

Winners in the Spotlight:
Media Coverage of Fund Holdings as a Driver of Flows

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August 2012

Abstract

We show that media coverage of mutual fund holdings affects how investors allocate money across funds. Fund holdings with high past returns attract extra flows only if these stocks were recently featured in the media. In contrast, holdings that were not covered in major newspapers do not affect flows. We present evidence that media coverage tends to contribute to investors' chasing of past returns rather than facilitate the processing of useful information in fund portfolios. Fund managers exploit this behavior by purchasing media-covered past winners at reporting dates, a strategy most prevalent among poorly performing funds. Our evidence suggests that media coverage can exacerbate investor biases and that it is the primary mechanism that makes window dressing effective.

We gratefully acknowledge the helpful comments from Joey Engelberg, Wayne Ferson, Umit Gurun, Zoran Ivković, Marcin Kacperczyk, Patrick Kelly, Pedro Matos, Clemens Sialm, Paul Tetlock, Lu Zheng, conference participants at the 2012 Western Finance Association (WFA) Annual Meeting, the 2012 Cavalcade of the Society for Financial Studies, the 2012 Finance Down Under Conference, the 2011 UT-Austin AIM Investment Center Conference, and seminar participants at Michigan State University, the University of California at Irvine, and the University of Southern California.

The business press plays a key role in disseminating information in financial markets. Yet it is less clear whether media coverage enables investors to make better investment decisions. On the one hand, media may reduce the cost of information acquisition and lessen the information asymmetry between firms and investors (Tetlock 2010). On the other hand, media coverage can exacerbate investor biases (Barber and Odean, 2008) and create incentives for manipulation (Gurun and Butler, 2012). These two alternatives have very different implications for whether media coverage will make capital allocation more efficient.

This paper investigates the relative importance of these two effects by studying the role of media coverage in investors' capital allocations to mutual funds. These investment vehicles account for the majority of financial assets of the average household and provide rich data on the information environment, capital allocations, and subsequent outcomes. Further, survey evidence indicates that over 40% of investors rely heavily on the information derived from mass media when choosing their mutual fund investments (SEC, 2000). In this paper, we study how media coverage of fund holdings affects investors' capital allocations across funds.

Our focus on fund holdings is motivated by several reasons. First, portfolio holdings provide perhaps the richest source of public information, which can improve investment outcomes (e.g., Kacperczyk, Sialm, and Zheng, 2008) but can also lead to misinterpretation, for example, if holdings' returns are confused with fund returns. Second, fund holdings are a subject of regulated disclosure, and it is important to understand how they affect investors' decisions. In particular, the list of fund holdings, usually available both in print and online, constitutes a large and salient portion of a mutual fund annual report, at least by the amount of dedicated space. Finally, investor surveys and industry evidence indicate that investors follow fund holdings, particularly those of well-publicized stocks.¹ However, we know relatively little about how investors evaluate fund holdings and what role media coverage plays in their investment decisions. Our paper seeks to provide evidence in this direction.

Our main finding is that media coverage of fund holdings has a significant effect on investors' capital allocation decisions. In particular, investors' capital flows respond to holdings' past returns, but *only* if these holdings were covered in widely circulated newspapers in the preceding quarter. Investors allocate significantly

¹ For example, according to Morningstar, 42% of retail investors would like to have portfolio holdings disclosed more often than quarterly. In the business press, interviews with fund managers acknowledge investors' interest in fund holdings and the pressure to hold "hot", widely-publicized stocks in fund portfolios (Moeller 1999; McDonald 2000). For example, McDonald (2000), quotes fund manager Adrian Brass describing his decision to buy the highly-publicized stock of Qualcomm: "We had a lot of shareholders calling up and asking why we didn't hold it." Finally, the academic literature provides indirect evidence that fund holdings influence investors' decisions by showing that fund managers window dress their holdings before reporting them to investors despite incurring transaction costs (Lakonishok, Shleifer, Thaler and Vishny, 1991; Musto 1999).

more (less) capital to funds holding media-covered stocks with high (low) past returns, after controlling for fund returns and other fund characteristics. In other words, if a fund holds shares in a high-profile failure, such as Enron, it will face greater outflows than an identical fund holding a stock with a similarly low return but without newspaper coverage.

The incremental effect of holdings' media coverage on flows is substantial – a one standard deviation increase in market-adjusted returns of media-covered holdings (8.47%) predicts an extra quarterly capital inflow of 0.74% of the fund's assets, over and above the effect of fund returns. In contrast, the returns of holdings that were not covered in major newspapers in the trailing quarter have no relation to future fund flows. The effect of the returns of media-covered holdings is 20% as large as the effect of the fund's own market-adjusted returns on capital inflows. This result is robust to controlling for various lags of fund returns and their nonlinear terms.

As an additional test that separates the effect of holdings' returns from fund returns and other fund characteristics, we exploit the difference in the timing when various fund data become observable to investors. While many fund characteristics are reported daily (e.g., returns, volatility, TNA), fund holdings are disclosed on a periodic basis. One alternative is that holdings themselves have little effect on investors' flows but rather proxy for some information already embedded in the immediately available fund data such as fund returns or volatility. In this case, the apparent association between holdings' returns and investors' flows can result from the correlation between holdings' returns and these other data. To evaluate this alternative, we examine the pattern of flows around the quarter end – before and after the holdings' filing dates. We find that fund flows react to holdings' returns strongly in the periods after disclosure, but not before. By contrast, other fund characteristics that are immediately observable (such as returns over the same period) show similar effects before and after holdings' reporting dates. This evidence indicates that the effect of media-covered holdings on flows is incremental to that of other fund characteristics that are observed immediately.

To distinguish between the effect of positive and negative media coverage, we rely on holdings' returns and show that the effect on flows appears to be approximately symmetric in magnitude (and opposite in direction) for holdings with positive and negative returns. Our main results are also qualitatively similar, although somewhat weaker, if we rely on the textual analysis of article tone to distinguish between positive and negative news.

Next, we investigate whether investors' response to holdings' returns is indeed attributed to their media coverage rather than other firm characteristics correlated with it. First, we construct the same variables for fund

holdings based on the correlates of media coverage such as size, market-to-book ratio, and analyst coverage. We find that holdings' returns sorted on these variables show no effect on fund flows, nor do they reduce the effect of media-covered holdings. Second, we use temporal variation in media coverage to capture the shift in media attention, while controlling for holdings' characteristics that remain constant in the short term. We find that the effect of holdings' media coverage on fund flows is driven entirely by the news in the most recent month before holdings' disclosure. The media effect fades away as news becomes older, while the vast majority of other firm characteristics remain unchanged.

We also show that investors' reaction to media-covered holdings is driven by media coverage of stocks rather than media coverage of mutual funds. We find that media articles about mutual funds account for only 2% of our sample, and their exclusion has no effect on our results. Finally, we consider the possibility that fund flows and holdings' media coverage are simultaneously driven by time-varying investor sentiment specific to a particular fund category. To control for this effect, we include fund style, investment objective, and year fixed effects, thus exploiting the variation in fund flows within each investment category and within the same year. This research design also enables us to introduce more refined controls for fund performance and capture the effect of both absolute and relative performance on investors' decisions (Ivković and Weisbenner, 2009). Overall, the evidence from this set of tests suggests that investors' reaction to media-covered holdings cannot be easily explained by other firm or fund characteristics.

Next, we study the role of holdings' media coverage in investors' decisions and examine two plausible interpretations. One possibility is that media coverage reduces the cost of gathering information in an analysis of fund holdings by allowing investors to identify skilled managers who anticipate the arrival of important news. Another view is that media coverage increases the salience of certain holdings, thus contributing to investors' return chasing, regardless of whether the stocks were purchased before or after the news arrival.²

To distinguish between these views, we study the following three questions. First, does investors' preference for media-covered holdings vary with the measures of holdings' informativeness or with the measures of salience and limited attention? Second, do investors increase their subsequent returns by this strategy? Third, does this investor preference create a strategic response of fund managers?

² While this view would reflect a fairly naïve capital allocation process, it appears plausible based on survey evidence that shows a lack of financial sophistication among a large fraction of mutual fund investors (SEC, 2000).

In response to the first question, we begin with investigating investors' reaction to observed changes in fund holdings. Under the information view, media coverage can help investors identify skilled fund managers, who correctly predict the outcomes of future corporate events and revise their holdings in anticipation of this news. Previous research shows that this analysis yields valuable information about managerial skill (e.g., Baker, Litov, Wachter, and Wurgler, 2010). In contrast, under the salience view, media coverage makes holdings' returns more attention-grabbing but not necessarily more informative.

Our evidence supports the salience view. In particular, investors react to the levels of media-covered holdings, but do not distinguish funds that traded in the right direction in media-covered stocks from those that traded in the wrong direction. For example, if a manager reduced his portfolio position in a stock before the arrival of positive news (i.e., traded in the wrong direction), investors' flows show no reaction to the incorrect trade, but respond strongly to the fund's remaining holding of the stock. Moreover, investors' reaction to media-covered holdings does not appear to depend on how closely the returns of fund holdings resemble the realized returns of the fund. Overall, this evidence suggests that investors respond weakly to the informational value of the direction and timing of a fund's investments in media-covered stocks, but react strongly to the presence of media-covered holdings in a fund's portfolio.

Next, we evaluate how investors' reaction to media-covered holdings varies with the measures of holdings' informativeness and salience. We find a strong positive relation between fund flows and the salience of media-covered holdings but little relation to the proxies for their informativeness. For example, investors' response to media covered holdings is 34% larger for articles that feature the firm's name in the headline and likely make it more salient to investors. By contrast, the response to holdings is *not* significantly reduced when the holdings are less informative. For example, we find an equally strong reaction to stale holdings, which are reported with a large delay, and to holdings of funds with a high turnover, where previous holdings are less informative of the current strategy. Collectively, this evidence indicates that holdings' media coverage appears to generate a temporary increase in their salience to investors rather than provide investors with valuable information about a fund's strategy. Consistent with this more naïve interpretation, we find that the effect of media-covered holdings is stronger for funds that spend more on direct marketing and tend to attract a less sophisticated investor clientele (Bergstresser, Chalmers and Tufano, 2009).

Next, we investigate whether investors receive higher returns by investing in funds with media-covered past winners, and find little evidence that they do. The returns of media-covered holdings are weakly related to future fund returns due to correlation with momentum strategies, but even this effect disappears after controlling for past fund returns. If fund returns are evaluated relative to a three- or four-factor model, the predictive power of holdings' returns for future fund performance is insignificant and in some specifications has the opposite sign. Therefore, at a minimum, investors do not earn higher returns and likely incur substantial transaction costs from chasing funds with media-covered winners.

Finally, we explore whether investors' reaction to media-covered holdings creates incentives for fund managers to distort their portfolios. In particular, investors' preference for funds that hold media-covered winners may create incentives for fund managers to 'game' their portfolios at reporting dates, a strategy known as window dressing (Lakonishok, Shleifer, Thaler, and Vishny, 1991; Musto 1999). This portfolio strategy typically involves buying stocks with high trailing returns shortly before reporting dates to convey the impression that they were purchased before appreciating in value.

To investigate the strategic response of mutual funds to investors' preferences, we construct measures of window dressing (discussed in the empirical section) based on the difference between the realized return of the fund and that of its reported holdings. Using these measures, we find that window dressing funds tilt their portfolios more toward past winners that were prominently featured in major newspapers than toward stocks with similarly high returns that lacked newspaper coverage. The window dressing behavior is particularly pronounced at the end of the calendar year, when fund holdings are more closely examined by investors. A one standard deviation increase in window dressing is associated with a 3.13% increase in the reported returns of media-covered holdings versus a 2.36% increase in the returns of non-media-covered holdings. In contrast, unconditional returns of media-covered holdings are statistically and economically indistinguishable from the returns of holdings without media coverage.

We also study whether media-based window dressing generates flows. This analysis provides additional evidence on the information and salience views. If media coverage helps investors distinguish successful managers who purchase future winners before the arrival of good news (stock pickers) from managers who purchase these stocks after the arrival of news (window dressers), the information view predicts that window dressing will be ineffective and likely harmful for fund flows, since it will signal lower managerial skill. In

contrast, if investors react to the salience of stock returns in a fund's portfolio, the salience view predicts that a fund's tilt toward media-covered winners at reporting dates should attract flows even if these stocks were purchased after the arrival of good news. Our findings support the salience view. In particular, investors' flows react equally strongly to media-covered holdings of window dressing funds. If anything, greater window dressing (when fund holdings overstate actual fund returns) is associated with a stronger response of capital flows to the returns of media-covered stocks.

The window dressing strategies that rely on media coverage appear to attract flows, but require frequent turnover, since media coverage shifts significantly over time. Given the convex relationship between fund performance and flows, we conjecture that this tactic is beneficial for underperforming funds, for which the performance drag from portfolio rebalancing has a less significant effect on flows (i.e., funds in the flatter part of the performance-flow curve). Consistent with this explanation, we find that the tilt toward media-favored stocks at reporting dates is concentrated among funds with high turnover and weak performance records.

Overall, our paper has several implications. First, we provide one of the first pieces of evidence on the role of media coverage of fund holdings in attracting flows. Second, we offer novel evidence on the effect of media coverage on investors' evaluation of corporate disclosure and show that a richer information environment need not lead to better investment decisions. Third, to our knowledge, our paper is the first to demonstrate that media coverage is the necessary condition underlying the efficacy of window dressing. Finally, our findings show that media coverage can contribute to investor biases and create distortionary incentives for money managers, leading them to trade for reasons unrelated and likely detrimental to fund performance.

1. Related Literature

Our paper adds to the growing literature on the role of media in financial markets. We examine a central question in this area – the effect of media coverage on capital allocation decisions. Theoretical models offer diverging predictions about this media effect. Under the *information* view, media coverage may improve investment decisions by reducing the cost of information acquisition (Grossman and Stiglitz, 1980; Verrecchia 1982) and by increasing investors' awareness of financial assets (Merton 1987). Consistent with this view, media coverage has been associated with a more rapid incorporation of information into stock prices (DellaVigna and Pollet, 2009), a

lower cost of capital (Fang and Peress, 2009), and lower information asymmetry between investors and firms (Tetlock 2010).

An alternative is the *salience* view, according to which media coverage merely shifts investor attention across securities, resulting in a transitory increase in investors' demand for salient stocks covered in the news (Daniel, Hirshleifer, and Subrahmanyam, 1998; Hong and Stein, 1999). Consistent with this view, several studies show that media coverage can generate short-lived upward price pressure on stocks in the news (Vega, 2006; Barber and Odean, 2008) and argue that this investor behavior represents an overreaction to salient events (Huberman and Regev, 2001; Tetlock 2011).

