Home-country media slant and equity prices*

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Abstract

Do national newspapers slant the presentation of the news to cater to the preferences of their home-country readers? If so, does media slant affect investor behavior across countries? We address these questions by analyzing media coverage of the automotive industry in the United States, Germany, and Japan. We use detailed news data, coded by trained native speakers, covering over 190,000 newspaper articles on auto manufacturers during 2007–2016. We find that national newspapers report systematically more favorably about home auto manufacturers than about foreign auto manufacturers. Results hold across all countries, for a subset of large national newspapers, and for each country pair. The evidence is robust to controlling for selective media coverage and various supply-side effects. The home-country media slant is strongest for news that is more difficult to verify, and it becomes substantially higher during bad times for companies, such as around major auto scandals, on the announcement days of car recalls, and at times of low market valuations. We also find confirming evidence for catering to home readers in international editions of the *Wall Street Journal*. The home-country media slant correlates strongly with equity prices. An investment strategy of "betting against the home media" yields abnormal monthly returns in excess of 2%. Differences in media reporting across countries predict stock price deviations of cross-listed stocks. The effect is strongest when investors are more likely to pay attention to published news, and it is absent on days when investors are distracted by sports events.

Keywords: media slant, media bias, automotive industry, textual analysis, sentiment

JEL Classification: L82, D23, F23

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1 Introduction

National newspapers are considered the most reliable source of information among the printed media. Strong competition for an audience at the national level should ensure that reporting is not affected by the specific convictions of news providers or by the pressure of advertisers. In view of this, researchers have taken national newspapers as a yardstick to measure biases in local and financial media, and to analyze the effects of such biases on stock markets (Reuter and Zitzewitz, 2006; Gurun and Butler, 2012).

However, the strong competition for readership may also induce newspapers to slant the presentation of the news to cater to the preferences of their audiences (Mullainathan and Shleifer, 2005; Gentzkow and Shapiro, 2006; 2008; 2010). If readers share similar views within a country, but their views differ substantially from country to country, national newspapers in different countries may release vastly different reports about the same events.

The anecdotal evidence suggests that this type of media slant exists for reports on foreign affairs, with national media slanting the presentation of the news to predominant political views of ones' country. Similarly, in reports on international sporting events, we often observe favorable depiction of home athletes.[1]

We conjecture that cross-country media slant and favoritism of home brands may also arise for news about industries that are of great importance to national readers. Since most readers are exposed to only domestic news, because of language barriers and geographic distances, cross-country differences in business-related news might also have a particularly strong effect on investors.

[1] For cases of political slant, see Gentzkow and Shapiro (2006) and the references therein. For reports on international sporting events, see Bie and Billings (2015), among others.

We test these hypotheses in the context of the automotive industry across the three major car-producing countries: the United States, Germany, and Japan. We choose the automotive industry for three reasons. First, not only is the automotive industry one of the largest industries in the countries, but car brands are also one of the most recognizable of brands. One might even call them symbols of national identity and pride. As readers likely derive extra utility from reading news that puts home car brands in a more favorable light than foreign car brands it may be in a newspaper best interest to cater to the preferences of home readers. Second, auto manufacturers compete fiercely at the international level. This ensures substantial and practically constant media coverage across many countries, and it enables us to compare news about the same companies simultaneously in all the countries analyzed.

Finally, many car companies are traded on stock markets across the countries. When we test for the effect of media slant on equity investors, we are not restricted to only one price per company in domestic stock markets. We can also relate differences in media reporting across countries to temporary stock price deviations of cross-listed stocks, which alleviates concern that the posited media effects are driven by differences in company characteristics.

To ensure sufficient media coverage for all companies in all the countries analyzed, we focus on the three largest auto manufacturers in each country, commonly referred to as the country's Big Three. In the United States, the Big Three are General Motors, Ford, and Chrysler.[2] Germany's Big Three are Volkswagen AG, Daimler AG, and BMW. Japan's Big Three are Toyota, Nissan, and Honda. All companies have substantial presence in all the analyzed countries; together they account for nearly 70% of global automotive production.

[2] We consider Chrysler as an American company until 2014, when it was acquired by Fiat (an Italian car producer).

We compare newspaper news for these companies and their brands simultaneously in all three countries over the past decade. Our main source of data is Prime Research, a leading company in the field of media analysis for the automotive industry. Prime Research employs native speakers to code and assign *tone* to news about car companies published in different countries and in different languages. The unit of observation is a *segment* of a news article (i.e., a title, paragraph, or self-contained message). For all segments that contain value judgments, tone is assigned on a discrete nine-point scale from −4 (most negative) to +4 (most positive). Coders undergo rigorous training to ensure the quality and comparability of coding procedures and outcomes across articles, newspapers, countries, and languages. Besides the tone, which is our main variable of interest, the data include general information about each news item as well as many other variables that allow us to explore the mechanics of media slant.

For our sample of 9 car companies and 35 associated car brands during the 2007–2016 period, we have a total of 785,098 segments (observations) that appeared in 191,963 articles published in 201 newspapers. On average, the data cover 49 US newspapers, 48 German newspapers, and 10 Japanese newspapers per month. Newspapers with a national reach account for 97% of the observations; the remaining 3% originate from regional newspapers. We always control for regional newspapers, and eliminating regional news does not materially affect our results. News is fully human-coded by native speakers for 86% of the articles, while coding for the remaining 14% is partially automated.

We start by documenting the presence of a home-country media slant; that is, we show that news about companies has a systematically more positive tone in companies' domestic newspapers than in foreign newspapers. For each of the nine companies in our sample, the unconditional average news tone is more positive in a company's home country. After we control for fixed effects

(country, country of origin, company × year-month, media and coder fixed effects) and for several other news-specific control variables, the estimated coefficient on a "home" indicator variable (*home dummy*) is 0.29 and highly significant (*t*-statistic of 10.05). This effect is considerable, given that the scale for news tone ranges from –4 to plus +4. Results hold for a subsample of the three most important (highest-visibility) national newspapers per country and for the addition of journalist fixed effects. Results also hold for each of the three country pairs.

Moreover, the difference in the tone of news is virtually the same in a subsample consisting of news about the same general topic of news for the same time dimension (past, present, or future event) and published in the same week in all three countries. This confirms that the documented home-country media slant is not merely an artifact of a selective coverage of events; instead, it reflects a more positive article spin in home newspapers than in foreign newspapers. As Gentzkow and Shapiro (2006) predict, we also find that media slant is stronger for news that is more difficult to verify—topics such as employee relations, ecology, and corporate social responsibility—especially when the news refers to a future event rather than a past event.

Home-country media slant also varies over time, and it increases substantially around bad times for companies. Examples are during major car scandals (e.g., Volkswagen's scheme to defeat diesel emissions testing, Toyota's self-accelerating car debacle) and on announcement days of car recalls. We also find a significantly higher home-country media slant during times of low company market valuations (low market-to-book ratios).

Finally, we show that the home-country media slant is not confined to domestic newspapers in different countries. It is also present in the international editions of a given media outlet. In particular, we find similar evidence when we compare news about American and German companies in the US and European editions of the *Wall Street Journal*.

In each of the countries analyzed, several newspapers compete for an audience at the national level. Gentzkow and Shapiro (2008) argue that, media slant is more likely to persist in the face of competition when readers themselves prefer biased news, because news providers would forgo their own views and resist advertiser pressure in order to survive in the long run. Our results are in line with this conjecture. The estimated coefficient on a home dummy decreases only marginally when we include newspaper and journalist fixed effects, and it remains largely unchanged in a subsample consisting of the largest and most reputable newspapers. Results are also robust to controlling for lagged car sales, which we use as a proxy for advertising expenditures.

Perhaps most telling is that we find evidence for a home-country media slant not only across newspapers in different countries, but also in the international editions of the *Wall Street Journal*. As both editions are owned by the same ultimate owner, and many articles in both editions are written by the same journalists, the difference between editions in the tone of news cannot be due to supply effects. Instead, the evidence suggests that editors and journalists devote extra effort to cater news about car companies to international readers. This is unsurprising, given the importance of car industries for national economies and the dependence of a nation's self-image on the relative success of car companies. To attract readers and to maximize profits, newspapers would therefore slant news about car companies to the liking of their home readers.

As a further validation of this hypothesis, we apply the demand-based model for media slant of Mullainathan and Shleifer (2005) to our cross-country settings. The model captures most of our empirical findings. Variation in home-country media slant across the country pairs also appears aligned with proxies for preference parameters for confirmatory news (i.e., measures of national pride and bilateral political relations). The fact that a media slant is exacerbated during difficult times for companies indicates that readers prefer good news about home companies more than

they prefer bad news about foreign companies. This is similar to sports, where readers presumably gain the most utility from the success of their national teams, although they may also get some utility from the bad luck of their rival teams.

Having established the existence of a home-country media slant, we ask whether it matters for equity prices. If media caters to readers' priors and preferences for news, differences in the tone of news across countries may reflect cross-country differences in investor beliefs. At the same time, media may also affect or reinforce investor beliefs (Tetlock, 2015). Since media markets across countries are segmented, because of language barriers and geographic distance, and hence readers may not be able to distinguish media slant from the underlying event being reported, the reinforcement effect in the cross-country setting can be especially pronounced. We conduct several tests to evaluate the relation between the home-country media slant and equity prices.

In the first set of tests, we show that the relation between media reporting and domestic stock returns depends on the extent of media slant. During difficult times for companies, when the home media have the strongest incentive to slant the news, the difference between home and foreign news tone is negatively related to future returns. The exact opposite holds during good times for companies, when foreign newspapers have more incentive to slant the news. Moreover, we show that the extent of slanting can be used to construct a profitable long-short "*betting against the home media*" investment strategy. If a company's home news tone is more positive than the foreign news tone, we include its stock in the next month's short portfolio; otherwise, we include it in the next month's long portfolio. Over the last ten years, the strategy would have yielded abnormal monthly returns of 2.29%.

In the second set of tests, we exploit the *simultaneous* trading of American and German car companies on the stock markets in both countries. We show that the difference in the tone of news

between the countries predicts temporary deviations of time-matched stock prices across stock markets. Since equity holders of stocks traded in different countries are entitled to the same cash flows, the documented effect cannot be driven by differences in company characteristics. We also show that the effect is strongest on days when investors are more likely to pay attention to published news, and that it is weak or absent on days when investors are likely distracted by sports events. Together, these results suggest that *what* the media report—and especially *how* the media report it— matters for investor behavior, and hence for equity prices.

We contribute to the literature on the measurement, determinants, and the impact of bias in the news. Media slant in domestic news markets has been extensively studied, both in the context of politics (Groseclose and Milyo, 2005; Gentzkow, Glaeser, and Goldin, 2006; Della Vigna and Kaplan, 2007; Gentzkow and Shapiro, 2010; Snyder and Stromberg, 2010; Larcinese, Puglisi, and Snyder, 2011; Puglisi, 2011) and with respect to the media coverage of companies and financial markets (Dyck and Zingales, 2003; Reuter and Zitzewitz, 2006; Engelberg and Parsons, 2011; Gurun and Butler, 2012; Garcia, 2018). Documentation of cross-country media slant has been mostly confined to isolated political events and a small number of news sources (Sack and Suster, 2000; Yang, 2003; Gentzkow and Shapiro, 2006; Bie and Billings, 2015).[3] We advance the study of cross-country multilingual news comparisons with comprehensive evidence for home-country media slant with regards to the automotive industry.

[3] Sack and Suster (2000) offer an account of Croatian, Serbian, and international media coverage of two politically charged soccer matches that Croatia played at the brink of Yugoslavia's dissolution. Yang (2003) compares how Chinese and US media portrayed NATO airstrikes on Yugoslavia in 1999. Gentzkow and Shapiro (2006) give an example of *Al Jazeera English*, *Fox News*, and the *New York Times* conveying radically different descriptions of the 2003 American intervention in the Iraqi city of Samara. Bie and Billings (2015) show that US and Chinese media reported very different coverage of the doping suspicions surrounding Chinese swimmer Ye Shiwen in the 2012 Olympic Games.

Research on media slant in financial and local news has taken national media as basically unbiased (Reuter and Zitzewitz, 2006; Gurun and Butler, 2012). In our work, we show that the national media are biased, but these biases become apparent only in cross-country comparisons. The observed variation in home-country media slant across newspapers, country pairs, and signals for companies' good and bad times is most consistent with the idea that outlets cater to home-readers' preferences for good news (Gentzkow, Shapiro, and Stone, 2015). This suggests that the main motivation for home-country media slant is similar to that for political slants in domestic news markets (Gentzkow and Shapiro, 2010), but it is distinct from the motivation for favorable reports about local companies, which appears to be driven mainly by local newspaper dependence on advertising revenue from local companies (Gurun and Butler, 2012).

