Information Activism and Retail Investor Behavior in Divergent Market Conditions

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Information activism is intentional action stemming from formal and informal information sources offering supplemental communication intended to form and/or sway investor behavior. This study extends empirical research by identifying the particular circumstances; i.e., during economic uncertainty and when information asymmetry is high, in which investor behavior is associated with information activism. The differential effects of two primary sources of information activism, CNBC's Mad Money and the financial blog, www.SeekingAlpha.com, are examined. Findings denote that abnormal returns are associated with information activism during bearish market conditions and for buy recommendations when information asymmetry is high.

INTRODUCTION

Information intermediaries play a central role in information aggregation to reduce information uncertainty (Datta and Chatterjee 2008) and there has been an increasing demand for financial investment information provided by various information intermediaries (Healy & Palepu 2001). In a time when online and offline media are replete with investment evangelists and activists intent on swaying retail investor behavior rather than offering prudent, objective reports and advice (e.g. (Engelberg et al. 2009; Neumann & Kenny 2007; Fotak 2008), this study argues that investment reporting is inundated with "information activism". *Information activism* is defined as *intentional action* stemming from formal and informal sources that offer *supplemental communication* intended to *form and/or sway* investor behavior.

Under what conditions does information activism drive retail[1] investor behavior? There are numerous anecdotal cases that suggest information activism affects retail investment behavior in financial markets (e.g. the "CNBC Effect," or the "Jim Cramer Effect" [Cooper 2008]). There are also a number of studies which provide empirical evidence that information activism affects capital markets and investor behavior (Engelberg et al. 2009; Neumann & Kenny 2007; Fotak 2008, Rickett 2016). This study builds upon and extends this empirical evidence by investigating how information activism affects retail investor behavior during economic uncertainty and when information asymmetry is high.

During unstable economic conditions, markets are highly volatile, propelling retail investors to seek advice among one or more of the rapidly growing investment channels, online and offline. A number of these channels do not simply report the financial tidings of a firm but instead offer a variety of "analyst" opinions. Regardless of how sound these opinions are attested to with fundamentals and technical

analysis, retail investors often rely on this information to make investment decisions. Introducing the concept of information activism, defined as an intentional effort to sway retail investor opinions, this research investigates the short-term effects of information activism on retail investor behavior during uncertain economic conditions. The individuals and entities that promote information activism such as investment talk show hosts (e.g. Jim Cramer) and financial/investment bloggers are thus referred to as information activists. Some are credible and some are not. Regardless of credibility, the Internet, news channels and magazines have created an abundance of investment information, opinions, and commentaries. Additionally, there are numerous other sources of investment information such as the financial blogosphere. While some of this investment information is objective financial analysis intended to educate investors, much of the investment information includes predisposed opinions intended to sway retail investors.

The term *information activism* is introduced and investor behavior is analyzed to understand the impact on capital markets. While prior literature focuses on a narrow set of information sources such as a few broadcasts on CNBC (Busse & Green 2002; Engelberg et al. 2009; Neumann & Kenny 2007) or stocks receiving attention in the news (Barber & Odean 2008), this study examines two popular sources of information activism and explores the downstream effects on investor behavior in order to fully appreciate the influence on capital markets. Furthermore, we aim to identify the particular conditions in which information activism is associated with capital markets by introducing important moderating effects which have not been considered in prior studies. One important contribution of this research is the effect of information activism during economic uncertainty, whereby two divergent market conditions (i.e. bull and bear markets), are investigated. We expect that investors will rely more on information activism during bearish markets due to risk and loss aversion and therefore we examine information activism during an extreme downturn in the economy. This research also seeks to uncover whether retail investors are more likely to rely on information activism when they have less than ideal information about a particular stock investment or when information asymmetry is high. Additionally, we provide insight regarding the relevance of financial statements and whether investors rely on alternate sources of information in making investment decisions.

Consistent with expectations, results reveal that the abnormal returns are associated with information activism during bearish market conditions and for *buy* recommendations when information asymmetry is high. These findings suggest that retail investors may rely on information activism during economic uncertainty and when they have insufficient information regarding investment decisions. This study also furthers our understanding of investors' use of supplementary investment information sources and retail investors' propensity to rely on information activism.

This paper is organized as follows. Section II. begins with the theoretical underpinnings. Section III. examines prior research and describes the hypotheses development. Section IV. details the research design. Section V. discusses the results and Section VI. summarizes this study.

THEORETICAL UNDERPINNINGS

Information Activism and Retail Investors

Retail investment media has exploded with the popularity of investment programs on specialized channels such as CNBC as well as growth of the Internet blogosphere (Cheng 2007). Thousands of viewers tune in daily to cable investment news programs. CNBC, with an average viewership of 310,000 according to Neilson (Hempel 2008), broadcasts investment news programs around the clock. Programs including "*Street Signs*," "*Closing Bell*," "*Fast Money*," and "*Mad Money,*" are often associated with major swings in the market. One example is the observed spikes of Jim Cramer-mentioned stocks on *Mad Money,* often referred to as the "CNBC Effect," or in this case the "Jim Cramer Effect" (Cooper 2008). Similarly, the growth seen of the Internet blogosphere[2] is astounding and has become a part of "mainstream" media sources (Winn 2009). Recent academic literature confirms that investors consider financial blogs an important source of information and find evidence that capital markets respond to

recommendations provided on financial blogs (Fotak 2008; Tumarkin & Whitelaw 2001; Das & Chen 2007; Antweiler & Frank 2004; Rickett 2016).

The growth of infomediation, both online and offline, begs the question: To what extent do retail investors rely on investment advice offered by commentators like Jim Cramer and financial bloggers? Particularly during fragile economic periods such as the months leading up to the financial crisis in 2008, when uncertainty abounds, investors may rely heavily on these financial information sources. Days before the collapse of Bear Stearns in March 2008, Jim Cramer urged investors not to move their money from the investment banking giant (Gomstyn 2008). Following the downfall of Lehman Brothers in October 2008, the largest bank failure in history, Cramer warned investors that they should take any funds needed within the next five years out of the stock market immediately (Celizic 2008). It has been speculated as to whether statements like these by Jim Cramer and others could have contributed to the financial crisis and whether CNBC severely misrepresented one of the most devastating financial crises in history (Burrough 2008). Burrough (2008) put it best when describing statements made by CNBC correspondent Charlie Gasparino, "Publicly speculating on a firm's liquidity is akin to shouting "Fire!!!" in a crowded theater; in catastrophic cases it can trigger panic selling (Hamilton 2008). Stirring up this storm were investment news networks such as CNBC and programs like Jim Cramer's *Mad Money* as well as the financial Internet blogosphere which communicates investment opinions and commentary rapidly across the Internet.

