

# thru\_earnings\_ws\_estimize\_delta\_event\_study

August 24, 2018

## 1 Through Earnings WS Estimate Delta Event Study

In this notebook we explore the relationship between the Wall Street/Estimize EPS delta (just prior to the earnings announcement) and the cumulative residual returns starting from the close before the earnings announcement and in the days following.

### Conclusions:

- There is a positive cumulative residual return when the EPS delta is positive and vice versa
- Positive EPS deltas tend to produce a larger positive return than negative ones
- Sector analysis showed that Consumer Discretionary, Healthcare and Materials produced the strongest alpha
- Market Cap analysis showed that Micro and Small Cap stocks produced the strongest alpha

### 1.1 Data and Methodology

#### Datasources:

- EPS Consensus values (Estimize consensus.csv)
- Asset historical prices (Zipline.io/Quandl prices dataset)
- SPY historical prices (Yahoo Finance)

Our first step is to generate the Wall Street and Estimize Weighted EPS deltas for each release:

$$EPSDelta = \frac{EPS_{wallstreet} - EPS_{estimate}}{STDEV_{estimate} + 0.01}$$

Where  $STDEV_{estimate}$  is the standard deviation of the release's estimate consensus.

After calculating the EPS deltas for all reported releases, we group them by quantile, with 1 being the lowest and 5 being the highest. This set of data represents the events we will plug into the event study.

The next step is to get the residual returns for each stock following an event. We calculate the residual returns using the CAPM with S&P500 index as the market portfolio:

$$E(R_{i,t}) = b_0 + b_1 \cdot E(R_{M,t})$$

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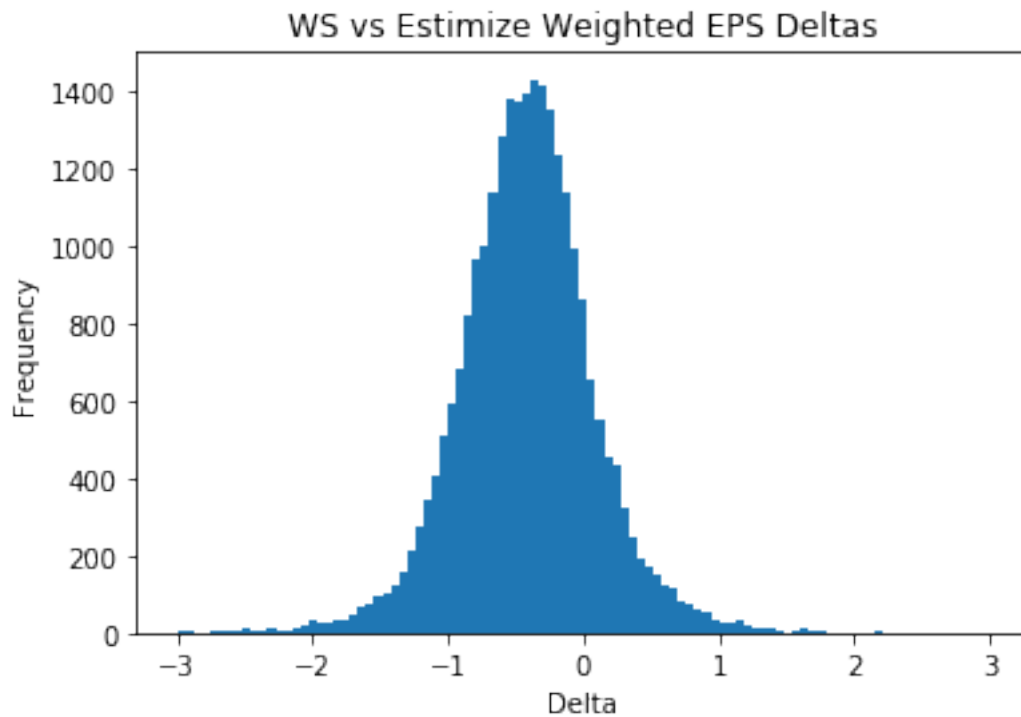
$$ResidualReturn_{i,t} = R_{i,t} - E(R_{i,t})$$

Finally, we take the cumulative residual returns over the days in the event study grouped by the EPS delta quantile.

**Disclaimer:**

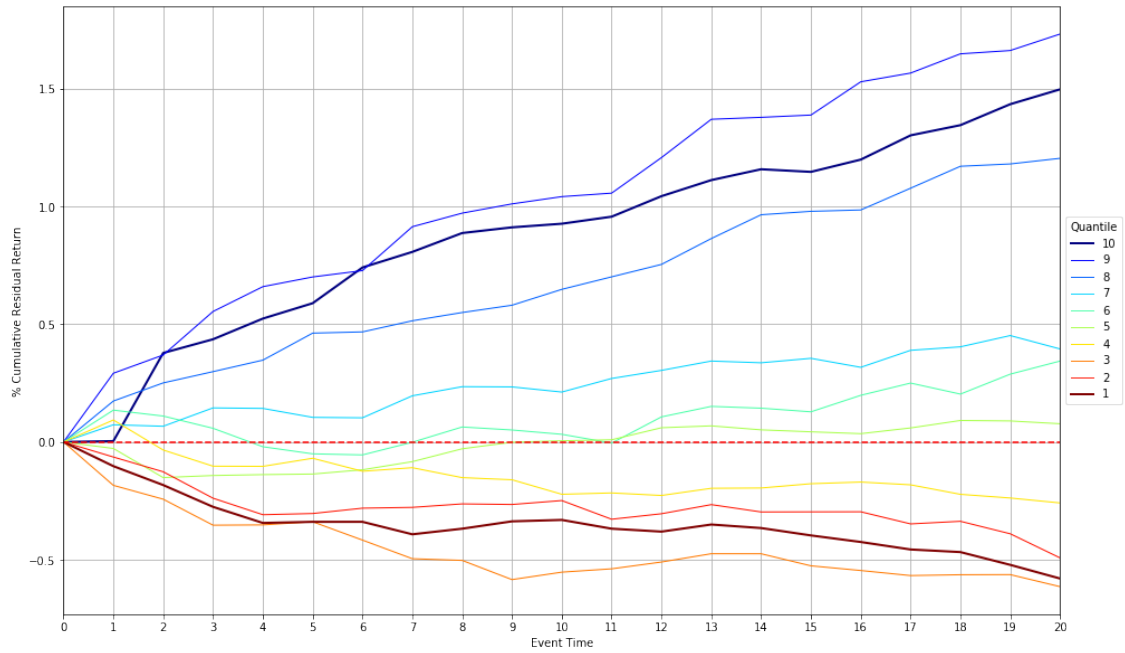
This event study was prepared in a fashion similar to other event studies and research done in this field. Since the decile calculations are done ex-post, it should be noted that any trading strategy using this factor should calculate the eps delta deciles in a rolling fashion.

## 1.2 EPS Deltas



### 1.2.1 All Stocks (All-time)

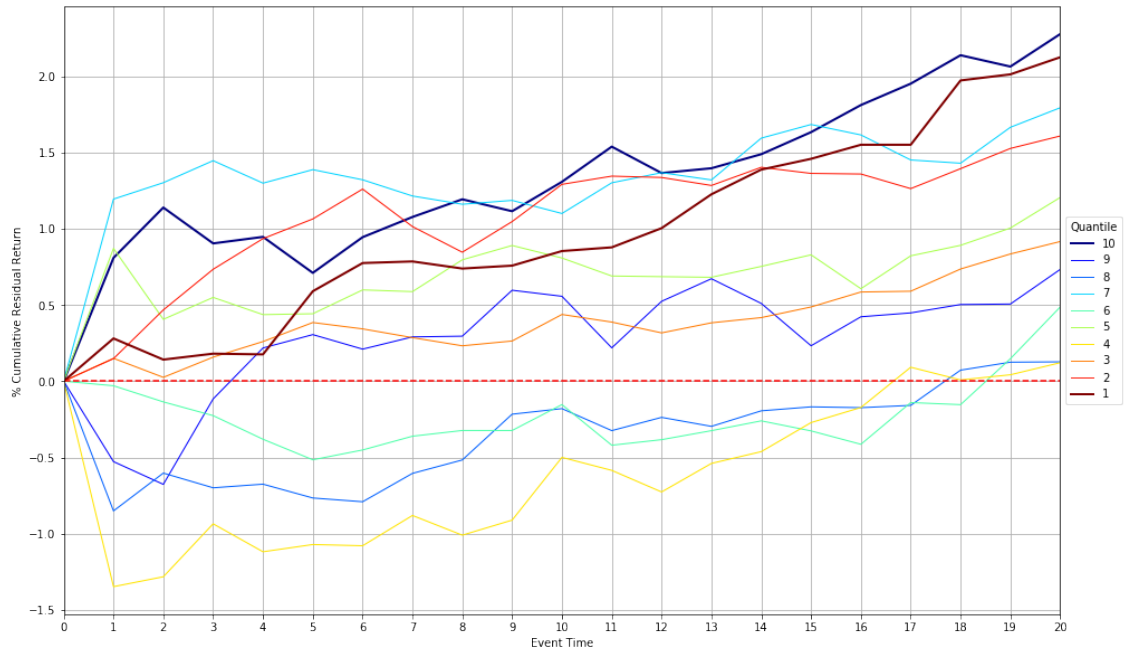
Num Events: 24,326



event_time	1	2	3	4	5	10	15	20
quantile								
1.0	-0.10%	-0.18%	-0.28%	-0.34%	-0.34%	-0.33%	-0.40%	-0.58%
2.0	-0.06%	-0.13%	-0.24%	-0.31%	-0.30%	-0.25%	-0.30%	-0.49%
3.0	-0.18%	-0.24%	-0.35%	-0.35%	-0.34%	-0.55%	-0.53%	-0.61%
4.0	0.09%	-0.03%	-0.10%	-0.10%	-0.07%	-0.22%	-0.18%	-0.26%
5.0	-0.03%	-0.15%	-0.14%	-0.14%	-0.14%	0.01%	0.04%	0.08%
6.0	0.14%	0.11%	0.06%	-0.02%	-0.05%	0.03%	0.13%	0.34%
7.0	0.07%	0.07%	0.14%	0.14%	0.10%	0.21%	0.36%	0.40%
8.0	0.17%	0.25%	0.30%	0.35%	0.46%	0.65%	0.98%	1.20%
9.0	0.29%	0.37%	0.55%	0.66%	0.70%	1.04%	1.39%	1.73%
10.0	0.00%	0.38%	0.44%	0.52%	0.59%	0.93%	1.15%	1.50%

