What motivates buy-side analysts to share recommendations online?*

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November, 2014

* We thank two anonymous reviewers, Ralph Walkling, Bradley Lail, Naveen Daniel, Jennifer Juergens, Leonardo Madureira, Jack Vogel, Jared Wilson, and workshop participants at Villanova University, Temple University, Brigham Young University, the University of Houston, the 2012 FMA Annual Meeting, and the 2013 AFA Annual Meeting for helpful comments. We are grateful to SumZero.com, specifically Divya Narendra and Aalap Mahadevia, for sharing data with us. We also thank Richard Swartz for programming assistance.

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ABSTRACT

We examine why buy-side analysts share investment ideas on SumZero.com, a private social networking website designed to facilitate interaction and information sharing among buy-side professionals. We first document that our sample of more than 1,000 buy-side analysts issue recommendations that have investment value. In particular, recommendations generate significant returns when they are posted to the website and the returns to both buy and sell recommendations drift in the direction of the recommendation. These returns are the most dramatic for contrarian recommendations (i.e., those issued contrary to the sell-side consensus). We explore labor-market motivations for sharing information and document that analysts who have strong incentives to seek new jobs (those at small funds), are significantly more likely to issue recommendations. We also show that analysts who share investment ideas are more likely to change jobs, and that the ratings their recommendations receive are positively related to changing employment. Overall, we show that social networking is an effective reputation building and job seeking tool for buy-side analysts.

Keywords: Security analysts, stock recommendations, hedge funds

1. Introduction

A large literature in finance and accounting examines investment recommendations of both sell-side and buy-side analysts issued through traditional means (e.g., Womack 1996 and Groysberg et al. 2013); sell-side recommendations are publicly distributed, while buy-side recommendations are used for private investment and not typically shared. The literature documents that both buy-side and sell-side recommendations have investment value. Other research examines investment recommendations promulgated via nontraditional means (e.g., stock tips on internet stock message boards, mentions on television, and spam email messages, Antweiler and Frank 2004, Engelberg et al. 2011, Hanke and Hauser 2008, Nelson et al. 2013); these recommendations generally experience short-lived price and volume movement that quickly reverts to pre-recommendation levels. In this paper, we meld these two bodies of

research together by examining investment recommendations shared by buy-side analysts on SumZero.com, a private online community for verified buy-side professionals that facilitates interaction among its members to help them "share actionable ideas, get jobs, and grow their professional networks."[1] The focus of our paper is exploring the motivation for these buy-side analysts to share ideas.

Examining a sample of investment recommendations from a variety of buy-side firms is interesting in its own right, given the breadth and scope of the data used in this study. In addition, the very nature of SumZero and its users allows us to investigate how new technologies are shaping the investment landscape. An October 2010 *Institutional Investor* article spotlighting SumZero indicates that "a growing number of niche websites are creating opportunities for new forms of investment analysis to emerge—and for buy-side professionals, even those at rival firms, to collaborate and learn directly from one another." The article also highlights that institutional investors increasingly rely on social media websites, which are "supplementing, and in some cases supplanting, the traditional Wall Street information ecosystem that transmits sell-side investment research and stock calls to the buy-side" (Costa 2010). Given the growth of these emerging technologies, it is important for both academics and practitioners to utilize the data they provide to more effectively understand how technologies, such as SumZero, influence interaction and information sharing among investment professionals.

Our study takes a step in assessing the impact of social networking technologies in financial markets. One of the most intriguing features of the recommendations on SumZero is that buy-side analysts choose to share the recommendations with analysts at competing firms. Given the nontraditional setting, we first explore whether the SumZero recommendations

[1] http://sumzero.com, accessed 5/27/2012.

resemble extant buy-side and sell-side literature and generate immediate and long-term movement in the predicted direction, as opposed to a temporary response and subsequent reversal more consistent with a "pump-and-dump" scheme. The mixture of incentives to share information in this setting does not lead to a clear ex-ante expectation that these recommendations should contain information. Traditional economic theory (Friedman 1953) suggests investors would not share profitable ideas. However, it is possible that funds take initial positions and then share information hoping to move prices further in the direction of the recommendation, which could generate a long-term reaction. It is also possible that funds engage in pump-and-dump schemes, in which case there would be no long-term effect. Given that a stated purpose of SumZero is to help members get jobs, the sharing of recommendations is an opportunity for analysts to build a reputation and signal their ability to potential employers.

We examine 2,050 buy-side recommendations, including 1,751 buy recommendations and 299 sell recommendations, submitted by 1,089 unique analysts working for 891 different funds. The security analysts we study work for firms who are substantial market players with aggregate assets under management of approximately $1.6 trillion. Our results show that SumZero recommendations generate significant returns following the posting of the recommendation. Sell recommendations generate a -1.06 percent cumulative abnormal return (CAR) during the 0 to 2 day trading window, while buy recommendations generate a 0.56 percent CAR measured over the same time frame. In addition, the returns are nearly double in absolute terms for contrarian recommendations, or those that are issued contrary to the prevailing sell-side consensus. Long-window tests show there is significant drift in returns in the direction of the recommendations with no subsequent reversal, particularly for contrarian recommendations. These findings are consistent with buy-side investors releasing valuable information to other investors who then

push prices closer to fundamental values, but that the source of value comes from providing a contrarian view.

We also analyze institutional ownership data around buy-side recommendation events. This analysis also allows us to explore a proposition by Fama and French (2010):

> *"…active investment must also be a zero sum game—aggregate α is zero before costs. Thus, if some active investors have positive α before costs, it is dollar for dollar at the expense of other active investors."*

We examine institutional holdings in the quarters before and after SumZero buy recommendations. Our findings show increases in the holdings of the buy-side firms employing the SumZero analysts. This simple finding gives us confidence that our unique sample consists of legitimate buy-side analysts. In addition, we find that aggregate institutional holdings decline after the issuance of a buy-side recommendation and that the stocks being sold by the broad institutional market and bought by the SumZero buy-side counterparties are small and illiquid. Together with the abnormal return analyses, the holdings data provide evidence that wealth transfers are taking place between institutional investors as a whole and the SumZero buy-side investors in our sample. In this sense, the buy-side is effectively receiving a payment for liquidity provision and information discovery.

In our second set of analyses, we explore the role of labor market motivations for issuing recommendations, and whether those who participate on SumZero and issue recommendations are successful in building a reputation and changing their employment. We first explore factors that influence whether analysts share recommendations. The results of this analysis show that analysts with incentives to build a reputation and seek employment (as proxied for by fund size) are more likely to issue recommendations. Also, analysts that disclose more personal

information (e.g., report gender, and specific companies they have expertise in) are more likely to issue recommendations.

Next, we explore whether analysts are successful in improving their employment situation. Our data allow us to observe whether the employer changes over a ten month period. We observe that 6% of analysts have changed jobs. We conduct analysis exploring the factors that are related to the change in employment. Results indicate that analysts who change employment are more likely to issue reports and disclose more personal information than other analysts. Within the subset of analysts who issued recommendations, results show that the reputation the analysts develop on SumZero contributes to employment opportunities. In particular, the rating received by analysts' recommendations is positively related to a change in employment. Overall, results suggest that social networking plays an effective role in buy-side analysts' career development.

The remainder of the paper proceeds as follows. Section 2 discusses research related to buy-side and non-traditional investment recommendations and then discusses motivations for the sharing of investment ideas among professional investors. Section 3 describes the nature, scope, and features of the data we assemble from SumZero and presents descriptive statistics. Section 4 presents tests using the cumulative abnormal returns surrounding the day reports are posted to SumZero. Section 5 presents tests exploring career-related motives for sharing investment ideas on SumZero. Finally, Section 6 summarizes the findings of our study and concludes by discussing their implications for current and future research.

2. Related Literature

2.1 Nontraditional Investment Recommendations

Our study adds to a growing body of literature that examines whether recommendations shared by a variety of professional investors in a public setting provide information to the market. For example, Desai and Jain (1995) examine the recommendations of "superstar" money managers at Barron's Annual Roundtable and find evidence of abnormal returns between the day the recommendations are made at the roundtable and the day they are released publicly by Barron's (about 14 days); however, they find no evidence of superior returns in longer holding periods. Our study is distinct from this and other related studies (e.g., Barber and Loeffler 1993) because the recommendations posted by analysts on SumZero contain detailed investment theses similar to sell-side recommendation reports, whereas the recommendations from other sources are typically a list of tickers with discussion about the industry or a few specific firms.

We also add to the literature that examines the posting of investment advice and recommendations via message boards, blogs, investment newsletters, other internet enabled technologies, and TV mentions (Antweiler and Frank 2004, Metrick 1999, Dewally 2003, Hanke and Hauser 2008, Nelson et al. 2013, Engelberg et al. 2011). Most of these papers show that these technologies provide little or no meaningful information to the market. Our study is unique because it examines a website specifically designed for and restricted to buy-side investment professionals that share investment recommendations with one another.