Information Asymmetry and Financial Statement Usefulness

The well-known "lemons problem" (Akerlof 1970) plagues most markets where sellers (firms) have more information about the quality of a product (stock or investment) than buyers (investors), thereby increasing the risk of adverse selection. Although corporate disclosures in the form of financial reporting and regulatory filings attempt to reduce information asymmetry in capital markets, there remains a demand for information intermediaries who engage in private information production to uncover managers' superior information (Healy & Palepu 2001). Therefore, since investors realize they may lack relevant information for their investment decisions, they seek out information intermediaries who will provide them with investment advice.

Information intermediaries (Infomediaries[3]) leverage concerns of information asymmetry in markets (Datta and Chatterjee 2008), where the average investor does not have ideal information about the expected return on an investment, particularly among retail investors. Accurate information is the most valuable asset that an investor has in the selection of optimal investments (Graham & Dodd 2009). Information asymmetry is a key issue in capital markets where managers and other insiders have privileged information about the true value of the firm, while many retail investors do not have all relevant information necessary to make successful investment decisions.

A problem associated with information asymmetry is adverse selection (Akerlof 1970) which occurs when investors purchase inferior investments. Managers and insiders who have relevant information about the future performance of the firm exploit this information at the expense of less informed investors by managing or biasing the information released to investors. This makes it more difficult for investors to make effective investment decisions and results in adverse selection. A solution to the adverse selection problem is signaling (Akerlof 1970), originally proposed by Spence (1973). Signaling allows information to be transferred to the less informed party in a situation where there is information asymmetry. Signals are often sent by infomediaries (Fombrun & Shanley 1990) such as broadcast media and publications, as well as the ever-growing abundance of information provided by the Internet. While these information sources are generally seen as reducing information asymmetry, they can also lead to an over-abundance of information making it difficult for investors to identify relevant information for decision making. Investors look for convenient sources of information to bridge the gap between too little and too much information and to identify which information is most relevant for making optimal investment decisions.

Retail investors have come to rely on key sources of easily accessible information provided by infomediaries, not only due to imperfect information as a result of information asymmetry, but also due to value relevance, timeliness, and complexity issues with published financial reports. Financial statements

may be too complex for the average investor or may not be available in a timely manner (Francis and Schipper 1999). Therefore, investors tend to seek out other sources of information which are easily accessible. Rather than solely providing objective investment analysis, these sources of investment information often actively support or oppose certain investment choices. Retail investors often look to information intermediaries, like information activists, to provide supplemental information for investment decisions.

HYPOTHESES DEVELOPMENT

Information Activism and Returns

The early research of Fama (1970) characterizes an efficient capital market as one in which security prices reflect all available information. The response of stock prices to various events and information releases has been extensively examined in prior research. Security prices reveal the average of investors' *beliefs* (Bamber 1986). Price is seen as reflecting changes in expectations of the market as a *whole* (Bae & Ho 1999). An examination of price change can provide inferences about the information process by investors.

Market Condition

The theories of loss aversion and risk aversion suggest that in unstable economic periods, investors will tend to rely more on information activism in order to avoid losses anticipated during these market conditions. Risk aversion suggests that when agents are faced with comparable investment alternatives, agents have a tendency to select those which are less risky (Friedman and Savage 1948). Research on the Arrow-Pratt measure of risk aversion indicates that relative risk aversion is counter cyclical (Arrow 1964, Pratt 1964). In economic expansionary periods, risk aversion is low and in recessionary periods risk aversion is high (Campbell 1996; Campbell & Cochrane 1999; Rosenberg & Engle 2002). Consequently, during unstable economic conditions when investors have a high aversion to risk and wish to avoid it, they are more likely to rely on information activism in an attempt to avoid high-risk or unprofitable investments.

Furthermore, the principle of loss aversion from prospect theory (Kahneman & Tversky 1979) strengthens the notion that investors may rely more heavily on information activism during unstable economic periods. According to the principle of loss aversion, losses and disadvantages have a greater influence on an agent's preferences than gains and advantages (Tversky & Kahneman 1992). Thus, investors who are concerned with potential losses sustained in an economic downturn will likely search for information to help them avoid these losses and will rely on information activism. Finally, Kaplanski (2004) suggests that investors experience greater uncertainty in bearish markets and tend to overestimate downside risk. As a result, investors will likely rely on information activism during bearish markets. Therefore, it is expected that the effect of information activism on investor behavior will be stronger during bearish markets than during bullish market conditions. The following hypothesis is proposed:

> *H1: The market response to information activism will be stronger during bearish market conditions than during bullish market conditions.*

