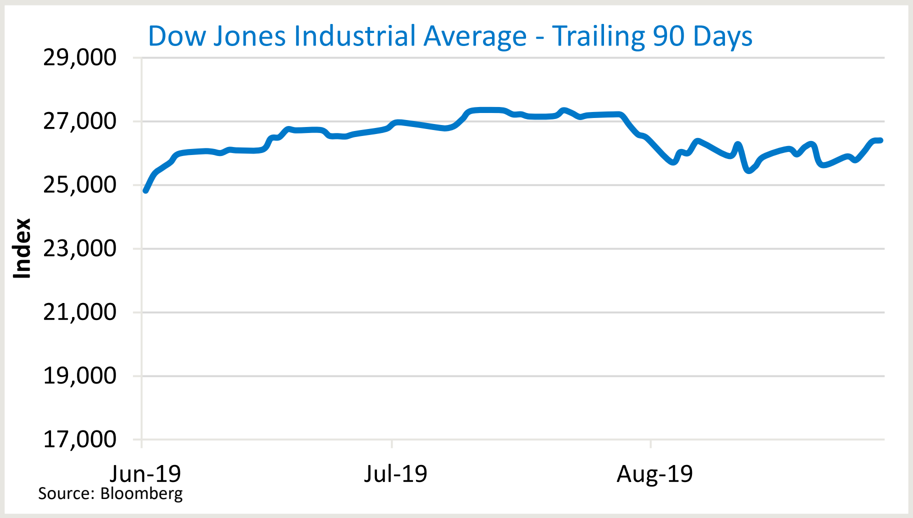
Weekly Market Review

September 3, 2019

Chart of the Week



Weekly Highlights

- **The yield curve has continued its inversion trajectory, signaling lower future real short-term rates**. This is confirmed by the market-implied expected federal funds rate, which is about 100 basis points lower than the current rate (i.e., 1%-1.25% range), compared with 2%-2.25% for contracts expiring on June 15, 2020.
- **The US dollar continues to strengthen.** This partially explains the 5.80% decline in exports, which was one of the biggest subtractors in weaker Q22019 Gross Domestic Product (GDP) growth.
- **Output per hour decreased in Q22019.** This further reflects the slowdown in GDP growth compared with its heady showing in Q12019.

Talking Points

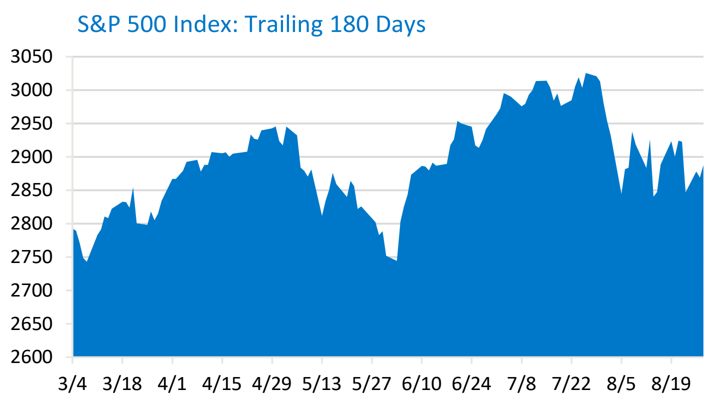
- **Retail sales were strong in July.** Despite headwinds facing the broader economy, Retail Sales excluding autos) rose 1% in July and a healthy 7.50% for Q22019, demonstrating strong consumer confidence.
- **Housing prices are holding steady**. The FHFA House Price Index grew at an annual rate of nearly 4.80% for Q22019, even though other housing activity indicators remain soft.
- **Industrial production continues to disappoint.** The Q22019 numbers reflect a decline of 2.20% in annualized growth, well below the poor reading of -1.90% in annualized growth for Q12019. The drastic drop of 13.3 0% in annualized growth for shipments and durable goods orders in Q22019 further reflects this decline.

Market Dashboard

	Last Price	Change	% Chg.	YTD %
S&P 500	2,926.46	79.35	2.79%	16.7%
Dow Industrials	26,403.28	774.38	3.02%	13.2%
Nasdaq	7,962.88	211.12	2.72%	20.0%
Russell 2000	1,494.84	35.35	2.42%	10.8%
Euro Stoxx Index	379.48	8.12	2.19%	12.4%
Shanghai Composite	2,886.24	-11.19	-0.39%	15.7%
MSCI ACWI	508.87	7.92	1.58%	11.7%

	Last Price	Change	% Chg.	YTD %
MSCI EM	970.08	-3.58	-0.37%	0.4%
10-Year US Treas.	1.51	-2 bps	NM	NM
Bloomberg Cmdts. Idx.	77.00	0.94	1.23%	0.4%
Gold	$1,521.03	-$3.27	-0.21%	18.8%
Crude Oil	$55.01	$0.91	1.68%	14.7%
Dollar Index	98.83	1.17	1.20%	2.7%
VIX Index	18.98	-0.89	-4.48%	-25.3%

Source: Bloomberg; Index % change is based on price.



Source: Bloomberg

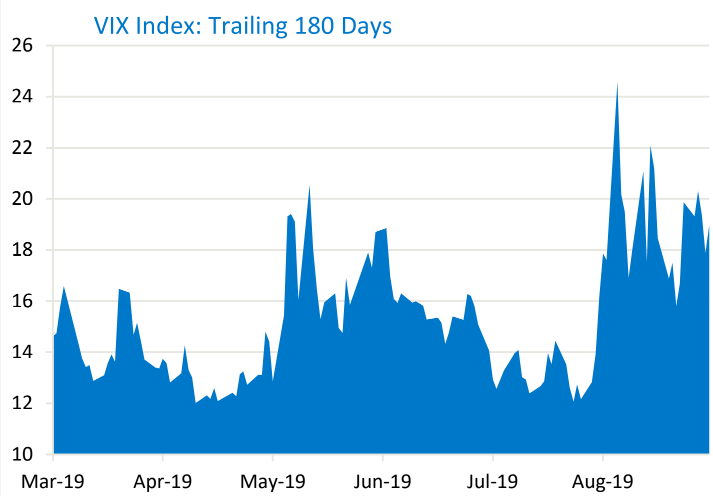
	One Week			YTD		
	Value		Growth	Value		Growth
L	2.75%	2.79%	2.82%	11.15%	16.43%	21.09%
	2.48%	2.39%	2.24%	13.10%	18.25%	25.94%
S	2.52%	2.42%	2.33%	5.84%	10.85%	15.76%

Source: Bloomberg

Sector Performance:
S&P/Global Industry Classification Sectors (GICS)

	% Wgt in S&P 500	Week % Chg.	YTD % Chg.
Consumer Discretionary	10.2	2.63%	20.3%
Consumer Staples	7.6	1.61%	19.0%
Energy	4.4	2.78%	-0.5%
Financials	12.8	3.20%	12.6%
Health Care	13.9	2.07%	4.6%
Industrials	9.2	3.60%	17.4%
Information Technology	22.1	3.12%	28.0%
Materials	2.7	3.13%	11.9%
Real Estate	3.3	1.80%	26.0%
Communication Services	10.5	3.43%	20.0%
Utilities	3.5	1.76%	17.6%

Source: Bloomberg



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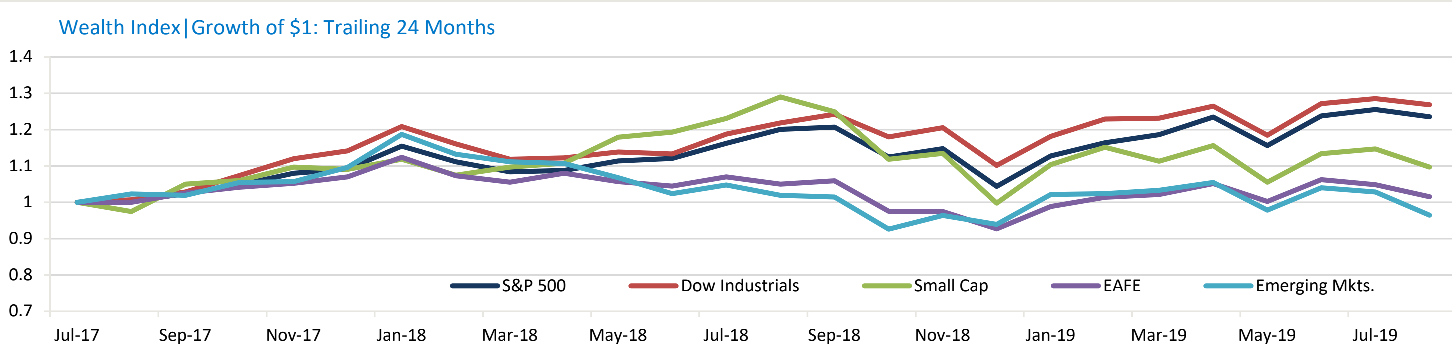
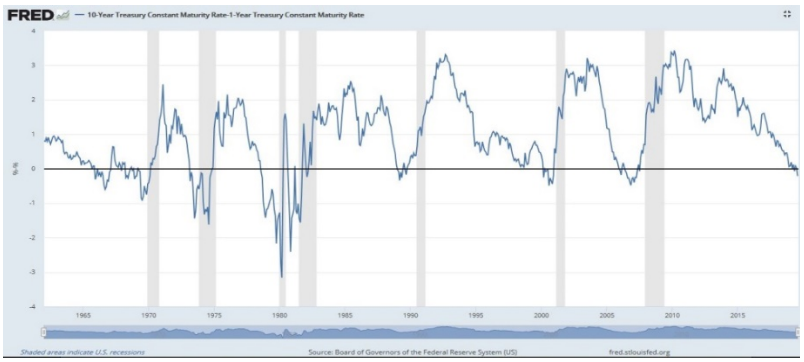


Source: Bloomberg

The Economy and Markets

Hoping for the Best, Preparing for the Worst

The latest economic news may be causing an unsettling tinge of trepidation for investors, which is certainly understandable. The most ominous sign is the Treasury yield curve inversion. The figure below illustrates that prior to the most current yield curve inversion[1], it has inverted eight times since January 1962, and seven of those inversions were followed shortly by a recession. Not to raise an alarm, but that is a .875 batting average! The Federal Reserve's (the Fed) federal funds rate cut[2] on July 31 may be the most immediate cause of this inversion, t accompanied by a less-than-enthusiastic economic outlook. The Fed's purported concern, of course, is the drastically slowing growth in Gross Domestic Product (GDP), which clocked in at 2.10% for Q22019. This figure was much lower than the first quarter's 3.10% rate, and below the three-year average of 2.30%. In addition, the Core PCE reading (the Fed's favored inflation measure) was 1.60% in July, significantly below its presumed 2% target.



We have highlighted the most negative items in the latest economic scorecard, and it may be that all of this will pass. So, why are we riling up investors? Because it pays to be prepared in case the worst does strike. Thus, we offer advice on how investors can position their equity portfolio from a risk-factor perspective. In another words, we analyze the risk-adjusted performance (based on the most well-known and widely accepted risk factors[3] in the finance community) through various stages of the market from July 1963 to now, and then draw conclusions from this analysis.

Seven complete business cycles (i.e., an expansion followed by a recession) have occurred since July 1963, using NBER's classification, and we are in the midst, or perhaps the tail end, of the expansion phase of the eighth business cycle— the longest one on record thus far.[4] Adding color to our analysis, we have further divided the expansion phase into early expansion (EE), midexpansion (ME), and late expansion (LE).[5]

How have the various risk factors performed throughout each stage of the business cycle? And, of more immediate concern, given the likely location of the current US economy on the arc of the business cycle, which factors perform best during a recession? The following table provides the answers.[6]

	MKT_RF	SMB	HML	MOM	QMJ	CMA
EE	14.65	10.88	3.12	10.09	4.28	1.88
ME	9.79	3.85	2.53	8.36	3.65	0.8
LE	-1.34	-0.41	-0.14	11.97	4.73	1.31
R	-12.18	-0.59	10.56	-1.36	9.22	9.71

The table illustrates that these three risk factors shine during recessions:[7] Value (HML), Quality (QMJ), and Payout (CMA). Finance principles suggest this makes sense on an intuitive basis: Firms whose fundamentals reflect fair value, have solid accounting measures, and pass the lion's share of their profits to shareholders, rather than using those profits to invest in ever-expanding projects that run the risk of extending those companies financially, should prevail when a recession rolls around. Also, correlations between MKT and QMJ/CMA are more negatively pronounced during recessions, so emphasizing these factors at that time also can help to reduce a portfolio's volatility.

