

Cartels in the European Union, Antitrust Action, and Public Attention

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November 2020

We thank Ruben Durante, Fabrizio Germano, Sophie Hatte, Brian Knight, Gregory Martin, Armin Rott, Stefan Ruenzi, Andrew Samuel, Francesco Sobbrío, Jil Sörensen, David Strömberg, participants at the 2017 Economics of Media Bias Workshop, the 2018 Conference of the European Public Choice Society, the 2018 Conference on Empirical Legal Studies in Europe, and at seminars in Hamburg for helpful comments and suggestions. We are particularly grateful to Jonathan Todd (Head of Communications of the European Commission's Directorate-General for Competition) for sharing his views on the topic. The views expressed in this working paper are those of the author(s) and do not necessarily represent those of Hamburg Media School. Declarations of interest: none.

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Abstract

This study compiles an original dataset to investigate whether the timing of actions by the European Commission in cartel proceedings is affected by the overall news agenda. Our results indicate that certain actions are more likely to coincide with large predictable news events (e.g., the FIFA World Cup and the Olympics), the more EU firms involved in a cartel – compared to cartels with few EU companies or many non-EU firms. Studying the implications of the differential timing, we find that the occurrence of unrelated newsworthy events lowers public attention to the actions, as measured by news agency and newspaper reports, as well as relevant Google searches. These findings do not constitute conclusive evidence of favoritism, that the Commission favors domestic companies by reducing the negative publicity associated with the proceedings. However, even a suspicion of a subtle form of protectionism undermines the Commission's role as an independent supranational regulator.

Keywords: information; media; protectionism; timing; strategic behavior

JEL classification: F52; F55; G14; H89; K21; L82

1. Introduction

Anticompetitive agreements among companies to fix prices, to limit the production, or to share customers prevent the market from working efficiently. The European Commission has been frequently conducting investigations into these kinds of illegal behavior, often resulting in severe penalties. Based on the Treaty on the Functioning of the European Union (TFEU), the antitrust regulations provide a variety of criteria and tools, according to which the Commission and its Directorate-General for Competition are supposed to fight cartels. Since the overall goal is market efficiency, the regulations do not contain any justification to treat European and non-European¹ companies differently. As a representative of EU citizens, firms, and states, the Commission could be motivated to favor domestic companies regardless: Efforts of European companies to lobby the Commission are usually larger than the efforts of foreign firms (e.g., Wonka et al., 2010), and the EU member states might exert pressure to protect national undertakings (e.g., Meunier, 2005; Panke, 2012; Dinc and Erel, 2013).

However, we do not expect any kind of direct discrimination against non-European firms, such as the imposition of higher fines. Open forms of unequal treatment would violate various laws and treaties, undermine the Commission's legitimacy, and provoke retaliation by foreign regulators (Kerber and Budzinski, 2004).² Instead we investigate the timing of actions during cartel investigations. These investigations usually last several years and involve multiple procedural steps, including raids, so-called statements of objections, and formal decisions, as well as corresponding press releases published by the Commission. In almost all cases, the steps and press releases are bad publicity for the companies involved. Being investigated and fined for illegal behavior might affect the reputation of the firms, possibly damaging relations with business partners and customers. Usually, the detrimental effects of cartel proceedings cause companies to experience negative abnormal stock returns (e.g., Bosch and Eckard, 1991; Bizjak and Coles, 1995; Aguzzoni, Langus, and Motta, 2013; Günster and van Dijk, 2016).

¹ We use the expressions “European vs. non-European” and “domestic vs. foreign” in a strictly political sense to distinguish between EU and non-EU companies.

² In fact, Cremieux and Snyder (2016) do not find significant differences between domestic and foreign companies in the size of fine set by the European Commission, using data for the period from 1994 to 2014.

Two recent cases help to illustrate the issue at hand, the so-called Swiss Franc Bank Cartel and the Canned Mushrooms Cartel. The former included the Royal Bank of Scotland (UK), JPMorgan Chase (USA), Credit Suisse, and UBS (both Switzerland), whereas the latter was formed between Bonduelle (France), Lutece, and Prochamp (both Netherlands). These cases were quite similar from a procedural point of view: Both started in late 2011 with individual cartel members blowing the whistle (i.e., applying for lower fines in exchange for evidence). Official investigations into each cartel were opened in mid-2013, and the Commission issued prohibition decisions and set the fines about a year after that. However, the timing of this last step differed in an important detail. The decision against the Swiss Franc Bank Cartel, which mostly consisted of non-EU firms, was issued in October 2014, during relatively uneventful times. In the case of the Canned Mushrooms Cartel, which was formed only between EU companies, the decision was instead issued in June 2014, when the final games of the group stage of the FIFA World Cup in Brazil were played.

Does the timing of actions taken by the Commission against European and non-European companies differ, depending on the overall news agenda? Despite its reputation for promoting open markets and economic liberalization, the Commission is subject to strong domestic influences pushing towards privileging European firms. While the costs of open discrimination are likely too high, the Commission could try to favor domestic companies by minimizing the side effects of the proceedings. That is, the Commission could time its actions against European companies to coincide with large newsworthy events, do the opposite in the case of foreign firms, or both.

