CROWDTHNK

CrowdThnk White Paper

How Can Investors Profit from Knowing Market Positioning?

Authors: Hans Kullberg & Qiwei Shi
March 2019

Abstract

If you're in the Investment Management Industry, your primary goal is two-fold: 1) Maximize the absolute return to your clients and 2) Minimize the risk taken to maximize profits. As stewards of your client's capital, achieving these objectives is synonymous with success. Whether you're a fundamental investor using discretionary inputs such as valuations, charts, growth prospects and catalysts or if you're a systematic investor using quantitative factors to achieve investment profits, knowing the Market Positioning of the equities in your portfolio can impact your investment strategy. Consensus Market Positioning – defined here as the relative crowdedness of a stock attributable to many investors purchasing or not purchasing an equity within a portfolio – can significantly dictate the ***magnitude*** and ***direction*** of an existing stock. As all stocks are not created equal, differences in market positioning can lead to disparate returns for investors. In this paper, we reveal the significant edge one can achieve by knowing consensus market positioning and incorporating it into their overall investment framework.

The Importance of Understanding the Consensus Market Positioning

Market positioning has played an outsized role in dictating market direction for decades. The tech bubble crash in 2001 saw some of the most popular, crowded stocks like Amazon fall precipitously as investors headed for the exits. In the Great Financial Crisis of 2008, even the solid, blue-chip names like General Electric plummeted as investors liquidated their portfolio. CrowdThnk has observed a strong relationship between crowded, extreme overweight stocks and negative forward-looking returns during times of high volatility. Even more, during times of panic, crowded stocks tend to experience the most severe degree of pain relative to the overall market. The analogy is that of a crowded room within a burning building in which everybody is trying to head for the exits – it's a painful escape when the panic sets in.

If one wants to understand what the future holds, the best place to start is by intimately understanding the present. Under normal market conditions with low volatility, the impact of market positioning can be opaque and difficult to assess with the naked eye. However, by taking a discerning approach to uncovering the data, one can gain insight into why market positioning data is so valuable and how it can help investors achieve their two-fold investment objectives. CrowdThnk objectively quantifies this market positioning on a scale from 0 to 10 with 0 representing Extreme Underweight and 10 representing Extreme Overweight scores.

The Problem with Measuring Market Positioning

Historically, investors have estimated market positioning by surveying their peer group and asking what's in their portfolio in almost a 'finger-in-the-wind' type of approach. More analytically-oriented investors aggregate and parse through data such as SEC 13-F Reports, Short Interest data and Bank Reports, all of which uncover a small fraction of the entire landscape. However, it is very difficult to quantify and aggregate view of the entire market positioning picture. Some of the primary problems entail:

1. **Disparate Investor Bases** - The investment universe is comprised of a large number of investors with varying investment horizons such as pension funds, hedge funds, real money managers and retail investors.

2. **Variable Scaling Methodologies** – Each dataset and report may present the data in different manners without any uniformity. Assembling the data into a coherent, consistent framework is pivotal towards gaining a comprehensive understanding of the overall market positioning.

3. **Fractionalized Data Landscape** – From SEC 13-Fs and Custodian Holdings to Bank Reports and Margin Purchases, there are a multitude of different ways investors can assess market positioning. However, assimilating all of these disparate data sources into a cohesive framework can be challenging and inconclusive.

4. **Access to Data** – Many comprehensive data reports, such as Custodian Holdings which represent a large portion of real money investors, are off-limits to most investors due to privacy purposes. Other exclusive reports may be very expensive to obtain.

5. **Timeliness of Reports** – Most positioning data is reported on a monthly or quarterly basis, underwhelming the needs of more active investors who rely on higher frequency data points as the market quickly incorporates new pieces of information.

The Relationship between Market Positioning and Forward-Looking Returns

Market Positioning can reveal advantageous insights into the future path of a stock's return. Just as a Price-to-Earnings Ratio will tell you something about a stock's valuation enabling you to make a better-informed investment decision, knowing a stock's market positioning will give you insight into the crowdedness of a stock which in turn uncovers objective characteristics of that stock's future performance.

