IX, L.P.	10,000,000	11,620,000	12,558,753	15,180,935
Summit Partners Venture Capital Fund V	10,000,000	3,908,550	0	3,824,063
Summit Partners Growth Equity Fund XI, L.P.	13,000,000	0	0	0
TRG Growth Partnership II, L.P.	7,500,000	7,366,152	7,872,114	1,054,421

### Summary | As of October 31, 2022

Note: The value is based on June 30, 2022 FMV.

Note: The value for IFM Global Infrastructure and JPMorgan Strategic Property is as of October 31, 2022. The Value for TA Realty Core Property Fund is based on 6/30/2022 FMV as this fund is reported in real time.

Private Equity	Commitment	Total Contributions	Total Distributions	Value
Trilantic Capital Partners VI (North America), L.P.	12,000,000	9,660,725	1,091,209	12,155,432
Waud Capital Partners V, L.P.	10,000,000	8,859,640	0	12,011,980
Wellspring Capital Partners VI, L.P.	12,000,000	11,494,621	2,497,169	14,969,077
<b>Total Plymouth County - PE</b>	<b>280,910,849</b>	<b>201,870,986</b>	<b>121,554,377</b>	<b>199,951,895</b>
Real Assets	Commitment	Total Contributions	Total Distributions	Value
Basalt Infrastructure Partners II	10,000,000	9,416,866	1,230,342	11,215,885
BlackRock Global Renewable Power Infrastructure Fund III, L.P.	10,000,000	2,567,932	142,443	2,383,388
BTG Pactual Global Timberland Resources Fund, LLC	5,043,536	5,043,536	1,869,240	1,323,589
Global Infrastructure Partners III, L.P.	10,000,000	9,922,936	2,957,596	11,403,184
Global Infrastructure Partners IV, L.P.	10,000,000	5,367,209	0	5,409,485
IFM Global Infrastructure (U.S.), L.P.	60,000,000	35,000,000	3,422,216	45,466,050
ISQ Global Infrastructure Fund III (USTE), L.P.	10,000,000	786,704	1,223	648,754
JPMorgan Global Maritime Investment	10,000,000	10,034,375	2,578,840	9,838,102
Domain Timbervest Partners III, L.P.	5,000,000	5,000,000	3,446,126	4,122,884
<b>Total Plymouth County - RA</b>	<b>130,043,536</b>	<b>83,139,557</b>	<b>15,648,026</b>	<b>91,811,321</b>
Real Estate	Commitment	Total Contributions	Total Distributions	Value
1921 Realty, Inc.	5,000,000	5,378,294	0	555,888
AEW Partners IX, L.P.	10,000,000	4,773,663	111	4,845,042
AEW Partners Real Estate Fund VIII, L.P.	25,000,000	23,989,589	27,792,735	7,322,850
Berkshire Value Fund V, L.P.	9,000,000	4,110,909	1,058,371	4,873,987
Carlyle Realty Partners VIII, L.P.	18,000,000	13,029,418	9,073,505	10,654,952
DSF Capital Partners IV, L.P.	5,000,000	5,000,000	7,406,550	0
DSF Multi-Family Real Estate Fund III, L.P.	15,000,000	15,079,717	12,756,913	14,005,771
JPMorgan Strategic Property Fund	27,000,000	27,000,000	965,929	36,544,397
PCCP Equity IX, L.P.	10,000,000	3,169,943	0	3,333,181
Real Estate International Partnership Fund I, L.P.	15,000,000	12,677,141	11,372,161	890,209
Rockpoint Real Estate Fund VI, L.P.	9,000,000	6,547,623	960,265	7,478,993
TA Realty Core Property Fund, L.P.	60,000,000	60,468,715	4,816,242	77,631,253
TerraCap Partners V, L.P.	5,000,000	4,992,904	85,609	5,477,120
<b>Total Plymouth County - RE</b>	<b>213,000,000</b>	<b>186,217,917</b>	<b>76,288,391</b>	<b>173,613,643</b>

**Cash Flow Summary**  
**Month Ending October 31, 2022**

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Ending Market Value
1921 Realty, Inc	\$555,888	\$0	\$0	\$0	\$555,888
ABS Emerging Markets	\$49,205,469	\$0	\$0	\$0	\$47,992,270
ABS Offshore SPC - Global Segregated Portfolio	\$33,160,237	\$0	\$0	\$0	\$33,535,806
AEW Partners Real Estate Fund IX, L.P.	\$5,832,696	\$617,284	\$0	\$617,284	\$6,449,980
AEW Partners Real Estate VIII	\$7,322,850	\$0	-\$1,234,001	-\$1,234,001	\$6,088,849
Aristotle International Equity	\$17,436,411	\$0	\$0	\$0	\$18,248,162
Ascend Ventures II	\$0	\$0	\$0	\$0	\$0
Ascent Ventures IV	\$0	\$0	\$0	\$0	\$0
Ascent Ventures V	\$3,847,278	\$0	-\$439,554	-\$439,554	\$3,407,724
Audax Mezzanine Debt IV	\$2,813,303	\$0	-\$2,684	-\$2,684	\$2,810,619
Basalt Infrastructure Partners II	\$10,007,139	\$0	-\$3,406,657	-\$3,406,657	\$6,600,481
Berkshire Value Fund V	\$5,897,532	\$0	\$0	\$0	\$5,897,532
BlackRock Global Renewable Power Infrastructure Fund III, L.P.	\$2,646,026	\$0	\$0	\$0	\$2,646,026
BTG Pactual Global Timberland Resources	\$1,323,589	\$0	\$0	\$0	\$1,323,589
Carlyle Realty Partners VIII	\$10,654,952	\$764,773	\$0	\$764,773	\$11,419,725
Cash	\$22,910,328	\$7,800,480	-\$16,356,657	-\$8,556,178	\$14,354,150
Charles River Partnership XI	\$0	\$0	\$0	\$0	\$0
Charlesbank Technology Opportunities Fund	\$12,393,450	\$0	\$0	\$0	\$12,393,450
DN Partners II, LP	\$2,426,338	\$0	\$0	\$0	\$2,426,338
Driehaus Emerging Markets Growth	\$44,458,672	\$0	\$0	\$0	\$44,458,672
DSF Multi-Family Real Estate Fund III	\$4,756,949	\$0	-\$72,601	-\$72,601	\$4,684,348
Eaton Vance EMD Opportunities Fund	\$7,409,337	\$0	\$0	\$0	\$7,457,836

Summary | As of October 31, 2022

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Ending Market Value
Eaton Vance High Yield	\$11,165,577	\$0	\$0	\$0	\$11,460,363
Entrust Special Opportunities Fund III, Ltd.	\$11,925,266	\$0	\$0	\$0	\$11,925,266
EnTrustPermal Special Opportunities Evergreen Fund, Ltd.	\$17,457,309	\$0	\$0	\$0	\$17,457,309
Euro Choice V Programme	\$3,378,010	\$0	\$0	\$0	\$3,378,010
First Eagle Bank Loan Select Fund	\$10,474,387	\$0	\$0	\$0	\$10,497,022
First Eagle Global Value Fund	\$21,089,580	\$0	\$0	\$0	\$22,397,070
Fisher Midcap Value	\$53,512,435	\$0	\$0	\$0	\$58,495,930
FS Equity Partners VIII, L.P.	\$12,261,304	\$1,313,707	\$0	\$1,313,707	\$13,575,011
Global Infrastructure Partners III	\$11,069,355	\$0	-\$627,259	-\$627,259	\$10,442,096
Global Infrastructure Partners IV, L.P.	\$6,589,836	\$0	\$0	\$0	\$6,589,836
Globespan Capital V	\$4,394,697	\$0	\$0	\$0	\$4,394,697
HarbourVest Partners Co-Investment Fund VI, L.P.	\$1,893,372	\$0	\$0	\$0	\$1,893,372
HarbourVest Partners Co-Investment V	\$14,252,426	\$0	\$0	\$0	\$14,252,426
IFM Global Infrastructure	\$45,308,531	\$0	\$0	\$0	\$45,466,050
Ironsides Co-Investment Fund VI, L.P.	\$14,907,981	\$0	\$0	\$0	\$14,907,981
Ironsides Direct Investment Fund V, L.P.	\$18,702,764	\$0	\$0	\$0	\$18,702,764
ISQ Global Infrastructure Fund III (USTE), L.P.	\$947,215	\$0	\$0	\$0	\$947,215
JP Morgan Global Maritime Investment	\$9,838,102	\$0	-\$1,894,218	-\$1,894,218	\$7,943,885
JPMorgan Strategic Property	\$36,810,038	\$0	-\$91,883	-\$91,883	\$36,544,397
Kohlberg Investors IX	\$6,746,547	\$910,470	\$0	\$910,470	\$7,657,017
Kopernik Global All Cap Fund	\$30,354,475	\$0	\$0	\$0	\$31,396,989
Landmark Equity Partners XIV	\$514,906	\$0	\$0	\$0	\$514,906
Lee Munder Global Multi-Cap Strategy	\$40,382,952	\$0	\$0	\$0	\$42,788,739
Leeds Equity Partners IV	\$13,487	\$0	\$0	\$0	\$13,487
Leeds Equity Partners V	\$247,496	\$0	\$0	\$0	\$247,496

Summary | As of October 31, 2022

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Ending Market Value
Lexington Capital Partners VII	\$1,517,650	\$0	\$0	\$0	\$1,517,650
LLR Equity Partners V, LP.	\$15,361,187	\$0	\$0	\$0	\$15,361,187
Lord Abbett Core Fixed Income Trust II	\$39,184,190	\$0	\$0	\$0	\$38,673,775
Lord Abbett Short Duration Credit Trust II	\$58,950,218	\$0	\$0	\$0	\$58,776,665
Manulife Strategic Fixed Income	\$39,070,189	\$0	-\$35,579	-\$35,579	\$39,270,707
Mesirow Financial Capital Partners IX, LP	\$78,038	\$0	\$0	\$0	\$78,038
Mesirow Financial International Real Estate Fund I	\$740,455	\$0	\$0	\$0	\$740,455
Mesirow High Yield	\$13,847,933	\$0	\$0	\$0	\$13,972,130
Newton Small Cap Growth	\$42,528,161	\$0	\$0	\$0	\$45,527,288
Old Farm Partners Master Fund, L.P.	\$14,942,858	\$0	-\$6,226	-\$6,226	\$15,452,532
PCCP Equity IX, L.P.	\$4,533,181	\$0	\$0	\$0	\$4,533,181
Rhumblin Russell 1000 Growth	\$44,544,578	\$0	\$0	\$0	\$47,143,396
Rhumblin Russell 1000 Value	\$64,871,001	\$0	\$0	\$0	\$71,511,158
Rhumblin TIPS Trust	\$22,472,711	\$0	\$0	\$0	\$22,752,185
Ridgemont Equity Partners III, L.P.	\$16,209,848	\$0	\$0	\$0	\$16,209,848
RIMCO Royalty Partners, LP	\$1	\$0	\$0	\$0	\$1
Rockpoint Real Estate Fund VI, L.P.	\$7,658,586	\$0	\$0	\$0	\$7,658,586
Searchlight Capital III, L.P.	\$9,429,692	\$0	\$0	\$0	\$9,429,692
Siguler Guff Distressed Opportunities Fund III, LP	\$575,077	\$0	-\$27,603	-\$27,603	\$547,474
Summit Partners Growth Equity Fund IX	\$15,180,935	\$0	\$0	\$0	\$15,180,935
Summit Partners Growth Equity Fund XI	\$844,860	\$0	\$0	\$0	\$844,860
Summit Partners Venture Capital Fund V	\$4,020,426	\$0	\$0	\$0	\$4,020,426
Systematic Small Cap Free Cash Flow	\$25,214,146	\$0	\$0	\$0	\$28,285,766
TA Realty Core Property Fund, L.P.	\$81,796,191	\$0	\$0	\$0	\$81,796,191
TerraCap Partners V, L.P	\$5,477,120	\$5,405,176	\$0	\$5,405,176	\$10,882,296