Finally, our paper relates to a literature that examines other non-traditional analysts. For example, Billings, Buslepp, and Huston (2014) examine the value of paid-for research, which has been promoted by the SEC as a potential solution to the declining sell-side coverage for smaller firms. The authors investigate whether potential conflicts of interest produce bias in this

research and whether there are significant returns to the recommendations. The results indicate that there is not a significant bias in paid-for research and that long-run returns are significantly positive (negative) for favorable (unfavorable) recommendations.

2.2 Information Sharing

As mentioned previously, a unique aspect of the data in this study is that SumZero buy-side analysts publicly share their investment ideas, contrary to the typical buy-side setting in which ideas are kept private. Traditional economic theory (Friedman 1953) suggests that investors would not share valuable information, and that there would be no reaction to the SumZero buy-side recommendations. However, our setting is nontraditional, and the analysts issuing recommendations are generally not investing their own money and have other incentives for sharing information.

A few theories explain why investors might share private information. First, Stein (2008) suggests managers might share information for feedback that improves their ideas. Second, Gray (2010) shows that a resource-constrained arbitrageur will share profitable ideas with the competition because doing so allows diversification among a group of arbitrage trades. Finally, Dow and Gorton (1994) suggest arbitrageurs only make investments if they believe subsequent arbitrageur demand will push the asset price higher ("arbitrage chains"). Sharing information is one way the arbitrageur can push asset prices in the right direction. These alternative theories predict a sustained reaction to the SumZero reports. However, before sharing recommendations, initial investment positions will likely be taken to maximize profits by the firm employing the recommending analyst, thus the level of mispricing may be lower when recommendations are issued; internal review policies of other firms may further delay investment. In addition, it is possible that some firms may engage in pump-and-dump activities to garner short-term profits.

Given that a stated purpose of SumZero is to help investment professionals get new jobs, career and reputation building motives also play an important role in the decision by analysts to share information. Analysts who wish to change employment can signal their value by issuing high-quality recommendations. Extant research explores career motives of sell-side analysts that influence their recommendations. Ertimur et al. (2009) show that sell-side analysts without established reputations are more likely to issue disaggregated earnings forecasts, and find that analysts who disaggregate are more likely to be promoted. Similarly, Call et al. (2009) show that sell-side analysts' earnings forecasts are more accurate when issued with a cash flow forecast, and that issuing accurate cash flow forecasts decreases the likelihood of being fired.

2.3 Extant Buy-Side Research

Our study is also related to a growing literature that examines the recommendations of buy-side professionals employed by investment firms. Relative to the literature examining sell-side research,[2] the number of studies examining buy-side analysts is relatively small. One reason for this is the lack of access to data. Buy-side firms rarely make the outputs of their analysts publicly available because their analyses are used for private investment decisions. Although the lack of data has limited research in this area, scholars have undertaken buy-side research using several methods. Some buy-side research is either experimental in nature (Hirst and Hopkins 1998) or based on surveys of buy-side professionals (Cheng et al. 2006, Brown et al. 2015). Other research has examined buy-side analysts' outputs using data from a single firm (Groysberg et al. 2008, Frey and Herbst 2012, Groysberg et al. 2013, and Rebello and Wei 2014). Most papers which examine data from a single investment firm find that the buy-side research provides investment value and that it influences portfolio managers' investment decisions. These

[2] Interested readers can see Ramnath, Rock, and Shane (2008a) and Ramnath, Rock, and Shane (2008b) for reviews of the sell-side analyst literature.

studies contribute to our collective knowledge of buy-side analysts, but because each of these studies examines a single investment firm, the generality of the results is unclear.

One contribution of our study is that our results are based on a unique sample of buy-side analyst outputs from hundreds of buy-side investment firms. However, we acknowledge that our setting is not without limitations since buy-side analysts choose to be members of SumZero.com and have career building incentives to share information. Nevertheless, our study establishes the significant impact of buy-side recommendations on securities markets for a broad set of buy-side firms.

3. Data and Descriptive Statistics

3.1 SumZero Analyst and Employer Characteristics

The data used in this study were collected from an online community for buy-side investment professionals called SumZero which began in March 2008 (see the appendix for a detailed description of the website). We gather data from the website in February 2010 and December 2010. Before prospective members join the site they must go through a screening process to verify their employment at a buy-side firm. After prospective members are granted admission, they create an online profile and voluntarily provide information to the website including name, gender, university attended, geographic location, work experience, job title, employer, employer industry, employer assets under management, etc. As part of their profile, members can also list the tickers of firms that they have "researched extensively."

Before presenting a summary of the characteristics of the buy-side analysts included in this study, we note that these analysts choose to become members of SumZero, which could introduce a selection issue into our sample, but note that similar selection issues are also faced by researchers who conduct sell-side research. Specifically, sell-side analysts voluntarily provide their name and forecasts to IBES, and they choose to provide differing levels of detail in their

forecasts (Ertimur et al. 2009, Call et al. 2009). Analysts who choose to join SumZero are likely to be younger buy-side professionals who are comfortable using new technologies and are looking to further their careers. Furthermore, these analysts work for employers who allow them to participate in the website (per SumZero policies). These and other analyst characteristics may make our sample of analysts different from what some academics or Wall Street insiders perceive as the buy-side.

Table 1 provides summary statistics for several analyst and employer characteristics. As of December 2010, SumZero had over 4,700 registered users. We create indicator variables that are set to one if an analyst provides information on a specific personal or employer characteristic to provide readers with a sense of the types of information most likely to be provided by analysts. The means of these indicator variables represent the proportion of analysts providing the requested information. Only 7 percent of analysts report their gender (RPT_GENDER) while nearly 97 percent of the analysts list the university they attended (RPT_SCHOOL). Geographic location is also widely reported as the mean of RPT_LOCATION is 0.98. Only 13 percent of analysts report their employer's industry (RPT_EMPIND) while 72 percent report their employer's assets under management (RPT_FUNDSIZE). The large disparity in the means of these indicator variables demonstrates that analysts provide some information willingly, but they are reluctant to report other types of information.[3]

In addition to these reporting variables, we also create an indicator variable set to one if the analyst attended a top ten university (TTSCHOOL) as defined by U.S. News and World Report. We use this variable as a measure of analyst quality. Twenty-eight percent of the analysts on SumZero attended a top ten university (the mean of TTSCHOOL is 0.28).

[3] Unreported summary statistics for a wide variety of reporting indicators (age, years of work experience, etc.) confirm this point.

NEWYORK is an indicator variable set to one if the analyst is located in the New York City metro area. We create this variable to capture whether physical proximity to the center of the buy-side industry influences analyst behavior and the value of their reports. Nearly 43 percent of SumZero analysts are located in or around New York. Analysts can enter a range for their employers' assets under management (in millions) and MAX_FUNDSIZE is the maximum of that range. The median of MAX_FUNDSIZE is $500 million, but some analysts work for firms with as much as $20 billion in assets under management. COUNTRES is the number of securities that an analyst lists as extensively researched; the median analyst lists three.

In addition to providing profile information, SumZero members post investment reports that are accessible to other SumZero members. Investment recommendations must be a minimum of 500 words long and are encouraged to include a "variant view" that describes how the investment idea differs from the market or sell-side consensus. In order for SumZero users to gain access to the reports of other participants, SumZero requires that users submit an idea every six months. An important feature of the data is that the majority of SumZero users have not submitted reports: the mean of SUBMIT_REPORT (an indicator variable set to one if an analyst submits a report to SumZero) is only 0.29.

[Insert Table 1]

3.2 SumZero Report Characteristics

We gather all 3,167 reports submitted to SumZero during our sample period. We restrict the analysis to US exchange-traded securities and require that firms have price and return data in CRSP for the period starting one year before and ending 60 days after the recommendation. Furthermore, we only include buy and sell recommendations in the analysis since hold recommendation are a small fraction (3.6 percent) of the total number of recommendations

submitted and they exhibit no distinctive return patterns. Imposing these data restrictions results in a total sample of 2,050 reports from 1,089 individual analysts employed by 891 funds.

Panels A (buy recommendations) and B (sell recommendations) of Table 2 present summary descriptive statistics. The first four variables reported in Table 2 are firm characteristics created from CRSP, Compustat, and IBES data. MVE is the firm's market value of equity in millions of dollars. BM is the firm's book-to-market ratio. Both of these variables are calculated using market value of equity measured at the end of the month prior to the report being posted to SumZero. Accounting data used to calculate book value of equity is from Compustat, using data from the firm's most recent annual report.[4] ILLIQ is the Amihud (2002) measure of illiquidity, measured over a twelve month period prior to the SumZero recommendation. Amihud (2002) describes the measure as the "daily price response associated with one dollar of trading volume." IBES_HOLD_SELL is an indicator variable set to one if the consensus sell-side recommendation for the firm is a hold or a sell. We measure the consensus recommendation from the IBES summary recommendation file in the month prior to the SumZero report. We define a hold or a sell if the firm has an IBES consensus recommendation greater than two (the IBES recommendation scale is 1=strong buy, 2=buy, 3=hold, 4=sell, and 5=strong sell).