Our paper seeks to examine the relative importance of these two effects by studying whether and how the decisions of mutual fund investors vary with the media coverage of fund holdings. Our findings support the salience view. In particular, our evidence suggests that media coverage of fund holdings appears to contribute to return chasing rather than facilitate the processing of useful information contained in fund holdings.

Another strand of the media literature shows that media coverage exhibits political and economic biases towards media advertisers (Reuter and Zitzewitz, 2006; Kaniel, Starks, and Vasudevan, 2007; Gurun and Butler, 2012), clients of investor relation firms (Solomon, 2012), and firms engaging in strategic disclosure (Ahern and Sosyura, forthcoming). Rather than focusing on the biases in *media* reporting, we show that media coverage may contribute to biases in *investors* – namely, the chasing of past winners.

Our paper is also related to the literature on mutual funds. Earlier studies argue that funds purchase stocks with high past returns before reporting dates, presumably to appeal to fund clienteles (e.g., Lakonishok, Shleifer, Thaler and Vishny, 1991; Meier and Schaumburg, 2006). A critical assumption in this literature, previously untested, is that investors react to holdings' returns, even though these returns are neither reported by funds nor included in regulatory filings. Our evidence suggests that media coverage serves as an important channel through which investors learn about stock returns, and that window dressing strategies work only for stocks featured in widely-circulated newspapers.

Our results also provide one plausible explanation that connects two pieces of evidence reported in prior studies. In particular, Falkenstein (1996) shows that fund portfolios hold stocks with greater news coverage, and Chae and Lewellen (2005) find that portfolio managers follow momentum strategies in foreign markets where momentum is *not* profitable. Our evidence suggests that funds may hold stocks with high past returns featured in

the news in order to attract investors rather than only to follow momentum, and that this strategy has a significant positive effect on capital flows.

We also contribute to the literature on information processing by mutual fund investors. Previous research has studied the implications of investor attention in the context of mutual fund fees (Barber, Odean and Zheng, 2005). Our paper extends this literature by providing evidence on how investors react to mutual fund information in a new context – portfolio holdings. In this respect, portfolio holdings are particularly important for two reasons. First, fund holdings comprise perhaps the richest information set available to investors in the public domain, which can be used to infer fund manager’s quality (Kacperczyk and Seru, 2007; Kacperczyk, Sialm, and Zheng 2005, 2008; Kacperczyk, Van Nieuwerburgh, and Veldkamp, 2012) and uncover important changes in a fund’s strategy (Huang, Sialm, and Zhang, 2011). Second, as discussed earlier, mutual fund holdings are a subject of regulated (and costly) disclosure, and we know relatively little about how this disclosure is evaluated by investors. Our evidence suggests that retail investors appear to react to the salience of portfolio holdings rather than their information content and that the investment value of disclosure is diluted by the strategic response of fund managers to this investor behavior. Interpreted broadly, these findings highlight one mechanism that contributes to the less sophisticated, return-chasing fund flows (Frazzini and Lamont, 2008).

Our study also provides new evidence on how mutual funds are marketed to and evaluated by investors. Previous research has documented the importance of fund advertising (Jain and Wu, 2000) and fund recommendations in the press (Reuter and Zitzewitz, 2006) for attracting flows. However, these channels are typically unavailable to the overwhelming majority of fund managers, since only about 10% of funds receive positive mentioning in the press (Kaniel, Starks, and Vasudevan, 2007) and even fewer funds are advertised by their families. Our paper demonstrates an alternative strategy that may be used by mutual funds to benefit from media exposure – establishing positions in past winners that received prominent coverage in the national press.

More generally, our paper expands the evidence on the role of media in portfolio investing. In recent work, Fang, Peress, and Zheng (2012) find that mutual fund managers whose trades are correlated with public information, as proxied by media coverage, earn lower returns. The authors document that this effect is persistent and indicates lower managerial ability. Our paper studies the effect of media coverage from a different perspective – that of mutual fund investors. We show that investors’ flows follow media-covered holdings, but this reaction is driven by holdings’ salience rather than the valuable inference about managerial ability. We also

show that this investor behavior may create incentives for portfolio manipulation. Overall, our results suggest that the preferences of fund managers and their investors for media-covered stocks are likely interconnected. In particular, some decisions of low-ability managers to purchase media-favored stocks may reflect window dressing efforts motivated by investors' preference for media-covered winners.

Finally, our evidence on fund investors adds to the broader literature on individual investment decisions, recently examined in Barber and Odean (2008), Brown et al. (2008), Ivković, Sialm, and Weisbenner (2008), and Kelly and Tetlock (forthcoming). Our findings suggest that at least some investors evaluate financial data more naïvely than might be expected and that their reaction to regulatory filings is heavily influenced by mass media.

2. Data and Summary Statistics

2.1 Mutual Funds

We begin our sample construction with the universe of open-end mutual funds covered by the CRSP Mutual Fund Database between January 1998 and December 2008, inclusive. Our choice of the time period is motivated by the availability of media coverage data in Factiva, which tends to be significantly sparser in earlier years.

As a first filter in our sample construction, we limit our analysis to domestic actively-managed equity funds, thus excluding international funds, index funds, and funds specializing in bonds, precious metals, and other asset classes.³ We focus on domestic rather than international funds because foreign stocks receive relatively little media coverage in the U.S. To address the incubation bias, we exclude fund observations before the starting year reported in CRSP, funds with a missing name, and funds with total net assets below \$5 million.

Our sample of mutual funds includes 1,720 open-end domestic equity funds, whose combined assets under management totaled \$1.7 trillion in December 2008. During our sample period, an average (median) fund managed \$1.8 billion (\$347 million) in assets, charged an expense ratio of 1.41% (1.40%), earned net quarterly returns of 0.75% (1.60%), had quarterly capital flows of 4.42% (-0.88%), and experienced annual turnover of 89 (70)%. Panel A of Table I provides summary statistics for the mutual fund sample.

³ Specifically, we drop observations for which the Thomson Investment Objective Code falls into any of the following categories: International, Municipal Bonds, Bond & Preferred, Balanced, Metals, and Unclassified, as well as observations where this information is missing. We exclude index funds based on the inclusion of the word 'Index', names of common indices, and various variations and abbreviations of these words.

2.2 Portfolio Holdings

The data on fund holdings come from Thomson Reuters, a database that compiles mutual fund portfolio disclosures filed with the Securities and Exchange Commission. Since May 2004, funds are required to report their holdings on a quarterly basis. In earlier periods, funds were required to report semiannually but the majority of them voluntarily disclosed on a quarterly basis (Wermers, Yao and Zhao, 2008). For funds that disclosed semiannually during the early part of our sample, we use the holdings from the most recent semiannual filings in quarters without a filing. The intuition is that these are the holdings that would be observable to investors during such quarters. Our results remain similar if we exclude all quarters without a filing.

We merge the set of portfolio holdings with our sample of mutual funds by using the MFLinks table developed by Russ Wermers and made available via Wharton Research Data Services. The main unit of fund analysis is the ‘wfcfn’ identifier from MFLinks. Since the CRSP ‘fundno’ identifier lists each fund share class as a separate series, we aggregate multiple ‘fundno’ share classes into a single ‘wfcfn’. In particular, to derive Total Net Assets (TNA), we sum over all fundnos that share the same ‘wfcfn’.⁴ To compute returns and fund flows, we take the average over all fundnos with the same ‘wfcfn’.

After matching the two samples, we impose several additional filters to eliminate observations with errors. We exclude observations for which the number of shares held by a fund exceeds the number of shares outstanding for the stock and observations for which the value of shares held by a fund (price*shares held) exceeds the value of fund assets reported by Thomson Reuters. We also eliminate observations with significant differences between the total assets reported by Thomson Reuters and the sum of assets for all share classes in CRSP.⁵ This screen serves as another control to eliminate funds that hold a significant portion of their portfolios in non-equity assets.

2.3 Media Coverage

Our media dataset comprises four widely circulated national newspapers: *The Wall Street Journal*, *USA Today*, *The New York Times*, and *The Washington Post*. This sample is intended to approximate the news that reaches the typical retail investor who reads the national press. We obtain the entire text of these publications from Factiva

⁴ Since we focus on domestic equity funds, prices are determined contemporaneously and remain free of the stale price bias documented for funds investing in foreign stocks traded in different time zones (Goetzmann, Ivković, and Rouwenhorst, 2001).

⁵ Specifically, we drop an observation if the combined CRSP TNA is greater than 200% or less than 50% of the assets in Thomson Reuters.

between January 1998 and December 2008. Our media sample includes 1.7 million articles, of which 39% come from *The New York Times*, 35% appear in *USA Today*, and 18% come from *The Wall Street Journal*. *The Washington Post* accounts for the remaining 8% of articles. Our dataset includes the full text of the article, its source, title, author, date of appearance, and page number where the article appeared in the newspaper.

To match newspaper articles to firms, we search for the variations of the company's name in the headline, the lead paragraph, or the tail paragraph of each article, analogously to Tetlock, Saar-Tsechansky and Macskassy (2008). All news coverage is measured at a quarterly frequency to control for firms' quarterly disclosures, such as earnings announcements, and to match the frequency of mutual fund portfolio reporting. These data are supplemented by the information on stock prices from CRSP and firm financials from Compustat.

Panels B and C of Table I summarize media coverage statistics for our sample. Approximately 30.8% of CRSP stocks are featured in at least one of the four newspapers in our sample in a given quarter, and the average number of articles per firm is 4.1. Among the stocks with newspaper coverage, the average number of articles is 13.3 per quarter. As expected, stocks held by mutual funds receive more media attention. Over 53% of mutual fund holdings are featured in at least one of the four national newspapers per quarter. For stocks held by at least one fund (at least ten funds) in our sample, the average number of articles in the national newspapers is 10.0 (12.0) per quarter. For stocks held by at least one fund (at least ten funds) that appear in at least one media outlet, the average number of articles is 20.3 (21.1) per quarter. The average returns of media-covered holdings (2.11% per quarter) are nearly identical to the average returns of all holdings (2.13% per quarter).

3. Mutual Fund Holdings, Media Coverage, and Capital Flows

3.1 Returns of Media-Covered Holdings and Fund Flows

In this subsection, we study whether media coverage of fund holdings affects investors' capital flows. In particular, we examine whether investors react to holdings' returns after controlling for the return of the fund, and whether this relation varies with holdings' media coverage.

We begin our analysis with a set of panel regressions, in which the dependent variable is the quarterly fund flow, defined as the percentage change in TNA that is not driven by fund returns.⁶ The regression model is specified by the following equation:

$$Flow_{i,t} = a + b_1*NewsHoldRetMkt_{i,t-1} + b_2*HoldRetMkt_{i,t-1} + b_3*FundRetMkt_{i,t-1} + b_4*FundRetMktSq_{i,t-1} + b_5*FracNews_{i,t-1} + b_6*FundVolatility_{i,t-1} + b_7*Age_{i,t-1} + b_8*ExpenseRatio_{i,t-1} + b_9*LogAssets_{i,t-1} + b_{10}*FundRetMkt_{i,t-2} + b_{11}*FundRetMktSq_{i,t-2} + b_{12}*Yeardum_{1998-2008} + b_{13}*IOCdum_{i,t} + b_{14}*Styledum_{i,t} + e_{i,t} \quad (1)$$

The two main independent variables of interest are *HoldRetMkt* and *NewsHoldRetMkt*. *HoldRetMkt* is the average return for the fund's holdings over the trailing quarter, adjusted for the return on the CRSP value-weighted index.⁷ For instance, fund flows between June 30 and September 30 are regressed on the average market-adjusted returns between March 31 and June 30 earned by portfolio holdings reported as of June 30.

NewsHoldRetMkt is the average market-adjusted return of the holdings covered in at least one of the four national newspapers over the trailing quarter. This variable is analogous to a dummy indicator for media coverage interacted with the holdings' returns, but for the fund average. Intuitively, this term captures the effect of the returns of media-covered stocks on fund flows, over and above the effect of the holdings' returns in general.

Other independent variables include two lags of market-adjusted fund returns (*FundRetMkt*) and their squared values (*FundRetMktSq*), which are intended to account for the convexity in the flow-return relation. As other controls, we include the fraction of fund holdings covered in the media in the previous quarter (*FracNews*), the fund's age in years since the initiation date in CRSP (*Age*), the size of the fund's asset base defined as the natural logarithm of TNA (*LogAssets*), the standard deviation of daily fund returns (*FundVolatility*) based on the daily fund returns data from CRSP, and the expense ratio (*ExpenseRatio*). The definitions of these variables are provided in the Appendix.

To control for fund flows that are common to a fund's investment objective, we include investment objective fixed effects based on the Thomson Investment Objective Code classification (*IOCdum*). To account for fund flows that are common for the type of stocks in which a fund invests, we also include fund style dummies (*Styledum*) that capture a fund's style based on a three-by-three matrix of stock size (small, medium, and large)

⁶ Formally, $Flow_t = (TNA_t - TNA_{t-1} * Return_t) / TNA_{t-1}$

⁷ Our results are very similar in magnitude and significance if we use raw rather than market-adjusted holdings' returns.

and valuation (value, mixed, and growth), constructed based on the holdings' average percentile rankings relative to the CRSP stock universe. The specifications with and without fixed effects allow us to capture investors' response to both a fund's absolute market-adjusted returns and its relative performance within its style and investment category. Further, the inclusion of fixed effects based on both a fund's declared objective and its revealed holdings' characteristics captures different dimensions of fund style and accounts for the possibility that fund holdings may deviate from a fund's declared objective. Standard errors are clustered by fund and quarter.

Panel A in Table II shows that the returns of holdings positively affect fund flows, and that this effect is significantly larger for stocks featured in the media. Before adding controls, in column (1), *HoldRetMkt* has a coefficient of 0.197 (significant at the 1% level with a t-statistic of 2.79) and *NewsHoldRetMkt* has a coefficient of 0.194 (significant at the 1% level with a t-statistic of 2.79). These coefficients suggest that the response of flows to the returns of media-covered holdings ($0.197 + 0.194 = 0.391$) is roughly twice as large as the response to holdings not covered in the media (0.197).

In columns (2)-(5) of Panel A, Table II, we test whether holdings' returns have an incremental effect on flows over and above fund performance and other fund characteristics. The base effect of all holdings (*HoldRetMkt*) disappears once we account for fund returns. In contrast, the effect of media-covered holdings remains largely unchanged in both magnitude and significance after adding these controls, as shown by the coefficient on the variable *NewsHoldRetMkt* (coefficient of 0.190 with a t-statistic of 3.43). In other words, the apparent effect of the returns of non-covered holdings is mainly explained by the returns of the fund itself. In contrast, the effect of media-covered holdings is incremental to fund returns and other fund characteristics, and remains reliably significant after adding the full set of controls (t-statistic of 3.43 in column (5)).

