

Social Media and Stock Returns: Is There Value in Cyberspace?

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"If you make customers unhappy in the physical world, they might each tell 6 friends. If you make customers unhappy on the Internet, they can each tell 6,000 friends." – Jeff Bezos

"We have technology, finally, that for the first time in human history allows people to really maintain rich connections with much larger numbers of people." – Pierre Omidyar

Social media is an increasingly pervasive and influential force in modern civilization. Its reach as a platform for communication in every aspect of life, from the personal to the economic and the political, is perhaps unique in history. In the field of investing, social media has enabled an unprecedented level of collaboration among investors of all types, and provided a wealth of new data for exploration and exploitation.

This review of social media literature represents a selection of articles we found particularly pragmatic and/or interesting. Although we have not done research in the area of social media, we are always on the hunt for interesting insights, and offer these papers for your thoughtful consideration¹.

The literature review is organized under three headings: **1) crowdsourcing of earnings forecasts and stock recommendations 2) using Facebook, Google and Twitter content 3) corporate use of social media**. Several articles evaluate the predictive capabilities of text and estimate/recommendation-based data sets (Estimize, SumZero, Seeking Alpha). Two of the articles find that Estimize's crowdsourcing model produces superior earnings estimates to the traditional sell-side analyst consensus, similar to the so-called whisper numbers of the late '90s.

Other articles show a link between effective corporate use of social media and future stock returns. Still others evaluate the usefulness of text analysis – Facebook status updates, Google trends and Seeking Alpha stock write ups – in predicting stock price movements. A particularly interesting article shows that buy-side, crowd-sourced research reports from SumZero, paired with analyst recommendations that are contrary to those reports, predict significant positive excess returns. We hope that this collection of papers may serve as a guidepost on a potentially fruitful area of new research.

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I. Crowdsourcing of Earnings Forecasts and Stock Recommendations

[The Value of Crowdsourcing: Evidence from Earnings Forecasts – Adebambo and Bliss \(Jul. 2015\)](#)

We use a novel dataset containing earnings forecasts from buy-side analysts, sell-side analysts, and individual investors [Estimize], to examine whether the crowdsourcing of earnings forecasts provides value-relevant information. Consistent with the ‘wisdom-of-crowds’ effect, crowdsourced earnings consensus is more accurate than the I/B/E/S consensus 57% of the time. The accuracy of the crowdsourced consensus increases with diversity. The crowdsourced consensus produces errors that are more strongly associated with abnormal returns, suggesting that it is a superior measure of the market’s true earnings expectations. A trading strategy based on the difference between the consensus yields an abnormal return of 0.592% per month.

[WISDOM OF CROWDS: THE VALUE OF STOCK OPINIONS TRANSMITTED THROUGH SOCIAL MEDIA – Chen, De, Hu and Huwang \(Dec. 2013\) \(Review of Financial Studies, Forthcoming\)](#)

Social media has become a popular venue for individuals to share the results of their own analysis on financial securities. This paper investigates the extent to which investor opinions transmitted through social media predict future stock returns and earnings surprises. We conduct textual analysis of articles published on one of the most popular social-media platforms for investors in the United States [i.e., *Seeking Alpha*]. We also consider the readers’ perspective as inferred via commentaries written in response to these articles. We find that the views expressed in both articles and commentaries predict future stock returns and earnings surprises.

[The Investment Value of Contrarian Buy-Side Recommendations – Crawford, Gray, Johnson and Price III \(Sep. 2012\)](#)

We examine a comprehensive set of investment recommendations paired with analyst-specific information from over 1,000 buy-side analysts (predominantly analysts from hedge funds) from the private website SumZero.com. Recommendations from these analysts generate significant returns when the reports are posted to the website. Returns are the most dramatic for contrarian recommendations (i.e., those issued contrary to the sell-side consensus), particularly for buy recommendations. Furthermore, the returns to both buy and sell recommendations drift in the direction of the recommendation. We also explore institutional ownership changes and document a wealth transfer between the broader institutional market and buy-side firms in the sample. Collectively, the evidence suggests buy-side recommendations have investment value. The results also document the importance of new technologies in disseminating information to market participants.

[Generating Abnormal Returns Using Crowdsourced Earnings Forecasts from Estimote – Drogen and Jha \(Sep. 2013\)](#)

We examine consensus EPS and Revenue forecasts derived from the crowdsourced community Estimote, and find that they are more accurate than traditional Wall Street equity analysts' consensus forecasts. We then design a profitable strategy which trades on earnings surprises as benchmarked against Estimote. Finally, we demonstrate that a strategy which exploits the differences between the Wall Street and Estimote expectations prior to earnings dates earns excess returns, particularly among large cap stocks.

