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*Keywords:* Media Slant, short seller, investment decisions

*JEL Classification:* G11, G12, G14, G30, G32, G34

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# The Influence of Media Slant on Short Sellers

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## Abstract

Using the positive shift in tone of Fox News coverage of macroeconomic news after the Republican Bush election in 2000, we investigate whether media slant influences the investment decisions of short sellers. We find that firms headquartered in Republican-leaning townships with Fox News availability experienced a relative decrease in short interest post the 2000 election. We further find that the relative decrease is more pronounced for firms that are more subject to investors' home bias. We interpret our findings to suggest that short sellers, as sophisticated as they may be, are not immune to the slant in media coverage.

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## I. Introduction

Short sellers are thought of as sophisticated investors.<sup>2</sup> Not the type of investors who are prone to headline-chasing and not the types who are swayed by the latest fad. But are they?

In this study, we use the availability of the Fox News Channel (henceforth, Fox) coupled with the election of George W. Bush in 2000 as a laboratory to assess that conclusion. In particular, in comparison with other news outlets, the tone of Fox's coverage of macroeconomic events became more positive in conjunction with the election of the Republican George W. Bush who succeeded the Democrat William J. Clinton as president of the US. We find that allegedly case-hardened, sharp-eyed short sellers were not immune to this shift in the tone of media coverage. Given the role that short sellers purportedly play as rational arbitrageurs in the price setting process, this finding may give cause to rethink that supposition.

To put this analysis in context, the commencement of the Bush presidency coincided with the bursting of the dot-com bubble that also witnessed a remarkable 75% increase in short interest from 2.0% of total shares outstanding in 2000 to 3.5% in 2003 (Lamont and Stein (2004)). However, as might be expected of naïve investors, we find that, following Bush's election, short sellers increased their short positions in firms located in Republican-leaning (henceforth, RL) townships in which Fox was available significantly less than their short positions in firms located in non-Republican-leaning (henceforth, non-RL) townships or in firms located in townships with no Fox coverage. The implication is that short sellers, as sophisticated as they may be, are, nevertheless, still vulnerable in their investment decisions to the slant in media coverage.

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<sup>2</sup> See, e.g., Chanos, James S., "Short sellers keep the market honest," *Wall Street Journal*, September 22, 2008; Brewster, Deborah and Hughes, Jennifer, "Negative sentiment: Short-sellers under ever closer scrutiny," *Financial Times*, June 22, 2008; McLean, Colin, "Short sellers vital to efficient markets," *Financial News*, February 13, 2012.

The underpinnings of our interpretation of the results are threefold. They are (1) Fox is RL in its macroeconomic news coverage, (2) consumers of news broadcasts exhibit a confirmatory bias, and (3) investors exhibit a home bias in their equity portfolios. The first underpinning is well documented in prior literature (e.g., Groseclose and Milyo (2005), DellaVigna and Kaplan (2007), and Martin and Yurukoglu (2017)). This RL slant manifests itself in a differential treatment of the same news between Fox and its non-RL counterparts. In particular, prior studies report that Fox presented a significantly more positive macroeconomic outlook under the Bush administration than under the preceding Clinton administration and that, contemporaneously, Fox was more optimistic about economic events than its non-RL rivals during the Bush administration (Lowry (2008) and Knill, Liu, and McConnell (2021)).<sup>3</sup>

The second underpinning is that investors are subject to confirmatory bias when choosing which news outlets to consume. Multiple studies find that consumers prefer news sources that confirm their prior beliefs (e. g., Popper (1972), Klayman and Ha (1987), and Gentzkow and Shapiro (2008)). That is, media consumers choose their preferred outlets based on how congruent their priors are with reporting by the outlets. If so, RL investors are more likely to receive the more positive tone regarding macroeconomic news broadcasted by Fox than by Fox's non-RL counterparts during the Bush administration.

The third underpinning is that investors' decisions are affected by a home bias causing them to invest disproportionately in firms that are geographically close to them. Such a home bias is reported for institutional investors by Coval and Moskowitz (1999), Strong and Xu (2003), and Sialm, Sun, and Zheng (2020). A similar home bias is reported for retail investors by Ivkovich and Weisbenner (2003). Assuming that investors' macroeconomic outlook translates into their

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<sup>3</sup> A comparison of the tone of media coverage on macroeconomic news between Clinton administration and Bush administration is reported in Lowry (2008) and Knill et al. (2021).

outlook for equity performance, the consequence is that investors incorporate this outlook into their portfolio positions, thereby, investing disproportionately in firms located nearer to them. For investors with short positions, the more optimistic outlook will be manifest in a relative reduction in their short positions.

These underpinnings set the stage for our analysis. Based on these documented premises, RL investors living in townships with Fox availability when Bush was elected president experienced a positive shock in the tone of the macroeconomic news to which they were exposed. This positive shock induced these investors to form a more optimistic economic outlook. The home bias meant that this more positive economic outlook was disproportionately aimed at firms headquartered geographically closer to these investors. Such investors would have reduced their short positions in comparison with investors located in non-RL townships or in comparison with investors in townships with no Fox coverage.

We, thus, conjecture that the relative short interest (RSI) of firms headquartered in RL townships with Fox availability decreases more (or, given the remarkable increase in aggregate short interest, increases less) than the RSI of other firms after Bush's election.<sup>4</sup> We test this conjecture using data on Fox availability in geographic regions in the year 2000 from *Television and Cable Factbook* based on data collected by DellaVigna and Kaplan (2007). Townships are classified as RL using county-level voting data from the *MIT Election Data and Science Lab* where townships that primarily voted for Bush in the 2000 election are considered to be RL while those that primarily voted for any other candidate are classified as non-RL.

We employ a triple differences approach to compare the RSI of firms headquartered in RL townships with Fox availability to the RSI of all other firms before and after the year 2000 election.

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<sup>4</sup> Relative short interest is defined as the monthly number of shares shorted divided by the number of shares outstanding.

We find that investors short the shares of firms headquartered in RL townships with Fox availability significantly less than the shares of other firms after the Bush election. Given that the average RSI of all firms is 2.1%, the decrease, following the Bush election, of 1.3% in the RSI of the shares of firms headquartered in RL townships with Fox availability implies a relative reduction in RSI of 61.9% for such firms.

We then undertake various further analyses to evaluate the reasonableness of these results. First, we conduct analysis to address the concern that the relative reduction in RSI of firms headquartered in RL townships with Fox availability may be due to an event occurring in a different year than the 2000 presidential election. In particular, we examine the difference in RSI between firms headquartered in RL townships with Fox availability and other firms by employing a triple-differences analysis by year. We find that in 1999 and 2000, the difference in RSI between firms headquartered in RL townships with Fox availability and other firms is similar to the difference in 1998 with the differences being 0.2% and 0.1%, respectively, and statistically insignificant (both p-values > 0.51). In contrast, from 2001 to 2003, the differences in RSI between firms headquartered in RL townships with Fox availability and other firms are 1.2%, 1.9%, and 2.0% lower than the difference in 1998 (all p-values < 0.05). This evidence supports the proposition that the reduction in RSI of firms in RL townships with Fox availability coincides with a shift in the tone of Fox's coverage of macroeconomic events after the Bush election in 2000.

Second, we conduct a parallel trends analysis to address the concern that the differential changes in RSI of firms headquartered in RL townships with Fox availability relative to other firms before and after the year 2000 election are due in part to a difference in trends existing before the election of Bush. We create trend lines of RSI for firms headquartered in RL townships with Fox availability and all other firms from 1998 to 2003. Comparing these trends, we find that RSI was

modestly decreasing for both sets of firms from 1998 to 2000. However, from 2001 to 2003, other firms experienced an increase in RSI of 1.3% while firms headquartered in RL townships with Fox availability experienced a significantly lower increase of 0.6%. The difference in RSI after 2000 is not the continuation of prior trends.

Third, to address the question of whether attribution of the relative decrease in short positions to a home bias on the part of investors is reasonable, we investigate whether firms that are more likely to be affected by a home bias experience a more pronounced decrease in RSI than other firms. In particular, Coval and Moskowitz (1999, 2001) document that home bias is more pronounced in the shares of firms that are small, highly levered, produce non-exported (henceforth domestic) goods, and are headquartered in smaller cities.<sup>5</sup> We perform subsample analysis based on these variables and compare the RSI of firms headquartered in RL townships with Fox availability to other firms before and after the year 2000. We find that, when compared to other firms, firms headquartered in RL townships with Fox availability that are small, highly levered, produce domestic goods, and are headquartered in non-top 20 US cities experience a more pronounced reduction in RSI than other firms after the 2000 election.

Finally, a possible concern is that some unobservable factors in a region caused both the decrease in RSI and the availability of a new television network (in this instance Fox) in those regions. To address this concern, we consider whether the availability of MSNBC, a news channel founded in the same year as Fox, coincided with a similar relative decrease in the RSI of firms headquartered in RL townships. We find no significant difference in the changes of RSI between firms located in RL townships with MSNBC availability and other firms after the 2000 election.