Using CrowdThnk's Historical Positioning Scores, we have conducted a study of forward-looking, 1-week returns relative to Positioning Score buckets in 1-unit increments to extract insights. That is, we separated each stock in our universe of approximately 3000 stocks by sector and Positioning Score bucket starting at 0-1, 1-2, 2-3 and so on to observe its 1-week return. Hence, we uncover the true, unbiased relationship between a stock's positioning score (Market Positioning) and its forward-looking return

Key Insights from CrowdThnk's 10-Year Market Positioning Study

1. Over the past 10-year bull run, all stocks have tended to rally no matter where the positioning is, based on returns. However, there are important deviations in absolute return with respect to positioning score bucket. *(Exhibit A)*

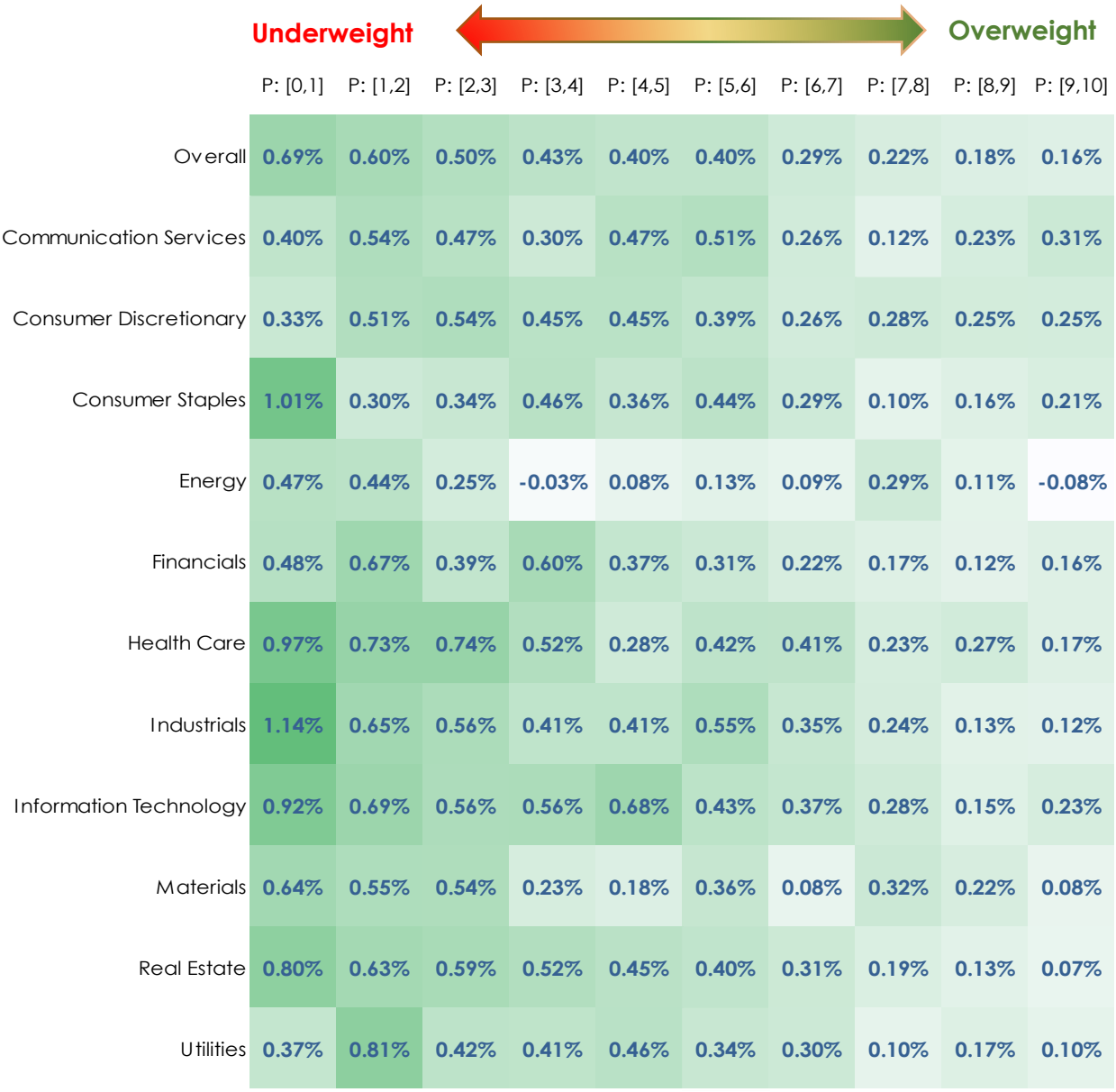
2. It is very interesting that **Underweight stocks tend to rally more than the Overweight stocks,** everything else held equal. The overall relationship seems to be **linear, that is, the more overweight a stock is, the less it rallies going forward**. The data concludes that the magnitude of the stock move is directly related to is positioning score.