[Geography, Diversity and Accuracy of Crowdsourced Earnings Forecasts – Nikolic, Bliss and Kumar \(Jun. 2016\)](#)

Using a novel dataset containing the forecasts of buy-side analysts, sell-side analysts, and individual investors [Estimote], we find that the crowdsourced earnings forecasts produce a more accurate consensus compared to the sell-side consensus. More importantly, we find that the diversity of the contributors and the geographical proximity to economically important states are significantly associated with the accuracy of the crowdsourced consensus. The earnings surprise from the crowdsourced consensus is associated with significantly stronger market reactions, suggesting it is a better measure of the market's true earnings expectations. A trading strategy based on the difference between the consensus yields an abnormal 10-day return between 0.465% and 1.975%.

II. Using Facebook, Google and Twitter Content

[Pump It Up? Tweeting to Manage Investor Attention to Earnings News– Bhagwat and Burch \(Oct. 2015\)](#)

We examine how firms' tweeting behavior affects earnings-news returns. Tweeting about earnings news increases the magnitude of announcement returns, particularly when the earning surprise is small and positive and when the firm is less visible as measured by firm size or analyst coverage. We also find evidence of strategic tweeting, particularly by firms that manage earnings: financial tweeting is more frequent around positive earnings surprises, especially those that are less visible. Overall, we conclude Twitter provides firms an effective and strategic way to mitigate investors' limited attention to news, especially when the news is otherwise less likely to attract notice.

[Do Google Trend data contain more predictability than price returns? – Challet and Bel Hadj Ayed \(Mar. 2014\)](#)

Using non-linear machine learning methods and a proper backtest procedure, we critically examine the claim that Google Trends can predict future price returns. We first review the many potential biases that may influence backtests with this kind of data positively, the choice of keywords being by far the greatest culprit. We then argue that the real question is whether such data contain more predictability than price returns themselves: our backtest yields a performance of about 17bps per week which only weakly depends on the kind of data on which predictors are based, i.e. either past price returns or Google Trends data, or both.

[Can Facebook Predict Stock Market Activity? – Karabulut \(Aug. 2013\)](#)

Using a novel and direct measure of investor sentiment, I find that Facebook's Gross National Happiness (GNH) [index] has the ability to predict changes in both daily returns and trading volume in the US stock market. For instance, an increase of one standard deviation in GNH is associated with an increase of 11.23 basis points in market returns over the next day. Consistent with noise trader models, the influence of GNH on market returns is temporary and is reversed during the following trading weeks. I also verify the empirical validity of GNH by performing several tests in different natural settings.

III. Corporate Use of Social Media

[Do Social Firms Catch the Drift? Social Media and Earnings News – Bhagwat and Burch \(Dec. 2013\)](#)

This paper examines whether stock price reactions to news differ based on firms' social media use. We investigate post-earnings announcement drift (PEAD) and find that Twitter-active firms have significantly stronger positive drift (and thus PEAD) following extreme positive earnings news, but also positive drift following negative news (and thus PEAD is reversed). Positive drift following negative news, which is consistent with either initial overreaction or buying during the post-announcement window, is stronger when firms tweet more often, have a larger Twitter audience, and more often tweet about their impending or just-announced earnings. These results obtain even after controlling for firm characteristics and industry fixed effects.

[Social Media and Firm Equity Value – Luo, Zhang, and Duan \(May 2013\) \(Information Systems Research Forthcoming\)](#)

Companies have increasingly advocated social media technologies to transform businesses and improve organizational performance. This study scrutinizes the predictive relationships between social media and firm equity value, the relative effects of social media metrics compared with conventional online behavioral metrics, and the dynamics of these relationships. The results derived from vector autoregressive models suggest that social media-based metrics (web blogs and consumer ratings) are significant leading indicators of firm equity value. Interestingly, conventional online behavioral metrics (Google searches and web traffic) are found to have a significant yet substantially weaker predictive relationship with firm equity value than social media metrics. We also find that social media has a faster predictive value, i.e., shorter “wear-in” time, than conventional online media. These findings are robust to a consistent set of volume-based measures (total blog posts, rating volume, total page views, and search intensity). Collectively, this study proffers new insights for senior executives with respect to firm equity valuations and the transformative power of social media.