While the effect of local media slant on market valuations is strongest for smaller and less visible stocks, we find that cross-country media slant matters for the equity prices of large corporations. An important advantage of our empirical setting is that stocks are cross-listed, and we can therefore rule out the possibility that the documented effects are due to differences in company characteristics.

Finally, we advance the *measurement* of media slant. Instead of inferring slant from an automated count of a predetermined set of negative or positive words or political phrases (as in, e.g., Tetlock, Saar-Tsechansky, and Macskassy, 2008; Gentzkow and Shapiro, 2010; Gurun and Butler, 2012), we use the *tone* of media reports as perceived by native speakers. This enables us to compare media reporting across the different languages, and has the added advantage of capturing non-salient features of news reports that are difficult to capture using standard textual analysis (Loughran and McDonald, 2016). The richness of our data, in terms of the many variables

related to the source, topics, and the time reference of news, enables us to delve deeper into the mechanics of media slant.

More broadly, our study has implications for the role of the media in providing external governance (Dyck, Morse, and Zingales, 2010). Our results suggest that catering to home-country readers incentivizes media to conceal bad news about home companies. This may undermine the role of home media in providing accountability, and suggest that, in fact, foreign media are more likely to play a watchdog role than home-country media (Dyck, Volchkova, and Zingales, 2008). Finally, the documented media slant may also help explain the puzzling tendency of investors to invest disproportionally in home-country companies. While Van Nieuwerburgh and Veldkamp (2009) emphasize that investors may have more value-relevant information about domestic companies, our results suggest that investors also have overly positive news about home companies.

The rest paper proceeds as follows. In Section 2, we describe the data. In Section 3, we present the summary statistics and provide preliminary evidence for home-country media slant. In Section 4, we formally test for home-country media slant. In Section 5, we analyze how media slant interacts with media coverage, and how it varies over time and across different types of news. We also extend the evidence on home-country media slant to international editions of the *Wall Street Journal*. In Section 6, we discuss the factors that drive home-country media slant and present a simple demand-based model for slant that fits most of our empirical evidence. In Section 7, we show that home-country media slant is related to domestic stock returns and stock price deviations of cross-listed stocks. In Section 8, we provide concluding remarks.

2 Data

We obtain news data from Prime Research (PR). PR is a leading global provider of media monitoring and analysis for international companies and institutions. The company has been in business since 1987 and employs over 1,000 data analysts in eight research centers in Europe, North America, and Asia. It constantly monitors news reports about its clients in media outlets across countries and languages.

The PR standard approach is for native speakers manually code all news. All coders are PR employees and undergo rigorous training to ensure consistency and comparability of the coding procedures and outcomes across media outlets and languages. As PR states in the introduction of its internal training manual: "The quality and the precision of the coding are the *sine qua non* of all our work." Coders' performance is constantly monitored using double blind probes. Recently, PR introduced partially automated coding of news, to serve as an additional monitoring tool for coders, and for coding of less important media outlets.

While PR monitors both traditional and social media for different industries, it started out analysis of traditional media outlets for the automotive industry, and this remains its main area of specialization. We obtain the raw PR news data for the automotive industry for the period from January 2007 through December 2016.

The data cover news about auto companies in each country's most important national and regional newspapers. The data are coded at three levels: at the level of a newspaper, at the level of an article, and at the level of a segment of an article. A segment is a part of an article with a self-contained message (e.g., a title, paragraph, or part of a paragraph). It is uniquely defined by a mention of a particular car brand, the general topic of a segment's news, references to outside experts, and the time dimension of the described event (e.g. a past, present, or future event).

News tone is assigned to all segments that include value judgments. Tone is evaluated on a 9-point scale from −4 (most negative depiction) to +4 (most positive depiction), where 0 stands for a neutral tone.

For all core newspapers, coders are exclusively native speakers. For less important newspapers, coding in recent years is partially automated – for these newspapers, the title and the lead paragraph are coded by native speakers, and automated coding is used for subsequent paragraphs. For identical articles, coding is repeated.

The news tone is our primary variable of interest, but the data provide a lot of additional information. At the newspaper level, there is the newspaper's name and date of publication, country of publication, and whether it is national or regional. At the article level, we know whether the article is written by the editorial board, or we have information on the lead journalist (if identified); we also know whether the article includes a photo, the name of the PR employee who coded the article, and the number of segments in a given article. At the segment level, we have information on a segment's visibility, whether the segment focuses on the product (the car) or the company, the name of the company, the name of the car brand, the general topic of news, whether the segment refers to experts, financial institutions, or public entities, and whether the reported news is about a past, present, or future event. A segment's *visibility* is based on the newspaper's overall circulation, the article's location within the newspaper, and the number of segments in an article.

We are interested in media reports about car companies, and we therefore focus on news about different aspects of companies. There are eight general topics for news about car companies: company structure, market position, product strategy, corporate strategy, financial performance, management, employee relations, and corporate social responsibility and ecology.

To ensure substantial and constant media coverage for all companies in all the countries analyzed, we focus on news about the Big Three car manufacturers in each of three largest car-producing countries. In the United States, the Big Three are General Motors (GM), Ford, and Chrysler. In Germany, they are Volkswagen AG (VW), Daimler AG, and BMW. In Japan, the Big Three are Toyota, Nissan, and Honda.

These car companies produce and sell cars under several brand names. In our data, we can aggregate news by car company group or by any of the associated brands. Some companies in our sample also own brands that produce automotive parts, motorcycles, buses, large trucks, and so forth. Since our focus is on the car industry, we exclude any brand that is not associated directly with car production. We also exclude any "acquired" car brands where the acquirer does not have majority ownership for at least half of our sample period.[4] These brands receive relatively little media attention, and their exclusion has no material effect on our results.

The final sample, presented in Table 1, consists of 9 car companies and 35 associated car brands. Except for four, these brands exist throughout the whole sample period.[5] We exclude Chrysler brands from January 2014 onward, when the company was acquired by Fiat (an Italian car producer). The name of the company group usually matches the name of the main brand. The only exception is General Motors—"GM*" in Table 1 refers to general news about the GM group that is not specific to any of its brands.

We have noted that PR analyzes a number of core newspapers constantly. Its clients may occasionally request analysis of additional media outlets. In our sample, we observe two months in Germany and three months in the United States when the number of analyzed newspapers more than doubled. In extraordinary circumstances, PR may also reduce the scope of its analysis. In our

[4] For example, Ford partially or fully owned Jaguar (until 2008), Land Rover (until 2008), and Volvo (until 2010).
[5] The discontinued brands are Hummer, Pontiac, Saturn, and Mercury.

sample, this occurred in Japan between April 2010 and September 2011, when car companies temporarily reduced budgets following the global financial crisis. Although PR continued to monitor its core Japanese newspapers, it reduced the breadth of its analysis during that period.

We focus on the core newspapers by requiring that a particular newspaper be in the data set for at least 12 non-consecutive months. This filter does not materially affect our results. On average, the number of distinct newspapers per month varies between 49 for the US, 48 for Germany, and to 10 for Japan.

We conduct the analysis at the highest level of granularity—that is, at the level of a segment of an article. We omit segments to which no tone is assigned. In total, our data constitute 785,098 segments appearing in 191,963 articles. These articles are published in 171 national newspapers, 15 regional newspapers, and 15 newspapers that have both a national and a regional edition. The vast majority of observations (97%) come from national newspapers. The remaining 3% of observations come from regional newspapers. As our focus is on national newspapers, we always control for regional newspapers; eliminating them, however, has no material effect on our results.

Lead journalist is identified for 102,669 articles (7,501 different journalists). No lead journalist is identified for 88,926 articles, and another 368 articles are written by a newspaper's editorial board. At least one photo is included in 76,363 articles; 12,805 articles reference an expert, 8,156 a financial institution, and 11,334 a public entity. The data are coded by 376 Prime Research employees. The majority of articles (i.e., 165,797 of them) are fully human coded by native speakers; coding for 25,795 articles is partially automated; and coding is duplicated for 371 articles.

In addition to media data, we obtain monthly sales data for cars and light trucks by country and by car brand from *Ward's Automotive Yearbook*. For each brand and country, we match

monthly sales of cars and light trucks with our news data. For news about General Motors that is not specific to any of its brands ("GM*" in Table 1), we use total sales for all the GM brands.

In the United States, we also obtain data on newspaper advertising expenditures and announcements of car recalls. The advertising data come from Kantar TNS and include monthly figures for advertising expenditures for each car brand in our sample across approximately 200 national and regional US newspapers. The data on announcements of car recalls are from the Office of Defects Investigation's website.[6] The data cover all automotive recalls in the United States for all cars produced by the companies in our sample. Recalls are either ordered by the National Highway Traffic Safety Administration or initiated voluntarily by the car companies. For each recall, we use the day the record was created (DATEA) and we aggregate the number of affected cars by car brand. In total, we have 641 recall records at the brand level.

The data for domestic stock markets (adjusted stock price, market-to-book value, and market capitalization) come from Thomson Reuters Datastream. The data are based on information from the New York Stock Exchange for American companies, from the Deutsche Boerse for German companies, and from the Tokyo Stock Exchange for Japanese companies. All data is converted to U.S. dollars. There are no stock market data for Chrysler, which was privately owned before it was acquired by Fiat. We are also missing data for General Motors prior to 2010, when the company made an initial public offering upon emerging from bankruptcy.

For analysis of cross-listed stocks, we obtain daily opening and closing currency-adjusted stock prices for American Depositary Receipts (ADRs) and cross-listed stocks from Thomson Reuters Datastream. The intra-daily data for domestic markets are from TickData trading records. To match both data sets, we rely on actual prices, that is, prices that are not adjusted for dividends,

[6] https://www-odi.nhtsa.dot.gov/downloads/.

splits, or other companies' actions (the "unadjusted" series in Datastream). To analyze whether the effect of news on cross-listed stocks depends on investor attention to news, we download (from Google Trends) daily searches on major sports across countries.

3 Home-country media slant: Summary statistics

Table 2 presents the summary statistics for news tone and visibility for each of the nine car companies in our sample. Panel A reports the statistics for all media in the three countries: the United States, Germany, and Japan. Panels B and C report the same statistics separately for home and foreign media. The period runs from January 2007 through December 2016.

All companies have a high level of media exposure throughout our sample period. In cumulative terms across all the newspapers in all three countries (number of observations multiplied by average visibility), news about each company reached at least 522 million readers (for BMW) and as many as 3,720 million readers (for GM). Visibility is, on average, 2.64 times higher in home media than in foreign media. Even Nissan, which has the lowest visibility in foreign media, had an overall cumulative exposure to some 164 million foreign readers.

Average news tone ranges from 0.06 for GM to 1.10 for BMW. The news tone is generally high for German car companies and relatively low for American car companies; Japanese car producers stand in the middle. This is unsurprising because American car companies all experienced immense financial troubles at the beginning of our sample until the US government initiated a large-scale rescue plan in 2009. Among German and Japanese producers, VW and Toyota have the least positive tone. In part, this is due to the VW emissions scandal in 2015 and to Toyota's problems with self-accelerating cars in 2009–2010.

Most important, the average news tone for each car company is more positive in home media (Panel B) than in foreign media (Panel C). The difference ranges from 0.07 for Nissan to 1.00 for Volkswagen. The cross-sectional average for this difference is 0.44, which is substantial, given that the score for tone is bounded at minus and plus four. We interpret these results as a first indication for the presence of a home-country media slant.

4 Home-country media slant: Main results

To formally test for the difference in news tone between home and foreign newspapers, we run a pooled panel regression of news tone on a home dummy:

$$Tone_{t,i,c} = \alpha + \beta Home\ dummy_{t,i,c} + \delta FE_{t,i,c} + \lambda Controls_{t,i,c} + \varepsilon_{t,i,c}. \quad (1)$$

The variable *Tone* is measured on day *t* for car brand *i* in country *c*. The *Home dummy* indicator takes a value of one for tone measured in the country of a car brand's ultimate owner (i.e., the car company's home country) and zero otherwise.

We include several fixed effects (the intercept is included only in a regression without fixed effects). Country fixed effects capture any differences in the level of tone among the countries. Country-of-origin fixed effects control for the possibility that companies in different countries are perceived differently. Company and year-month fixed effects control for any unobservable variation across companies and time. Because we are interested in the difference in tone when news about a particular company is published in home and foreign newspapers at the same time, we include "cross fixed" effects—that is, company × year-month interactions. Newspaper fixed effects capture the idea that newspapers may differ in terms of the coverage and slanting of home and foreign companies. Coder fixed effects control for variation in tone assigned by different Prime

Research employees. Similarly, journalist fixed effects control for variation in tone on the part of news writers.