3. When accounting for different underlying volatilities of returns and standardizing it using a Z-Score, this effect is even more prominent as **Overweight Stock's forward return Z-score becomes negative and Underweight stocks forward return Z-score becomes positive** for all sectors. That implies that a stock's return is handicapped by overweight positioning, meaning that the more crowded a stock is, the less it can be expected to return holding all other things constant.

4. Looking at individual sectors, we find that the sectors that tend to rally more when positioning is Overweight include: **Communication Services, Consumer Discretionary, Information Technology**. The ones that tend to rally more when positioning is Underweight include: **Consumer Staples, Health Care, Industrials, Information Technology**. This may represent a bias towards momentum-driven versus mean-reversion driven stocks. These reflect particular tendencies and characteristics of these sectors over our 10-year study period, subject to change in the future.

5. For quantitative investors, a potential model using these insights would be to go **Long the extremely underweight stocks and Short the extremely overweight stocks** on a systematic basis. Variables in the model include rotation frequency, positioning score filters, and individual stock selection among other things. An alternative strategy, benefitting from alpha and beta sources, would be to **buy underweight stocks outright upon crossing a lower boundary threshold filter** given the positive skew, positive expected return with favorable probabilities.

6. Looking at the probability of attaining a positive weekly performance, all things being equal, extreme underweight stocks exhibit a stronger tendency to deliver a positive return. When breaking down the Positioning Scores by bucket, underweight stocks demonstrates probabilities between 56-62% of positive, forward-looking weekly performance while extreme overweight stocks underwhelm at 52-55% probabilities, differing by sector.



	P: [0,1]	P: [1,2]	P: [2,3]	P: [3,4]	P: [4,5]	P: [5,6]	P: [6,7]	P: [7,8]	P: [8,9]	P: [9,10]
Overall	0.69%	0.60%	0.50%	0.43%	0.40%	0.40%	0.29%	0.22%	0.18%	0.16%
Communication Services	0.40%	0.54%	0.47%	0.30%	0.47%	0.51%	0.26%	0.12%	0.23%	0.31%
Consumer Discretionary	0.33%	0.51%	0.54%	0.45%	0.45%	0.39%	0.26%	0.28%	0.25%	0.25%
Consumer Staples	1.01%	0.30%	0.34%	0.46%	0.36%	0.44%	0.29%	0.10%	0.16%	0.21%
Energy	0.47%	0.44%	0.25%	-0.03%	0.08%	0.13%	0.09%	0.29%	0.11%	-0.08%
Financials	0.48%	0.67%	0.39%	0.60%	0.37%	0.31%	0.22%	0.17%	0.12%	0.16%
Health Care	0.97%	0.73%	0.74%	0.52%	0.28%	0.42%	0.41%	0.23%	0.27%	0.17%
Industrials	1.14%	0.65%	0.56%	0.41%	0.41%	0.55%	0.35%	0.24%	0.13%	0.12%
Information Technology	0.92%	0.69%	0.56%	0.56%	0.68%	0.43%	0.37%	0.28%	0.15%	0.23%
Materials	0.64%	0.55%	0.54%	0.23%	0.18%	0.36%	0.08%	0.32%	0.22%	0.08%
Real Estate	0.80%	0.63%	0.59%	0.52%	0.45%	0.40%	0.31%	0.19%	0.13%	0.07%
Utilities	0.37%	0.81%	0.42%	0.41%	0.46%	0.34%	0.30%	0.10%	0.17%	0.10%