[The Use of Social Media in the Supply Chain: Survey and Extensions – O’Leary \(Nov. 2011\)](#)

This paper investigates capabilities of social media, such as Facebook, Twitter, Delicious, Digg and others, for their current and potential impact on the supply chain. In particular, this paper examines the use of social media to capture the impact on supply chain events and develop a context for those events. This paper also analyzes the use of social media in the supply chain to build relationships among supply chain participants. Further, this paper investigates the use of user supplied tags as a basis of evaluating and extending an ontology for supply chains. In addition, using knowledge discovery from social media, a number of concepts related to the supply chain are examined, including supply chain reputation and influence within the supply chain. Prediction markets are analyzed for their potential use in supply chains. Finally, this paper investigates the integration of traditional knowledge management along with knowledge generated from social media.

Our Recent Research

April 2016: [An IQ Test for the “Smart Money” – Is the Reputation of Institutional Investors Warranted?](#)

This report explores four classes of stock selection signals associated with institutional ownership ('IO'): Ownership Level, Ownership Breadth, Change in Ownership Level and Ownership Dynamics. It then segments these signals by classes of institutions: Hedge Funds, Mutual Funds, Pension Funds, Banks and Insurance Companies. The study confirms many of the findings from earlier work – not only in the U.S., but also in a much broader geographic scope – that Institutional Ownership may have an impact on stock prices. The analysis then builds upon existing literature by further exploring the benefit of blending 'IO' signals with traditional fundamental based stock selection signals.

- Among the four classes of 'IO' signals, Ownership Dynamics showed the greatest efficacy, both on the long and the short side, after controlling for value, market, size and momentum, and across all geographies (except Japan).
- Results generated by larger institutional investors were stronger than those generated by smaller institutional investors, independent of institution type.
- Strategies constructed using ownership data generally show low correlation with signals constructed from fundamental data sets in the U.S; blending 'IO' signals with fundamental signals improved the annualized information ratio (by 34%), long-only return (by 23%), and long-short return (by 32%) compared to a standalone fundamental strategy among Russell 3000 companies.

March 2016: [Stock-Level Liquidity – Alpha or Risk? - Stocks with Rising Liquidity Outperform Globally](#)

Most investors do not associate stock-level liquidity as a stock selection signal, but as a measure of how easily a trade can be executed without incurring a large transaction cost or adverse price impact. Inspired by recent literature, such as Bali, Peng, Shen and Tang (2012), we show globally that a strategy of buying stocks with the highest one-year change in stock-level turnover has historically outperformed the market and has outperformed strategies of buying stocks with strong price momentum, attractive valuation, or high quality. One-year change in stock-level turnover has a low correlation (i.e., <0.15) with commonly used stock selection signals. When it is combined with these signals, the composites have yielded higher excess returns and information ratios (IR) than the standalone raw signals.

February 2016: [U.S. Stock Selection Model Performance Review - The most effective investment strategies in 2015](#)

Since the launch of the four S&P Capital IQ[®] U.S. stock selection models in January 2011, **the performance of all four models (Growth Benchmark Model, Value Benchmark Model, Quality Model, and Price Momentum Model) has been positive each year.** The models' key differentiators – a distinct formulation for large cap versus small cap stocks, incorporation of industry specific information for the financial sector, sector neutrality to target stock specific alpha, and factor diversity – enabled the models to outperform across disparate market environments. In this report, we assess the underlying drivers of each model's performance in 2015 and since inception (2011), and provide full model performance history from January 1987.

January 2016: [What Does Earnings Guidance Tell Us? – Listen When Management Announces Good News](#)

This study examines stock price movements surrounding earnings per share (EPS) guidance announcements for U.S. companies between January 2003 and February 2015 using S&P Capital IQ's Estimates database. Companies that experienced positive guidance news, i.e. those that announced optimistic guidance (guidance that is higher than consensus estimates) or revised their guidance upward, yielded positive excess returns. We focus on guidance that is not issued concurrent with earnings releases in order to have a clear understanding of the market impact of guidance disclosures. We also explore practical ways in which investors may benefit from annual and quarterly guidance information.

December 2015: [Equity Market Pulse – Quarterly Equity Market Insights Issue 6](#)

With commodity prices plunging, global economic trends diverging, and market volatility rising, analyst estimates for 2016 have been revised sharply lower. Yet estimates remain strong in particular regions and sectors, and valuations have moderated. This issue of Equity Market Pulse uses bottom-up trends in estimates and global risk-return and investment strategy performance metrics to address these questions:

- Which global regions and economic sectors have the strongest 2016 growth expectations?
- Where have 12-month estimate revision trends held up the best and worst?
- With investors focusing on the new year, which regions offer the most value?