Information Asymmetry

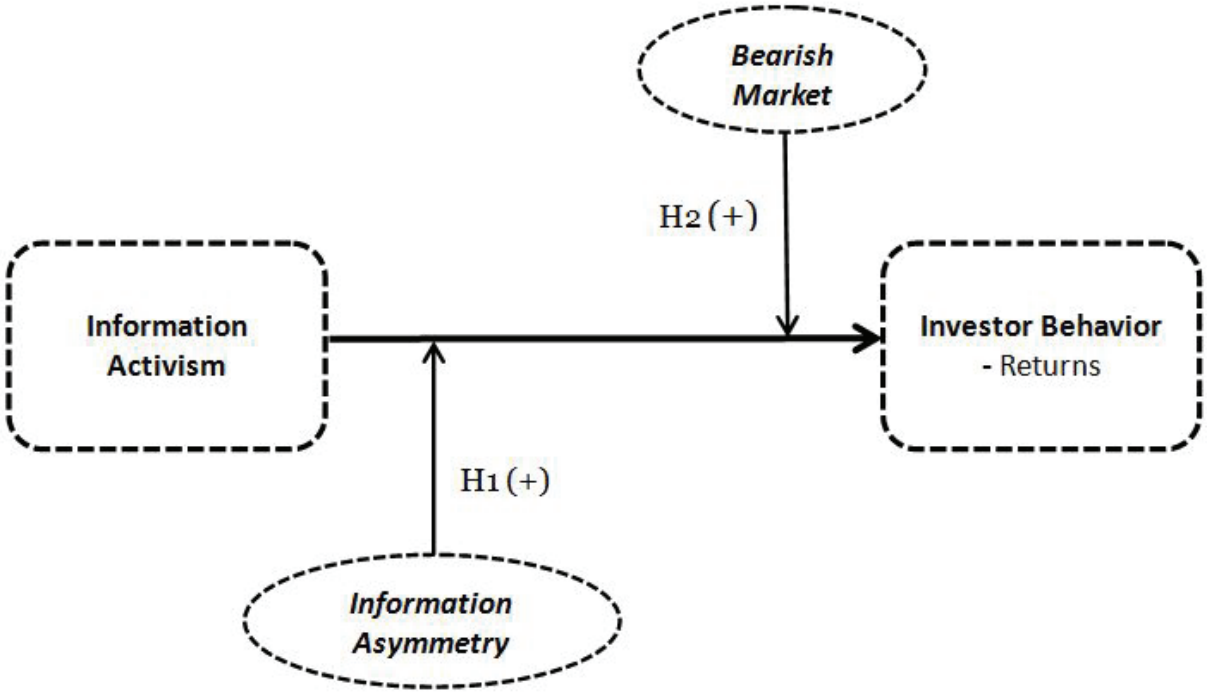
Information asymmetry provides a basis as to why investors seek sources of investment information. Information asymmetry is of particular interest in capital markets due to the lack of perfect information about the expected return on a given investment and resulting in the well-known "lemons problem" (Akerlof 1970). In capital markets, sellers (firms) have more information about the quality of a product (security investment) than do buyers (investors), resulting in an increased risk of adverse selection. Though corporate disclosures attempt to reduce information asymmetry in capital markets, investors continue to demand relevant information for investment decisions. Consequently, for firms with higher

levels of information asymmetry, investors are more likely to rely on information activism. Therefore, the following hypothesis is proposed:

> *H2: The market response to information activism will be stronger for firms with high information asymmetry than for firms with low information asymmetry.*

These hypotheses are summarized in the comprehensive research model in Figure 1 below.

FIGURE 1
RESEARCH MODEL



RESEARCH DESIGN AND METHODOLOGY

Sample Time Period

Market condition is expected to be an important factor related to the effect of information activism on retail investor behavior. In order to examine the varying effects of information activism on investor behavior during divergent market conditions, two separate bull and bear market periods are identified. A market period is considered a bull market when share prices are generally rising, while a bear market is when share prices are falling quite sharply and are expected to fall further. In order to classify a month as a bull or bear month, the market return in that month is compared with the median market return over the entire period. The month is classified as a bull (bear) month if the monthly market return is higher (lower) than the median market return. This classification method has been utilized in a number of prior studies using "up and down markets" (e.g. Fabozzi & Francis 1977, 1979; Bhardwaj & Brooks 1993).

According to the Dow Jones Industrial Average (DJI), the financial meltdown began with a sharp decline in the last week of September 2008 and the recovery began around the beginning of March 2009. This time period is particularly ripe for the study of information activism as it provides a volatile

economic market period in which to measure the effect of information activism on capital markets. This time period is unique and therefore the results of this study can provide insight regarding the importance of information activism during critical economic conditions. Three consecutive bear months during the economic meltdown and three consecutive bull months following the economic meltdown (recovery) are selected for data collection. A three-month bear sample period during the economic crisis includes September, October, and November of 2008 as this period represents three consecutive months where the average monthly return is below the median return for the entire period. Similarly, a three-month period following the economic crisis, which includes March, April, and May 2009, has been identified as the bull sample period because this period contains three consecutive months where the average monthly return is above the median monthly return for the entire period. These two three-month bull/bear periods are utilized to select a sample of firms which experienced information activism events during two divergent market conditions.

Sample Source and Selection

The sample for this study includes firms which were mentioned on Jim Cramer's *Mad Money* program and on the *SeekingAlpha* (http://seekingalpha.com) financial blog. *Mad Money* was chosen due to its popularity by CNBC's viewership as well as the approach taken by its host who often calls upon investors to take a particular action, for instance buying or selling a particular stock, rather than solely providing investment analysis for a firm. A recap of the stocks mentioned on *Mad Money* can be found at http://www.mad-money-recap.com/recap-archive-index.shtml. A daily recap is listed by date and each recap includes a brief summary of the show and then categorizes stocks mentioned (including ticker symbol) as Cramer being bullish or bearish on the stock. Therefore, the date, ticker symbol, and bullish/bearish stance (for simplicity and consistency this classification is referred to as buy/sell), were recorded for each air showing date during two three-month bull/bear sample periods.

SeekingAlpha (www.SeekingAlpha.com) is a blog aggregator for financial blogs providing links to more than 200 financial blogs which offer investment advice. *SeekingAlpha* is included as one of the "Best 25 Financial Blogs" (www.time.com) which examines over 100 financial blog websites and tracks posts for several weeks. Blogs are evaluated for content quality as well as frequency of blog posts and readership. *SeekingAlpha* was chosen as a data source due to the numerous blog links provided as well as its popularity and superior standards. In order to collect information activism observations from *SeekingAlpha,* search terms including "Bearish," "Bullish," "Buy," and "Sell" were entered to locate stock recommendations on the blog and to remain consistent the observations collected from *Mad Money*. The data captured during the two three-month bull/bear sample periods includes firm name, ticker, and whether the blogger was bearish or bullish on the stock or provided a buy or sell recommendation.

Sample Characteristics

The initial sample is detailed in Table 1 and contains 2,084 (579) event observations from *Mad Money/Cramer (SeekingAlpha/Blog)*. The 2,084 (579) observations for *Cramer (Blog)* sample are split between the two three-month periods with 1040 (229) occurring during the bull period and 1044 (350) during the bear period. Also 62.30 (78.24) percent are buy recommendations, while 37.67 (21.76) percent are sell recommendations. Table 2 provides the sample descriptive statistics. Of the 1,040 (1,044) event observations collected from the *Cramer* broadcasts during the bull (bear) sample period, there are 479 (488) unique firms of which 270 (269) firms had one event, while 209 (219) firms had multiple events. The 229 (350) observations collected from the *SeekingAlpha* Blog during the bull (bear) sample period represent 195 (289) unique firms of which 165 (248) firms had one event, while 30 (41) firms had multiple events.