The evidence in Panel A of Table II indicates that investors' capital flows appear to react only to the returns of holdings covered in the national press, and that these holdings attract extra flows over and above the returns of the fund. The magnitude of this effect is substantial. Based on the coefficients in column (5) of Panel A in Table II, a one standard deviation increase in the market-adjusted returns of media-covered holdings (8.47%) is associated with an increase in the quarterly fund flows of 0.74% or \$13.7 million for the average fund in our

sample. To provide a relative comparison, the effect of the returns of media-covered holdings on future flows is about 20.4% as large as the effect of the actual fund returns.⁸

In Panel B, we explore how the effects vary with the quantity of media coverage (columns (1)-(4)) and the direction of returns (column (5)). If media coverage affects investor decisions, the information and salience views predict that greater quantities of media coverage should have larger effects. To this end, we replace the overall effect of news (*NewsHoldRetMkt*) with two variables that capture high and low coverage stocks: the average returns of holdings with media coverage above the median for that quarter, and the returns of holdings with coverage below the median (*NewsAboveMedHoldRetMkt* and *NewsBelowMedHoldRetMkt*, respectively). In the second specification, we examine four variables: the returns of holdings with media coverage in quartiles one through four based on the frequency of coverage (*News25PctHoldRetMkt* to *News100PctHoldRetMkt*). All percentiles are taken over firms with at least one article.

The results on the quantity of media coverage are presented in columns (1)-(4) of Panel B in Table II. The effects on flows are larger for holdings that received more media coverage. When holdings are split at the median according to the amount of media coverage, the high coverage stocks have a coefficient of 0.103 (significant at the 1% level), while the low coverage stocks have a coefficient of 0.040, which is insignificant. When coverage is split by quartiles, the effects are monotonically increasing in the amount of coverage – from a statistically insignificant coefficient of 0.009 in the lowest quartile to a coefficient of 0.060 (significant at the 1% level) in the highest quartile.

The economic magnitude and statistical significance of the effect of holdings' media coverage are similar in specifications that include fixed effects for the year, fund investment objective, and fund investment style. By including these effects, we exploit the variation in fund flows within each investment category and within the same annual period. This research design controls for the possibility that fund flows and holdings' media coverage are simultaneously driven by time-varying investor sentiment specific to a particular type of funds or stocks in a given year, and shows that our results are robust to this alternative explanation.

Finally, we examine whether the effect of media-covered holdings' returns varies between good and bad news, as inferred from stock returns. To evaluate whether investors' capital flows respond more strongly to

⁸ We derive this relation by dividing the magnitude of the effect of media-covered stocks ($0.087 = 0.190 - 0.103$) by the coefficient on the market-adjusted returns of the fund (0.426) as follows: $0.087 / 0.426 = 0.204$.

media-covered holdings with positive or negative returns, we include two additional variables. *NewsHoldRetMktNeg* is equal to *NewsHoldRetMkt* when that variable is negative, and zero otherwise. Similarly, *HoldRetMktNeg* is equal to *HoldRetMkt* when that variable is negative, and zero otherwise. The regression also includes analogous variables for *FundRetMktNeg* and *FundRetNeg* which equal (respectively) *FundRetMkt* when it is negative and zero otherwise, and *FundRet* when it is negative and zero otherwise.

The analysis in column (5) of Table II, Panel B shows that the effects of media-covered holdings' returns are approximately symmetric between positive and negative holdings' returns. The key variable of interest is *NewsHoldRetMktNeg*, which captures the difference in investors' response to media-covered holdings with negative returns above and over that for holdings with positive returns. The coefficient on this variable is economically small and not significantly different from zero, suggesting that investors' response to media-covered holdings is roughly symmetric in economic magnitude for media-covered winners and losers. In other words, the effect on flows is driven approximately equally by rewarding funds that hold media-covered winners and by penalizing funds that hold media-covered losers.

In sum, past returns of media-covered fund holdings have significant predictive power for future fund flows, over and above the average returns of all portfolio holdings and the returns of the fund itself. A greater amount of holdings' media coverage has a larger effect on flows. The absolute effect on flows is approximately similar in economic magnitude for positive and negative returns.

3.2 Variables Correlated with Media Coverage

Media coverage of a stock is correlated with a number of firm characteristics, such as size, industry, analyst coverage, and book-to-market ratio. Moreover, there may be omitted or unobservable variables associated with media attention. In this section, we investigate whether investors' reaction to fund holdings can be explained by other firm attributes.

We follow the same empirical approach as for media coverage and construct four analogous variables for the average returns of fund holdings that were above the NYSE midpoint of market capitalization, analyst coverage, book-to-market ratio, and momentum. We then include these four variables in the same regression as in Section 3.1 and report our results in Table III. The evidence shows that these variables do not influence investors' capital flows. Despite the fact that all four variables are correlated with media coverage (Solomon 2012),

holdings' returns sorted on these variables show no significant effect on fund flows, nor do they reduce the effect of media-covered holdings. This evidence suggests that the extra response to holdings' returns is related to their media coverage rather than other firm characteristics.

Though the analysis of interaction effects with particular firm characteristics enables a researcher to test the influence of specific variables, there is always a possibility of an omitted or unobservable variable. To mitigate this concern, in Table IV we exploit the variation in the timing of media coverage and the timing of holdings' disclosure. In Panel A, we explore whether media coverage may be proxying for an omitted characteristic of media-covered stocks by relying on the temporal variation in newspaper coverage of stocks within one quarter. This approach seeks to distinguish the effect of changes in media coverage from that of other observable and unobservable firm characteristics that remain unchanged within one quarter.

To investigate the temporal effect of media coverage, we introduce three variables that identify stocks that were featured in the four national newspapers in the month of filing (*NewsMth1HoldRetMkt*), one month before the filing month (*NewsMth2HoldRetMkt*), and two months before the filing month (*NewsMth3HoldRetMkt*). We add these variables to the independent terms in our base specification (equation (1) and Table II) and estimate panel regressions of quarterly fund flows. The results of this estimation are summarized in Panel A of Table IV.

Panel A of Table IV shows that the effect of media attention is primarily driven by newspaper coverage in the month of filing, as shown by the coefficient on *NewsMth1HoldRetMkt*, which is reliably significant at the 1% level with a full set of controls. The effect of media coverage is weaker when the coverage was further in the past, as indicated by the coefficients on *NewsMth2HoldRetMkt* and *NewsMth3HoldRetMkt*, which drop in magnitude and have lower statistical significance.

We also control for the possibility that some stocks with older news coverage may be featured in the news in the filing month. In the extreme case, some stocks may receive newspaper coverage every month of the quarter. To account for this possibility, we estimate the effect of all three temporal variables simultaneously in column (4). The results in this column confirm that the media effect is driven by the coverage in the month of filing. In particular, the coefficient on *NewsMth1HoldRetMkt* increases in both magnitude and significance, while the coefficients on news coverage two and three months ago drop in magnitude and remain insignificant.

Overall, the results in this subsection indicate that media coverage has a short-lived effect on investors' capital allocations. This outcome reinforces the role of media coverage under both the information and salience

views, which predict that the most recent news should be most informative and most salient to fund investors. In contrast, we do not find evidence that investors' reaction to holdings' returns can be explained by other firm characteristics, either when we explicitly include time-variant characteristics as controls or when we account for time-invariant firm characteristics.

3.3 Tone of Media Coverage

So far, our research design has focused on the interaction of media coverage with holdings' returns. In particular, we have assumed that newspaper coverage makes investors aware of the performance of particular stocks and of the major corporate news associated with these firms. This analysis has relied on the market's reaction (stock returns) as a proxy for whether the media coverage of a stock conveys positive or negative news. We believe that this approach has several advantages compared with attempting to infer the content of media coverage from the article itself. First, this approach relies on market participants rather than on a machine algorithm to interpret the information. Second, it allows us to evaluate news relative to the prevailing market expectations instead of considering each article in isolation.

However, we would also like to evaluate the robustness of our results to an alternative method of distinguishing between positive and negative news based on textual analysis. This approach accounts for the possibility that some well-performing stocks may receive negative press, which may not be fully reflected in stock returns.

To evaluate article tone, we rely on the classification of positive and negative words in financial texts developed in Loughran and McDonald (2011). The lists of positive and negative words contain 353 and 2,337 words, respectively, and are downloaded from the web page of Bill McDonald. To measure article tone, we compute the difference between the number of positive and negative words in each article and scale it by the total number of words in the article. To reduce the effect of outliers, the tone of each article is first converted to a percentile value, and this value is averaged across all holdings of the fund at that point in time. Our measure of tone (*AvgTonePctile*) is the fund's percentile rank in the distribution of holdings' tone across funds in that quarter. This variable construction is designed to measure the relative effect of the media tone of fund holdings in the cross section of funds, while controlling for the fact that the average tone may differ from quarter to quarter.

When we replace our earlier measure, *NewsHoldRetMkt*, with the measure of the tone of holdings' coverage, *AvgTonePctile*, we get qualitatively similar results, as shown in column (5) of Panel A in Table IV. In particular, the tone of holdings' media coverage is positively and significantly associated with fund inflows, controlling for other fund-level characteristics. The economic effect is also substantial. Moving from the 25th to the 75th percentile of the tone of fund holdings increases flows by an additional 0.87% of total net assets in the following quarter. In unreported results, we also show that the effect on flows is monotonically increasing in the tone of media coverage across the quartiles of tone measures (e.g., as we increase the tone from the 25th percentile to the 50th percentile and so on).

In column (6) of Panel A in Table IV, we introduce both the return-based and tone-based measures of holdings' media coverage simultaneously. While this does not significantly reduce the estimated effect of article tone (the coefficient drops from 0.017 to 0.015), the coefficient is no longer statistically significant (t -stat = 1.55). This is consistent with a view that media tone is a relatively noisy measure of the news content. Adding tone measures does not seem to affect the base effect of holdings' media coverage, *NewsHoldRetMkt*, suggesting that tone does not subsume the effect of the stock return/media coverage interaction. Overall, the use of tone-based and return-based measures of the content of media coverage yields qualitatively similar conclusions, although the return-based measures appear to be more informative and less noisy than article tone. Therefore, throughout the rest of our analysis, we use stock returns as a proxy for the informational content of media coverage.

3.4 Timing of Holdings' Disclosure

In this subsection, we provide additional evidence that distinguishes the effect of media-covered holdings on fund flows from the effect of other fund characteristics. This analysis exploits the difference in the timing when various fund data become observable to investors. In particular, while many fund attributes are observed daily (e.g., fund returns, volatility, TNA), fund holdings are released at a quarterly frequency. If media-covered winners generate extra capital flows, investors should respond to the most recent holdings' returns only after (but not before) these holdings have been filed with the SEC and made available to the public. This temporal dichotomy allows us to separate the effect of media-covered holdings from that of all other fund characteristics that are observed immediately or disclosed independently of fund holdings.

To illustrate this analysis, we draw a parallel with the timing of our main regressions in Table II. In our main analysis, for flows between June 30 and September 30, the measures of holdings' returns (*HoldRetMkt*, *NewsHoldRetMkt*) are based on holdings reported as of the end of June and stock returns observed over the period between March 31 and June 30. Likewise, fund returns and control variables in Table II are also measured between March 31 and June 30. In this subsection, we consider how *monthly* flows are affected by holdings' returns. If investors' flows react to holdings' returns, this effect should be limited to the period *after* the holdings' filing date (in this case, the period from July to September). In contrast, fund flows in April, May, and June should not pick up the incremental effect of the holdings as of the end of June, and the effect of these holdings on flows should operate *only* via the immediately observable fund returns.

In Panel B of Table IV, we measure the effect of holdings' returns on fund flows on a month-by-month basis before and after the quarter end of the holdings' snapshot. The regressions contain the full set of control variables from the specification in Table II, Panel A. However, the dependent variable is now the monthly capital flow. The regressions are estimated separately for the months surrounding the quarter end (thereafter, month t). Using the example above, we run separate regressions for monthly flows in April, May, June, July, August, and September. To focus on the variation in the timing of flows, we hold the timing of the fund information constant across the regressions: all information (fund returns and controls) is current in month t .

Our results show that the effect of *NewsHoldRetMkt* on flows is limited to the period after the quarter end is observed during the months when the holdings are filed: the coefficients for months $t+1$, $t+2$, and $t+3$ are 0.03, 0.075, and 0.039, which are significant at the 10%, 1%, and 5% level, respectively. By contrast, *NewsHoldRetMkt* shows no significant effect in the months before the holdings are disclosed. The finding that the strongest response to holdings is observed in month $t+2$ is consistent with the fact that reporting dates are clustered around the end of the quarter, and funds have up to 60 days from their reporting date to send holdings' information to investors.

In contrast to holdings' returns, which affect flows only in the period after holdings' disclosure, the coefficient on fund returns is reliably significant in each of the monthly regressions. Overall, the results in this subsection indicate that the effect of media-covered holdings on flows is incremental to that of other fund characteristics that are observed immediately – most importantly, fund returns.

3.5 Media Coverage of Mutual Funds

Though media coverage of mutual funds is rare, it is possible that media coverage of a stock overlaps with media coverage of the fund holding this stock. For example, a newspaper article about a mutual fund could list some of the fund's holdings or discuss the fund manager's top picks. In this case, investors' capital flows could be driven by the media coverage of the fund rather than by investors' reactions to the returns of its holdings.

To investigate this possibility, we identify all media articles that include the word 'fund' and its variations. We find that such articles are rare and account for only 2.0% of the articles in our sample. Another fact that mitigates this concern is that the average portfolio holding in our sample is shared by 56 mutual funds, making it unlikely that more than a small fraction of the funds will be mentioned individually. In unreported results we exclude all articles that mention the word 'fund' and its variations and repeat our main analyses. We find that excluding these articles has virtually no effect on the magnitude and significance of the results, suggesting that our evidence is unlikely to be driven by media coverage of funds rather than that of their holdings.

4. The Role of Information and Salience

To distinguish between the information and salience views, we present evidence along the following three dimensions. First, do investors distinguish whether the manager traded in the right direction in media-covered stocks and whether these trades were made before or after the news was announced? Second, does investors' response to media-covered holdings vary with measures of holdings' informativeness or holdings' salience? Third, do investors realize higher returns by following media-covered holdings?