### 1.2.2 All Stocks (up to Q1 2018)

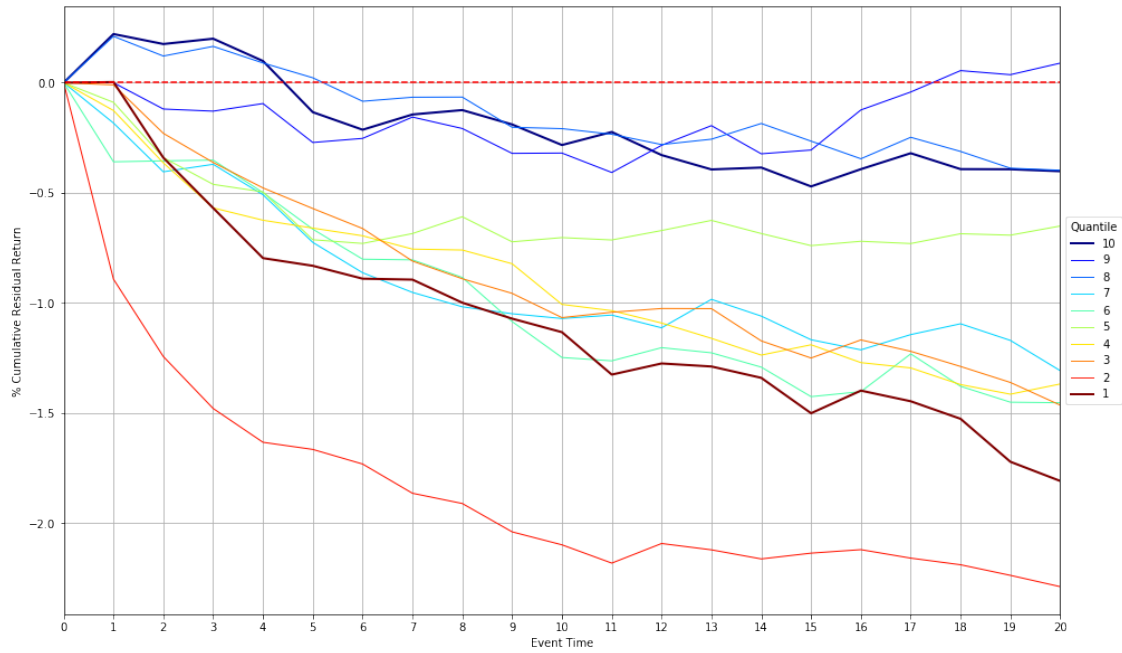
Num Events: 1,435



event_time	1	2	3	4	5	10	15	20
quantile								
1.0	0.28%	0.14%	0.18%	0.18%	0.59%	0.85%	1.46%	2.12%
2.0	0.15%	0.47%	0.73%	0.93%	1.06%	1.29%	1.36%	1.61%
3.0	0.15%	0.03%	0.16%	0.26%	0.38%	0.44%	0.49%	0.92%
4.0	-1.35%	-1.28%	-0.94%	-1.12%	-1.07%	-0.50%	-0.27%	0.12%
5.0	0.87%	0.41%	0.55%	0.44%	0.44%	0.81%	0.83%	1.20%
6.0	-0.03%	-0.14%	-0.23%	-0.38%	-0.52%	-0.15%	-0.33%	0.49%
7.0	1.19%	1.30%	1.45%	1.30%	1.39%	1.10%	1.68%	1.79%
8.0	-0.85%	-0.60%	-0.70%	-0.68%	-0.77%	-0.18%	-0.17%	0.13%
9.0	-0.53%	-0.68%	-0.12%	0.22%	0.31%	0.56%	0.23%	0.73%
10.0	0.81%	1.14%	0.90%	0.95%	0.71%	1.31%	1.63%	2.28%

### 1.2.3 All Stocks (2017)

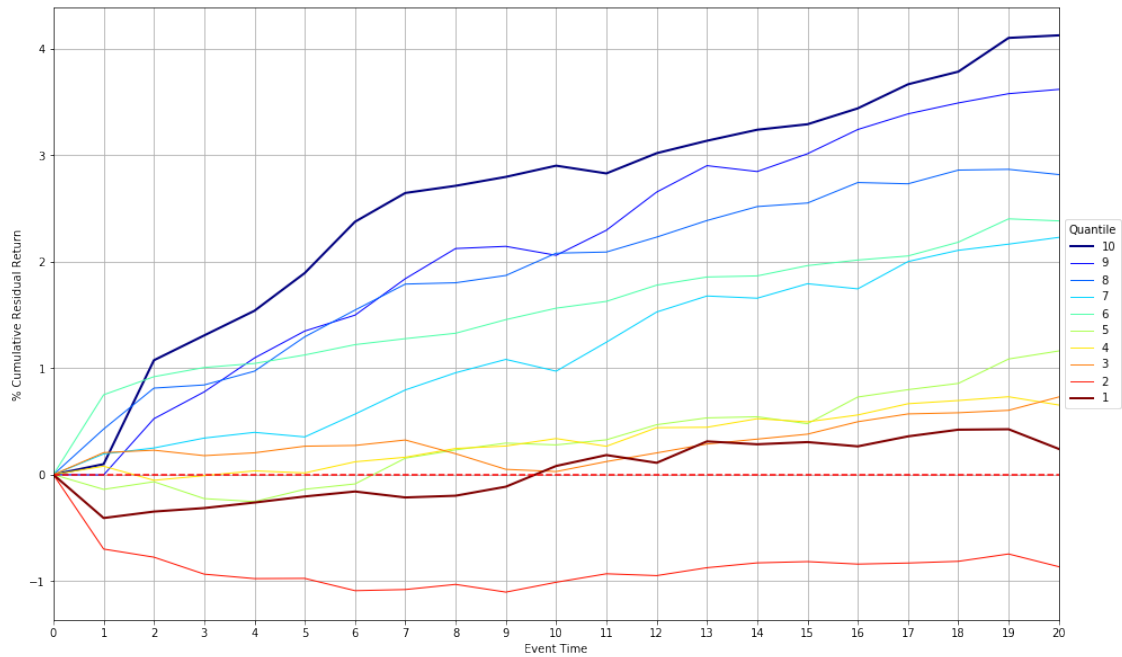
Num Events: 5,936



event_time	1	2	3	4	5	10	15	20
quantile								
1.0	0.00%	-0.34%	-0.57%	-0.80%	-0.83%	-1.13%	-1.50%	-1.81%
2.0	-0.89%	-1.24%	-1.48%	-1.63%	-1.66%	-2.10%	-2.14%	-2.29%
3.0	-0.01%	-0.23%	-0.36%	-0.48%	-0.57%	-1.07%	-1.25%	-1.46%
4.0	-0.13%	-0.36%	-0.57%	-0.62%	-0.66%	-1.01%	-1.19%	-1.37%
5.0	-0.09%	-0.34%	-0.46%	-0.50%	-0.71%	-0.70%	-0.74%	-0.65%
6.0	-0.36%	-0.35%	-0.35%	-0.50%	-0.66%	-1.25%	-1.42%	-1.45%
7.0	-0.18%	-0.40%	-0.37%	-0.51%	-0.72%	-1.07%	-1.17%	-1.31%
8.0	0.21%	0.12%	0.16%	0.09%	0.02%	-0.21%	-0.27%	-0.40%
9.0	-0.00%	-0.12%	-0.13%	-0.09%	-0.27%	-0.32%	-0.31%	0.09%
10.0	0.22%	0.18%	0.20%	0.10%	-0.13%	-0.28%	-0.47%	-0.40%

## 1.2.4 All Stocks (2016)

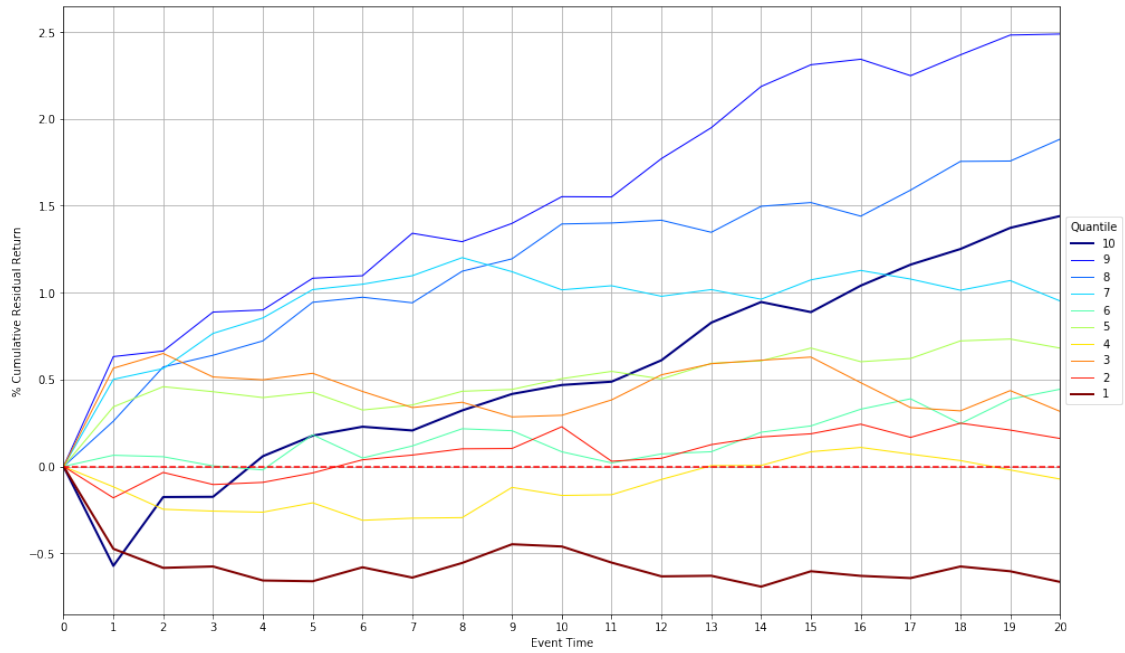
Num Events: 5,781



event_time	1	2	3	4	5	10	15	20
quantile								
1.0	-0.41%	-0.35%	-0.31%	-0.26%	-0.21%	0.08%	0.31%	0.24%
2.0	-0.70%	-0.78%	-0.93%	-0.98%	-0.97%	-1.01%	-0.82%	-0.87%
3.0	0.21%	0.23%	0.18%	0.20%	0.27%	0.03%	0.38%	0.73%
4.0	0.08%	-0.05%	-0.01%	0.04%	0.02%	0.34%	0.50%	0.65%
5.0	-0.14%	-0.07%	-0.23%	-0.25%	-0.14%	0.28%	0.48%	1.16%
6.0	0.75%	0.92%	1.01%	1.04%	1.12%	1.56%	1.96%	2.38%
7.0	0.19%	0.25%	0.34%	0.40%	0.35%	0.97%	1.79%	2.23%
8.0	0.43%	0.81%	0.84%	0.97%	1.29%	2.08%	2.55%	2.82%
9.0	-0.00%	0.52%	0.78%	1.10%	1.35%	2.06%	3.01%	3.62%
10.0	0.10%	1.07%	1.31%	1.54%	1.89%	2.90%	3.29%	4.13%