We also include message-specific controls: each segment's visibility, a dummy variable for articles that include a photo, a dummy variable for regional newspapers, a dummy variable for articles written by an unknown journalist, a dummy variable for articles written by the editorial board, and three dummies for segments that reference experts, financial institutions, and public entities. In addition, we control for the number of newspapers (i.e., the monthly number of newspapers in our data for each country). To account for any correlation of tone across companies, we adopt the standard approach of calculating standard errors clustered by company. Our results are also robust to calculating standard errors clustered by year-month or by newspaper. In fact, clustering by company leads to lower *t*-statistics than does clustering by the two alternatives.

The regression results are reported in Table 3. We start with a regression in which home dummy is the only explanatory variable. We then gradually add fixed effects and other control variables. In the univariate regression, the estimated coefficient on a home dummy is 0.61 with a *t*-statistic of 6.42 (column [1]). When we include all fixed effects (columns [2] to [5]), the estimated coefficient on a home dummy drops to 0.28 and the *t*-statistic increases to 9.87. Among fixed effects, the company × year-month fixed effects have the greatest impact. Coder and newspaper fixed effects also matter, although less so.

We add message-specific controls in column [6]. The dummy variable for a photo is positive and highly significant, which suggests that newspapers often use photos when reporting positive news. Tone in regional newspapers is generally lower. Visibility and references to experts, financial institutions, and public entities enter with a negative sign. The overall effect of these

control variables on the home dummy is negligible, however. Similarly, the number of newspapers is marginally significant and has no effect on the home dummy.

Next, we repeat our analysis using only the three most important newspapers in each country. These are newspapers with the highest visibility as of the end of 2016: the *New York Times*, *USA Today*, and the *Wall Street Journal* in the United States; *Bild*, *Westdeutsche Allgemeine Zeitung*, and *Sueddeutsche Zeitung* in Germany; and *Yomiuri simbun*, *Asahi simbun*, and *Mainichi simbun* in Japan. The results are presented in columns [7] and [8]. Despite the substantially reduced sample, the estimated coefficient on a home dummy is virtually the same. The reduced sample allows us to additionally control for journalist fixed effects. This reduces the coefficient on a home dummy from 0.27 to 0.24, athough the *t*-statistic remains high at 11.41.

Finally, columns [9]–[11] present results for subsamples of US–Germany, US–Japan, and Germany–Japan country pairs. The coefficient on a home dummy is always positive and significant, but it varies considerably across the country pairs. The coefficient is the highest (0.46) when comparing news in the United States and Japan and is the lowest (0.10) when comparing news in Germany and Japan. The coefficient for the US–Germany country pair is between those values and approximately the same as its value in the main regression (0.28).

5 Home-country media slant: Additional results

Our main results provide strong evidence that news about companies is systematically more positive in home newspapers than in foreign newspaper. Next, we analyze how that home-country media slant interacts with selective media coverage and how it varies over time and across different types of news. In addition, we extend the evidence on home-country media slant to international editions of the *Wall Street Journal*.

5.1 Same or different news

Home-country media slant can arise because home and foreign newspapers are reporting on the same events, but the home media present events with a more positive spin. Alternatively, media slant could arise because of selective coverage; for example, newspapers could avoid reporting bad news about home companies.

By controlling for company and year-month cross-fixed effects in Table 3, we focused on differences in news about the same company within the same month. To probe further, we now look at subsamples. First, we retain only those observations that report news about the same car brand in all three countries in the same week. Next, we exploit that, for a vast majority of observations, we have information about the news topic: company structure, market position, product strategy, corporate strategy, financial performance, management, employee relations, and corporate social responsibility and ecology. We additionally require that reported news be about the same general topic. Finally, we know whether news is about a past, present, or future event. Thus, we impose even more stringent criteria and require that the news refer to the same time dimension.

Results are reported in Table 4. In column [1], we establish that the main results are similar to the baseline case when we restrict the sample to observations where we have information about a news story's general topic and time dimension. In columns [2]–[4], we report results for the subsamples described above. As we add restrictions on the type of news that is reported within the same week in all three countries, the number of observations drops substantially, but the coefficient on a home dummy barely changes, and remains at approximately 0.30. These results provide further confirmation that the documented home-country media slant is not driven by selective coverage of events, but rather by a more positive article spin in home newspapers.

5.2 News verifiability

We would expect less of a media slant for news that is easier to verify. Gentzkow and Shapiro (2006) model this relation explicitly. If readers are opposed to extreme slanting, and newspapers care about their reputation, media slant declines with readers' ability to learn the facts from other sources.

We test this prediction in two dimensions. First, we use information about the general topic of news. We categorize news into three groups, depending on how difficult it is to verify it. Formally, we define three dummy variables. *Low* takes a value of one for news about company structure and market position. This is news that is presumably easiest to verify, and where we expect media slant to be the lowest. *High* takes a value of one for news about employee relations and corporate social responsibility and ecology. This is news that is presumably most difficult to verify, and where we expect media slant to be the highest. For the remainder of the news topics, we define a dummy variable as *Medium*, which takes a value of one for news about product strategy, corporate strategy, financial performance, and management.

Second, we identify whether news refers to a past, present, or future event. News about the past event is presumably easy to verify, especially if it is about past market position. News about future market position is, of course, not immediately verifiable. For topics such as corporate social responsibility and ecology, news may be difficult to verify even if it refers to a past event. We therefore expect both dimensions, topic and timing, to play a role as to the extent of media slant. As we did for topics, we form three dummy variables to indicate whether news is about a *Past*, *Present*, or *Future* event. Together, we have nine possible combinations for type of news, three along each dimension.

Results are reported in Table 5. We focus on the interaction terms between the home dummy and the different types of news. The estimated coefficients are in line with our predictions. The coefficient is low at 0.05 and insignificant with a *t*-statistic of 0.51 for news that is easiest to verify (news categorized as *Low* and *Past*). Coefficients increase along the topic and time dimensions. The highest coefficient is 0.64 with a *t*-statistic of 7.78 for news that is most difficult to verify (news categorized as *High* and *Future*). The difference between these two coefficients is statistically significant with a *t*-statistic of 3.57.

5.3 Good and bad times for companies

We measure home-country media slant by comparing the tone of news in home newspapers and the tone of news in foreign newspapers. Home-country media slant can therefore arise because of overly positive news in home newspapers, because of overly negative news in foreign newspapers, or because of a combination of effects.

The exact contribution of home and foreign media to the overall slant is difficult to measure because it requires unbiased knowledge about the actual state of affairs. However, the time-series variation in home-country media slant may tell us something about the relative contribution of home and foreign newspapers to the overall media slant.

In a demand-based model for slant of Mullainathan and Shleifer (2005), home-country media slant arises when readers hold higher priors about home companies than foreign companies (Section 5.4 presents the model formally). In catering to readers' preferences, home media report overly positive news during bad times for companies, and foreign media report overly negative news during good times for companies. If readers get more utility from reading confirmatory news about home companies than foreign companies, home media slant prevails, and the difference between the tone of news in home and foreign media becomes stronger during bad times for

companies. The exact opposite enfolds if readers get more utility from reading confirmatory news about foreign companies.

Put differently, if the documented home-country media slant is driven primarily by overly positive news in home media, it should become stronger during bad times for companies. Conversely, if the documented home-country media slant is driven primarily by overly negative news in foreign media, it should become stronger during good times for companies.

To test these predictions, we use several measures for good and bad signals about a company. We start by examining media slant around major car scandals and on announcements days of car recalls. To define good and bad times more generally, we also examine how media slant varies with companies' market valuations. Regression results are reported in Tables 6 and 7.

Major car scandals and car recalls

Volkswagen "Dieselgate" is the biggest auto scandal during our sample period. It started on 18 September 2015, when the US Environmental Protection Agency issued a notice of violation, alleging that Volkswagen Group had installed programming devices on diesel engines to pass laboratory emissions tests. In the days following this news, the VW stock price lost nearly a third of its value. A number of countries opened regulatory investigations, and more than 11 million cars were recalled in the subsequent months.

To capture the effect of Dieselgate, we define a dummy variable *VW scandal* that takes a value of one for all news about Volkswagen Group published between 18 September 2015 and 31 December 2015. As reported in Table 6, the estimated coefficient on *VW scandal* is negative at –2.89, while the coefficient on *Home dummy* × *VW scandal* is positive at 0.58. Both coefficients are highly significant. While the media overall were very critical of the VW misconduct, the home

media were far less critical than the foreign media. As a result, home-country media slant increased by more than half a point.

The second major car company crisis in our sample is Toyota's issue with sudden unintended acceleration of its cars. The issue started in the aftermath of a two-car collision killing four people on 28 August 2009. Following further investigation, Toyota recalled as many as 9 million cars by the end of January 2010, with a temporary suspension of production and sales of some of its most popular vehicles. We define a dummy variable *Toyota crisis* that takes a value of one for all news about Toyota Group between 28 August 2009 and 31 January 2010. Similar to the case of the VW scandal, the estimated coefficient on *Toyota crisis* is negative at −1.21 and its interaction with *Home dummy* is positive at 0.44. Again, both coefficients are significant.

Finally, we look at all automobile recalls that took place in the United States over our sample period. We focus on the announcement dates of recalls. Dummy variable *Recall* takes a value of one on the recall announcement day for car brands affected by the recall. To capture the severity of recalls, we impose criteria on the number of cars affected. The estimated coefficient on *Recall* is always negative, and the interaction term *Home dummy* × *Recall* is always positive. The coefficient on the interaction term increases from 0.41 for recalls that affected at least 5,000 cars to 0.88 for recalls that affected at least half a million cars.

Market valuations

A more general signal of how well a company is doing is revealed in its market value. A high ratio of market to book value can be interpreted as good times for the company, while a low ratio would signal bad times. We define *MB low* as a dummy variable that takes a value of one when the company's market-to-book ratio is below *a*, and we define *MB high* as one when the company's market-to-book ratio is above *b*. *MB medium* takes a value of one when the market-to-book ratio

is between *a* and *b*. The choice of parameters *a* and *b* is arbitrary. In theory, market-to-book ratio should range around one. To guarantee a sufficient number of observations associated with each dummy, we consider three different values for each parameter. We set *a* to either 0.5, 0.6, or 0.7, and we set *b* to either 1.5, 1.4, or 1.3.

The regression results are reported in Table 7. We first establish that our main results remain strong and significant when we restrict the sample to companies for which we have stock market data (column [1]). The coefficient on a home dummy is 0.26, and it is significant with a *t*-statistic of 12.22. The coefficient on a home dummy also remains unchanged when we include additional control variables: the market value, the market-to-book ratio, and lagged monthly returns approximated by returns over the last 21 trading days (column [2]).

Next, we add dummy variables based on the market-to-book ratios and their interactions with a home dummy. The estimated coefficient on *MB low* is negative and significant, while the coefficient on *MB high* is positive but not always significant. Most important, the estimated coefficients on the interactions between the *MB* indicators and the home dummy are positive and exhibit considerable variation. While the coefficient on the *MB low* × *Home dummy* is always high, between 0.5 and 0.6, and significant, the coefficients on the *MB medium* × *Home dummy* and *MB high* × *Home dummy* are much lower, between 0.1 and 0.2, and not always significant. Furthermore, the difference between the coefficients on *MB low* × *Home dummy* and *MB high* × *Home dummy* is always statistically significant. We therefore conclude that the home-country media slant is much stronger during bad times than during good times for companies.

These results are consistent with the evidence on major car scandals and car recalls. Collectively, our results indicate that home-country media slant increases substantially during bad times for companies. Given that the home media have stronger incentives to slant news during bad

times for car companies, our findings suggests that home-country media slant is driven mostly by overly positive news in home newspapers and to a much lesser extent by overly negative news in foreign newspapers.

5.4 International editions of the Wall Street Journal

So far, we have focused on domestic newspapers in different countries. Now, we ask whether home-country media slant extends to the international editions of a given media outlet. In particular, we look at how US and German car manufactures are portrayed in the US and European editions of the *Wall Street Journal* (*WSJ*). This is a particularly interesting case because both editions have a substantial readership and, ultimately, the same owner. Moreover, the same journalists write many of the articles in both editions, and as both editions are in English, the same Prime Research employees can code them.

The fact that both editions are in English also makes it easier to compare news articles across the editions. In September 2015, General Motors reached a settlement agreement with the US Justice Department regarding the company's problems with faulty ignition switches. Both editions reported on this event on Friday, September 18, and the same lead journalist was in charge of both articles. The European *WSJ* edition article began with the following paragraph:

> *"General Motors Co. will pay $900 million to settle criminal charges with the U.S. Justice Department for the auto maker's botched handling of an ignition-switch defect that led it to recall millions of vehicles and was linked to more than 100 deaths."*

The US *WSJ* edition article about the same event began as follows:

"General Motors Co. admitted to criminal wrongdoing and agreed to pay a lower-than expected financial penalty in the mishandling of a defective ignition switch, closing a chapter in a safety crisis that dented the auto maker's finances and reputation."