4.1 Evidence from Fund Trades

Previous research indicates that investors can extract valuable information about managerial skill by investigating how fund managers revise their holdings relative to corporate news. In particular, media coverage of stocks in a fund's portfolio can reduce the cost of inferring managerial skill by helping investors identify managers who correctly anticipated the news before it was publicly disclosed in the media (Baker, Litov, Wachter, and Wurgler, 2010). Under the information view, investors reward fund managers who hold media-covered winners in their portfolio because they receive a signal that a manager correctly predicted the outcome of a future corporate event and purchased the stock before the event occurred and the stock appreciated. Similarly, investors penalize

managers with media-covered losers because they receive a signal that a manager failed to predict the news and to sell the stock before it was announced. In other words, investors react to media coverage of fund holdings because it provides valuable information about a manager's type.

Under the salience view, investors react to media coverage of fund holdings because it attracts their attention to the returns of particular holdings. Since the returns of fund holdings are typically not disclosed, media coverage makes investors aware of holdings' past performance and makes these holdings more attention-grabbing. In this case, investors react positively (negatively) to past winners (losers) because they are chasing past returns, even if these holdings' returns were not realized by the fund.

The critical distinction between the two hypotheses lies in investors' reaction to changes in fund holdings along two dimensions: (1) direction of trades and (2) timing of trades. Under the information view, investors should react positively to managers who increased their holdings of media-covered winners before the news became public and react negatively to managers who traded in the opposite direction. In contrast, under the salience view, investors react to the levels of media-covered holdings, but do not distinguish between funds that traded in the right direction in media-covered stocks and those that traded in the wrong direction. Similarly, they respond to media-covered holdings equally strongly, whether these stocks were likely purchased before or after the price increase.

In Table V, we provide evidence on the relation between investors' capital flows and quarter-to-quarter changes in media-covered holdings. To account for the timeliness of trades, we need to measure the changes in position *before* the period of returns (otherwise it is unclear whether a fund traded in a stock before or after it increased in price). For a given level of holdings' returns, we wish to test whether investors react differently if the fund increased or decreased its position before the stock realized high returns. Thus, in contrast to Section 3.1, the base effect of holdings is measured in the next period after filing, contemporaneous with the flows. For example, suppose the dependent variable is fund flows between June 30 and September 30. The base effect of holdings' returns is captured by *HoldRetMktFwd* (the average returns between June 30 and September 30 of fund holdings reported as of June 30) and *NewsHoldRetMktFwd* (the average returns between June 30 and September 30 of fund holdings reported as of June 30 that received media coverage in July, August, or September).

To measure whether investors respond to information in trades, we include four additional variables, similar to *HoldRetMktFwd* and *NewsHoldRetMktFwd* but corresponding to holdings in which the fund increased

or decreased its position before the period of returns. $IncreaseHoldRetMktFwd_t$ ($NewsIncreaseHoldRetMktFwd_t$) is the average return during quarter t of all (media-covered in quarter t) holdings in which the fund increased its share position during quarter $t-1$. Thus, in the above example $IncreaseHoldRetMktFwd_t$ is the average return between June 30 and September 30 of fund holdings reported on June 30 for those holdings in which the fund increased the size of its position (the number of shares held) between March 31 and June 30. Correspondingly, $DecreaseHoldRetMktFwd$ ($NewsDecreaseHoldRetMktFwd$) represents the average return of all holdings (media-covered holdings) in which the fund decreased its share ownership between March 31 and June 30.

The information hypothesis predicts a positive (negative) relationship between $NewsIncreaseHoldRetMktFwd$ ($NewsDecreaseHoldRetMktFwd$) and flows because investors direct their flows to those funds which purchased (sold) stocks in the previous quarter that subsequently appreciated (depreciated) in the following quarter and were covered by the media. At the same time, variables $IncreaseHoldRetMktFwd$ and $DecreaseHoldRetMktFwd$ reflect investors' reaction to fund trades independent of the role of media coverage and are included as controls.

The evidence in Table V indicates no significant relation between portfolio changes in media-covered holdings and fund flows. In particular, the coefficients on the main variables, $NewsDecreaseHoldRetMktFwd$ and $NewsIncreaseHoldRetMktFwd$ are never statistically significant and have the opposite sign of that expected under the information view. In contrast, the economic magnitude of the coefficient on the level of media-covered holdings is comparable to our main specification and remains unaffected by introducing the variables that capture the changes in holdings.

Overall, the evidence on investors' reaction to the direction of trades in media-covered holdings supports the salience rather than the information view. In subsequent analysis in Section 5.3, we also show that a similar conclusion emerges from the analysis of investors' reaction to the timing of managers' trades. In particular, investors reward funds with media-covered winners even if the returns of these holdings significantly overstate those of the fund, indicating that these stocks were likely purchased after rather than before the price run-up.

4.2 Evidence from Information and Saliency Proxies

In this section, we study how the role of media coverage of fund holdings varies with the proxies of saliency and information relevance.

If the reaction to media-covered holdings is driven by information, it is likely to vary with measures of informativeness of fund holdings. We consider two proxies of the information relevance of fund holdings: (1) staleness of reported holdings and (2) turnover of fund holdings. Our measure of holdings' staleness is based on the time period that has elapsed between the date for which the holdings are reported and the date when these holdings are disclosed.⁹ The variable *ReportGap* is a dummy variable that equals one if the gap between the report date and filing date is larger than the sample median (59 days), and zero otherwise. Portfolio holdings reported with a longer delay are likely to be staler and less informative of a fund's portfolio strategy.

Our second measure of the informativeness of portfolio disclosure is holdings' turnover, measured by the variable *Turnover* in percent per year. We conjecture that a snapshot of portfolio holdings is less informative of a fund's strategy if a fund changes its holdings more frequently. *Turnover* in our sample has an inter-quartile range of 38% to 115.5% and a standard deviation of 81%, indicating significant variation in stock holding periods across funds.

Alternatively, if investors' reaction to media-covered holdings is related to a shift in attention toward more salient stocks, then the effect of holdings' returns is likely to be related to other measures of investor attention. We examine this conjecture by using two proxies of information saliency. The first proxy is the number of stocks in a fund's portfolio. Under the saliency view, a large number of stocks in a portfolio is likely to dilute investor attention and reduce the saliency of holdings' returns. The second proxy for saliency is the mentioning of the company's name in the article's headline. We posit that articles that display a company's name in the headline are likely to be more prominent to a casual reader and elicit a stronger association with a particular firm. To test this conjecture, we examine the returns of holdings that received media coverage and were mentioned in the article's headline, and test whether these returns have a larger effect than the base effect of media coverage.

Finally, we consider how investors' response to media-covered holdings varies with the level of sophistication of mutual fund investors. To proxy for investor sophistication, we use the fraction of a fund's

⁹ The data on SEC filing dates are taken from Schwarz and Potter (2012). We thank Chris Schwarz for kindly providing us with the data.

marketing and distribution fees (12b-1 fees) as a proportion of a fund's total expenses.¹⁰ We label this variable *MarketingFees*. Mutual funds that charge 12b-1 fees of at least 25 basis points are typically sold to investors through brokers, financial advisors, and other intermediaries and generally attract a less sophisticated investor clientele (Bergstresser, Chalmers, and Tufano, 2009). For example, according to the Investment Company Institute (ICI) survey of mutual fund shareholders, customers purchasing funds through the broker channel tend to have a lower median income, smaller financial assets, and less education, with 43% of the clients without a four-year college degree (ICI, 2004). Investors in this distribution channel likely make their investment decisions based on factors less tangible than a fund's expenses, manager's performance, or other common evaluation criteria. In particular, Bergstresser, Chalmers, and Tufano (2009) find that investors in broker-channel funds pay fees that are about twice as large as the fees of direct-channel funds, incur higher expense ratios, and, most importantly, purchase funds that underperform direct-channel funds even *before* fees. To the extent that this proxy captures investor sophistication, a stronger response to media-covered holdings among less sophisticated investors would be consistent with the more naïve salience view. On the other hand, a stronger response to media-covered holdings among funds with more sophisticated investors would be more consistent with the information view.

To study how investors' capital allocations vary with the measures of holdings' informativeness, holdings' salience, and investor sophistication, we estimate panel regressions of fund flows. The results are presented in Table VI. Our independent variables include the measures of salience, information, and sophistication and all the control variables in equation (1). The key variables of interest in this regression are the interaction terms of the measures of salience and informativeness with the variables *HoldRetMkt* and *NewsHoldRetMkt*. These terms reflect whether and how the effect of holdings' returns and media coverage varies with proxies of salience and information. All regressions include year, fund style, and fund investment objective fixed effects, and the standard errors are clustered by fund and quarter.

The results in Table VI indicate that investors' response to fund holdings is affected by the measures of salience, but is not affected by the measures of informativeness. In particular, investors do not show significantly weaker reactions to stale holdings, as shown by the coefficients on the interaction terms *NewsHoldRetMkt*ReportGap* or *HoldRetMkt*ReportGap*, which are not significant and have opposite signs. In

¹⁰ The term 12b-1 fee was introduced by SEC rule 12b-1 of the 1940 Investment Company Act. These fees are charged by the fund to pay for its marketing and distribution expenses.

addition, investors do not seem to react significantly differently to the returns of holdings (whether covered in the media or not) when the fund has a higher turnover.

By contrast, the reaction to holdings is affected by measures of salience. Funds that hold more stocks show a decreased sensitivity of flows to average holdings' returns, as shown by the negative and significant coefficient on the interaction term of *HoldRetMkt* and *NumStocks*. The reduction in this sensitivity is weakly smaller for holdings with media coverage, indicating that media-covered stocks retain relatively greater salience as the number of stocks increases (as shown by the positive coefficient on *NewsHoldRetMkt*NumStocks*). Overall, an increase in the number of stocks appears to dilute investors' reaction to media-covered holdings, as indicated by the negative sum of the two interaction coefficients. The effect of the number of stocks is about 68% less for holdings with media coverage.

To provide a perspective on economic magnitudes, consider the following illustration. For a fund at the 25th percentile rank on the number of holdings (48), a 10% increase in the average returns for media-covered holdings is associated with an increase in fund flows of 1.00% per quarter.¹¹ For a fund at the 75th percentile rank on the number of holdings (110), a 10% increase in the average returns for media-covered holdings is associated with an increase in quarterly fund flows of 0.84%.

In addition, media coverage that features the company name in the headline has a significantly larger effect on flows. The coefficient for media-covered holdings mentioned in headlines is 0.047, significant at the 1% level. This effect is in addition to the base effect of media-covered holdings, which in this specification is 0.140. In other words, the incremental effect of media coverage is around 34% larger when the firm is mentioned in the headline.

Finally, column (5) shows that investors of funds with higher marketing fees react more strongly to media-covered holdings. The coefficient on *NewsHoldRetMkt*MarketingFees* is 1.279, significant at the 10% level. The economic magnitude of this effect is substantial. In particular, a one standard deviation increase in *MarketingFees* (0.145) is associated with an increase in the *NewsHoldRetMkt* coefficient of 0.185 ($0.145 * 1.279 = 0.185$). This point estimate is nearly double the value of the base effect of *NewsHoldRetMkt* documented earlier.

¹¹ This estimate is derived as follows: $[0.048 * (0.553 - 0.808) + (0.152 - 0.040)] * 10\% = 1.00\%$.

This evidence suggests that the response of capital flows to media-covered holdings is stronger among less sophisticated investors or, alternatively, in the presence of more aggressive marketing.

Overall, the evidence in Table VI indicates that media coverage appears to capture investors' attention and increase the salience of particular stocks rather than serve as a source of useful information. In particular, investors respond stronger to the media effect when the number of stocks is small and easier to remember, and when news articles mention the company name more prominently. In contrast, variables proxying for the informativeness of holdings do not affect investors' behavior, suggesting either that investors do not respond to the information contained in media reports or that such reports provide little useful information.

4.3 Evidence from Investment Outcomes

In this section, we study how investors' response to media-covered holdings is associated with subsequent fund performance. If the returns of media-covered holdings predict fund performance, investors' attention to these stocks may improve investment outcomes, supporting the information view. Previous research identifies plausible mechanisms that may generate this predictive power. First, stocks with high past returns are likely to have higher future returns due to the momentum effect of Jegadeesh and Titman (1993). Second, the momentum effect is stronger among media-covered stocks (Chan 2003).

We investigate this possibility in Table VII by considering whether the returns of media-covered holdings predict future fund returns. In Panel A, the dependent variable is quarterly market-adjusted fund returns, and the independent variables are the same as in Table II. This analysis examines whether market-adjusted fund returns can be predicted based on the past returns of fund holdings. In Panel B, we form portfolios of funds sorted on levels of *NewsHoldRetMkt*, and regress the returns of these portfolios on the risk factors from the three-factor and four-factor asset pricing models, using MKT, SMB, HML and UMD portfolios from Ken French's website. This analysis examines the relation between past returns of media-covered holdings and future fund performance, while controlling for the exposure to the standard risk factors.

Table VII shows that past returns of media-covered holdings have little predictive power for future fund returns. In Panel A, *NewsHoldRetMkt* has a coefficient of 0.063 and a t-statistic of 1.81 after controlling for *HoldRetMkt* (column (1)). In column (4), the addition of market-adjusted fund returns (and their squared returns) at two lags reduces the *NewsHoldRetMkt* coefficient to 0.043 with a t-statistic of 1.07, suggesting that the

apparent effect of past holdings' returns is picking up the effect of past fund returns. The addition of fund style, investment objective, and year fixed effects in column (5) reduces the *NewsHoldRetMkt* effect further, to 0.025 with a t-statistic of 0.75.

The results for calendar time portfolios, shown in Panel B, indicate an even weaker relation between the returns of media-covered holdings and future fund performance. At the end of every month, funds are sorted into quintiles and deciles based on levels of *NewsHoldRetMkt* (using the most recent reporting within the previous quarter). We consider the top and bottom deciles of *NewsHoldRetMkt* (and the difference between the two) in the first three rows. High values represent media-covered holdings with high past returns. The results in Panel B show that all of the portfolios sorted on *NewsHoldRetMkt* have small and insignificant three-factor or four-factor alphas, with coefficients of opposite signs.

Overall, the results in this section indicate that past returns of media-covered holdings do not predict future fund performance and are unlikely to generate value for investors, to the extent that this value is measured by risk-adjusted returns. These findings are consistent with the salience view and undermine the information hypothesis.

5. Media Coverage and Window Dressing

If investors' capital flows react to the presence of media-covered winners among fund holdings, fund managers may strategically respond to this investor behavior. In this section, we study the incentives of mutual fund managers to purchase media-covered stocks with high trailing returns in an attempt to attract flows. In particular, we seek to distinguish between funds that purchase well-performing stocks *before* they appreciate in value (stock pickers) and those that purchase them *after* the stocks appreciate (window dressers). The goal of this analysis is to examine whether media-based window dressing is an effective strategy for attracting flows or whether it is exposed and even penalized by investors.