### 1.2.5 All Stocks (2015)

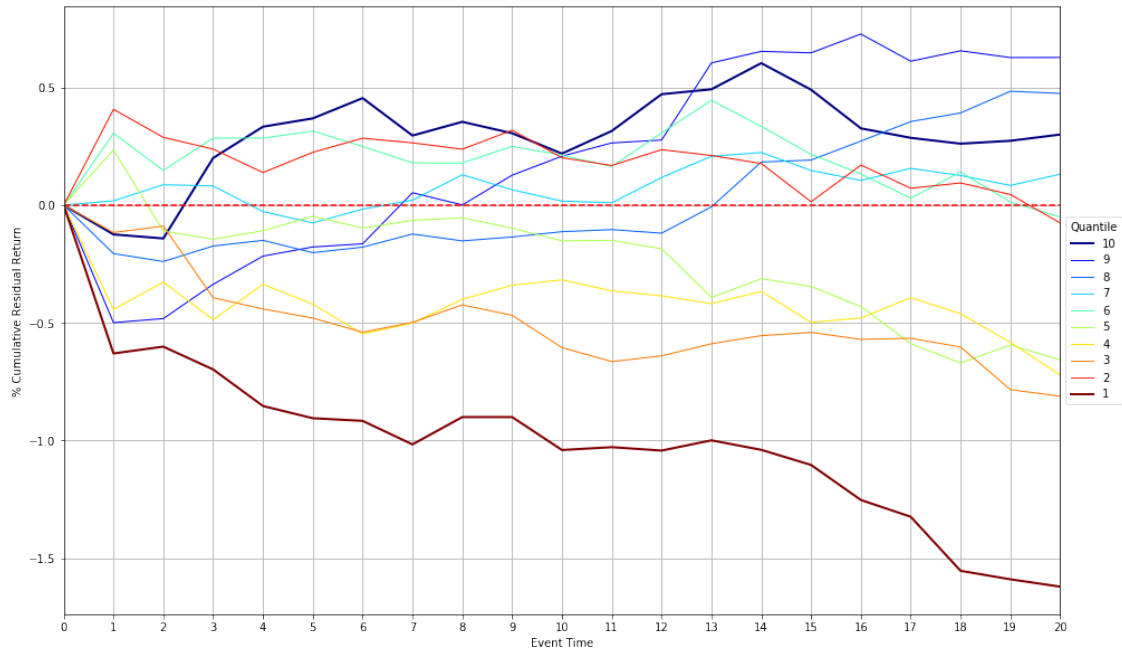
Num Events: 4,722



event_time	1	2	3	4	5	10	15	20
quantile								
1.0	-0.47%	-0.58%	-0.58%	-0.66%	-0.66%	-0.46%	-0.60%	-0.66%
2.0	-0.18%	-0.03%	-0.10%	-0.09%	-0.04%	0.23%	0.19%	0.16%
3.0	0.57%	0.65%	0.51%	0.50%	0.54%	0.29%	0.63%	0.32%
4.0	-0.12%	-0.25%	-0.26%	-0.26%	-0.21%	-0.17%	0.08%	-0.07%
5.0	0.34%	0.46%	0.43%	0.40%	0.43%	0.51%	0.68%	0.68%
6.0	0.06%	0.06%	0.00%	-0.02%	0.18%	0.08%	0.23%	0.44%
7.0	0.50%	0.56%	0.77%	0.85%	1.02%	1.02%	1.07%	0.95%
8.0	0.26%	0.57%	0.64%	0.72%	0.94%	1.40%	1.52%	1.88%
9.0	0.63%	0.66%	0.89%	0.90%	1.08%	1.55%	2.31%	2.49%
10.0	-0.57%	-0.18%	-0.17%	0.06%	0.18%	0.47%	0.89%	1.44%

## 1.2.6 All Stocks (2014)

Num Events: 3,376

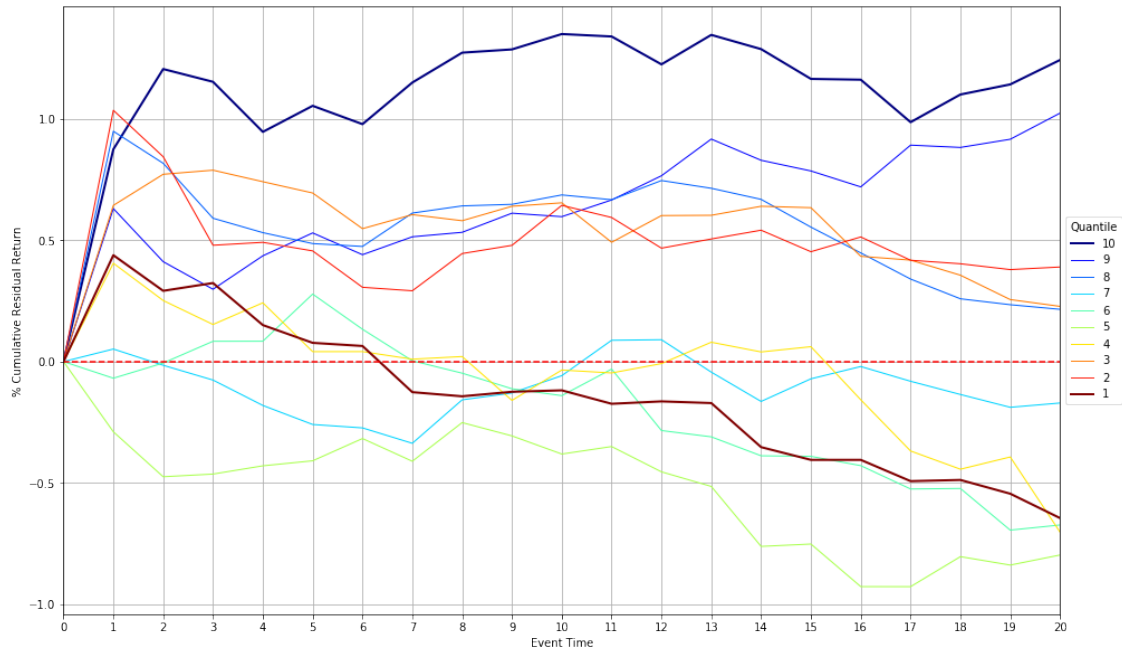


event_time	1	2	3	4	5	10	15	20
quantile								
1.0	-0.63%	-0.60%	-0.70%	-0.85%	-0.90%	-1.04%	-1.10%	-1.62%
2.0	0.41%	0.29%	0.24%	0.14%	0.22%	0.20%	0.01%	-0.08%
3.0	-0.12%	-0.09%	-0.39%	-0.44%	-0.48%	-0.60%	-0.54%	-0.81%
4.0	-0.44%	-0.33%	-0.49%	-0.34%	-0.42%	-0.32%	-0.50%	-0.72%
5.0	0.23%	-0.11%	-0.14%	-0.11%	-0.05%	-0.15%	-0.35%	-0.66%
6.0	0.31%	0.15%	0.29%	0.28%	0.31%	0.21%	0.22%	-0.05%
7.0	0.02%	0.09%	0.08%	-0.03%	-0.08%	0.02%	0.15%	0.13%
8.0	-0.21%	-0.24%	-0.17%	-0.15%	-0.20%	-0.11%	0.19%	0.47%
9.0	-0.50%	-0.48%	-0.34%	-0.22%	-0.18%	0.21%	0.65%	0.63%
10.0	-0.12%	-0.14%	0.20%	0.33%	0.37%	0.22%	0.49%	0.30%

### 1.2.7 All Stocks (2013)

Num Events: 2,025

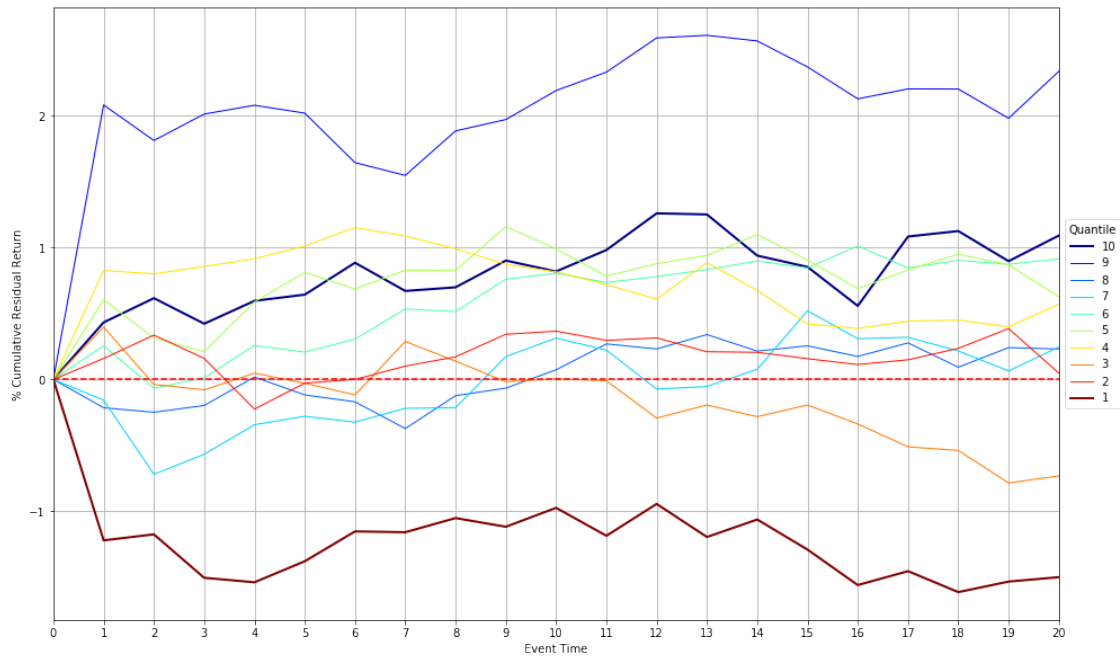




event_time	1	2	3	4	5	10	15	20
quantile								
1.0	0.44%	0.29%	0.32%	0.15%	0.08%	-0.12%	-0.40%	-0.64%
2.0	1.04%	0.84%	0.48%	0.49%	0.46%	0.64%	0.45%	0.39%
3.0	0.64%	0.77%	0.79%	0.74%	0.69%	0.65%	0.63%	0.23%
4.0	0.41%	0.25%	0.15%	0.24%	0.04%	-0.03%	0.06%	-0.70%
5.0	-0.29%	-0.47%	-0.46%	-0.43%	-0.41%	-0.38%	-0.75%	-0.80%
6.0	-0.07%	-0.01%	0.08%	0.08%	0.28%	-0.14%	-0.39%	-0.67%
7.0	0.05%	-0.02%	-0.08%	-0.18%	-0.26%	-0.06%	-0.07%	-0.17%
8.0	0.95%	0.82%	0.59%	0.53%	0.49%	0.69%	0.55%	0.22%
9.0	0.63%	0.41%	0.30%	0.44%	0.53%	0.60%	0.79%	1.02%
10.0	0.88%	1.21%	1.15%	0.95%	1.05%	1.35%	1.17%	1.24%