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<sup>5</sup> Non-exported goods are defined as goods that are sold only within the country that they are produced.

In sum, the results of our analyses support the proposition that short sellers' investment decisions are influenced by media slant. Specifically, short sellers in RL townships with Fox availability are influenced by the positive shift in the tone of Fox's macroeconomic news coverage and, in response, due to their home bias, reduce their short positions in the shares of local firms.

Our study contributes to two lines of research. First, this study extends the literature on the sophistication of short sellers. Prior literature has shown that short sellers, on average, do make informed trades (e.g., Senchack and Starks (1993), Desai, Ramesh, Thiagarajan, and Balachandran (2002), Boehmer, Jones, and Zhang (2008)). We complement this literature by providing evidence that short sellers, as sophisticated as they may be, can be subject to a confirmatory bias that allows media slant to influence their investment decisions, thereby, undermining the presumption that short sellers can be relied upon to correct apparent security mispricing.

Second, this study extends the literature that connects media partisanship and financial decisions. Baloria and Heese (2018) and Knill et al (2021) examine the ways in which corporate managers' decisions are influenced by media partisanship. Our study examines a way in which investors' decisions can be influenced by media partisanship.

## **II. Prior Studies**

In this section, we comment briefly on prior related literature.

### **A. *Short Sellers as Astute Traders***

The general public perception of short sellers as well informed, analytically anchored, astute traders is supported by scholarly studies that report that short sellers' trades are predictive of future stock price movements. Such studies include Boehmer, Jones, and Zhang (2008), Lamont and Thaler (2003), and Asquith, Pathak, and Ritter (2005) who study short interest in individual stocks, Lasser, Wang, and Zhang (2010) and Christophe, Ferri, and Angel (2004) who study short

interest prior to earnings announcements, Christophe, Ferri, and Hsieh (2010) who study short interest prior to equity analyst downgrades, and Diether, Lee, and Werner (2009)) who study short interest and overreaction by market participants. Engelberg, Reed, and Ringgenberg (2012) attribute short sellers' predictive power to their ability to decipher publicly available news.

Our study differs from the prior studies of short sellers in that we study whether short sellers, like other investors, are influenced by a behavioral bias in their trading activities. Specifically, we investigate whether short sellers are subject to a confirmatory bias that allows them to be influenced by a media slant in their investment decisions. To our knowledge, Beschwitz and Massa (2020) is the only prior paper to investigate a behavioral bias on the part of short sellers. In particular, they find that short sellers are subject to a disposition effect in which they are less (more) likely to close their positions after they experience a capital loss (gain) than after they experience a capital gain (loss).

### ***B. The Republican-leaning of Fox***

As with short sellers, there is a general perception of Fox. That perception is that Fox leans toward a Republican perspective in its news coverage. That popular perspective is supported by scholarly studies. Such studies include Groseclose and Milyo (2005), DellaVigna and Kaplan (2007), Groeling (2008), Gentzkow and Shapiro (2010), and Martin and Yurukoglu (2017) who study television transcripts and find that the news coverage by Fox is more in line with a Republican perspective than is the news coverage of its competitors. Of particular interest to our study are Lowry (2008) and Knill et al. (2021) who also study television transcripts of macroeconomic news. They find that, when compared to its peers, Fox has more positive coverage of macroeconomic news under the Republican Bush administration than under the preceding

Democratic Clinton administration. These studies provide support to the underpinning of our investigation that Fox is RL in its macroeconomic news coverage.

**C. *Confirmatory Bias of News Consumers***

Confirmatory bias is the well-studied phenomenon in psychology literature that people tend to give more credit to informational sources that are consistent with their priors (e.g., Popper (1972), Wason (1968), Platt (1964), Lakatos (1970), and Klayman and Ha (1987)). Economic literature has shown that consumers prefer news sources that confirm their priors (see, for example, Gentzkow and Shapiro (2008) and Cookson, Engelberg, and Mullins (2020)). These studies provide support to the underpinning that news consumers exhibit a confirmatory bias.

**D. *Home Bias Among Investors***

Home bias, first studied by French and Poterba (1991), is the phenomenon in which investors disproportionately invest in companies headquartered in their home country. Home bias does not, however, exist only within international borders but also pertains to a more general measure of proximity. Coval and Moskowitz (1999) find that 10% of fund managers' portfolios are comprised of the stocks of firms headquartered in the same city as the manager. Similarly, Sialm, Sun, and Zheng (2020) report that hedge funds display home bias by investing more in other hedge funds located in the same geographical areas as are they. Relatedly, Ivkovich and Weisbenner (2003) find that the average household invests more than one-third of its portfolio in firms within 250 miles of their home. These studies provide support to the underpinning of our investigation that home bias causes short sellers to focus their investment activities disproportionately in the stocks of firms headquartered close to them geographically.

Coval and Moskowitz (1999, 2001) further report that home bias is more pronounced in firms that are small, highly levered, produce domestic goods, and are headquartered in smaller

cities. With that in mind, as an extension of our primary investigation, we find that the reduction in RSI is more pronounced in the stocks of firms that are small, highly levered, produce domestic goods, and are headquartered in smaller cities.

### **III. Data and Variable Construction**

In this section, we provide details of our data collection and variable construction.

#### **A. Data Collection**

We obtain, directly from the NYSE, AMEX, and NASDAQ, their compiled data of shares shorted, as of the 12<sup>th</sup> of each month, for 1,642 common stocks listed on the relevant exchange for the period of January 1998 through December 2003. Member firms, which are brokerage or financial firms who trade on at least one of the three stock exchanges, are required to report monthly total shares shorted. To our knowledge, this is a comprehensive list of all shares shorted. Consistent with the method used by DellaVigna and Kaplan (2007), we collect data on Fox availability in 2000 using the *Television and Cable Factbook* to identify which US townships received (or did not receive) Fox broadcasts. As shown in Table I, in 2000, data on Fox availability is obtained for 21,195 townships across 35 states with 3,830 (18.07%) of these townships receiving Fox broadcasts. We use firms' zip codes to match firms' headquarters location to their respective township. Following this procedure, we end up with 949 distinct firms with short interest data and Fox availability information.

We obtain county-level voting data for the 2000 presidential election from the *MIT Election Data and Science Lab*. This data covers 78.54% of counties in the US. Given that data are available, those townships located in counties in which the majority of votes went to the Republican candidate Bush are classified as RL. Those townships located in counties in which the majority of votes went to other candidates are classified as non-RL. Following this procedure, we

obtain 58,084 firm-month observations for 880 distinct firms with short interest data, voting data, and Fox availability information. Of these, 20,803 observations have Fox availability in 2000. 14,593 of the 58,084 firm-month observations are classified as RL.

We collect a variety of monthly control variables from Compustat, CRSP, and Options Metrics that are shown to affect short selling activity by Kot (2007). For each firm, the variables include equity market value (*Size*), institutional ownership (*Institutional Holdings*), equity market-to-book ratio (*M/B*), past 12-month cumulative stock return (*Past 12-month Return*), stock beta (*Beta*), stock options outstanding (*Option*), convertible preferred debt outstanding (*Convertible*), and past 12-month stock return volatility (*Past 12-month Return Volatility*). These data are collected for the period of January 1998 through December 2003.

#### **B. Variable Construction**

The key independent variable in our analysis is  $Fox \times Post \times RL$  - - an indicator variable constituted of three binary variables. *Fox* is a binary variable set to 1 if the firm is headquartered in a township with Fox availability in 2000 and 0 otherwise. *Post* is a binary variable set to 1 if a firm-month observation occurs after the year 2000 and 0 otherwise. *RL* is a binary variable set to 1 if the firm is headquartered in an RL township and 0 otherwise.

*RSI* is our key dependent variable, computed as the number of shares shorted in a month for each of the 880 firms divided by the number of shares outstanding for the firm. This variable is our measure of short sellers' investment decisions where an increase (decrease) in *RSI* is interpreted as short sellers deciding to short a stock more (less).

*Size* is the natural logarithm of the number of shares outstanding for the firm times the market price per share at the end of each month. *Institutional Holdings* is a firm's number of shares held by institutional investors divided by the total number of shares outstanding at the end

of each month. *M/B* is the equity market-to-book ratio of a firm computed as shares outstanding times stock price at the end of each month divided by the book value of equity at the end of the prior quarter. *Past 12-month Return* is calculated as the buy-and-hold return of a firm's stock over the past 12 months of each firm-month observation. *Beta* is calculated as the estimated coefficient of regressing the past 60 months of stock returns for each firm against the past 60 months of the value-weighted average returns of all publicly traded stocks. We require at least 24 months of stock returns to calculate *Beta*. *Option* is a firm's monthly trading volume of stock options. *Convertible* is a firm's book value of convertible debt outstanding at the end of the prior quarter. *Past 12-month Return Volatility* is calculated as the standard deviation of monthly stock returns over the past 12 months of each firm-month observation.