Summary | As of October 31, 2022

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Ending Market Value
Timbervest Partners III, LP	\$3,922,884	\$0	\$0	\$0	\$3,922,884
TRG Growth Partnership II	\$968,735	\$0	\$0	\$0	\$968,735
Trilantic Capital Partners VI, L.P.	\$12,662,318	\$275,858	\$0	\$275,858	\$12,938,176
Vulcan Partners Small Cap Value	\$12,516,377	\$0	\$0	\$0	\$13,757,208
Walter Scott International Equity	\$15,226,891	\$0	-\$31,992	-\$31,992	\$15,562,131
Waud Capital Partners V	\$12,011,980	\$0	\$0	\$0	\$12,011,980
Wellington Durable Enterprises, L.P.	\$38,163,531	\$0	\$0	\$0	\$41,364,505
Wellspring Capital Partners VI	\$14,969,077	\$130,698	\$0	\$130,698	\$15,099,775
<b>Total</b>	<b>\$1,268,787,519</b>	<b>\$17,218,445</b>	<b>-\$24,226,914</b>	<b>-\$7,008,469</b>	<b>\$1,292,432,596</b>

Cash Flow Summary					
From January 01, 2022 through October 31, 2022					
	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Ending Market Value
1921 Realty, Inc	\$562,673	\$0	\$0	\$0	\$555,888
ABS Emerging Markets	\$68,663,388	\$0	\$0	\$0	\$47,992,270
ABS Offshore SPC - Global Segregated Portfolio	\$37,942,317	\$0	\$0	\$0	\$33,535,806
AEW Partners Real Estate Fund IX, L.P.	\$2,891,020	\$3,374,486	\$0	\$3,374,486	\$6,449,980
AEW Partners Real Estate VIII	\$8,804,981	\$0	-\$5,259,694	-\$5,259,694	\$6,088,849
Aristotle International Equity	\$25,066,871	\$0	\$0	\$0	\$18,248,162
Ascend Ventures II	\$52,310	\$0	-\$69,231	-\$69,231	\$0
Ascent Ventures IV	\$7,998	\$0	-\$6,372	-\$6,372	\$0
Ascent Ventures V	\$4,395,569	\$0	-\$439,554	-\$439,554	\$3,407,724
Audax Mezzanine Debt IV	\$4,542,166	\$312,468	-\$2,357,015	-\$2,044,547	\$2,810,619
Basalt Infrastructure Partners II	\$10,821,748	\$0	-\$5,356,870	-\$5,356,870	\$6,600,481
Berkshire Value Fund V	\$2,342,293	\$3,385,145	-\$607,091	\$2,778,054	\$5,897,532
BlackRock Global Renewable Power Infrastructure Fund III, L.P.	\$1,538,953	\$1,186,529	-\$165,399	\$1,021,130	\$2,646,026
BTG Pactual Global Timberland Resources	\$1,447,752	\$0	\$0	\$0	\$1,323,589
Carlyle Realty Partners VIII	\$6,917,427	\$2,732,909	-\$1,527,600	\$1,205,309	\$11,419,725
Cash	\$29,246,527	\$61,780,710	-\$76,661,728	-\$14,881,018	\$14,354,150
Charles River Partnership XI	\$9,492	\$0	\$0	\$0	\$0
Charlesbank Technology Opportunities Fund	\$7,829,929	\$2,220,247	\$0	\$2,220,247	\$12,393,450
DN Partners II, LP	\$1,851,617	\$0	\$0	\$0	\$2,426,338
Driehaus Emerging Markets Growth	\$58,993,894	\$0	\$0	\$0	\$44,458,672
DSF Multi-Family Real Estate Fund III	\$17,642,039	\$0	-\$17,670,540	-\$17,670,540	\$4,684,348
Eaton Vance EMD Opportunities Fund	\$8,911,545	\$0	\$0	\$0	\$7,457,836
Eaton Vance High Yield	\$12,847,326	\$0	\$0	\$0	\$11,460,363

Summary | As of October 31, 2022

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Ending Market Value
Entrust Special Opportunities Fund III, Ltd.	\$20,568,582	\$0	-\$2,406,799	-\$2,406,799	\$11,925,266
EnTrustPermal Special Opportunities Evergreen Fund, Ltd.	\$22,624,540	\$1,942,823	-\$42,036	\$1,900,787	\$17,457,309
Euro Choice V Programme	\$4,574,127	\$0	-\$1,060,643	-\$1,060,643	\$3,378,010
First Eagle Bank Loan Select Fund	\$10,865,798	\$0	\$0	\$0	\$10,497,022
First Eagle Global Value Fund	\$25,561,076	\$0	\$0	\$0	\$22,397,070
Fisher Midcap Value	\$72,958,849	\$0	\$0	\$0	\$58,495,930
FS Equity Partners VIII, L.P.	\$7,606,254	\$2,696,285	\$0	\$2,696,285	\$13,575,011
Global Infrastructure Partners III	\$9,155,729	\$644,591	-\$1,452,228	-\$807,637	\$10,442,096
Global Infrastructure Partners IV, L.P.	\$1,797,169	\$4,823,425	-\$556,689	\$4,266,737	\$6,589,836
Globespan Capital V	\$4,802,375	\$0	-\$817,415	-\$817,415	\$4,394,697
HarbourVest Partners Co-Investment Fund VI, L.P.	--	\$1,950,000	\$0	\$1,950,000	\$1,893,372
HarbourVest Partners Co-Investment V	\$14,888,274	\$0	-\$817,415	-\$817,415	\$14,252,426
IFM Global Infrastructure	\$43,799,912	\$0	-\$230,702	-\$230,702	\$45,466,050
Ironsides Co-Investment Fund VI, L.P.	\$11,261,173	\$4,776,941	-\$3,175,137	\$1,601,804	\$14,907,981
Ironsides Direct Investment Fund V, L.P.	\$18,211,807	\$1,000,029	-\$1,740,394	-\$740,365	\$18,702,764
ISQ Global Infrastructure Fund III (USTE), L.P.	\$785,481	\$325,497	-\$27,036	\$298,461	\$947,215
JP Morgan Global Maritime Investment	\$8,771,924	\$0	-\$2,663,125	-\$2,663,125	\$7,943,885
JPMorgan Strategic Property	\$33,662,943	\$0	-\$340,282	-\$340,282	\$36,544,397
Kohlberg Investors IX	\$5,316,531	\$1,649,024	\$0	\$1,649,024	\$7,657,017
Kopernik Global All Cap Fund	\$37,504,072	\$0	\$0	\$0	\$31,396,989
Landmark Equity Partners XIV	\$672,791	\$0	-\$129,391	-\$129,391	\$514,906
Lee Munder Global Multi-Cap Strategy	\$47,411,539	\$5,045,668	\$0	\$5,045,668	\$42,788,739
Leeds Equity Partners IV	\$13,621	\$0	\$0	\$0	\$13,487
Leeds Equity Partners V	\$417,949	\$0	-\$116,032	-\$116,032	\$247,496
Lexington Capital Partners VII	\$1,799,856	\$7,179	-\$331,532	-\$324,353	\$1,517,650
LLR Equity Partners V, LP.	\$12,506,785	\$0	-\$125,061	-\$125,061	\$15,361,187



Summary | As of October 31, 2022

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Ending Market Value
LMCG Small Cap Value	\$52,899,338	\$0	-\$48,612,484	-\$48,612,484	--
Lord Abbett Core Fixed Income Trust II	\$56,215,855	\$0	-\$10,000,000	-\$10,000,000	\$38,673,775
Lord Abbett Short Duration Credit Trust II	\$62,146,678	\$10,000,000	-\$10,000,000	\$0	\$58,776,665
Manulife Strategic Fixed Income	\$55,733,231	\$0	-\$10,161,114	-\$10,161,114	\$39,270,707
Mesirow Financial Capital Partners IX, LP	\$80,253	\$0	\$0	\$0	\$78,038
Mesirow Financial International Real Estate Fund I	\$981,636	\$0	-\$149,754	-\$149,754	\$740,455
Mesirow High Yield	\$15,772,983	\$0	\$0	\$0	\$13,972,130
Newton Small Cap Growth	\$60,193,918	\$0	\$0	\$0	\$45,527,288
Old Farm Partners Master Fund, L.P.	\$11,617,242	\$4,997,917	-\$10,538	\$4,987,378	\$15,452,532
PCCP Equity IX, L.P.	\$0	\$4,369,943	\$0	\$4,369,943	\$4,533,181
Rhumblin Russell 1000 Growth	\$72,771,143	\$0	-\$7,500,000	-\$7,500,000	\$47,143,396
Rhumblin Russell 1000 Value	\$69,408,163	\$15,000,000	-\$7,500,000	\$7,500,000	\$71,511,158
Rhumblin TIPS Trust	\$20,904,338	\$10,000,000	-\$5,000,000	\$5,000,000	\$22,752,185
Ridgemont Equity Partners III, L.P.	\$9,662,064	\$661,937	\$0	\$661,937	\$16,209,848
RIMCO Royalty Partners, LP	\$1	\$0	-\$23,197	-\$23,197	\$1
Rockpoint Real Estate Fund VI, L.P.	\$6,183,160	\$1,352,854	-\$1,000,718	\$352,136	\$7,658,586
Searchlight Capital III, L.P.	\$8,350,676	\$387,164	-\$1,846,039	-\$1,458,875	\$9,429,692
Siguler Guff Distressed Opportunities Fund III, LP	\$579,431	\$0	-\$106,989	-\$106,989	\$547,474
Summit Partners Growth Equity Fund IX	\$15,936,379	\$29,001	-\$126,688	-\$97,687	\$15,180,935
Summit Partners Growth Equity Fund XI	--	\$844,860	\$0	\$844,860	\$844,860
Summit Partners Venture Capital Fund V	\$2,554,079	\$1,527,120	\$0	\$1,527,120	\$4,020,426
Systematic Small Cap Free Cash Flow	--	\$28,390,950	\$0	\$28,390,950	\$28,285,766
TA Realty Core Property Fund, L.P.	\$50,986,726	\$25,000,000	-\$2,126,068	\$22,873,932	\$81,796,191