The two articles ultimately delivered the same facts, but the US edition's opening paragraph clearly sets a more positive article spin. In our data, the European edition article was assigned an overall tone of −1.14, whereas the US edition article was assigned a tone of +0.16.

September 18, 2015, also marks the beginning of the Volkswagen scandal. On the following Monday, September 21, both printed *WSJ* editions reported on the event. The same lead journalist was in charge of both articles. However, the choice of words and of article formatting (e.g., the number of cars affected by the scandal was printed in bold, large font and in red in the US edition; in the European edition, the same number was reported in normal font) suggests a more negative article spin in the US edition. In our data, the European edition article was assigned an overall tone of −1.93; the US edition article, a tone of −2.15.

These examples indicate that, indeed, the US *WSJ* edition reports more favorably about the US companies and that the European *WSJ* edition reports more favorably about the European companies. To test this hypothesis formally, we re-define *Home dummy* by setting it to one for news about German companies in the *WSJ*'s European edition and for news about US companies in the *WSJ*'s US edition.

The results are presented in Table 8. In the univariate regression, the estimated coefficient on a home dummy is 0.19 and is significant with a *t*-statistic of 2.55. When we include fixed effects and other control variables, the estimated coefficient drops to 0.17, while the *t*-statistic increases to 4.94. Even when we focus on a subsample of observations in which news about the same brand

is reported in both editions on the same day, and when we add journalist × coder cross-fixed effects, the coefficient on a home dummy is 0.12 and significant, with a *t*-statistic of 3.00. Favorable reporting about home companies thus extends to international editions of the same newspaper.

We acknowledge that the estimated coefficient on a home dummy is smaller than in the main analysis, where we compare all German and US newspapers (the coefficient is 0.28 in Table 3, column [9]). The *WSJ* European edition, however, does not target German readers specifically, but rather all European readers, including readers in other countries with their own car industries. Moreover, in both editions the news is reported in English, which makes it easier for readers to detect media slant. The mere fact that there are *any* differences between the news reported in both editions suggests that newspapers are catering the news to their particular audience.

6 What drives home-country media slant?

In this section, we tie our empirical results to theoretical models of media slant and discuss the factors that drive home-country media slant. We then present a simple model that captures most of our empirical evidence.

6.1 Sources of media slant

In principle, media slant can arise for many reasons. On the demand side, media slant can reflect the news provider's profit-maximizing choice to cater to readers' preferences for news or to their prior beliefs (Mullainathan and Shleifer, 2005; Gentzkow and Shapiro, 2006). On the supply side, media slant can reflect the views of journalists, editors, or media owners (Djankov, McLiesh, Nenova and Shleifer, 2003; Baron, 2006; Besley and Prat, 2006). A special type of supply-side media slant can also result from favorable reporting about companies that advertise in

newspapers (Herman and Chomsky, 2002; Ellman and Germano, 2009; Gurun and Butler, 2012), or from "*quid pro quo*" relationships, where journalists receive private information in exchange for a positive spin on the news (Dyck and Zingales, 2002; 2003).

While all of the above factors may contribute to instances of media slant, the theory suggests that the relative importance of supply and demand factors depends primarily on the competitiveness of media space and heterogeneity of readers' preferences (Gentzkow and Shapiro, 2008). In a competitive environment, news providers would likely forgo their own agendas in order to survive in the longrun. Therefore, in face of competition, media slant is more likely to persist if readers themselves prefer biased news. In the case of homogeneous preferences, all newspapers are expected to slant news in the same direction; in the case of heterogeneous preferences, news providers target a specific sub-audience (Mullainathan and Shleifer, 2005). Demand-based media slant has been identified as the main driver of biased reporting in the political arena (Gentzkow and Shapiro, 2010), but it may occur in any setting where readers have clear preferences for news.

Competition also mitigates the effects of advertising and quid pro quo relationships. Unless readers prefer biased news, filtering news to curry favor with companies reduces readership, which in turn also lowers future advertising revenue. Empirically, advertising effects have been shown to apply mainly to local newspapers and to specialized financial media (Reuter and Zitzewitz, 2006; Gurun and Butler, 2012). Similarly, the effects of quid pro quo relationships tend to be concentrated among less reputable newspapers (Dyck and Zingales, 2003).

In this study, we focus on national newspapers' reporting about car companies. Since car industry has a special, almost iconic, status in the analyzed countries, readers may feel strongly about home car brands and derive extra utility from favorable depiction of home companies. In

addition, in all the analyzed countries, many newspapers compete for an audience at the national level.

In the context of this study, then, the theory suggest that home-country media slant is more likely driven by the demand-side than by the supply-side media slant. Our empirical results are in line with this prediction. Adding media and journalist fixed effects to the baseline regressions (as in Tables 3 and 8) leads to only a marginal reduction in the *Home dummy* coefficient. Moreover, we find evidence for home-country media slant in both the European and the US editions of the *Wall Street Journal*. Given that both editions of the *WSJ* are owned by the same publisher, and employ many of the same journalists, supply-side factors do not seem to explain the difference in news tone between the two editions.

Because many national newspapers in the analyzed countries compete with each other for the audience and because our results are robust to including only the three largest—and, presumably, most reputable—newspapers in each country (see Table 3), we also do not expect advertising effects to be the main driver of home-country media slant. As a further confirmation, we show in Table 9 that our results are robust to controlling for lagged car sales: our proxy for advertising expenditures. In particular, using US data, we first establish that monthly brand-level car sales are highly correlated (0.65) with monthly brand-level expenditures for newspaper ads.[7] Next, we use one-month lagged brand-level car sales in each country as an additional control variable in our

[7] *Monthly brand-level expenditures for newspaper ads* are defined as the aggregate sum of the monthly advertising expenditures for a given brand in over 200 US newspapers, standardized by the total monthly expenditures for all car brands in our sample. *Monthly brand-level sales* are defined as the sum of cars and light trucks sold by a given brand in a given country and month, divided by the total number of cars and light trucks sold in that country-month.

main regression. The coefficient on sales is insignificant, while the coefficient on a home dummy remains at 0.30 and is significant, with a *t*-statistic of 4.30.[8]

We conclude that, overall, supply-side effects may contribute to home-country media slant yet seem not to be its main driver. Our results instead indicate that, especially the study of the *Wall Street Journal*, editors and journalists deliberately cater their news reports to international readers.

This outcome is intuitive when one considers that, as discussed previously, readers likely derive extra utility from reading news that puts home car brands in a more favorable light than foreign car brands. Hence, in a profit-maximizing environment, it may be in a newspaper best interest to cater to the preferences of home readers.

Because language barriers and geographic distances make it difficult for readers to compare news across countries, a demand-driven home-country media slant can persist even if the media markets in every country are perfectly competitive. To present this mechanism formally, we apply a simple version of the Mullainathan and Shleifer (2005) demand-based model for media slant in our cross-country settings.

6.2 Demand-based model for home-country media slant

In the Mullainathan and Shleifer (2005) model, readers care about the truth, but they also have news-related preferences. Rational news providers thus supply news that is tilted in the direction of readers' priors. The extent of this slanting depends on the trade-off between the cost of slanting and readers' preferences for biased news.

[8] In untabulated results, we verify that the results are largely unchanged if we exclude luxury brands, such as Rolls-Royce, Bentley, and Lamborghini (for which sales is probably not a good proxy for advertising), or if we exclude news about General Motors (where sales are based on the aggregate sales for all brands that belong to GM). We also find similar results if we repeat the analysis for only the three most important newspapers in each country, or if we replace automobile *sales* data with automobile *production* data.

In equilibrium, the degree of slanting is determined by the difference between the published news and private signals observed by the newspapers. Because private signals are not observable empirically, we measure media slant as the difference between the tone of the news in home versus foreign newspapers. In the model, home-country media slant can therefore occur either because readers prefer good news about home companies or because they prefer bad news about foreign companies.

The model

To apply the Mullainathan and Shleifer (2005) model to a cross-country setting, we assume two perfectly segmented markets for news: a home market and a foreign market. Readers in both markets are interested to learn about the state of a company $t \sim N(0, v_t)$. In each market, there are two newspapers competing for readers. We assume for simplicity that all newspapers receive the same signal about the company, $d = t + \varepsilon$, where $\varepsilon \sim N(0, v_\varepsilon)$. The only difference between home and foreign newspapers is that their respective readers have different preferences for news.

All readers hold prior beliefs and experience disutility when they read news that is not consistent with their beliefs. Even so, they dislike extreme slanting—this cost of slanting depends on whether or not the news is verifiable. Utility functions for home and foreign readers take the same functional form:

Home readers: $U_h = \bar{u} - p\chi s_h^2 - \phi_h (n_h - b_h)^2 - P_h$. (2)

Foreign readers: $U_f = \bar{u} - p\chi s_f^2 - \phi_f (n_f - b_f)^2 - P_f$. (3)

Here p is the probability that news is verifiable.[9] χ is the cost of slanting; ϕ is the preference parameter for reading confirmatory news—that is, news that is aligned with readers' prior beliefs; b denotes such prior beliefs; n stands for reported news; and P is the newspaper's price.

To capture the idea that home readers prefer good news, and foreign readers prefer bad news, we assume that $b_h = \eta$ and $b_f = -\eta$, where η is an arbitrary positive number.

Then, in perfectly segmented markets, the optimal degrees of slant are as follows:[10]

$$\text{Home newspaper's slant: } s_h^* = \frac{\phi_h}{p\chi + \phi_h}(b_h - d). \tag{4}$$

$$\text{Foreign newspaper's slant: } s_f^* = \frac{\phi_f}{p\chi + \phi_f}(b_f - d). \tag{5}$$

The competition within home and foreign markets dictates that $P_h = P_f = 0$. The difference between reported news in home and foreign newspapers is equal to the difference between the two slants, and it yields a direct mapping to our empirical measurement of home-country media slant:

$$\text{Home-country media slant: } s_h^* - s_f^* = \frac{\phi_h}{p\chi + \phi_h}(b_h - d) - \frac{\phi_f}{p\chi + \phi_f}(b_f - d). \tag{6}$$

In expectation, the signal d is zero. Since we assume $b_h = \eta$ and $b_f = -\eta$, it follows that both home news slant and foreign news slant make a positive contribution to the overall home-country media slant.

Does the model fit the data?

In the model, media slant depends on readers' preferences and is independent of supply-side factors. This is in line with our finding of a home-country media slant not only when we compare

[9] Mullainathan and Shleifer (2005) implicitly assume that news is verifiable. Without loss of generality, we incorporate the term p to capture the idea that χ (the cost of slanting) depends on how difficult it is for readers to verify news (see Gentzkow and Shapiro, 2006).

[10] See proposition 2 and corollary 2 in Mullainathan and Shleifer (2005).

news from different countries, but also when we compare international editions of the *Wall Street Journal*. Even the somewhat lower coefficient on a home dummy in the case of the *WSJ* can be reconciled with the model, given that the European edition of the *WSJ* targets besides German readers other European readers who are not as attached to German car industry.

The model makes three additional predictions. First, home-country media slant increases with the preference parameters for confirmatory news, ϕ_h and ϕ_f. With only three country pairs, it is difficult to devise a proper test. We only can provide suggestive evidence.

At an intuitive level, the preference parameter for home readers (ϕ_h) should be positively related to country-level measures of national pride. One may similarly expect the preference parameter for foreign readers (ϕ_f) to be negatively related to measures of socioeconomic similarities between countries or bilateral political relations, such as voting agreement in the United Nations (Alesina and Weder, 2002). In terms of national pride, among the analyzed countries, the US tops the list, followed by Japan, and then Germany (Smith and Kim, 2006). The bilateral UN voting agreement in our period is highest (0.93) between Germany and Japan, and it is much lower between the US and Germany (0.54) or between the US and Japan (0.49). Taken together, these measures suggest that the home-country media slant should be greatest for country pair US–Germany, and it should be lowest for the country pair country pair Germany–Japan. These predictions are aligned with the values reported in Table 3. The coefficient on a home dummy is highest (0.46) for the US–Japan country pair and is lowest (0.10) for the Germany–Japan country pair. The coefficient for the US–Germany country pair (0.28) is between those values.[11]

[11] A potential concern is that measures of national pride and UN voting agreement may be endogenous to media reporting. Although we cannot rule out this possibility, measures of national pride and of UN voting agreement are broad-based and highly persistent. Hence, they are unlikely to be affected by newspaper reporting about car companies.

The model's second additional prediction is that home-country media slant declines with the probability that news is verifiable. This is a general prediction that arises in any model for media slant as long as readers are opposed to extreme slanting and newspapers care about reputation (Gentzkow and Shapiro, 2006). This prediction fits well with our results in Section 5.1, where we show that slant is greater when newspapers discuss future (rather than past) events—and especially when news topics are more vaguely defined. This prediction is consistent also with somewhat less of a home-country media slant in the international editions of the *Wall Street Journal*. Specifically, it is easier for readers to detect media slant because both *WSJ*'s editions are printed in English.