The mean size of stocks recommended as buys by SumZero analysts is over $6 billion, but the distribution of MVE is highly skewed as the median MVE is $694 million. Panel B shows that the distribution of MVE is also skewed for sell recommendations, but these firms are generally larger than buy recommendations, with a mean (median) MVE that is over $8 ($1.4) billion.

[4] We require the recommendation date to follow the fiscal year end by at least 90 days.

The summary statistics also show wide variation in the size of recommended firms. The minimum MVE across all recommended firms is $5 million (Zareba Systems, a buy recommendation; untabulated), while the maximum MVE is over $300 billion (Exxon Mobil, recommended as both a buy and a sell, untabulated). Unsurprisingly, the book-to-market ratio for buy recommendations is higher than for sell recommendations, as firms with high book to market ratios are viewed as value firms. In terms of liquidity, ILLIQ is higher for buy recommendations than for sell recommendations. To get a better sense of what this variable captures, Apple Inc., Exxon Mobil, Google, and Johnson and Johnson all have the minimum value of ILLIQ of zero. On the other hand, the firm with the maximum value of ILLIQ is Zareba Systems Inc. (ILLIQ of over 500; untabulated), which is also the firm with the smallest MVE. The median daily turnover of Zareba is 0.008 percent of shares outstanding, which is much lower than that of Exxon (0.6 percent) and Apple (3.1 percent).

The values of IBES_HOLD_SELL indicate the level of contrarianism in the SumZero recommendations vs. the sell side. For SumZero buy recommendations in Panel A, the value of IBES_HOLD_SELL is 60 percent, which indicates that the SumZero analysts issuing these reports typically have views contrary to the sell side. In contrast, for SumZero sell recommendations in Panel B, the value of IBES_HOLD_SELL is 75 percent, indicating the analysts issuing these reports have views that are generally in line with the sell side. The high percentage of observations with non-missing values of IBES_HOLD_SELL in Panels A (1,670 of 1,750 or 95 percent) and B (286 of 299 or 96 percent) indicates that most of the firms recommended by SumZero analysts have sell side coverage.

The next four variables in each panel are report-level variables defined by data gathered from SumZero. A unique feature of the SumZero website is that once reports are posted other

analysts can rate the quality of the report on a scale of one to ten. RATED is an indicator variable set to one if the report is rated by at least one analyst. About 40 percent of the buy recommendations are rated while over 50 percent of the sell recommendations are rated. AVG_RATING0 is the average of all ratings received by a report; it is set to zero if the report is not rated to preserve observations for our analysis. The average of AVG_RATING0 for buy recommendations is 2.7 and 3.6 for sell recommendations. It is important to note that these ratings are low because we assign unrated reports a rating of zero; the mean of the average rating of buy (sell) recommendations for those reports that receive ratings is 6.46 (6.78). THESIS_LEN is the number of words in a recommendation. Both buy and sell recommendations are quite long with an average THESIS_LEN of over 7,100 words, akin to a typical sell-side investment recommendation. We also report summary statistics for TIME_LT_ONE, which is an indicator variable set to one if the analyst states that the recommendation should be realized within a year. On average, sell recommendations are more short-term in nature as the mean of TIME_LT_ONE is 0.75 for sell recommendations and 0.40 for buy recommendations.

The last three variables capture analyst and employer characteristics: COUNTREPORT, TTSCHOOL, and MAX_FUNDSIZE. These variables were introduced in Table 1, but the summary statistics for these variables are different in Table 2 because the table restricts the sample to those analysts who submit reports. The median of COUNTREPORT in both panels A and B is three suggesting that those analysts who submit at least one report often submit more than one. The median MAX_FUNDSIZE in both panels of Table 2 is smaller than in Table 1, suggesting that analysts from small firms are more likely to submit reports. Finally, TTSCHOOL is similar to the Table 1 results, with about 25 percent of submitting analysts graduating from a top ten school.

[Insert Table 2]

3.3. Institutional Holdings

Using institutional holdings data, we explore whether recommendations issued on SumZero are reflected in the holdings of the firms represented in our sample, as well as broad institutional holdings. We use data from the Thomson Reuters Institutional (13F) Holdings database, which provides quarterly data on the institutional holdings of managers subject to SEC Form 13F filings (i.e., those with assets under management of at least $100 million). For each quarter, the database reports the securities and number of shares held by each institution. We aggregate holdings across institutions for a given firm and quarter to calculate total institutional ownership as a percentage of total shares outstanding for each firm quarter and examine how total institutional ownership changes before and after the release of the report. We also match SumZero buy-side employers and 13F institutions and calculate the percentage of shares outstanding owned by the employer of the analyst issuing the report. Complications in matching result in a significant decline in sample size and consequently statistical power; we are only able to match 114 institutions with 13F filing data.

Holdings data are only available on a quarterly basis, so for each firm in the sample we observe the institutional ownership in the quarter in which the recommendation is made, as well as the quarter prior to and the quarter after the recommendation. Because these individual changes may be noisy due to the periodic nature of the 13F reporting, we calculate the change from quarter t-1 to quarter t+1 to capture any effect the buy-side recommendation may have on institutional ownership. As a robustness check, we also calculate the change from quarter t-2 to quarter t+2.

Panel A of Table 3 presents the results of the institutional holdings analysis for buy recommendations. For all buy recommendations, total institutional ownership decreases from 66.05 percent in quarter t-1 to 64.59 percent in quarter t+1. The decrease of 1.46 percent is significantly different from zero at the 1 percent level. The decline in ownership is most pronounced for the contrarian SumZero buy recommendations as this group of firms experiences a decline in institutional ownership of 1.61 percent. These results suggest that institutions are net sellers of SumZero buy recommendations. This result is consistent with the hypothesis that broad institutional selling causes market opportunities for other investors.

Additionally, ownership at the institution which employs the analyst who submitted the recommendation increases by 0.20 percent of total shares outstanding, an increase that is significantly different from zero at the 5 percent level (see Panel B). This finding gives us confidence that the sample of buy-side analysts are truthful in reporting information on SumZero. When we split the SumZero recommendation based on the sell-side consensus, neither portfolio of stocks experiences a statistically significant increase in the percentage of shares held by the SumZero employer, but these results need to be interpreted cautiously; the test lacks power given the small number of observations included in the analysis.

[Insert Table 3]

4. Analysis of Recommendation Returns

4.1 Average Cumulative Abnormal Returns

We now turn to examining event returns following the release of SumZero reports. We calculate abnormal returns around the release of the report by subtracting expected daily returns from realized daily returns. To generate expected returns we estimate firm-specific 4-factor regressions using a 250-day estimation window which begins on day -310 and ends on day -61.

Our 4-factor model includes the market, size, and value factors (Fama and French 1993) and the momentum factor (Carhart 1997).[5] To calculate cumulative abnormal returns (CARs), we sum abnormal returns over the designated event window. To test the significance of the CARs, we compute the t-statistics from Campbell, Lo, and MacKinlay (1997) and report two-sided p-values based on this t-statistic in the tables.[6]

Table 4 presents CARs for four distinct periods after the release of the report on SumZero: days 0 to 2, days 0 to 4, days 0 to 9, and days 0 to 59. Figure 1 presents the CARs spanning days -60 to 60 partitioned on whether the recommendations are contrarian. We separate the returns based on the outstanding consensus sell-side recommendation for two reasons. First, buy-side firms routinely refer to sell-side research in making investment decisions in addition to the recommendations produced by their in-house analysts (see Frey and Herbst (2012)). Second, as discussed above, SumZero encourages its participants to include a "variant view" in each recommendation that describes how the investment idea differs from the market or sell-side consensus.

We examine CARs over days 0 to 2 to capture the immediate information effects of the recommendations and to reduce the likelihood that other information or firm events are causing prices to move. Buy recommendations experience an immediate increase in price after the recommendation is posted to SumZero, and the effects are concentrated among contrarian SumZero recommendations: contrarian buy recommendations increase the most while contrarian sell recommendations decrease the most. These results indicate that contrarian recommendations

[5] For buy (sell) recommendations the average factor loadings are as follows: market 0.94 (1.07); SMB 0.53 (0.72); HML -0.01 (0.14); MOM -0.12 (-0.19).

[6] Results are qualitatively similar for other market adjustments including market model returns using CRSP value- or equal-weighted returns. Results are also similar using different approaches to calculated t-statistics including the t-statistic proposed by Brown and Warner (1985).

are the most likely to revise the market's expectations about the firm. We expand the return window to five days (0,4) and ten days (0,9) and document a continued drift in the direction of the initial reaction.

