



The Concord Advisory Group, Ltd.

April 2019 Market Highlights *“Playing Optimally on Jeopardy”*

The Concord Advisory Group, Ltd.

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Concord Advisory Group: April 2019 Market Highlights

Commentary: “Playing Optimally on Jeopardy”



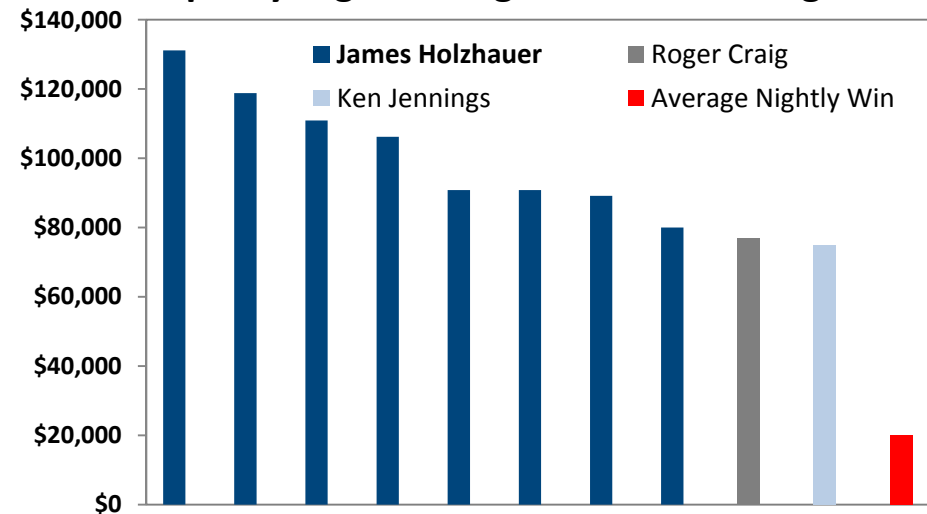
Over the last four weeks, James Holzhauer has dominated and may forever change the way the gameshow Jeopardy is played. Holzhauer has an encyclopedic knowledge of facts and lightning quick reflexes on the buzzer, but his optimized wagering separates him from the other great players. Holzhauer is the first player to build his bankroll by selecting the high-dollar-value clues first and then make large bets on the daily doubles. This has allowed him to obliterate the record book for the largest single-day wins in show history in less than a month.

Outside of Jeopardy, Holzhauer works as a professional gambler, making it likely that he has heard of the Kelly Criterion. The Kelly Criterion is a formula that answers the question, “How much should I bet when the odds are in my favor?” In the case of Holzhauer on Jeopardy, if we assume he will answer the daily double questions correctly 90% of the time, the Kelly Criterion estimates that he should be willing to bet 80% of his (now very large) bankroll. Therefore, the limiting factor on Holzhauer’s bets is to avoid betting so much that he endangers his chances of winning the game, but his play is so strong that he usually has massive leads over the competitors.

Many of the best investors, including Bill Gross and Warren Buffet, incorporate the principles of the Kelly Criterion. The implementation is imprecise, because the probabilities of success and payouts are unknowable in financial markets. However, the Kelly Criterion explains why it is unwise for a fixed income manager to have more than a two percent allocation to any one credit, as the odds of success are high, but the losses on defaults are very large.

Finally, a Kelly Criterion, back-of-a-napkin, analysis of overall risk budgets is interesting. Stocks have historically outperformed bonds 85% of the time over rolling 10-year periods. If we assume future stock outperformance by a global equity risk premium of 5% and a -3% return in down markets, the formula recommends a maximum 76% allocation to equities. There are too many assumptions to make this a directive, but it is confirming of using risk assets as a primary return driver in most portfolios.