Descriptive statistics of the full sample are presented in Panel A of Table II. Descriptive statistics of subsamples based on whether the firm is headquartered in a township with Fox availability (or not) in 2000 are presented in Panel B of Table II. Descriptive statistics of subsamples based on whether the firm is headquartered in a RL township or non-RL township are presented in Panel C of Table II.

#### **IV. Media Slant and Short Sellers' Investment Decisions**

In this section, we examine whether short sellers' investment decisions are influenced by media partisanship.

##### **A. Triple-differences Analysis**

We conjecture that RL short sellers living in townships with Fox availability experienced a positive shock in the tone of the macroeconomic news to which they were exposed coincident with the 2000 presidential election of Bush. This positive shock induced these investors to form a more optimistic economic outlook. The home bias implies that these investors' portfolios are

disproportionately short the stocks of firms headquartered geographically close to them. In response to the positive macroeconomic shock, these investors reduce their relative short positions. Because these investors live in nearby townships, following the 2000 election, the RSI of firms headquartered in RL townships with Fox availability declines relative to that of all other firms headquartered in non-RL townships or in townships with no Fox coverage.

To examine this conjecture, we conduct a triple-differences analysis by estimating the following regression:

$$RSI_{i,t} = a_{i,t} + \beta Fox_i \times Post_t \times RL_i + \theta Post_t \times RL_i + \delta Fox_i \times Post_t + \partial Fox_i \times RL_i + \mu Fox_i + \rho Post_t + \tau RL_i + \gamma X_{i,t} + \epsilon_{i,t} \quad (1)$$

where  $i$  indexes firms,  $t$  indexes months,  $RSI_{i,t}$  is the RSI for firm  $i$  in month  $t$ ,  $a_{i,t}$  is firm and year fixed effects,  $X_{i,t}$  is a vector of control variables as described in Section III, and  $\epsilon_{i,t}$  is an error term.  $Fox_i$  is a binary variable set to 1 if a firm is headquartered in a township with Fox availability in 2000 and set to 0 otherwise.  $Post_t$  is a binary variable set to 1 if the year is after 2000 and set to 0 otherwise.  $RL_i$  is a binary variable set to 1 if a firm is headquartered in an RL township and set to 0 otherwise.  $Fox_i \times RL_i \times Post_t$  is the triple interaction of these binary variables and is the key variable of interest. The estimated coefficient of  $Fox_i \times Post_t \times RL_i$  is the differential effect of Fox availability in RL townships after the 2000 presidential election on the RSI of firms that are headquartered in such townships in comparison with other firms.

Column 1 of Table III reports the estimated coefficient of  $Fox_i \times Post_t \times RL_i$  as -0.013 with a t-statistic of -2.70, indicating that Fox's change in tone from before to after the 2000 election influenced short sellers located in RL townships. Considering the average RSI of 2.1% across our sample, this indicates a relative decrease in short interests of 61.9% (1.3%/2.1%) in the shares of firms that are headquartered in RL townships with Fox availability. This evidence indicates that,

contrary to the notion that short sellers are immune to media slant, the positive shift in tone of Fox's macroeconomic news coverage influenced short sellers located in RL townships with Fox availability. Short sellers may not be quite as distant from the news as popularly perceived.

Column 1 of Table III further reports that the estimated coefficient of  $Post_t \times RL_i$  of 0.009 is statistically significant with a t-statistic of 2.16. The positive coefficient is attributable to the smaller average size of firms located in RL townships compared with firms in non-RL townships coupled with the general rise in RSI during the bursting of the dot-com bubble post 2000. As shown in Table 2, firms headquartered in RL townships have, on average, fewer shares outstanding than firms headquartered in non-RL townships. Because RSI is calculated as shares shorted divided by the number of shares outstanding, a one share increase in shares shorted has a greater impact on the RSI of firms with fewer shares outstanding. As a result, it is not surprising that the RSI of firms headquartered in RL townships have a greater increase in RSI during the bursting of the dot-com bubble than firms headquartered in non-RL townships. We mention this factor because the variable is statistically significant though, of course, this disproportionate effect on the RSI of smaller firms actually biases our empirical design *against* finding that the RSI in RL firms with Fox availability relatively decreased during the post-2000 period.

### ***B. Difference-in-differences Analysis***

The results of the triple-differences analysis could come about for either of two reasons. First, the positive shift in tone of Fox's macroeconomic news coverage influences short sellers in both RL and non-RL townships but more so in RL townships. Second, the positive shift in tone of Fox only influences short sellers in RL townships due to their confirmatory bias, but it has no influence on short sellers in non-RL townships. To further examine these two possibilities, we

conduct a difference-in-difference analysis by estimating the following regression for firms headquartered in RL townships and, then, for those in non-RL townships:

$$RSI_{i,t} = a_{i,t} + \beta Fox_i \times Post_t + \mu Fox_i + \rho Post_t + \delta RL_i + \gamma X_{i,t} + \epsilon_{i,t} \quad (2)$$

where variables are defined as in equation (1). The estimated coefficient of  $Fox_i \times Post_t$  is the differential effect of Fox availability after the 2000 presidential election on the RSI of firms that are headquartered in townships with Fox availability in comparison with firms that are headquartered in townships without Fox availability.

Column 2 of Table III reports that the estimated coefficient of  $Fox_i \times Post_t$  for RL townships is -0.012 with a t-statistic of -2.70, consistent with Fox influencing short sellers located in RL townships. Column 3 of Table III reports that the estimated coefficient of  $Fox_i \times Post_t$  for non-RL townships is 0.001 with a t-statistic of 0.54, indicating that Fox has no influence on short sellers located in non-RL townships. These results support the underpinning of this study that short sellers are subject to a confirmatory bias in their consumption of news. That bias allows short sellers to be influenced by the partisan slant in Fox coverage.

We interpret the results in Table III to imply that short sellers are not immune to the partisan slant in media coverage when making their investment decisions. These results suggest that, at least in some instances, arbitrage opportunities will go undetected because short sellers, as astute as the evidence implies that they are in making informative trades, will miss the opportunity due to their susceptibility to media slant. If so, these results raise a cautionary flag against reliance on short sellers as fully capable of eliminating security mispricings.

## **V. Further Analysis of Media Slant and Short Sellers's Investment Decisions**

In this section, we conduct additional analyses to examine the reasonableness of our interpretation of the results in Section IV.

**A. *By Year Analysis of Fox Availability in RL Townships and Short Sellers' Investment Decisions***

We conjecture that short sellers' change in investment decisions is due to Fox's positive shift in its tone of macroeconomic news coverage from before to after the beginning of the Bush administration. If this conjecture is correct, the effect on RSI should coincide with the beginning of the Bush presidency in 2001. That is, the relative decrease in RSI should only become pronounced for the years 2001 through 2003. Furthermore, there should be no change in RSI immediately prior to beginning of the Bush presidency.

To examine this conjecture, we conduct the triple-differences analysis replacing the *Post* indicator with year indicators to examine the incremental effect that Fox availability in RL townships has on the RSI of firms over time. Specifically, we estimate the following regression:

$$RSI_{i,t} = a_{i,t} + \sum_{year=1999}^{2003} (\beta_{year} Fox_i \times Y(year) * RL_i + \theta_{year} Y(year) \times RL_i + \delta_{year} Fox_i \times Y(year) + \rho_{year} Y(year)) + \partial Fox_i \times RL_i + \mu Fox_i + \tau RL_i + \gamma X_{i,t} + \epsilon_{i,t} \quad (3)$$

where  $i$  indexes firms,  $t$  indexes months,  $RSI_{i,t}$  is the RSI for firm  $i$  in month  $t$ ,  $a_{i,t}$  is firm-year fixed effects,  $X_{i,t}$  is the vector of control variables defined in Section III, and  $\epsilon_{i,t}$  is an error term.  $Fox$  is a binary variable that is set to 1 if the firm is headquartered in a township with Fox availability in 2000 and 0 otherwise.  $Y(year)$  is a series of binary variables set to 1 if the year of the observation is the same as  $(year)$  for each binary variable and 0 otherwise.  $RL$  is a binary variable that is set to 1 if the firm is headquartered in an RL township and 0 otherwise.  $Fox_i \times RL_i \times Y(year)$  is the triple interaction of these binary variables and is the key variable of interest. The estimated coefficient of  $Fox_i \times Y(year) \times RL_i$  is the differential effect on the RSI of Fox availability in RL townships in each specific year on the shares of firms that are headquartered in such townships in comparison with the effect on the shares of other firms.

Column 1 of Table IV reports the estimated coefficients of  $Fox_i \times Y(year) \times RL_i$ . With  $Y(1998)$  as the omitted binary variable, the estimated coefficients of 1999 and 2000 are -0.002 with a t-statistic of -0.66, and -0.001 with a t-statistic of -0.64, respectively. Neither of the coefficients is statistically significant. These results show that the change in RSI of firms headquartered in RL townships with Fox availability was similar to the change in RSI of firms headquartered in other townships prior to the beginning of the Bush presidency.