Exhibit A. Stock Returns have been positive over the past 10 years across sectors. However, stocks have exhibited a significant degree of variation with regard to Positioning Score. (Note: Percentages reflect the average weekly return with regard to respective Positioning bucket)

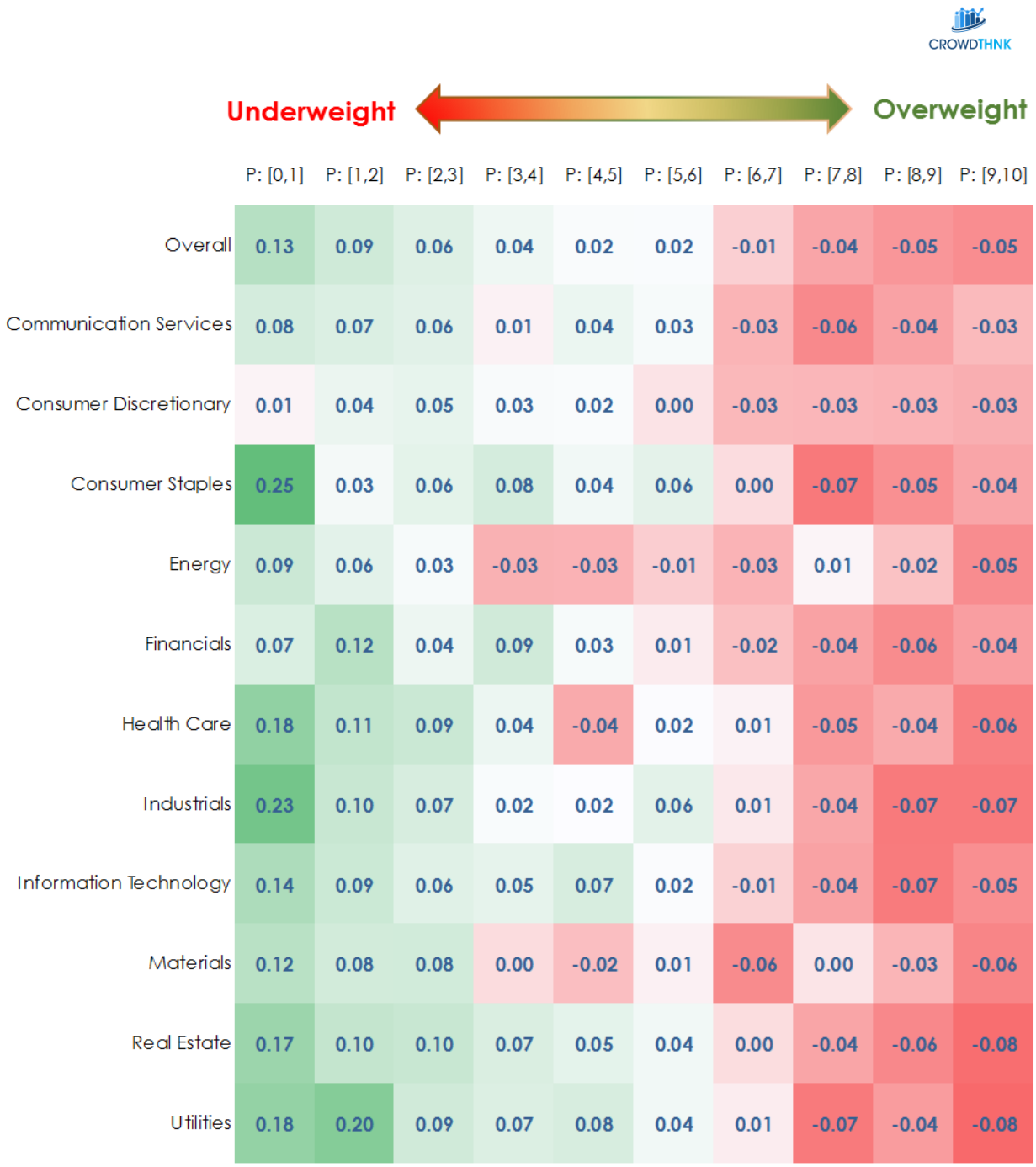


Exhibit B. Once adjusted for variations in underlying volatility amongst stocks using a Z-Score of Returns, stocks reveal an underperformance at higher levels of crowdedness (High Positioning Score) and outperformance at lower levels of crowdedness (Low Positioning Scores). Across sectors, this relationship uniformly holds true to varying degrees of consistency.