### 1.2.8 All Stocks (2012)

Num Events: 988

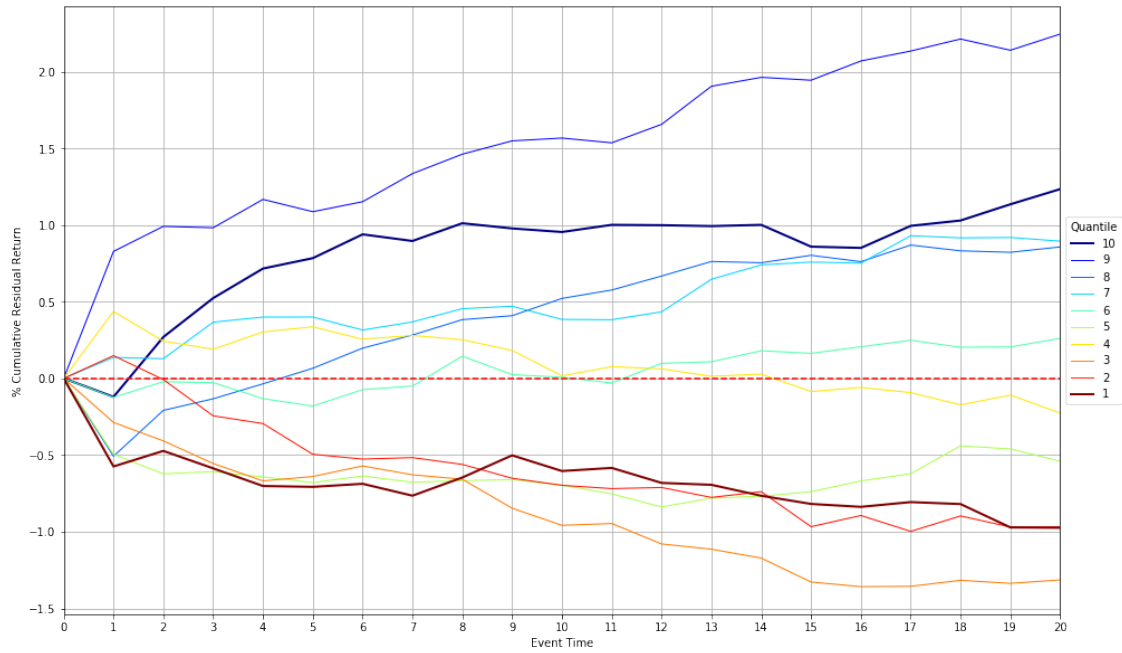


event_time	1	2	3	4	5	10	15	20
quantile								
1.0	-1.22%	-1.18%	-1.50%	-1.54%	-1.38%	-0.97%	-1.29%	-1.50%
2.0	0.16%	0.34%	0.16%	-0.23%	-0.03%	0.37%	0.16%	0.05%
3.0	0.40%	-0.04%	-0.08%	0.05%	-0.03%	0.00%	-0.19%	-0.73%
4.0	0.83%	0.80%	0.86%	0.91%	1.01%	0.82%	0.42%	0.57%
5.0	0.60%	0.31%	0.21%	0.59%	0.81%	0.99%	0.90%	0.63%
6.0	0.25%	-0.07%	0.01%	0.26%	0.21%	0.81%	0.85%	0.91%
7.0	-0.16%	-0.72%	-0.57%	-0.34%	-0.28%	0.31%	0.52%	0.25%
8.0	-0.22%	-0.25%	-0.20%	0.02%	-0.12%	0.07%	0.25%	0.23%
9.0	2.08%	1.81%	2.01%	2.08%	2.02%	2.19%	2.37%	2.34%
10.0	0.43%	0.62%	0.42%	0.60%	0.64%	0.82%	0.85%	1.09%

## 1.3 Sector Analysis

### 1.3.1 Consumer Discretionary (All-Time)

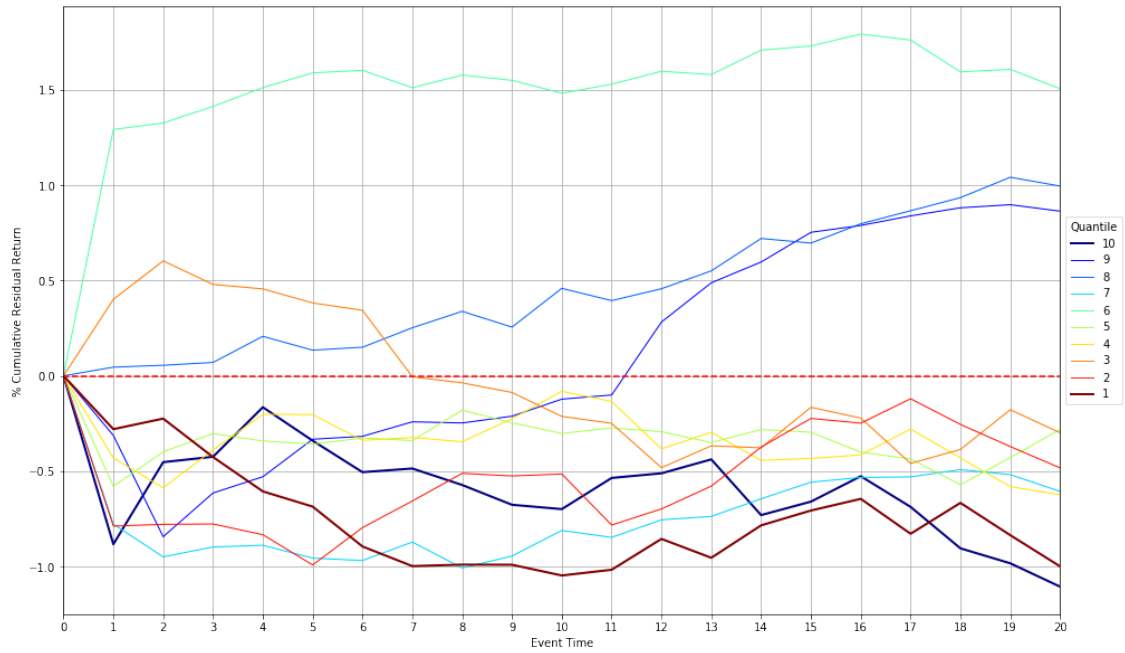
Num Events: 4,949



event_time	1	2	3	4	5	10	15	20
quantile								
1	-0.57%	-0.47%	-0.59%	-0.70%	-0.71%	-0.60%	-0.82%	-0.97%
2	0.15%	-0.01%	-0.24%	-0.29%	-0.50%	-0.70%	-0.97%	-0.97%
3	-0.29%	-0.41%	-0.56%	-0.67%	-0.64%	-0.96%	-1.33%	-1.31%
4	0.44%	0.24%	0.19%	0.30%	0.34%	0.02%	-0.09%	-0.23%
5	-0.50%	-0.62%	-0.61%	-0.64%	-0.68%	-0.70%	-0.74%	-0.54%
6	-0.12%	-0.02%	-0.03%	-0.13%	-0.18%	0.01%	0.16%	0.26%
7	0.14%	0.13%	0.37%	0.40%	0.40%	0.38%	0.76%	0.90%
8	-0.51%	-0.21%	-0.13%	-0.04%	0.07%	0.52%	0.80%	0.86%
9	0.83%	0.99%	0.98%	1.17%	1.09%	1.57%	1.94%	2.25%
10	-0.12%	0.27%	0.52%	0.72%	0.78%	0.95%	0.86%	1.23%

### 1.3.2 Consumer Staples (All-Time)

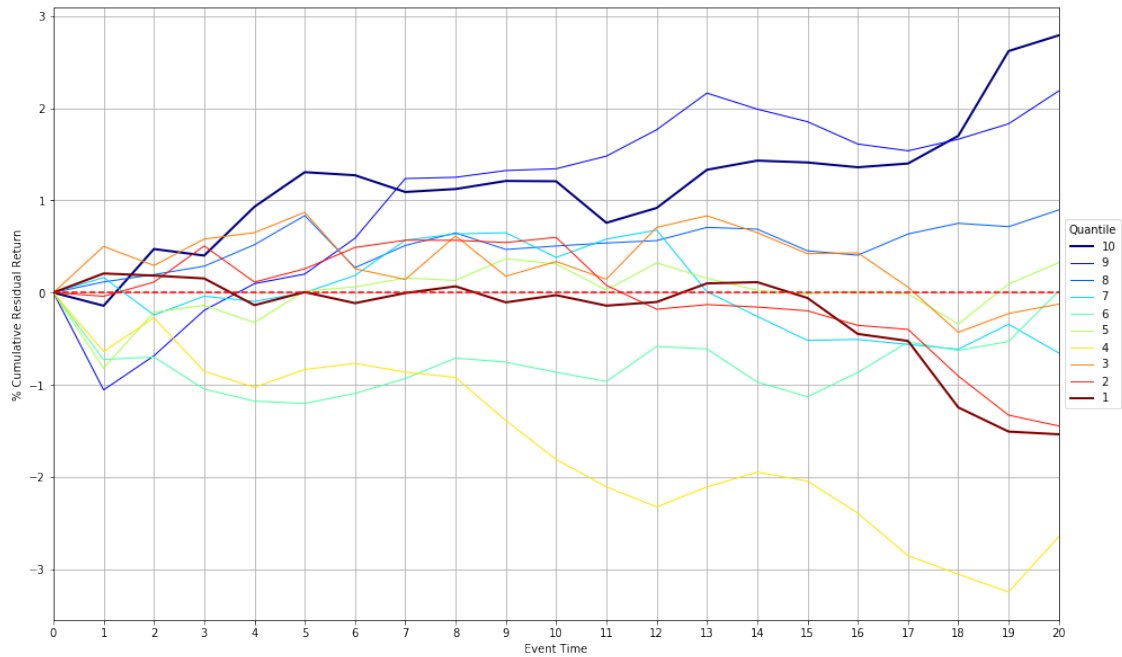
Num Events: 1,373



event_time	1	2	3	4	5	10	15	20
quantile								
1	-0.28%	-0.22%	-0.43%	-0.61%	-0.69%	-1.05%	-0.71%	-1.00%
2	-0.79%	-0.78%	-0.78%	-0.83%	-0.99%	-0.51%	-0.22%	-0.48%
3	0.40%	0.60%	0.48%	0.46%	0.38%	-0.21%	-0.17%	-0.30%
4	-0.43%	-0.59%	-0.39%	-0.20%	-0.20%	-0.08%	-0.43%	-0.62%
5	-0.58%	-0.40%	-0.30%	-0.34%	-0.36%	-0.30%	-0.30%	-0.28%
6	1.29%	1.33%	1.41%	1.51%	1.59%	1.48%	1.73%	1.51%
7	-0.78%	-0.95%	-0.90%	-0.89%	-0.96%	-0.81%	-0.56%	-0.61%
8	0.05%	0.06%	0.07%	0.21%	0.13%	0.46%	0.70%	1.00%
9	-0.31%	-0.84%	-0.61%	-0.53%	-0.33%	-0.12%	0.75%	0.86%
10	-0.88%	-0.45%	-0.42%	-0.16%	-0.34%	-0.70%	-0.66%	-1.11%