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Ending Market Value
TerraCap Partners V, L.P	\$5,015,207	\$5,405,176	-\$48,432	\$5,356,744	\$10,882,296
Timbervest Partners III, LP	\$3,852,123	\$0	-\$444,500	-\$444,500	\$3,922,884
TRG Growth Partnership II	\$1,157,483	\$0	-\$85,686	-\$85,686	\$968,735
Trilantic Capital Partners VI, L.P.	\$9,431,307	\$1,860,957	-\$1,085,785	\$775,172	\$12,938,176
Vulcan Partners Small Cap Value	--	\$18,361,872	\$0	\$18,361,872	\$13,757,208
Walter Scott International Equity	\$22,436,418	\$0	-\$144,108	-\$144,108	\$15,562,131
Waud Capital Partners V	\$8,849,688	\$1,277,922	\$0	\$1,277,922	\$12,011,980
Wellington Durable Enterprises, L.P.	\$45,650,511	\$0	\$0	\$0	\$41,364,505
Wellspring Capital Partners VI	\$13,431,564	-\$109,480	\$0	-\$109,480	\$15,099,775
<b>Total</b>	<b>\$1,413,670,585</b>	<b>\$229,212,148</b>	<b>-\$232,125,110</b>	<b>-\$2,912,962</b>	<b>\$1,292,432,596</b>

# Appendices

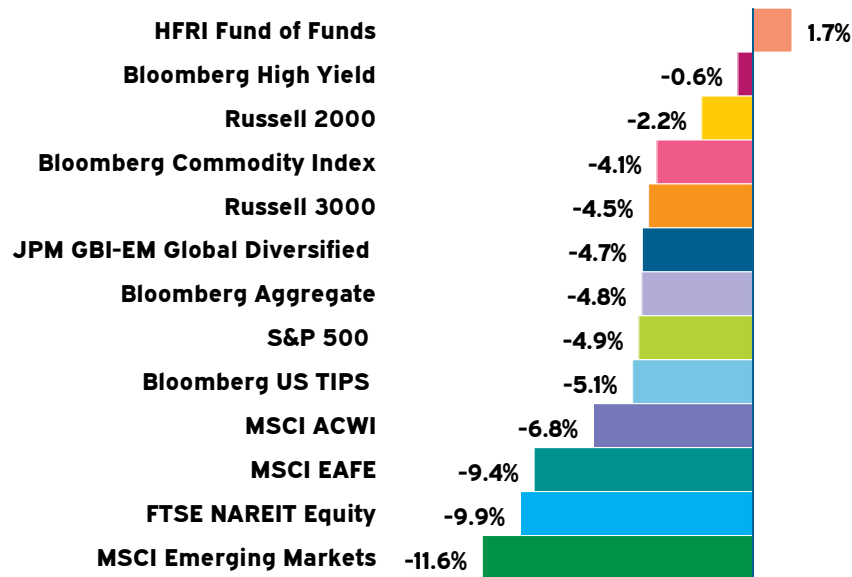
**Economic and Market Update**  
**Data As of October 31, 2022**

### Commentary

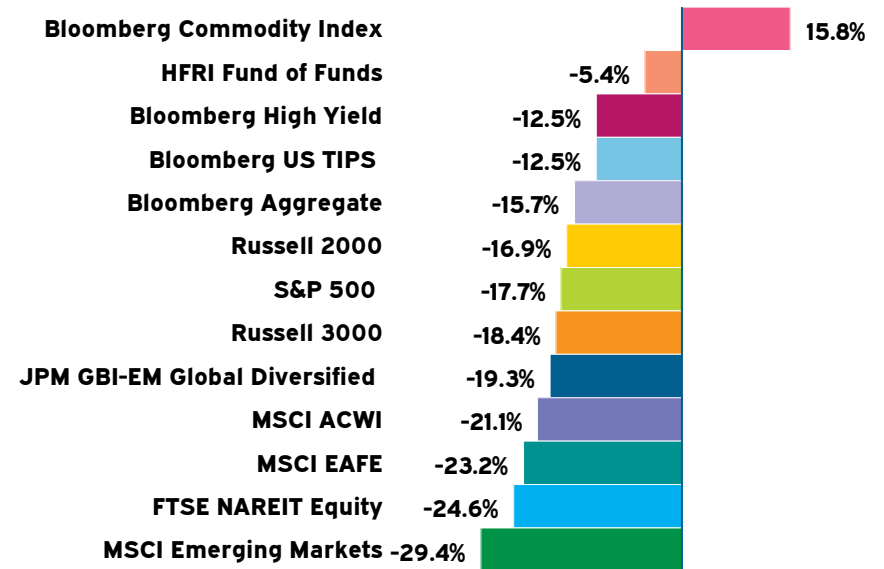
- Investor sentiment improved in October as markets repriced for continued easing of inflation risks, a potential slowing in monetary policy tightening efforts, and hopes for a soft-landing in 2023.
- After month-end, the Federal Reserve continued its aggressive tightening campaign with its fourth consecutive 75 basis point rate hike. Future hikes are expected into next year as US inflation remains high and labor markets tight.
  - In Europe, inflation hit a multi-decade high on energy prices, but manufacturing and service data in some countries surprised to the upside, lifting investor sentiment.
  - In the UK, the appointment of Rishi Sunak as the new prime minister calmed investors nerves to some extent.
  - US and developed equity markets rallied for the month, while emerging markets declined on significant China weakness (-16.8%) driven in part by political developments and continued strict COVID-19 policies.
  - Interest rates further increased across the US yield curve during October, and the curve remained inverted (ten- year yield minus the two-year yield) by 43 basis points. This year has witnessed by far the worst start to a calendar year for bond investors.
- Persistently high inflation and tightening of monetary policy, the war in Ukraine, lingering COVID-19 issues, and lockdowns in China and recent political developments will all continue to have considerable consequences for the global economy.

### Index Returns<sup>1</sup>

#### Third Quarter



#### YTD through October



→ After broad declines in Q3 driven by expectations for further policy tightening, October produced mixed results with developed market equities posting notable gains.

→ Outside of commodities, all other public market asset classes remain significantly negative year-to-date.

<sup>1</sup> Source: Bloomberg and FactSet. Data is as of October 31, 2022.

### Domestic Equity Returns<sup>1</sup>

Domestic Equity	October (%)	Q3 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
S&P 500	8.1	-4.9	-17.7	-14.6	10.2	10.4	12.8
Russell 3000	8.2	-4.5	-18.4	-16.5	9.8	9.9	12.5
Russell 1000	8.0	-4.6	-18.5	-16.4	10.0	10.2	12.7
Russell 1000 Growth	5.8	-3.6	-26.6	-24.6	11.7	12.6	14.7
Russell 1000 Value	10.3	-5.6	-9.3	-7.0	7.3	7.2	10.3
Russell MidCap	8.9	-3.4	-17.5	-17.2	7.8	7.9	11.3
Russell MidCap Growth	7.9	-0.7	-26.1	-28.9	6.3	8.7	11.9
Russell MidCap Value	9.4	-4.9	-12.8	-10.2	7.5	6.5	10.4
Russell 2000	11.0	-2.2	-16.9	-18.5	7.0	5.6	9.9
Russell 2000 Growth	9.5	0.2	-22.6	-26.0	5.1	5.2	10.1
Russell 2000 Value	12.6	-4.6	-11.2	-10.7	8.1	5.3	9.4

#### US Equities: Russell 3000 Index rose 8.2% for October.

- US stocks rallied, posting strong monthly returns across all indices, rebounding from a sharp drop in September. Investors demonstrated optimism across the style and market capitalization spectrum as earnings remained resilient despite economic pressures.
- Most sectors rose in October, but there was wide dispersion. Energy's 24.8% gain led all sectors, driven by strong earnings, while consumer discretionary experienced a slightly positive gain (0.2%) given the impact of inflationary pressures on consumers.
- Value stocks continued to outperform growth stocks across the market capitalization spectrum. The rally in energy stocks and the relative underperformance of technology and consumer discretionary stocks has driven this dynamic.

<sup>1</sup> Source: Bloomberg. Data is as of October 31, 2022.

### Foreign Equity Returns<sup>1</sup>

Foreign Equity	October (%)	Q3 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
MSCI ACWI ex. US	3.0	-9.9	-24.3	-24.7	-1.7	-0.6	3.3
MSCI EAFE	5.4	-9.4	-23.2	-23.0	-1.3	-0.1	4.1
MSCI EAFE (Local Currency)	5.3	-3.6	-9.9	-8.4	3.7	3.3	7.9
MSCI EAFE Small Cap	4.2	-9.8	-29.2	-30.3	-2.3	-1.3	5.6
MSCI Emerging Markets	-3.1	-11.6	-29.4	-31.0	-4.4	-3.1	0.8
MSCI Emerging Markets (Local Currency)	-2.6	-8.2	-22.8	-24.2	-0.8	-0.2	4.2
MSCI China	-16.8	-22.5	-42.8	-47.9	-13.8	-9.7	-0.1

Developed International equities (MSCI EAFE) rose 5.4%, while emerging markets (MSCI EM) returned -3.1% in October, driven largely by declines in China.

- Developed markets outside of the US had a strong month in October, posting gains in Europe, the UK, and Japan. Energy and industrials led broad-sectoral gains in the Eurozone, while the UK markets reacted positively to the appointment of the new prime minister, Rishi Sunak. The Bank of Japan’s continued dovish policy stance and early signs of resilient Q3 earnings supported Japanese equities.
- China dominated headlines this month across the non-US landscape. Rising geopolitical tensions, particularly after events from the 20<sup>th</sup> Communist Party Congress, on top of the continuation of the zero COVID-19 policies, drove sharp declines for the month.

<sup>1</sup> Source: Bloomberg. Data is as of October 31, 2022.