	P: [0,1]	P: [1,2]	P: [2,3]	P: [3,4]	P: [4,5]	P: [5,6]	P: [6,7]	P: [7,8]	P: [8,9]	P: [9,10]
Overall	56.8%	56.3%	57.0%	55.6%	55.8%	55.7%	54.9%	54.1%	53.8%	53.8%
Communication Services	52.6%	54.6%	54.9%	52.3%	54.8%	54.9%	53.3%	51.9%	52.7%	53.1%
Consumer Discretionary	52.5%	55.2%	56.0%	54.5%	55.4%	54.5%	54.2%	54.1%	54.3%	54.8%
Consumer Staples	61.2%	58.0%	60.0%	57.9%	56.9%	58.0%	56.6%	52.6%	52.7%	54.7%
Energy	52.7%	51.6%	53.5%	50.0%	51.3%	52.1%	49.6%	54.2%	52.6%	50.4%
Financials	54.6%	57.4%	56.0%	57.3%	56.1%	55.8%	54.2%	53.3%	53.0%	52.5%
Health Care	61.4%	58.4%	59.5%	56.3%	54.0%	54.9%	55.8%	53.6%	53.8%	52.9%
Industrials	61.4%	56.8%	57.2%	55.5%	57.0%	57.0%	56.7%	54.9%	53.5%	54.0%
Information Technology	57.2%	56.8%	57.3%	56.8%	57.7%	56.6%	55.7%	55.2%	54.2%	55.0%
Materials	56.4%	53.6%	55.7%	54.6%	53.6%	55.5%	52.8%	55.0%	53.9%	52.8%
Real Estate	61.0%	58.9%	59.6%	56.5%	57.0%	57.1%	56.5%	55.2%	54.8%	55.1%
Utilities	61.3%	61.4%	59.0%	59.5%	57.8%	55.9%	55.7%	54.4%	55.9%	54.1%

Exhibit C. While a rising market over the past 10 years has led to positive forward-looking returns across sectors, the out-of-favor stocks with low Position Scores tend to exhibit a higher tendency to achieve positive returns. (Note: Probabilities denote the percentage of time a stock incurs a positive weekly return)

Skewness of Distribution of Returns

Given the positive expected return profile and significant probability of a positive return at an extreme underweight positioning score, it's natural to assume that the return profile for negative versus positive instances may present a negative skew. Skewness measure the degree of asymmetry of a distribution around its mean. Positive skewness indicates a distribution with an asymmetric tail extending toward more positive values whereas Negative skewness indicates a

distribution with an asymmetric tail extending toward more negative values. Interestingly, the data depicts a mixed bag of Skewness profiles, differing across Sectors with respect to Positioning Score. A few examples stand out such as Consumer Staples at 0-1 score and Communication Services at 7-8 scores, both over 2.5 in Skewness level. However, there is no pattern or uniformity in Skewness within our sample data with respect to positioning. It is significant to mention that extreme underweight positioning score buckets don't exhibit a strong tendency for negative skewness or fat tails on the negative end of the distribution.