In summary, investors should position their equity portfolio to combat the turbulence of recession by overweighting Value, Quality, and Payout/Dividend factors. This will help both to elevate the expected return of the portfolio and to subdue its volatility.[8]

Janis Zvingelis
Director of Quantitative Research

Footnotes

[1]We use the difference between 10- and 1-year constant maturity Treasury yields, because these maturities have the longest data histories readily accessible from the St. Louis Fed's FRED database. Other researchers advocate looking at 10- and 2-year, 10-year and 3-month, or even some other maturity bond yield differences, but the direction, if not the magnitude of these indicators, is essentially the same.

[2]Also the "dot plots"—the forecasts from the members of the FOMC (the group of people who vote on the direction of the federal funds rate)—show a drastic shift, from a median of about 2.75% for years 2020 and 2021 during their March 20 meeting (https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20190320.pdf) to about a median 2.25% for the same period during their June 19 meeting. The market is signaling that even 2.25% might be wildly optimistic ((https://www.cmegroup.com/trading/interest-rates/countdown-to-fomc.html/).

[3]These are: Market factor (MKT), Size factor (SMB), Value factor (HML), Momentum factor (MOM), Quality factor (QMJ), and Investment/Payout factor (CMA). All of these factors are well known in the financial industry, but we note that the CMA factor is closely related to AQR's Payout factor, which attempts to measure the fraction of profits paid out to shareholders. We use data from Fama-French and AQR's data libraries.

[4]The average/median length of each expansion period is 79/84 months, whereas the average or median length of each recession is 11 to12 months. As of August 2019, the current expansion is 124 months and counting.

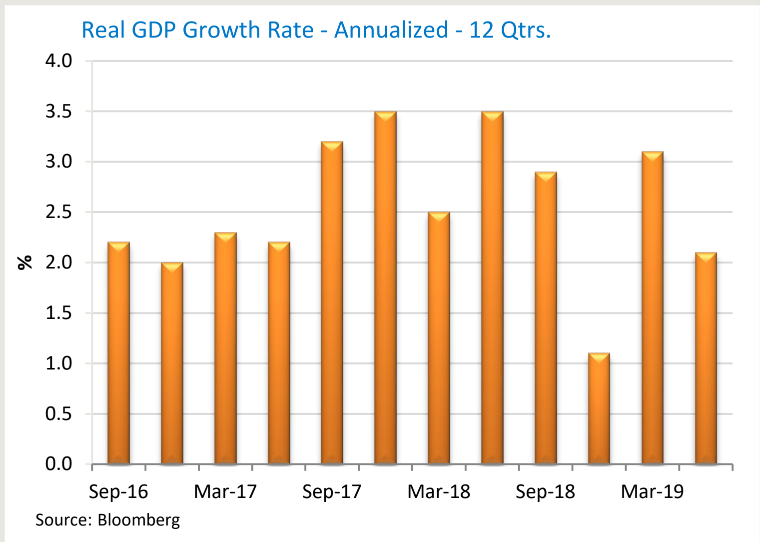
[5]Somewhat arbitrarily, we assign length of ¼ of the overall expansion phase to EE and LE sub-periods, while allocating ½ to ME.

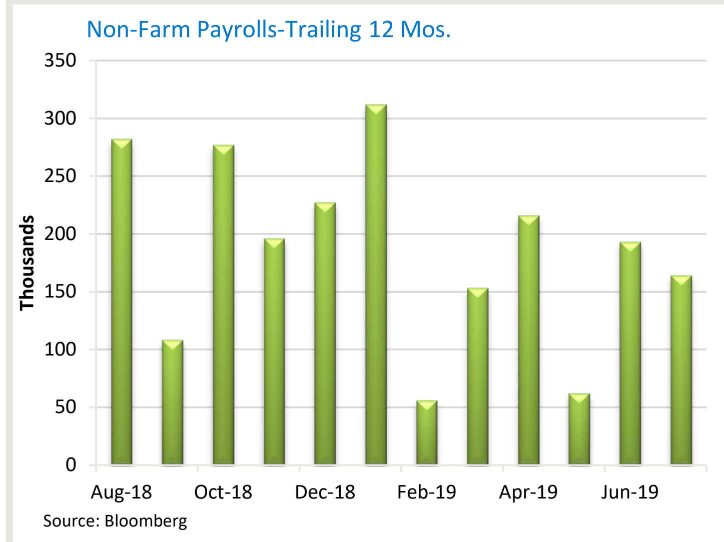
[6]The returns are presented in annualized percentage terms.

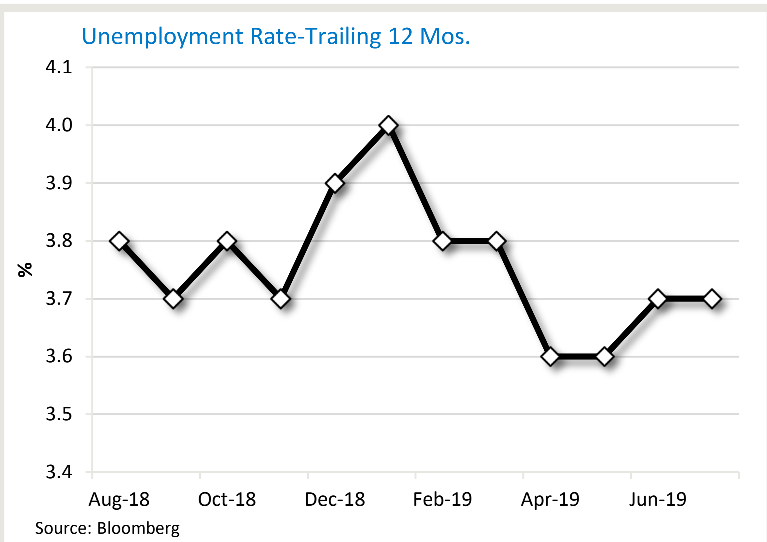
[7]Incidentally, note the poor performance of Value (HML) in the late-expansion stage, which mirrors the current struggles of HML and smart-beta strategies in general.

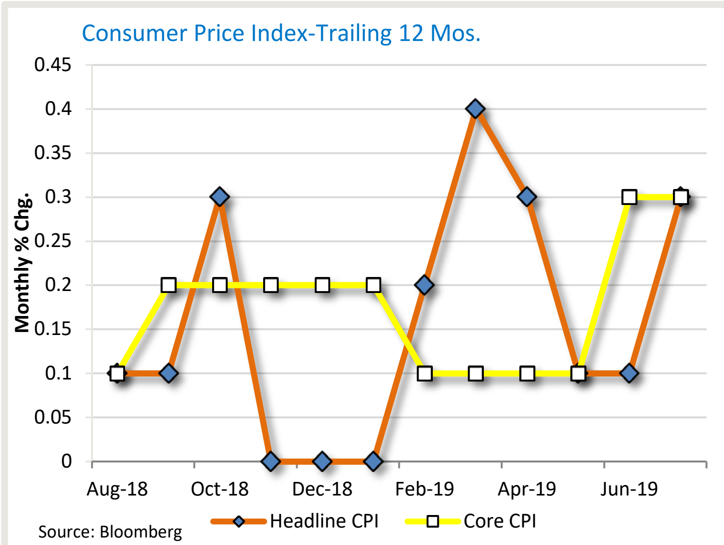
[8]For the sake of brevity, we have not included these results, but they will be available, along with other more detailed analysis, in a forthcoming QRG whitepaper.

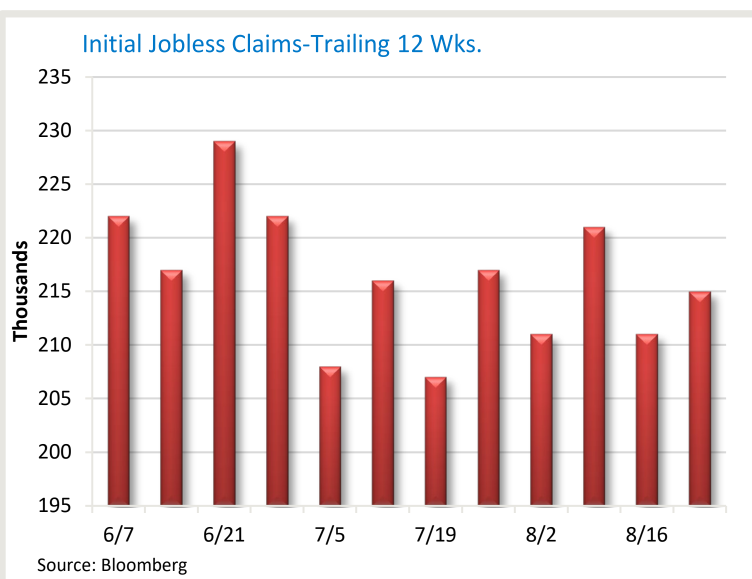
Economic Data

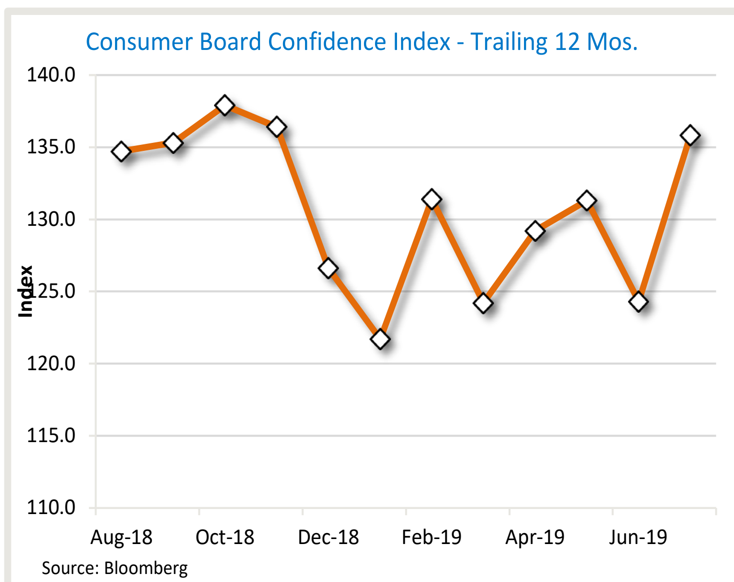












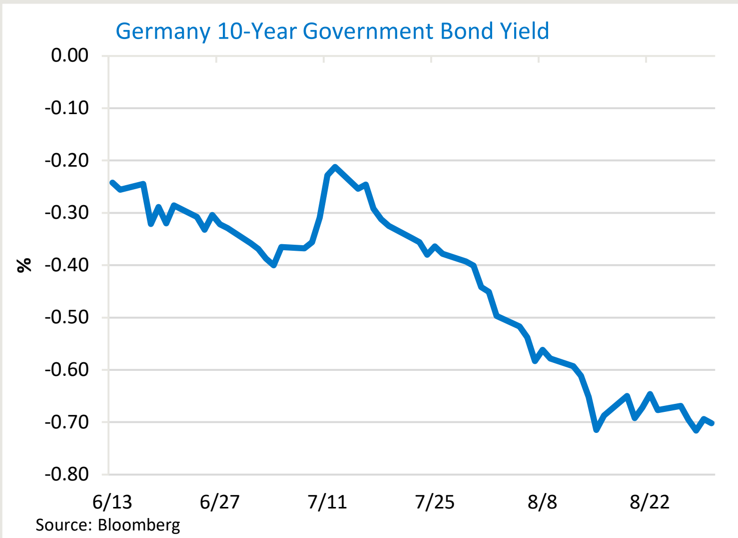
Eurozone

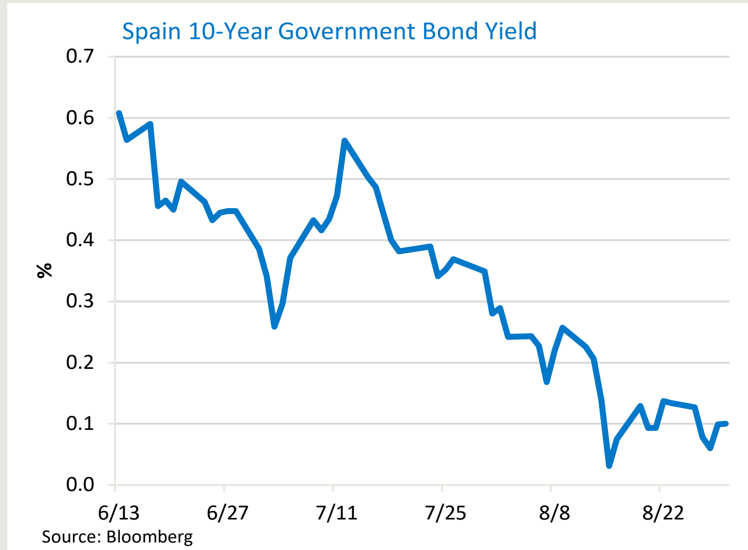
SELECTED EUROPEAN SOVEREIGN YIELD PERFORMANCE