### Fixed Income Returns<sup>1</sup>

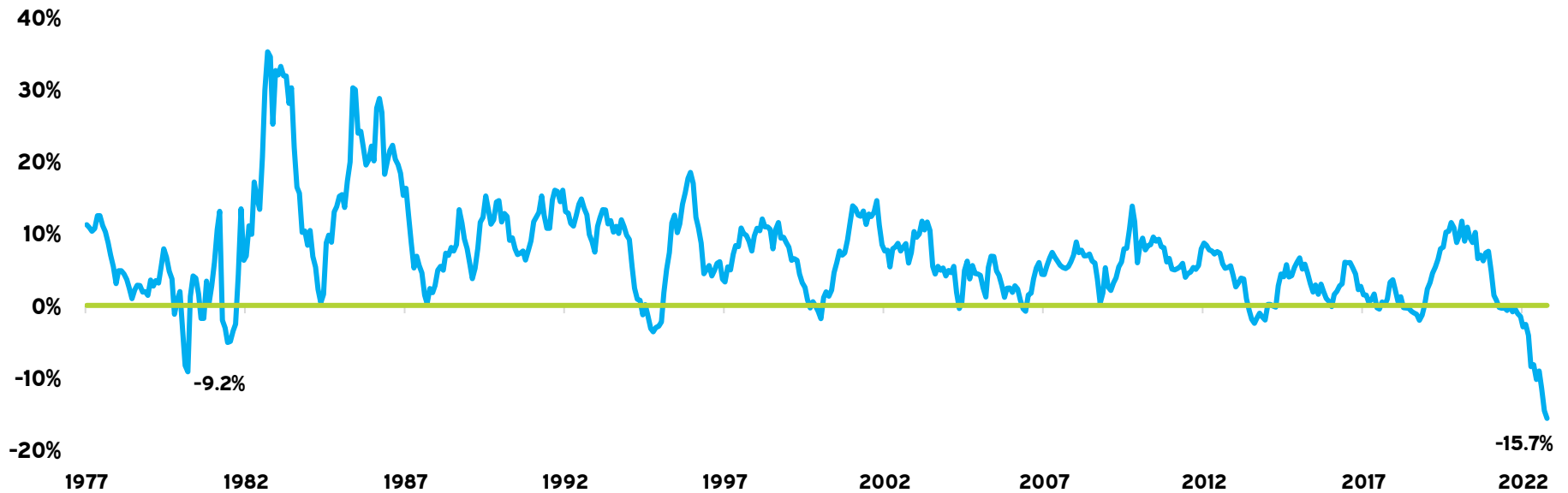
Fixed Income	October (%)	Q3 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Current Yield (%)	Duration (Years)
Bloomberg Universal	-1.1	-4.5	-15.8	-15.8	-3.6	-0.4	1.0	5.5	6.1
Bloomberg Aggregate	-1.3	-4.8	-15.7	-15.7	-3.8	-0.5	0.7	5.0	6.3
Bloomberg US TIPS	1.2	-5.1	-12.5	-11.5	1.1	2.2	1.0	4.6	6.9
Bloomberg High Yield	2.6	-0.6	-12.5	-11.8	0.3	2.0	4.1	9.1	4.5
JPM GBI-EM Global Diversified (USD)	-0.9	-5.8	-19.3	-20.3	-8.2	-3.5	-2.6	7.7	4.8

#### Fixed Income: The Bloomberg Universal declined 1.1% in October.

- A continued rise in bond yields in the US driven by the Fed reinforcing its commitment to fight inflation weighed on fixed income markets for the month. Year-to-date, the US bond market (Bloomberg Aggregate) performance is the worst on record.
- TIPS appreciated for the month but remain down double-digits for the year as real rates have experienced a steep increase too. The inflation adjustment has led to a 320 basis points smaller decline than the broad US bond market though.
- Riskier US bonds, as represented by the high yield index, produced the best fixed income results for the month (+2.6%) in the risk-on environment. Emerging market bonds finished down 0.9% in October adding to the significant declines year-to-date.

<sup>1</sup> Source: Bloomberg. JPM GBI-EM is from InvestorForce. Data is as of October 31, 2022.

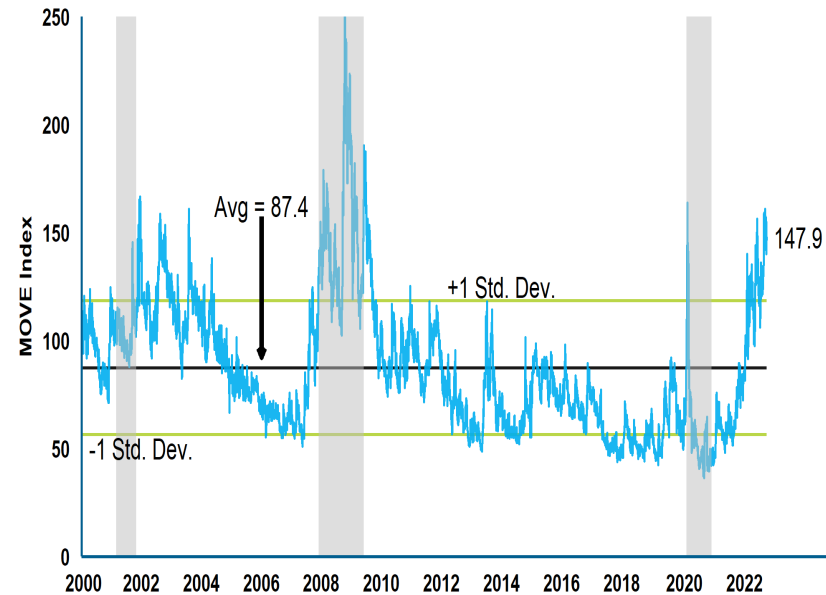
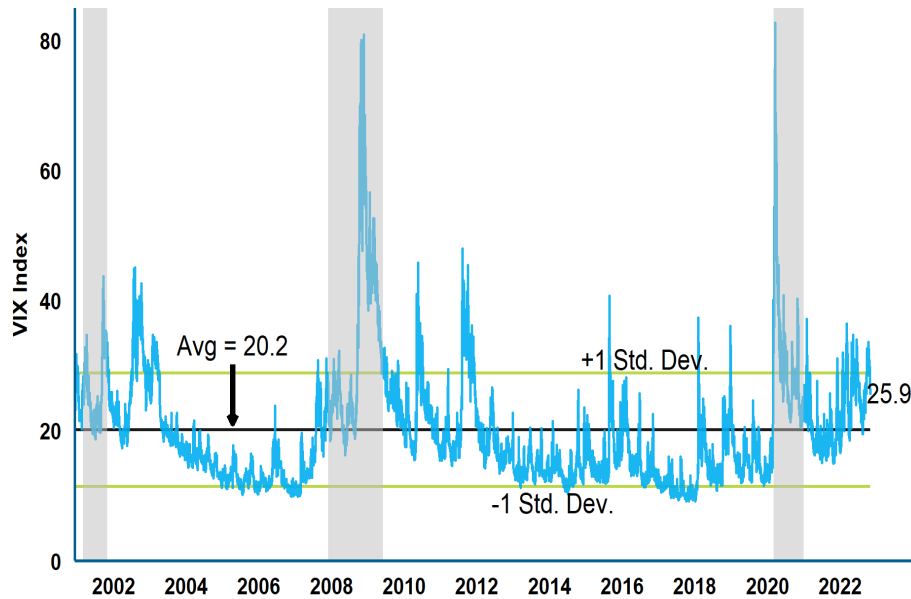
### Bloomberg US Aggregate Rolling One-year Returns<sup>1</sup>



- This has been the worst rolling one-year return period for the US bond market given the historic inflation levels and the corresponding rapid rise in interest rates.
- Through October the trailing year return was -15.7% well ahead of the number two spot (-9.2%) from the early 1980s.

<sup>1</sup> Source: Bloomberg. Data is as of 10/31/2022.

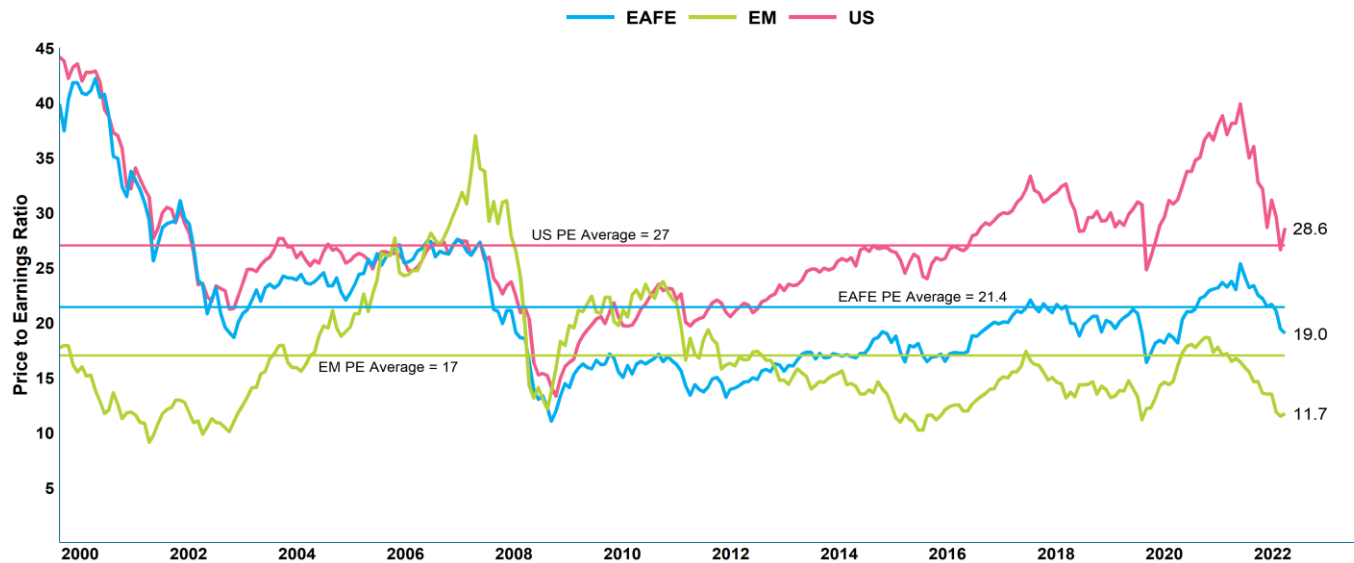
**Equity and Fixed Income Volatility<sup>1</sup>**



- Volatility in equities (VIX) and fixed income (MOVE) remained above their long-run averages in October.
- Fixed income volatility was particularly high due to the uncertain path of US interest rates as the Federal Reserve continued its hawkish stance on inflation.