	P: [0,1]	P: [1,2]	P: [2,3]	P: [3,4]	P: [4,5]	P: [5,6]	P: [6,7]	P: [7,8]	P: [8,9]	P: [9,10]
Overall	-0.04	0.54	0.05	-0.06	0.24	0.15	-0.06	0.33	0.15	0.13
Communication Services	0.24	0.80	-0.15	0.35	-0.02	0.56	0.18	2.51	0.02	0.59
Consumer Discretionary	0.11	-0.17	0.05	-0.01	0.01	0.19	-0.21	0.22	0.04	0.36
Consumer Staples	2.62	-0.41	-1.38	0.07	-0.44	1.23	0.24	-0.23	0.71	-0.23
Energy	-0.11	1.83	-0.30	0.05	1.59	-0.25	-0.16	-0.17	-0.01	-0.05
Financials	0.19	-0.15	-0.28	-0.04	-0.02	0.04	0.11	0.02	-0.32	-0.04
Health Care	0.90	-0.39	1.38	0.26	0.18	0.50	-0.05	0.39	1.04	0.47
Industrials	0.07	-0.14	-0.06	-0.11	-0.43	-0.01	-0.28	0.09	-0.34	-0.22
Information Technology	0.14	0.31	0.07	-0.08	0.73	-0.16	-0.05	-0.03	0.40	0.27
Materials	0.07	0.00	0.22	-0.52	-0.08	0.57	-0.36	0.02	-0.39	-0.04
Real Estate	-0.09	-0.28	-0.36	-0.05	-0.20	-0.34	-0.34	-0.23	-0.24	-0.73
Utilities	-5.89	5.90	-0.46	-2.50	-0.04	-0.25	2.21	-0.40	-0.47	-0.34

Exhibit D. The Dataset does not reveal any strong relationships of Skewness with respect to Positioning score bucket when looking at the distribution of returns.

Taking an alternative view of the Skewness profile, we separate the return distribution into positive and negative returns to measure the Average Positive Weekly Return value versus Average Negative Weekly Return with respect to each Positioning Bucket. Then we look at the absolute value ratio between positive over negative weekly returns. That is, if an average weekly positive return is 0.45% while average weekly negative return is -0.38%, the Ratio would be 1.18x. Similar to the calculation of the Skew, there is no distinct relationship although Extreme Underweight stocks tend to exhibit higher ratio values overall.

	P: [0,1]	P: [1,2]	P: [2,3]	P: [3,4]	P: [4,5]	P: [5,6]	P: [6,7]	P: [7,8]	P: [8,9]	P: [9,10]
Overall	1.07	1.07	1.02	1.05	1.04	1.05	1.01	1.01	1.00	0.99
Communication Services	1.09	1.10	1.06	1.09	1.10	1.13	1.04	1.00	1.07	1.15
Consumer Discretionary	1.06	1.06	1.06	1.09	1.07	1.06	1.00	1.03	1.02	1.01
Consumer Staples	1.33	0.91	0.88	1.11	1.04	1.06	1.00	1.00	1.06	1.06
Energy	1.09	1.13	0.97	0.98	0.99	0.99	1.07	1.02	0.97	0.92
Financials	1.04	1.05	0.98	1.09	1.02	0.99	1.00	1.01	0.98	1.05
Health Care	1.05	1.08	1.06	1.08	1.03	1.09	1.07	1.04	1.07	1.03
Industrials	1.18	1.10	1.05	1.04	0.99	1.12	1.00	1.00	0.97	0.95
Information Technology	1.15	1.06	1.01	1.06	1.12	1.01	1.02	1.00	0.95	0.98
Materials	1.03	1.14	1.08	0.96	0.96	1.03	0.95	1.05	1.03	0.95
Real Estate	1.10	1.05	1.04	1.15	1.07	1.04	0.99	0.97	0.92	0.87
Utilities	0.78	1.18	0.99	0.98	1.13	1.09	1.08	0.93	0.96	0.96

Exhibit E. The Absolute Value Ratio of Average Positive Weekly Returns vs. Average Negative Weekly Returns showcase a marginal skew towards Extreme Underweight positioning buckets, but the evidence is not entirely overwhelming to draw a distinct conclusion.