The last set of CARs presented in Table 4 are measured over days 0 to 59. We use these CARs to assess whether the price changes observed above reverse or drift after the recommendation is posted to SumZero. Price reversals would suggest that the report only resulted in temporary buying pressure on the stock without leading to a persistent revision of the market's assessment of the stock's future prospects or risk. The presence of a drift in prices would suggest that the market is slow to impound the information contained in the SumZero recommendations. Table 4 shows that significant drift is observed for contrarian buy recommendations: the CAR from day 0 to 59 is 4.45 percent for these firms. For all sell recommendations, drift is also present, but the effect is more pronounced for contrarian sell recommendations as these recommendations experience a CAR of -11.70 percent, on average. The drift in returns after the recommendation date indicates that the information contained in contrarian buy recommendations is price-relevant, but it takes time for the information to be reflected in prices. Research on sell-side analyst recommendations over short trading windows finds similar results (e.g., Womack 1996).[7]

[Insert Table 4]

4.2 Regression Tests

In this section, we investigate how the return patterns in Figure 1 and Table 4 are related to firm, report, and analyst characteristics by analyzing CARs in a multivariate context. For this

[7] In untabulated results, we also examine abnormal volume for the SumZero recommendations. For buy recommendations as a group, abnormal volume begins to increase in the few days prior to a release of the report, spikes significantly the day before and the day of a report and then tapers off in the days that follow. Volumes are also at abnormal levels surrounding short recommendation events.

analysis we take a log transformation of many variables presented in Table 2 including MVE, BM, MAX_FUNDSIZE, ILLIQ, THESIS_LEN, AVG_RATING0, and COUNTREPORT.[8] We also include control variables for the sell-side analyst activity that occurs during each of the CAR windows that we use in the regressions. We control for sell-side analyst activity to ensure that the CARs are attributable to the SumZero reports and not changes to the sell-side outlook for the firm during the same time period. The variable NET_UPGRADE is an indicator variable if the number of sell-side analyst upgrades during the CAR window exceeds the number of sell-side analyst downgrades. NET_DOWNGRADE is an analogous indicator variable set to one if the number of downgrades exceeds the number of upgrades. The two variables are not collinear because many firms either have no activity during the specific CAR window or the number of upgrades is equal to the number of downgrades.[9] In addition to controlling for sell-side activity, we also include IBES_HOLD_SELL to control for the IBES consensus recommendation at the time the SumZero recommendation is issued given the importance of the sell-side consensus as demonstrated in Table 4 and Figure 1.

Table 5 presents the regression results for buy (columns 1 through 4) and sell recommendations (columns 5 through 8). The univariate association between CARs and the sell-side consensus for SumZero buy recommendations is robust to including firm, report, and analyst control variables as evidenced by the positive and statistically significant coefficients on IBES_HOLD_SELL in columns 1, 3, and 4. However, for sell recommendations, the sell-side

[8] We add one to ILLIQ, THESIS_LEN, AVG_RATING0, and COUNTEPORT to make it possible for us to keep the zero values for these variables.

[9] Altinkilic and Hansen (2009) demonstrate the importance of controlling for firm events like earnings announcements and earnings guidance in the context of demonstrating the informational role of sell-side recommendation revisions so we also control for earnings announcements and earnings guidance events within our CAR windows. However, NET_UPGRADE and NET_DOWNGRADE appear to capture most of the variation in these other firm events so our reported results do not include controls for earnings announcements and guidance. All of the reported results are similar if these controls are included.

consensus recommendation is not important in explaining CARs. Returns to both buy and sell recommendations are affected by sell-side upgrade and downgrade activity, demonstrating the importance of controlling for sell-side analyst activity.

Turning to analyst and report variables, there is some evidence that short window (0 to 2 days) reactions are stronger for recommendations for which the horizons is short (TIME_LT_ONE), but there is no influence on long-window returns. For sell recommendations, the average rating is significantly negative for long-window CARs, , which provides some evidence consistent with analyst skill being related to long-term performance of recommendations; however, this relation is not observed for buy recommendations. In addition, the coefficient of LOG_COUNTREPORT is negative and significant suggesting that sell recommendations from analysts who are more active on the site are more informative.

[Insert Table 5]

Together, the univariate and multivariate analysis shows that there is a persistent reaction to the SumZero recommendations. We next turn to exploring career-related motives of the SumZero members to share information.

5. Career-Related Motives for Sharing Ideas

The return tests establish that there is on average information content in the recommendations submitted by analysts. In this section, we explore whether career-related incentives explain activity on SumZero, and whether being active on SumZero is related to subsequent changes in employment.

5.1 Determinants of Submitting Reports

One way to provide insight into the labor market incentives of the analysts on SumZero is to examine analyst characteristics that are associated with whether they submit reports. As

discussed above, less than 30% of the analysts submit reports to the website, and yet submitting reports can provide analysts with a way to signal their ability to potential employers. Accordingly, we run logistic regressions of SUBMIT_REPORT on several analyst variables and present the results in Table 6. For this analysis, we take the natural log of MAX_FUNDSIZE (LOG_MAX_FUNDSIZE) and the natural log of one plus COUNTRES (LOG_COUNTRES). To maximize the number of observations included in the analysis, the first regression included in Table 7 includes the indicator variable RPT_FUNDSIZE. The second regression contains LOG_MAX_FUNDSIZE. SumZero assigns sequential numerical ids to SumZero members depending on when they joined the site. We include LOG_ID (the log of the assigned id) in our regression models as a control for how long the analyst has been on the website. The statistically significant, negative coefficient on LOG_ID in Table 6 indicates that the likelihood an analyst submits a report is increasing in how long the analyst has been a member of SumZero. We include RPT_GENDER and LOG_COUNTRES in the model to capture how much information the analyst provides to the website. The estimated coefficients on both variables suggest a positive association between the information an analyst provides and the likelihood of submitting a report; an analyst who reports gender is about 17 percent more likely to issue a report. Replacing RPT_GENDER with other report indicator variables yields similar results. Neither TTSCHOOL nor NEWYORK consistently influences the likelihood of an analyst submitting a report.

The most striking result from Table 6 is that the reported coefficient on LOG_MAX_FUNDSIZE is negative and highly significant suggesting that analysts from small firms are more likely to issue reports. Analysts at these funds are likely to have the most incentives to seek new employment, and thus view and use SumZero as a career building tool.

An analyst that moved from a small fund (first quartile) to a large fund (third quartile) would be about 14 percent less likely to issue a report on SumZero.

The higher likelihood of analysts from small funds issuing reports could be attributable to several factors. First, analysts from smaller funds might benefit the most from feedback. Second, small firms are more likely to face capital constraints which prevent them from taking positions large enough to push prices to fundamental value. Sharing these recommendations may be an effective way for buy-side investors to "talk their book" and encourage others to take positions. Third, the controls (such as privacy controls) at smaller funds may be less developed. Finally, analysts from small funds may share their recommendations to advertise their skills to potential employers at larger, more prestigious funds.

[Insert Table 6]

5.2 Determinants of Employment Change

As stated above, we gathered data from the SumZero website in December 2010, but we also gathered data in February 2010. Having two cuts of data allows us to observe changes in the information analysts provide to SumZero. Most importantly, we can observe changes in the employer which makes it possible to explore analyst characteristics that are associated with changes in employment. Of the 3,082 analysts who belonged to SumZero in February 2010 and who also listed their employer, 181 list a new employer in December 2010. This is approximately 6% of the sample, which is a nontrivial percentage.

Table 7 reports summary statistics for the analysts who do not change employers and for the analysts who do change employers. There are several notable results presented in the table. First, it is evident that those who changed employment are much more likely to have issued a report; the value of SUBMIT_REPORT in cut 1 is 0.56 for those who changed jobs vs. 0.31 for

other analysts; untabulated descriptive statistics show that SUBMIT_REPORT increases from 0.56 to 0.69 in cut 2 for analysts who change employment. In addition, the value of NREPORT_CUT1 is 01.37 for those who switched employment vs. 0.60 for those who did not; there is a significant increase in the number of reports issued (DIFF_NREPORT), with an average increase of 0.73 for job changers vs. 0.17 for other analysts. Perhaps in an attempt to signal expertise, those who switch jobs list a higher average number of companies for which they have expertise (1.69 vs. 1.47 for LOG_COUNTRES_CUT1). Job changers are also more likely to disclose more information (17% report gender vs. 8% for RPT_GENDER_CUT1); they also work for smaller firms (LOG_MAX_FUNDSIZE_CUT1 is 6.79 vs. 7.10).

[Insert Table 7]

In Table 8, we explore factors related to changes in employment of the analysts using SumZero. We estimate a logistic regression of an indicator variable, EMP_CHANGE, which equals one for analysts who change jobs, on many of the variables included in Table 6.

The regression in Panel A is estimated on the entire sample of analysts, including those who have not issued reports. In this analysis, significant coefficients of SUBMIT_REPORT_CUT1, DIFF_NREPORT, and LOG_NREPORT, indicate that analysts who issue reports are more likely to be successful in changing jobs. The significant coefficient on DIFF_COUNTRES, and RPT_GENDER_CUT1 indicate that sharing more information, and providing evidence of expertise, are positively related to changing employment. The negative and significant coefficient on RPT_FUNDSIZE_CUT1 is consistent with analysts at small funds choosing not to list the fund size, but reporting this information after they have changed jobs; thus they likely selectively disclose information that benefits them.