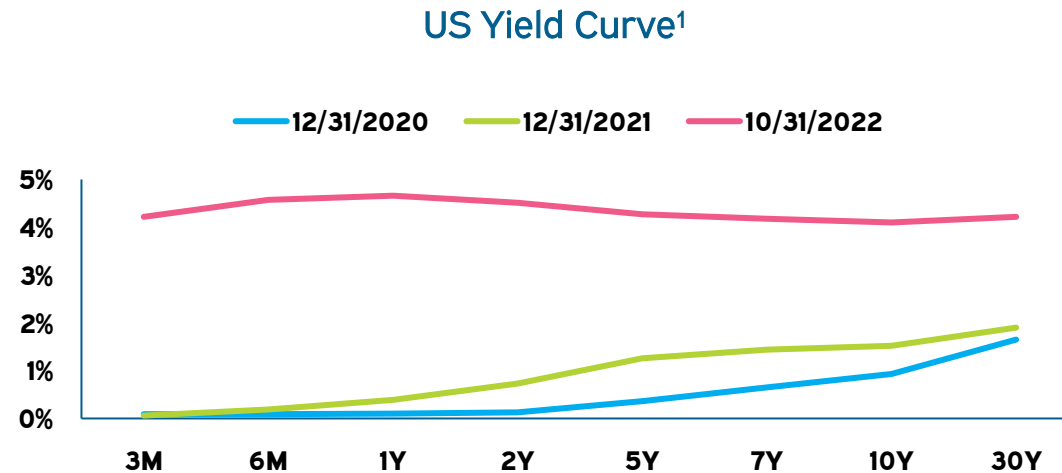
<sup>1</sup> Equity and Fixed Income Volatility – Source: Bloomberg. Implied volatility as measured using VIX Index for equity markets and the MOVE Index to measure interest rate volatility for fixed income markets. Data is as of October 2022. The average line indicated is the average of the VIX and MOVE values between January 2000 and the recent month-end respectively.

**Equity Cyclically Adjusted P/E Ratios<sup>1</sup>**



- October’s US equity rally brought the market’s price-to-earnings ratio to slightly above the long-term (21<sup>st</sup> century) average.
- International developed market valuations remain below the US and are below their own long-term average, with those for emerging markets the lowest and well under the long-term average.
- Price declines have been the main driver of recent multiple compression as earnings have remained resilient. Concerns remain over whether earnings strength will continue in the face of slowing growth.

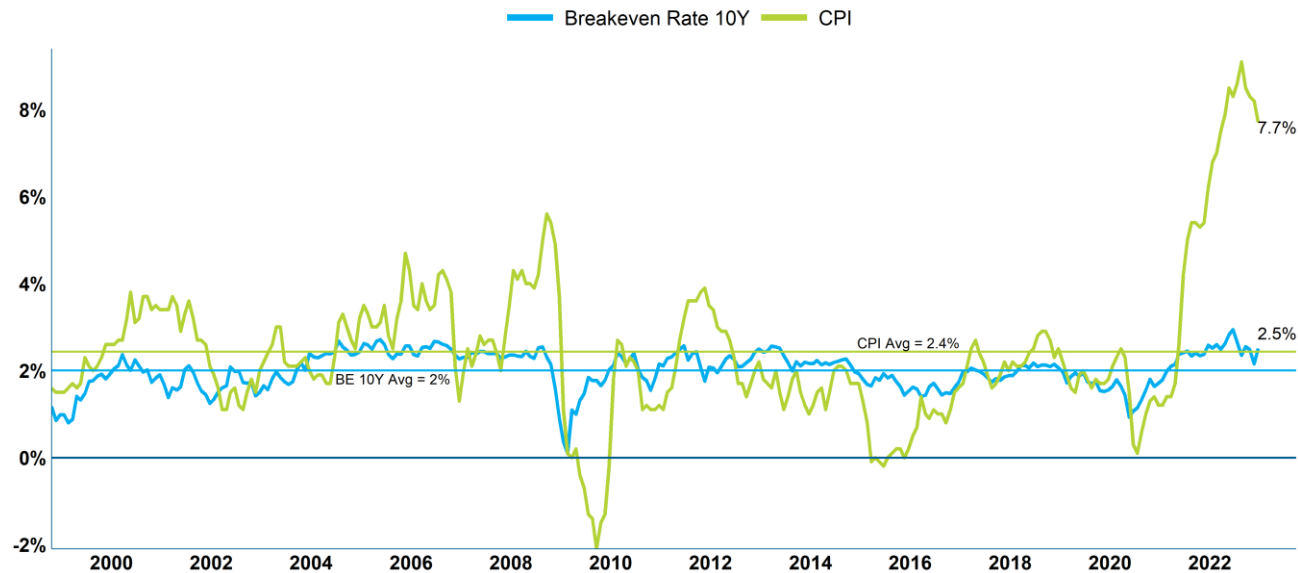
<sup>1</sup> US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group. Developed and Emerging Market Equity (MSCI EAFE and EM Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years. Data is as of October 2022. The average line is the long-term average of the US, EM, and EAFE PE values from December 1999 to the recent month-end respectively.



- Rates across the yield curve remain far higher than at the start of the year.
- In October, interest rates continued to increase across the yield curve, particularly at the front-end where there is more sensitivity to policy changes. Two-year Treasury yields rose from 4.3% to 4.5% for the month, while ten-year Treasury yields climbed from 3.8% to 4.1%.
- The Fed remains strongly committed to fighting inflation, as it increased rates another 75 basis points to a range of 3.75% to 4.0% at its November meeting. This was the sixth increase this year and the fourth consecutive increase of this amount.
- The yield spread between two-year and ten-year Treasuries remained negative, finishing October at -0.42%. The more closely watched measure by the Fed of three-month and ten-year Treasuries also inverted. Historically, inversions in the yield curve have often preceded recessions.

<sup>1</sup> Source: Bloomberg. Data is as of October 31, 2022.

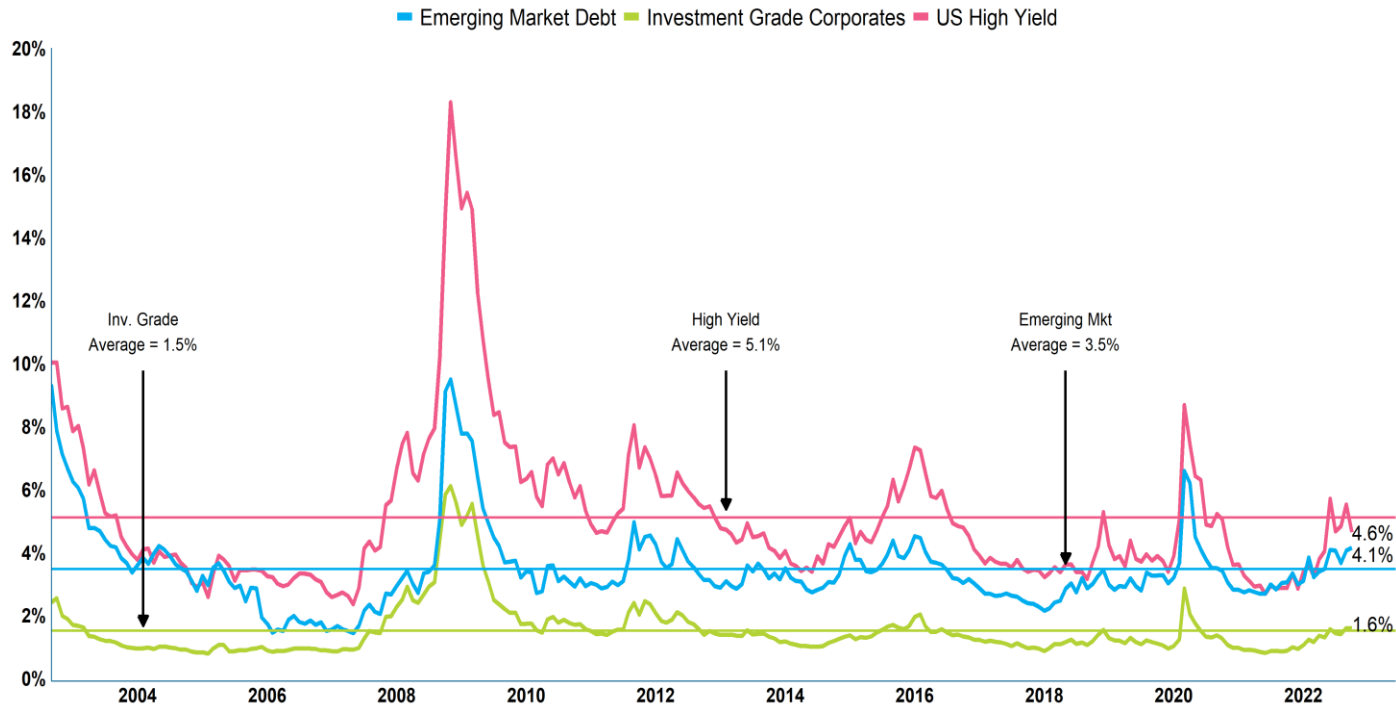
### Ten-Year Breakeven Inflation and CPI<sup>1</sup>



- Inflation expectations (breakevens) rose slightly in October, remaining above the long-run average.
- Trailing twelve-month CPI declined in October (7.7% versus 8.2%) coming in below expectations of 7.9%. Core inflation (excluding food and energy prices) declined from its recent 40-year peak of 6.6% to 6.3% over the same period.
- Over the last year, rising prices for energy (particularly oil), food, housing, and for new and used cars remain key drivers of inflation.

<sup>1</sup> Source: Bloomberg. Data is as of October 31, 2022. The CPI and 10 Year Breakeven average lines denote the average values from August 1998 to the present month-end respectively. Breakeven values represent month-end values for comparative purposes.

**Credit Spreads vs. US Treasury Bonds<sup>1</sup>**



- High yield spreads (the added yield above a comparable maturity Treasury) fell in October to below their long-run average as below investment grade credit largely outperformed Treasuries in the risk-on environment.
- Investment grade spreads stayed the same in the US (1.6%), near the long-run average, while emerging market spreads increased slightly (4.1% versus 4.0%) staying above their average.

<sup>1</sup> Sources: Bloomberg. Data is as of October 31, 2022. Average lines denote the average of the investment grade, high yield, and emerging market spread values from August 2000 to the recent month-end respectively.

## Global Economic Outlook

In their October update, the IMF maintained lowered global growth forecasts, driven by the economic impacts of persistent inflation and corresponding tighter policy, as well as issues related to the war in Ukraine and the lingering pandemic.