If investors extract useful information contained in media-covered fund holdings, they should respond to holdings' returns only when these returns represent the actual returns of the fund. Under the information view, investors should be able to detect media-based window dressing by comparing the returns of holdings to the returns of the fund. In such a case, investors' response to media-covered holdings is likely to be weaker when these holdings were acquired after the stocks appreciated in value. Under the salience view, investors react to the

appeal of media-covered winners rather than the fund's investment strategy. In this instance, we should observe a similar reaction of investors to media-covered fund holdings for funds that purchased the stocks before and after the news arrival.

5.1 Measures of Window Dressing

If a fund engages in window dressing by buying past winners or selling past losers before reporting dates, the past returns of the fund's holdings will exceed those of the fund, creating a 'return gap', i.e. a differential between the returns of the fund's holdings and the returns of the fund. Kacperczyk, Sialm and Zheng (2008), hence KSZ, provide comprehensive evidence on the return gap for U.S. equity funds and attribute it to window dressing, transaction costs, and unobserved trades between reporting dates.

To construct a measure of window dressing, we would like to control for other factors that contribute to the return gap. Our approach is based on the following intuition. Window dressing, a strategy of buying past winners or selling past losers, will be associated with high *past* returns of holdings, but will have only a weak effect on *future* returns. In contrast, the other components of the return gap, such as unobserved trades and transaction costs, are likely to be similar both before and after reporting dates. Using this distinction, we measure window dressing as the difference between (i) the return gap based on holdings' returns before disclosure ('backward-looking' return gap), and (ii) the return gap based on holdings' returns after disclosure ('forward-looking' return gap).

We illustrate our approach with an example in Figure 1. Suppose that a fund discloses holdings on March 31 and June 30. The KSZ return gap compares fund returns from March 31 to June 30 with the holdings' returns from March 31 to June 30, for the set of holdings filed on March 31. Consider a backward-looking return gap that compares fund returns from March 31 to June 30 with the holdings' returns from March 31 to June 30, for the set of holdings reported as of June 30. Window dressing will have a larger effect on this gap, for example, if the holdings reported on June 30 were bought due to their high returns between March 31 and June 30, but may not earn high returns after June 30. Other components of the return gap such as transaction costs and the value of trades between March 31 and June 30 are likely to be similar for both measures. Therefore, our measure of

window dressing is the difference between the backward-looking return gap and the forward-looking return gap.¹² We lag the forward-looking KSZ return gap by one quarter, so that the return component does not cancel out. Figure 1 illustrates this approach. Using the example above, we have:

$$\begin{aligned}
 RetGapKSZ_{Jun30} &= FundReturn_{Mar31-Jun30} - Holdings_{Mar31}Return_{Mar31-Jun30} \\
 RetGapBack_{Sep30} &= FundReturn_{Jun30-Sep30} - Holdings_{Sep30}Return_{Jun30-Sep30} \\
 WindowDressRaw_{Sep30} &= RetGapBack_{Sep30} - RetGapKSZ_{Jun30}
 \end{aligned}$$

We also consider a second measure of window dressing, which controls for other reasons why funds may purchase stocks after high returns, such as a decision to follow a momentum or post-earnings announcement drift strategy. We construct percentile measures of each stock's market capitalization, book-to-market ratio¹³, momentum (cumulative returns between months t-12 to t-1), and a dummy variable for whether the stock had a Compustat earnings announcement in the month of reporting. For each reported fund portfolio, we then take the mean and standard deviation of the percentile value of each variable to capture both an average tilt towards a characteristic and a level of concentration in that characteristic. We then regress the window dressing measure on these variables, as follows:

$$\begin{aligned}
 WindowDressRaw_{i,t} &= a + b_1*Turnover_{i,t} + b_2*MktCapMean_{i,t} + b_3*BMMean_{i,t} + b_4*MomMean_{i,t} + b_5*EarnMean_{i,t} \\
 &+ b_6*MktCapStd_{i,t} + b_7*BMSD_{i,t} + b_8*MomStd_{i,t} + b_9*EarnStd_{i,t} + \varepsilon_{i,t} \quad (2)
 \end{aligned}$$

The residual of this regression, $\varepsilon = WindowDressResid$, is taken as a second measure of window dressing that is orthogonal to fund turnover and the portfolio characteristics discussed above.

5.2 Window Dressing and the Returns of Media-Covered Holdings

The analysis of funds' window dressing behavior can also provide indirect evidence on the information and salience views of media-covered holdings from the perspective of fund managers. If fund managers are aware of investors' reaction to media-covered holdings and believe that this behavior is a naïve response of investors to the salience of these stocks, window dressing funds will likely purchase past winners covered in the media, since

¹² All the results on window dressing are similar (and slightly stronger) if the backward-looking return gap is used instead of the backward-looking minus forward-looking window dressing measure.

¹³ As in Fama and French (1992), we calculate this ratio by dividing the market value of equity in the previous December by the book value of equity in the previous fiscal year after allowing a min. 6-month gap from reporting dates to the stock return.

these stocks will generate a greater investor response. In contrast, under the information view, the stronger reaction to media-covered holdings is driven by sophisticated investors who have a greater understanding of the stocks and their role in the fund's strategy. In this case, mutual funds have less incentive to window dress their holdings with media-covered stocks, since investors are likely to distinguish between stocks purchased before and after their appreciation in value.

In Table VIII, we consider whether window dressing funds are more likely to tilt their portfolios towards media-covered winners, as compared to stocks with similarly high returns but without media coverage. The dependent variables are the returns of holdings with media coverage, the returns of holdings without media coverage, and the difference between the two (*NewsDiffHoldRet*). The main independent variables of interest are the measures of window dressing, *WindowDressRaw* and *WindowDressResid*. When *WindowDressRaw* is included, we also include additional controls as in Model (2). Standard errors are clustered by fund and quarter. The regression is:

$$\begin{aligned}
 \text{NewsDiffHoldRet}_{i,t} = & a + b_1 * \text{WindowDress}_{i,t-1} + b_2 * \text{FundRetMkt}_{i,t-1} + b_3 * \text{FundRetMktSq}_{i,t-1} + b_4 * \text{FracNews}_{i,t-1} + \\
 & b_5 * \text{FundVolatility}_{i,t-1} + b_6 * \text{Age}_{i,t-1} + b_7 * \text{ExpenseRatio}_{i,t-1} + b_8 * \text{LogAssets}_{i,t-1} + b_9 * \text{FundRetMkt}_{i,t-2} + \\
 & b_{10} * \text{FundRetMktSq}_{i,t-2} + b_{11} * \text{Yeardum}_{1998-2008} + b_{12} * \text{IOCdum}_{i,t} + b_{13} * \text{Styledum}_{i,t} + e_{i,t} \quad (3)
 \end{aligned}$$

Table VIII shows that window dressing funds report holdings with higher returns among stocks with media coverage. In particular, the *WindowDressRaw* variable is associated with higher returns for media-covered holdings, with a coefficient 0.387 and a t-statistic of 4.06. By contrast, the coefficient for holdings without media coverage is lower, at 0.292 (t-statistic of 3.72). The magnitude of this effect is nontrivial. A one standard deviation increase in window dressing (8.09%) is associated with an increase of 3.13% in the past returns of media-covered holdings, versus a 2.36% increase for holdings without media coverage. The results are similar for the second window dressing measure, *WindowDressResid*.

Overall, window dressing funds tilt their portfolios more toward past winners featured in major newspapers than toward stocks with similarly high returns but without newspaper coverage.

5.3 The Reaction of Flows to Window Dressing

In this section, we study whether investors react differently to fund holdings that were acquired by the fund before rather than after appreciating in value. In particular, if holdings were acquired as part of a fund's window dressing strategy (as proxied by our measures), investors may punish the fund by reducing their capital flows or by lowering their sensitivity to holdings' returns. This prediction presents an additional test of investor sophistication in the analysis of fund holdings.

We investigate this relation in Table IX, where we examine whether the relation between future capital inflows and past returns of media-covered holdings varies with a fund's propensity to window dress. If the relation is weaker for window dressing funds, this outcome would be consistent with the ability of investors to detect window dressing, reflecting an information-based approach in the analysis of holdings. By contrast, if the relation between the returns of media-covered holdings and fund flows does not depend on whether holdings' returns reflect the realized returns of the fund, this evidence would support the more naïve reaction to fund holdings, consistent with the salience view. More broadly, the distinction between these interpretations will also indicate whether window dressing is effective in generating additional flows. To test these predictions, we estimate panel regressions, where the dependent variable is the quarterly fund flow, and the independent variables are *WindowDressRaw* and *WindowDressResid*, as well their interactions with *HoldRetMkt* and *NewsHoldRetMkt*.

The results in Table IX show that investors do not appear to reduce their capital allocations when funds engage in window dressing. If anything, investors react more strongly to the holdings of window dressing funds. The coefficients on *WindowDressRaw* and *WindowDressResid* are insignificant, and directionally positive, indicating that investors do not appear to penalize window dressing funds with lower flows. In addition, window dressing, to the extent that it is captured by our measures, does not decrease the attention investors pay to holdings' returns, as shown by the interactions of *WindowDressRaw* and *WindowDressResid* with *HoldRetMkt* and *NewsHoldRetMkt*. The coefficients are statistically insignificant and uniformly positive, suggesting that if anything, investors respond more to the returns of holdings when those holdings overstate the realized fund returns.

Overall, the evidence in Table IX suggests that window dressing appears to be effective in generating flows. In particular, investors respond positively to media-covered holdings with strong past returns, even if these holdings do not reflect the actual performance of the fund.

5.4 Characteristics of Window Dressing Funds

If window dressing is successful in generating fund flows, why do some funds rely on this strategy more than others? While it is beyond the scope of our paper to explain the prevalence of window dressing strategies, we seek to provide the reader with the analysis of fund characteristics associated with window dressing. Our objective is to offer suggestive evidence on the incentives for and the costs of window dressing, which contribute to the variation in this strategy across funds.

We begin this analysis by studying the variation in incentives for window dressing. We conjecture that funds with high trailing returns are likely to have lower incentives for window dressing, as these funds already hold securities with strong past performance. We expect that window dressing will be more prevalent among portfolio managers with shorter tenures (less than three years in our empirical tests), since these managers often lack a sufficient performance record to attract flows. Funds may have more incentive to window dress their holdings in December, when annual reports are released and funds face increased scrutiny. Funds with higher expenses may rely on window dressing as one of the mechanisms to attract investors despite the high fees. In fact, the fees of these funds may reflect the greater transaction costs associated with window dressing. Finally, funds with a higher holdings' volatility may rely on window dressing to compensate for a lack of stability in performance or to eliminate extreme losers, which are more likely among volatile stocks.

We also examine fund characteristics associated with the differential costs of window dressing. Larger funds (as measured by the natural logarithm of TNA) are likely to incur higher costs of window dressing because of the greater price impact of their trades. Funds with a higher turnover are likely to engage in more window dressing. In particular, such funds rebalance their portfolios more often and face a lower marginal cost of selling losers and buying winners. Lastly, we conjecture that funds investing in less liquid stocks have greater costs of window dressing. To measure liquidity, we use several measures, including the average percentile value (over the CRSP universe) of the market capitalization of holdings, the relative bid-ask spread, the average book-to-market ratio, and the Amihud (2002) measure of illiquidity.¹⁴

¹⁴ The Amihud (2002) illiquidity measure is defined as follows:
where R is the daily stock return, D is the number of days in the year that the stock traded, and $VOLD$ is the daily dollar volume.

$$Illiq = \frac{1}{D} \sum_{t=1}^D \frac{|R_t|}{VOLD_t}$$

To test the relation between fund characteristics and the propensity to window dressing, we use regression analysis, where the dependent variable is a measure of window dressing, and the independent variables are fund characteristics. Standard errors are clustered by fund and quarter. The regression is:

$$\begin{aligned} WindowDressRaw_{i,t} = & a + b_1 * FundRetMkt_{i,t-1} + b_2 * LogAssets_{i,t} + b_3 * Turnover_{i,t} + b_4 * DecemberHoldings_{i,t} + \\ & b_5 * ExpenseRatio_{i,t} + b_6 * NewManager_{i,t} + b_7 * MktCapMean_{i,t} + b_8 * IlliqMean_{i,t} + b_9 * VolatilMean_{i,t} + \\ & b_{10} * RelSpreadMean_{i,t} + b_{11} * BMMean_{i,t} + b_{12} * Yeardum_{1998-2008} + b_{13} * IOCdum_{i,t} + b_{13} * Styledum_{i,t} + e_{i,t} \end{aligned} \quad (4)$$

The results of estimation are reported in Table X. At a univariate level, window dressing is more likely among funds with low past returns, high turnover, high expense ratios, new managers, smaller assets under management, and high volatility. On a multivariate level, the effects are dominated by the market-adjusted returns of the fund (coefficient of -0.103, t-statistic of -1.96), turnover (coefficient of 0.010, t-statistic of 4.57), holdings' volatility (coefficient of 2.342, t-statistic of 2.72), and, to a lesser extent, December holdings (coefficient of 0.013, t-statistic of 1.72) and holdings bid-ask spread (coefficient of 2.108, t-statistic of 1.80).

Overall, the results in this section suggest that window dressing varies across funds and is likely to be more prevalent among funds with weaker historical performance, greater volatility, and higher turnover. Moreover, the propensity to window dressing increases at the end of the calendar year. Interpreted broadly, this evidence suggests that window dressing is more prevalent among funds that appear less attractive based on the standard investment characteristics. In contrast, window dressing can be unproductive for well performing funds, since their flows are most sensitive to returns (the steepest part of the convex relation between performance and flows), and the performance drag from portfolio rebalancing may outweigh any benefits from holdings' appeal.

Conclusion

In this paper, we show how media coverage affects investors' capital allocations to mutual funds. Investors reward funds that hold stocks with high past returns, but only if these stocks recently received media coverage. We argue that media coverage of firms increases the salience of their stock returns and attracts investor attention. When faced with a long list of fund holdings, investors appear to respond only to those companies which were recently featured in the news. As a result, funds holding high-visibility winners attract greater capital flows than

their counterparts holding less visible stocks. Similarly, funds that hold high-profile losers experience a greater attrition of flows, compared to funds that hold stocks with similarly poor performance but no media coverage.