### 1.3.3 Energy (All-Time)

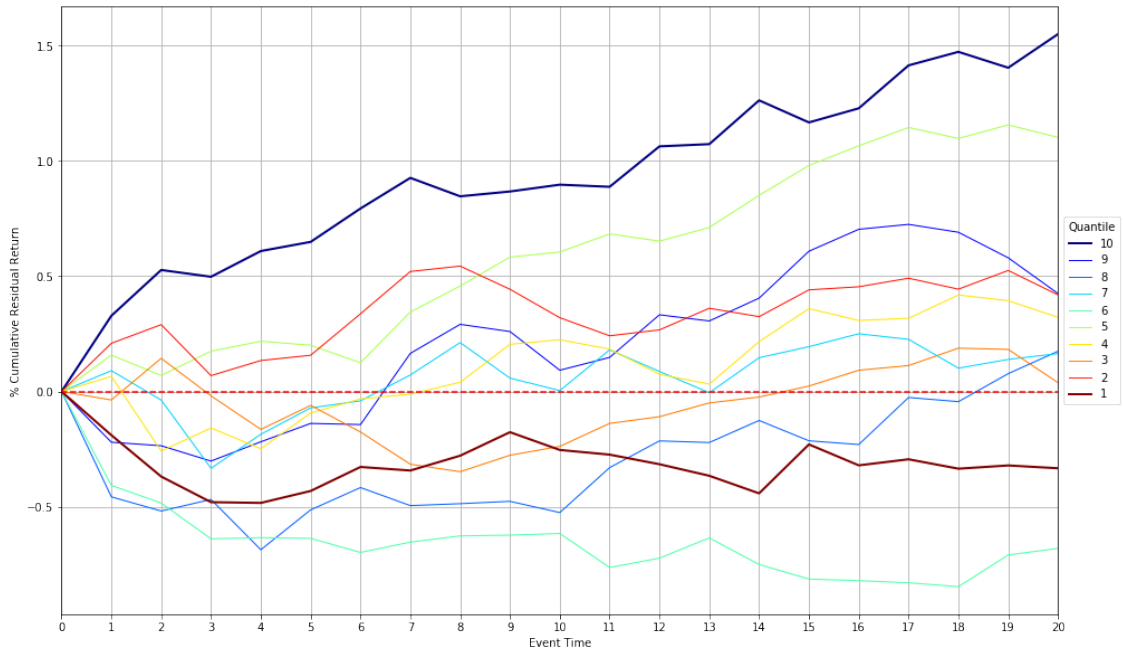
Num Events: 1,343



event_time	1	2	3	4	5	10	15	20
quantile								
1	0.21%	0.18%	0.15%	-0.14%	0.01%	-0.03%	-0.06%	-1.54%
2	-0.04%	0.11%	0.51%	0.11%	0.26%	0.60%	-0.20%	-1.45%
3	0.50%	0.29%	0.58%	0.65%	0.87%	0.34%	0.42%	-0.12%
4	-0.64%	-0.27%	-0.85%	-1.03%	-0.83%	-1.81%	-2.04%	-2.65%
5	-0.82%	-0.21%	-0.14%	-0.32%	0.02%	0.31%	-0.01%	0.33%
6	-0.73%	-0.70%	-1.05%	-1.18%	-1.20%	-0.86%	-1.13%	0.02%
7	0.16%	-0.24%	-0.04%	-0.10%	0.00%	0.38%	-0.52%	-0.66%
8	0.12%	0.20%	0.29%	0.52%	0.84%	0.51%	0.45%	0.90%
9	-1.06%	-0.69%	-0.19%	0.10%	0.20%	1.34%	1.85%	2.19%
10	-0.14%	0.47%	0.40%	0.93%	1.31%	1.21%	1.41%	2.79%

### 1.3.4 Financials (All-Time)

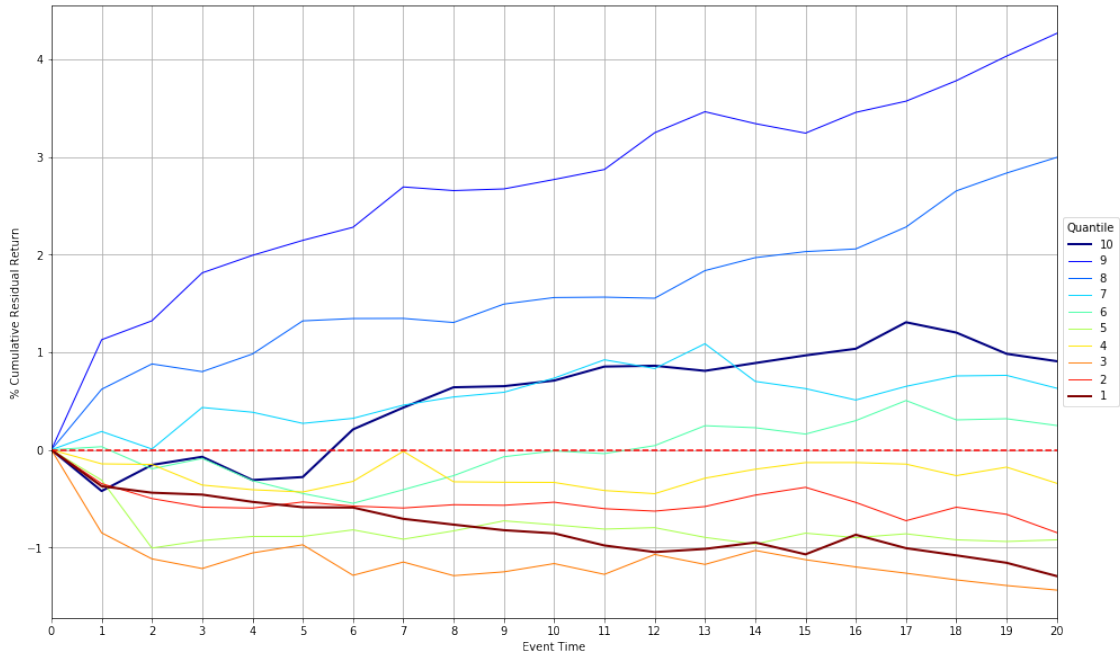
Num Events: 1,601



event_time	1	2	3	4	5	10	15	20
quantile								
1	-0.19%	-0.37%	-0.48%	-0.48%	-0.43%	-0.25%	-0.23%	-0.33%
2	0.21%	0.29%	0.07%	0.13%	0.16%	0.32%	0.44%	0.42%
3	-0.04%	0.14%	-0.02%	-0.16%	-0.06%	-0.24%	0.02%	0.04%
4	0.07%	-0.26%	-0.16%	-0.25%	-0.09%	0.22%	0.36%	0.32%
5	0.16%	0.07%	0.17%	0.22%	0.20%	0.60%	0.98%	1.10%
6	-0.41%	-0.48%	-0.64%	-0.63%	-0.64%	-0.62%	-0.81%	-0.68%
7	0.09%	-0.04%	-0.33%	-0.19%	-0.07%	0.00%	0.19%	0.16%
8	-0.46%	-0.52%	-0.47%	-0.69%	-0.51%	-0.52%	-0.21%	0.17%
9	-0.22%	-0.24%	-0.30%	-0.22%	-0.14%	0.09%	0.61%	0.42%
10	0.33%	0.53%	0.50%	0.61%	0.65%	0.90%	1.17%	1.55%

### 1.3.5 Health Care (All-Time)

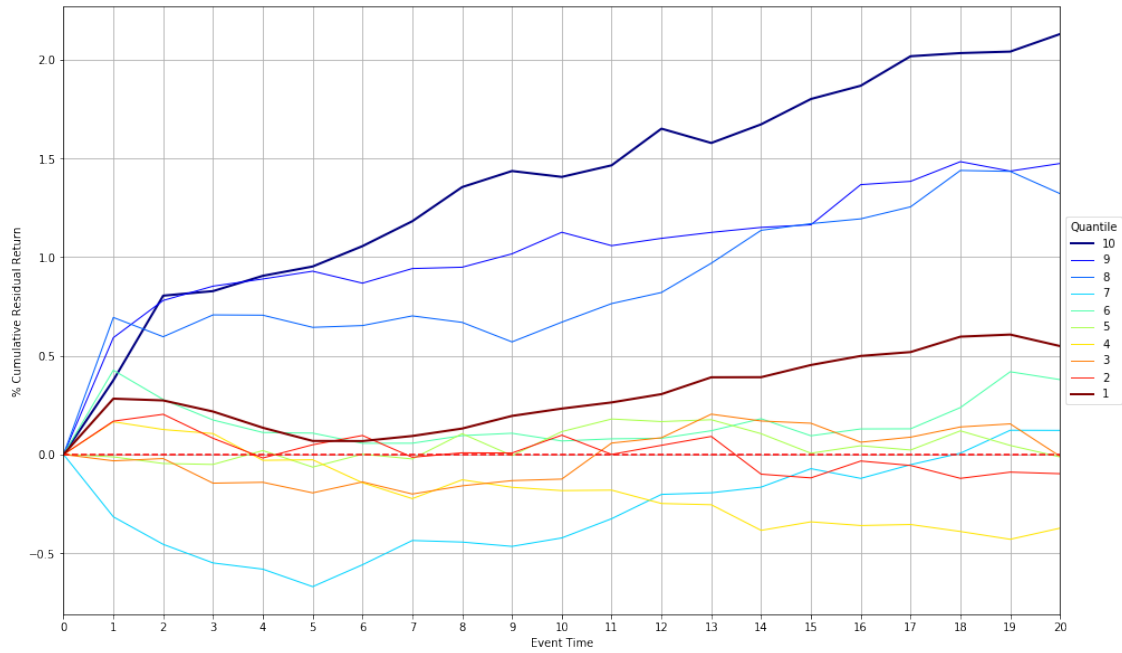
Num Events: 3,122



event_time	1	2	3	4	5	10	15	20
quantile								
1	-0.37%	-0.44%	-0.46%	-0.53%	-0.59%	-0.86%	-1.07%	-1.29%
2	-0.35%	-0.50%	-0.59%	-0.60%	-0.53%	-0.54%	-0.38%	-0.85%
3	-0.85%	-1.12%	-1.22%	-1.06%	-0.97%	-1.17%	-1.13%	-1.44%
4	-0.14%	-0.15%	-0.36%	-0.41%	-0.43%	-0.33%	-0.13%	-0.34%
5	-0.31%	-1.01%	-0.93%	-0.89%	-0.89%	-0.77%	-0.85%	-0.92%
6	0.03%	-0.19%	-0.09%	-0.32%	-0.45%	-0.01%	0.16%	0.25%
7	0.19%	0.01%	0.43%	0.38%	0.27%	0.73%	0.63%	0.63%
8	0.62%	0.88%	0.80%	0.98%	1.32%	1.56%	2.03%	3.00%
9	1.13%	1.32%	1.81%	1.99%	2.14%	2.77%	3.24%	4.27%
10	-0.42%	-0.16%	-0.07%	-0.31%	-0.28%	0.71%	0.97%	0.91%