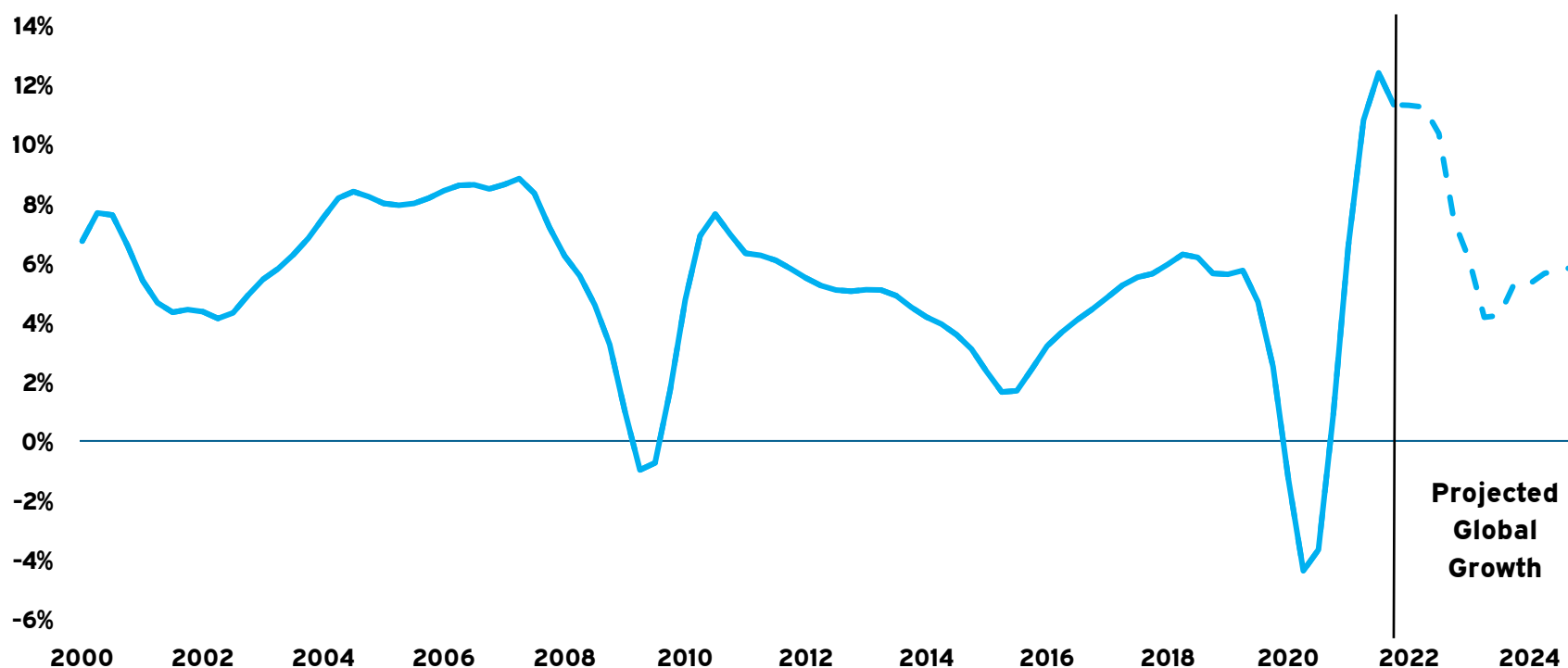
- The IMF forecasts global GDP growth to come in at 3.2% in 2022 (like the July estimate) and 2.7% in 2023 (0.2% below the prior estimate).
- In advanced economies, GDP is projected to grow 2.4% in 2022 and 1.1% in 2023. The US saw another downgrade in the 2022 (1.6% versus 2.3%) forecast largely due to accelerated policy tightening, given persistently high inflation. The euro area saw an upgrade in expected growth (3.1% versus 2.6%) on substantial fiscal stimulus in 2022 but a downgrade in 2023 (0.5% versus 1.2%) as rising energy prices weigh on the region that is a net importer of energy. The Japanese economy is expected to grow 1.7% this year and 1.6% in 2023.
- Growth projections for emerging markets are higher than developed markets, at 3.7% in 2022 and 2023. China's growth was downgraded for 2022 (3.2% versus 3.3%) and 2023 (4.4% versus 4.6%) given tight COVID-19 restrictions and continued property sector problems.
- The global inflation forecast was significantly increased for 2022 (8.8% versus 7.4%).

	Real GDP (%) <sup>1</sup>			Inflation (%) <sup>1</sup>		
	IMF 2022 Forecast	IMF 2023 Forecast	Actual 10 Year Average	IMF 2022 Forecast	IMF 2023 Forecast	Actual 10 Year Average
World	3.2	2.7	3.2	8.8	6.5	3.6
Advanced Economies	2.4	1.1	1.6	7.2	4.3	1.6
US	1.6	1.0	2.1	8.1	3.5	2.0
Euro Area	3.1	0.5	1.0	8.3	5.7	1.3
Japan	1.7	1.6	0.8	2.0	1.4	0.4
Emerging Economies	3.7	3.7	4.4	9.9	8.1	5.3
China	3.2	4.4	7.3	2.2	2.2	2.4

<sup>1</sup> Source: IMF World Economic Outlook. Real GDP and Inflation forecasts from October 2022 Update. "Actual 10 Year Average" represents data from 2012 to 2021.



### Global Nominal Gross Domestic Product (GDP) Growth<sup>1</sup>



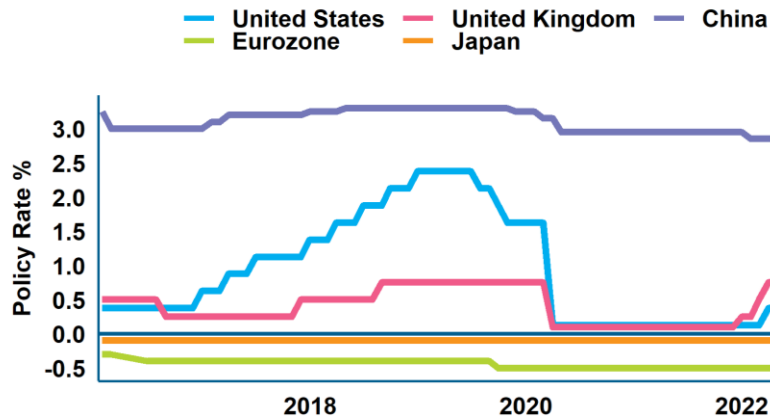
→ Global economies are expected to slow in 2022 compared to 2021, with risks of recession increasing given persistently high inflation and related tighter monetary policy.

→ The delicate balancing act of central banks trying to reduce inflation without dramatically impacting growth will remain key.

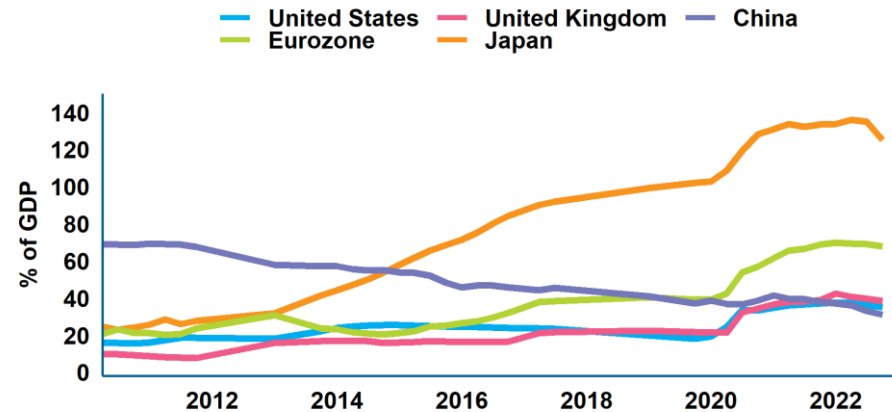
<sup>1</sup> Source: Oxford Economics (World GDP, US\$ prices & PPP exchange rate, nominal, % change YoY). Updated October 2022. Nominal expectations for GDP remain much higher than real GDP expectations given the elevated inflation levels.

### Central Bank Response<sup>1</sup>

#### Policy Rates



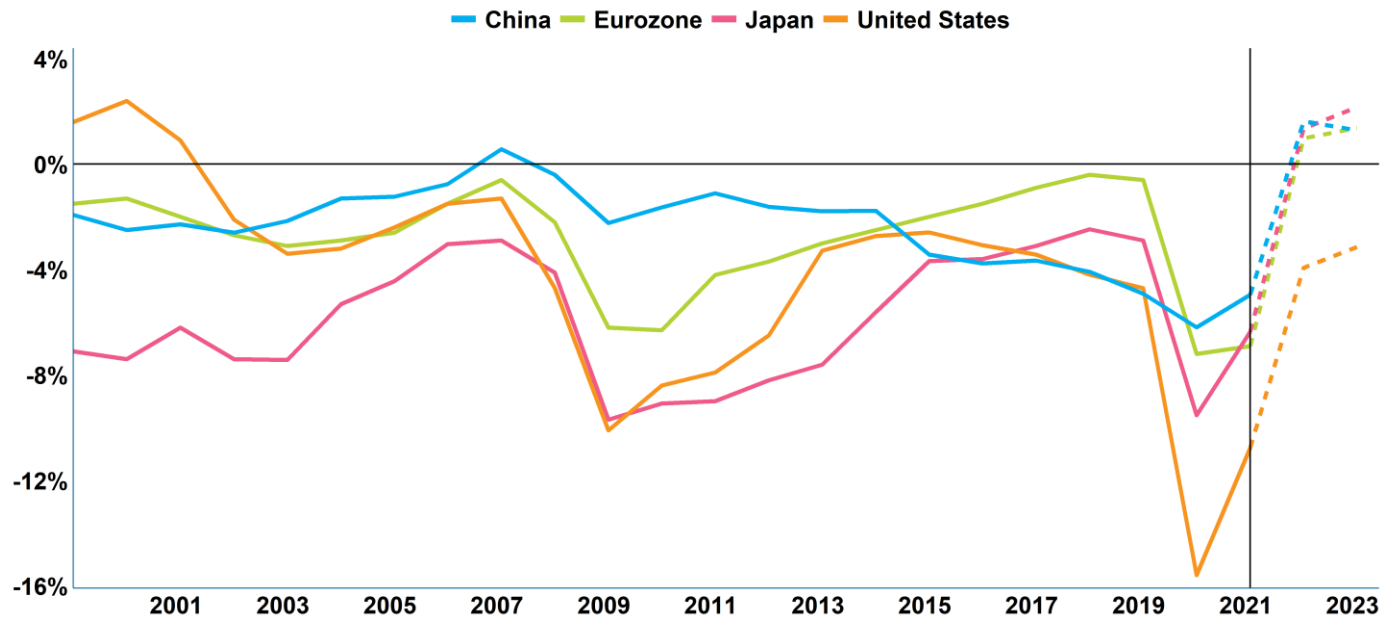
#### Balance Sheet as % of GDP



- After global central banks took extraordinary action to support economies during the pandemic, including policy rate cuts and emergency stimulus through quantitative easing (QE), many are now aggressively reducing support in the face of high inflation.
- The pace of withdrawing support varies across central banks with the US taking a more aggressive approach.
- The one notable central bank outlier is China, where the central bank has lowered rates and reserve requirements in response to slowing growth.
- The risk remains for a policy error, particularly overtightening, as record inflation, the war in Ukraine, and a tough COVID-19 policy in China could suppress global growth.

<sup>1</sup> Source: Bloomberg. Policy rate data is as of October 31, 2022. China policy rate is defined as the medium-term lending facility 1 year interest rate. Balance sheet as % of GDP is based on quarterly data and is as of September 30, 2022.

