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Figure 1 – NC-based Portfolio Net Performance For Long-Only and Long-Short Dollar Neutral Portfolios.

INSIDE THIS REPORT

NC-based Earnings Distortion Signals produced a dollar neutral portfolio net return of over 60% with 85% pure alpha content.

New Constructs Earnings Distortion Signal Generates Significant Alpha

By Morgan Slade, Wei Zhou

Summary

- The dollar-neutral long-short portfolio[1,2], using 20-day lagged New Constructs ("NC")-based signal[3], returned[4] 60% over 10 years with a Sharpe Ratio over the last five years of ~1.
- The long-only portfolio outperformed the S&P 500 index by an average of 4% per annum over 10 years and averaged 18.4% per annum.
- Performance of NC-based signals lagged 10-20+ days showed that the market is not incorporating this information into securities prices for many weeks.
- The decomposed returns of the long-short portfolio show that 85% of that total return is alpha.
- This signal is highly novel. We measured a very low correlation between smart-beta ETFs and known risk factors and the long-short portfolio returns.
- When applied to single stock analysis of Tesla Motors (TSLA), the NC-based signal demonstrated prescience in both long and short positions since its IPO.
- In the case of Under Armour (UAA), NC-based signals showed the ability to detect the beginning and end of the rally that began in 2020. The long signal ended as the share price became range-bound in Q2 and Q3 of 2021.

1-Quantile-based long-short, dollar neutral portfolios take a signal and rank it from highest to lowest. The portfolio then invests an equal dollar amount buying the bottom x% and selling the top x% of the ranked signals. NC-based signals by our conventions, higher earnings distortion is negative for the prospects of the company and low earnings distortion is positive for the prospects of the company.
2 Universe of approximately ~3600 of listed US equities excluding stocks with share prices < 5 or less than $50 million in average dollar turnover.
3 Signal = Total Earnings Distortion divided by average 20-day lagged dollar trading volume.
4 Net of corporate actions, exchange maker and taker fees, regulatory fees, and institutional brokerage commissions.

Experimental Discussion

CloudQuant ("CQ") investigated the New Construct Quarterly Core Earnings & Earnings Distortion dataset, which reconciles reported earnings as,

Reported Earnings =
Core Earnings + Total Earnings Distortion.

Long/Short Strategy. Fundamental investment signals derived from NC, were backtested in a single-signal, quantile-based[1], dollar-neutral US stock universe[2] with a 20-day entry delay after the signal first becomes available from New Constructs. The portfolio produced a total net[4] return of over 60% and a Sharpe Ratio around 0.4 during the past ten years (2011~2021). The signal strength is improving yielding a Sharpe Ratio of 1.0 during the past five years. The result is remarkable for a single fundamental signal in a portfolio with none of the traditional portfolio-level risk constraints utilized by institutional investors.

Long-only Strategy. The long-only implementation of the same signal, delay and stock universe generated a net return of 192.7% (18.4% per annum) an average outperformance over the S&P 500 of 4% per annum over the last 10 years and by our measurements approximately 25% of that return was alpha.

Compared To Smart-Beta. Breaking down that dollar neutral portfolio return and attributing to known investable ETF products allows us to show that the signal is highly novel and 85% of the total return is alpha, not explained by traditional market, company size, growth vs value, sector or smart-beta factors. Such a high alpha content for a 20-day delayed entry indicates that the market has not incorporated most of this information into security prices until well after the signal has become available.

Signal[3] Uniqueness. Notably, as shown in Figures 2, 6 and 8, the realized portfolio returns show no significant correlations to well-known "smart-beta" factors. As a result, based on its strength and novelty, this simple NC-based signal that CQ developed would likely increase performance for the vast majority of long only and long/short investment managers with medium to long-term investment horizons regardless of investment style.

Sector-wise Performance. The same signal applied separately to each of the twelve MSCI GICS sectors shows that every sector generates positive gross returns over the last ten years. In

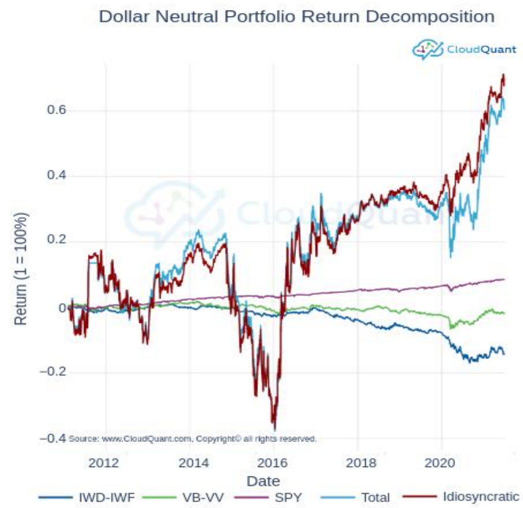

Figure 2 – Decomposition of Gross Returns for Long-short US Stock Portfolio using OLS regression.