TABLE 1
EVENT DATA – INITIAL SAMPLE SOURCES

	Cramer						*Blog*						*All*	
	Bull		**Bear**		**Total *Cramer***		**Bull**		**Bear**		**Total *Blog***			
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Buy	692	66.54	607	58.14	1,299	62.33	155	67.69	298	65.89	453	78.24	1,752	65.79
Sell	348	33.46	437	41.86	785	37.67	74	32.31	52	34.11	126	21.76	911	34.21
Total	1,040	100.00	1,044	100.00	**2,084**	**100.00**	229	100.00	350	100.00	**579**	**100.00**	***2,663***	***100.00***

Table 2 provides additional descriptive statistics for the event observations collected from the two data sources during the bull and bear market periods. Descriptive information regarding cumulative abnormal return (*CAR*) and market capitalization is presented. Regarding the *Cramer (Blog)* sample, the mean *CAR* is 0.0010 (-0.0040) and 0.0121 (0.0103) during the bull and bear periods respectively. Mean market capitalization for the *Cramer (Blog)* sample is $23,654,742.57 ($15,902,629.33) and $23,883,325.34 ($28,808,145.56) during the bull and bear periods respectively.

TABLE 2
DESCRIPTIVE STATISTICS – INITIAL SAMPLE

	Cramer		*Blog*	
	Bull	**Bear**	**Bull**	**Bear**
Observations				
Total Events	1,040	1,044	229	350
Unique Firms	479	488	195	289
Firms - One Event	270	269	165	248
Firms - Multiple Events	209	219	30	41
Events - with Available Data	807	819	151	269
CAR				
Mean	0.001034	0.012123	-0.004028	0.010306
Std. Dev	0.055692	0.070840	0.048875	0.070839
Min	-0.293358	-0.263565	-0.216690	-0.233765
Q1	-0.024270	-0.025715	-0.029804	-0.024931
Median	-0.002971	0.014224	-0.008939	0.004291
Q3	0.023395	0.049271	0.018417	0.042992
Max	0.294900	0.290139	0.228308	0.369096
Market Capitalization				
Mean	$ 23,654,742.57	$ 23,883,325.34	$ 15,902,629.33	$ 28,808,145.56
Std. Dev.	40,499,979.51	42,582,397.20	27,559,484.97	58,003,400.03
Min	0	0	0	10,350.00
Q1	1,796,981.99	2,034,983.88	1,251,855.05	614,332.41
Median	6,524,366.38	7,592,809.49	4,974,281.12	4,679,326.79
Q3	23,546,525.07	24,743,869.71	14,995,278.56	26,176,402.76
Max	336,524,996.00	403,522,106.00	145,218,284.00	391,004,540.00

CAR is the cumulative abnormal return over the information activism event window (0, +1).
Market Capitalization is the closing prices multiplied by the shares outstanding.

Other Data Sources

Stock prices (NYSE, Amex, NASDAQ), bid and ask price, and market capitalization are obtained from the *Center for Research in Security Prices (CRSP)* database. Various other financial data items as well as earnings release and SEC filing dates needed to remove confounding event observations are obtained from *Standard & Poor's Research Insight Compustat*.

Confounding Events

Confounding events can distort results. Therefore three types of events were considered around each of the 2,663 event observations: 1) SEC filings (e.g. 8-K, 10-K, etc.) from *Standard & Poor's Research Insight Compustat*; 2) Earnings announcements from *Standard & Poor's Research Insight Compustat*; and 3) Significant news from *Lexis-Nexis* Academic database (e.g. changes in performance (i.e. "Profits Drop 30%."), major events such as mergers, layoffs, substantial litigation, share offerings, etc., or significant product introductions (e.g. Apple iPad). These dates were compared to the event dates for each firm. If the confounding event occurred around the event date (the day before the event, the day of event, or the day after the event), then that observation (event) was removed from the sample. Table 3 displays the number of observations removed for confounding events as well as for missing data. Overall the search yielded 319 (79) confounding event observations in the *Cramer (Blog)* sample (See Table 3). After removing all confounding event observations, a clean sample size of 1,765 and 500 from the *Cramer* and *Blog* samples respectively, was obtained. An additional 139 (80) event observations from the *Cramer* (*Blog)* sample were dropped due to missing data values. This resulted in a final sample size of 2,046 event observations of which 1,626 (420) were for the *Cramer (Blog)* sample.

TABLE 3
FINAL SAMPLE SELECTION DETAIL

Panel A – Cramer

Market Condition	**Bull**	**Bear**	*Total*
Total Event Observations	1,040	1,044	2,084
Less: Observations with Confounding Events	*164*	*155*	*319*
Clean Sample	876	889	1,765
Less: Events with Missing Data	69	70	139
Total Sample - *Cramer*	807	819	1,626

Panel B – Blog

Market Condition	**Bull**	**Bear**	*Total*
Total Event Observations	229	350	579
Less: Observations with Confounding Events	*40*	*39*	*79*
Clean Sample	189	311	500
Less: Events with Missing Data	38	42	80
Total Sample - *Blog*	151	269	420
Total Sample Events	**958**	**1,088**	**2,046**

Methodological Framework

Cumulative Abnormal Returns (CAR)

An event study examines the reaction of a firm's stock price around an event. Cumulative abnormal returns *(CAR)* is calculated according to Brown and Warner (1980, 1985). The event date is the date of the blog posting or show airing *(Cramer)* and is established as "day 0." Since blog posts may occur after the close of the market or might not be read immediately and *Mad Money* is televised in the evening, the market reaction is expected to occur on "day +1." Therefore, a 2-day event window of day 0 and day +1 is analyzed. A 100-day estimation period ending 360 days prior to the event day is employed for purposes of estimating normal or expected returns. The gap between the event and the estimation period is one year in order to provide return estimates during "normal" economic conditions outside of the market crisis and recovery.