November 2015: [Late to File - The Costs of Delayed 10-Q and 10-K Company Filings](#)

The U.S. Securities & Exchange Commission (“SEC”) requires companies to submit quarterly (10-Q) and annual (10-K) financial statements in a timely manner. Companies that cannot file within the statutory period are required to file form 12b-25 with the SEC. In this report we examine the relationship between late filings (form 12b-25s) and subsequent market returns, as well as whether late filings signal deeper fundamental problems within the company. Our results, within the Russell 3000 universe (February 1994 – June 2015), indicate that abnormal returns of late filers is negative prior to and post form 12b-25 filing. Late filers are also typically companies with poor fundamental characteristics relative to peers; investors may want to consider avoiding or short-selling these firms. This report is a continuation of our work in the area of event driven investing, a class of strategies that originate from company specific events.

October 2015: [Global Country Allocation Strategies](#)

In this report, we investigate the efficacy of fundamental, macroeconomic and sentiment-based strategies for country selection across global equity markets. Using point-in-time fundamental and macroeconomic data, we constructed signals at the country level, grouped into five themes: valuation, quality, sentiment, volatility and macro. We examined their performance between January 1999 and November 2014 for the developed and emerging markets in the S&P Global Broad Market Indices Our major findings include:

- Valuation is a common driver of performance in both developed and emerging markets.
- In addition to valuation, we found macro and sentiment based indicators to be effective country selection signals in developed markets.
- We found currency depreciation to be important when emerging market countries were separated into exporting and importing nations.

September 2015: [Equity Market Pulse – Quarterly Equity Market Insights Issue 5](#)

The Q3 issue of Equity Market Pulse spotlights potential opportunities in Asia, attractive growth and valuations in developed Europe and Japan, and risks associated with rising volatility and elevated 2016 global EPS estimate levels.

September 2015: [Research Brief: Building Smart Beta Portfolios](#)

Why is smart beta important? We believe that smart beta is continuing to gain momentum among a variety of constituencies, including ETF providers, asset managers and asset owners. Many asset managers are making smart beta part of their investment processes. European and Canadian public pension funds have been increasingly relying on internalized smart beta, with the largest U.S. pension funds and endowments also adopting the approach. The purpose of this brief is to aid asset managers and owners in building their own “internal” smart beta processes with a focus on portfolio construction and optimization, including how to manage liquidity and turnover constraints and avoid unintended factor bets.

September 2015: [Research Brief – Airline Industry Factors](#)

This brief examines S&P Capital IQ’s industry-specific factors for the global airline industry. The seven airline industry factors contained in S&P Capital IQ’s Alpha Factor Library consist of ratios widely used by airline industry analysts. The factors address airline profitability in terms of growth, capacity utilization, and operating efficiency. By applying the factors to regime analysis, we find:

- During periods of low fuel price increases industry growth factors are most effective.

- During periods of high fuel price growth, efficiency factors stand out.
- During periods of high revenue passenger growth our studies show that both growth and fuel efficiency factors performed well.

August 2015: [Point-In-Time vs. Lagged Fundamentals – This time i\(t\)'s different?](#)

The common starting point for alpha discovery and risk analysis is the backtesting of historical company financials using a research database. Whether internally constructed or licensed, research databases can be distinguished by two primary formats – Point in Time and Non-Point in Time. This paper focuses on the major practical differences between Point in Time (PIT) and Non-Point in Time (Non PIT) data for both backtesting and historical research. PIT data is defined by its ability to answer two questions: When was the information known? and What information was known at the time?.

August 2015: [Introducing S&P Capital IQ Stock Selection Model for the Japanese Market](#)

Since the launch S&P Capital IQ's four U.S. stock selection models ("[US Stock Selection Models Introduction](#)") in January 2011, we released a suite of global stock selection models targeting both developed ("[Introducing S&P Capital IQ Global Stock Selection Models for Developed Markets](#)") and emerging markets ("[Obtaining an Edge in Emerging Markets](#)"). In this report, we introduce a stock selection model for the Japanese equity market that completes our global model offering.

July 2015: [Research Brief – Liquidity Fragility](#)

As liquidity in the bond market becomes increasingly constrained, there has been a growing chorus of concerns raised by Mohamed A. El-Erian, John Paulson, Jamie Dimon, Larry Summers and recently the Federal Reserve. As we learned in the Global Financial Crisis, when liquidity seizes in one market, margin calls are met by raising cash in one of the most liquid markets in the world: the US equity market. How should equity investors be thinking about liquidity in their market?