The regressions in Panel B are similar to those in Panel A, with the exception that the sample is restricted to analysts who have issued recommendations. Both sets results are largely consistent. The additional variables added include the average rating, the 60 day return, and a contrarian indicator variable. The 60 day return and the contrarian variables are both insignificant. It is important to note that returns of a particular recommendation are noisy, thus may not be as relevant in building a reputation. However, the rating variable is positively correlated with employment change. This is a significant finding that indicates that the reputation an analyst develops on SumZero is positively related to employment change. The findings in Table 6 indicate that analysts with incentives to seek new employment are more active in issuing recommendations, and Table 8 shows that sharing information indeed leads to positive employment outcomes for these analysts.

[Insert Table 8]

6. Conclusion

Using a unique dataset gathered from the private website SumZero.com we examine the motives of buy-side analysts who issue recommendations on SumZero, an online social networking site. We show that both buy and sell recommendations from buy-side investment professionals generate significant returns after they are posted to the website, but the returns are most dramatic for recommendations that are contrary to the sell-side consensus (i.e., contrarian recommendations). Furthermore, we examine institutional holdings for SumZero buy recommendations and show that the employers of the analysts issuing the reports are taking positions in the stocks being recommended as buys. These results suggest that the recommendations posted to SumZero are not simply an attempt by the analysts on SumZero to opportunistically benefit from short-term returns caused by their reports.

We explore employment-related incentives for analysts to share information. We document that analysts with greater employment incentives (i.e., those working for small funds) are more likely to issue recommendations. In addition, our analysis shows that analysts who issue more recommendations, and analysts who issue highly rated recommendations, are more likely to change employment.

Our study shows that new and emerging technologies that create opportunities for sharing investment information, and which facilitate interaction among investors, can impact financial markets and their participants. When coupled with analysts' motivations to share their information and ideas (Stein 2008; Gray 2010), these technologies have important implications for the assumptions made about information sharing among investors (Friedman 1953; Stein 2008). Specifically, our study illustrates the interactive effect that analysts' motivation, ability, and opportunity to use technology have on recommendations and information sharing in markets. Our results also add to the buy-side literature by documenting the value of buy-side research across a broad sample of buy-side firms, enhancing the generalizability of previous research in this area. Furthermore, the findings in this study also suggest that the value of buy-side recommendations lies in providing insights over and above the insights already provided by sell-side investment research.

Appendix.

Description of SumZero Website

The data used in this study come from on online community for buy-side investment professionals called SumZero.com.[10] SumZero describes itself as "the leading global community for hedge fund and mutual fund investment professionals with 5,674 members. Nearly every major hedge fund is represented in SumZero's user base. SumZero members have access to a database of thousands of actionable investment ideas written exclusively by their peers at other elite hedge funds/mutual funds."[11]

As mentioned in the paper, each potential member goes through a screening process before being admitted. To initiate the application and screening process, prospective members provide basic personal information about themselves to establish their identity as buy-side professionals. Prospective members are also encouraged to upload a resume and provide an investment thesis of greater than 500 words that contains a "compelling valuation discussion."[12] While the resume and investment idea are not mandatory to gain admission to the site, providing them expedites the admission process. Upon submitting this information, the SumZero organization contacts each prospective member via telephone, interviews them, and verifies their credentials as a professional buy-side investor. Through this screening process the organization takes significant steps to maintain the integrity of the membership.[13]

After prospective members have been approved for admission, they are encouraged to enhance their online profile by providing additional information in several key areas. First, individuals are asked for personal information including their name, email, phone numbers, university attended (both undergraduate and graduate institutions), college major, geographic location (city, address), gender, age, languages spoken, and work experience. Second, individuals provide information on their current job function and employer, including employer name and assets under management. Information about prior employers is also provided. Third, members supply information about their expertise, including the asset class, sector (industry), and geographic location of the securities in which they specialize. Fourth, information regarding

[10] The data were taken from SumZero in December of 2010 at which point there were over 4,700 registered members. SumZero has over 5,600 members in August of 2011, demonstrating rapid recent user growth.
[11] http://sumzero.com, accessed 8/19/11
[12] http://sumzero.com, accessed 8/19/11
[13] There are no official statistics on acceptance/rejection rates for admission.

investment style, investment hero, and favorite investment book is also collected. Finally, members may list tickers of firms that they have "researched extensively," as part of their profile. Members are not required to provide all of this information.

While SumZero membership is limited to individuals who can verify their status as a buy-side professional, maintaining the quality of membership is not directly monitored by SumZero. The site relies on the "twin principles of transparency and accountability"[14] to monitor quality. The site goes further and elaborates on why they rely on internal versus external quality control measures:

> *Fundamentally, SumZero believes that members of the community will be in a better position to assess the quality of information and the compliance efforts of the community if (employer) firm names are included. In addition, members can confirm whether a firm is registered with any regulatory agency and whether there are relevant disciplinary matters publicly disclosed about the firm.*

On the positive side, the lack of external quality controls minimizes a potential selection bias and broadens our analyst sample. On the negative side, the lack of a direct, on-going quality control process may increase the number of noisy recommendations from unqualified analysts who submit ideas with little or no investment value. As it pertains to our tests, the absence of a direct quality control system will likely bias our net results toward the null hypothesis that buy-side analyst reports provide no investment value.

A vital aspect of the SumZero dataset is that members post investment reports that are accessible to other SumZero users who contribute ideas. When posting an investment report, a member lists the security, asset class, recommendation, expected timeframe, sector, country, and situation. In addition, each idea must be accompanied by an investment thesis that describes why the security is being recommended and must include the valuation analysis behind the recommendation. Theses must be a minimum of 500 words, and each investment idea must also be accompanied by a "variant view" that describes how the investment idea differs from the market or sell-side consensus. Members may also include a valuation model as well as detailed valuation metrics, but this information is not required.[15]

[14] http://sumzero.com/compliance_faq accessed 5/27/2012.

[15] When submitting an idea, each member must indicate that s/he has obtained all necessary approvals from his/her

The SumZero buy-side investment reports used in our study are very different from the buy-side "recommendations" from TV shows or columns in newspapers and business magazines that have been examined in other research (e.g., Barber and Loeffler 1993; Desai and Jain 1995). The SumZero recommendations we use are extremely detailed and thorough, with a median length of 5,342. Access to a full recommendation thesis allows other buy-side analysts to more easily verify genuine information and effectively impound this information into security prices. In contrast, the "recommendations" used in previous studies rely on sound bites, ticker symbols, or perhaps a brief sentence in a newspaper related to an investment thesis, but they do not contain the same quantity or quality of information for professional investors, who are held accountable for their portfolio performance.

As discussed in the paper, SumZero requires that users submit an idea every six months to maintain access to the idea database. The system that monitors idea submissions is completely automated and prevents free-riders from accessing ideas without providing their own ideas. Furthermore, the system requires analysts to input all required background information on each investment thesis. A determined free-rider could conceivably enter a plagiarized or nonsensical investment idea into the system, however, the idea would be associated with the analyst permanently and their reputation would suffer. While the importance of reputation in this context does not completely eliminate free-rider problems, it should help to minimize their occurrence, particularly given the policies and procedures implemented by SumZero.

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employer to submit the idea and that it complies with all applicable employer policies; the member must also disclose if his/her fund has a position in the security and then state that s/he may trade in and out of that position without informing SumZero and its users.