In contrast, for the years 2001, 2002 and 2003, the estimated coefficients are -0.012 with a t-statistic of -2.13, -0.019 with a t-statistic of -2.68, and -0.020 with a t-statistic of -2.72, respectively. Each of these is statistically significant. These coefficients are plotted in Figure II. The statistically insignificant coefficients prior to the Bush presidency and the statistically significant coefficients post the beginning of the Bush presidency indicate that the relative reduction in the RSI of firms headquartered in RL townships with Fox availability in comparison with the RSI of all other firms coincides with the positive shift in tone of Fox's coverage of macroeconomic news post the 2000 election.

***B. Parallel Trends Analysis of Fox Availability in RL Townships and Short Sellers' Investment Decisions***

To consider the reasonableness of the proposition that RL short sellers living in townships with Fox availability experienced a positive shock in the tone of the macroeconomic news to which they were exposed coincident with the 2000 presidential election of Bush, we conduct a parallel trends analysis, by year, comparing the RSI of firms headquartered in RL townships with Fox availability to the RSI of firms headquartered in other townships for the years 1998 through 2003. According to this proposition, for the years 1998 through 2000, the RSI of firms headquartered in

RL townships with Fox availability should follow a similar trend as the RSI of firms headquartered in other townships, but for the years 2001 through 2003, these trends should diverge significantly.

To conduct the parallel trend analysis, we first split the sample into two subsets: (1) *Fox-RL* is all firms headquartered in RL townships with Fox availability in 2000 and (2) *Others* is all firms headquartered in non-RL townships or in townships without Fox availability in 2000. We, then, compute the mean RSI of each subset in each year from 1998 through 2003:

$$\overline{RSI}_{y,s} = \frac{1}{n_{y,s}} \sum_{i=1}^{n_{y,s}} RSI_{i,y,s} \quad (4)$$

where  $y$  indexes years,  $s$  indexes subsets,  $i$  indexes individual observations,  $\overline{RSI}_{y,s}$  is mean RSI in year  $y$  of subset  $s$ ,  $n$  is the number of observations in year  $y$  of subset  $s$ , and  $RSI_{i,y,s}$  is the RSI of firm  $i$  in year  $y$  of subset  $s$ .

The results of the analysis are presented graphically in Figure III. As shown in the figure and consistent with our conjecture, for the years from 1998 to 2000, the trajectory of the RSI for firms headquartered in RL townships with Fox availability parallels the trajectory of the RSI for all other firms. During these years, the RSI of firms headquartered in RL townships with Fox availability is 0.4% to 0.6% higher than the RSI of all other firms. Further, also consistent with our conjecture, the parallel trends discontinued with 2000, as the RSI of firms headquartered in RL townships with Fox availability is 0.3% lower than the RSI of all other firms in 2001, 0.4% lower in 2002, and 0.5% lower in 2003. The results of the parallel trends analysis indicate that the difference in the change of RSI between the two subsets is not merely a continuation of trends that existed prior to the 2000 election.

### **C. *Fox's Positive Shift in Tone of Macroeconomic News Coverage***

An underpinning of our analysis is that Fox is RL in its coverage of macroeconomic news from 1998 through 2003. To assess the credibility of this premise, we compare the tone of Fox's

coverage of macroeconomic news during that period to the tone of coverage of macroeconomic news by other news channels. Specifically, we obtain television broadcast transcripts from the *Factiva* database for Fox, ABC, CBS, MSNBC, NBC, and CNN from 1998 through 2003 and search these transcripts for key words and phrases that imply that a segment is devoted to coverage of macroeconomic news.<sup>6</sup>

We analyze those transcripts by counting the number of positive and negative words that appear in each such macroeconomic news segment, defining “positive” and “negative” words as in Loughran and McDonald (2011). From there, we measure the *Positivity* of each macroeconomic news segment as  $Positivity = (\text{Positive words} - \text{Negative words}) / (\text{Positive words} + \text{Negative words})$  for each news channel. We, then, calculate the *Abnormal Positivity* of Fox’s tone in their reporting of macroeconomic news as the difference in the *Positivity* of Fox’s tone and the average *Positivity* of the other news channels’ tone in each year.

If Fox is RL, it will report macroeconomic news with positive *Abnormal Positivity* during years in which a Republican president is in office and with negative *Abnormal Positivity* during years in which a Democratic president is in office. Figure I plots, by year, the *Abnormal Positivity*. Consistent with our presumption, during the years 1998-2000, the Clinton years, *Abnormal Positivity* is negative; during the years 2001-2003, the Bush years, *Abnormal Positivity* is positive. These data support the underpinning of this study that Fox shifted its slant to Republican leaning with the start of the Bush administration.

#### **D. *The Influence of Home Bias on Short Sellers’ Investment Decisions***

A key underpinning of our analysis is that investors are subject to a home bias in their investment activities. Specifically, investors are presumed to focus their investment activities

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<sup>6</sup> Words and phrases denoting the coverage of macroeconomic news are “GDP”, “inflation”, “unemployment”, “trade deficits”, and “budget deficits” as suggested in Larcinese, Puglisi, and Snyder (2011).

disproportionally in firms that are geographically close to them. If so, short sellers, as prototypical investors, living in RL townships with Fox availability disproportionately focus on firms geographically close to them. To assess the validity of this underpinning, we borrow from Coval and Moskowitz (1999, 2001) who find that home bias is more pronounced in firms that are small, highly levered, produce domestic goods, and are headquartered in smaller cities. Given these findings, we conjecture that when headquartered in RL townships with Fox availability, firms that are small, highly levered, produce domestic goods, or are headquartered in smaller cities would have experienced a more pronounced decrease in RSI relative to all other firms post the 2000 election.

To examine this conjecture, we split the sample into two subsets by firm size, firm leverage, whether the firm produces domestic goods only, and whether the firm is headquartered in a top 20 US city. We then conduct a triple-differences analysis in each of these subsets. Specifically, we estimate the following regression:

$$RSI_{i,t} = a_{i,t} + \beta Fox_i \times Post_t \times RL_i + \theta Post_t \times RL_i + \delta Fox_i \times Post_t + \partial Fox_i \times RL_i + \mu Fox_i + \tau RL_i + \rho Post_t + \gamma X_{i,t} + \epsilon_{i,t} \quad (4)$$

where  $i$  indexes firms,  $t$  indexes months,  $RSI_{i,t}$  is the RSI for firm  $i$  in month  $t$ ,  $a_{i,t}$  is firm and year fixed effects,  $X_{i,t}$  is a vector of control variables as described in Section III, and  $\epsilon_{i,t}$  is an error term.  $Fox_i$  is a binary variable set to 1 if a firm is headquartered in a township with Fox availability in 2000 and set to 0 otherwise.  $Post_t$  is a binary variable set to 1 if the year is after 2000 and set to 0 otherwise.  $RL_i$  is a binary variable set to 1 if a firm is headquartered in an RL township and set to 0 otherwise.  $Fox_i \times RL_i \times Post_t$  is the triple interaction of these binary variables and is the key variable of interest.

The estimated coefficient of  $Fox_i \times Post_t \times RL_i$  is the differential effect of Fox availability in RL townships post the 2000 election on the RSI of firms that are headquartered in such townships in comparison with the RSI of all other firms. The home bias predicts that the estimated coefficient will be more pronounced for firms that are small, highly levered, produce domestic goods, or headquartered in smaller cities.

#### **D.1. Firm Size**

We split the sample into *Small* and *Large* firms, where *Small* firms are those that are below the median equity market value of the full sample in 2000. Columns 1 and 2 of Table V report the estimated coefficients of  $Fox_i \times Post_t \times RL_i$  for these two regressions. The estimated coefficient for small firms is -0.013 with a t statistic of -2.55; the estimated coefficient for large firms is -0.003 with a t statistic of -0.37.

#### **D.2. Firm Leverage**

We split the sample into *More Levered* and *Less Levered* firms, where *More Levered* firms are defined as those that are above the median leverage ratio of the entire sample in 2000 with the leverage ratio being calculated as (total debt) / (shares outstanding  $\times$  share price). Columns 3 and 4 of Table V report the coefficients of  $Fox_i \times Post_t \times RL_i$  for these two regressions. The estimated coefficient for more levered firms is -0.017 with a t statistic of -2.45; the estimated coefficient for less levered firms is -0.008 with a t statistic of -1.31.

#### **D.3. Domestic Goods**

We split the sample into *Domestic* and *Global* firms, where *Global* firms are defined as firms that have foreign sales in 2000.<sup>7</sup> Columns 5 and 6 of Table V report the estimated

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<sup>7</sup> We also split the sample into *Domestic* and *Global* firms, where *Global* firms are defined as firms that have foreign sales more than 10% of their total sales in 2000. We find the results are similar in terms of statistical and economic significance.

coefficients of  $Fox_i \times Post_t \times RL_i$  for these two regressions. The estimated coefficient for firms classified as *Domestic* is -0.014 with a t statistic of -2.80; the estimated coefficient for firms classified as *Global* is 0.001 with a t statistic of -0.17.