June 2015: [Equity Market Pulse – Quarterly Equity Market Insights Issue 4](#)

The Q2 issue of Equity Market Pulse features a spotlight on developed Europe, which has the highest estimated growth rates and most attractive valuations among developed markets.

May 2015: [Investing in a World with Increasing Investor Activism](#)

Investor activism has gained mainstream acceptance as activists with larger-than-life personas have waged a string of successful campaigns. Activist hedge funds' assets under management (AUM) have swelled to \$120 billion, an increase of \$30 billion in 2014 alone. It was among the best performing hedge fund strategies in 2014 as well as over the last three- and five-year periods. In this report, we explore an investment strategy that looks to ride the momentum surrounding the announcement of investor activism. We further explore what, if any, changes to targeted companies activists are able to influence.

April 2015: [Drilling for Alpha in the Oil and Gas Industry – Insights from Industry Specific Data & Company Financials](#)

During the recent slide in oil prices, clients frequently asked us which strategies have historically been effective in selecting stocks in declining energy markets. This report answers this question, along with its corollary: which strategies work in rising energy markets? We also explore the value of oil & gas reserve data used by fundamental analysts/investors, but not used in a majority of systematic investment strategies. The analysis in this report should help both fundamental and quantitatively-oriented investors determine how to best use industry-specific and generic investment metrics when selecting securities from a pool of global oil & gas companies.

March 2015: [Equity Market Pulse – Quarterly Equity Market Insights Issue 3](#)

February 2015: [U.S. Stock Selection Model Performance Review - The most effective investment strategies in 2014](#)

January 2015: [Research Brief: Global Pension Plans - Are Fully Funded Plans a Relic of the Past?](#)

January 2015: [Profitability: Growth-Like Strategy, Value-Like Returns - Profiting from Companies with Large Economic Moats](#)

November 2014: [Equity Market Pulse – Quarterly Equity Market Insights Issue 2](#)

October 2014: [Lenders Lead, Owners Follow - The Relationship between Credit Indicators and Equity Returns](#)

August 2014: [Equity Market Pulse – Quarterly Equity Market Insights Issue 1](#)

July 2014: [Factor Insight: Reducing the Downside of a Trend Following Strategy](#)

May 2014: [Introducing S&P Capital IQ's Fundamental China A-Share Equity Risk Model](#)

April 2014: [Riding the Coattails of Activist Investors Yields Short and Long Term Outperformance](#)

March 2014: [Insights from Academic Literature: Corporate Character, Trading Insights, & New Data Sources](#)

February 2014: [Obtaining an Edge in Emerging Markets](#)

February 2014: [U.S Stock Selection Model Performance Review](#)

January 2014: [Buying Outperformance: Do share repurchase announcements lead to higher returns?](#)

October 2013: [Informative Insider Trading - The Hidden Profits in Corporate Insider Filings](#)

September 2013: [Beggar Thy Neighbor – Research Brief: Exploring Pension Plans](#)

August 2013: [Introducing S&P Capital IQ Global Stock Selection Models for Developed Markets: The Foundations of Outperformance](#)

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May 2012: [The Oil & Gas Industry - Drilling for Alpha Using Global Point-in-Time Industry Data](#)

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March 2012: [Exploring Alpha from the Securities Lending Market – New Alpha Stemming from Improved Data](#)

January 2012: [S&P Capital IQ Stock Selection Model Review – Understanding the Drivers of Performance in 2011](#)

January 2012: [Intelligent Estimates – A Superior Model of Earnings Surprise](#)

December 2011: [Factor Insight – Residual Reversal](#)

November 2011: [Research Brief: Return Correlation and Dispersion – All or Nothing](#)

October 2011: [The Banking Industry](#)

September 2011: [Methods in Dynamic Weighting](#)

September 2011: [Research Brief: Return Correlation and Dispersion](#)

July 2011: [Research Brief - A Topical Digest of Investment Strategy Insights](#)

June 2011: [A Retail Industry Strategy: Does Industry Specific Data tell a different story?](#)

May 2011: [Introducing S&P Capital IQ's Global Fundamental Equity Risk Models](#)

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April 2011: [Can Dividend Policy Changes Yield Alpha?](#)

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March 2011: [How Much Alpha is in Preliminary Data?](#)

February 2011: [Industry Insights – Biotechnology: FDA Approval Catalyst Strategy](#)

January 2011: [US Stock Selection Models Introduction](#)

January 2011: [Variations on Minimum Variance](#)

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