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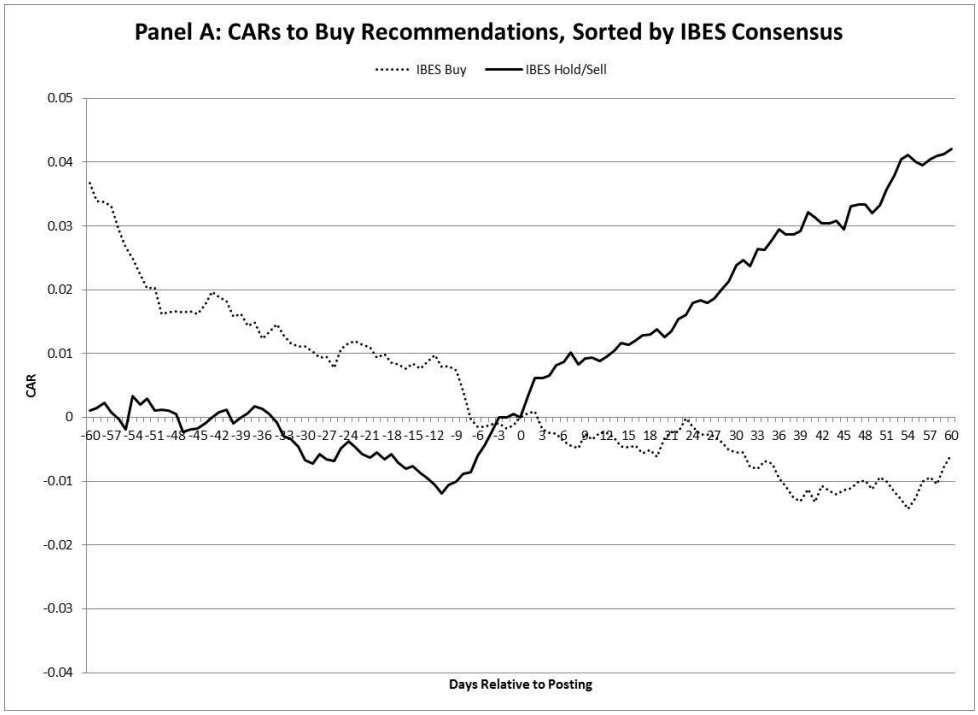
Figure 1: Cumulative Abnormal Returns by Sell-side Consensus Recommendation

This figure plots the mean cumulative abnormal returns (CARs) for the sample of SumZero buy (Panel A) and sell (Panel B) recommendations from 60 trading days prior to the recommendation through 60 trading days after the recommendation. Events are assigned to the IBES sell/hold (buy) portfolio if the firm has an IBES code greater than (less than or equal to) two. The sample of events consists of recommendations submitted from the launch of the website in March of 2008 to December 2010.



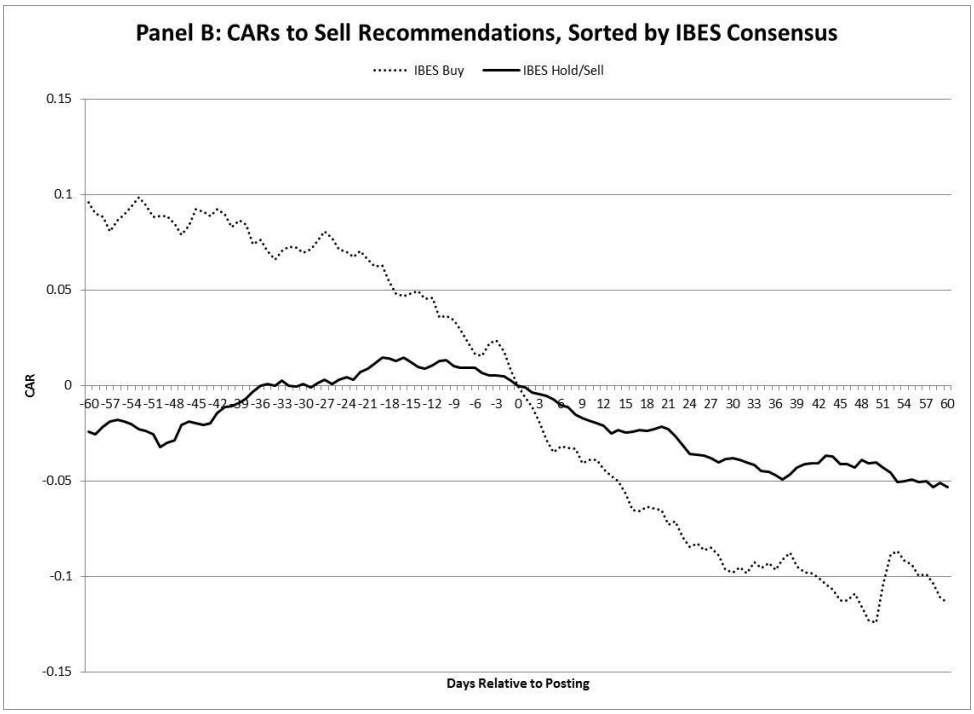


Table 1: Summary Statistics for Analyst Level Variables

This table reports summary statistics for several characteristics of the SumZero analysts. RPT_GENDER is an indicator variable set to one if the analyst lists gender on SumZero, zero otherwise. Similar variables are created for SCHOOL (the university the analyst attended), LOCATION (geographical location of the analyst), EMPIND (employer industry), and FUNDSIZE (employer assets under management). TTSCHOOL is an indicator variable set to one if the analyst graduated from a top ten university, zero otherwise. NEWYORK is an indicator variable set to one if the analyst is located in the New York City metro area, zero otherwise. MAX_FUNDSIZE is the maximum of the range of assets under management of the employer of the analyst submitting the report. COUNTRES is the number of securities an analyst lists as extensively researched. SUBMIT_REPORT is an indicator variable set to one if the analyst submits at least one report to SumZero, zero otherwise. COUNTREPORT is the number of reports submitted by an analyst.

Variable	N	Mean	Median	Std. Dev.	Min	Q1	Q3	Max
RPT_GENDER	4,761	0.0695	0.0000	0.2544	0.0000	0.0000	0.0000	1.0000
RPT_SCHOOL	4,761	0.9666	1.0000	0.1797	0.0000	1.0000	1.0000	1.0000
TTSCHOOL	4,602	0.2757	0.0000	0.4469	0.0000	0.0000	1.0000	1.0000
RPT_LOCATION	4,761	0.9807	1.0000	0.1377	0.0000	1.0000	1.0000	1.0000
NEWYORK	4,669	0.4296	0.0000	0.4951	0.0000	0.0000	1.0000	1.0000
RPT_EMPIND	4,761	0.1384	0.0000	0.3454	0.0000	0.0000	0.0000	1.0000
RPT_FUNDSIZE	4,761	0.7234	1.0000	0.4474	0.0000	0.0000	1.0000	1.0000
MAX_FUNDSIZE	3,444	4,258	500	6,210	250	250	5,000	20,000
COUNTRES	4,761	3.95	3.00	4.96	0.00	3.00	4.00	133.00
SUBMIT_REPORT	4,761	0.2930	0.0000	0.4552	0.0000	0.0000	1.0000	1.0000
COUNTREPORT	4,761	0.6652	0.0000	1.7719	0.0000	0.0000	1.0000	28.0000

Table 2: Summary Statistics for SumZero Recommendations

Panels A and B of this table reports summary statistics for SumZero buy and sell recommendations, respectively. MVE is the market value of equity in millions of dollars measured in the month prior to the recommendation. BM is the ratio of book value of shareholders' equity to market value of equity. Book value of shareholders' equity, and all other accounting data, is from the firm's most recent 10-k prior to the recommendation. ILLIQ is the Amihud (2002) measure of illiquidity. IBES_HOLD_SELL is an indicator variable set to one if the IBES consensus recommendation at the time of the recommendation is a hold or a sell. RATED is an indicator variable set to one if the report is rated by at least one SumZero user, zero otherwise. AVG_RATING0 is the average of the ratings given to a recommendation by SumZero users. If the recommendation is not rated then this variable is set to zero. THESIS_LEN is the length (in number of words) of the recommendation report. TIME_LT_ONE is an indicator variable set to one if the analyst believes the recommendation will be realized in one year or less, zero otherwise. COUNTREPORT is the number of reports submitted by the analyst who submits the recommendation. TTSCHOOL is an indicator variable set to one if the analyst graduated from a top ten university, zero otherwise. MAX_FUNDSIZE is the maximum of the range of assets under management of the employer of the analyst submitting the report.

	Panel A: Buy Recommendations				Panel B: Sell Recommendations			
Variable	N	Mean	Median	Std. Dev.	N	Mean	Median	Std. Dev.
MVE	1,751	6,296	694	22,128	299	8,122	1,497	31,517
BM	1,702	0.9526	0.6433	1.3603	290	0.5233	0.3478	1.5481
ILLIQ	1,751	2.2259	0.0046	19.8772	299	0.0733	0.0013	0.7048
IBES_HOLD_SELL	1,670	0.5964	1.0000	0.4908	286	0.7517	1.0000	0.4328
RATED	1,751	0.4175	0.0000	0.4933	299	0.5318	1.0000	0.4998
AVG_RATING0	1,751	2.6961	0.0000	3.2979	299	3.6043	4.7000	3.5042
THESIS_LEN	1,751	7,104	5,310	5,641	299	7,136	5,285	6,083
TIME_LT_ONE	1,751	0.3998	0.0000	0.4900	299	0.7458	1.0000	0.4361
COUNTREPORT	1,751	5.3295	3.0000	5.5733	299	5.9298	3.0000	5.8881
TTSCHOOL	1,691	0.2478	0.0000	0.4319	294	0.2755	0.0000	0.4475
MAX_FUNDSIZE	1,388	2,417	250	4,692	239	2,554	250	4,416

Table 3: Change in Institutional Ownership

This table shows the levels of institutional ownership of firms recommended as buys by SumZero analysts. We report buy recommendations by all institutions, which is calculated as the total number of shares owned by institutions divided by total shares outstanding. Buy recommendations by analyst firm are calculated as the total number of shares owned by a SumZero analyst employer divided by total shares outstanding. Mean change refers to the difference in quarterly observations and test statistics for a paired t-test. In addition to showing how institutional ownership changes for the entire sample of buy recommendations, we also look at the set of firms with an IBES consensus sell-side recommendation of hold/sell and the set of firms with an IBES consensus sell-side recommendation of buy. Two-sided p-values for a paired t-test are shown below the coefficient estimates, and 5% statistical significance is indicated in bold.