#### **D.4. *City Headquarters Size***

We split the sample into *Other Cities* and *Top 20 Largest Cities* firms, where *Top 20 Largest Cities* firms are defined as firms headquartered in the top 20 largest cities by population in the US in 2000. Columns 7 and 8 of Table V report the estimated coefficients of  $Fox_i \times Post_t \times RL_i$  for these two regressions. The estimated coefficient for firms headquartered in other cities is -0.012 with a t statistic of -2.28; the estimated coefficient for firms headquartered in top 20 largest cities is -0.007 with a t statistic of -1.46.

#### **D.5. *Summary Statement of the Influence of Home Bias on RSI***

Consistent with Coval and Moskowitz (1999, 2001), the differences in the change of RSI between firms headquartered in RL townships with Fox availability and all other firms post the 2000 election is more pronounced in firms that are small, highly levered, produce domestic goods, or headquartered in smaller cities. These results are consistent with our conjecture that the positive shift in Fox's coverage of macroeconomic news in conjunction with the home bias of short sellers who located in RL townships with Fox availability disproportionately affected the RSI of firms geographically closer to them.

#### **E. *MSNBC Availability and Short Sellers' Investment Decisions***

A possible alternative explanation of our findings is that some exogenous factors related to RL townships caused both a change in short sellers' investment decisions within the townships and the presence of Fox in those townships. With Fox being established in 1996 and only being available in 18.07% of townships with data availability in 2000, a reasonable concern is that the

townships into which Fox chose to expand and the relative optimism of short sellers in those townships were both caused by some exogenous factor being present in those townships. If so, the triple-differences results in Section III could be due to a selection bias on the part of Fox's expansion.

To examine this alternative explanation, we collect data on the availability of MSNBC in townships in 2000 from the *Television and Cable Factbook* and conduct a triple-difference placebo test that incorporates the availability of MSNBC. Specifically, we estimate the regression:

$$\begin{aligned}
RSI_{i,t} = & a_{i,t} + \beta Fox_i \times Post_t \times RL_i + \vartheta MSNBC_i \times Post_t \times RL_i + \theta Post_t \times RL_i \\
& + \delta Fox_i \times Post_t + \omega MSNBC_i \times Post_t + \partial Fox_i \times RL_i \\
& + \mu Fox_i + \rho Post_t + \tau RL_i + \gamma X_{i,t} + \epsilon_{i,t}
\end{aligned} \tag{6}$$

where  $i$  indexes firms,  $t$  indexes months,  $RSI_{i,t}$  is the RSI for firm  $i$  in month  $t$ ,  $a_{i,t}$  is firm and year fixed effects,  $X_{i,t}$  is a vector of control variables as described in Section III, and  $\epsilon_{i,t}$  is an error term.  $Fox_i$  is a binary variable set to 1 if a firm is headquartered in a township with Fox availability in 2000 and set to 0 otherwise.  $MSNBC_i$  is a binary variable set to 1 if a firm is headquartered in a township with MSNBC availability in 2000 and set to 0 otherwise.  $Post_t$  is a binary variable set to 1 if the year is after 2000 and set to 0 otherwise.  $RL_i$  is a binary variable set to 1 if a firm is headquartered in an RL township and set to 0 otherwise.  $Fox_i \times Post_t \times RL_i$  and  $MSNBC_i \times Post_t \times RL_i$  are the triple interactions of these binary variables and are the key variables of interest. The estimated coefficient of  $Fox_i \times Post_t \times RL_i$  is the differential effect of Fox availability in RL townships after the 2000 presidential election on the RSI of firms that are headquartered in such townships in comparison with other firms. The estimated coefficient of  $MSNBC_i \times Post_t \times RL_i$  is the differential effect of MSNBC availability in RL townships post the 2000 election on the RSI of firms that are headquartered in such townships in comparison with other firms.

MSNBC offers a good placebo test for two reasons. First, MSNBC was founded in 1996, the same year as Fox, meaning that MSNBC and Fox were both relatively newly-founded sources of news in 2000 with similar limited market coverage.<sup>8</sup> Second, unlike Fox, MSNBC is a news channel that, according to Martin and Yurkoglu (2017), is similar in partisan slant to existing news channels that were founded prior to 1996. If a selection bias exists in which the characteristics of a township attract a newly-founded news channel and these characteristics are associated with investment optimism on the part of short sellers, the reductions in the RSI of firms located in RL townships in which MSNBC is available and those in which Fox is available should be similar.

Column 1 of Table VI reports the estimated coefficient of  $Fox_i \times Post_t \times RL_i$  as -0.019 with a t-statistic of -2.61 and the estimated coefficient of  $MSNBC_i \times Post_t \times RL_i$  as 0.002 with a t-statistic of 0.23, respectively. The significant coefficient of  $Fox_i \times Post_t \times RL_i$  and the insignificant coefficient of  $MSNBC_i \times Post_t \times RL_i$  indicate that the reduction in RSI only occurred in firms headquartered in RL townships with Fox availability.

To further examine the difference in RSI, Column 2 of Table VI reports the estimated coefficients of  $Fox_i \times Post_t$  and  $MSNBC_i \times Post_t$  for RL townships as -0.016 with a t-statistic of -2.46 and 0.007 with a t-statistic of 0.66, respectively. These coefficients indicate that Fox influences short sellers located in RL townships but that MSNBC does not. Column 3 of Table VI reports the estimated coefficients of  $Fox_i \times Post_t$  and  $MSNBC_i \times Post_t$  for non-RL townships as 0.002 with a t-statistic of 0.77 and 0.004 with a t-statistic of 1.49, respectively. These coefficients indicate that Fox and MSNBC have no influence on short sellers located in non-RL townships.

These findings are consistent with the conjecture that short sellers living in RL townships with MSNBC availability in 2000 did not change their investment decisions after the 2000 election.

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<sup>8</sup> MSNBC was available in 25.13% of townships with availability information in 2000.

This conjecture is confirmed by the lack of a differential effect in the RSI of firms located in regions with MSNBC availability in 2000 and firms located in regions without MSNBC availability in 2000, lending further support to the proposition that our findings are causally related to the positive shift in tone of macroeconomic news coverage by Fox post the 2000 election.

**F. *Fox Availability in RL Townships and Stock Price Performance***

Another possible alternative explanation of our findings is that short sellers are not naively reacting to the positive shift in the tone of Fox's macroeconomic news coverage following the 2000 election but are rather shifting their investment positions in anticipation of other, less sophisticated investors, falling victim to Fox's positive shift in tone. Under this explanation, short sellers, being more sophisticated investors, correctly predict that other investors living in RL counties with Fox availability experience the positive shift in the tone of Fox coverage and have their macroeconomic outlook molded by this positive shift.

Under this alternative explanation, other investors located in RL townships with Fox availability experience a positive shock in the tone of macroeconomic news to which they were exposed coincident with the 2000 election. This positive shock induces these investors to form a more optimistic economic outlook, leading them to invest more heavily in stocks. The home bias implies that these investors disproportionately invest in stocks of firms headquartered geographically close to them, creating upward pressure on the stocks of such firms. Short sellers, in turn, correctly predict this disproportionate level of upward price pressure and correctly shift their short positions away from firms headquartered in such townships.

The validity of this alternative explanation rests on the existence of upward price pressure on the stocks of firms headquartered in RL townships with Fox availability. To examine the existence of such upward price pressure, we utilize the triple-differences regression employed in

Section IV.A but replace the dependent variable with, consecutively, three different proxies of stock prices. These proxies are *Market Cap*, defined as the natural logarithm of equity market value of the firm, *M/B*, defined as the equity market-to-book ratio of the firm, and *Return*, defined as the monthly return of each stock. Specifically, we estimate the following regression:

$$y_{i,t} = a_{i,t} + \beta Fox_i \times Post_t \times RL_i + \theta Post_t \times RL_i + \delta Fox_i \times Post_t + \partial Fox_i \times RL_i + \mu Fox_i + \rho Post_t + \tau RL_i + \gamma X_{i,t} + \epsilon_{i,t} \quad (5)$$

where  $i$  indexes firms,  $t$  indexes months,  $y_{i,t}$  are *Market Cap*, *M/B*, and *Return*, respectively, for firm  $i$  in month  $t$ ,  $a_{i,t}$  is firm-year fixed effects,  $X_{i,t}$  are the control variables defined in Section III, and  $\epsilon_{i,t}$  is an error term.  $Fox_i$  is a binary variable set to 1 if a firm is headquartered in a township with Fox availability in 2000 and set to 0 otherwise.  $Post_t$  is a binary variable set to 1 if the year is after 2000 and set to 0 otherwise.  $RL_i$  is a binary variable set to 1 if a firm is headquartered in an RL township and set to 0 otherwise.  $Fox_i \times RL_i \times Post_t$  is the triple interaction of these binary variables and is the key variable of interest. The estimated coefficient of  $Fox_i \times RL_i \times Post_t$  is the differential effect of Fox availability in RL townships after the 2000 presidential election on the value of firms that headquarter in such townships in comparison with other firms.