### 1.3.6 Industrials (All-Time)

Num Events: 4,151

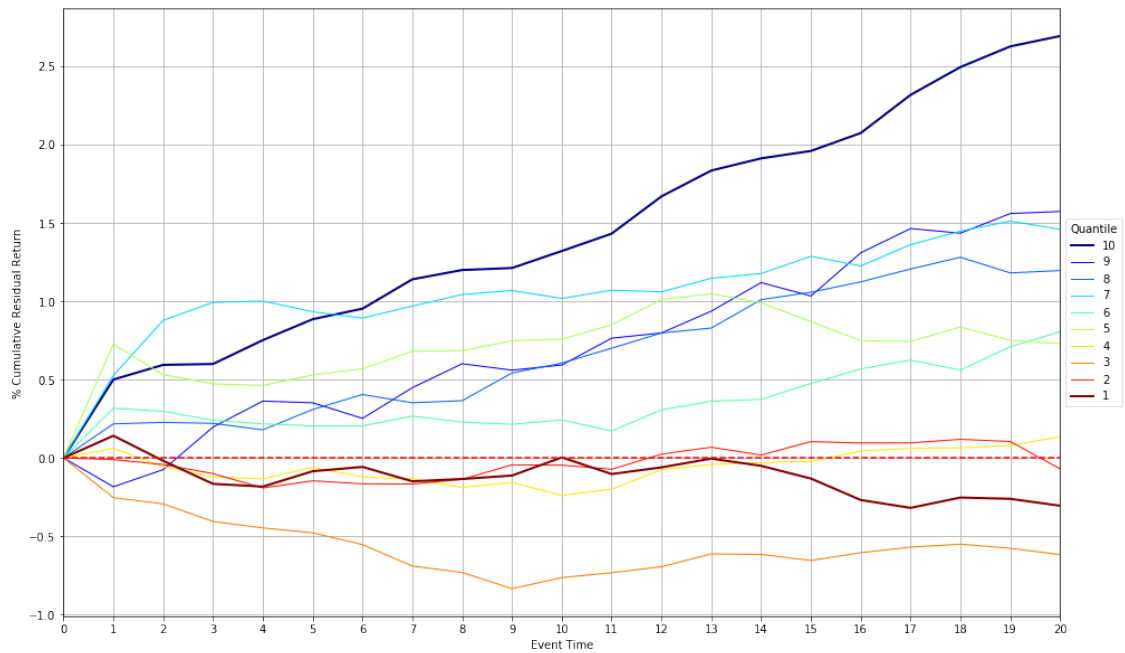


event_time	1	2	3	4	5	10	15	20
quantile								
1	0.28%	0.27%	0.22%	0.14%	0.07%	0.23%	0.45%	0.55%
2	0.17%	0.20%	0.08%	-0.02%	0.05%	0.10%	-0.12%	-0.10%
3	-0.03%	-0.02%	-0.15%	-0.14%	-0.19%	-0.12%	0.16%	-0.01%
4	0.17%	0.13%	0.11%	-0.03%	-0.03%	-0.18%	-0.34%	-0.37%
5	-0.01%	-0.05%	-0.05%	0.02%	-0.06%	0.12%	0.01%	-0.01%
6	0.43%	0.28%	0.17%	0.11%	0.11%	0.07%	0.09%	0.38%
7	-0.32%	-0.46%	-0.55%	-0.58%	-0.67%	-0.42%	-0.07%	0.12%
8	0.69%	0.60%	0.71%	0.71%	0.64%	0.67%	1.17%	1.32%
9	0.59%	0.78%	0.85%	0.89%	0.93%	1.13%	1.16%	1.47%
10	0.38%	0.80%	0.83%	0.91%	0.95%	1.41%	1.80%	2.13%

### 1.3.7 Information Technology (All-Time)

Num Events: 5,465

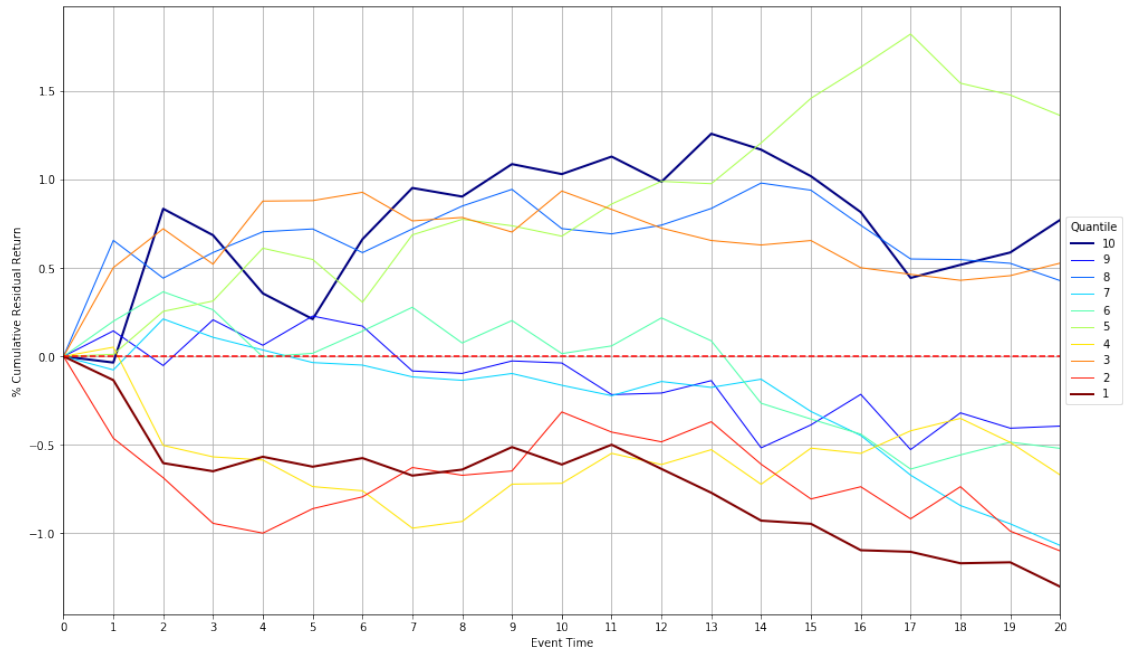




event_time	1	2	3	4	5	10	15	20
quantile								
1	0.14%	-0.02%	-0.17%	-0.18%	-0.08%	0.00%	-0.13%	-0.30%
2	-0.01%	-0.04%	-0.10%	-0.19%	-0.15%	-0.05%	0.10%	-0.07%
3	-0.25%	-0.29%	-0.41%	-0.45%	-0.48%	-0.76%	-0.65%	-0.62%
4	0.06%	-0.06%	-0.12%	-0.13%	-0.06%	-0.24%	-0.02%	0.14%
5	0.73%	0.53%	0.47%	0.46%	0.53%	0.76%	0.87%	0.73%
6	0.32%	0.30%	0.24%	0.22%	0.21%	0.24%	0.48%	0.81%
7	0.53%	0.88%	0.99%	1.00%	0.93%	1.02%	1.29%	1.46%
8	0.22%	0.23%	0.22%	0.18%	0.31%	0.61%	1.06%	1.20%
9	-0.18%	-0.07%	0.20%	0.36%	0.35%	0.59%	1.03%	1.57%
10	0.50%	0.59%	0.60%	0.75%	0.89%	1.32%	1.96%	2.69%

### 1.3.8 Materials (All-Time)

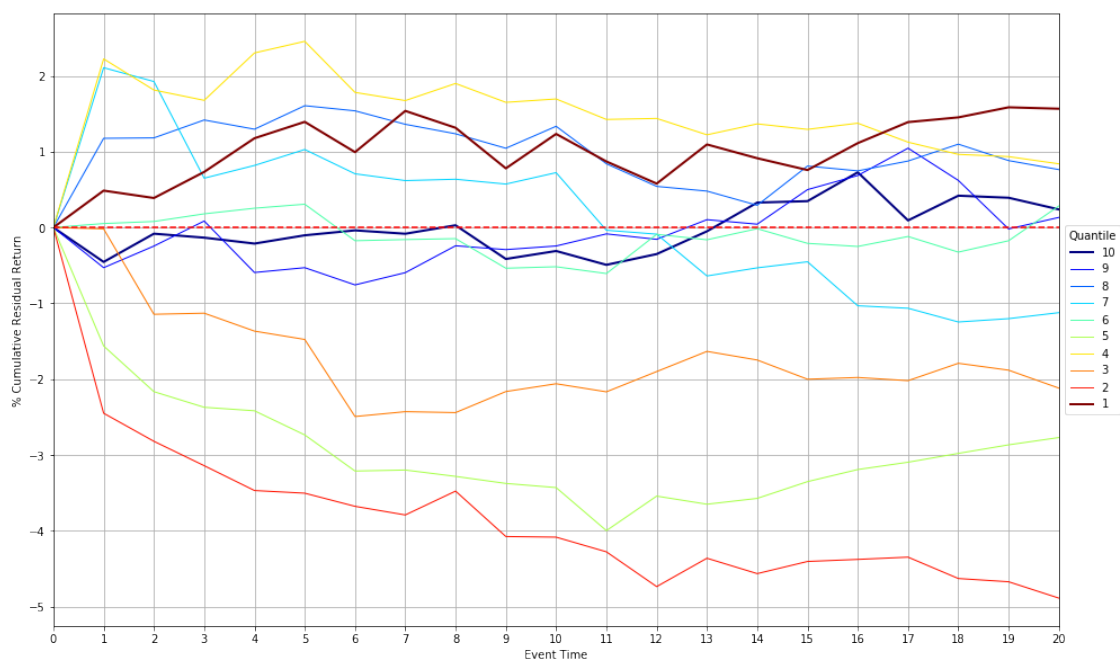
Num Events: 1,414



event_time	1	2	3	4	5	10	15	20
quantile								
1	-0.13%	-0.60%	-0.65%	-0.57%	-0.62%	-0.61%	-0.95%	-1.30%
2	-0.46%	-0.69%	-0.94%	-1.00%	-0.86%	-0.31%	-0.81%	-1.10%
3	0.50%	0.72%	0.52%	0.88%	0.88%	0.93%	0.65%	0.53%
4	0.05%	-0.50%	-0.57%	-0.59%	-0.74%	-0.72%	-0.52%	-0.67%
5	0.01%	0.25%	0.31%	0.61%	0.55%	0.68%	1.46%	1.36%
6	0.20%	0.37%	0.26%	-0.00%	0.02%	0.02%	-0.35%	-0.52%
7	-0.08%	0.21%	0.11%	0.04%	-0.03%	-0.16%	-0.31%	-1.07%
8	0.66%	0.44%	0.59%	0.70%	0.72%	0.72%	0.94%	0.43%
9	0.14%	-0.05%	0.21%	0.06%	0.23%	-0.04%	-0.39%	-0.39%
10	-0.03%	0.83%	0.69%	0.36%	0.21%	1.03%	1.02%	0.77%