Jeopardy Highest Single-Game Winnings

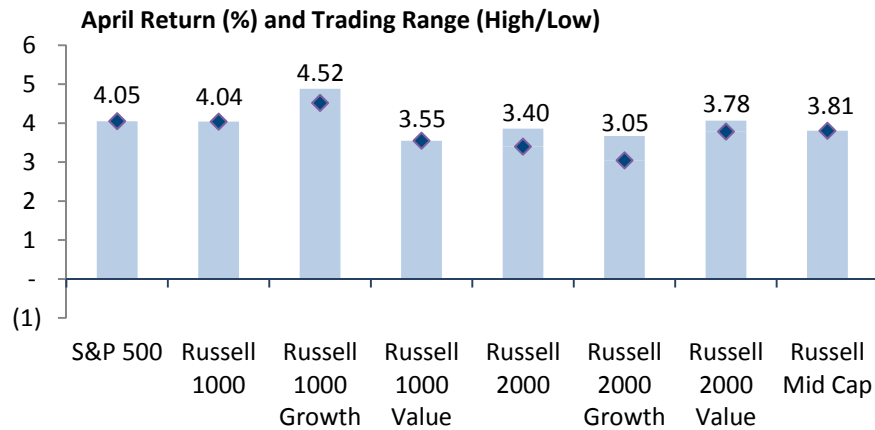


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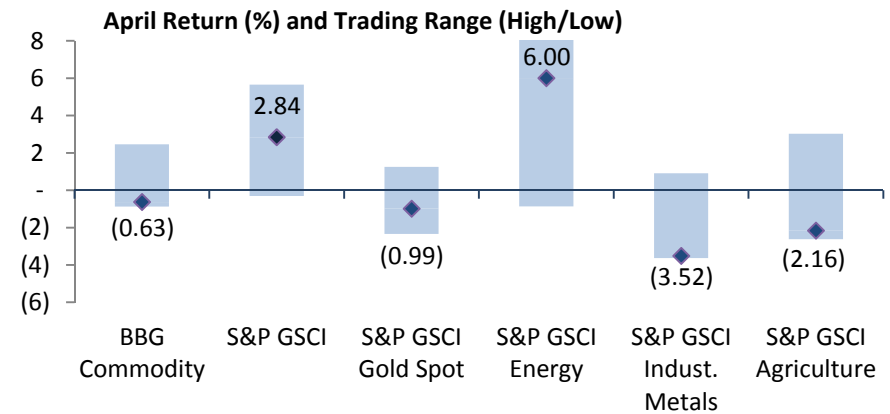
Monthly Charts



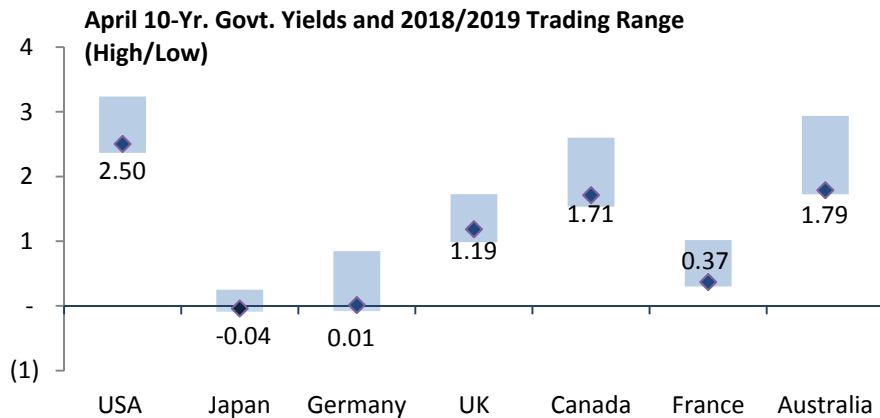
U.S. Equities: U.S. equities entered the second quarter with the same momentum as the first three months of 2019. A dovish Fed, better-than-expected economic data and positive earnings all contributed to gains.