A model of normal or expected returns is used to estimate r_{it}. A basic market-adjusted model is expressed as follows:

$$r_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad (1)$$

Where:
t = -100…-360, the estimation period
α_i = a constant term for the ith stock
β_i = the market beta of the ith stock
R_{mt} = the market return

The parameters of the model are estimated using the time-series data from the estimation period that precedes each individual event. The estimated parameters are matched with the actual returns during the event period (0, +1). Abnormal returns are calculated based on the actual returns during the event period and the estimated coefficients from the estimation period as follows:

$$AR_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt} + \varepsilon_{it}) \quad (2)$$

Cumulative abnormal returns (*CAR*) is calculated and analyzed for the event window (days 0 to t+1) surrounding the event. Cumulative abnormal returns are summed over the event window. The mean of the distribution of *CAR* is tested with a null hypothesis that *CAR* for days 0 to +1 is equal to zero.

Regression Functions and Variable Definitions

The Regression equations are detailed below. The dependent variable is the measure of market reaction for cumulative abnormal returns (*CAR*) over the 2-day window. Regarding equation *(3),* the primary independent variables of interest are *ASYM* and *BEAR* in order to detect whether there is an association between *CAR* and information asymmetry (*ASYM)* and market condition *(BEAR)*. Furthermore, as noted by Barber and Odean (2008) investors generally react to *buy* recommendations that attract their attention in the news due to the effort it requires if investors have to search thousands of potential stocks they can buy, while *sell* recommendations typically do not result in the same reaction, because investors can only sell stocks they already own. Therefore, the market reaction to information asymmetry and market conditions may only be detected through the moderating effects on the association between buy recommendations and abnormal returns. Therefore, equation *(4)* is provided to test the moderating effects of information asymmetry and market condition by way of the interaction terms in equation *(4)* where *BUY* is interacted with the variables *ASYM* and *BEAR*. Control variables (*SOPH, NEWS, SIZE* and *RET*) are also included. Each variable is defined below.

$$CAR = \alpha + \beta_1 ASYM + \beta_2 BEAR + \beta_3 SOPH + \beta_4 NEWS + \beta_5 SIZE + \beta_6 RET + \varepsilon \quad (3)$$

$$CAR = \alpha + \beta_1 BUY + \beta_2 ASYM + \beta_3 BEAR + \beta_4 BUYxASYM + \beta_5 BUYxBEAR + \beta_6 SOPH + \beta_7 NEWS + \beta_8 SIZE + \beta_9 RET + \varepsilon \quad (4)$$

Where:

Dependent variables:
CAR = cumulative abnormal return for the firm over the 2-day window (days 0 to t+1) using a market-adjusted model and a 100-day estimation period ending 360 days prior to the event day for purposes of estimating normal or expected returns.

Independent Variables:
BUY = dummy variable for the type of recommendation; 1 = Buy or Bullish position; 0 = Sell or Bearish position based on the recommendation or position on the firm.
ASYM = information asymmetry for which a widely regarded measure is bid-ask spread (Glosten & Milgrom 1985; French & Roll 1986; Guo et al. 2004) is calculated as the absolute value of the difference between the closing bid and ask prices, scaled by the mean of the bid and ask (Guo et al. 2004). The mean bid-ask spread is computed for one year preceding the Bear period (June 2007 to July 2008) in this study which is prior to the financial meltdown in order to use a stable measure of information asymmetry.
BEAR = dummy variable for the market condition; 1 = Bear market; 0 = Bull market assigned based on when the firm was mentioned in the information activism event and whether the month in which it occurred was designated as a bull or bear month.

Interaction Terms:
BUY x ASYM = Interaction terms based on *BUY * ASYM;* the interaction term is expected to be positive if the relation between information asymmetry and CAR is stronger for a bullish position.
BUY x BEAR = Interaction terms based on *BUY * BEAR;* the interaction term is expected to be positive if the market reaction is stronger for a bullish position during a bearish market period.

Control Variables:
SOPH = investor sophistication for which the most common proxy is provided by institutional holdings (Hand 1990; Walther 1997; Bartov et al. 2000) is measured as the percentage of the company's aggregate number of shares held by institutions to common shares outstanding for the quarter preceding the bear period (2nd quarter ended June 30, 2008), and the bull period (4th quarter ended December 31, 2008). Institutional holders are those investment managers having a fair market value of equity assets under management of $100 million or more.
NEWS = dummy variable set to 1 if the firm had any significant news, earnings announcements, or SEC filings around the information activism event during the three-month bull (bear) market period.
SIZE = market value of common stock; a control variable for the well-known firm-size effects (Stickel & Verrecchia 1995); Firm-size effect refers to the notion that less information is generally available for small firms and therefore market reactions to news events are often stronger. The logarithm of the market value of common stock is calculated for the most recent quarter preceding each bull and bear period.
RET = Total market-adjusted return.

EMPIRICAL RESULTS

Multivariate Regression Analysis

To test the hypotheses proposed in this study, cross-sectional regression equations *(3)* and *(4)* are estimated as described in section IV. Table 4 provides the basic descriptive statistics with regard to the variables utilized in the regression equations. According to Table 4 the mean *CAR* is 0.006541, while on average 65.74% of the information activism events include *buy* recommendations and approximately 53.18% occurred during the *bear* period. The mean bid-ask spread *(ASYM)* is 0.033119. All means are significant as indicated by the p-values provided. Diagnostic tests were run to examine the OLS assumptions and no significant issues were noted.