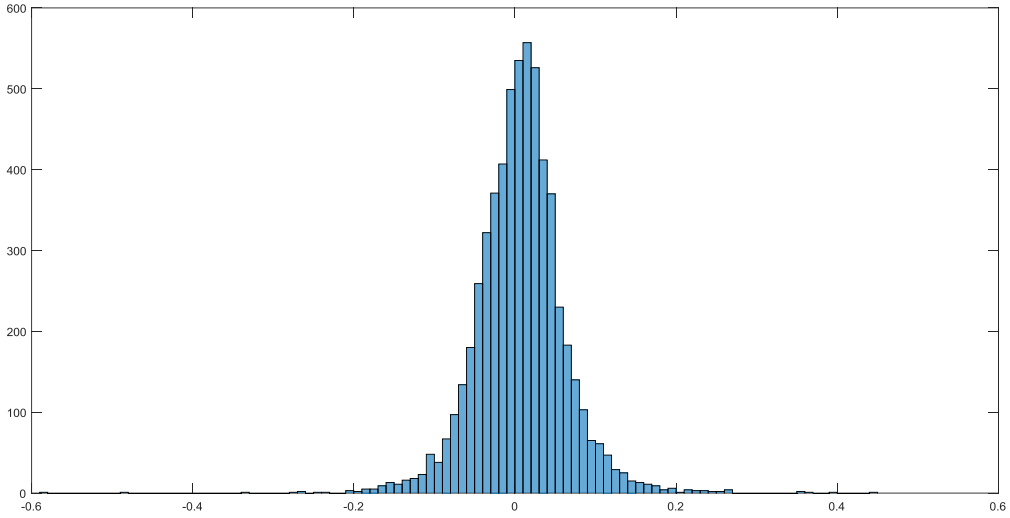


Exhibit F. 1-Week Forward Return Distribution for Extreme Underweight Stocks

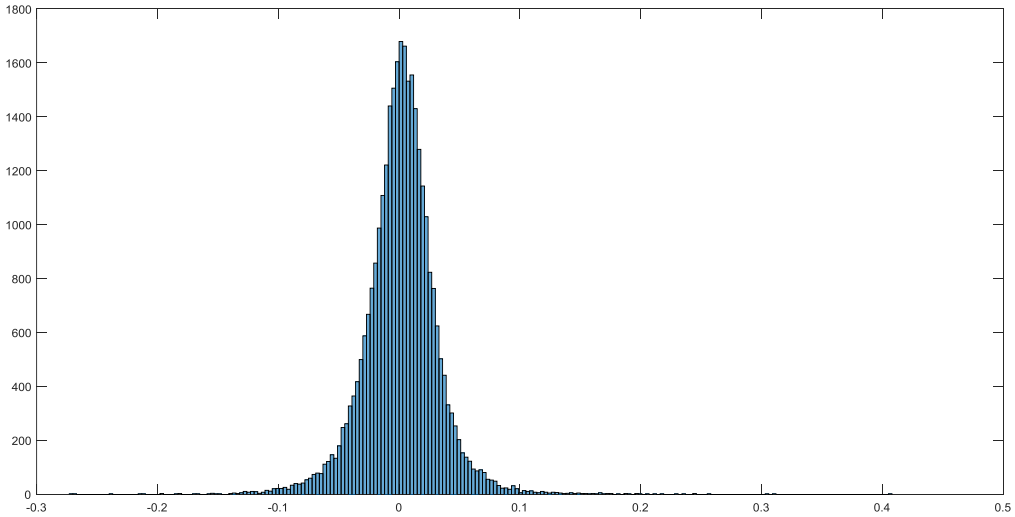


Exhibit G. 1-Week Forward Return Distribution for Extreme Overweight Stocks

Summary

Market Positioning plays an integral role in dictating the future evolution of a stock's price path. By understanding an intimately knowing a stock's market positioning or crowdedness, one can have an outsized advantage in predicting the stock's future direction.

Another way of analyzing the data is by using an analogy to horserace betting. Similar to the odds payout of betting on a highly favored horse, while the probability you win may be high when going along with a crowded stock, in many cases the payoff may be small. That is, on a weekly basis, crowded stocks still tend to move higher, but when compared to out-of-favor, underweight stocks, the weekly return is minimal. Furthermore, extreme underweight stocks have a higher probability of moving in a positive direction on a week-to-week basis when compared to extreme overweight stocks. When accounting for disparate underlying volatilities of the stock universe by factoring in its Z-Score, extreme underweight stocks exhibit a positive risk/reward scenario. Finally, the Skewness distribution of returns amongst sectors with respect to positioning score doesn't raise any alarming observations nor reveal outstanding patterns.

By knowing and quantifying the crowdedness of stocks into a unique metric such as CrowdThnk's Consensus Positioning Score, investors can achieve their dual mandate of maximizing absolute returns while minimizing risk associated with crowded markets.