		Q(t-1)	Q(t)	Q(t+1)	Q(t+1) - Q(t-1)	p-value
Panel A: Buy Recommendations by all institutions						
All		66.05%	65.39%	64.59%	**-1.46%**	0.000
	N	1,706	1,706	1,706	1,706	
IBES Buy		65.93%	65.74%	64.85%	**-1.07%**	0.042
	N	660	660	660	660	
IBES Hold/Sell		68.74%	67.83%	67.13%	**-1.61%**	0.001
	N	970	970	970	970	
Panel B: Buy Recommendations by analyst firm						
All		1.37%	1.59%	1.57%	**0.20%**	0.038
	N	114	114	114	114	
IBES Buy		1.05%	1.36%	1.47%	0.42%	0.103
	N	40	40	40	40	
IBES Hold/Sell		1.56%	1.74%	1.64%	0.09%	0.145
	N	73	73	73	73	

Table 4: Cumulative Abnormal Returns (CARs) after Posting Date

This table reports cumulative abnormal returns (CARs) for four different return windows to SumZero recommendations submitted from March 2008 to December 31, 2010. Panels A and B show the CARs to buy and sell recommendations, respectively. Within each recommendation portfolio we also sort firms based on the outstanding IBES sell-side consensus recommendation at the time of the SumZero recommendation. The IBES Buy (Hold/Sell) portfolio includes SumZero recommendations that are made when the sell-side consensus recommendation is a buy (hold or sell). We calculate daily abnormal returns around the release of the report by subtracting expected daily returns using a 4-factor model from realized daily returns. To generate expected returns we estimate firm-specific 4-factor regressions using a 250-day estimation window which begins on day -360 and ends on day -61. The 4-factor model includes the market, size, and book to market factors (Fama and French (1993)) and the momentum factor (Carhart (1997)). To calculate CARs we sum abnormal returns over the designated event window. We report two-sided p-values based on the t-statistic developed in Campbell, Lo, and MacKinlay (1997). p-values are shown below the coefficient estimates, and 5% statistical significance is indicated in bold.

	Style	N	0,2	0,4	0,9	0,59
Panel A: Buy Recommendations						
All		1,751	**0.56%**	**0.47%**	**0.63%**	**2.18%**
			0.001	0.028	0.036	0.003
IBES Buy	Conform	674	0.01%	-0.32%	-0.34%	-0.86%
			0.970	0.346	0.483	0.471
IBES Hold/Sell	Contrarian	996	**0.94%**	**0.98%**	**1.25%**	**4.45%**
			0.000	0.000	0.001	0.000
Panel B: Sell Recommendations						
All		299	**-1.06%**	**-1.64%**	**-3.00%**	**-7.30%**
			0.006	0.001	0.000	0.000
IBES Buy	Contrarian	71	**-1.74%**	**-3.48%**	**-4.66%**	**-11.70%**
			0.039	0.001	0.002	0.002
IBES Hold/Sell	Conform	215	-0.54%	-0.71%	**-1.90%**	**-5.26%**
			0.223	0.220	0.020	0.008

Table 5: Regression Analysis Using Cumulative Abnormal Returns

The table reports the results of regressions where the dependent variable is the cumulative abnormal return over the specified time period. The dependent variables are as follows: LOG_MVE is the log of the market value of equity in millions of dollars. LOG_BM is the log of the book-to-market ratio. LOG_ILLIQ is the log of the Amihud (2002) measure of illiquidity. LOG_THESIS_LEN is the log of the length (in number of words) of the recommendation report. TIME_LT_ONE is an indicator variable set to one if the analyst believes the recommendation will be realized in one year or less, zero otherwise. LOG_AVG_RATING0 is the log of one plus the average of the ratings given to a recommendation by SumZero users. IBES_HOLD_SELL is an indicator variable set to one if the IBES consensus recommendation at the time of the recommendation is a hold or a sell, zero otherwise. NET_UPGRADE (NET_DOWNGRADE) is an indicator variable set to one if the number of sell-side upgrades (downgrades) of the stock outnumbers the number of sell-side downgrades (upgrades) of the stock within the window specified by the CAR used as the dependent variable, zero otherwise. TTSCHOOL is an indicator variable set to one if the analyst graduated from a top ten university, zero otherwise. LOG_MAX_FUNDSIZE is the log of the maximum of the range of assets under management of the employer of the analyst submitting the report. Standard errors are adjusted for clustering at the analyst level. Robust t-stats are shown below the coefficient estimates; *, **, *** denotes significance at the 10%, 5%, and 1% levels, respectively.

	Buy Recommendations				Sell Recommendations			
	0,2		0,59		0,2		0,59	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LOG_MVE	-0.0010	-0.0005	-0.0098	-0.0089	0.0033	0.0036	0.0031	0.0052
	-1.04	-0.48	-2.26**	-1.98**	1.18	1.15	0.26	0.40
LOG_BM	0.0061	0.0055	0.0410	0.0420	0.0028	0.0082	0.0339	0.0385
	2.29**	2.10**	3.48***	3.72***	0.69	1.72*	1.75*	1.54
LOG_ILLIQ	0.0063	0.0080	-0.0043	-0.0028	-0.0482	-0.0421	-0.0578	-0.0589
	1.26	1.30	-0.19	-0.11	-1.71*	-1.22	-0.18	-0.18
LOG_THESIS_LEN	-0.0001	0.0010	-0.0157	-0.0100	-0.0019	-0.0008	0.0083	0.0065
	-0.03	0.40	-1.70*	-1.00	-0.51	-0.19	0.53	0.35
TIME_LT_ONE	0.0062	0.0065	0.0000	-0.0119	-0.0168	-0.0176	-0.0238	-0.0335
	1.54	1.67*	0.00	-0.69	-2.37**	-2.20**	-0.55	-0.70
LOG_AVG_RATING0	0.0018	0.0015	0.0070	-0.0009	-0.0048	-0.0075	-0.0419	-0.0437
	1.05	0.77	0.92	-0.10	-1.27	-1.77*	-2.18**	-1.99**
IBES_HOLD_SELL	0.0068	0.0060	0.0415	0.0494	0.0084	0.0077	0.0613	0.0361
	1.87*	1.40	2.70***	2.85***	1.02	0.83	1.45	0.76
NET_UPGRADE	0.0244	0.0155	0.0159	0.0142	0.0492	0.0521	-0.0149	-0.0115
	2.29**	1.29	0.89	0.70	1.94*	1.98**	-0.41	-0.26
NET_DOWNGRADE	-0.0571	-0.0791	-0.0846	-0.0740	-0.0495	-0.0300	0.0220	0.0439
	-2.23**	-2.50**	-3.24***	-2.51**	-1.96*	-2.66***	0.47	0.81
LOG_COUNTREPORT	0.0026	-0.0000	-0.0090	-0.0223	-0.0049	-0.0021	-0.0402	-0.0429
	0.76	-0.01	-0.91	-2.16**	-1.08	-0.38	-2.05**	-1.81*
TTSCHOOL	-0.0045	-0.0034	0.0074	0.0194	0.0080	0.0025	-0.0377	-0.0278
	-1.17	-0.78	0.43	0.98	0.88	0.26	-0.92	-0.58
LOG_MAX_FUNDSIZE		0.0015		0.0018		0.0065		-0.0117
		0.97		0.32		2.21**		-0.76
Constant	0.0051	-0.0134	0.2401	0.2017	0.0044	-0.0419	-0.0296	0.0755
	0.28	-0.54	2.88***	2.04**	0.10	-0.90	-0.15	0.29
Observations	1,510	1,226	1,510	1,226	265	215	265	215
R-squared	0.040	0.040	0.058	0.056	0.099	0.130	0.068	0.069

Table 6: Analysis of which Analysts Submit Reports

This table presents coefficient estimates from logistic regressions where the dependent variable is SUBMIT_REPORT. SUBMIT_REPORT is an indicator variable set to one if an analyst submits a report to SumZero, zero otherwise. LOG_ID is the log of the sequential ID assigned to analysts by SumZero. RPT_GENDER is an indicator variable set to one if the analyst lists gender on SumZero, zero otherwise. TTSCHOOL is an indicator variable set to one if the analyst graduated from a top ten university, zero otherwise. NEWYORK is an indicator variable set to one if the analyst is located in the New York City metro area, zero otherwise. LOG_COUNTRES is the log of one plus the number of securities an analyst lists as extensively researched. LOG_MAX_FUNDSIZE is the log of the maximum of the range of assets under management of the employer of the analyst submitting the report. *, **, *** denote significant at the 10%, 5%, and 1% levels.