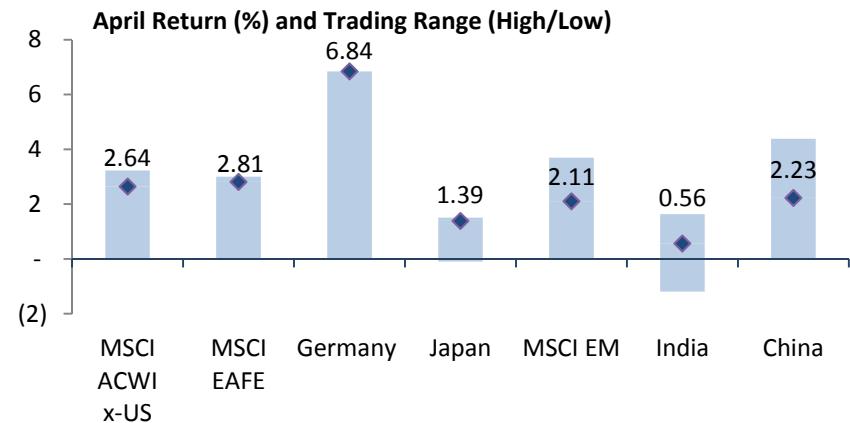
Commodities: Broad commodities prices were modestly lower in April, despite strength in the Energy sector. Oil prices moved higher on tighter sanctions for Iran and political turmoil in Venezuela.



Fixed Income: Rates rose on the back-end of the curve, which caused losses in Treasuries. Tighter credit spreads allowed corporate bonds to outperform and intermediate fixed income to generate a small gain.



International Equities: Non-U.S. developed equities benefitted from earnings surprises and modest economic improvements. Emerging markets fared slightly worse due to relative weakness in Latin America.

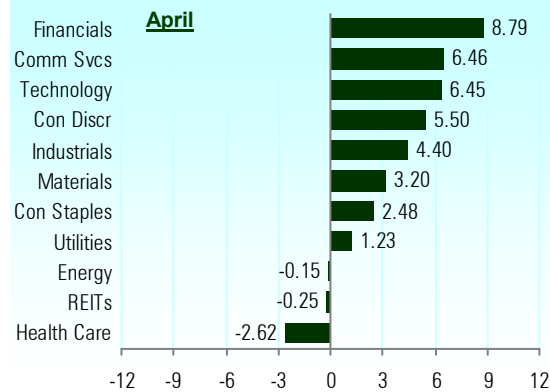


Concord Advisory Group: April 2019 Market Performance

Equity Markets	Past Month	Past 3 Months	YTD	1 Yr	3 Yrs	5 Yrs
S&P 500	4.05%	9.47%	18.24%	13.49%	14.87%	11.63%
Russell 1000	4.04%	9.44%	18.61%	13.33%	14.82%	11.41%
Russell 1000 Growth	4.52%	11.35%	21.36%	17.44%	18.63%	14.51%
Russell 1000 Value	3.55%	7.55%	15.91%	9.08%	10.97%	8.27%
Russell MidCap	3.81%	9.20%	20.99%	10.70%	12.82%	9.75%
Russell 2000	3.40%	6.50%	18.48%	4.62%	13.60%	8.63%
Russell 2000 Growth	3.05%	8.23%	20.73%	6.93%	15.65%	10.22%
Russell 2000 Value	3.78%	4.71%	16.17%	2.19%	11.46%	6.94%
MSCI ACWI	3.38%	7.48%	15.97%	5.07%	11.36%	6.96%
MSCI World	3.55%	8.06%	16.47%	6.49%	11.39%	7.31%
MSCI ACWI Ex-US	2.64%	5.27%	13.23%	-3.23%	8.09%	2.83%
MSCI EAFE	2.81%	6.10%	13.07%	-3.22%	7.24%	2.60%
MSCI EM	2.11%	3.19%	12.24%	-5.04%	11.25%	4.04%
Bloomberg Commodity	-0.42%	0.40%	5.88%	-8.03%	-0.66%	-9.43%