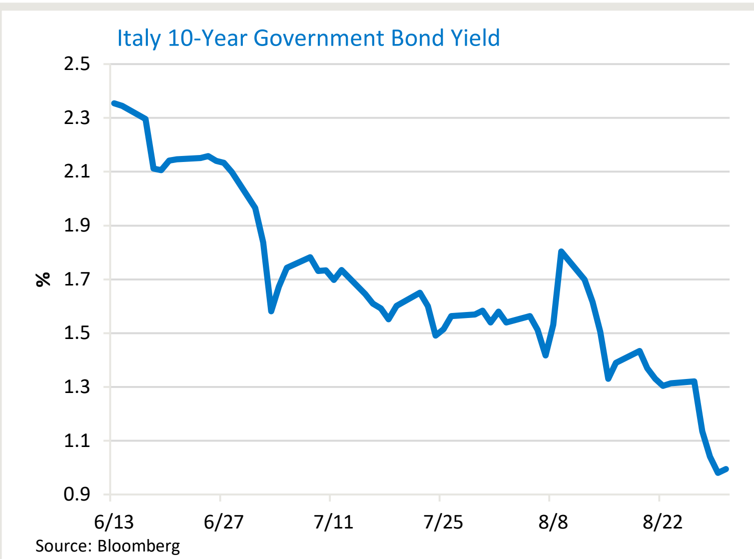
	Last	Change	% Chg.	YTD %
Germany 10-Yr. Govt.	**-0.70**	**3 bps**	**NM**	**NM**
Greece 10-Yr. Govt.	**1.61**	**31 bps**	**NM**	**NM**
Italy 10-Yr. Govt.	**1.00**	**32 bps**	**NM**	**NM**
Spain 10-Yr. Govt.	**0.10**	**3 bps**	**NM**	**NM**
Belgium 10-Yr. Govt.	**-0.35**	**3 bps**	**NM**	**NM**

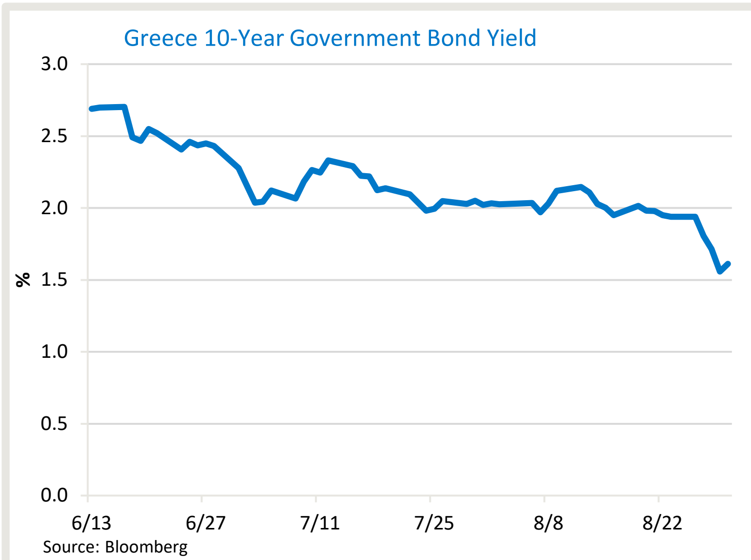
	Last	Change	% Chg.	YTD %
France 10-Yr. Govt.	**-0.41**	**3 bps**	**NM**	**NM**
Ireland 10-Yr. Govt.	**-0.08**	**4 bps**	**NM**	**NM**
Portugal 10-Yr. Govt.	**0.12**	**4 bps**	**NM**	**NM**
Netherlands 10-Yr. Govt.	**-0.55**	**1 bps**	**NM**	**NM**
U.K. 10-Yr. Govt.	**0.48**	**8 bps**	**NM**	**NM**

Source: Bloomberg
Basis points (bps)









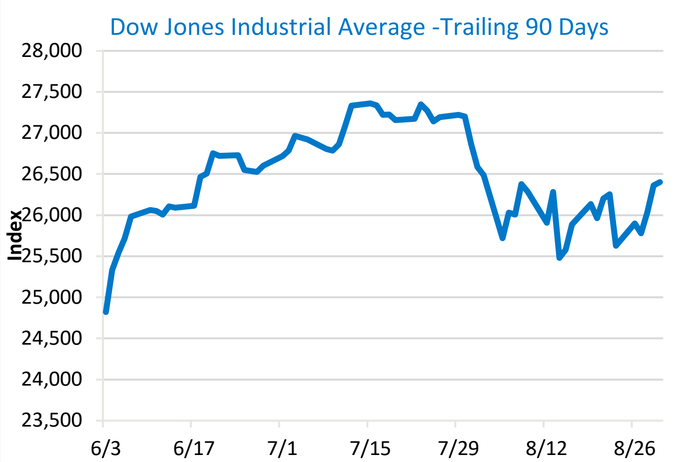
Equities

WORLD MARKET PERFORMANCE

	Last	Change	% Chg.	YTD %
S&P 500	2,926.46	79.35	2.79%	16.74%
Dow Industrials	26,403.28	774.38	3.02%	13.19%
Nasdaq Composite	7,962.88	211.12	2.72%	20.01%
MSCI ACWI	508.87	7.92	1.58%	11.7%
MSCI EM	970.08	-3.58	-0.37%	0.4%
S&P/TSX (Canada)	16,442.07	404.49	2.52%	14.80%
Mexico IPC	42,622.50	2760.43	6.92%	2.36%
Brazil Bovespa	101,134.60	3467.11	3.55%	15.07%
Euro Stoxx 600	379.48	8.12	2.19%	12.39%
FTSE 100	7,207.18	112.20	1.58%	7.12%
IBEX 35 (Spain)	8,812.90	163.40	1.89%	3.20%

	Last	Change	% Chg.	YTD %
Swiss Market Index	9,895.65	150.67	1.55%	17.40%
CAC 40 Index (France)	5,480.48	153.61	2.88%	15.85%
DAX Index (Germany)	11,939.28	327.77	2.82%	13.07%
Irish Overall Index	5,879.42	129.96	2.26%	7.29%
Nikkei 225	20,704.37	-6.54	-0.03%	3.45%
Hang Seng Index	25,724.73	-454.60	-1.74%	-0.47%
Shanghai Composite	2,886.24	-11.19	-0.39%	15.73%
Kospi Index (S. Korea)	1,967.79	19.49	1.00%	-3.59%
Taiwan Taiex Index	10,618.05	79.94	0.76%	9.16%
Tel Aviv 25 Index	1,561.98	-33.07	-2.07%	6.70%
MOEX Index (Russia)	2,740.04	79.30	2.98%	15.65%

Source: Bloomberg; Index % change is based on price.



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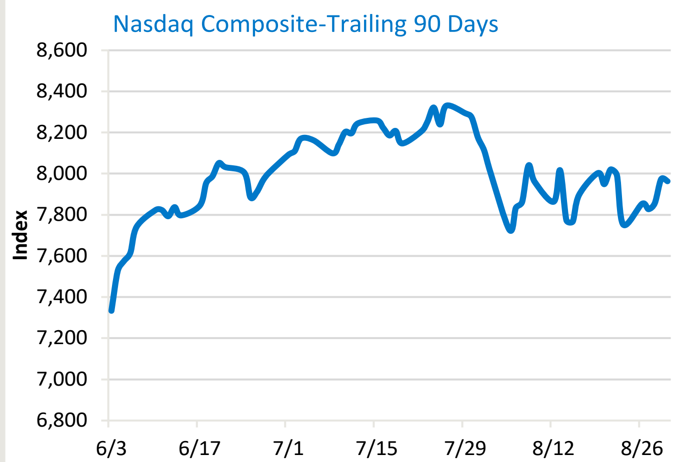

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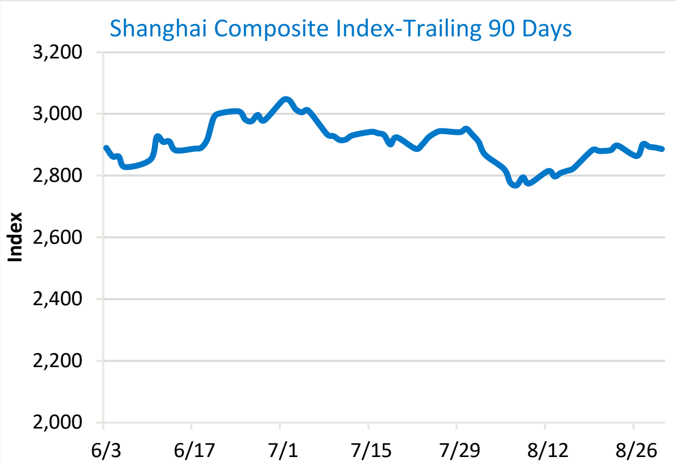

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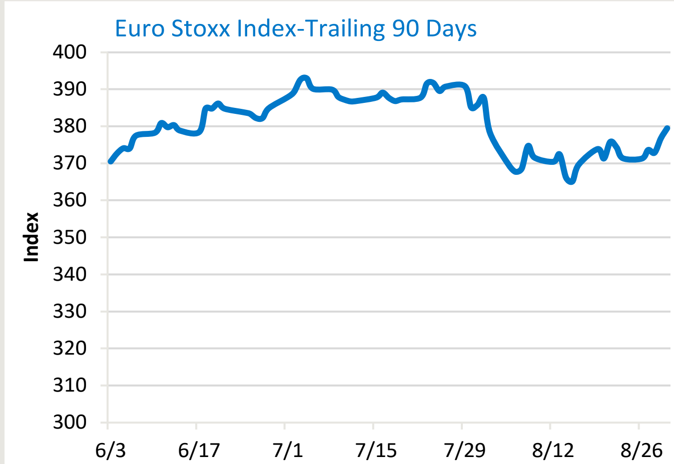