In contrast to the view that media coverage provides investors with valuable information, we find little evidence that newspaper articles are associated with better investor decision-making. Although investors react to media-covered holdings, they do not distinguish funds that traded in the right direction in media-covered stocks from those that traded in the opposite direction. They also react equally strongly to holdings' past returns even when these returns do not accurately reflect the realized return of the fund. Ultimately, this strategy of capital allocations does not predict future returns and likely generates significant transaction costs. In addition, this investor behavior likely creates incentives for funds to window dress their portfolios by holding media-covered winners. We find evidence of window dressing among funds with weak performance records, but find no evidence that this strategy is penalized by investors. Overall, our results suggest that at least some investors are allocating capital to mutual funds in a fairly naïve fashion.

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Appendix – Variable Definitions

Variable Name	Description and Definition
<i>Flow</i>	<p>Quarterly fund flows: $\frac{TNA_t - TNA_{t-1} * R_t}{TNA_{t-1}}$</p> <p>where R is the fund return and TNA is the fund's total net assets</p>
<i>NewsHoldRetMkt</i>	<p>Market-adjusted average returns of fund holdings, which received media coverage in <i>The Wall Street Journal</i>, <i>USA Today</i>, <i>The New York Times</i>, or <i>The Washington Post</i>:</p> $\frac{\sum_{j=1}^K (R_{j,t} - R_{Mkt,t})}{K}$ <p>taken over all fund holdings of the fund reported at the end of quarter t which received media coverage during quarter t</p>
<i>HoldRetMkt</i>	<p>Market-adjusted average returns of fund holdings: $\frac{\sum_{j=1}^N (R_{j,t} - R_{Mkt,t})}{N}$</p> <p>taken over all fund holdings of the fund reported at the end of quarter t</p>
<i>FundRetMkt</i>	The fund's quarterly return (after expenses) minus the CRSP value-weighted index
<i>FundRetMktSq</i>	Market-adjusted fund return (after expenses) squared: $FundRetMkt^2$
<i>Age</i>	Fund age in years, relative to the earliest CRSP Header Date
<i>ExpenseRatio</i>	Fund expense ratio, from CRSP
<i>LogAssets</i>	Log of the CRSP total net assets of the fund (summed over all share classes)
<i>FracNews</i>	The fraction of the fund's holdings that received media coverage in the previous quarter
<i>FundVolatility</i>	The standard deviation of daily fund returns over the quarter
<i>IOCdum</i>	Dummy variables for a fund's investment objective based on the Thomson Investment Objective Category classification
<i>Styledum</i>	9 dummy variables for the average market capitalization and book-to-market ratio of fund holdings. First, the percentile rank for each stock based on its market capitalization and its book-to-market ratio is calculated, and this rank is averaged across all fund holdings in a quarter to get a fund average. Second, dummy variables are formed based on a 3*3 split of the fund-level averages (at that point in time) into high, middle, and low terciles.
<i>NewsBelowMedHoldRetMkt</i>	Market-adjusted average returns of fund holdings with less media coverage than the median firm (taken across firms with at least one article)
<i>NewsAboveMedHoldRetMkt</i>	As above, but above the median
<i>News25PctHoldRetMkt to News100PctHoldRetMkt</i>	As above, but for quartiles of media coverage, with 25Pct indicating firms from 0 to the 25th percentile of coverage, and 100pct indicating firms between the 75th and 100th percentiles
<i>NewsHoldRetMktNeg</i>	Variable equal to <i>NewsHoldRetMkt</i> if <i>NewsHoldRetMkt</i> < 0, and zero otherwise
<i>HoldRetMktNeg</i>	Variable equal to <i>HoldRetMkt</i> if <i>HoldRetMkt</i> < 0, and zero otherwise

<i>FundRetMktNeg</i>	Variable equal to <i>FundRetMkt</i> if <i>FundRetMkt</i> < 0, and zero otherwise
<i>MktCapHoldRetMkt</i>	Market-adjusted average returns of fund holdings with market capitalizations above the NYSE median
<i>NumAnHoldRetMkt</i>	Market-adjusted average returns of fund holdings with analyst coverage above the CRSP median
<i>BMHoldRetMkt</i>	Market-adjusted average returns of fund holdings with book-to-market ratio above the CRSP median
<i>MomHoldRetMkt</i>	Market-adjusted average returns of fund holdings with cumulative returns from 2 to 12 months ago that are above the CRSP median
<i>NewsMth1HoldRetMkt</i>	Market-adjusted average returns of fund holdings which received media coverage in the month of filing
<i>NewsMth2HoldRetMkt</i>	Market-adjusted average returns of fund holdings which received media coverage one month before the month of filing
<i>NewsMth3HoldRetMkt</i>	Market-adjusted average returns of fund holdings which received media coverage two months before the month of filing
<i>AvgTonePctile</i>	The average media tone of fund holdings. Article tone is the number of positive words minus the number of negative words (according to the classification by Loughran and McDonald, 2011), divided by the total number of words in the article. This measure is first averaged for all articles during the quarter about a fund holding, and then averaged across all holdings of the fund. Funds are sorted into percentiles according to their rank in this distribution of holdings' tone.
<i>HoldRetMktFwd</i>	Market-adjusted average returns of holdings in the quarter after filing
<i>NewsHoldRetMktFwd</i>	Market-adjusted average returns (in the quarter after filing) for holdings which received media coverage in the quarter after filing
<i>DecreaseHoldRetMktFwd</i>	Market-adjusted average returns (in the quarter after filing) for holdings where the fund reduced the number of shares held between the previous filing and the current filing
<i>IncreaseHoldRetMktFwd</i>	Market-adjusted average returns (in the quarter after filing) for holdings where the fund increased the number of shares held between the previous filing and the current filing
<i>NewsDecreaseHoldRetMktFwd</i>	Same as <i>DecreaseHoldRetMkt</i> , but only for holdings which received media coverage in the quarter after filing
<i>NewsIncreaseHoldRetMktFwd</i>	Same as <i>IncreaseHoldRetMkt</i> , but only for holdings which received media coverage in the quarter after filing
<i>ReportGap</i>	A dummy variable that equals one if the gap between the filing date of holdings and the date of the holdings snapshot is larger than the sample median (59 days), and zero otherwise
<i>Turnover</i>	Annual fund turnover, from CRSP
<i>NumStocks</i>	Number of stocks in the fund's portfolio divided by 1000
<i>NewsHeadHoldRetMkt</i>	Market-adjusted average returns of fund holdings which received media coverage, where the firm's name was mentioned in the article headline
<i>MarketingFees</i>	Average 12b-1 fees (across all share classes), divided by average fund expense ratio
<i>RetGap</i>	Return gap (backward looking) - difference between fund returns and returns of fund holdings disclosed at end of period: $FundRet - VWHoldRet$

<i>RetGapFwd</i>	Return gap (forward looking) - difference between fund returns and returns of fund holdings disclosed at start of period: $FundRet - VWHoldRetFwd$
<i>WindowDressRaw</i>	Difference between backward-looking return gap and forward-looking return gap from one quarter prior: $RetGap_t - RetGapFwd_{t-1}$
<i>MktCapMean</i>	Average percentile value (based on CRSP stock universe) of market capitalization for a fund's holdings as of quarter end
<i>BMMean</i>	Average percentile value (based on CRSP stock universe) of the book-to-market ratio for a fund's portfolio holdings at the end of a given quarter
<i>MomMean</i>	Average percentile value (based on CRSP stock universe) of the cumulative return of a fund's portfolio holdings from 12 months before quarter end to 1 month before quarter end
<i>EarnMean</i>	Fraction of a fund's portfolio holdings that had an earnings announcement in the last month of the period for which the holdings are filed
<i>MktCapStd</i>	Standard deviation of market capitalization percentiles of stocks reported as fund holdings as of quarter end
<i>BMStd</i>	Standard deviation of the book-to-market percentiles of a fund's holdings as of quarter end
<i>MomStd</i>	Standard deviation of the cumulative return percentiles for a fund's holdings from month t-12 to month t-1
<i>EarnStd</i>	Standard deviation (taken across all holdings) of the dummy variable that takes the value of one if the stock had an earnings announcement in the last month of the filing period
<i>WindowDressResid</i>	Residual from regression of <i>WindowDressRaw</i> on turnover and holdings' characteristics (please see equation (2) in Section 4.1)
<i>NewsDiffHoldRet</i>	Difference between the returns of media-covered holdings and non media-covered holdings
<i>DecemberHoldings</i>	Dummy variable that equals one for holdings reported for the quarter ending Dec. 31
<i>NewManager</i>	Dummy variable that equals one if the fund manager has been at the fund for less than three years
<i>IlliqMean</i>	Average percentile value (based on CRSP stock universe) of the Amihud (2002) illiquidity measure for a fund's portfolio holdings as of quarter end
<i>VolatilMean</i>	Average percentile value (based on CRSP stock universe) of the 60-day standard deviation of daily returns for a fund's portfolio holdings as of quarter end
<i>RelSpreadMean</i>	Average percentile value (based on CRSP stock universe) of the relative bid-ask spread for a fund's portfolio holdings as of quarter end

Table I – Summary Statistics

This table shows summary statistics for the main variables. The sample period is from January 1998 to December 2008. Panel A presents attributes of the U.S. equity mutual funds. Fund returns (shown after expenses) and capital flows are recorded at a quarterly frequency. Turnover and expense ratio are computed on an annual basis. Panel B presents attributes of the stocks held by the mutual funds in the sample. Returns of fund holdings and media coverage of holdings are recorded at a quarterly frequency. Panel C presents attributes of stock media coverage. Media coverage refers to articles about the company in *The Wall Street Journal*, *USA Today*, *The New York Times*, or *The Washington Post* over the quarter ending on the date for which the holdings are reported with the SEC.

Panel A - Fund Attributes						
	Mean	Standard Deviation	25th Pctile	Median	75th Pctile	N
Flows (%)	4.42	23.52	-4.52	-0.88	5.01	48,067
Returns (%)	0.75	10.51	-4.45	1.60	6.85	48,076
Market-Adjusted Returns (%)	0.30	5.80	-2.54	-0.10	2.80	48,076
CRSP Fund Total Net Assets (\$m)	1847	6391	100	347	1199	48,077
Turnover (%)	89.02	81.10	38	70	115.5	47,624
Expense Ratio (%)	1.41	0.47	1.11	1.40	1.66	47,713
Age (Years)	14.92	13.94	6.58	10.83	17.42	41,315
Number of Funds						1,720
Number of Fund*Quarters						48,077

Panel B - Holdings Attributes						
	Mean	Standard Deviation	25th Pctile	Median	75th Pctile	N
Number of Stocks Held	108.79	171.53	48	72	110	49,516
Returns of Holdings (%)	2.13	7.77	-1.45	1.18	4.70	49,516
Returns of Holdings with Media Coverage (%)	2.11	8.47	-1.67	1.16	4.84	49,505
Percent of Holdings Covered in Media	53.50	19.77	37.76	56.91	70.00	48,073
Window Dressing - Raw	3.54	8.09	0.61	2.26	5.06	46,568
Window Dressing - Residual	0.00	7.54	-2.46	-0.53	1.60	46,109

Panel C - Media Attributes

	Mean	Standard Deviation	25th Pctile	Median	75th Pctile	N
<i>Percent of Stock/Quarters with Any Article</i>						
All Stocks	30.79					339,352
Stocks Held by at Least One Fund	49.38					83,490
Stocks Held by at Least Ten Funds	56.38					68,807
<i>Articles per Quarter</i>						
All Stocks	4.10	37.53	0	0	1	339,352
Stocks Held by at Least One Fund	10.04	67.71	0	0	4	83,490
Stocks Held by at Least Ten Funds	11.95	74.33	0	1	5	68,807
<i>Articles per Quarter, Given at Least One Article</i>						
All Stocks	13.33	66.73	1	3	7	104,485
Stocks Held by at Least One Fund	20.33	95.26	2	4	11	41,225
Stocks Held by at Least Ten Funds	21.10	97.78	2	4	12	38,976

Table II – Effect of Media-Covered Holdings on Mutual Fund Flows

This table presents OLS regressions of quarterly fund flows on the trailing returns of fund holdings. The sample period is from January 1998 to December 2008. The dependent variable is quarterly fund flows. *HoldRetMkt* is the average return of fund holdings over the quarter for which the holdings are reported, minus the CRSP value-weighted market return over the same period. *NewsHoldRetMkt* is the average market-adjusted holdings’ return (computed analogously to *HoldRetMkt*) for holdings that received media coverage during the quarter in *The Wall Street Journal*, *USA Today*, *The New York Times*, or *The Washington Post*. *FracNews* is the fraction of the fund’s holdings that received media coverage in the aforementioned newspapers over the quarter. *FundRetMkt* is the market-adjusted returns of the fund, *FundRetMktSq* is the square of the market-adjusted returns of the fund, *FundVolatility* is the standard deviation of daily fund returns over the quarter, *Age* is fund age since inception, *LogAssets* is the log of the fund’s total net assets, and ‘Year, Style, and Objective FE’ are year, fund style, and fund investment objective fixed effects. In Panel B, the returns of media-covered holdings are split according to the level of media coverage. The cutoffs are based on the stocks with at least one media article during the quarter. Cutoff points divide the sample at the median in columns (1) and (2), and into quartiles in columns (3) and (4). In quartile definitions, ‘100Pct’ indicates the quartile with the highest media coverage. *HoldRetMktNeg* equals *HoldRetMkt* when this variable is negative and zero otherwise, while *NewsHoldRetMktNeg* equals *NewsHoldRetMkt* when this variable is negative and zero otherwise. Fund Controls include the same control variables as in Panel A. *t*-statistics (in parentheses) are based on standard errors clustered by fund and quarter. Significance levels at the 10%, 5%, and 1% are indicated by *, **, and ***, respectively.