Fixed Income Markets	Past Month	Past 3 Months	YTD	1 Yr	3 Yrs	5 Yrs
Barclays Capital Aggregate	0.03%	1.89%	2.97%	5.29%	1.91%	2.57%
Barclays Capital Global Aggregate	-0.30%	0.36%	1.89%	0.93%	0.94%	0.75%
Barclays Capital Intermediate Aggregate	0.11%	1.54%	2.39%	4.98%	1.67%	2.20%
Barclays Capital Universal	0.14%	2.06%	3.47%	5.38%	2.46%	2.85%
Barclays Capital Government	-0.27%	1.35%	1.83%	4.76%	1.02%	1.98%
Barclays Capital Credit	0.49%	3.17%	5.40%	6.38%	3.23%	3.45%
Barclays Capital Municipal	0.38%	2.52%	3.30%	6.17%	2.59%	3.57%
Barclays Capital High Yield	1.42%	4.07%	8.78%	6.74%	7.69%	4.84%
Barclays Capital Mortgage	-0.06%	1.31%	2.11%	4.89%	1.70%	2.45%
Barclays Capital 1-3 Yr Gov/Credit	0.23%	1.05%	1.45%	3.38%	1.35%	1.24%
FTSE 3-Month Treasury Bill	0.20%	0.60%	0.80%	2.19%	1.23%	0.76%
FTSE World Govt Bond	-0.50%	-0.16%	1.24%	-0.17%	0.37%	0.27%
Barclays Capital U.S. TIPS	0.33%	2.17%	3.55%	3.12%	1.70%	1.74%
BofAML Invest Grade Convertible	1.39%	4.67%	8.40%	6.47%	15.37%	11.48%

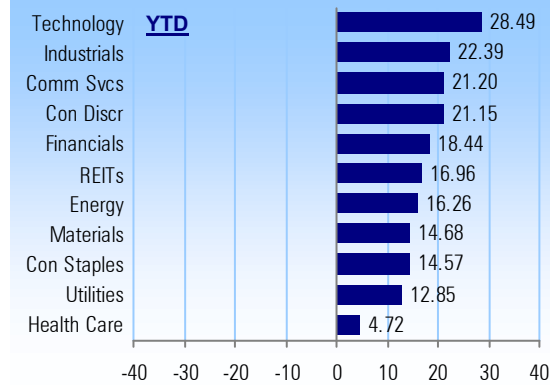
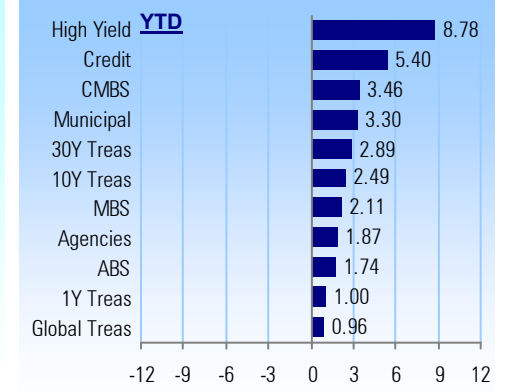
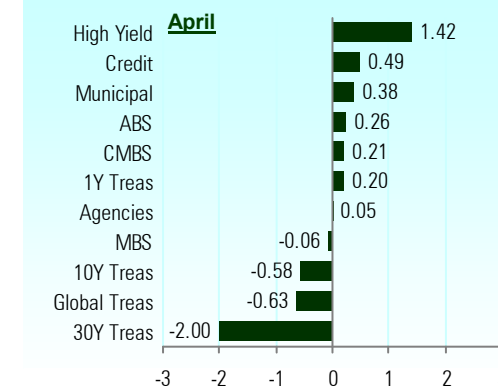
Equity Sector Returns (%)



Equity Style Returns (%)

Style	Value	Core	Growth
Large	3.55	4.04	4.52
Mid	3.30	3.81	4.50
Small	3.78	3.40	3.05

Fixed Income Sector Returns (%)



Style	Value	Core	Growth
Large	15.91	18.61	21.36
Mid	18.14	20.99	25.00
Small	16.17	18.48	20.73

Treasury Yield Curve