TABLE 4
DESCRIPTIVE STATISTICS

Variable	Mean	Std Dev	Minimum	Q1 (25%)	Median	Q3 (75%)	Maximum	p-value
CAR	0.006541	0.067252	-0.195640	-0.026210	0.003324	0.034500	0.262962	<.0001
BUY	0.657380	0.474702	0.000000	0.000000	1.000000	1.000000	1.000000	<.0001
BEAR	0.531769	0.499112	0.000000	0.000000	1.000000	1.000000	1.000000	<.0001
ASYM	0.033119	0.232190	0.000345	0.000829	0.001129	0.001533	2.001084	<.0001
SOPH	0.704259	0.256904	0.032630	0.600460	0.755730	0.872460	1.182530	<.0001
NEWS	0.197947	0.398550	0.000000	0.000000	0.000000	0.000000	1.000000	<.0001
SIZE	8.931409	1.820085	2.363398	7.570988	9.068335	10.31821	12.93741	<.0001
RET	0.007805	0.100433	-0.496550	-0.040250	0.001424	0.051214	0.821527	0.0005

CAR = cumulative abnormal return for the firm over the 2-day window (days 0 to t+1) using a market-adjusted model and a 100-day estimation period ending 360 days prior to the event day;
BUY = dummy variable for the type of recommendation; 1 = Buy or Bullish position; 0 = Sell or Bearish position;
BEAR = dummy variable for market condition set to (1) for Bear period and (0) for Bull period;
SOPH = investor sophistication measured as the percentage of institutional holdings;
ASYM = information asymmetry measured as bid-ask spread;
NEWS = dummy variable for press set to (1) if the firm had significant news, earnings announcement, or SEC filing during the 3-month Bull/Bear period; a control variable;
SIZE = firm size measured as natural log of the market value of the common stock; a control variable;
RET = total market-adjusted return.

Results of the multivariate regression models are provided in Table 5. The models for both equation *(3)* and *(4)* appear to be robust as indicated by the significant F statistics of 164.80 ($p < .0001$) and 133.30 ($p < .0001$) and adjusted R^2 of 69.95 % and 69.99%, respectively. Table 5 includes coefficient estimates and p-values in parentheses for equations *(3)* and *(4)*. As predicted the coefficient for economic uncertainty or bearish market conditions (*BEAR)* of 0.0080 ($p < .0001$), in equation *(3),* is positive and statistically significant providing support for H2 that information activism results in a stronger market reaction during bearish markets. However, in contrast to predictions the coefficient for information asymmetry *(ASYM)* of 0.5260 ($p = 0.5238$) in equation *(3)* is positive but is not statistically significant, providing no support for H1, that the market reaction to information activism is stronger when information asymmetry is high.

Regarding equation *(4),* there is some minor support for H1 that information activism is associated with abnormal returns for *buy* recommendations when information asymmetry is high. The coefficient for *BUYxASYM,* of 3.0854, is positive and slightly significant ($p = 0.0858$). Recall that investors generally act on *buy* recommendations more often than *sell* recommendations because sell recommendations are only relevant to investors who own the stock (Barber and Odean 2008), while *buy* recommendations can be relevant to anyone. Therefore, it is expected that the market reaction to information activism will be detected primarily for *buy* recommendations. Equation *(4)* examines whether the market reaction *(CAR)* and the association with *buy* recommendations *(BUY)* is affected by the level of information asymmetry *(ASYM)* and market condition *(BEAR)* by testing the interaction terms between *BUY* and each variable using equation *(4).* Although the coefficient for *BUYxASYM* is positive and slightly significant, the coefficient for *BUYxBEAR* is positive but not significant ($p = 0.8727$) providing no support for H2 that the market reaction *(CAR)* to bullish *(BUY)* information activism will be stronger during bearish market conditions.

TABLE 5
MULTIVARIATE REGRESSION RESULTS

$$CAR = \alpha + \beta_1 ASYM + \beta_2 BEAR + \beta_3 SOPH + \beta_4 NEWS + \beta_5 SIZE + \beta_6 RET + \varepsilon \quad (3)$$

$$CAR = \alpha + \beta_1 BUY + \beta_2 ASYM + \beta_3 BEAR + \beta_4 BUYxASYM + \beta_5 BUYxBEAR + \beta_6 SOPH + \beta_7 NEWS + \beta_8 SIZE + \beta_9 RET + \varepsilon \quad (4)$$

			Equation			
Variable	**Hypothesis**	**Expected Sign**	*(3)*		*(4)*	
Intercept			0.0051		0.0113	
			(0.4595)		(0.1334)	
BUY		+			-0.0015	
					(0.6539)	
ASYM	H1	+	0.5260		-2.4077	
			(0.5238)		(0.1668)	
BEAR	H2	+	0.0080	****	0.0076	**
			(<.0001)		(0.0155)	
BUY x ASYM	H1	+			3.0854	*
					(0.0858)	
BUY x BEAR	H2	+			0.0006	
					(0.8727)	
SOPH			-0.0052		-0.0055	
			(0.1285)		(0.1030)	
NEWS			-0.0010		-0.0013	
			(0.6345)		(0.5327)	
SIZE			-0.0004		-0.0008	
			(0.5164)		(0.1993)	
RET			0.5635	****	0.5605	****
			(<.0001)		(<.0001)	
F-statistic			164.80	****	133.30	****
			(<.0001)		(<.0001)	
Adj. R^2			0.6995		0.6999	
No. Obs.			1,814		1,814	

CAR = cumulative abnormal return for the firm over the 2-day window (days 0 to t+1) using a market-adjusted model and a 100-day estimation period ending 360 days prior to the event day; *BUY* = dummy variable for the type of recommendation; 1 = Buy or Bullish position; 0 = Sell or Bearish position; *BEAR* = dummy variable for market condition set to (1) for Bear period and (0) for Bull period; *SOPH* = investor sophistication measured as the percentage of institutional holdings; *ASYM* = information asymmetry measured as bid-ask spread; *NEWS* = dummy variable for press set to (1) if the firm had significant news, earnings announcement, or SEC filing during the 3-month Bull/Bear period; a control variable; *SIZE* = firm size measured as natural log of the market value of the common stock; a control variable; *RET* = total market-adjusted return. *, **, ***, and **** represent statistical significance at the <10%, <5%, <1% and <.01% levels, respectively, using a 2-tail test.

Additional Analyses – Stock Exchange

In order to further analyze information activism and the conditions during which an associated market reaction is evident, the sample is partitioned based on stock exchange. This research aims to uncover the conditions in which information activism is relied upon by individual investors (retail investors), often considered less sophisticated due to limited time and resources. Barber and Odean (2008) suggest that less sophisticated investors have less time and resources to perform information searches regarding investment

decisions. Thus, individual or unsophisticated retail investors may seek easily accessible sources of investment advice such as those provided by information activists.