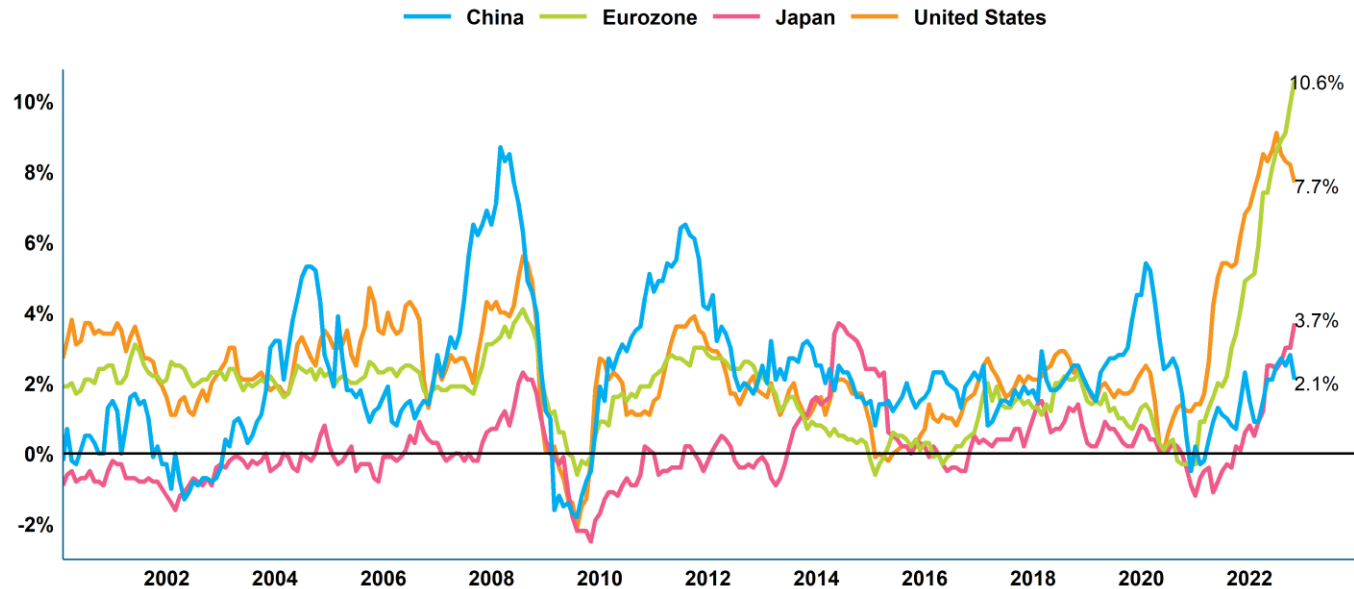
### Budget Surplus / Deficit as a Percentage of GDP<sup>1</sup>



- Budget deficits as a percentage of GDP drastically increased for major world economies, particularly the US, due to massive fiscal support and the severe economic contraction's effect on tax revenue in 2020 and 2021.
- As fiscal stimulus programs end, and economic recoveries continue, deficits should improve.
- Questions remain about how some countries will respond fiscally as inflation, particularly energy prices, weigh on consumers. Policies that undermine central banks' efforts to fight inflation could lead to additional market volatility like was seen recently in the UK.

<sup>1</sup> Source: Bloomberg. Data is as of October 31, 2022. Projections via IMF Forecasts from October 2022 Report. Dotted lines represent 2022 and 2023 forecasts.

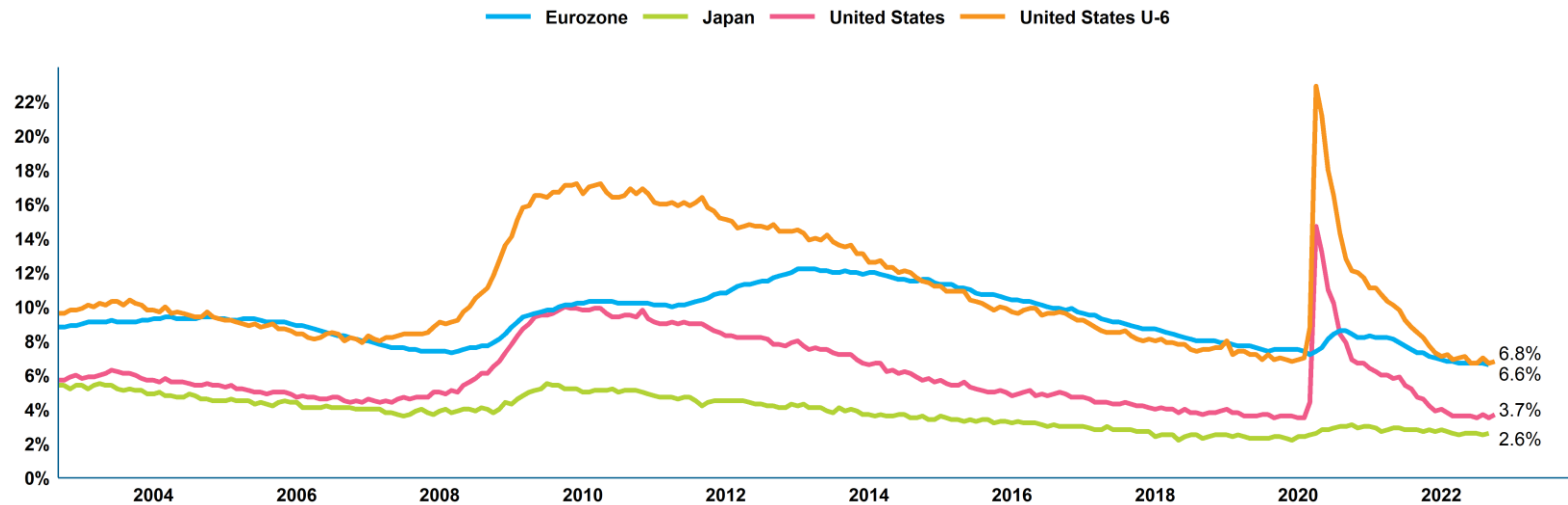
### Inflation (CPI Trailing Twelve Months)<sup>1</sup>



- Inflation increased dramatically from the lows of the pandemic, particularly in the US and Eurozone where it has reached levels not seen in many decades.
- Inflation pressures continue to grow in Europe, reaching historic levels due to skyrocketing energy prices and a weak euro.
- Supply issues related to the pandemic, record monetary and fiscal stimulus, strict COVID-19 restrictions in China, and higher commodity prices driven by the war in Ukraine have been key global drivers of inflation.

<sup>1</sup> Source: Bloomberg. Data is as of October 2022.

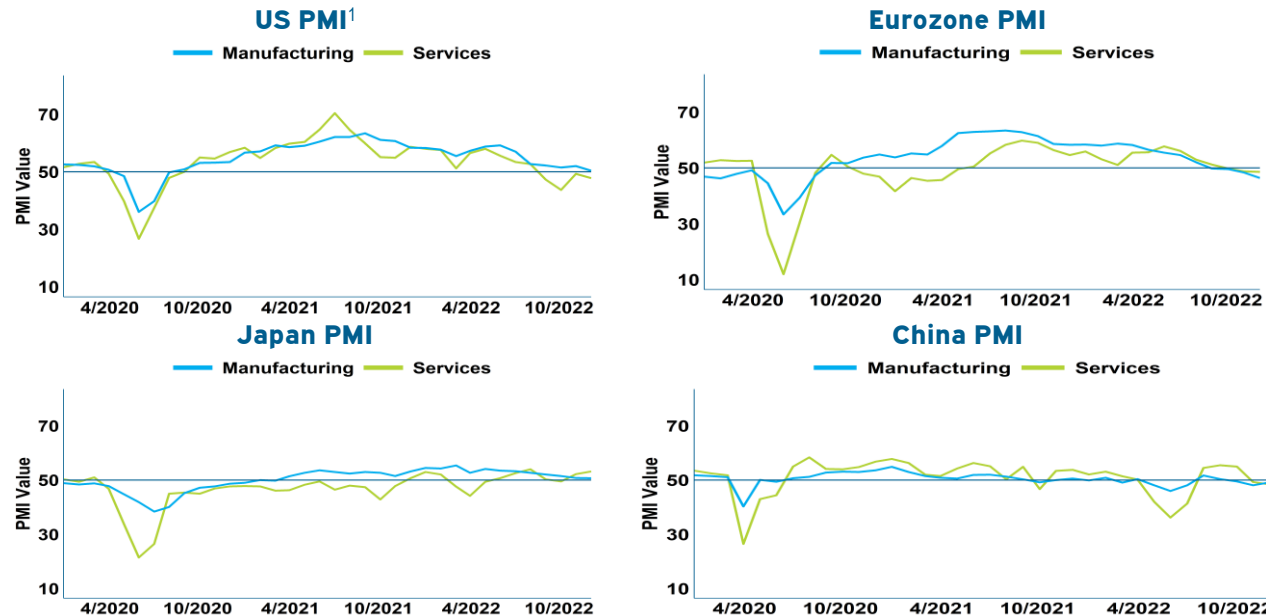
### Unemployment<sup>1</sup>



- As economies have largely reopened, helped by vaccines for the virus, improvements have been seen in the labor market.
- Despite slowing growth and high inflation the US labor market remains a bright spot. Unemployment in the US, which experienced the steepest rise from the pandemic, has remained in a tight 3.5%-3.7% range for most of the year. The broader measure (U-6) that includes discouraged and underemployed workers remains much higher at 6.8%.
- The strong labor market and higher wages, although beneficial for workers, motivates the Fed's efforts to fight inflation, likely leading to eventually higher unemployment.

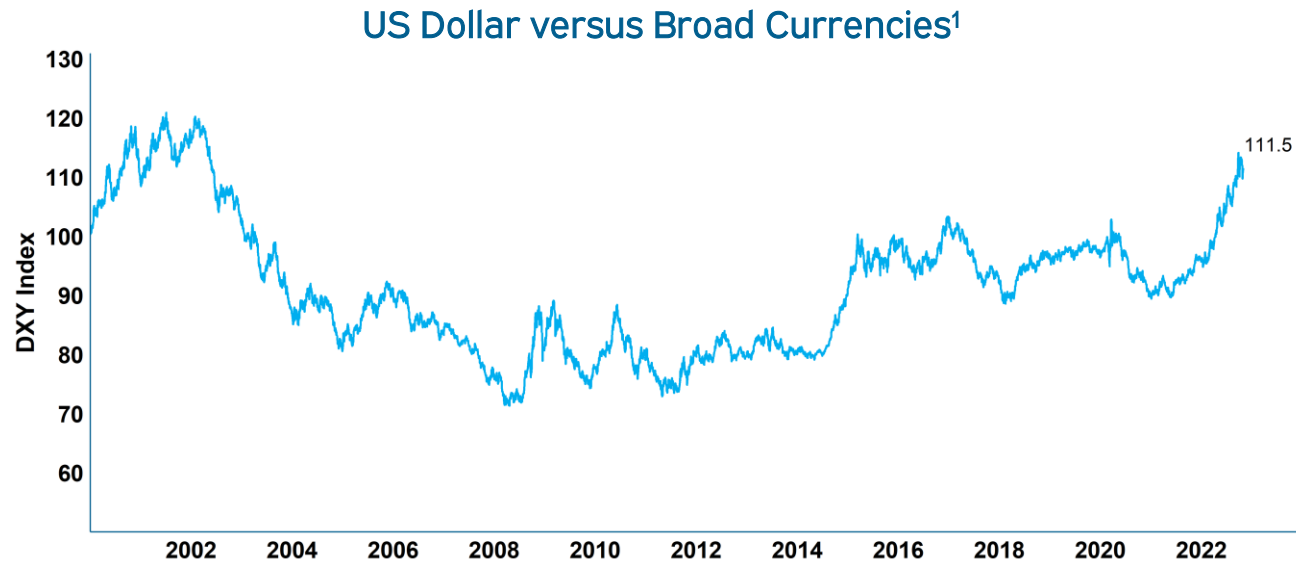
<sup>1</sup> Source: Bloomberg. Data is as October 2022, for the US. The most recent data for Eurozone and Japanese unemployment is as of September 30, 2022.