Column 1 of Table VII reports the estimated coefficients of  $Fox_i \times Post_t \times RL_i$  when *Market Cap* is the dependent variable as -0.041 with a t-statistic of -1.60, indicating a negative and statistically insignificant difference in stock prices between firms headquartered in RL townships with Fox availability and all the other firms.

Column 2 of Table VII reports the estimated coefficients of  $Fox_i \times Post_t \times RL_i$  when *M/B* is the dependent variable as -0.639 with a t-statistic of -1.50, indicating a negative and statistically insignificant difference in market valuation between firms headquartered in RL townships with Fox availability and all the other firms.

Column 3 of Table VII reports the estimated coefficients of  $Fox_i \times Post_t \times RL_i$  when *Return* is the dependent variable as -0.009 with a t-statistic of -1.40, indicating a negative and statistically insignificant difference in stock returns between firms headquartered in RL townships with Fox availability and all the other firms.

In sum, these results are inconsistent with the alternative explanation that the relative reduction in RSI of firms headquartered in RL townships with Fox availability is due to short sellers correctly predicting the upward price movement of the stocks of such firms.

## **VI. Conclusion**

In this study we find that, contrary to popular belief, short sellers are not immune to the media slant in news coverage. We come to this conclusion by examination of the influence of the positive shift in Fox News' coverage of macroeconomic news post the 2000 election on the relative short interest (RSI) of firms headquartered in Republican-leaning (RL) townships with Fox availability. We find that firms headquartered in RL townships with Fox availability in 2000 experience a decrease in RSI of 1.3% compared to other firms post the election of the Republican candidate Bush in 2000, implying a relative change in RSI of 61.9%. These findings suggest that short sellers, as sophisticated as they may be in their trading activities, are subject to behavioral biases that allow them to be influenced by the partisanship in media coverage.

This study illustrates the pervasive influence of media slant on financial and economic decisions. While prior studies have shown that corporate managers and investors can be affected by a media slant, this study provides novel evidence that short sellers can fall victim to the effects of the media slant as well.

## Appendix A: Variable Definitions

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### News Channel Variables (Source: Television and Cable Factbook)

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Fox	A binary variable set to 1 if a firm is headquartered in a township with Fox availability in 2000 and set to 0 otherwise.
MSNBC	A binary variable set to 1 if a firm is headquartered in a township with MSNBC availability in 2000 and set to 0 otherwise.
Post	A binary variable set to 1 if the year is after 2000 and set to 0 otherwise.

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### Political Leaning Variables (Source: MIT Election Data and Science Lab)

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RL	A binary variable set to 1 if a firm is headquartered in an RL township and set to 0 otherwise.
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### Firm Characteristics (Source: NYSE, NASDAQ, AMEX, CRSP, Options Metrics, and Compustat)

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Size	The natural logarithm of the number of shares outstanding for the firm times the market price per share at the end of each month.
Institutional Holdings	A firm's number of shares held by institutional investors divided by the total number of shares outstanding at the end of each month.
M/B	The equity market-to-book ratio of a firm computed as shares outstanding times stock price at the end of each month divided by the book value of equity at the end of the prior quarter.
Past 12-month Return	The buy-and-hold return of a firm's stock over the past 12 months of each firm-month observation.
Beta	The estimated coefficient of regressing the past 60 months of stock returns for each firm against the past 60 months of the value-weighted average returns of all publicly traded stocks.
Option	A firm's monthly trading volume of stock options.
Convertible	A firm's book value of convertible debt outstanding at the end of the prior quarter.
12-month Return Volatility	The standard deviation of monthly stock returns over the past 12 months of each firm-month observation.

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### Township Variables (Source: US Census Bureau)

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Top 20 Largest City	A binary variable set to 1 if a firm is headquartered in the top 20 largest cities by population in the US in 2000.
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## References

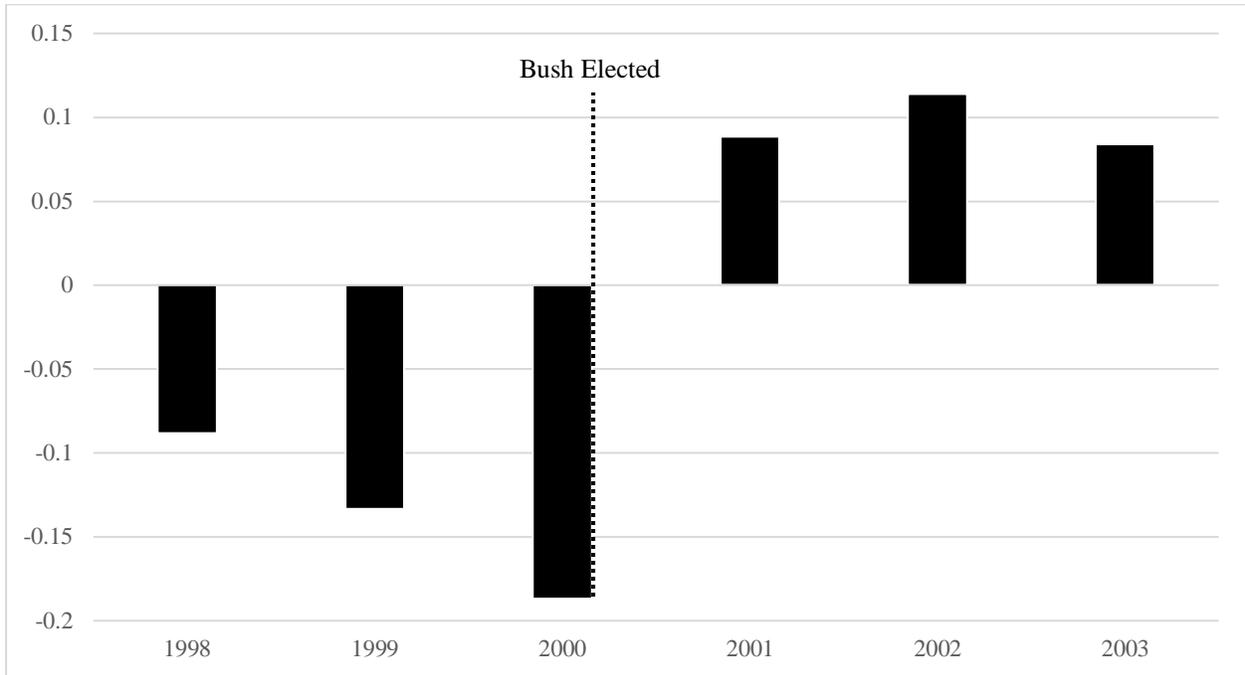
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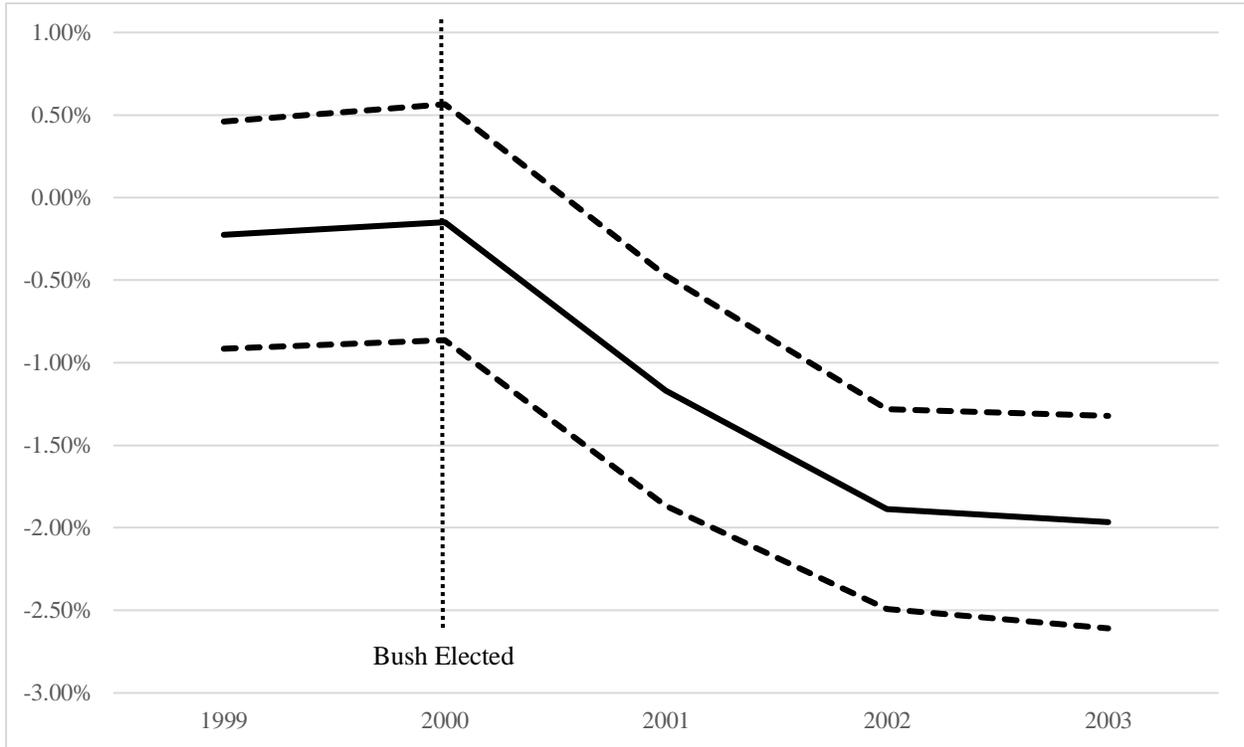
**Figure I. Abnormal Positivity of Fox Coverage of Macroeconomic News**