### 1.3.9 Telecommunication Services (All-Time)

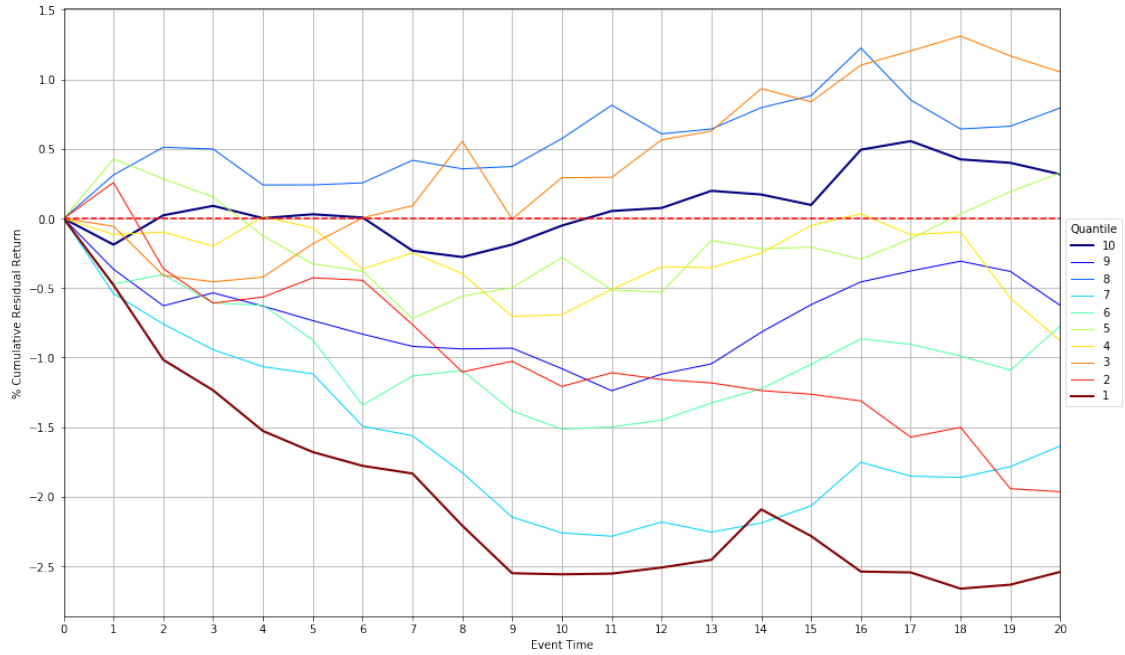
Num Events: 280



event_time	1	2	3	4	5	10	15	20
quantile								
1	0.49%	0.39%	0.73%	1.18%	1.39%	1.23%	0.76%	1.57%
2	-2.45%	-2.82%	-3.14%	-3.47%	-3.50%	-4.08%	-4.41%	-4.89%
3	-0.02%	-1.14%	-1.13%	-1.37%	-1.48%	-2.06%	-2.00%	-2.12%
4	2.22%	1.81%	1.68%	2.30%	2.46%	1.70%	1.29%	0.84%
5	-1.56%	-2.17%	-2.37%	-2.42%	-2.74%	-3.43%	-3.35%	-2.77%
6	0.05%	0.08%	0.18%	0.25%	0.31%	-0.52%	-0.21%	0.28%
7	2.11%	1.93%	0.65%	0.82%	1.03%	0.72%	-0.45%	-1.12%
8	1.18%	1.18%	1.42%	1.30%	1.61%	1.33%	0.81%	0.76%
9	-0.53%	-0.25%	0.09%	-0.59%	-0.53%	-0.24%	0.50%	0.13%
10	-0.45%	-0.08%	-0.13%	-0.21%	-0.10%	-0.31%	0.35%	0.24%

### 1.3.10 Utilities (All-Time)

Num Events: 628

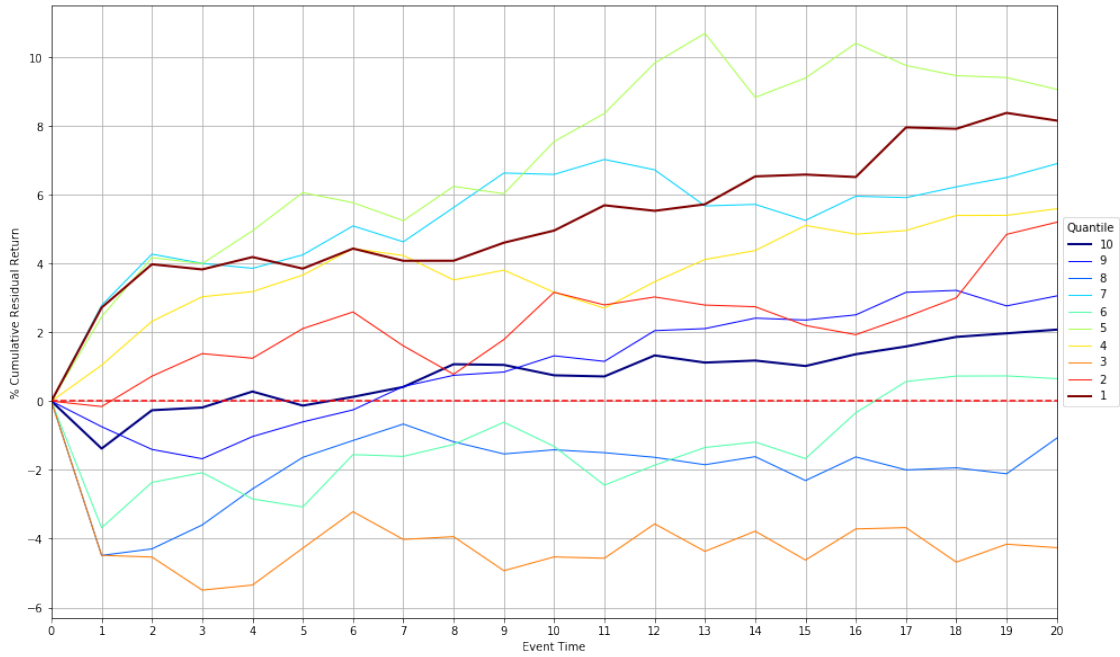


event_time	1	2	3	4	5	10	15	20
quantile								
1	-0.48%	-1.02%	-1.23%	-1.53%	-1.68%	-2.56%	-2.28%	-2.54%
2	0.26%	-0.36%	-0.61%	-0.56%	-0.43%	-1.21%	-1.26%	-1.96%
3	-0.06%	-0.41%	-0.45%	-0.42%	-0.18%	0.29%	0.84%	1.05%
4	-0.12%	-0.10%	-0.20%	0.01%	-0.07%	-0.69%	-0.05%	-0.88%
5	0.43%	0.29%	0.15%	-0.13%	-0.33%	-0.28%	-0.21%	0.33%
6	-0.47%	-0.40%	-0.61%	-0.62%	-0.87%	-1.51%	-1.05%	-0.77%
7	-0.54%	-0.76%	-0.94%	-1.07%	-1.12%	-2.26%	-2.07%	-1.64%
8	0.31%	0.51%	0.50%	0.24%	0.24%	0.57%	0.88%	0.79%
9	-0.36%	-0.63%	-0.53%	-0.63%	-0.73%	-1.08%	-0.62%	-0.62%
10	-0.19%	0.02%	0.09%	0.00%	0.03%	-0.05%	0.10%	0.32%

## 1.4 Market Cap Analysis

### 1.4.1 Micro Cap (All-Time)

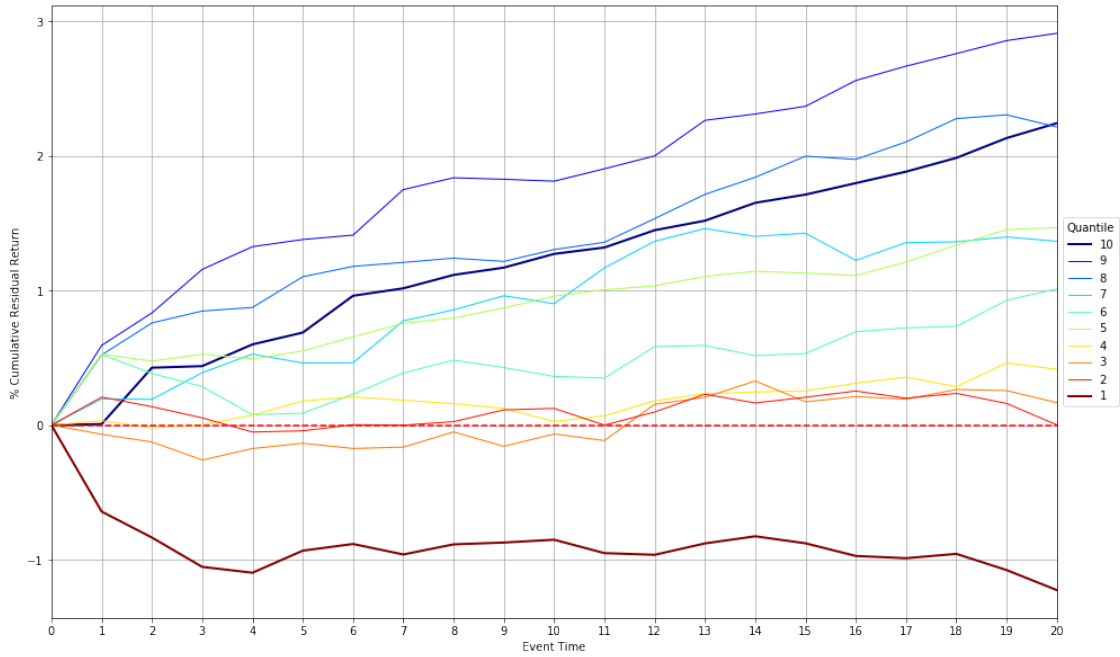
Num Events: 394



event_time	1	2	3	4	5	10	15	20
quantile								
1	2.72%	3.98%	3.83%	4.19%	3.85%	4.96%	6.59%	8.16%
2	-0.16%	0.72%	1.38%	1.25%	2.11%	3.16%	2.20%	5.20%
3	-4.48%	-4.53%	-5.49%	-5.35%	-4.27%	-4.53%	-4.62%	-4.26%
4	1.05%	2.32%	3.04%	3.18%	3.66%	3.16%	5.11%	5.59%
5	2.45%	4.17%	4.00%	4.95%	6.06%	7.55%	9.39%	9.06%
6	-3.68%	-2.36%	-2.08%	-2.84%	-3.08%	-1.32%	-1.67%	0.65%
7	2.79%	4.27%	4.01%	3.86%	4.25%	6.59%	5.26%	6.90%
8	-4.49%	-4.30%	-3.60%	-2.55%	-1.64%	-1.41%	-2.31%	-1.08%
9	-0.74%	-1.40%	-1.67%	-1.03%	-0.60%	1.32%	2.36%	3.06%
10	-1.38%	-0.27%	-0.19%	0.28%	-0.13%	0.75%	1.02%	2.08%