### Global PMIs



- After improvements from the lows of the pandemic, Purchasing Managers Indices (PMI), based on surveys of private sector companies, have largely experienced downward pressure recently.
- Service sector PMIs, except Japan (lifting COVID-19 restrictions and travel incentives have been helpful here), are all in contraction territory. The US service sector declined, remaining in negative territory, due to weak demand both domestically and abroad and softening employment.
- Manufacturing PMIs are also slowing across China and developed markets given declines in demand and inflationary pressures with the Eurozone, and China in contraction territory.

<sup>1</sup> Source: Bloomberg. US Markit Services and Manufacturing PMI, Caixin Services and Manufacturing PMI, Eurozone Markit Services and Manufacturing PMI, Jibun Bank Services and Manufacturing PMI. Data is as of October 2022. Readings below 50 represent economic contractions.



- Overall, the US dollar remained elevated in October but showed some signs of weakening. After month-end, the dollar weakened further.
- The increased pace of policy tightening, stronger relative growth, and safe-haven flows all contributed to the dollar's strength this year.
- The euro, yen, pound, and yuan have all experienced significant declines versus the dollar this year, adding to inflationary pressures in those countries.

<sup>1</sup> Source: Bloomberg. Data as of October 31, 2022.

## Summary

### Key Trends in 2022:

- The impacts of record high inflation will remain key, with market volatility likely to stay high.
- The pace of monetary tightening globally will be faster than previously expected, with the risk of overtightening.
- Expect growth to slow globally for the rest of 2022 and into 2023 to the long-term trend or below. Inflation, monetary policy, and the war will all be key.
- In the US the end of many fiscal programs is expected to put the burden of continued growth on consumers. Higher energy and food prices will depress consumers' spending in other areas.
- Valuations have significantly declined in the US to below long-term averages, largely driven by price declines. The key going forward will be whether earnings can remain resilient if growth continues to slow.
- Outside the US, equity valuations remain lower in both emerging and developed markets, but major risks remain, including continued strength in the US dollar, higher inflation particularly weighing on Europe, and China maintaining its restrictive COVID-19 policies.



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**Credit Risk:** Refers to the risk that the issuer of a fixed income security may default (i.e., the issuer will be unable to make timely principal and/or interest payments on the security.)

**Duration:** Measure of the sensitivity of the price of a bond to a change in its yield to maturity. Duration summarizes, in a single number, the characteristics that cause bond prices to change in response to a change in interest rates. For example, the price of a bond with a duration of three years will rise by approximately 3% for each 1% decrease in its yield to maturity. Conversely, the price will decrease 3% for each 1% increase in the bond's yield. Price changes for two different bonds can be compared using duration. A bond with a duration of six years will exhibit twice the percentage price change of a bond with a three-year duration. The actual calculation of a bond's duration is somewhat complicated, but the idea behind the calculation is straightforward. The first step is to measure the time interval until receipt for each cash flow (coupon and principal payments) from a bond. The second step is to compute a weighted average of these time intervals. Each time interval is measured by the present value of that cash flow. This weighted average is the duration of the bond measured in years.

**Information Ratio:** This statistic is a measure of the consistency of a portfolio's performance relative to a benchmark. It is calculated by subtracting the benchmark return from the portfolio return (excess return), and dividing the resulting excess return by the standard deviation (volatility) of this excess return. A positive information ratio indicates outperformance versus the benchmark, and the higher the information ratio, the more consistent the outperformance.

**Jensen's Alpha:** A measure of the average return of a portfolio or investment in excess of what is predicted by its beta or "market" risk.  $\text{Portfolio Return} - [\text{Risk Free Rate} + \text{Beta} * (\text{market return} - \text{Risk Free Rate})]$ .

**Market Capitalization:** For a firm, market capitalization is the total market value of outstanding common stock. For a portfolio, market capitalization is the sum of the capitalization of each company weighted by the ratio of holdings in that company to total portfolio holdings; thus it is a weighted-average capitalization. Meketa Investment Group considers the largest 65% of the broad domestic equity market as large capitalization, the next 25% of the market as medium capitalization, and the smallest 10% of stocks as small capitalization.

**Market Weighted:** Stocks in many indices are weighted based on the total market capitalization of the issue. Thus, the individual returns of higher market-capitalization issues will more heavily influence an index's return than the returns of the smaller market-capitalization issues in the index.

**Maturity:** The date on which a loan, bond, mortgage, or other debt/security becomes due and is to be paid off.

**Prepayment Risk:** The risk that prepayments will increase (homeowners will prepay all or part of their mortgage) when mortgage interest rates decline; hence, investors' monies will be returned to them in a lower interest rate environment. Also, the risk that prepayments will slow down when mortgage interest rates rise; hence, investors will not have as much money as previously anticipated in a higher interest rate environment. A prepayment is any payment in excess of the scheduled mortgage payment.

**Price-Book Value (P/B) Ratio:** The current market price of a stock divided by its book value per share. Meketa Investment Group calculates P/B as the current price divided by Compustat's quarterly common equity. Common equity includes common stock, capital surplus, retained earnings, and treasury stock adjusted for both common and nonredeemable preferred stock. Similar to high P/E stocks, stocks with high P/B's tend to be riskier investments.

**Price-Earnings (P/E) Ratio:** A stock's market price divided by its current or estimated future earnings. Lower P/E ratios often characterize stocks in low growth or mature industries, stocks in groups that have fallen out of favor, or stocks of established blue chip companies with long records of stable earnings and regular dividends. Sometimes a company that has good fundamentals may be viewed unfavorably by the market if it is an industry that is temporarily out of favor. Or a business may have experienced financial problems causing investors to be skeptical about its future. Either of these situations would result in lower relative P/E ratios. Some stocks exhibit above-average sales and earnings growth or expectations for above average growth. Consequently, investors are willing to pay more for these companies' earnings, which results in elevated P/E ratios. In other words, investors will pay more for shares of companies whose profits, in their opinion, are expected to increase faster than average. Because future events are in no way assured, high P/E stocks tend to be riskier and more volatile investments. Meketa Investment Group calculates P/E as the current price divided by the I/B/E/S consensus of twelve-month forecast earnings per share.

**Quality Rating:** The rank assigned a security by such rating services as Fitch, Moody's, and Standard & Poor's. The rating may be determined by such factors as (1) the likelihood of fulfillment of dividend, income, and principal payment of obligations; (2) the nature and provisions of the issue; and (3) the security's relative position in the event of liquidation of the company. Bonds assigned the top four grades (AAA, AA, A, BBB) are considered investment grade because they are eligible bank investments as determined by the controller of the currency.

**Sharpe Ratio:** A commonly used measure of risk-adjusted return. It is calculated by subtracting the risk-free return (usually three-month Treasury bill) from the portfolio return and dividing the resulting excess return by the portfolio's total risk level (standard deviation). The result is a measure of return per unit of total risk taken. The higher the Sharpe ratio, the better the fund's historical risk adjusted performance.

**SI:** Since Inception

**STIF Account:** Short-term investment fund at a custodian bank that invests in cash-equivalent instruments. It is generally used to safely invest the excess cash held by portfolio managers.

**Standard Deviation:** A measure of the total risk of an asset or a portfolio. Standard deviation measures the dispersion of a set of numbers around a central point (e.g., the average return). If the standard deviation is small, the distribution is concentrated within a narrow range of values. For a normal distribution, about two thirds of the observations will fall within one standard deviation of the mean, and 95% of the observations will fall within two standard deviations of the mean.

**Style:** The description of the type of approach and strategy utilized by an investment manager to manage funds. For example, the style for equities is determined by portfolio characteristics such as price-to-book value, price-to-earnings ratio, and dividend yield. Equity styles include growth, value, and core.

**Tracking Error:** A divergence between the price behavior of a position or a portfolio and the price behavior of a benchmark, as defined by the difference in standard deviation.

**Yield to Maturity:** The yield, or return, provided by a bond to its maturity date; determined by a mathematical process, usually requiring the use of a “basis book.” For example, a 5% bond pays \$5 a year interest on each \$100 par value. To figure its current yield, divide \$5 by \$95—the market price of the bond—and you get 5.26%. Assume that the same bond is due to mature in five years. On the maturity date, the issuer is pledged to pay \$100 for the bond that can be bought now for \$95. In other words, the bond is selling at a discount of 5% below par value. To figure yield to maturity, a simple and approximate method is to divide 5% by the five years to maturity, which equals 1% pro rata yearly. Add that 1% to the 5.26% current yield, and the yield to maturity is roughly 6.26%.

$$\frac{5\% \text{ (discount)}}{5 \text{ (yrs. to maturity)}} = 1\% \text{ pro rata, plus } 5.26\% \text{ (current yield)} = 6.26\% \text{ (yield to maturity)}$$

**Yield to Worst:** The lowest potential yield that can be received on a bond without the issuer actually defaulting. The yield to worst is calculated by making worst-case scenario assumptions on the issue by calculating the returns that would be received if provisions, including prepayment, call, or sinking fund, are used by the issuer.

**NCREIF Property Index (NPI):** Measures unleveraged investment performance of a very large pool of individual commercial real estate properties acquired in the private market by tax-exempt institutional investors for investment purposes only. The NPI index is capitalization-weighted for a quarterly time series composite total rate of return.

**NCREIF Fund Index - Open End Diversified Core Equity (NFI-ODCE):** Measures the investment performance of 28 open-end commingled funds pursuing a core investment strategy that reflects funds' leverage and cash positions. The NFI-ODCE index is equal-weighted and is reported gross and net of fees for a quarterly time series composite total rate of return.

Sources: Investment Terminology, International Foundation of Employee Benefit Plans, 1999.  
The Handbook of Fixed Income Securities, Fabozzi, Frank J., 1991

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Throughout this report, numbers may not sum due to rounding.

Returns for periods greater than one year are annualized throughout this report.

Values shown are in millions of dollars, unless noted otherwise.