Panel A - Effect of Any Media Coverage					
Dependent Variable is Quarterly Fund Flows					
	(1)	(2)	(3)	(4)	(5)
<i>NewsHoldRetMkt(t-1)</i>	0.194 *** (2.79)	0.214 *** (2.98)	0.211 *** (2.93)	0.210 *** (2.91)	0.190 *** (3.43)
<i>HoldRetMkt(t-1)</i>	0.197 *** (2.79)	-0.042 (2.98)	-0.067 (2.93)	-0.076 (2.91)	-0.103 (3.43)
<i>FracNews(t-1)</i>	-0.004 (-0.23)	0.002 (0.11)	0.018 (0.93)	0.031 (1.53)	-0.024 (-1.00)
<i>FundRetMkt(t-1)</i>		0.408 *** (4.63)	0.430 *** (4.96)	0.401 *** (4.32)	0.426 *** (5.61)
<i>FundRetMktSq(t-1)</i>			0.632 * (1.79)	0.204 (0.64)	-0.155 (-0.39)
<i>FundRetMkt(t-2)</i>				0.380 *** (4.52)	0.379 *** (4.75)
<i>FundRetMktSq(t-2)</i>				0.837 * (1.65)	0.301 (0.75)
<i>Fund Volatility(t-1)</i>			0.790 (0.86)	0.546 (0.64)	0.543 (0.69)
<i>Age</i>			-0.751 *** (-3.64)	-0.645 *** (-3.22)	-0.449 ** (-2.26)
<i>LogAssets</i>			0.010 *** (5.52)	0.010 *** (5.28)	0.011 *** (5.74)
Year, Style, Objective FE	No	No	No	No	Yes
R ²	0.018	0.023	0.030	0.040	0.050
N	48056	48021	41096	39969	39969

Panel B - Effect of Quantity of Media Coverage and Return Direction

	Dependent Variable is Quarterly Fund Flows				
	(1)	(2)	(3)	(4)	(5)
<i>NewsBelowMedHoldRetMkt(t-1)</i>	0.046 (1.42)	0.040 (1.56)			
<i>NewsAboveMedHoldRetMkt(t-1)</i>	0.106 *** (2.90)	0.103 *** (3.29)			
<i>News25PctHoldRetMkt(t-1)</i>			0.010 (0.68)	0.009 (0.72)	
<i>News50PctHoldRetMkt(t-1)</i>			0.029 * (1.74)	0.025 ** (2.12)	
<i>News75PctHoldRetMkt(t-1)</i>			0.038 ** (2.53)	0.038 ** (2.27)	
<i>News100PctHoldRetMkt(t-1)</i>			0.064 ** (2.53)	0.060 *** (2.77)	
<i>HoldRetMkt(t-1)</i>	-0.011 (-0.17)	-0.050 (-0.75)	0.002 (0.03)	-0.037 (-0.45)	-0.056 (-0.57)
<i>HoldRetMktNeg(t-1)</i>					-0.209 (-1.35)
<i>NewsHoldRetMkt(t-1)</i>					0.188 ** (2.31)
<i>NewsHoldRetMktNeg(t-1)</i>					-0.014 (-0.11)
Fund Characteristics, Returns	Yes	Yes	Yes	Yes	Yes
Year, Style, Objective FE	No	Yes	No	Yes	Yes
R ²	0.040	0.051	0.040	0.051	0.051
N	39978	39978	39978	39978	39969

Table III – The Effect of Variables Correlated with Media Coverage

This table examines whether stock characteristics other than media coverage affect the relation between holdings' returns and fund flows, using OLS regressions of quarterly fund flows on the trailing returns of fund holdings. The sample period is from January 1998 to December 2008. The dependent variable is quarterly fund flows. The main independent variable is *NewsHoldRetMkt*, defined as the average market-adjusted return of media-covered fund holdings in the quarter for which the holdings are reported. Market-adjusted returns are computed by subtracting the returns on the CRSP value-weighted index. Other variables include the returns of holdings that were above the NYSE median of market capitalization (*MktCapHoldRetMkt*), above the median of analyst coverage (*NumAnHoldRetMkt*), above the median of book-to-market ratio (*BMHoldRetMkt*), and above the median of momentum (*MomHoldRetMkt*). Fund controls include two lags of market-adjusted fund returns, two lags of squared market-adjusted fund returns, volatility of daily fund returns, fund age, expense ratio, fraction of holdings with media coverage, and log assets. All regressions include fund investment objective, style, and year fixed effects. Variable definitions are provided in the Appendix. *t*-statistics (in parentheses) are based on standard errors clustered by fund and quarter. Significance levels at the 10%, 5%, and 1% are indicated by *, ** and ***, respectively.

	Dependent Variable is Quarterly Fund Flows				
	(1)	(2)	(3)	(4)	(5)
<i>NewsHoldRetMkt(t-1)</i>	0.194 *** (3.41)	0.194 *** (3.13)	0.183 *** (4.04)	0.192 *** (3.41)	0.187 *** (3.62)
<i>HoldRetMkt(t-1)</i>	-0.123 * (-1.67)	-0.087 (-0.55)	-0.075 (-0.70)	-0.106 (-1.48)	-0.094 (-0.61)
<i>MktCapHoldRetMkt(t-1)</i>	0.015 (0.37)				0.018 (0.45)
<i>NumAnHoldRetMkt(t-1)</i>		-0.023 (-0.19)			-0.007 (-0.06)
<i>BMHoldRetMkt(t-1)</i>			-0.013 (-0.49)		-0.012 (-0.48)
<i>MomHoldRetMkt(t-1)</i>				0.003 (0.06)	0.000 (0.00)
Fund Controls	Yes	Yes	Yes	Yes	Yes
Year, Style, Objective FE	Yes	Yes	Yes	Yes	Yes
R ²	0.050	0.050	0.050	0.050	0.050
N	39901	39954	38920	39958	38835

Table IV – The Timing of Media Coverage and Flows

This table examines the effect of media coverage of fund holdings on fund flows. Panel A examines how the timing and tone of media coverage affect the relation between holdings’ returns and fund flows, using OLS regressions of quarterly fund flows on the trailing returns of fund holdings. The sample period is from January 1998 to December 2008. The dependent variable is quarterly fund flows. The independent variables of interest include *NewsMth1HoldRetMkt*, *NewsMth2HoldRetMkt*, and *NewsMth3HoldRetMkt*, which indicate the returns of fund holdings that were covered in the media in the month of filing, one month before the filing month, and two months before the filing month, respectively. *AvgTonePctile* measures the fund’s percentile rank in the quarter according to the tone of media coverage of its holdings, where media tone is the difference between the number of positive and negative words in an article, divided by the total number of words. In Panel B, the dependent variable is monthly fund flows, taken across different months relative to the filing month (month *t*). The main independent variable is *NewsHoldRetMkt*, defined as the average market-adjusted return of media-covered fund holdings in the quarter for which the holdings are reported. Market-adjusted returns are computed by subtracting the returns on the CRSP value-weighted index. Fund controls include two lags of market-adjusted fund returns, two lags of squared market-adjusted fund returns, volatility of daily fund returns, fund age, expense ratio, fraction of holdings with media coverage, and log assets. All regressions include fund investment objective, style, and year fixed effects. Variable definitions are provided in the Appendix. *t*-statistics (in parentheses) are based on standard errors clustered by fund and quarter. Significance levels at the 10%, 5%, and 1% are indicated by *, ** and ***, respectively.

Panel A - Timing and Content of Media Coverage						
	Dependent Variable is Quarterly Fund Flows					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>NewsMth1HoldRetMkt(t-1)</i>	0.135 *** (3.29)			0.152 *** (3.05)		
<i>NewsMth2HoldRetMkt(t-1)</i>		0.048 ** (2.02)		-0.025 (-0.78)		
<i>NewsMth3HoldRetMkt(t-1)</i>			0.056 * (1.83)	0.016 (0.38)		
<i>AvgTonePctile(t-1)</i>					0.017 ** (2.02)	0.015 (1.55)
<i>NewsHoldRetMkt(t-1)</i>						0.184 *** (3.22)
<i>HoldRetMkt(t-1)</i>	-0.050 (-0.65)	0.051 (0.52)	0.041 (0.36)	-0.057 (-0.63)		-0.104 (-1.31)
Fund Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year, Style, Objective FE	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.051	0.050	0.050	0.051	0.050	0.051
N	39945	39939	39939	39900	39971	39969

Panel B - Monthly Flows Around Quarter End

Dependent Variable is Quarterly Fund Flows (t =Last Month of Quarter)						
	t+3	t+2	t+1	t	t-1	t-2
<i>NewsHoldRetMkt(t-1)</i>	0.039 ** (2.29)	0.075 *** (4.72)	0.030 * (1.89)	0.021 (1.13)	-0.004 (-0.34)	0.030 (1.25)
<i>HoldRetMkt(t-1)</i>	-0.017 (-0.91)	-0.055 (-1.50)	-0.010 (-0.52)	0.005 (0.29)	0.044 ** (2.00)	-0.007 (-0.26)
<i>FracNews(t-1)</i>	-0.005 (-0.77)	0.002 (0.23)	-0.009 (-1.45)	0.001 (0.19)	0.000 (0.06)	0.002 (0.25)
<i>FundRetMkt(t-1)</i>	0.107 *** (6.17)	0.129 *** (5.42)	0.123 *** (5.65)	0.153 *** (6.24)	0.127 *** (4.32)	0.057 ** (2.45)
<i>FundRetMktSq(t-1)</i>	0.043 (0.43)	-0.209 (-1.39)	-0.123 (-1.10)	0.161 (1.25)	0.217 (1.03)	0.024 (0.14)
<i>FundRetMkt(t-2)</i>	0.097 *** (4.52)	0.122 *** (4.64)	0.108 *** (4.99)	0.123 *** (6.43)	0.149 *** (6.32)	0.151 *** (6.47)
<i>FundRetMktSq(t-2)</i>	-0.088 (-0.80)	0.208 * (1.87)	0.031 (0.23)	0.006 (0.07)	-0.157 (-1.02)	0.052 (0.47)
<i>Fund Volatility(t-1)</i>	0.032 (0.16)	-0.002 (-0.01)	0.195 (0.70)	0.101 (0.38)	0.423 (1.10)	0.061 (0.19)
<i>Age</i>	-0.053 (-0.99)	-0.079 (-1.57)	-0.091 * (-1.66)	-0.122 ** (-2.34)	-0.151 *** (-2.85)	-0.159 *** (-2.87)
<i>LogAssets</i>	0.002 *** (5.13)	0.002 *** (4.59)	0.003 *** (5.47)	0.004 *** (7.62)	0.004 *** (7.41)	0.004 *** (8.00)
Year, Style, Objective FE	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.038	0.051	0.046	0.057	0.061	0.047
N	39972	39972	39971	39971	39970	39970

Table V – Media Coverage and Investors’ Reaction to Fund Trades

This table presents OLS regressions of quarterly fund flows on the returns of fund holdings, broken down by the changes in the fund’s investment in these holdings. The sample period is from January 1998 to December 2008. The dependent variable is quarterly fund flows. *HoldRetMktFwd* is the average return of fund holdings over the quarter beginning on the date for which the holdings are reported, minus the CRSP value-weighted market return over the same period (returns are thus over the same period as the fund flows). *NewsHoldRetMktFwd* is the average market-adjusted holdings’ return over the next quarter after the reporting period for holdings that received media coverage during the same quarter as the returns. *DecreaseHoldRetMktFwd* and *NewsDecreaseHoldRetMktFwd* are analogous to *HoldRetMktFwd* and *NewsHoldRetMktFwd* (respectively), but taken over holdings in which the fund decreased the number of shares held in the firm between the previous reporting date and the current reporting date. *IncreaseHoldRetMktFwd* and *NewsIncreaseHoldRetMktFwd* are constructed analogously to *HoldRetMktFwd* and *NewsHoldRetMktFwd*, respectively, but taken over holdings in which the fund increased the number of shares held in the firm between the previous reporting date and the current reporting date. Controls include two lags of market-adjusted fund returns, two lags of squared market-adjusted fund returns, volatility of daily fund returns, fund age, expense ratio, fraction of holdings with media coverage, and log assets. All regressions include fund investment objective, style, and year fixed effects. Other variables are defined in the Appendix. *t*-statistics (in parentheses) are based on standard errors clustered by fund and quarter. Significance levels at the 10%, 5%, and 1% are indicated by *, **, and ***, respectively.

	Dependent Variable is Quarterly Fund Flows		
	(1)	(2)	(3)
<i>HoldRetMkt(t-1)</i>			-0.140 ** (-2.13)
<i>NewsHoldRetMkt(t-1)</i>			0.223 *** (3.10)
<i>HoldRetMktFwd(t)</i>	0.005 (0.08)	-0.065 (-0.97)	-0.058 (-0.85)
<i>NewsHoldRetMktFwd(t)</i>	0.162 * (1.85)	0.187 ** (2.05)	0.184 ** (2.01)
<i>DecreaseHoldRetMktFwd(t)</i>		0.006 (0.18)	0.005 (0.14)
<i>NewsDecreaseHoldRetMktFwd(t)</i>		0.013 (0.45)	0.014 (0.49)
<i>IncreaseHoldRetMktFwd(t)</i>		0.038 (1.17)	0.039 (1.21)
<i>NewsIncreaseHoldRetMktFwd(t)</i>		-0.015 (-0.58)	-0.015 (-0.57)
<i>FundRetMkt(t)</i>	0.352 *** (4.30)	0.347 *** (4.05)	0.340 *** (4.29)
Fund Controls	Yes	Yes	Yes
Year, Style, Objective FE	Yes	Yes	Yes
R-Sq	0.065	0.063	0.064
N	39969	33735	33735

Table VI – Effect of Measures of Holdings’ Informativeness and Salience

This table presents the interactions of holdings’ returns with measures of holdings’ informativeness and salience. The table shows OLS regressions of quarterly fund flows for U.S. equity mutual funds on the trailing returns of fund holdings. The sample period is from January 1998 to December 2008. The dependent variable is quarterly fund flows. Informativeness is measured by fund turnover, *Turnover*, and a dummy variable (*ReportGap*) for whether the temporal gap between the filing date of holdings and the date of the portfolio snapshot is above the sample median. Attention and salience are measured by the number of stocks (divided by 1,000) held by a fund, *NumStocks*, and the market-adjusted returns of holdings mentioned in the article headline, *NewsHeadHoldRetMkt*. Investor sophistication is proxied by the fund’s marketing fees (*MarketingFees*), defined as the amount of 12b-1 fees expressed as a fraction of the fund’s expense ratio. Controls include two lags of market-adjusted fund returns, two lags of squared market-adjusted fund returns, volatility of daily fund returns, fund age, expense ratio, fraction of holdings with media coverage, and log assets. All regressions include fund investment objective, style, and year fixed effects. Other variables are defined in the Appendix. *t*-statistics (in parentheses) are based on standard errors clustered by fund and quarter. Significance levels at the 10%, 5%, and 1% are indicated by *, ** and ***,

	Dependent Variable is Quarterly Fund Flows				
	(1)	(2)	(3)	(4)	(5)
<i>NewsHoldRetMkt(t-1)</i>	0.217 ** (2.42)	0.316 *** (3.07)	0.150 ** (2.51)	0.140 *** (2.77)	-0.145 (-0.73)
<i>HoldRetMkt(t-1)</i>	-0.179 ** (-2.33)	-0.396 *** (-2.93)	-0.041 (-0.44)	-0.103 (-1.31)	0.137 (0.49)
<i>NewsHoldRetMkt(t-1)*Turnover</i>	-0.046 (-0.47)				
<i>HoldRetMkt(t-1)*Turnover</i>	0.105 (0.79)				
<i>NewsHoldRetMkt(t-1)*ReportGap</i>		-0.140 (-1.01)			
<i>HoldRetMkt(t-1)*ReportGap</i>		0.245 (1.56)			
<i>NewsHoldRetMkt(t-1)*NumStocks</i>			0.544 * (1.85)		
<i>HoldRetMkt(t-1)*NumStocks</i>			-0.798 ** (-2.26)		
<i>NewsHeadHoldRetMkt(t-1)</i>				0.047 *** (2.62)	
<i>NewsHoldRetMkt(t-1)*MarketingFees</i>					1.279 * (1.82)
<i>HoldRetMkt(t-1)*MarketingFees</i>					-0.933 (-1.26)
<i>Turnover</i>	-0.003 (-0.59)				
<i>ReportGap</i>		0.007 (1.54)			
<i>NumStocks</i>			-0.002 (-0.16)		
<i>MarketingFees</i>					0.035 * (1.86)
Fund Returns, Controls, Year & Style FE	Yes	Yes	Yes	Yes	Yes
R ²	0.050	0.042	0.051	0.051	0.063
N	39686	19786	39965	39965	26418

Table VII – Effect of Media-Covered Holdings on Fund Returns

This table examines whether the returns of media-covered fund holdings predict future fund returns. Panel A presents OLS regressions of quarterly market-adjusted fund returns on the trailing returns of fund holdings. *NewsHoldRetMkt* is the average quarterly return of fund holdings that received media coverage, minus the CRSP value-weighted return over the same period (i.e., one period before the fund returns). ‘Year, Style, and Objective FE’ are year, fund style, and fund investment objective fixed effects. Other variables are defined in the Appendix. Panel B shows the results of the portfolio analysis. We form quintile- and decile- calendar time portfolios of funds sorted on the returns of their media-covered fund holdings. We also consider a long-short portfolio between the top and the bottom quintile or decile. Excess portfolio returns are regressed on the market, size, book-to-market, and momentum factors (MKT, SMB, HML, and UMD from Ken French’s website). *t*-statistics are shown in parentheses. In Panel A, standard errors are clustered by fund and quarter. Significance levels at the 10%, 5%, and 1% are indicated by *, ** and ***, respectively.