This figure presents the abnormal positivity in macroeconomic news coverage by Fox during the period of 1998 to 2003. Positivity in macroeconomic news is calculated as  $(\text{Positive words} - \text{Negative words}) / (\text{Positive words} + \text{Negative words})$ , where Positive words (Negative words) is defined as the number of positive (negative) words that appeared in the TV transcripts of news channel programs in each year of 1998 to 2003 covering macroeconomic news including GDP, inflation, unemployment, trade deficit, and budget deficit. Positive and negative words are defined as in the dictionary of Loughran and McDonald (2011). The abnormal positivity in macroeconomic news reported by Fox is defined as the difference in positivity in macroeconomic news between Fox and the mainstream news channels including ABC, CBS, CNN, MSNBC, and NBC.



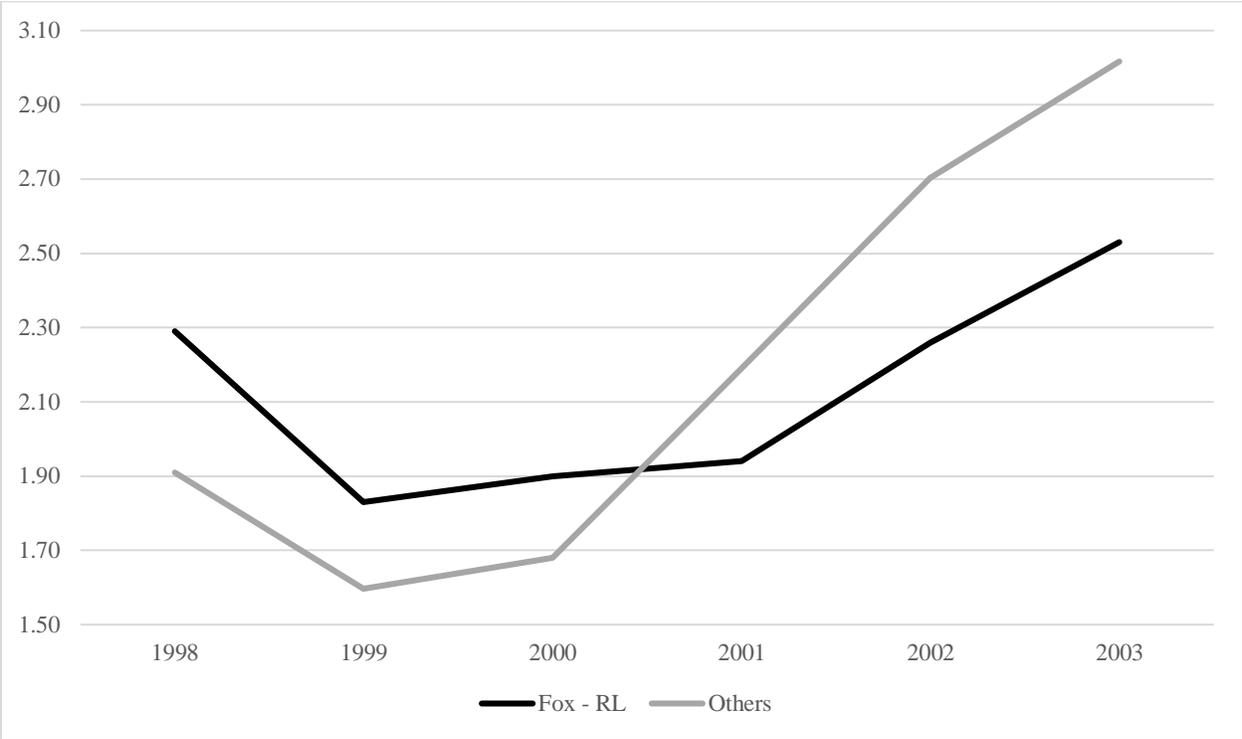
**Figure II. Triple-Differences Analysis of Relative Short Interest and Fox Availability by Year**

This figure plots the estimated coefficients of the triple differences analysis in Table IV of relative short interest (RSI) against Fox availability (Fox), Republican leaning (RL), and various control variables over the period of 1998 through 2003. The solid line represents the estimated coefficient of  $Fox_i \times RL_i \times Y(year)$ , where  $Y(year)$  indicates a dummy variable that takes the value of one if the year of the observation is in 1999, 2000, 2001, 2002, or 2003, respectively. The dashed line represents the upper and lower bounds of the 95% confidence interval of the estimated coefficient of  $Fox_i \times RL_i \times Y(year)$  in a given year.



**Figure III. Parallel Trends Analysis**

This figure illustrates the trends of relative short interest (RSI) of firms headquartered in Republican leaning (RL) townships with Fox availability (Fox) in 2000 and all other firms over the period of 1998 through 2003.



**Table I. Fox News Coverage**

This table presents the number of towns across 35 US states with Fox availability information in 2000. The data were collected by DellaVigna and Kaplan (2007) from Television and Cable Factbook.

State	Year 2000	
	With Fox Available	With Fox Availability Information
Alaska	17	65
Alabama	50	513
Arkansas	109	505
California	233	1,083
Connecticut	28	186
Delaware	15	108
Florida	145	718
Hawaii	49	127
Iowa	85	797
Idaho	20	187
Illinois	277	1,388
Indiana	73	769
Massachusetts	23	377
Maryland	77	415
Maine	61	396
Michigan	315	1,321
Minnesota	103	855
Missouri	70	782
Montana	20	141
North Dakota	18	211
New Hampshire	0	268
New Jersey	294	693
New York	445	1,431
Ohio	345	1,791
Oklahoma	95	478
Oregon	39	343
Pennsylvania	521	2,572
Rhode Island	8	48
South Carolina	25	321
Tennessee	68	447
Utah	23	195
Virginia	43	465
Vermont	3	218
Wisconsin	86	882
Wyoming	47	99
Total	3,830	21,195
% Towns with Fox broadcasts		18.07%

**Table II. Descriptive Statistics**

This table presents descriptive statistics for the sample of firm-month observations over the period of 1998-2003. Panel A describes the number of observations (N), mean, standard deviation (SD), the first quartile (Q1), median, and the third quartile (Q3) for firm-specific characteristics. Panel B presents the difference in means between firms headquartered in townships without Fox availability in 2000 (NoFox) and those with Fox availability in 2000 (Fox). T-statistics for Panel B show the statistical significance of these differences. Panel C presents differences between firms headquartered in Republican leaning townships (RL) and those headquartered in non-Republican-leaning townships (Non-RL). Variables are defined in Appendix A. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.

	N	Mean	SD	Q1	Median	Q3
<u>Panel A: Full Sample</u>						
RSI (%)	58,084	2.136	3.656	0.273	1.029	2.482
Size (in \$Billions)	58,084	3.766	8.232	0.212	0.954	2.589
Shares Outstanding (in Billions)	58,084	0.123	0.304	0.015	0.035	0.099
Institutional Holdings	58,084	0.534	0.251	0.366	0.549	0.732
M/B	58,084	3.178	3.814	1.178	2.073	3.485
Past 12-month Return	58,084	-0.097	0.526	-0.283	-0.029	0.194
Beta	58,084	0.813	0.530	0.448	0.782	1.048
Option	58,084	3.726	4.188	0.000	1.703	7.814
Convertible	58,084	0.602	1.766	0.000	0.000	0.000
Past 12-month Return Volatility	58,084	0.025	0.017	0.014	0.021	0.032