To evaluate this conjecture, we collect detailed information on cartel investigations, companies, and competing news events. Our sample includes all 85 cartels for which the Commission issued a decision between 2004 and 2015, including 248 procedural steps and 162 press releases related to 580 companies. We observe a baseline probability of 8% that the actions by the Commission take place at the same time as major sports events (i.e., the FIFA World Cup, the UEFA European Championship of national teams, and the Olympics) or important national elections (i.e., in France, Germany, the UK, the US, and to the European Parliament). After controlling for observable differences between companies and cases, we find that prohibition decisions and cartel-related press releases are more likely to coincide with these predictable news events, the higher the number of EU companies in a cartel. With each additional EU firm, the likelihood that decisions are issued at the same time as predictable news events increases by about 3.2 percentage

points or 40% of the baseline probability. In the case of Commission press releases, the increase amounts to ca. 1.6 percentage points or 20%. This finding is robust to different measures of cartel composition, alternative sets of predictable news events, and various changes in model specification and sample selection.

We complement the analysis by investigating the relationship between the timing of actions and public attention. For that purpose, we evaluate the press releases by the Commission, news agency reports, newspaper coverage, and Google searches related to the cartel proceedings. We present robust evidence that the number and especially the length of reports by European news agencies and newspapers decrease when the actions coincide with the sports events and elections mentioned above, with effect sizes around one quarter of the standard deviation of the attention measures. Our estimates indicate an equally sized decline in relevant Google searches, whereas we do not find significant differences in the extent of press releases by the Commission.

Additional evidence comes from placebo tests that exploit the occurrence of equally newsworthy but *unpredictable* events. Specifically, we evaluate the timing of actions relative to severe disasters and terrorist attacks, but do not find any significant links to the composition of cartels. However, as in the case of major sports events and elections, our data indicate lower levels of public attention when the actions coincide with each year's worst disasters and attacks.

The results contribute to various strands of the literature. Very few papers investigate strategic timing of institutional decision makers. Durante and Zhuravskaya (2018) show that Israeli attacks on Palestine are more likely when the news agenda is congested by predictable newsworthy events, which helps the Israelis to minimize the negative publicity associated with the attacks. According to Couttenier and Hatte (2016), non-governmental organizations adapt their activities in monitoring firms when news shocks crowd out media coverage on firm practices. Djourelova and Durante (2019) find that US presidents are more likely to sign unpopular executive orders when the news is dominated by other important stories. We expand their evidence by studying another institution (the European Commission) and a different context (cartel proceedings).

In a broader sense, our study extends the literature on the impacts of media on political actors. Previous research provides evidence of effects on government spending (e.g., Strömberg, 2004;

Eisensee and Strömberg, 2007; Drago, Nannicini, and Sobbrío, 2014), work incentives for politicians (Snyder and Strömberg, 2010), legislative behavior (Clinton and Enamorado, 2014; Arceneaux et al., 2015), and career decisions (Garz and Sörensen, 2017). Most of these studies show that media coverage either raises the salience of certain issues or increases the transparency of political processes, both of which change the behavior of politicians. By contrast, we investigate if anticipated news coverage on unrelated events affects the work of a supranational regulator.

Our study also relates to research on the impact of cartel investigations on firm valuation. For instance, studies on US (e.g., Bosch and Eckard, 1991; Bizjak and Coles, 1995) and European (Aguzzoni, Langus, and Motta, 2013; Günster and van Dijk, 2016) cartel proceedings show that companies' share prices usually decline due to the investigations. Negative abnormal returns likely imply that investors expect firms' profitability to deteriorate, which supports our assumption that cartel proceedings are bad publicity for the companies involved. It would be beyond the scope of our study to investigate if the unequal treatment of EU and non-EU firms has implications at the stock market.³ However, it is conceivable that the differential timing has direct financial consequences for the involved firms, be it at the stock exchange or elsewhere.

Finally, our findings relate to research on protectionist behavior of the Commission. Some studies discuss anecdotal evidence of such behavior; for instance, in the context of agriculture trade policy (Young, 2004; 2007) and aviation policy (de Wit, 2014). Aktas, de Bodt, and Roll (2007) present more systematic evidence, suggesting that the Commission is more likely to intervene in mergers and acquisitions if there would be increasing competition for European companies. Our study cannot assess if the observed differences in the timing of actions against domestic and foreign firms are intended, but these differences raise the suspicion of a subtle form of protectionism.

In the next section, we provide background information on EU cartel proceedings. Afterwards, we describe the collection and the characteristics of our data. We present and discuss the results before concluding in the last section.

³ It is possible that competing news events moderate investors' responses to actions by the Commission. However, less than half of the firms in our sample are market listed, which constitutes a sample too small to obtain sufficiently precise estimates.