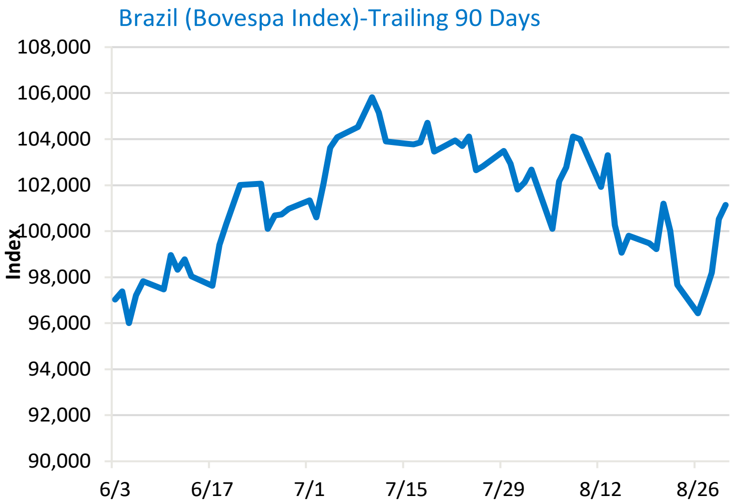
Source: Bloomberg

Equities – Emerging and Frontier Markets

EMERGING AND FRONTIER MARKET PERFORMANCE

	Last	Change	% Chg.	YTD %		Last	Change	% Chg.	YTD %
Mexico IPC	42,622.50	2760.43	6.9%	2.4%	Hang Seng Index	25,724.73	-454.60	-1.7%	-0.5%
Brazil (Bovespa Index)	101,134.60	3467.11	3.5%	15.1%	India (Sensex 30)	37,332.79	631.63	1.7%	3.5%
MOEX Index (Russia)	2,740.04	79.30	3.0%	15.6%	Malaysia (KLCI Index)	1,612.14	2.81	0.2%	-4.6%
Czech Republic (Prague)	1,037.27	-8.28	-0.8%	5.1%	Singapore (Straits Times Index)	3,106.52	-3.83	-0.1%	1.2%
Turkey (Istanbul)	96,718.50	-430.56	-0.4%	6.0%	Thailand (SET Index)	1,654.92	8.24	0.5%	5.8%
Egypt (Hermes Index)	1,374.57	27.03	2.0%	7.6%	Indonesia (Jakarta)	6,328.47	72.87	1.2%	2.2%
Kenya (Nairobi 20 Index)	2,467.68	-9.98	-0.4%	-12.9%	Pakistan (Karachi KSE 100)	29,672.12	-1677.89	-5.4%	-19.9%
Saudi Arabia (TASI Index)	8,019.77	-425.89	-5.0%	2.5%	Vietnam (Ho Chi Minh)	984.06	-8.39	-0.8%	10.3%
Lebanon (Beirut BLOM Index)	796.76	-7.71	-1.0%	-18.4%	Sri Lanka (Colombo)	5,889.86	-8.61	-0.1%	-2.7%
Palestine	523.59	2.61	0.5%	-1.1%	Cambodia (Laos)	760.04	-9.51	-1.2%	-9.1%

Source: Bloomberg; Index % change is based on price.



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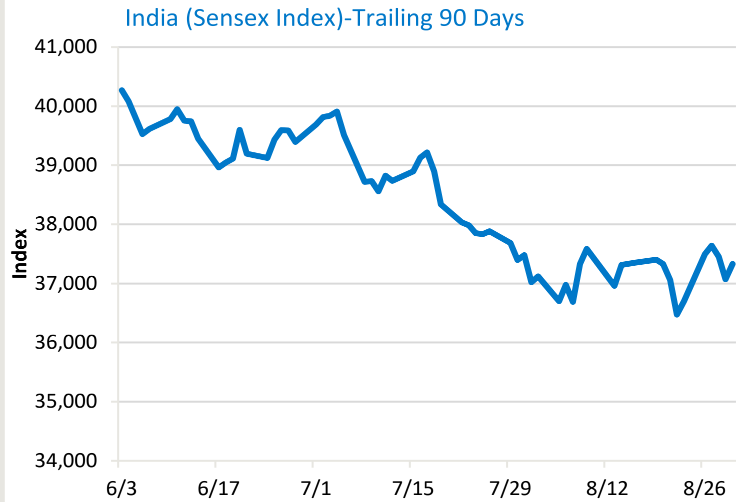

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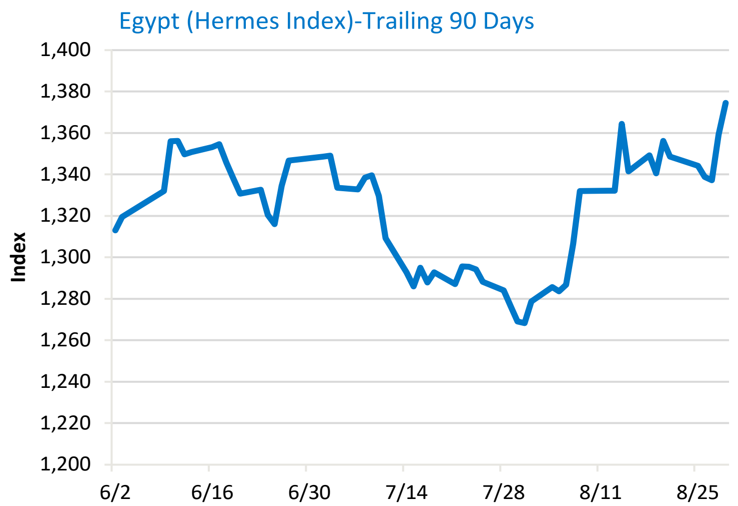

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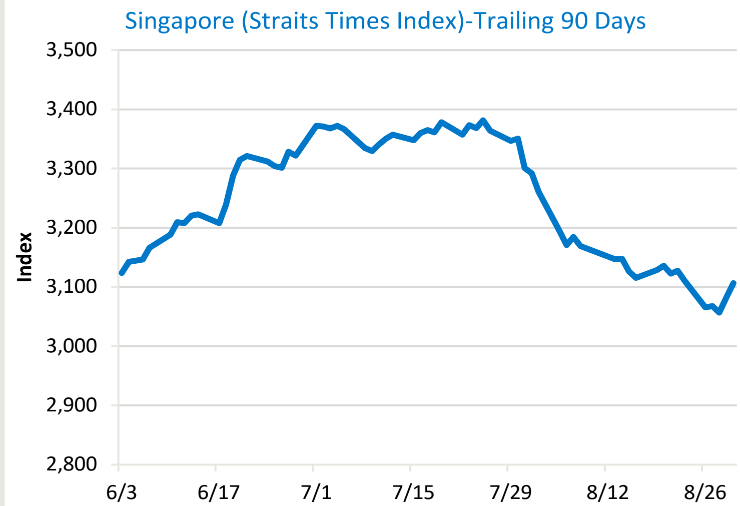


Source: Bloomberg

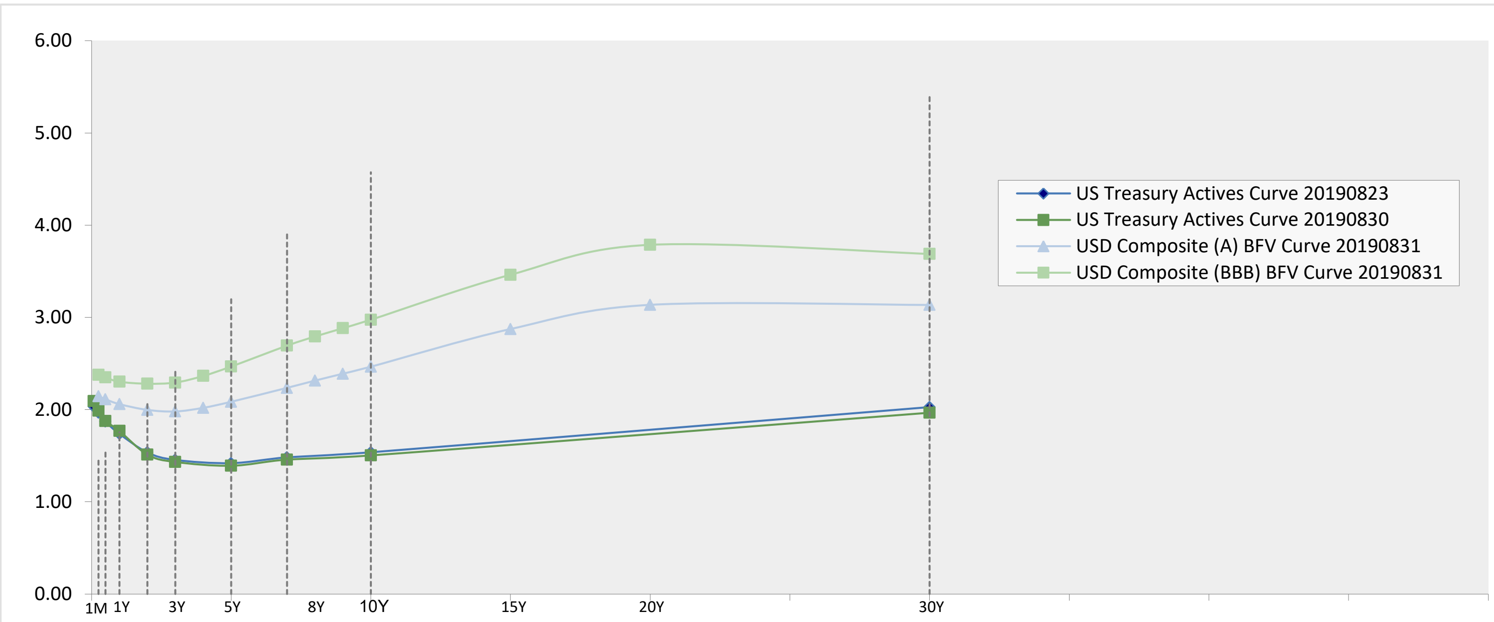
Interest Rates

SELECTED INTEREST RATES

	Last	Change	% Chg.	YTD %
2-Yr. U.S. Treasury	1.51%	0 bps	NM	NM
5-Yr. U.S. Treasury	1.39%	-2 bps	NM	NM
10-Yr. U.S. Treasury	1.51%	-2 bps	NM	NM
30-Yr. U.S. Treasury	1.97%	-5 bps	NM	NM
German 10-Yr. Govt.	-0.70%	3 bps	NM	NM
France 10-Yr.	-0.41%	3 bps	NM	NM
Italy 10-Yr.	1.00%	32 bps	NM	NM
Fed 5-Yr Fwd BE Inf.	1.60%	1 bps	NM	NM

	Last	Change	% Chg.	YTD %
Prime Rate	5.25%	0.00	NM	NM
Fed Funds Rate	2.25%	0.00	NM	NM
Discount Rate	2.75%	0.00	NM	NM
LIBOR (3 Mo.)	2.13%	-1 bps	NM	NM
Bond Buyer 40 Muni	2.53%	-6 bps	NM	NM
Bond Buyer 40 G.O.	2.97%	NA	NM	NM
Bond Buyer 40 Rev.	3.45%	NA	NM	NM

Source: Bloomberg



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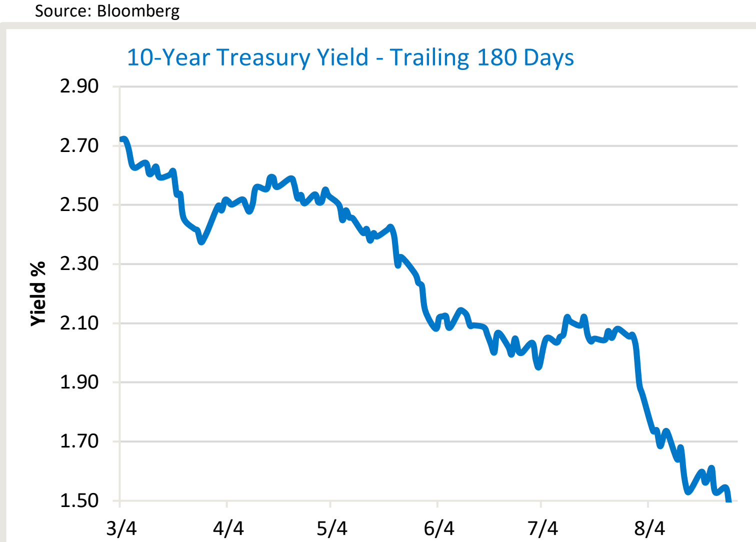