The New York Stock Exchange (NYSE) tends to have larger stocks which tend to be traded more often by institutional investors, while other stock exchanges such as NASDAQ and AMEX tend to have smaller stocks, which may be attractive to small retail investors and easier for unsophisticated investors to evaluate. Additionally, NYSE tends to have a higher number of institutional traders than does NASDAQ (Faugere & Shawky, 2003). Therefore, equation *(4)* is re-estimated based on which stock exchange the security is traded on using 2 groups: 1) NYSE; and 2) NASDAQ, AMEX, and other; and presented in Table 6.

TABLE 6
MULTIVARIATE REGRESSION RESULTS – BY STOCK EXCHANGE

$$CAR = \alpha + \beta_1 BUY + \beta_2 ASYM + \beta_3 BEAR + \beta_4 BUYxASYM + \beta_5 BUYxBEAR + \beta_6 SOPH + \beta_7 NEWS + \beta_8 SIZE + \beta_9 RET + \varepsilon \quad (4)$$

			Exchange					
Variable	**Hypothesis**	**Expected Sign**	*NYSE*			*NASDAQ, AMEX, Other*		
Intercept			0.0087		0.0111	0.0177		0.0008	
			(0.4601)		(0.0589)	(0.1376)		(0.9134)	
BUY		+	0.0044		0.0007	-0.0008		0.0078	**
			(0.4110)		(0.7988)	(0.8719)		(0.0448)	
ASYM		+	2.1764		0.0007	-3.9971	**	-0.0093	**
			(0.5382)		(0.9362)	(0.0438)		(0.0128)	
BEAR		+	0.0074	**	0.0079	** 0.0084		0.0089	
			(0.0449)		(0.0287)	(0.1464)		(0.1095)	
BUY x ASYM	H1	+	-2.1489		-0.0059	4.8943	**	0.0044	****
			(0.5394)		(0.2056)	(0.0151)		(<.0001)	
BUY x BEAR	H2	+	0.0056		0.0061	-0.0140	**	-0.0134	**
			(0.2006)		(0.1455)	(0.0435)		(0.0455)	
SOPH			-0.0024			-0.0141	*		
			(0.5401)			(0.0679)			
NEWS			-0.0014		-0.0009	-0.0031		-0.0033	
			(0.8120)		(0.7153)	(0.4448)		(0.3629)	
SIZE			-0.0014		-0.0015	*** -0.0008		-0.0008	
			(0.1044)		(0.0202)	(0.4544)		(0.3607)	
RET			0.5573	****	0.5652	**** 0.5748	****	0.5745	****
			(<.0001)		(<.0001)	(<.0001)		(<.0001)	
F-statistic			109.07	****	135.69	**** 37.77	****	41.92	****
			(<.0001)		(<.0001)	(<.0001)		(<.0001)	
Adj. R^2			0.7074		0.7134	0.6949		0.6866	
No. Obs.			1,299		1,383	515		559	

CAR = cumulative abnormal return for the firm over the 2-day window (days 0 to t+1) using a market-adjusted model and a 100-day estimation period ending 360 days prior to the event day; *BUY* = dummy variable for the type of recommendation; 1 = Buy or Bullish position; 0 = Sell or Bearish position; *BEAR* = dummy variable for market condition set to (1) for Bear period and (0) for Bull period; *SOPH* = investor sophistication measured as the percentage of institutional holdings; *ASYM* = information asymmetry measured as bid-ask spread; *NEWS* = dummy variable for press set to (1) if the firm had significant news, earnings announcement, or SEC filing during the 3-month Bull/Bear period; a control variable; *SIZE* = firm size measured as natural log of the market value of the common stock; a control variable; *RET* = total market-adjusted return. *, **, ***, and **** represent statistical significance at the <10%, <5%, <1% and <.01% levels, respectively, using a 2-tail test.

Results do not support H1 or H2 for stocks traded on the NYSE, while smaller stocks which tend to be traded on NASDAQ/AMEX provide support for both hypotheses. The first column under each type of stock exchange depicts Equation *(4),* and the second column is also Equation *(4),* but drops the sophistication *(SOPH),* a control variable, and provides stronger support for H1 for securities traded on NASDAQ/AMEX. While the primary variables of interest are not significant for stocks traded on NYSE, both are significant for stocks traded on NASDAQ/AMEX. The coefficient for *BUYxASYM* of 0.0044 is positive and highly significant (p<.0001) providing strong support for H1, whereas the coefficient for *BUYxBEAR* of -0.0134 is negative and slightly significant (p=0.0455), providing some support for H2. However, in contrast to the prediction in H2, that the market reaction to information activism for *buy* recommendations will be stronger during bearish markets, the coefficient for *BUYxBEAR* is negative. This indicates that the market reaction to information activism is actually stronger during bullish markets. In fact, bullish markets are still considered uncertain economic conditions, where the market is rising. Given that this bull market followed a severe economic crisis, investors were likely very eager to make up for losses sustained in the financial meltdown during recent months just prior to the recovery. Therefore, this would also represent economic conditions in which retail investors would seek additional investment advice such as that provided by information activists.

Additional Analyses – Information Activism Source

Further analysis is provided to discover any differences between the two sources of information activism *(Cramer vs. Blog)*. Both equations *(3)* and *(4)* are re-estimated for each information activism source and results are provided in Table 7. The information activism from the *Cramer* source provides strong evidence that investors appear to rely on Jim Cramer during economic uncertainty or bearish market conditions and supporting H2. The *BEAR* coefficient of 0.0089 in equation *(3)* under in the first column is positive and highly significant (p <.0001). There is also minor support for this hypothesis for the *Blog* source of information activism as the *BEAR* coefficient in the second column for the *Blog* source of 0.0074 is positive, but only slightly significant (p = 0.0816). While there is no support for H1 in the *Cramer* sample, there is some support in the *Blog* sample. The coefficient for *BUYxASYM* of 5.4332 is positive and moderately significant (p = 0.0143), in support of H1, that the market reaction to information activism for buy recommendations will be stronger when information asymmetry is high. Overall, both sources of information activism appear to support H2, although the *Cramer* source indicates that the association between information activism and a market reaction during bearish markets is stronger. However, only the *Blog* source of information activism supports H1, indicating that for Blog sources of information activism, *buy* recommendations are associated with the market when information asymmetry is high.