The third additional prediction of the model is that the time-series variation in media slant depends on the relation between preference parameters for hearing confirmatory news about home companies and foreign companies. The intuition is as follows. Home readers prefer good news and foreign readers prefer bad news about a company. In catering to readers' preferences, home newspapers slant the most when the signal is negative while foreign newspapers slant the most when the signal is positive. If home and foreign readers have the same preference parameter for confirmatory news (i.e., if $\phi_h = \phi_f$), these effects largely offset each other, in which case the home-country media slant in Eq. (6) is independent of the signal. If $\phi_h \neq \phi_f$, however, then the overall slant *does* depend on the signal. When $\phi_h \gg \phi_f$, the slant is due mostly to home newspapers, and thus is greater when the signal is negative. Conversely, when $\phi_h \ll \phi_f$, the slant stems mostly from foreign newspapers and is therefore greater when the signal is positive.

Recall from Section 5.3 that home-country media slant is much greater during bad times for companies than during good times for companies. In terms of the model, this implies that readers prefer good news about home companies more than they prefer bad news about foreign companies, and that home-country media slant is primarily driven by overly positive news in home

newspapers. This has an analogy in sports, where sports fans presumably gain the most utility from their own team's successes, although they may also derive some utility from the defeats of their rival teams.

7 Home-country media slant and the stock market

Does the home-country media slant matter for equity prices? If national newspapers cater to readers' priors and preferences for news, differences in the tone of news across countries may reflect cross-country differences in investor beliefs. National newspapers also lend news the credibility and create common knowledge. Therefore, the way media filter news to different audiences may also affect or reinforce investor beliefs (Tetlock, 2015). Moreover, since media markets across countries are segmented, because of language barriers and geographic distance, readers may not be able to distinguish media slant from the underlying event being reported. As a result, the reinforcement effect in the cross-country setting can be especially strong.

We conduct several tests to evaluate the effect of media slant on stock prices. We start by analyzing the relation between media slant and domestic stock returns. Next, we exploit the cross-listing of companies; that is, we ask whether temporary stock price deviations across countries are related to differences in media reporting. Since attention to news is a prerequisite for media content to affect beliefs, we also analyze how the effect of media slant on relative stock prices varies with investor attention to news. We always state our hypotheses in terms of media affecting investor beliefs. Then we discuss the extent to which results could be explained by reverse causality.

7.1 Home-country media slant and domestic equity markets

According to the textbook argument, the relation between news and stock returns primarily depends on whether markets are efficient. In an efficient market, news is immediately incorporated

into stock prices; hence news is positively correlated with contemporaneous returns but uncorrelated with future returns. If markets are not entirely efficient, news is only slowly incorporated into stock prices; in this case, news is positively correlated with both contemporaneous and future returns.

In our setup, the relation between news and returns depends on three additional considerations. First, news is slanted, and investors may or may not take biased reporting into account when they make investment decisions. Second, there is considerable time-series variation in media slanting; home newspapers slant the most during bad times for companies, and foreign newspapers slant the most during good times for companies. Finally, price effects depend on whether the marginal investor is a home investor or a foreign investor.

According to Bloomberg geographical distribution of ownership as of 2016, American, Japanese, and German investors jointly held on average 67.15% of the stock in the companies in our sample. The vast majority of this ownership (74.81%) is accounted by home-country investors. When we derive our hypotheses, we therefore assume that a marginal investor is a home investor. Because of language barriers and geographic distance, we also assume that media markets are segmented and a home investor trades on home news. In support of these assumptions, we show below that home news tone is positively correlated with contemporaneous returns and that foreign news tone is uncorrelated with contemporaneous returns.

Under these assumptions, if investors do not take media slant into account, overly positive news in home media will lead to a temporary stock price overvaluation of a company and to a subsequent price correction once the true state of affairs becomes known. This constitutes our main hypothesis: Home media slant is negatively related to future returns. We expect this negative relation to be strongest during bad times for companies when the home media have the greatest

incentive to slant the news. In comparison, the home media have little incentive to slant news during good times for companies, in which case home news may be either uncorrelated or positively correlated with future returns, depending on market efficiency.

We predict the exact opposite outcomes with respect to foreign news tone. If the marginal investor is the home investor, foreign news has little impact on stock prices. Hence, the relation between foreign news and future returns depends merely on whether foreign news tone provides a good signal of the true state of the company. Because foreign newspapers have more incentive to slant the news during good times for companies, we expect foreign news tone to be less informative during good times than during bad times for companies.

Taken together, we expect relations as follows between news tone and returns.

(i) A negative relation between home news tone and future returns during bad times for companies (and no relation or a positive relation between home news tone and future returns during good times for companies).

(ii) A negative relation between foreign news tone and future returns during good times for companies (and no relation or a positive relation between foreign news tone and future returns during bad times for companies).

By construction, our measure of home-country media slant—defined as the difference between home and foreign news tone—should be negatively related to future returns during bad times for companies and positively related to future returns during good times for companies.

We test our hypotheses using panel regressions and portfolio sorts. To avoid contaminating results with non-synchronous trading hours across countries and to allow enough time for price corrections, we conduct this analysis at monthly horizons. We define home news tone as the average tone across all news segments published in a given month in a company's home country.

Similarly, foreign news tone is the average tone across all news segments published in a given month outside a company's home country. Because not all news receives the same attention, we weight news tone by the visibility of each segment. We also define monthly visibility as the aggregate sum of the visibility of all news segments published in home or foreign media.

The monthly difference between home and foreign news tone is 0.22 on average, but it varies over time and across companies. When the difference is positive, the market-to-book ratio is 1.57 on average; when the difference is negative, the market-to-book ratio is 1.07 on average. The difference between the home and foreign news tone is therefore revealing about the general state of a company. We use this observation to define an ex-ante measure of good and bad times for a company. Formally, we define a dummy variable **1**(H ≥ F) that takes a value of one when the home news tone is more positive than the foreign news tone, and zero otherwise. We define **1**(H < F) as one minus **1**(H ≥ F).

We start by regressing contemporaneous returns on home news tone and foreign news tone (or on the difference between them):

$$Ret_{t,i}^{Domestic} = \alpha + \beta_{HT} Home\ news\ tone_{t,i} + \beta_{FT} Foreign\ news\ tone_{t,i} + \lambda Controls_{t,i} + \varepsilon_{t,i}. \qquad (7)$$

We control for lagged returns as well as for logarithms of size, market-to-book ratio, and visibility. If book value is negative, we set the log of market-to-book ratio to zero. To account for correlations between companies' stock returns, we calculate standard errors clustered by year-month (Froot, 1989).

Results are reported in Table 10, columns [1] and [2]. Both home news tone and the difference between the home news tone and foreign news tone are positively and significantly related to contemporaneous returns. In comparison, the relation between foreign news tone and contemporaneous returns is weak and insignificant. These results are consistent with our

assumption that the marginal investor is a home investor, and with the notion that home-country media slant may lead to temporary overvaluations.

Next, we consider predicting one-month-ahead returns. We interact our measures of news with proxies for good and bad times for companies:

$$Ret_{t+1,i}^{Domestic} = \alpha + \beta_{HTP}\left(Home\ news\ tone_{t,i} \times 1(H \geq F)_{t,i}\right) + \beta_{FTP}\left(Foreign\ news\ tone_{t,i} \times 1(H \geq F)_{t,i}\right)$$
$$+\beta_{HTN}\left(Home\ news\ tone_{t,i} \times 1(H < F)_{t,i}\right) + \beta_{FTN}\left(Foreign\ news\ tone_{t,i} \times 1(H < F)_{t,i}\right)$$
$$+\lambda Controls_{t,i} + \varepsilon_{t+1,i}. \quad (8)$$

Here we use the same set of control variables as in Eq. (7). The regression results are reported in Table 10, columns [3] – [6]. As before, standard errors are clustered by year-month. Without the interaction terms, home news tone is negatively related to future returns, while foreign news tone is positively related to future returns (but the relations are not statistically significant). When we add interaction terms, we uncover substantial variation in informativeness of home versus foreign news—in line with our hypotheses. During bad times for companies, home news tone is negatively related to future returns, and foreign news tone is positively related to future returns. The converse also holds: During good times for companies, home news tone is positively related to future returns, and foreign news tone is negatively related to future returns. With the exception of home news tone in good times, all the coefficients are statistically significant.

We observe the same pattern if we replace home and foreign news tone with their difference—that is, our measure of home-country media slant. The difference between the news tones is negatively and significantly related to future returns during bad times for companies, and positively and significantly related to future returns during good times for companies.

Taken together, our preliminary findings suggest that the relation between news tone and future returns depends on how much the news is slanted. This indicates also that the extent of slanting is

informative about future returns and that a trading strategy based on "*betting against the home media*" may be profitable.

To explore this possibility, we set up a long-short portfolio as follows. If a company's home news tone is more positive than the foreign news tone, we include the company in the next month's short portfolio; otherwise, we include it in the next month's long portfolio. If no company qualifies for a given portfolio in a given month, we set returns equal to the risk-free rate.[12] We control for risk exposures by regress portfolio returns on the Fama–French global risk factors (Fama and French, 2015). All portfolios are value-weighted and are rebalanced monthly. We assess statistical significance using Newey and West (1987) *t*-statistics with six lags.

Results are reported in Table 11. If we invest in all car companies in our sample, the alpha is low and insignificant. The long-short portfolio, however, has a positive and statistically significant alpha of 2.29% per month (*t*-statistic of 2.46). As expected, most of the return comes from the short portfolio, which has a negative and significant alpha; the long portfolio's alpha is positive but insignificant. The coefficient on the market risk premium is negative and significant, which means that the strategy of betting against the home media has a negative exposure to market risk. The other risk factors are insignificant. Our long-short portfolio also has a high Sharpe ratio. If we invest in all the companies in our sample, the Sharpe ratio is only 0.17; that increases to 0.76 for the investment strategy of betting against the home media.[13]

[12] This happens three times for the long portfolio and once for the short portfolio, in a time series of 118 months.
[13] In untabulated results, we show that sorting on visibility rather than tone yields a small and insignificant alpha. This is unsurprising, given that our sample includes large stocks with substantial media coverage, while visibility effects are typically concentrated among small stocks that are neglected by the national media (Fang and Peres, 2009).

7.2 Home-country media slant and cross-listed stocks

Our findings on domestic stock returns reveal that the relation between news tone and future returns depends on the extent of media slant; they also indicate that one could develop a profitable trading strategy based on the extent of slanting. These results are in line with our hypotheses according to which home-country media slant affects investor beliefs.

There are two caveats though. The reported correlations between news tone and future returns could be driven by some unobservable differences between companies. In addition, qualitatively similar predictions arise if the media simply reflects investor beliefs. This is plausible given that, as we have argued, home-country media slant arises mainly because news providers cater to the preferences of their readers.

To address these caveats, we take advantage of the fact that most of the companies in our sample are traded simultaneously on the stock exchanges of different countries. Cross-border arbitrage ensures that prices across countries are generally aligned, although there are frequent and nontrivial differences between prices of the same stock traded in different markets (Gahnon and Karolyi, 2010). We test whether these price differences are related to differences in media reporting between the countries.

Because equity holders of the same stock traded in different countries are entitled to the same cash flows, these results cannot be driven by differences between companies. Matching synchronous prices from different markets also allows us to explore the effects of media slant at a daily frequency and to better distinguish between the times when investors are more or less likely to pay attention to published news.

7.2.1 Home-country media slant and cross-listed stocks: Predictive regressions

We require that a company be traded in at least two countries and that there be some overlap in trading hours between the stock markets, so that we can match prices from both markets at the exact same time. In addition, we require that news in both countries be based on the same time period. Our data cover morning editions of printed newspapers. The news in each country is available to investors in the morning, and it refers to events that occurred through the previous day. Thus, the requirement that news across countries be based on the same time period is satisfied, provided the time difference between countries is not too great.

Our sample includes German, Japanese, and American car companies. German car companies are traded in the United States as sponsored American Depositary Receipts (ADRs) or as global registered shares, and American car companies are cross-listed in Germany. The time difference between Frankfurt and New York is five or six hours, depending on whether Daylight Savings Time (DST) is in effect, so there are a few hours of overlap in the trading hours of these two countries' stock markets. It is also reasonable to assume that the news in the daily morning editions in both countries corresponds to events that occurred during the same time period.