Panel A - Fund Market-Adjusted Returns and Media Covered Holdings					
Dependent Variable is Quarterly Fund Returns Minus Market Returns					
	(1)	(2)	(3)	(4)	(5)
<i>NewsHoldRetMkt(t-1)</i>	0.063 *	0.068 *	0.054	0.043	0.025
	(1.81)	(1.94)	(1.45)	(1.07)	(0.75)
<i>HoldRetMkt(t-1)</i>	0.017	-0.042	-0.027	-0.018	-0.013
	(0.23)	(-0.67)	(-0.54)	(-0.38)	(-0.26)
<i>FundRetMkt(t-1)</i>		0.100	0.081	0.089	0.087
		(1.00)	(0.99)	(1.05)	(1.03)
<i>FundRetMktSq(t-1)</i>			0.615 *	0.326	-0.001
			(1.80)	(1.03)	(-0.00)
<i>Age</i>			-0.077 *	-0.036	0.029
			(-1.65)	(-0.81)	(1.59)
<i>Expense Ratio</i>			-0.311	-0.307	-0.270 **
			(-1.36)	(-1.29)	(-2.20)
<i>LogAssets</i>			-0.002 **	-0.002 *	-0.001 **
			(-2.18)	(-1.95)	(-2.27)
<i>FundRetMkt(t-2)</i>				0.094	0.084
				(0.99)	(0.99)
<i>FundRetMktSq(t-2)</i>				0.517	0.284
				(1.10)	(0.89)
Year, Style, Objective FE	No	No	No	No	Yes
<i>R</i> ²	0.013	0.018	0.029	0.045	0.093
N	48065	48030	41100	39973	39973

Panel B - Calendar Time Portfolios Sorted on Media Covered Holdings Returns

Percentiles of Media-Covered Holdings Returns	3 Factor Alpha	4 Factor Alpha	MKT	SMB	HML	UMD	R ²	N
Decile 10	0.024 (0.10)	-0.001 (-0.54)	1.050 *** (22.04)	0.559 *** (9.75)	0.039 (0.67)	0.260 *** (7.04)	0.886	117
Decile 1	-0.059 (-0.28)	0.038 (0.21)	1.042 *** (24.28)	-0.027 (-0.52)	-0.025 (-0.48)	-0.188 *** (-5.66)	0.892	117
Decile 10 - Decile 1	0.084 (0.20)	-0.149 (-0.44)	0.008 (0.11)	0.586 *** (6.24)	0.064 (0.67)	0.448 *** (7.42)	0.558	117
Quintile 5	0.038 (0.18)	-0.076 (-0.44)	1.038 *** (25.87)	0.463 *** (9.59)	0.052 (1.06)	0.219 *** (7.04)	0.907	117
Quintile 1	-0.057 (-0.34)	0.028 (0.19)	0.994 *** (29.21)	-0.051 (-1.25)	0.015 (0.35)	-0.163 *** (-6.18)	0.920	117
Quintile 5 - Quintile 1	0.095 (0.28)	-0.103 (-0.37)	0.043 (0.68)	0.514 *** (6.66)	0.038 (0.48)	0.382 *** (7.68)	0.584	117

Table VIII – Media-Covered Holdings and Fund Window Dressing

This table examines whether funds that engage in more window dressing report higher returns for their media-covered holdings than for other holdings. The table reports the results of OLS regressions, where the dependent variable is the return of fund holdings. The results are shown for holdings with media coverage in the trailing quarter (Media), holdings without media coverage (No Media), and the difference between these two groups (Media - No Media). $WindowDressRaw = RetGap - RetGapFwd_{t-1}$. $RetGap$ is the difference between the return of the fund and the return of its holdings reported at the end of the quarter. $RetGapFwd_{t-1}$ is the difference between the return of the fund in the previous quarter and the return over the previous quarter for the holdings reported at the start of the previous quarter. Please see Figure 1 for additional details. $WindowDressResid$ is the residual in the regression of $WindowDressRaw$ on fund turnover and holdings' characteristics (please see equation (2) in Section 5.1). Fund controls include two lags of market-adjusted fund returns, two lags of squared market-adjusted fund returns, volatility of daily fund returns, fund age, expense ratio, fraction of holdings with media coverage, and log assets. All regressions include fund investment objective, style, and year fixed effects. 'Holdings Char., Turnover' are the variables used in the regression in equation (2). Other variables are defined in the Appendix. t -statistics (in parentheses) are based on standard errors clustered by fund and quarter. Significance levels at the 10%, 5%, and 1% are indicated by *, ** and ***, respectively.

	Dependent Variable is the Returns of Fund Holdings According to Level of Media Coverage					
	(1)	(2)	(3)	(4)	(5)	(6)
	Media	No Media	Media - No Media	Media	No Media	Media - No Media
<i>WindowDressRaw</i>	0.387 *** (4.06)	0.292 *** (3.72)	0.095 *** (4.64)			
<i>WindowDressResid</i>				0.389 *** (3.78)	0.286 *** (3.55)	0.101 *** (3.68)
<i>FundRetMkt</i>	0.916 *** (31.92)	0.852 *** (32.16)	0.064 *** (2.85)	0.996 *** (30.38)	0.924 *** (28.43)	0.072 *** (3.19)
Fund Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year, Style, Objective FE	Yes	Yes	Yes	Yes	Yes	Yes
Holdings Char., Turnover	Yes	Yes	Yes	No	No	No
R ²	0.646	0.485	0.062	0.666	0.498	0.065
N	38816	38753	38744	38487	38424	38417

Table IX – Impact of Window Dressing on Fund Flows

This table examines the relation between fund flows and measures of window dressing. The table reports the results of OLS regressions, where the dependent variable is quarterly fund flows. The main independent variables are the measures of window dressing, *WindowDressRaw* and *WindowDressResid*, and the interactions of the window dressing measures with the returns of fund holdings, *HoldRetMkt*, and the returns of fund holdings with media coverage, *NewsHoldRetMkt*. Fund controls include two lags of market-adjusted fund returns, two lags of squared market-adjusted fund returns, volatility of daily fund returns, fund age, expense ratio, fraction of holdings with media coverage, and log assets. All regressions include fund investment objective, style, and year fixed effects. Variable definitions are provided in the Appendix. *t*-statistics (in parentheses) are based on standard errors clustered by fund and quarter. Significance levels at the 10%, 5%, and 1% are indicated by *, **, and ***, respectively.

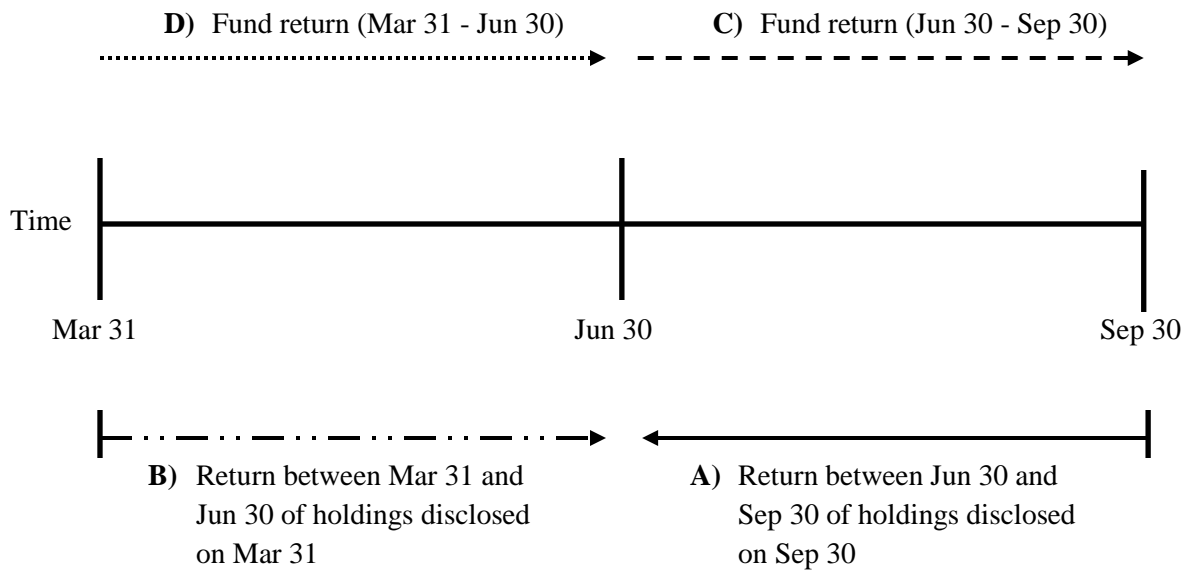
Dependent variable is quarterly fund flows		
	(1)	(2)
<i>NewsHoldRetMkt(t-1)</i>	0.196 *** (4.68)	0.215 *** (4.42)
<i>NewsHoldRetMkt(t-1)*</i>	0.107 (0.802)	
<i>WindowDressRaw(t-1)</i>		
<i>NewsHoldRetMkt(t-1)*</i>		0.080 (0.83)
<i>WindowDressResid(t-1)</i>		
<i>HoldRetMkt(t-1)</i>	-0.224 *** (-3.823)	-0.210 *** (-3.54)
<i>HoldRetMkt(t-1)*</i>	0.096 (0.76)	
<i>WindowDressRaw(t-1)</i>		
<i>HoldRetMkt(t-1)*</i>		0.143 (0.85)
<i>WindowDressResid(t-1)</i>		
<i>WindowDressRaw(t-1)</i>	0.068 (1.159)	
<i>WindowDressResid(t-1)</i>		0.016 (0.34)
Fund Controls	Yes	Yes
Year, Style, Objective FE	Yes	Yes
R ²	0.052	0.050
N	38812	38525

Table X – Window Dressing and Fund Characteristics

This table shows the relation between window dressing and fund characteristics. The dependent variable is a measure of window dressing, *WindowDressRaw*, defined in the Appendix. The independent variables include the fund’s market-adjusted returns in the trailing quarter, the log of the fund’s assets, fund turnover, a dummy variable for holdings reported in December, the fund’s expense ratio, a dummy variable for managers with less than three years of experience at their current fund, and the average percentile value for the fund’s holdings across the dimensions of market cap, Amihud (2002) illiquidity measure, volatility, relative bid-ask spread, and book-to-market ratio. Variable definitions are provided in the Appendix. *t*-statistics (in parentheses) are based on standard errors clustered by fund and quarter. Significance levels at the 10%, 5%, and 1% are indicated by *, ** and ***, respectively.

	Dependent Variable is the measure of fund window dressing							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>FundRet(t-1)</i>	-0.121 ** (-2.29)							-0.103 * (-1.96)
<i>LogAssets</i>		0.000 (-0.40)						0.000 (0.38)
<i>Turnover</i>			0.012 *** (4.48)					0.010 *** (4.57)
<i>DecemberHoldings</i>				0.021 ** (2.29)				0.013 * (1.72)
<i>ExpenseRatio</i>					0.483 ** (2.51)			-0.018 (-0.17)
<i>NewManager</i>						0.002 (1.46)		-0.002 (-1.32)
<i>MktCapMean</i>							0.002 (0.49)	0.002 (0.42)
<i>IlliqMean</i>							-0.198 (-1.45)	-0.168 (-1.32)
<i>VolatilMean</i>							2.885 *** (2.82)	2.342 *** (2.72)
<i>RelSpreadMean</i>							2.154 * (1.71)	2.108 * (1.80)
<i>BMMean</i>							0.000 (0.05)	0.000 (-0.09)
R ²	0.122	0.103	0.117	0.117	0.103	0.103	0.129	0.163
N	40138	40137	39812	40138	39970	40138	40056	39604

Figure 1 – Illustration of Timing for the Window Dressing Measure



Measures

Kacperczyk, Sialm and Zheng (2008) Return Gap = **(D – B)**

Backwards Looking Return Gap = **(C – A)**

Window Dressing Measure = **(A – C) – (B – D)**

Intuition

-The Kacperczyk, Sialm and Zheng (2008) Return Gap captures the effects of window dressing, transaction costs, and trades between reporting dates.

-Transaction costs and the value of interim trades seem likely to affect (C-A) and (D-B) in a similar fashion. For example, high transaction costs will reduce fund returns relative to both post-disclosure holdings’ returns and pre-disclosure holdings’ returns.

- A window dressing strategy focused on buying shares after a period of high returns will make *past* returns of holdings high, but cause a smaller increase in future holdings’ returns. Therefore, this strategy will increase A more than B.

-Subtracting (D-B) from (C-A) should on average remove most of the effects of transaction costs and interim trades, thus capturing the window dressing component. The signs are flipped in the final measure (i.e., (A-C) rather than (C-A)) so that positive values mean more window dressing.