### 1.4.2 Small Cap (All-Time)

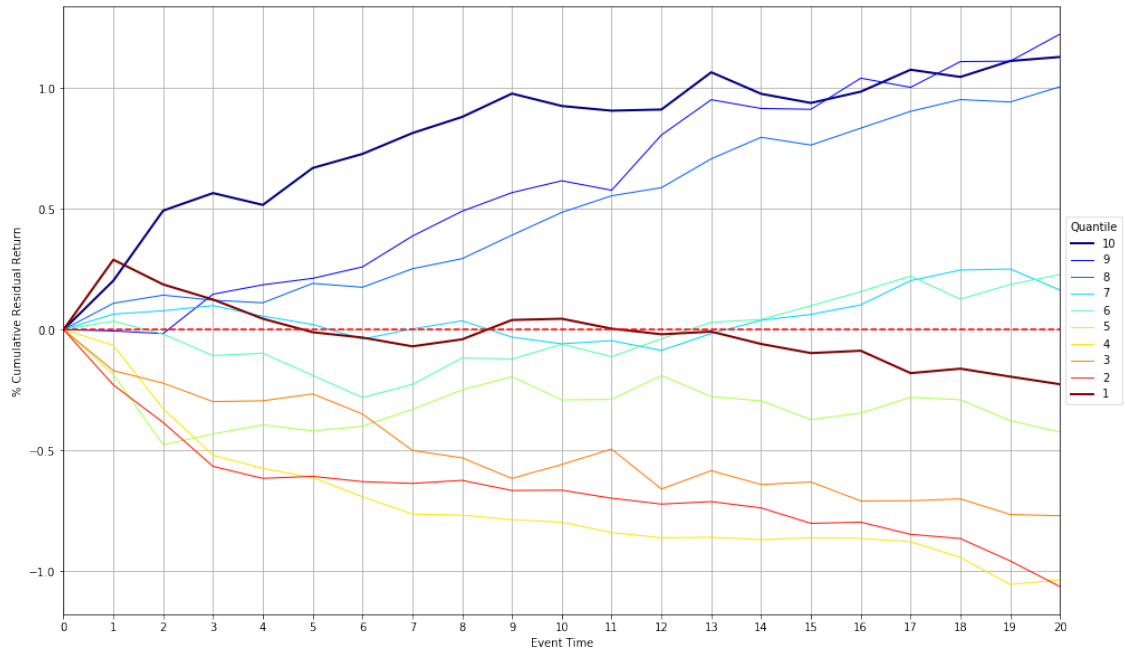
Num Events: 7,554



event_time	1	2	3	4	5	10	15	20
quantile								
1	-0.64%	-0.84%	-1.05%	-1.10%	-0.93%	-0.85%	-0.88%	-1.23%
2	0.21%	0.14%	0.05%	-0.05%	-0.04%	0.12%	0.21%	0.00%
3	-0.07%	-0.13%	-0.26%	-0.17%	-0.13%	-0.07%	0.17%	0.17%
4	0.03%	-0.02%	0.00%	0.07%	0.18%	0.03%	0.25%	0.41%
5	0.53%	0.48%	0.53%	0.49%	0.55%	0.96%	1.13%	1.47%
6	0.52%	0.38%	0.29%	0.08%	0.09%	0.36%	0.53%	1.01%
7	0.19%	0.19%	0.39%	0.53%	0.46%	0.90%	1.43%	1.37%
8	0.52%	0.76%	0.85%	0.87%	1.10%	1.30%	2.00%	2.22%
9	0.59%	0.83%	1.16%	1.33%	1.38%	1.81%	2.37%	2.91%
10	0.01%	0.43%	0.44%	0.60%	0.69%	1.27%	1.71%	2.24%

### 1.4.3 Mid Cap (All-Time)

Num Events: 8,983



event_time	1	2	3	4	5	10	15	20
quantile								
1	0.29%	0.19%	0.12%	0.04%	-0.01%	0.04%	-0.10%	-0.23%
2	-0.23%	-0.38%	-0.57%	-0.62%	-0.61%	-0.66%	-0.80%	-1.06%
3	-0.17%	-0.22%	-0.30%	-0.29%	-0.27%	-0.56%	-0.63%	-0.77%
4	-0.07%	-0.33%	-0.52%	-0.57%	-0.61%	-0.80%	-0.86%	-1.04%
5	-0.19%	-0.48%	-0.43%	-0.39%	-0.42%	-0.29%	-0.37%	-0.42%
6	0.04%	-0.02%	-0.11%	-0.10%	-0.19%	-0.06%	0.10%	0.23%
7	0.06%	0.08%	0.10%	0.06%	0.02%	-0.06%	0.06%	0.16%
8	0.11%	0.14%	0.12%	0.11%	0.19%	0.49%	0.76%	1.01%
9	-0.01%	-0.02%	0.15%	0.19%	0.21%	0.62%	0.91%	1.22%
10	0.20%	0.49%	0.57%	0.52%	0.67%	0.93%	0.94%	1.13%

#### 1.4.4 Large Cap (All-Time)

Num Events: 6,881

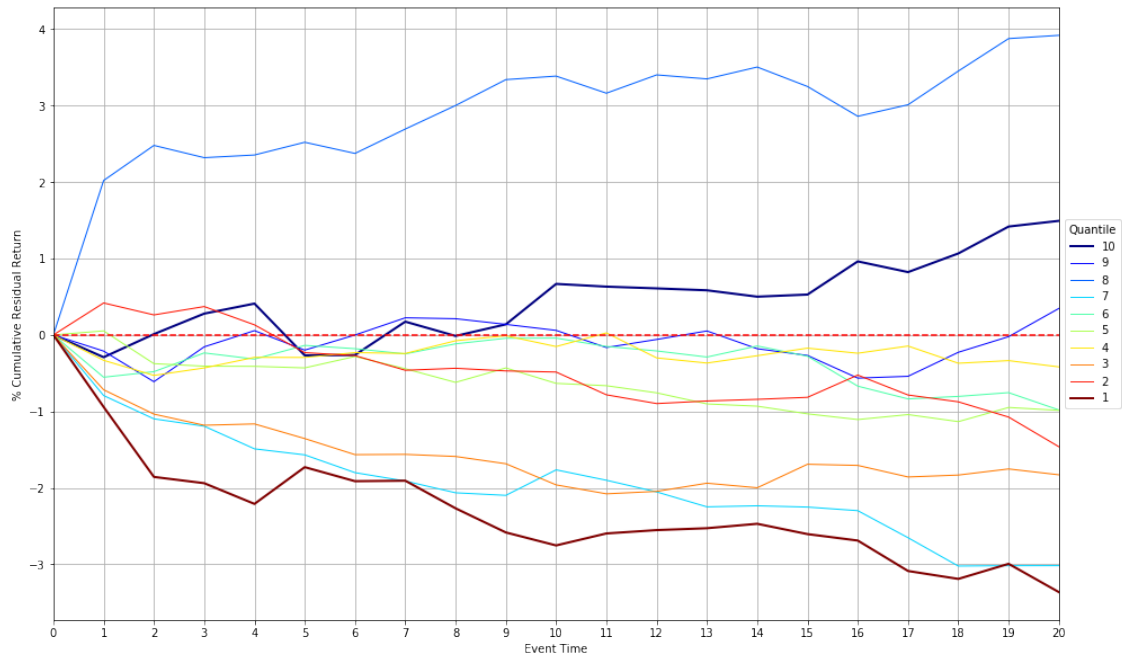


event_time	1	2	3	4	5	10	15	20
quantile								
1	-0.32%	-0.30%	-0.34%	-0.43%	-0.47%	-0.66%	-0.70%	-0.89%
2	-0.11%	-0.10%	-0.20%	-0.25%	-0.27%	-0.23%	-0.27%	-0.47%
3	-0.16%	-0.20%	-0.31%	-0.39%	-0.43%	-0.81%	-0.85%	-0.97%
4	0.32%	0.24%	0.18%	0.17%	0.21%	0.06%	-0.01%	-0.19%
5	-0.47%	-0.51%	-0.56%	-0.61%	-0.65%	-0.72%	-0.71%	-0.82%
6	0.12%	0.15%	0.15%	0.10%	0.10%	-0.08%	-0.09%	0.01%
7	-0.08%	-0.18%	-0.13%	-0.17%	-0.20%	-0.27%	-0.35%	-0.36%
8	0.05%	-0.02%	0.03%	0.11%	0.09%	0.08%	0.16%	0.29%
9	0.29%	0.27%	0.28%	0.34%	0.35%	0.22%	0.19%	0.24%
10	-0.01%	0.17%	0.31%	0.36%	0.26%	-0.00%	0.06%	0.11%

### 1.4.5 Mega Cap (All-Time)

Num Events: 286





event_time	1	2	3	4	5	10	15	20
quantile								
1	-0.94%	-1.86%	-1.94%	-2.21%	-1.73%	-2.75%	-2.61%	-3.36%
2	0.42%	0.26%	0.37%	0.13%	-0.23%	-0.49%	-0.82%	-1.46%
3	-0.72%	-1.04%	-1.18%	-1.16%	-1.36%	-1.96%	-1.69%	-1.83%
4	-0.33%	-0.53%	-0.43%	-0.29%	-0.29%	-0.15%	-0.17%	-0.42%
5	0.05%	-0.38%	-0.41%	-0.41%	-0.43%	-0.63%	-1.03%	-0.99%
6	-0.55%	-0.48%	-0.24%	-0.32%	-0.14%	-0.04%	-0.28%	-0.98%
7	-0.79%	-1.10%	-1.19%	-1.49%	-1.57%	-1.77%	-2.25%	-3.02%
8	2.02%	2.48%	2.32%	2.35%	2.52%	3.39%	3.25%	3.92%
9	-0.21%	-0.61%	-0.16%	0.06%	-0.20%	0.06%	-0.27%	0.35%
10	-0.29%	0.01%	0.28%	0.41%	-0.27%	0.67%	0.53%	1.49%