Japanese companies are traded both in the United States and in Germany. The 13- to 14-hour time difference between Tokyo and New York means there is no overlap in stock market trading hours however—and neither is there any overlap between Tokyo and Frankfurt. Moreover, because of the wide time differences, one cannot safely assume that the daily news in Japan covers the same time frame as the news in Germany and United States. For these reasons, we restrict our analysis to the set of German and American car companies and to the stock markets and news data in these two countries. The terms "home" and "foreign" can denote either Germany or the United States, depending on whether we refer to a German or an American car company.

To match stock market prices, we take the currency-adjusted opening or closing price from the foreign market and match it with the time-stamped price in the home market. The daily stock prices are from Thomson Reuters Datastream; the time-stamped prices are from TickData, and they refer to the closing prices based on half-hour intervals of trading data.

For German companies, we take the euro-denominated US opening price (unadjusted for dividends and other companies' actions) and match it with the corresponding 3:30 pm price in Frankfurt (or 2:30 pm for a few weeks in March and November, because the United States switches to DST ahead of Germany). For BMW and Volkswagen, we take ADR prices that correspond to ordinary shares traded in Germany. For Daimler AG, we rely on the global registered shares because they are more actively traded and cover a longer time period than the corresponding ADRs.[14] We adjust prices for ADR ratios. We have data for all German companies for the entire period from January 2007 through December 2016; the only exception is BMW, for which ADR prices start on 5 November 2008.

For US companies, we take the unadjusted dollar-denominated closing price in Germany and match it with the US price at 11:30 am Eastern Time (or 12:30 pm, depending on the DST switch). Both Ford and General Motors are cross-listed, while Chrysler was privately held until it was acquired by Fiat.[15] The data for Ford begin in January 2007; the data for General Motors start on 8 November 2010, when it emerged from bankruptcy.

We define the daily relative stock price difference as the difference between the home and foreign price, standardized by the home price: $\left(P^{Home} - P^{Foreign}\right) / P^{Home}$. We require that the daily trading volume in both markets be positive and that the home stock price exceed $3.00. This latter

[14] Symbols BMWYY (ADR ratio 3:1) for BMW, VLAKY (5:1) for Volkswagen, and DDAIF (1:1) for Daimler AG.
[15] Symbols FMC1 for Ford and 8GM for General Motors.

requirement eliminates some observations for Ford during the 2008–2009 transition when it was on the verge of bankruptcy. We also eliminate observations for Volkswagen during October and November 2008 because of the "great short squeeze," which temporarily made Volkswagen the world's most valuable company; its stock price rose from €200 to more than €800 before plummeting back to its previous level, creating large price differences even among our time-matched prices across markets.

For each day and each company, we take the visibility-weighted average news tone in home and foreign newspapers. We then run a pooled regression of relative stock price differences on home news tone and foreign news tone (or the difference between them):

$$\left(\frac{P_{t,i}^{Home} - P_{t,i}^{Foreign}}{P_{t,i}^{Home}} \right) = \alpha + \beta_{HT} Home\ news\ tone_{t,i} + \beta_{FT} Foreign\ news\ tone_{t,i} + \lambda Controls_{t,i} + \varepsilon_{t,i}. \quad (9)$$

To control for the persistence in relative stock price differences, we use the lagged ($t - 1$) relative stock price difference and a five-day average for relative stock price differences between days $t - 2$ and $t - 6$. We also control for the log of daily visibility of home and foreign news. Following Froot (1989) and Tetlock, Saar-Tsechansky, and Macskassy (2008), we compute standard errors clustered by trading day.

Newspapers do not publish reports about all the companies every day, and home newspapers report news about home companies more frequently than do foreign newspapers. We eliminate days when neither home nor foreign media report anything about a particular company. For the remaining days, we follow two alternative strategies. Under the first alternative, if news about a particular company is reported in at least one country, we set missing observations for news tone in the other country to zero (neutral news tone). We also set missing observations for the logarithm of visibility to zero. Under the second alterative, we keep only days when news about a company is reported in both home and foreign market.

Table 12 reports the summary statistics. Under the first alternative, we have observations for a total of 10,015 company-trading days; under the second alternative, the number of observations is 5,560. The relative stock price difference is slightly positive on average; it ranges between −8% to +7% with a standard deviation of 0.7%. The average difference between the daily home news tone and foreign news tone is 0.5 or 0.2, depending on how we treat missing observations. It ranges from −5 to +6, with a standard deviation of 1.6 or 1.8.

Table 13 reports the regression results. The difference between home and foreign news tone is positively and significantly related to the relative stock price difference. The effect is attributable mainly to the home media. While home news tone is positively related to the relative stock price difference and foreign news tone is negatively related to the relative stock price difference, the coefficient on home news tone is much higher and is always statistically significant; the coefficient on foreign news tone is seldom statistically significant. Controlling for the lagged relative stock price difference reduces statistical significance only marginally. Results are somewhat stronger when we replace missing observations with zeros. Visibility of home and foreign news tone enters with a negative and insignificant coefficient.

7.2.2 Home-country media slant and cross-listed stocks: Attention to news

So far, we have documented that the difference between the daily tone of news in the US and Germany is correlated with temporary stock price deviations across both countries. Our regressions are predictive in nature; our news data covers morning editions that report on the previous day's events. We also control for lagged stock price differences, which reflect investor past beliefs. Therefore, we interpret this evidence as an indication that home-country media slant affects investor beliefs.

In further support of this notion, we next look at subsamples when readers are more (or less) likely to pay attention to published news. Attention is a prerequisite for media content to influence beliefs. If media slant affects investor beliefs, we should observe that the effect is strong when investors are likely to pay attention to news and is weak when investors are distracted.

We test this hypothesis using Google searches on sports (similarly to Schmidt, 2013). Sporting events attract tremendous attention, so it seems likely that readers pay less attention to company-specific news around the time of important sports events. Moreover, attention to sports is most likely to distract investors that are most prone to behavioral biases, and as such, most susceptible to media slant. Finally, attention to sports is largely exogenous to company-specific news, and it varies across countries depending on the scheduling of sports events that attract the most attention in a given country and the success of the participating teams.

For each country, we download the daily time series of Google searches on sports. We focus on major sports because they are most likely to distract investors. In Germany, soccer is by far the most popular sport, followed by basketball. In the United States, all four major league sports receive substantial attention. Thus, for the US, we collect data on the search terms "football", "basketball", "baseball", and "hockey". For Germany, we collect data on the search terms "fussball", "fußball", and "basketball".[16]

In the United States, the average number of searches is greatest for football—although the other three sports also receive considerable attention. Seasonal variation in searches matches the timing of regular seasons: fall for football and summer for baseball. Searches on basketball increase substantially around the NCAA's March Madness tournament. For hockey, the largest

[16] We use both "fussball" and "fußball" because these are two equivalent ways of writing "soccer" in the German language.

spike occurred on February 21, 2014, when the US played against Canada in the Sochi Olympic Games semi-final.

In Germany, searches confirm that soccer is by far the most prominent sport. On average, searches related to soccer exceed those about basketball by a factor of 15. Seasonal variation in soccer searches reflects the timing of the German and the European soccer leagues, but the largest increases in searches occur during the FIFA World Cups and the UEFA European Championships.

We aggregate daily searches per country and merge these aggregates with stock market data. We de-mean and de-trend the aggregated search data in each country by relying on the residuals from the regression of aggregated sports searches on a constant and date. For each country, we then define days when the search activity is above the 90th or the 95th percentile.

Table 14 reports results for the same regression specifications as Table 13, but for subsamples with high and low sports search activity. We define days with high search activity as those on which, in either of the two countries, sports searches exceed the 90th percentile (which we denote as ">p90") or the 95th percentile (">p95"). All other days are defined as having low search activity (denoted "<p90" and "<p95", respectively). Panel A of Table 14 reports results without additional control variables, and Panel B reports results with control variables. As in Table 13, standard errors are clustered by day.

On days with low search activity on sports, the estimated coefficient for the difference in the tone of news is always positive and statistically significant (the coefficient is also slightly higher than in the full sample; see Table 13). Conversely, the estimated coefficient for the difference in the tone of news is small and insignificant on days with high search activity on sports. These results hold not only in univariate regressions but also when we control for lagged stock price differences

and (log) visibility. We interpret these results as further evidence that media matters for investor behavior.

8 Conclusions

Our work shows that news about major car companies is systematically more positive in companies' home newspapers than in foreign newspapers. The observed variation in the home-country media slant across the type of news, country pairs, and signals for companies' good and bad times is most consistent with the idea that media outlets cater to home-readers' preferences for good news about home companies.

Our work also suggests that—how the media spin the news—influences investors' behavior and matters for equity prices. Differences in news tone across countries predict daily stock price deviations of cross-listed stocks, and an investment strategy of "betting against the home media" yields high risk-adjusted profits.

More broadly, our findings indicate that catering to home-country readers may undermine the role of home media in providing external governance, and that foreign media are more likely to play a watchdog role than home-country media. The overly positive news in home markets may also help us understand the puzzling tendency of investors to invest disproportionally in home-country companies.

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Table 1: Car companies and associated brands

This table lists car companies and associated car brands included in our analysis. The period is January 2007 through December 2016. The list includes all traditional car brands and car brands that are owned by any of the car companies for at least half of the sample period. In addition, cars of a particular brand need to be sold in at least one of the countries analyzed, the U.S., Germany, or Japan. Most brands exist throughout the whole sample period. Some brands were discontinued (Hummer, Pontiac, and Saturn in 2010, Mercury in 2011). Because General Motors does not sell cars under the GM brand, we add GM* to capture news about GM that are not specific to any of the GM brands. We exclude Chrysler brands from 2014 onward when Chrysler was acquired by Fiat.

American companies			German companies			Japanese companies		
General Motors	Ford	Chrysler	Volkswagen	Daimler	BMW	Toyota	Nissan	Honda
Buick	Ford	Chrysler	Audi	Mercedez-Benz	BMW	Lexus	Infiniti	Acura
Cadillac	Lincoln	Dodge	Bentley	Smart	Mini	Scion	Nissan	Honda
Chevrolet	Mercury	Jeep	Lamborghini		Rolls Royce	Toyota		
GM*		Ram	Porsche					
GMC			Seat					
Hummer			Skoda					
Opel			Volkswagen					
Pontiac								
Saturn								

Table 2: Media slant—Summary statistics

This table reports the summary statistics for news tone and visibility for each of the nine car company groups in our sample. The unit of observation is a segment/paragraph of an article. Tone is assigned on a discrete scale from minus four to plus four. Visibility denotes the number of potential readers. Panel A reports the statistics for all media across the U.S., Germany, and Japan. Panel B and C report the same statistics separately for home and foreign media. The period is January 2007 through December 2016.

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
	American companies			German companies			Japanese companies		
	GM	Ford	Chrysler	VW	Daimler	BMW	Toyota	Nissan	Honda
Panel A: All media									
Mean Tone	0.06	0.58	0.11	0.51	0.84	1.10	0.24	0.57	0.31
Std. Tone	1.90	1.84	1.84	1.95	1.76	1.71	2.00	1.87	1.98
Mean Visibility	21,221	19,038	24,502	10,997	10,499	10,736	46,815	47,725	39,373
Std. Visibility	47,164	37,295	52,105	34,692	34,163	30,091	104,969	103,725	81,739
No. of obs.	175,303	73,861	52,745	239,804	84,699	48,575	71,302	18,312	20,497
Panel B: Home media									
Mean Tone	0.22	0.68	0.29	0.66	0.85	1.13	0.48	0.61	0.52
Std. Tone	1.90	1.79	1.80	1.87	1.76	1.69	1.97	1.89	1.94
Mean Visibility	21,901	18,852	22,937	7,443	8,063	8,033	114,172	94,943	84,069
Std. Visibility	33,719	28,188	33,925	23,502	28,212	22,577	166,879	146,457	122,773
No. of obs.	105,892	59,685	42,514	204,058	75,787	41,372	21,341	7,478	6,990
Panel C: Foreign media									
Mean Tone	-0.19	0.16	-0.60	-0.33	0.73	0.89	0.13	0.54	0.20
Std. Tone	1.88	1.95	1.85	2.16	1.81	1.79	2.01	1.85	1.99
Mean Visibility	20,183	19,823	31,006	31,288	31,214	26,262	18,043	15,134	16,242
Std. Visibility	62,303	62,461	95,721	66,614	62,004	53,813	32,622	27,923	27,750
No. of obs.	69,411	14,176	10,231	35,746	8,912	7,203	49,961	10,834	13,507

Table 3: Media slant—Main regression results

This table reports regression results:

$$Tone_{t,i,c} = \alpha + \beta Home\ dummy_{t,i,c} + \delta FE_{t,i,c} + \lambda Controls_{t,i,c} + \varepsilon_{t,i,c}.$$

Tone is measured on day *t* for car brand *i* in country *c*. *Home dummy* is defined as one for tone measured in the country of car brand ultimate owner (car company's home country). We include country, country-of-origin, company × year-month, coder, newspaper, and journalist fixed effects. *Controls* include visibility, a set of dummy variables (for articles that include a photo, for regional newspapers, for articles with unknown journalist, for articles written by the editorial board, and for articles referencing experts, financial institutions and public entities), and number of newspapers per country. Columns 1–6 are based on all newspapers in the U.S., Germany, and Japan. Columns 7–8 are based on the three most important newspapers per country. Columns 9–11 report results for combinations of country pairs. Intercept is included only in a regression without fixed effects. In parentheses are *t*-statistics with errors clustered at the company level. The period is January 2007 through December 2016.