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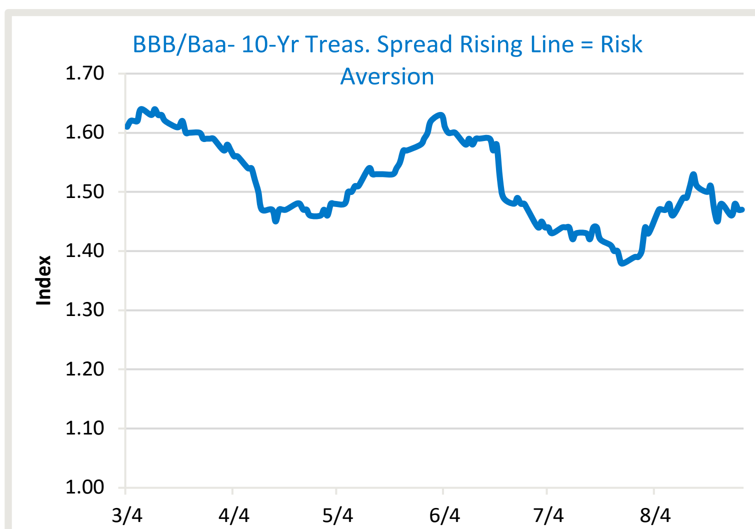


Source: Bloomberg

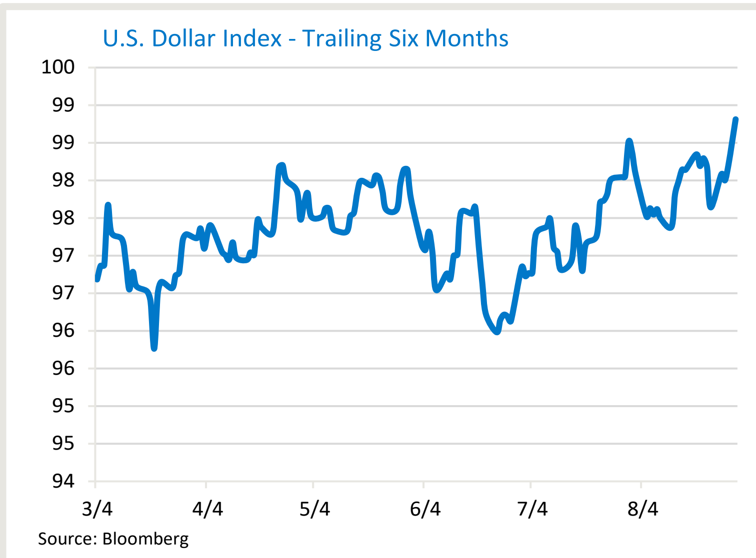
Currencies

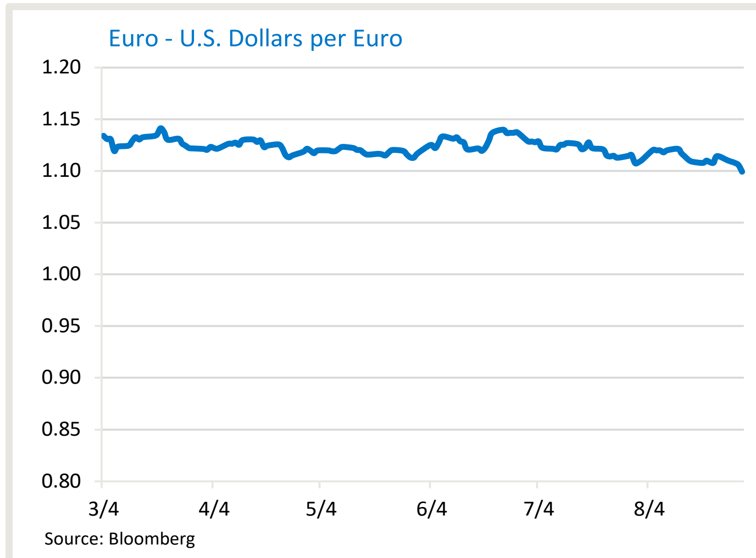
SELECTED CURRENCY PERFORMANCE

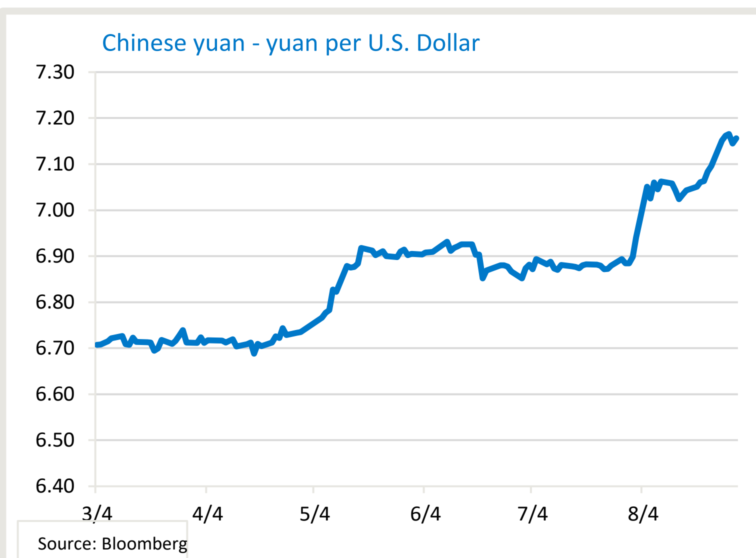
	Last	Change	% Chg.	YTD %
Dollar Index	98.81	1.172	1.20%	2.74%
Euro	1.10	-0.015	-1.36%	-4.13%
Japanese Yen	106.28	0.860	-0.81%	3.24%
British Pound	1.22	-0.010	-0.83%	-4.63%
Canadian Dollar	1.33	0.003	-0.22%	2.44%

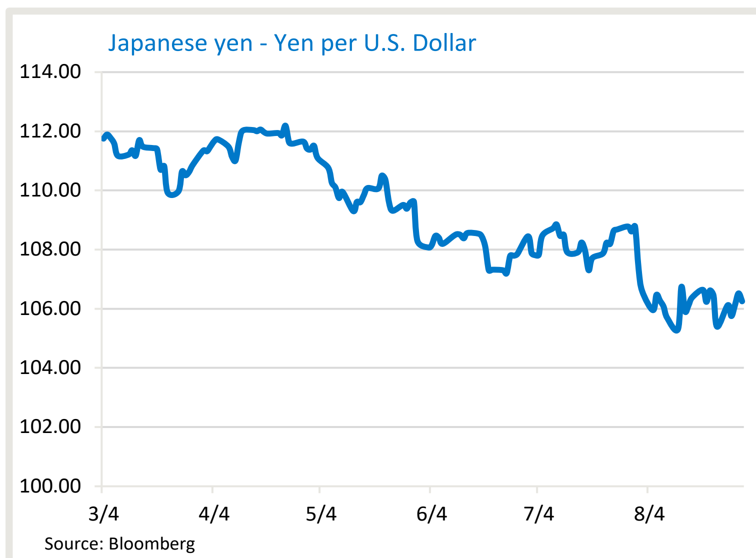
	Last	Change	% Chg.	YTD %
Chinese Yuan	7.16	0.061	-0.85%	-3.88%
Swiss Franc	0.99	0.015	-1.56%	-0.77%
New Zealand Dollar	0.63	-0.010	-1.55%	-6.15%
Brazilian Real	4.14	0.022	-0.53%	-6.51%
Mexican Peso	20.05	0.125	-0.63%	-1.98%

Source: Bloomberg









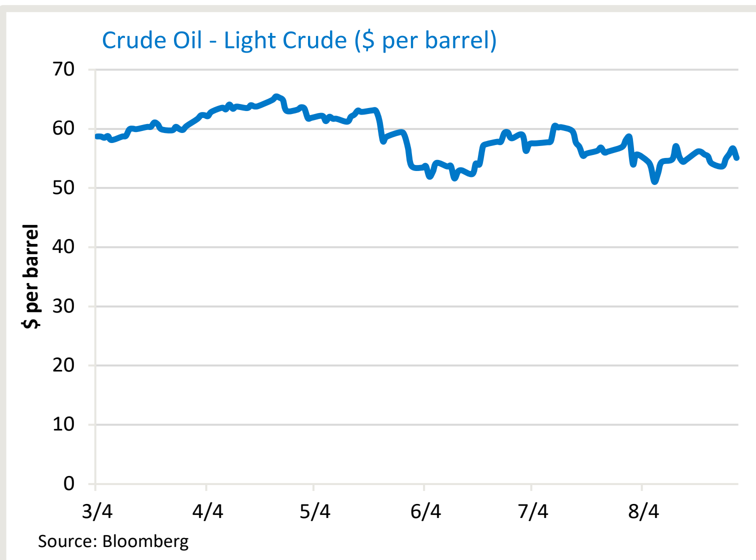
Commodities

SELECTED COMMODITY MARKET PERFORMANCE

	Last	Change	% Chg.	YTD %
Bloomberg Comm. Idx.	77.00	0.94	1.23%	0.38%
Crude Oil	$55.04	$0.91	1.68%	14.65%
Natural Gas	$2.28	$0.13	5.80%	-17.11%
Gasoline ($/Gal.)	$2.58	-$0.02	-0.69%	14.31%
Heating Oil	183.05	0.78	0.43%	7.01%
Gold Spot	$1,521.10	-$3.27	-0.21%	18.81%
Silver Spot	$18.35	$0.93	5.33%	18.45%

Source: Bloomberg; % change is based on price.

	Last	Change	% Chg.	YTD %
Platinum Spot	$933.88	$75.67	8.82%	17.32%
Corn	369.75	2.00	0.54%	-6.98%
Wheat	462.50	-15.25	-3.19%	-14.75%
Soybeans	869.00	12.50	1.46%	-7.08%
Sugar	11.14	-0.33	-2.88%	-11.09%
Orange Juice	103.75	5.45	5.54%	-20.71%
Aluminum	1,753.00	-17.00	-0.96%	-5.04%
Copper	5,726.50	93.50	1.66%	-4.00%



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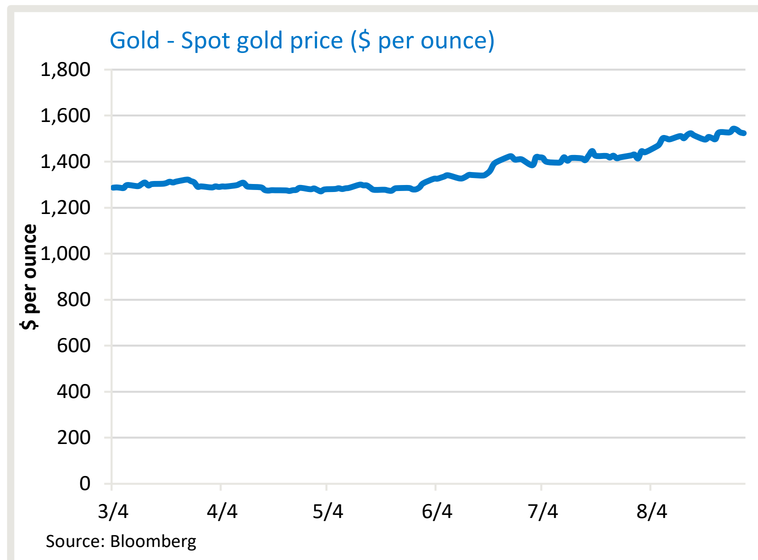