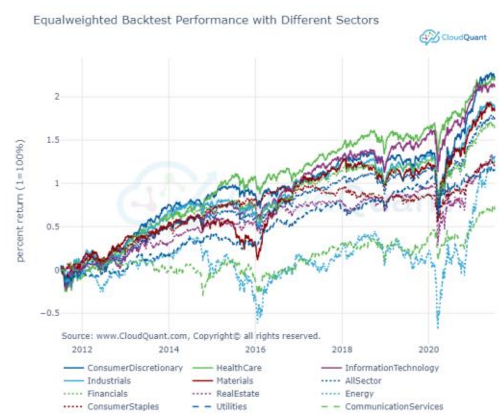

Figure 3 – Gross Returns of Long-only US Stock Portfolio Segmented by MSCI GICS Sector.

Figure 4 - Sector performance shows strong and stable signals in Consumer Discretionary, Information Technology and HealthCare, but relatively weak signals in Energy and Utilities

contrast, our proprietary research found legacy "Earnings Quality" signals to be less dominant in Materials, Energy and Financial sectors as inputs such as interest rates and commodity prices play a large role in earnings results. Figures 3 and 4 illustrate the cross-sectoral robustness of the NC-based signal.

<u>Is This Information Pervasive?</u> To assess the degree to which the information contained in NC is already being incorporated into security prices, CQ backtested portfolios that shifted the signals backwards and forwards in time. In the study, the incoming signals were shifted backwards in time (shown in Figure 5 (a)) to allow forward looking information and shifted forward in time (shown in Figure 5 (b)) to quantify if and when the market is incorporating similar information into security prices.

- The lag sensitivity study demonstrated that the signal efficacy takes many months to substantially decay.
- Based on this analysis, there is entry opportunity ~10-20 days after the earnings filing date.

The NC-based signal is delivered within 2 days or less of the earnings (e.g. 10Q,10K) filing date. A negative lag analysis (Figure 5(b)) indicates that the 2-day processing lag is inconsequential to portfolio performance. It suggests that the work being done during the 48-hour processing window is not being done more rapidly by other fundamental data vendors and researchers and, perhaps, is not being done at all. In addition, the multi-month decay of the NC-based alpha signal suggests that the market as a whole takes weeks if not months to fully digest the 10Q &10K filings, while New Constructs dissects them within 48 hours of release.

<u>Case Studies: Single Stock Examples</u>
CQ reviewed hundreds of individual signals and single stock scenarios identified by the simple NC-based signal. Figure 7 (top of next page) shows the 20-day delayed long and short signals for Tesla Motors (TSLA) which interestingly has roughly as many well-timed long as short signals since its IPO in 2010. The signals maintained short positions during periods of underperformance and long positions as it rather dramatically began improving its free cash flow position and addressed its production-at-scale issues.

A second example Figure 7 (bottom) comes from Under Armor (UAA) which has been hemorrhaging market share and suffering from brand perception issues. Covid-19 forced it to rethink its strategy to focus on digital distribution channels, online performance fitness branding and performance fitness distribution

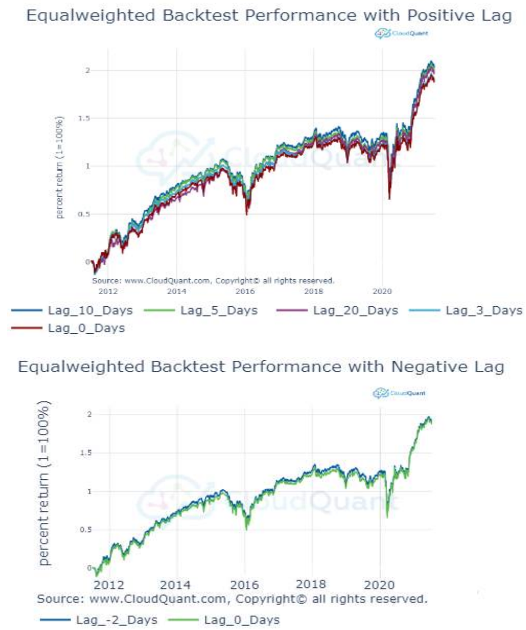

Figure 5 – Gross Returns of Long-only US Stock Portfolio Using Lagged NC-based Signals for (a) positive lags (after signal) and (b) negative lags (prior to signal).

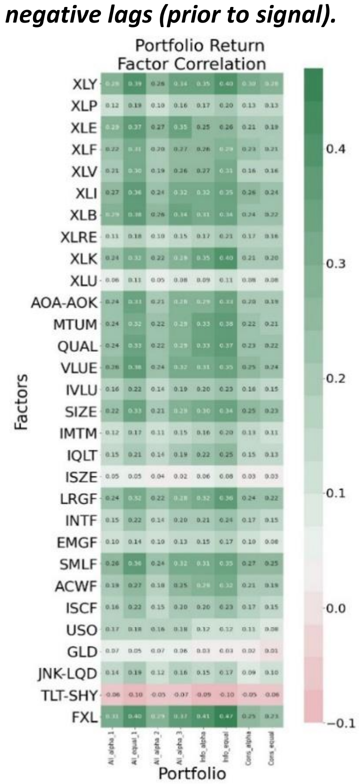

Figure 6-Tradeable Factor Correlation to Various Backtest Scenarios.

partnerships. By late 2020, that pivot was underway and the NC-based signal presciently detected positive earnings signs which coincided with the beginning of a dramatic rally in shares of UAA over the next few quarters before going neutral again.