	SUBMIT_REPORT	
	(1)	(2)
LOG_ID	-0.2842	-0.3463
	-6.69***	-6.97***
RPT_GENDER	0.8101	0.7513
	6.21***	5.04***
TTSCHOOL	-0.2172	-0.1211
	-2.61***	-1.25
NEWYORK	-0.0984	-0.0459
	-1.33	-0.54
LOG_COUNTRES	1.5444	1.5515
	19.44***	16.33***
RPT_FUNDSIZE	0.0128	
	0.15	
LOG_MAX_FUNDSIZE		-0.2383
		-9.07***
Constant	-1.0379	1.0368
	-2.73***	2.12**
Observations	4,602	3,433
Pseudo R-squared	0.1571	0.1693

Table 7: Employment Change Descriptive Statistics

This table reports descriptive statistics for analyst and report variables at two points in time, January? 2010 and December 2010, partitioned on whether analysts changed employment. The variables presented include: EMP_CHANGE, an indicator equal to one if employment changed between the two cuts of data; NREPORT, the number of reports issued by the analyst; LOG_COUNTRES, the log of the number of companies the analyst lists as having expertise in; RPT_GENDER, an indicator variable equal to one if the analyst reports gender; RPT_FUNDSIZE, an indicator variable equal to one if the analyst lists the fund size of the employer; SUBMIT_REPORT, an indicator variable equal to one if the analyst has issued a report. TTSCHOOL, an indicator variable equal to one if the analyst attended a top ten school; NEWYORK, an indicator variable equal to one if the analyst works in New York; LOG_MAX_FUNDSIZE, an indicator variable equal to one if the analyst reports the fund size. For these variables, CUT1 indicates data were taken from the first cut of data and DIFF indicates the value of the change in the variable from cut 1 to cut 2. The following report level variables are presented: AVG_LOG_RATING0, the average of the log of the rating; MEAN_P60_DAY_RETURN, the average 60 day return; MEAN_CONTRARIAN, an indicator variable equal to one for contrarian recommendations.

	No Employment Change			Employment Change					
Variable	Mean	Med	Std Err	Mean	Med	Std Err	Diff	Std Err	T-Value
All Analysts (N=3,082)		(N=2,901)			(N=181)				
EMP_CHANGE	0.00	0.00	0.00	1.00	1.00	0.00	1.00		
NREPORT_CUT1	0.60	0.00	0.03	1.37	1.00	0.17	0.77	0.18	4.38
DIFF_NREPORT	0.17	0.00	0.01	0.73	0.00	0.08	0.56	0.08	6.94
LOG_COUNTRES_CUT1	1.47	1.39	0.01	1.69	1.61	0.04	0.22	0.04	5.23
DIFF_COUNTRES	0.20	0.00	0.03	1.29	0.00	0.36	1.10	0.36	3.07
RPT_GENDER_CUT1	0.08	0.00	0.01	0.17	0.00	0.03	0.08	0.03	3.01
RPT_FUNDSIZE_CUT1	0.78	1.00	0.01	0.75	1.00	0.03	-0.03	0.03	-1.02
SUBMIT_REPORT_CUT1	0.31	0.00	0.01	0.56	1.00	0.04	0.26	0.04	6.74
TTSCHOOL_CUT1	0.28	0.00	0.01	0.30	0.00	0.03	0.02	0.04	0.50
NEWYORK_CUT1	0.46	0.00	0.01	0.51	1.00	0.04	0.05	0.04	1.32
LOG_MAX_FUNDSIZE_CUT1	7.10	6.22	0.04	6.79	5.53	0.14	-0.31	0.14	-2.15
Analysts Who Submit Reports (N=857)		(N=757)			(N=100)				
AVG_LOG_RATING0	0.67	0.00	0.03	0.99	0.97	0.09	0.32	0.09	3.51
MEAN_P60DAYRET	0.03	0.02	0.01	0.03	0.01	0.03	0.01	0.03	0.22
MEAN_CONTRARIAN	0.54	0.50	0.02	0.48	0.50	0.04	-0.06	0.04	-1.36

Table 8: Employment Change Analysis

This table presents coefficient estimates from logistic regressions where the dependent variable is EMP_CHANGE, an indicator variable set to one if an analyst lists a new employer between the two cuts of data (January? 2010 to December 2010). Regressions in Panel A (Panel B) include all analysts (only analysts who issue reports). Explanatory variables include: DIFF_NREPORT, the change in the number of reports issued by the analyst; DIFF_COUNTRES; the change in the number of companies listed as extensively researched. LOG_ID, a numerical counter indicating that is higher for recent members; RPT_GENDER_CUT, RPT_FUNDSIZE_CUT1, SUBMIT_REPORT_CUT1, all indicator variables for whether the analyst reports gender, fund size, and submits a report. TTSCHOOL_CUT1 and NEWYORK_CUT1 are indicator variables for whether the analyst attended a top ten school and works in New York, respectively; LOG_COUNTRES_CUT1, the log of the count of the number of companies extensively researched at cut 1; LOG_MAX_FUNDSIZE_CUT1, the log of the fund size at cut 1; LOG_NREPORT_CUT1, the log of the number of reports an analyst issued at cut 1; AVG_LOG_RATING0, the average rating of reports received by the analyst; MEAN_P60DAYRET, the average 60 day return for reports issued by the analyst; MEAN_CONTRARIAN, for each analyst, the average of CONTRARIAN, an indicator equal to one for contrarian reports. *, **, *** denote significant at the 10%, 5%, and 1% levels.

Panel A: All Analysts	(1)	(2)	(3)	(4)	(5)
DIFF_NREPORT	0.5210	0.3968	0.3847	0.3502	0.3239
	7.12***	5.33***	5.20***	4.33***	3.63***
DIFF_COUNTRES	0.0805	0.0702	0.0643	0.0639	0.0640
	3.22***	2.85***	2.64***	2.39**	2.33**
LOG_ID		0.1272	0.1831	0.2089	0.2289
		1.28	1.77*	1.76*	1.86*
RPT_GENDER_CUT1		0.5183	0.5401	0.5492	0.5409
		2.29**	2.35**	2.10**	2.03**
RPT_FUNDSIZE_CUT1		-0.3342	-0.3280		
		-1.83*	-1.76*		
SUBMIT_REPORT_CUT1		0.7788	0.7233	0.6878	
		4.50***	3.97***	3.42***	
TTSCHOOL_CUT1			0.1385	0.1152	0.1065
			0.79	0.56	0.51
NEWYORK_CUT1			0.2841	0.3561	0.3565
			1.76*	1.90*	1.91*
LOG_COUNTRES_CUT1			0.2062		
			1.53		
LOG_MAX_FUNDSIZE_CUT1				-0.0359	-0.0401
				-0.61	-0.68
LOG_NREPORT_CUT1					0.4502
					2.65***
CONSTANT	-3.0032	-4.0230	-4.9108	-4.8202	-4.8127
	-34.77***	-5.20***	-5.68***	-4.67***	-4.51***
Observations	3,082	3,082	3,071	2,390	2,390

Panel B: **Analysts who Submit Reports**	(6)	(7)	(8)	(9)	(10)
DIFF_NREPORT	0.2776	0.2878	0.2903	0.2473	0.2416
	3.44***	3.54***	3.54***	2.76***	2.58***
DIFF_COUNTRES	0.0625	0.0607	0.0603	0.0592	0.0587
	2.53**	2.45**	2.37**	2.19**	2.17**
LOG_ID		0.0808	0.0844	0.1445	0.1552
		0.62	0.63	0.91	0.93
RPT_GENDER_CUT1		0.1571	0.2139	0.3579	0.3473
		0.52	0.70	1.04	1.00
RPT_FUNDSIZE_CUT1		-0.6847	-0.6285		
		-2.73***	-2.46**		
DUM_TTSCHOOL_CUT1			0.1501	-0.0736	-0.0784
			0.59	-0.24	-0.25
DUM_NEWYORK_CUT1			0.2171	0.2531	0.2560
			0.96	0.94	0.95
LOG_COUNTRES_CUT1			-0.0601		
			-0.33		
LOG_MAX_FUNDSIZE_CUT1				-0.0136	-0.0104
				-0.15	-0.12
LOG_NREPORT_CUT1					0.0525
					0.21
AVG_LOG_AVG_RATING0	0.2927	0.2762	0.2950	0.3693	0.3680
	2.25**	2.06**	2.19**	2.32**	2.31**
MEAN_P60DAYRET	0.0029	0.0911	0.0916	0.2720	0.2656
	0.01	0.21	0.21	0.54	0.53
MEAN_CONTRARIAN	-0.3490	-0.3319	-0.3362	-0.4928	-0.4939
	-1.34	-1.27	-1.27	-1.56	-1.56
CONSTANT	-2.3719	-2.4551	-2.5870	-3.6093	-3.7485
	-11.34***	-2.54**	-2.36**	-2.70***	-2.51**
Observations	834	834	829	667	667