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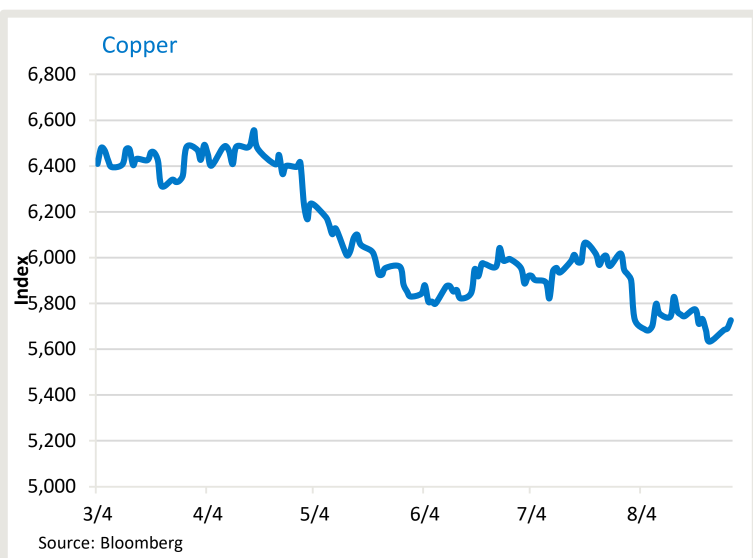

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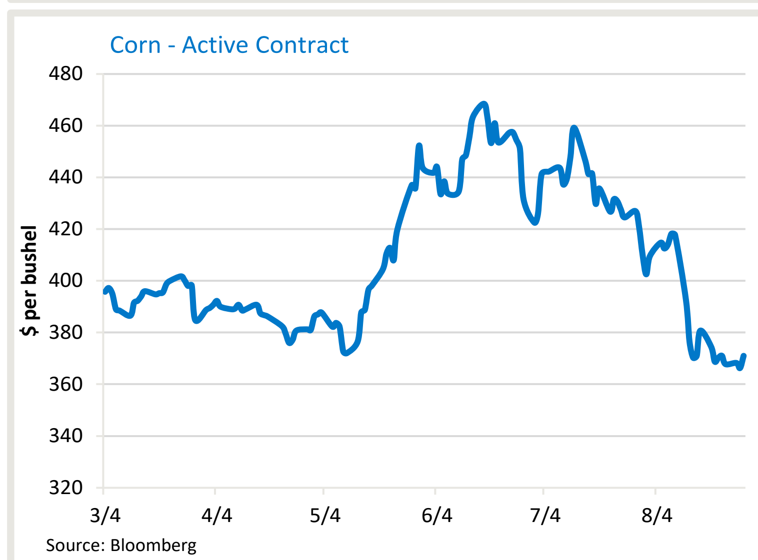


Source: Bloomberg

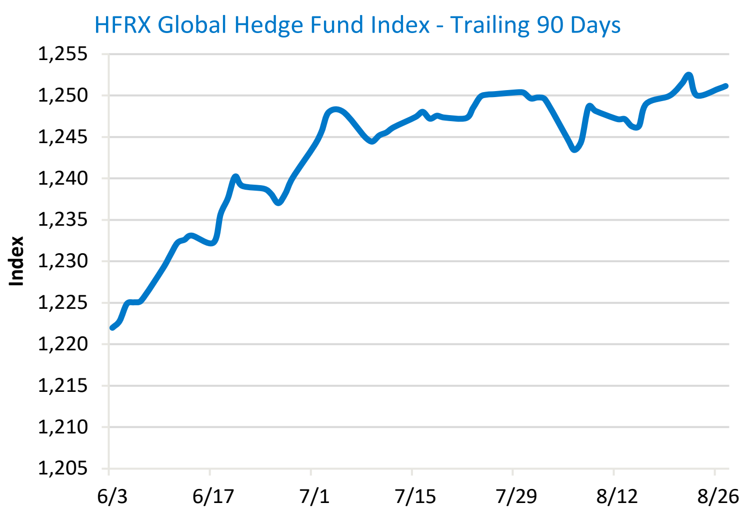
Alternative Investments

SELECTED ALTERNATIVE INVESTMENT INDEX PERFORMANCE

	Last	Change	% Chg.	YTD %
HFRX Global Hedge Fund Index	1252.55	2.53	0.20%	5.27%
HFRX Equity Market Neutral	944.94	-0.63	-0.07%	-2.85%
HFRX Equity Hedge Index	1226.46	1.47	0.12%	6.55%
HFRX Event-Driven Index	1518.08	-1.42	-0.09%	3.18%
HFRX Absolute Return Index	1081.51	1.01	0.09%	2.21%

	Last	Change	% Chg.	YTD %
HFRX Special Situation Index	1226.82	-1.34	-0.11%	1.98%
HFRX Merger Arbitrage Index	1783.47	3.35	0.19%	-1.88%
HFRX Convertible Arbitrage Index	810.21	0.51	0.06%	2.86%
HFRX Macro CTA Index	1194.02	11.99	1.01%	6.03%
IQ Fixed Income Beta Arb Index	1528.16	1.09	0.07%	4.49%

Source: Bloomberg; Index % change is based on price.



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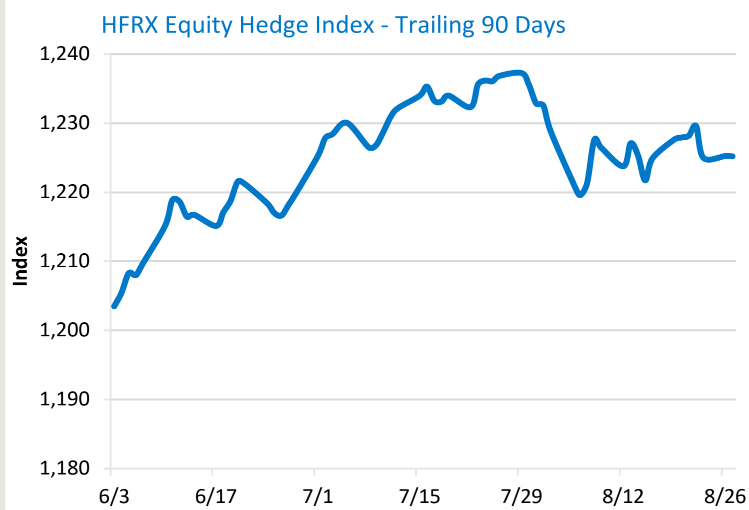

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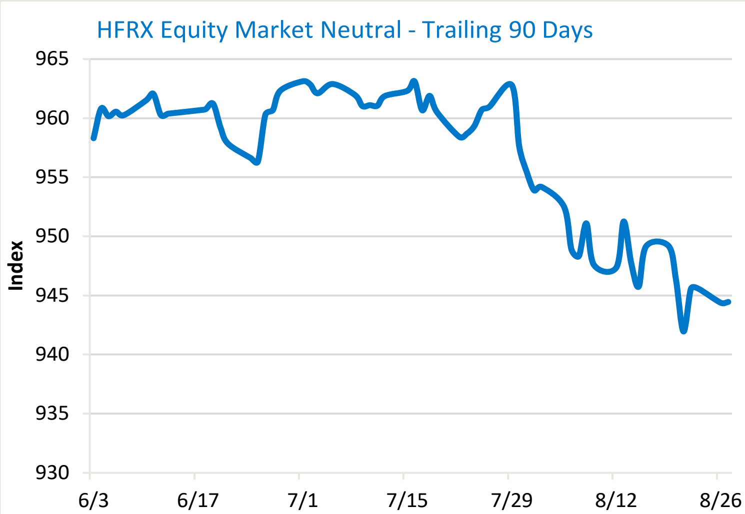

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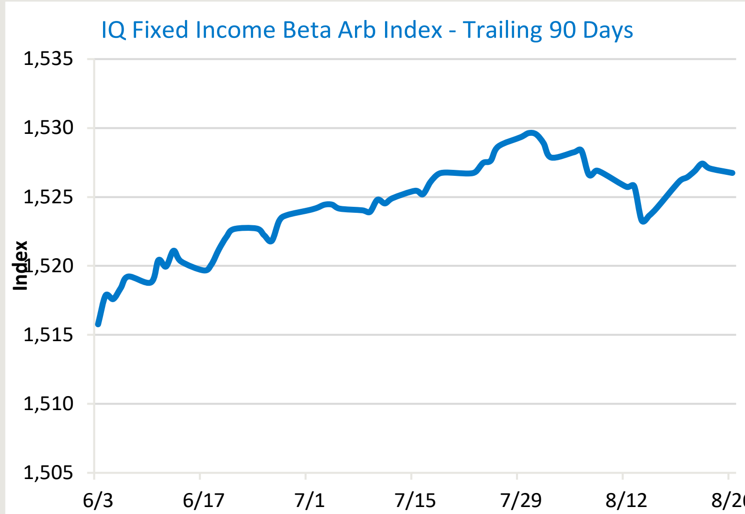
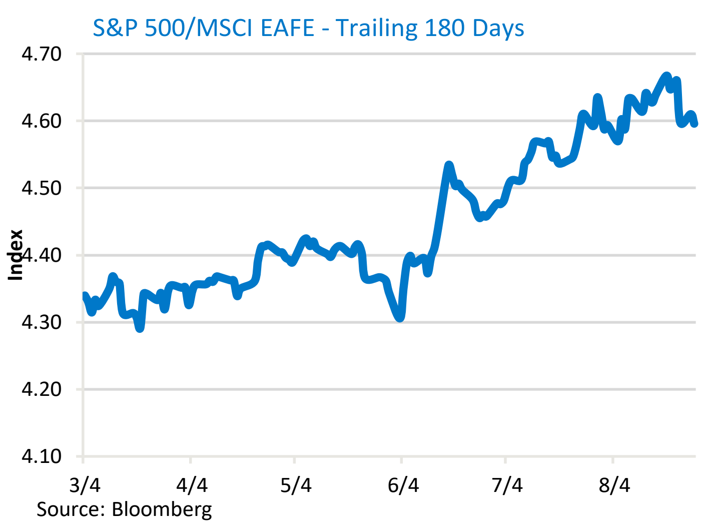
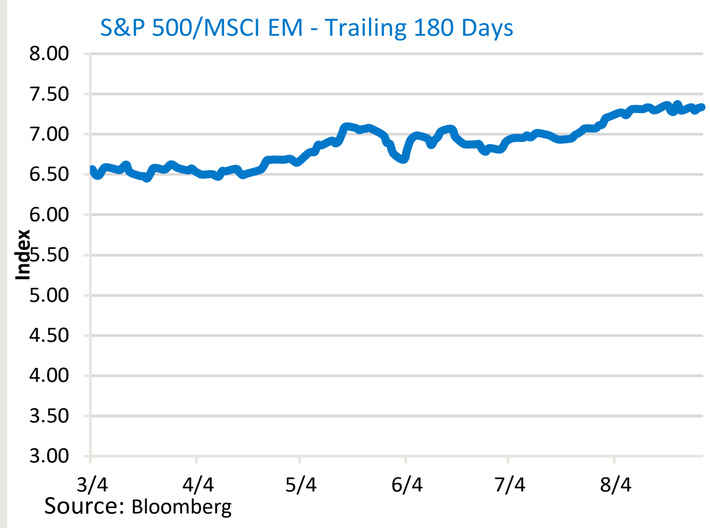
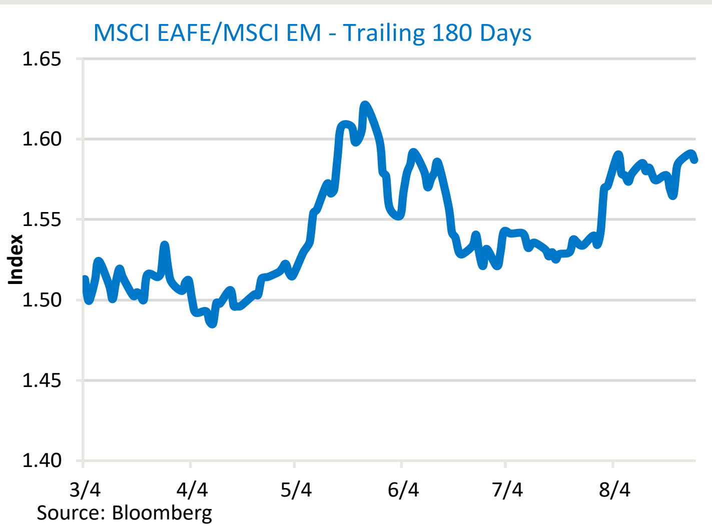