Dataset Background

Core Earnings And Earnings Distortion Datasets

New Constructs provides insights into the fundamentals and valuation of private & public businesses. Combining human financial accounting and reporting expertise with NLP/ML/AI technologies, the firm's research shines a light in the dark corners (e.g. footnotes, MD&A) of hundreds of thousands of financial filings to unearth critical details that drive uniquely comprehensive and independent debt and equity investment ratings, valuation models and research tools. These earnings anomalies are carefully categorized and tabulated using a standardized nomenclature and process. New Constructs is the only Investment Research provider with a United States Patent for a system and method to reverse accounting distortion and analyze financial information to automatically determine the true profitability of a company. As an independent research firm with no Investment Banking affiliates or conflicts, New Constructs research likely suffers fewer biases.

The Methodology

We Use An Institutional-Grade Signal Backtesting System

In evaluating Quarterly Core Earnings & Earnings Distortion, the potential ability of the dataset to generate long-term (quarterly to annual holding periods) alpha was tested on the Mariner high-frequency backtesting platform. The SaaS Mariner platform is used by institutional investors and trader clients to operate their businesses. The Mariner platform enables implementation of investment strategies utilizing fundamental, market and alternative data in high precision with high frequency market data. Investment executions are evaluated using tick data and include the impact of corporate actions as well as the estimated cost of all exchange fees, regulatory fees, and commissions.

"The consistent and low correlation of the NC portfolio across all sectors and smart-beta products demonstrates that these are new investments ideas with no identifiable equivalent."

Figure 7 -Earning Distortion Signals (20 Days Lag) example for Single Stock of TSLA (top) and UAA (bottom) shows long signals as green shading and short signals as red shading along with cumulative returns of the stock (blue line) and SPY (green line).

Conclusions

The New Construct-based signal is unique and not currently incorporated in market prices for weeks or months

- The NC-based signal is novel and highly significant in both long-only and long-short fundamental investment formats.
- A survey of available smart-beta ETFs and investment products found none with significant correlation to NC.
- The dollar-neutral long-short portfolio, using 20-day lagged signals, returned 60% over 10 years with a Sharpe Ratio over the last five years of 1.0.
- The decomposed returns of the dollar-neutral portfolio show that 85% of that return was alpha.
- The long-only portfolio outperformed the S&P 500 index by an average of 4% per annum over 10 years and averaged 18.4% per annum.
- The backtests used to illustrate the potential of NC-based signals were intentionally simple to demonstrate the underlying power of the NC data.
- Fundamental Investment managers can readily incorporate the New Construct dataset and/or CloudQuant signals derived from NC datasets into their current fundamental investing process.
- CloudQuant provides free trials via it's simple Liberator™ API and Excel Plugin and can help advise investment managers how to incorporate the NC dataset or NC-based signals into their investment processes.

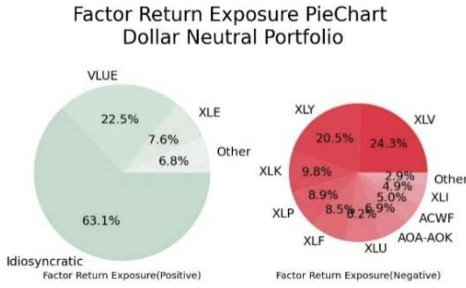

Figure 8-Return decomposition analysis of long-short portfolio shows portion of return that can be explained by existing smart-beta and sector ETFs.

Click here, to schedule a demo and gain free trial access to the New Constructs Signal and our full suite of alternative data evaluation tools.

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About CloudQuant

CloudQuant (www.CloudQuant.com, @CloudQuant) is an Alternative Data (AltData) Company serving global financial services and B2B clients. Our platform empowers organizations to realize the power of historical and streaming data. Thousands of high-value datasets are accessible directly to researchers through a single integration. Companies liberate their own data silos within the organization without costly reengineering. Empower data scientists, investment researchers, managers, or engineers with simple and frictionless access to data. CloudQuant's data advisors and research team utilize artificial intelligence to sift through massive quantities of alternative data to locate valuable sources and provide clients with data intelligence and analytics services. CloudQuant simplifies Alternative Data.

About New Constructs

New Constructs is a data analytics company that uses cutting edge statistics to provide investment solutions to individuals and institutions. Our suite of Multidimensional Alpha strategies uses sophisticated machine learning methods to better estimate the fundamental factors driving the market across all major equity indices. With better measures, we can make predictions and construct portfolios that are better aligned to a client's needs.