TABLE 7
MULTIVARIATE REGRESSION RESULTS – BY INFORMATION SOURCE

$$CAR = \alpha + \beta_1 ASYM + \beta_2 BEAR + \beta_3 SOPH + \beta_4 NEWS + \beta_5 SIZE + \beta_6 RET + \varepsilon \quad (3)$$

$$CAR = \alpha + \beta_1 BUY + \beta_2 ASYM + \beta_3 BEAR + \beta_4 BUYxASYM + \beta_5 BUYxBEAR + \beta_6 SOPH + \beta_7 NEWS + \beta_8 SIZE + \beta_9 RET + \varepsilon \quad (4)$$

			Information Activism							
			Cramer				*Blog*			
Variable	**Hypothesis**	**Expected Sign**	*(3)*		*(4)*		*(3)*		*(4)*	
Intercept			0.0161		0.0188		-0.0047		0.0135	
			(0.1225)		(0.0675)		(0.7315)		(0.3884)	
BUY		+			0.0008				-0.0190	***
					(0.8807)				(0.0095)	
ASYM	H1	+	-1.3280		-3.4430		0.8501		-4.3670	**
			(0.6149)		(0.2303)		(0.2321)		(0.0481)	
BEAR	H2	+	0.0089	****	0.0079	**	0.0074	*	0.0174	
			(<.0001)		(0.0131)		(0.0816)		(0.1699)	
BUY x ASYM	H1	+			-3.6445				5.4332	**
					(0.3377)				(0.0143)	
BUY x BEAR	H2	+			0.0022				-0.0099	
					(0.5655)				(0.4542)	
SOPH			-0.0059		-0.0054		-0.0068		-0.0081	
			(0.1104)		(0.1377)		(0.4092)		(0.3242)	
NEWS			-0.0005		-0.0016		-0.0056		-0.0056	
			(0.8039)		(0.4534)		(0.3987)		(0.3975)	
SIZE			-0.0013		-0.0017	**	0.0007		0.0006	
			(0.1052)		(0.0349)		(0.5859)		(0.6473)	
RET			0.5715	****	0.5667	****	0.5333	****	0.5381	****
			(<.0001)		(<.0001)		(<.0001)		(<.0001)	
F-statistic			118.75	****	106.13	****	76.48	****	56.93	****
			(<.0001)		(<.0001)		(<.0001)		(<.0001)	
Adj. R^2			0.7279		0.7297		0.5922		0.5987	
No. Obs.			1,450		1,450		364		364	

CAR = cumulative abnormal return for the firm over the 2-day window (days 0 to t+1) using a market-adjusted model and a 100-day estimation period ending 360 days prior to the event day; *BUY* = dummy variable for the type of recommendation; 1 = Buy or Bullish position; 0 = Sell or Bearish position; *BEAR* = dummy variable for market condition set to (1) for Bear period and (0) for Bull period; *SOPH* = investor sophistication measured as the percentage of institutional holdings; *ASYM* = information asymmetry measured as bid-ask spread; *NEWS* = dummy variable for press set to (1) if the firm had significant news, earnings announcement, or SEC filing during the 3-month Bull/Bear period; a control variable; *SIZE* = firm size measured as natural log of the market value of the common stock; a control variable; *RET* = total market-adjusted return. *, **, ***, and **** represent statistical significance at the <10%, <5%, <1% and <.01% levels, respectively, using a 2-tail test.

CONCLUSIONS

This study introduces and investigates the phenomenon of *information activism* and examines the effect on capital markets by analyzing retail investor behavior through price reactions to instances of information activism from two important sources, Jim Cramer's *Mad Money* and the financial blog *SeekingAlpha.com*. It is extremely timely and relevant to gain further insight into the phenomenon of

information activism due to the ever-growing abundance of financial commentary and supplemental information available to investors via various sources such as financial cable news networks and on the Internet via the financial blogosphere. These sources of information activism often prompt investors to take a particular action with regard to their investment choices.

Taken as a whole the multivariate analyses provide evidence that investors react to information activism during economic uncertainty and for *buy* recommendations when information asymmetry is high. The results show that the moderating effects of market condition and information asymmetry may influence the likelihood that investors will rely on information activism. These findings are consistent with the premise that retail investors appear to rely on information activists during uncertain economic conditions and when information asymmetry is high.

This study contributes to the debate regarding the importance of media and investment news in the role of swaying investor behavior and/or affecting capital markets (e.g. "Cramer Effect"). There is anecdotal evidence that these investment news outlets have an impact on financial markets as well as several prior research studies that offer evidence concerning this effect. This study provides further evidence of a market reaction. The results can also shed light on the demand, necessity, or importance of supplemental information (e.g. to financial statements) in shaping investor decision-making.

Additionally, this research addresses questions related to the rapid progress in technological innovation which have led to profound changes in capital markets (Healy and Palepu 2001). Technology has created new channels for investor communication and has accelerated the pace at which capital markets operate. The Internet and cable news networks make it easier for investors to obtain financial and investment information and allow firms to communicate rapidly with investors and financial intermediaries. Therefore, it is important to examine the modern means by which investors obtain information affecting their decisions. Finally, this study contributes to ongoing research in the areas of investor behavior and information asymmetry.

ENDNOTES

1. Retail investors are investors with less time, resources, and experience than sophisticated investors. Retail investors often rely on other sources of information for investment decisions, not only because of untimely published financial statements, but also as a result of the growing complexity of financial reporting. Sutton et al. (2009) find that retail investors approach the task of predicting future firm performance with a much smaller set of information than sophisticated investors -placing retail investors at a distinct disadvantage. In addition, financial statements and particularly footnote information may be too complex for the retail investor to interpret. Barber and Odean (2008) discover that retail investors are more likely to purchase stocks that capture their attention in the news, suggesting that it is difficult for retail investors to accurately evaluate the worth of every stock.
2. Blogosphere" is defined as "all of the blogs on the Internet as a collective whole." "Blog" is a contraction of the term "Web Log." A "blog" is defined as "a Web site that contains an online personal journal with reflections, comments, and often hyperlinks provided by the writer." (*www.merriam-webster.com*).
3. An *infomediary*, formed from the words ***info****rmation* and *inter****mediary,*** is a web site that gathers and organizes large amounts of data and acts as an intermediary between those who want information and those who supply information (*www.webopedia.com).*

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