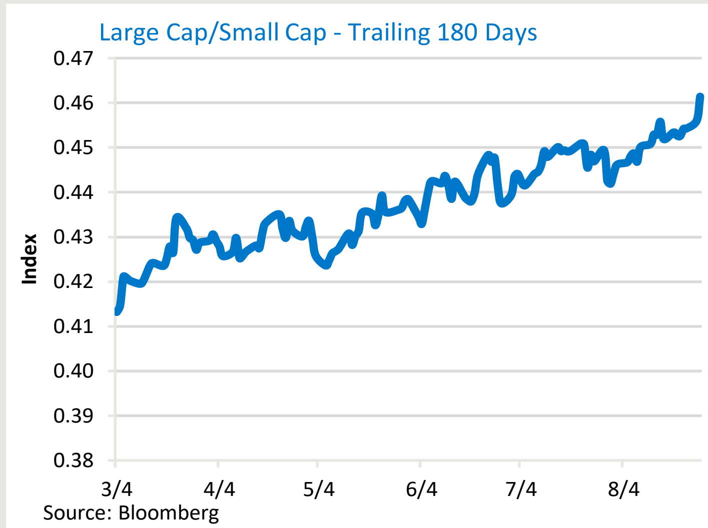
Source: Bloomberg

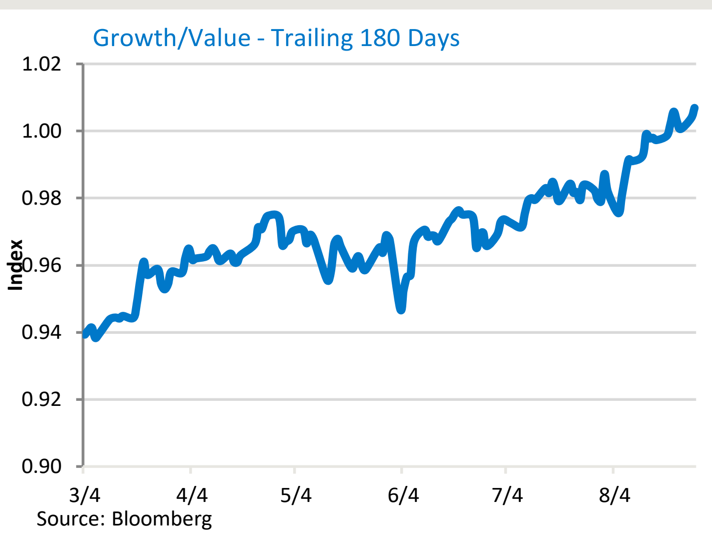
Portfolio Construction



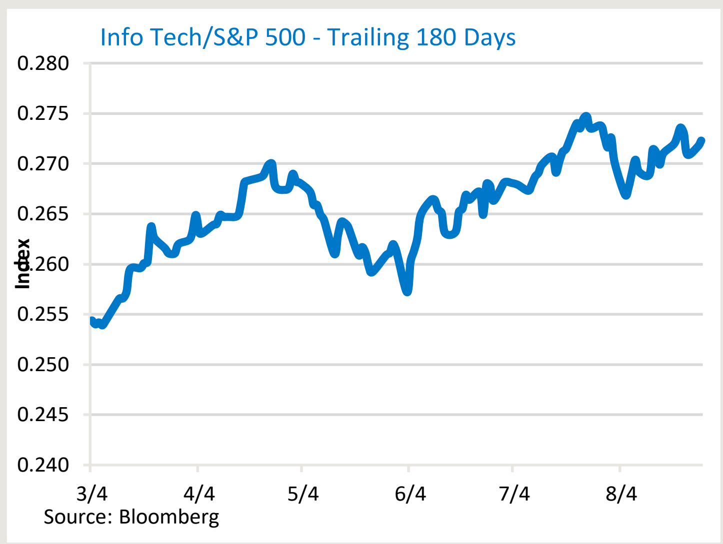


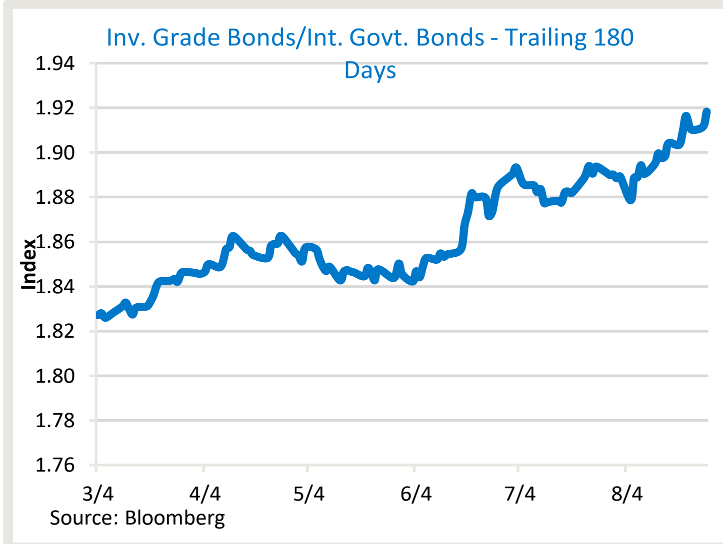


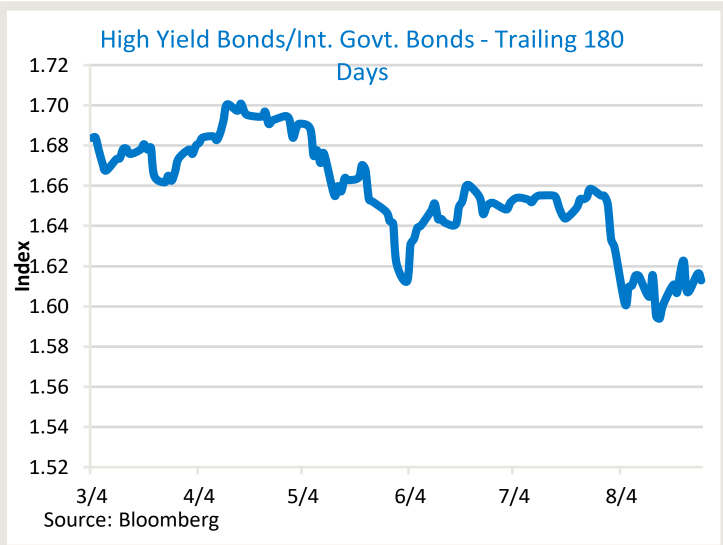


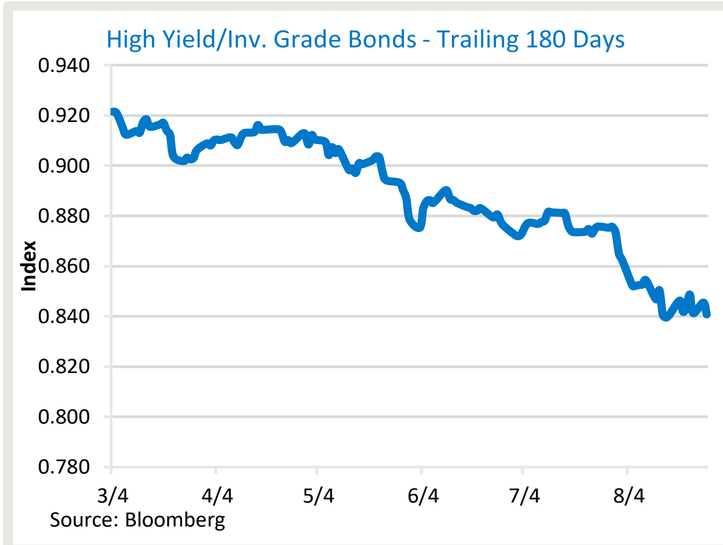


Portfolio Construction (continued)









WEEKLY ASSET CLASS PERFORMANCE (Prior 12 weeks ending Thursday)

			6/13	6/20	6/27	7/4	7/11	7/18	7/25	8/1	8/8	8/15	8/22	8/29
Equity	Domestic Equity	Large Cap (R200)	1.82%	2.25%	-0.91%	2.44%	0.27%	-0.17%	0.26%	-1.62%	-0.58%	-2.98%	2.63%	0.07%
		Small Cap (R2000)	2.15%	1.80%	-1.08%	1.65%	-0.90%	-0.15%	0.37%	-0.68%	-1.20%	-4.60%	3.03%	-0.62%
	Int'l. Equity	MSCI EAFE	1.36%	2.08%	-0.24%	1.87%	-1.54%	-0.69%	0.66%	-1.28%	-2.53%	-2.66%	1.78%	0.11%
		MSCI Em. Mkts.	1.93%	3.10%	0.10%	0.93%	-0.89%	-0.33%	0.24%	-2.82%	-3.93%	-2.11%	1.26%	-0.57%
Fixed Income		BarCap Agg. (AGG)	0.34%	0.73%	-0.01%	0.14%	-0.80%	0.57%	-0.10%	0.65%	0.79%	0.86%	-0.39%	0.63%
		High Yield (JNK)	0.58%	1.46%	-0.54%	0.13%	-0.57%	-0.06%	0.31%	-0.52%	-0.36%	-0.53%	1.33%	0.33%
Commodities		Bloomberg Commodity Index	0.65%	2.00%	1.29%	-1.23%	1.72%	-2.04%	0.10%	-2.52%	0.04%	-0.44%	-0.37%	1.40%
Alternatives		Hedge Funds (HFRX Global)	0.62%	0.62%	-0.16%	0.79%	-0.20%	0.16%	0.20%	-0.03%	-0.09%	-0.19%	0.49%	0.01%
Asset Allocation		60/40*	1.21%	1.65%	-0.44%	1.28%	-0.59%	0.01%	0.21%	-0.69%	-0.61%	-1.58%	1.35%	0.18%
		48/32/20 (w/Alts.)**	1.09%	1.44%	-0.39%	1.18%	-0.51%	0.04%	0.21%	-0.56%	-0.51%	-1.30%	1.18%	0.15%

Source: Bloomberg; *60/40 portfolio = 30% Large Cap/10% Small Cap/15% EAFE/5% Emerging Markets/35% BarCap Agg./5% High Yield.
**48/32/20 portfolio = 24% Large Cap/8% Small Cap/12% EAFE/4% Emerging Markets/28% BarCap Agg./4% High Yield/20% HFRX Global Index.