**Table II. Continued**

	Fox		NoFox		NoFox - Fox	
	N	Mean	N	Mean	Diff.	T-stat
<u>Panel B: Fox Availability</u>						
RSI (%)	20,803	2.152	37,281	2,127	-0.025	-0.81
Size (in \$Billions)	20,803	4.596	37,281	3.302	-1.295	-18.23***
Shares Outstanding (in Billions)	20,803	0.154	37,281	0.106	-0.049	-18.60***
Institutional Holdings	20,803	0.544	37,281	0.528	-0.016	-7.18***
M/B	20,803	3.163	37,281	3.187	0.024	0.73
Past 12-month Return	20,803	-0.096	37,281	-0.098	-0.002	-0.38
Beta	20,803	0.829	37,281	0.804	-0.025	-5.53***
Option	20,803	3.997	37,281	3.575	-0.422	-11.66***
Convertible	20,803	0.683	37,281	0.556	-0.127	-8.28***
Past 12-month Return Volatility	20,803	0.025	37,281	0.026	0.001	5.28***
	RL		Non-RL		Non-RL - RL	
	N	Mean	N	Mean	Diff.	T-stat
<u>Panel C: Republican Leaning</u>						
RSI (%)	14,593	2.178	43,491	2.122	-0.056	-1.60
Size (in \$Billions)	14,593	2.547	43,491	4.175	1.628	20.75***
Shares Outstanding (in Billions)	14,593	0.086	43,491	0.136	0.050	17.24***
Institutional Holdings	14,593	0.526	43,491	0.537	0.011	4.57***
M/B	14,593	3.000	43,491	3.238	0.238	6.52***
Past 12-month Return	14,593	-0.086	43,491	-0.101	-0.015	-2.89**
Beta	14,593	0.786	43,491	0.822	0.037	7.29***
Option	14,593	3.629	43,491	3.758	0.129	3.22**
Convertible	14,593	0.590	43,491	0.606	0.016	0.94
Past 12-month Return Volatility	14,593	0.027	43,491	0.025	-0.002	-10.52***

**Table III. Triple-Differences Analysis of Relative Short Interest and Fox News Availability in RL Townships**

This table presents results of the triple-differences regression analysis of relative short interest (RSI) on Fox availability (Fox), Republican leaning (RL), and various control variables for firm-month observations over the period of 1998 through 2003. Column 1 presents results for the entire sample. Columns 2 and 3 represent subset analysis of RL firms and Non-RL firms, respectively. RL firms are firms that are headquartered in townships that had a majority vote for George Bush in the 2000 presidential election. Variables are defined in Appendix A. All regressions control for firm and year fixed effects. Standard errors are clustered at the firm level. T-statistics are reported in parentheses with \*\*\*, \*\*, and \* indicating significance at the 1%, 5%, and 10% level, respectively.

Sample:	(1)	(2)	(3)
	Full	RL	Non-RL
Fox × Post × RL	-0.013*** (-2.70)		
Fox × Post	0.001 (0.50)	-0.012*** (-2.70)	0.001 (0.54)
Post × RL	0.009** (2.16)		
Size	-0.001*** (-4.96)	-0.001** (-2.00)	-0.001*** (-4.70)
Institutional Holdings	0.033*** (6.88)	0.042*** (3.89)	0.031*** (5.50)
M/B	0.000** (2.01)	0.001 (1.38)	0.000 (1.56)
Beta	0.001 (0.38)	-0.003 (-0.88)	0.002 (0.93)
Option	0.001*** (4.84)	0.001* (1.78)	0.001*** (4.55)
Convertible	0.002*** (3.32)	0.003* (1.81)	0.001*** (3.15)
Past 12-month Return	0.002** (2.44)	0.004*** (4.12)	0.001 (0.96)
Past 12-month Return Volatility	0.134*** (4.84)	0.099** (2.10)	0.147*** (4.36)
Firm fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Obs.	58,084	14,593	43,491
Adjusted R <sup>2</sup>	0.603	0.596	0.607

**Table IV. Triple-Differences Analysis of Relative Short Interest and Fox Availability in RL Counties by Year**

This table presents results of the triple-differences analysis of relative short interest (RSI) against Fox availability (Fox), Republican leaning (RL), and various control variables.  $Y(\text{year})$  indicates a dummy variable that takes the value of one if the year of the observation is in 1999, 2000, 2001, 2002, or 2003, respectively. All regressions control for firm and year fixed effects. Standard errors are clustered at the firm level. T-statistics are reported in parentheses with \*\*\*, \*\*, and \* indicating significance at the 1%, 5%, and 10% level, respectively.

	(1)
Fox $\times$ Y(1999) $\times$ RL	-0.002 (-0.66)
Fox $\times$ Y(2000) $\times$ RL	-0.001 (-0.64)
Fox $\times$ Y(2001) $\times$ RL	-0.012** (-2.13)
Fox $\times$ Y(2002) $\times$ RL	-0.019*** (-2.68)
Fox $\times$ Y(2003) $\times$ RL	-0.020*** (-2.72)
Controls	Yes
Firm fixed effects	Yes
Year fixed effects	Yes
Obs.	58,084
Adjusted R <sup>2</sup>	0.603

**Table V. Triple-Differences Analysis of Relative Short Interest and Fox Availability in RL Counties by Home Bias Characteristics**

This table presents results of the triple-differences regression analysis of relative short interest (RSI) against Fox availability (Fox), Republican leaning (RL), and various control variables for firm-month observations over the period of 1998 through 2003. Columns 1 and 2 represent subset analysis of small firms and large firms, respectively. Small firms are those that are below the median size of the entire sample in 2000. Columns 3 and 4 represent subset analysis of more levered firms and less levered firms, respectively. More levered firms are those that are above the median leverage ratio of the entire sample in 2000. Columns 5 and 6 represent subset analysis of firms that produce domestic goods and firms that produce global goods, respectively. Firms that produce domestic goods are those that do not have any foreign sales in 2000. Columns 7 and 8 represent subset analysis of firms that are headquartered in other cities and top 20 largest cities in 2000, respectively. Variables are defined in Appendix A. All regressions control for firm and year fixed effects. Standard errors are clustered at the firm level. T-statistics are reported in parentheses with \*\*\*, \*\*, and \* indicating significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Small	Large	More Levered	Less Levered	Domestic	Global	Other Cities	Top 20 Largest Cities
Fox × Post × RL	-0.013** (-2.55)	-0.003 (-0.37)	-0.017** (-2.45)	-0.008 (-1.31)	-0.014*** (-2.80)	-0.001 (-0.17)	-0.012** (-2.28)	-0.007 (-1.46)
Fox × Post	0.001 (0.30)	0.004 (1.54)	0.000 (0.18)	0.002 (0.64)	0.001 (0.23)	0.003 (0.92)	0.000 (0.05)	0.008** (1.99)
Post × RL	0.009** (2.02)	-0.001 (-0.14)	0.011* (1.80)	0.006 (1.29)	0.009** (1.97)	0.008 (1.45)	0.008** (2.03)	0.008* (1.75)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	29,184	28,826	28,601	29,409	37,371	20,639	48,218	9,866
Adjusted R <sup>2</sup>	0.612	0.539	0.594	0.618	0.593	0.728	0.584	0.704

**Table VI. Triple-Differences Analysis of Relative Short Interest and News Network Availability**

This table presents results of the triple-differences regression analysis of relative short interest (RSI) against Fox/MSNBC availability (Fox/MSNBC), Republican leaning (RL), and various control variables for firm-month observations over the period of 1998 to 2003. Column 1 presents results for the entire sample. Columns 2 and 3 represent subset analysis of RL firms and Non-RL firms, respectively. RL firms are firms that are headquartered in townships that had a majority vote for George Bush in the 2000 presidential election. Variables are defined in Appendix A. All regressions control for firm and year fixed effects. Standard errors are clustered at the firm level. T-statistics are reported in parentheses with \*\*\*, \*\*, and \* indicating significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)
	Full	RL	Non-RL
Fox × Post × RL	-0.019*** (-2.61)		
MSNBC × Post × RL	0.002 (0.23)		
Fox × Post	0.002 (0.71)	-0.016** (-2.46)	0.002 (0.77)
MSNBC × Post	0.004 (1.47)	0.007 (0.66)	0.004 (1.49)
Post * RL	0.015*** (3.13)		
Controls	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Obs.	34,455	8,880	25,575
Adjusted R <sup>2</sup>	0.6033	0.5983	0.6149

**Table VII. Triple Differences Analysis of Stock Price Performance and Fox News Availability in RL Counties**

This table presents results of the triple-differences regression analysis of stock price performance against Fox availability (Fox), republican leaning (RL), and various control variables for firm-month observations over the period of 1998 to 2003. Column 1 uses the natural logarithm of equity market value as a proxy for stock price performance. Column 2 uses the market-to-book ratio as a proxy for stock price performance. Column 3 uses monthly stock returns as a proxy for stock price performance. RL firms are firms that are headquartered in townships that had a majority vote for George Bush in the 2000 presidential election. Variables are defined in Appendix A. All regressions control for firm and year fixed effects. Standard errors are clustered at the firm level. T-statistics are reported in parentheses with \*\*\*, \*\*, and \* indicating significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)
	Market Cap	M/B	Return
Fox × Post × RL	-0.041 (-1.60)	-0.639 (-1.50)	-0.009 (-1.40)
Fox × Post	0.001 (0.14)	-0.0331 (-1.47)	0.000 (0.08)
Post × RL	0.007 (0.49)	-0.663** (-2.36)	0.004 (0.90)
Controls	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Obs.	58,084	58,084	57,973
Adjusted R <sup>2</sup>	0.9814	0.5910	0.0131