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
							Major newspapers		U.S. –G.	U.S. –J.	G. –J.
Home dummy	0.61	0.61	0.38	0.31	0.28	0.29	0.27	0.24	0.28	0.46	0.10
t-stat.	(6.42)	(6.56)	(8.78)	(10.12)	(9.87)	(10.05)	(11.06)	(11.41)	(15.10)	(14.26)	(4.57)
Visibility						0.00	0.00	0.00	0.00	0.00	0.00
t-stat.						(-1.42)	(-1.31)	(-0.59)	(-0.76)	(-1.47)	(-0.11)
Photo						0.15	0.16	0.13	0.16	0.14	0.17
t-stat.						(7.57)	(5.63)	(4.78)	(7.90)	(3.52)	(12.94)
Regional						-0.15	-0.55	-0.17	-0.16	-0.88	-0.13
t-stat.						(-2.82)	(-3.26)	(-1.06)	(-2.37)	(-2.13)	(-2.78)
Journalist unknown						0.01	0.05	-0.71	0.01	-0.06	0.06
t-stat.						(0.41)	(2.27)	(-1.77)	(0.63)	(-2.87)	(2.67)
Editorial board						-0.11	-0.73	-1.40	-0.09	-0.24	0.12
t-stat.						(-0.96)	(-4.11)	(-3.83)	(-0.67)	(-1.42)	(0.78)
Expert						-0.20	-0.24	-0.26	-0.27	-0.08	-0.42
t-stat.						(-2.55)	(-6.14)	(-10.48)	(-3.29)	(-1.48)	(-2.46)
Financial Inst.						-0.30	-0.27	-0.26	-0.31	-0.28	-0.34
t-stat.						(-7.00)	(-2.69)	(-2.82)	(-7.12)	(-4.11)	(-8.42)
Public entity						-0.23	-0.19	-0.14	-0.20	-0.17	-0.46
t-stat.						(-2.39)	(-1.78)	(-1.39)	(-2.27)	(-2.12)	(-11.32)
Number of newspapers						0.01	0.00	0.00	0.01	-0.01	0.00
t-stat.						(1.91)	(0.36)	(0.41)	(5.51)	(-2.39)	(0.64)
Fixed effects											
Country	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-of-origin	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Company × Year-month	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Coder	-	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Newspaper	-	-	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Journalist	-	-	-	-	-	-	-	Yes	-	-	-
N	785,098	785,098	785,098	785,098	785,098	785,098	117,741	117,741	655,628	307,596	386,991
R^2	0.02	0.08	0.23	0.25	0.26	0.26	0.25	0.29	0.26	0.22	0.32

Table 4: Media slant—Same or different news

This table reports regression results:

$$Tone_{t,i,c} = \alpha + \beta Home\ dummy_{t,i,c} + \delta FE_{t,i,c} + \lambda Controls_{t,i,c} + \varepsilon_{t,i,c}.$$

Tone is measured on day *t* for car brand *i* in country *c*. *Home dummy* is defined as one for tone measured in the country of car brand ultimate owner (car company's home country). The fixed effects and control variables are the same as those in column 6 in Table 3. Column 1 reports results for the subsample of observations where the information on the general topic and the time dimension of news is given. Column 2 reports results for a subsample where news about the same car brand is reported in all three countries within the same week. In column 3, we additionally require that the news be about the same general topic. In column 4, the news must also have the same time dimension (past, present, future). In parentheses are *t*-statistics with errors clustered at the company level. The period is January 2007 through December 2016.

	[1]	[2]	[3]	[4]
Same year-week and brand		1		
Same year-week, brand and topic			1	
Same year-week, brand, topic and time				1
Home dummy	0.27	0.30	0.32	0.30
t-stat.	(8.83)	(8.72)	(8.26)	(7.23)
Fixed effects	Yes	Yes	Yes	Yes
Other controls	Yes	Yes	Yes	Yes
N	690,823	469,166	273,096	189,204
R^2	0.25	0.27	0.31	0.32

Table 5: Media slant by type of news

Column 1 reports the same regression results as Table 3, column 6 for the subset of observations, where the topic and the time of the news event is determined. Column 2 includes interaction terms between the *Home dummy* and dummy variables based on the topic and the timing of news events. *Low* includes news about company structure and market position. *Medium* includes news about product strategy, corporate strategy, financial performance and management. *High* includes news about employee relations and corporate social responsibility and ecology. The interaction terms between the news topic and the news timing are included as fixed effects. The other fixed effects and other control variables are the same as those in column 6 in Table 3. In parentheses are *t*-statistics with errors clustered at the company level. In brackets is the *t*-statistic for the difference between the coefficients on *Home dummy* × *High* × *Future* and *Home dummy* × *Low* × *Past.* The period is January 2007 through December 2016.

	[1]	[2]
Home dummy	0.27	
t-stat.	(8.83)	
Home dummy × Low × Past		0.05
t-stat.		(0.51)
Home dummy × Low × Present		0.07
t-stat.		(0.58)
Home dummy × Low × Future		0.16
t-stat.		(1.84)
Home dummy × Medium × Past		0.24
t-stat.		(3.10)
Home dummy × Medium × Present		0.31
t-stat.		(7.16)
Home dummy × Medium × Future		0.28
t-stat.		(5.31)
Home dummy × High × Past		0.27
t-stat.		(1.36)
Home dummy × High × Present		0.35
t-stat.		(3.84)
Home dummy × High × Future		0.64
t-stat.		(7.78)
t-stat. (Difference)		[3.57]
Fixed effects		
Timing × Topic	-	Yes
Other FE	Yes	Yes
Other controls	Yes	Yes
N	690,830	690,830
R^2	0.25	0.27

Table 6: Media slant, auto scandals, and car recalls

This table reports regression results:

$$Tone_{t,i,c} = \alpha + \beta Home\ dummy_{t,i,c} + \delta FE_{t,i,c} + \lambda Controls_{t,i,c} + \varepsilon_{t,i,c}.$$

Tone is measured on day *t* for car brand *i* in country *c*. *Home dummy* is defined as one for tone measured in the country of car brand ultimate owner (car company's home country). We add a set of dummy variables. *VW scandal* takes a value of one for news about Volkswagen group between 18 September 2015 and 31 December 2015. *Toyota crisis* takes a value one for news about Toyota group between 28 August 2009 and 31 January 2010. *Recall* takes a value of one if there was a recall announced on day *t* for car brand *i*. The fixed effects and control variables are the same as those in column 6 in Table 3. In parentheses are *t*-statistics with errors clustered at the company level. The period is January 2007 through December 2016.

	[1]	[2]	[3]	[4]	[5]	[6]
				Recalls		
				>5,000	>50,000	>500,000
				N = 341	N = 166	N = 135
Home dummy	0.29	0.26	0.28	0.28	0.28	0.28
t-stat.	(10.05)	(7.08)	(10.26)	(9.74)	(9.80)	(9.95)
VW scandal		-2.89				
t-stat.		(-26.21)				
Home dummy × VW scandal		0.58				
t-stat.		(6.27)				
Toyota crisis			-1.21			
t-stat.			(-24.92)			
Home dummy × Toyota crisis			0.44			
t-stat.			(5.26)			
Recall				-0.38	-0.51	-0.64
t-stat.				(-7.62)	(-5.05)	(-4.38)
Home dummy × Recall				0.41	0.56	0.88
t-stat.				(5.98)	(3.25)	(2.72)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
N	785,098	785,098	785,098	785,098	785,098	785,098
R^2	0.26	0.26	0.26	0.26	0.26	0.26

Table 7: Media slant in good times and in bad times

This table reports regression results:

$$Tone_{t,i,c} = \alpha + \beta Home\ dummy_{t,i,c} + \delta FE_{t,i,c} + \lambda Controls_{t,i,c} + \varepsilon_{t,i,c}.$$

Tone is measured on day *t* for car brand *i* in country *c*. *Home dummy* is defined as one for tone measured in the country of car brand ultimate owner (car company's home country). We add a set of additional variables. *MV* is market value, *MB* is market-to-book ratio, *Lag ret* is 21-day return. *MB low* equals one if $MB < a$, *MB medium* equals one if $a \leq MB < b$, *MB high* equals one if $MB \geq b$. Column 1 reports the same regression results as Table 3, column 6 for the subset of observations, where the stock market data are available. The fixed effects and control variables are the same as those in column 6 in Table 3. In parentheses are *t*-statistics with errors clustered at the company level. In brackets are the *t*-statistics for the difference between the coefficients involving *MB low* and *MB high*. The period is January 2007 through December 2016.

	[1]	[2]	[3]	[4]	[5]
			a = 0.7 b = 1.3	a = 0.6 b = 1.4	a = 0.5 b = 1.5
Home dummy	0.26	0.26			
t-stat.	(12.22)	(12.27)			
MV		0.00	0.00	0.00	0.00
t-stat.		(0.34)	(0.31)	(0.40)	(0.43)
MB		0.01	0.01	0.01	0.01
t-stat.		(2.84)	(3.24)	(2.44)	(2.02)
Lag ret		0.58	0.56	0.54	0.52
t-stat.		(2.54)	(2.71)	(2.39)	(2.30)
MB low			-0.50	-0.62	-0.72
t-stat.			(-1.89)	(-1.93)	(-2.67)
MB high			0.21	0.08	0.10
t-stat.			(2.09)	(0.55)	(0.82)
MB low × Home dummy			0.51	0.56	0.53
t-stat.			(6.57)	(7.14)	(7.47)
MB medium × Home dummy			0.09	0.14	0.21
t-stat.			(1.23)	(2.17)	(3.41)
MB high × Home dummy			0.19	0.21	0.21
t-stat.			(2.57)	(2.84)	(2.86)
t-stat. [Low – High]			[2.22]	[2.43]	[2.38]
Other controls	Yes	Yes	Yes	Yes	Yes
Fixed effects	Yes	Yes	Yes	Yes	Yes
N	508,297	508,297	508,297	508,297	508,297
R^2	0.29	0.29	0.29	0.29	0.29

Table 8: Media slant—International editions of the *Wall Street Journal*

This table reports regression results for the sample of news about the U.S. and German car companies in the U.S. and the European editions of the Wall Street Journal:

$$Tone_{t,i,c} = \alpha + \beta Home\ dummy_{t,i,c} + \delta FE_{t,i,c} + \lambda Controls_{t,i,c} + \varepsilon_{t,i,c}.$$

Tone is measured on day *t* for car brand *i* in country *c*. *Home dummy* is defined as one for the news about German companies in the European edition of the WSJ, and as one for news about the U.S. companies in the U.S. edition of the WSJ. We include country, country-of-origin, company × year-week, coder, and journalist fixed effects. *Controls* include visibility and a set of dummy variables (for articles that include a photo, for regional newspapers, and for articles referencing experts, financial institutions and public entities). Column 5 reports results for a subsample when news about a given brand occur in both editions of the *WSJ* on the same day. Intercept is included only in a regression without fixed effects. In parentheses are *t*-statistics with errors clustered at the company level. The period is January 2007 through April 2016.

	[1]	[2]	[3]	[4]	[5]
Home dummy	0.19	0.16	0.16	0.17	0.12
t-stat.	(2.55)	(4.34)	(4.93)	(4.94)	(3.00)
Visibility				0.00	0.00
t-stat.				(-0.56)	(0111)
Photo				0.04	0.00
t-stat.				(1.45)	(0.11)
Expert				-0.29	-0.30
t-stat.				(-3.87)	(-4.49)
Financial Inst.				-0.16	-0.11
t-stat.				(-1.92)	(-0.96)
Public entity				-0.11	-0.16
t-stat.				(-1.24)	(-2.24)
Fixed effects					
Country	-	Yes	Yes	Yes	Yes
Country-of-origin	-	Yes	Yes	Yes	Yes
Company × Year-week	-	Yes	Yes	Yes	Yes
Coder	-	Yes	Yes	Yes	-
Journalist	-	-	Yes	Yes	-
Coder × Journalist	-	-	-	-	Yes
N	44,920	44,920	44,920	44,920	26,567
R^2	0.00	0.32	0.36	0.36	0.39

Table 9: Media slant and car sales

This table reports regression results:

$$Tone_{t,i,c} = \alpha + \beta Home\ dummy_{t,i,c} + \gamma Sales_{t,i,c} + \delta FE_{t,i,c} + \lambda Controls_{t,i,c} + \varepsilon_{t,i,c}\ .$$

Tone is measured on day *t* for car brand *i* in country *c*. *Home-dummy* is defined as one for tone measured in the country of car brand ultimate owner (car company's home country). *Sales* on day *t* is defined as one month lagged market share of car brand *i* in country *c*. The fixed effects and control variables are the same as those in column 6 in Table 3. In parentheses are *t*-statistics with errors clustered at the company level. The period is January 2007 through December 2016.