RELATIVE STRENGTH MATRIX (BASED ON 30-DAY RSI)

	Large Cap Core	Large Cap Growth	Large Cap Value	Mid Cap Core	Mid Cap Growth	Mid Cap Value	Small Cap Core	Small Cap Growth	Small Cap Value	Int'l. Developed	Emerging Markets	REITs	Comm.	Int. Bond	High Yield
Large Cap Core	1.00	0.97	1.05	1.03	0.98	1.07	1.08	1.05	1.10	1.16	1.32	0.87	1.07	0.74	0.92
Large Cap Growth	1.03	1.00	1.09	1.07	1.02	1.11	1.11	1.09	1.14	1.20	1.37	0.90	1.10	0.77	0.95
Large Cap Value	0.95	0.92	1.00	0.98	0.93	1.02	1.02	1.00	1.05	1.10	1.26	0.83	1.01	0.70	0.88
Mid Cap Core	0.97	0.94	1.02	1.00	0.95	1.04	1.04	1.02	1.07	1.13	1.28	0.85	1.03	0.72	0.89
Mid Cap Growth	1.02	0.98	1.07	1.05	1.00	1.09	1.09	1.07	1.12	1.18	1.34	0.89	1.09	0.75	0.94
Mid Cap Value	0.93	0.90	0.98	0.96	0.92	1.00	1.00	0.98	1.03	1.08	1.23	0.81	1.00	0.69	0.86
Small Cap Core	0.93	0.90	0.98	0.96	0.91	1.00	1.00	0.98	1.02	1.08	1.23	0.81	0.99	0.69	0.86
Small Cap Growth	0.95	0.92	1.00	0.98	0.93	1.02	1.02	1.00	1.05	1.10	1.26	0.83	1.02	0.70	0.88
Small Cap Value	0.91	0.88	0.96	0.94	0.89	0.97	0.98	0.96	1.00	1.06	1.20	0.79	0.97	0.67	0.84
Int'l. Developed	0.86	0.83	0.91	0.89	0.85	0.92	0.93	0.91	0.95	1.00	1.14	0.75	0.92	0.64	0.79
Emerging Markets	0.76	0.73	0.80	0.78	0.74	0.81	0.81	0.80	0.83	0.88	1.00	0.66	0.81	0.56	0.70
REITs	1.15	1.11	1.21	1.18	1.13	1.23	1.23	1.21	1.26	1.33	1.51	1.00	1.22	0.85	1.06
Commodities	0.94	0.91	0.99	0.97	0.92	1.00	1.01	0.99	1.03	1.09	1.24	0.82	1.00	0.69	0.86
Int. Bond	1.35	1.31	1.42	1.39	1.33	1.45	1.45	1.42	1.49	1.57	1.78	1.18	1.44	1.00	1.24
High Yield	1.09	1.05	1.14	1.12	1.07	1.16	1.17	1.14	1.19	1.26	1.43	0.95	1.16	0.80	1.00

Source: Bloomberg

The Relative Strength Matrix provides an indication of how the various asset classes have performed relative to one another over the past 30 days. A number greater than 1.0 indicates that the asset class in the far left column has outperformed the corresponding asset class in the top row over the past 30 days. A number below 1.0 means the asset class on the left has underperformed the asset class at the top. The green shading indicates outperformance, and the red shading indicates underperformance.

Index Overview & Key Definitions

Fed, The Fed or FED refers to the Federal Reserve System, the central bank of the United States. The **Federal Open Market Committee** (FOMC) is the monetary policymaking body of the Federal Reserve System. **Fed Funds Rate**, the interest rate at which a depository institution lends funds maintained at the Federal Reserve to another depository institution overnight. The **European Central Bank** (ECB) is the central bank for Europe's single currency, the euro. The ECB's main task is to maintain the euro's purchasing power and thus price stability in the euro area. The euro area comprises the 19 European Union countries that have introduced the euro since 1999. The **Gross Domestic Product** (GDP) rate is a measurement of the output of goods and services produced by labor and property located in the United States. **Basis Point**(s) is a unit that is equal to 1/100th of 1%, and is used to denote the change in a financial instrument. The basis point is commonly used for calculating changes in interest rates, equity indexes and the yield of a fixed-income security. A **separately managed account** (SMA) is an individual managed investment account offered typically by a brokerage firm through one of their brokers or financial consultants and managed by independent investment management firms (often called money managers for short) and have varying fee structures. The **Consumer Price Index** (CPI) measures the change in the cost of a fixed basket of products and services. The **Producer Price Index** (PPI) program measures the average change over time in the selling prices received by domestic producers for their output. The prices included in the PPI are from the first commercial transaction for many products and some services. **Core CPI** is an additional CPI Index, excludes energy and food item price changes, and measures the "core" or "underlying" rate of inflation. The PCE (Personal Consumption Expenditure) Index of Prices is a US--wide indicator of the average increase in prices for all domestic personal consumption. Using a variety of data including U.S. Consumer Price Index and Producer Price Index prices, it is derived from personal consumption expenditures; essentially a measure of goods and services targeted towards individuals and consumed by individuals. The **Purchasing Managers' Index** (**PMI**) is an indicator of the economic health of the manufacturing sector. The **PMI** is based on five major indicators: new orders, inventory levels, production, supplier deliveries and the employment environment. **Brexit** is a commonly used term for the United Kingdom's withdrawal from the European Union. **The Kansas City Fed Manufacturing Survey** monitors manufacturing plants selected according to geographic distribution, industry mix and size in the Tenth Federal Reserve District. **West Texas Intermediate (WTI)**, also known as Texas light sweet, is a grade of crude oil used as a benchmark in oil pricing. **Risk Premium** is the return in excess of the risk-free rate of return an investment is expected to yield**. LIBOR or ICE LIBOR** (previously BBA LIBOR) is a benchmark rate, which some of the world's leading banks charge each other for short-term loans. It stands for Intercontinental Exchange London Interbank Offered Rate and serves as the first step to calculating interest rates on various loans throughout the world.

The **Dow Jones Industrial Average** (DOW or DJIA) is an unmanaged index of 30 common stocks comprised of 30 actively traded blue chip stocks, primarily industrials and assumes reinvestment of dividends. The **S&P 500 Index** is an unmanaged index comprised of 500 widely held securities considered to be representative of the stock market in general. The **S&P/Case-Shiller Home Price Indices** measure the residential housing market, tracking changes in the value of the residential real estate market in 20 metropolitan regions across the United States. The **Nasdaq Composite Index** is a stock market index of the common stocks and similar securities listed on the NASDAQ stock market. The **US Dollar Index** is a measure of the value of the United States dollar relative to a basket of foreign currencies. It is a weighted geometric mean of the dollar's value relative to other select currencies (Euro, Japanese yen, Pound sterling, Canadian dollar, Swedish krona (SEK) & Swiss franc). The **FTSE 100 Index** (FTSE 100) is a share index of the 100 companies listed on the London Stock Exchange (LSE) with the highest market capitalization. The **Bloomberg Commodity Index** (formerly the **Dow Jones-UBS Commodity Index**) tracks prices of futures contracts on physical commodities on the commodity markets and is designed to minimize concentration in any one commodity or sector (currently 22 commodity futures in seven sectors). The **Barclays Capital US Credit Index** is an unmanaged index considered representative of publicly issued, SEC-registered US corporate and specified foreign debentures and secured notes. The **Barclays Capital US Aggregate Bond Index** is a market capitalization-weighted index of investment-grade, fixed-rate debt issues, including government, corporate, asset-backed, and mortgage-backed securities, with maturities of at least one year. The **Barclays Capital US Corporate High Yield Index** covers the USD-denominated, non-investment grade, fixed-rate, taxable corporate bond market. Securities are classified as high-yield if the middle rating of Moody's, Fitch and S&P is Ba1/BB+/BB+ or below. The index may include emerging market debt. The **Barclays Capital Municipal Bond Index** is an unmanaged index comprised of investment-grade, fixed-rate municipal securities representative of the tax-exempt bond market in general. The **Barclays Capital US Treasury Total Return Index** is an unmanaged index of public obligations of the US Treasury with a remaining maturity of one year or more. The **Barclays Capital Global Aggregate ex-U.S. Index** is a market capitalization-weighted index, meaning the securities in the index are weighted according to the market size of each bond type. Most U.S. traded investment grade bonds are represented. Municipal bonds, and Treasury Inflation-Protected Securities are excluded, due to tax treatment issues. The index includes Treasury securities, Government agency bonds, Mortgage-backed bonds, Corporate bonds, and a small amount of foreign bonds traded in U.S. The **Barclays Capital U.S. 5-10 Year Corporate Bond Index** measures the investment return of U.S. dollar denominated, investment-grade, fixed rate, taxable securities issued by industrial, utility, and financial companies with maturities between 5 and 10 years. Treasury securities, mortgage-backed securities (MBS) foreign bonds, government agency bonds and corporate bonds are some of the categories included in the index. The **Barclays Capital U.S Corporate High-Yield Index** is composed of fixed-rate, publicly issued, non-investment grade debt. The **Barclays Capital U.S. Corporate 5-10 Year Index** includes U.S. dollar-denominated, investment-grade, fixed-rate, taxable securities issued by industrial, utility, & financial companies, with maturities between 5 & 10 years. The **Russell 1000 Index** is a market capitalization-weighted benchmark index made up of the 1000 largest U.S. companies in the Russell 3000 Index. The **Russell 1000 Growth Index** is an unmanaged index considered representative of large-cap growth stocks. The **Russell 1000 Value Index** is an unmanaged index considered representative of large-cap value stocks. The **Russell 2000 Index** is an unmanaged index considered representative of small-cap stocks. The **Russell 2000 Growth Index** is an unmanaged index considered representative of small-cap growth stocks. The **Russell 2000 Growth Index** is an unmanaged index considered representative of small-cap value stocks. The **Russell 3000 Index** is an unmanaged index considered representative of the US stock market. The **Russell Midcap Index** is a subset of the Russell 1000 Index. It includes approximately 800 of the smallest securities based on a combination of their market cap and current index membership. The **Russell Midcap Growth Index** is an unmanaged index considered representative of mid-cap growth stocks. The **Russell Midcap Value Index** is an unmanaged index considered representative of mid-cap value stocks. The **HFRX Indices** are a series of benchmarks of hedge fund industry performance which are engineered to achieve representative performance of a larger universe of hedge fund strategies. Hedge Fund Research, Inc. employs the HFRX Methodology (UCITS compliant), a proprietary and highly quantitative process by which hedge funds are selected as constituents for the HFRX Indices. The **University of Michigan Consumer Sentiment Index** (MCSI) is a survey of consumer confidence conducted by the University of Michigan using telephone surveys to gather information on consumer expectations regarding the overall economy. The **CBOE Volatility Index** (VIX) is an up-to-the-minute market estimate of expected volatility that is calculated by using real-time S&P 500 Index option bid/ask quotes. The Index uses nearby and second nearby options with at least 8 days left to expiration and then weights them to yield a constant, 30-day measure of the expected volatility of the S&P 500 Index. The **MSCI EAFE Index** is designed to measure the equity market performance of developed markets outside of the U.S. & Canada. The **MSCI EAFE Growth Index** is an unmanaged index considered representative of growth stocks of Europe, Australasia and the Far East. The **MSCI EAFE Value Index** is an unmanaged index considered representative of value stocks of Europe, Australasia and the Far East. The **MSCI EM (Emerging Markets) Latin America Index** is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of emerging markets in Latin America. The **MSCI World ex-U.S. Index** captures large and mid-cap representation across 22 of 23 Developed Markets (DM) countries - excluding the US. With 1,002 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country. The **MSCI Japan Index** is designed to measure the performance of the large and mid-cap segments of the Japanese market. With 320 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in Japan. The **MSCI Emerging Markets Index** is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets. The **MSCI Europe Index** is an unmanaged index considered representative of stocks of developed European countries. The **MSCI Pacific Index** is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of the developed markets in the Pacific region. The **Barclays Intermediate US Government/Credit Bond Index** is a market capitalization-weighted index of investment-grade, fixed-rate debt issues, including Treasuries, government-related and U.S. corporate securities, with maturities of at least one year and less than 10 years. The **NY Empire State Manufacturing Index** is based on the monthly survey of manufacturers in New York State – known as the Empire State Manufacturing Survey – conducted by the Federal Reserve Bank of New York. The **S&P** The **Dow Jones Wilshire U.S. REIT Index** tracks the performance of publicly traded REITs and REIT-like securities and is designed to serve as a proxy for direct real estate investment, in part by excluding companies whose performance may be driven by factors other than the value of real estate. The **Russell Top 200 Index** measures the performance of the 200 largest companies in the Russell 1000 Index, with a weighted average market capitalization of $186 billion. The **Barclays 1-3 Year US Treasury Bond Index** measures public US Treasury obligations with remaining maturities of one to three years. The **S&P LSTA Leveraged Loan Index** is an unmanaged capitalization-weighted syndicated loan index based upon market weightings, spreads and interest payments. It covers the US market back to 1997 and currently calculates on a daily basis. The **NFIB Small Business Optimism Index** is compiled from a survey that is conducted each month by the National Federation of Independent **Business** (**NFIB**) of its members

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