	[1]	[2]
Home dummy		0.30
t-stat.		(4.30)
Sales	0.01	0.00
t-stat.	(6.93)	(-0.23)
Other controls	Yes	Yes
Fixed effects	Yes	Yes
N	785,098	785,098
R^2	0.26	0.26

Table 10: Home-country media slant and stock returns

This table reports pooled panel regression results of monthly returns on home and foreign news tone and a set of control variables. Home news tone is the average tone across all the news segments published in the company's home country, weighted by visibility. Foreign news tone is the average tone across all the news segments published outside of the company's home country, also weighted by visibility. **1**(H ≥ F) takes a value of one when the home news tone is higher than the foreign news tone, and zero otherwise. **1**(H < F) is defined as one minus **1**(H ≥ F). Besides lagged return, logarithm of market-to-book ratio, and logarithm of the market value, we control for the logarithm of the aggregate monthly visibility of the home and foreign media. In parentheses are *t*-statistics with errors clustered at the year-month. The constant is not reported. The period is February 2007 through December 2016.

	[1]	[2]	[3]	[4]	[5]	[6]
	Contemporaneous return		One month ahead return			
Lagged(Ret)	-0.38	0.50				
t-stat.	(-0.05)	(0.07)				
Contemporaneous(Ret)			0.05	0.05	0.04	0.04
t-stat.			(0.63)	(0.66)	(0.59)	(0.58)
MB	2.34	2.60	-0.31	-0.26	-0.25	-0.31
t-stat.	(1.96)	(2.13)	(-0.33)	(-0.28)	(-0.26)	(-0.33)
Log(Size)	1.37	1.87	-4.60	-4.52	-4.65	-4.74
t-stat.	(0.53)	(0.72)	(-1.54)	(-1.54)	(-1.56)	(-1.63)
Home news tone	1.84		-0.16			
t-stat.	(2.92)		(-0.27)			
Foreign news tone	-0.44		0.40			
t-stat.	(-1.02)		(0.85)			
Home news tone – foreign news tone		0.98		-0.31		
t-stat.		(2.55)		(-0.75)		
Home news tone × 1(H ≥ F)					-2.15	
t-stat.					(-2.47)	
Foreign news tone × 1(H ≥ F)					1.92	
t-stat.					(2.30)	
Home news tone × 1(H < F)					1.93	
t-stat.					(1.68)	
Foreign news tone × 1(H < F)					-2.31	
t-stat.					(-2.34)	
(Home news tone – foreign news tone) × 1(H ≥ F)						-1.88
t-stat.						(-2.77)
(Home news tone – foreign news tone) × 1(H < F)						2.06
t-stat.						(2.30)
Log(Visibility home news)	0.88	0.75	-0.09	-0.11	-0.26	-0.22
t-stat.	(2.12)	(2.04)	(-0.25)	(-0.31)	(-0.77)	(-0.64)
Log(Visibility foreign news)	0.77	0.61	-0.19	-0.21	-0.30	-0.27
t-stat.	(1.46)	(1.16)	(-0.40)	(-0.46)	(-0.61)	(-0.58)
N	759.00	759.00	760.00	760.00	760.00	760.00
R^2	0.04	0.03	0.03	0.03	0.04	0.04

Table 11: Betting against the home media

This table reports regression results of monthly portfolio returns on the Fama and French global factors. All portfolios are value-weighted and rebalanced monthly. If home news tone is higher than foreign news tone, the company comprises part of the next month's short portfolio; or else, it is included in the long portfolio. The global factors are market return in excess of the risk-free rate (Mkt-Rf), small minus big (SMB), high minus low book-to-market (HML), profitability (RMW) and investments (CMA). In parentheses below the estimated coefficients are Newey and West (1987) *t*-statistics with six lags. Sharpe ratios are annualized. The period is February 2007 through December 2016.

	All companies		Long		Short		Long/Short	
Sharpe Ratio	0.17		0.52		-0.26		0.76	
Intercept	-0.07	0.06	0.85	1.00	-1.62	-1.29	2.47	2.29
	(-0.16)	(0.12)	(1.34)	(1.50)	(-2.86)	(-2.37)	(2.46)	(2.46)
Mkt – Rf	1.08	1.06	0.94	0.98	1.82	1.67	-0.88	-0.69
	(4.51)	(4.02)	(3.51)	(3.40)	(9.94)	(12.20)	(-2.19)	(-2.34)
SMB		-0.12		-0.48		0.04		-0.52
		(-0.32)		(-0.86)		(0.12)		(-0.73)
HML		-0.13		-0.60		0.09		-0.69
		(-0.23)		(-0.96)		(0.16)		(-1.09)
RMW		-0.47		-0.75		-0.45		-0.30
		(-0.74)		(-1.10)		(-0.76)		(-0.49)
CMA		0.07		0.35		-0.80		1.16
		(0.11)		(0.40)		(-1.29)		(1.28)
N	118	118	118	118	118	118	118	118
R^2	0.44	0.44	0.32	0.34	0.65	0.65	0.20	0.23

Table 12: Multimarket trading—Summary statistics

This table reports the summary statistics for the multi-market trading analysis. Daily relative stock price differences for a given company are defined as $\left(P_{t,i}^{Home} - P_{t,i}^{Foreign}\right) / P_{t,i}^{Home}$. Currency adjusted foreign prices are matched with synchronous prices from the home market. Daily home news tone is the visibility-weighted average news tone across all the segments published in home newspapers for a given company. Similarly, foreign news tone is the visibility-weighted average news tone across all the segments published in foreign newspapers. Results are based on the U.S. and German companies traded in the U.S. and Germany. If there is no news reported in home or foreign markets on a given day, we assign a news tone of zero (Panel A). In Panel B, we repeat the summary statistics for days when news is reported both in home and foreign newspapers. The period is January 2007 through December 2016.

	Mean	Std.	Min.	Max.	N
Panel A: News reported at least in one country (missing values replaced by zeros)					
Relative stock price difference (%)	0.03	0.71	-7.61	7.11	10,015
Home news tone	0.87	1.22	-3.12	4.00	10,015
Foreign news tone	0.36	1.27	-4.00	4.00	10,015
Home news tone - foreign news tone	0.51	1.62	-5.12	5.84	10,015
Panel B: News reported in home and foreign country					
Relative stock price difference (%)	0.02	0.75	-7.61	7.11	5,560
Home news tone	0.82	1.22	-3.12	4.00	5,560
Foreign news tone	0.61	1.62	-4.00	4.00	5,560
Home news tone - foreign news tone	0.22	1.76	-5.12	5.84	5,560

Table 13: Multimarket trading—Regressions

This table reports regression results of daily relative stock price differences on home and foreign news tone and control variables:

$$\left(\frac{P_{t,i}^{Home} - P_{t,i}^{Foreign}}{P_{t,i}^{Home}} \right) = \alpha + Home\ news\ tone_{t,i} + Foreign\ news\ tone_{t,i} + Controls_{t,i} + \varepsilon_{t,i}$$

Currency adjusted foreign prices are matched with synchronous prices from the home market. Home news tone is the visibility-weighted average news tone across all the segments published in home newspapers for a given company *i* on day *t*. Similarly, foreign news tone is the visibility-weighted average news tone across all the segments published in foreign newspapers on the same day. Results are based on the U.S. and German companies traded in the U.S. and Germany. If there is no news reported in home or foreign markets on a given day, we assign a tone of zero (columns 1–4). In columns 5–8, we repeat results for days when news is reported in both home and foreign newspapers. Coefficients on news tone and log visibility are multiplied by 1,000. In parentheses are *t*-statistics with errors clustered at the trading day. The period is January 2007 through December 2016.

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	News reported at least in one country				News reported in home and foreign country			
Home news tone	0.25		0.22		0.26		0.24	
t-stat.	(4.60)		(4.02)		(3.11)		(2.86)	
Foreign news tone	-0.11		-0.08		-0.08		-0.08	
t-stat.	(-1.86)		(-1.41)		(-1.24)		(-1.31)	
Home news tone – foreign news tone		0.18		0.15		0.13		0.13
t-stat.		(4.00)		(3.34)		(2.32)		(2.27)
Rel. stock price diff. (t–1)			0.06	0.06			0.02	0.02
t-stat.			(2.93)	(2.94)			(0.62)	(0.63)
Rel. stock price diff. (t–2: t–6)			0.16	0.16			0.19	0.19
t-stat.			(3.85)	(3.87)			(3.25)	(3.25)
Log(Visibility home news)			-0.04	-0.04			-0.06	-0.07
t-stat.			(-1.34)	(-1.39)			(-0.99)	(-1.17)
Log(Visibility foreign news)			-0.02	-0.02			-0.04	-0.05
t-stat.			(-1.43)	(-1.30)			(-0.78)	(-0.94)
N	10,015	10,015	10,011	10,013	5,560	5,560	5,556	5,556
R^2	0.00	0.00	0.01	0.02	0.00	0.00	0.01	0.01

Table 14: Multimarket trading—Regressions: Subsamples

This table reports regression results of daily relative stock price differences on home and foreign news tone and control variables:

$$\left(\frac{P_{t,i}^{Home} - P_{t,i}^{Foreign}}{P_{t,i}^{Home}}\right) = \alpha + Home\ news\ tone_{t,i} + Foreign\ news\ tone_{t,i} + Controls_{t,i} + \varepsilon_{t,i}$$

Currency adjusted foreign prices are matched with synchronous prices from the home market. Home news tone is the visibility-weighted average news tone across all the segments published in home newspapers for a given company *i* on day *t*. Similarly, foreign news tone is the visibility-weighted average news tone across all the segments published in foreign newspapers on the same day. Results are based on the U.S. and German companies traded in the U.S. and Germany. If there is no news reported in home or foreign markets on a given day, we assign a tone of zero (columns 1–4). In columns 5–8, we repeat results for days when news is reported in both home and foreign newspapers. Results are reported separately for subsamples with low and high Google searches for sports; <p90 denotes days when sport-related Google searches in the US and Germany are below the 90th percentile, and >p90 denotes days when Google searches in either of the countries are above the 90th percentile. Similarly, <p95 and >p95 denote samples with high and low Google searches, where we use 95th percentile as the threshold. Coefficients on news tone and log visibility are multiplied by 1,000. In parentheses are *t*-statistics with errors clustered at the trading day. The period is January 2007 through December 2016.

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	News reported at least in one country				News reported in home and foreign country			
	<p90	>p90	<p95	>p95	<p90	>p90	<p95	>p95
Panel A: No control variables								
Home news tone - foreign news tone	0.18	0.14	0.20	0.00	0.15	0.06	0.15	-0.02
t-stat.	(3.72)	(1.45)	(4.19)	(0.02)	(2.34)	(0.47)	(2.48)	(-0.14)
N	8077	1938	8999	1016	4534	1026	5013	547
R2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Panel B: With control variables								
Home news tone - foreign news tone	0.16	0.11	0.16	0.07	0.14	0.07	0.14	-0.01
t-stat.	(3.20)	(1.04)	(3.38)	(0.49)	(2.20)	(0.51)	(2.31)	(-0.06)
Rel. stock price diff. (t-1)	0.06	0.08	0.07	0.03	0.06	0.09	0.06	0.06
t-stat.	(2.53)	(1.65)	(2.88)	(0.49)	(1.75)	(1.64)	(2.08)	(0.80)
Rel. stock price diff.(t-2:t-6)	0.16	0.16	0.16	0.16	0.14	0.13	0.14	0.10
t-stat.	(3.48)	(1.71)	(3.62)	(1.95)	(2.18)	(1.51)	(2.35)	(0.98)
Log(Visibility home news)	-0.03	-0.09	-0.02	-0.20	-0.06	-0.10	-0.05	-0.20
t-stat.	(-0.91)	(-1.21)	(-0.68)	(-2.07)	(-0.88)	(-0.66)	(-0.80)	(-1.08)
Log(Visibility foreign news)	-0.01	-0.05	-0.02	0.02	-0.01	-0.21	-0.03	-0.25
t-stat.	(-0.70)	(-1.48)	(-1.48)	(0.45)	(-0.20)	(-1.68)	(-0.44)	(-1.63)
N	8074	1937	8995	1016	4525	1025	5003	547
R2	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.02