2. Background

2.1 European cartel proceedings

The legal basis of EU antitrust procedures is laid down in Article 101 and Article 102 of the TFEU. Article 101 declares agreements between undertakings that prevent, restrict, or distort competition within the internal market of the EU to be forbidden, including cartels that fix prices or limit the production. Article 102 relates to single companies that abuse a dominant market position. We exclude these cases from our analyses because they only account for a small fraction of antitrust cases and are – by definition – no cartels.⁴

If the Commission determines that an alleged infringement of EU competition law falls under its jurisdiction, national competition authorities are no longer responsible for the case. The Commission then makes an initial assessment. At this stage, the Commission may request information from relevant parties and carry out unannounced inspections – i.e., raids. It may inform the public about these raids via a press release. Such a release never contains specific names, but the media is often able to infer which companies have been searched.

There are two possible outcomes of the investigation phase. The Commission either decides to close the case due to the lack of evidence or it formally opens the proceedings. The latter usually involves a statement of objections to the companies under suspicion. A corresponding press release might be published, but again without naming the companies in question. The statement of objections provides the preliminary position of the Commission, including a description of the alleged infringements, envisaged remedies necessary to stop the infringement, and the range of projected fines. The addressees have the possibility to respond to the allegations and may submit their own evidence. If the Commission decides to issue a prohibition decision, it always publishes a corresponding press release, informing the public about the specific companies, their illegal activities, and the resulting fines. A summary of the decision is published soon on the Commission's website, later often followed by a full, non-confidential version. In most cases, the decision

⁴ There are eight Article 102 cases during our investigation period. Their inclusion would not increase our sample size much but complicate the analyses. First, the companies falling under Article 102 are often former state monopolists (e.g., Telefónica, Transelectrica), thus representing a different type of company than the firms subject to Article 101. Second, Article 102 investigations are typically started because of a complaint by a competitor, whereas many Article 101 cases are initiated following a leniency application from a company inside the cartel. Third, it would not be possible to use our main keyword “cartel” to retrieve newspaper and news agency reports about the cases.

contains details about the infringement, the evidence, the companies' behavior during the investigation, and the penalty.

When calculating the fine, the Commission, firstly, determines the so-called basic amount. This amount is based on the gravity, scope, and duration of the infringement. Afterwards, the Commission might factor in aggravating and mitigating circumstances. The calculations are currently based on the 2006 "Guidelines on the Method of Setting Fines" (European Commission, 2006a), which replaced an earlier directive (European Commission, 1998) to make the process more transparent. The fine can be further reduced based on leniency and settlement regulations. Pursuant to the Leniency Note, companies can apply for full or partial immunity from fines in exchange for valuable information (European Commission, 2006b). Since 2008, the settlement procedure offers a reduction of 10% if the involved undertakings agree to plead guilty and cooperate (European Commission, 2008).

2.2 Costs and benefits of manipulating the timing of actions

Assuming that the Commission wanted to favor EU firms, how would the costs and benefits of manipulating the timing vary across raids, statements of objections, decisions, and press releases? That is, for each type of action, we ask 1) how easy would it be to pre- or postpone it and 2) how large would the potential payoff for the involved companies be?

It could be very effective to manipulate the timing of raids if the Commission wanted to reduce bad publicity for domestic companies. In most cases, the inspections are a surprise to investors as the public learns about the allegations for the first time. For that reason, raids are normally associated with a substantial decrease in firm valuation (Aguzzoni, Langus, and Motta, 2013; Günster and van Dijk, 2016). However, the costs of manipulating the timing of raids are (prohibitively) high in most cases, considering the circumstances leading to on-site inspections and the way these inspections are conducted. The information that causes the Commission to become suspicious often comes from companies affected by or part of a cartel. Thus the Commission usually does not have control over the point of time when incriminating information becomes available. Once it suspects that a cartel exists, the Commission needs to act quickly because the inspections are only effective when they are unannounced, so that the companies under suspicion do not have the

possibility to destroy evidence. The extensive range of powers granted to the inspectors⁵ illustrates how time sensitive these raids can be. For instance, the officials are allowed to search business and potentially private premises, examine and seal books and records, use forensic IT tools, and conduct the inspections in the absence of legal counsel. In addition, raids usually need to be coordinated with national authorities. The inspections are often jointly conducted with officials from the national competition agency. In some cases, the Commission needs to acquire a warrant from a national court. In combination, the exogeneity of their initiation, the time pressure, and the coordination issues make it very implausible for raids to be used for strategic timing.

It would arguably be much easier to manipulate the timing of statements of objections. Issuing these statements still depends on inputs by the involved companies, but at this stage the Commission does not have to be concerned with the destruction of evidence, nor does it have to make time-sensitive arrangements with local authorities. However, it is unclear if strategic timing of statements of objections involves a payoff because companies usually do not suffer from abnormal stock returns here (Aguzzoni, Langus, and Motta, 2013; Günster and van Dijk, 2016).

Manipulating the timing of prohibition decisions would perhaps be slightly more costly than in the case of statements of objections. The reason is that cartel decisions are proposed by the Commissioner for Competition but taken by the College of Commissioners. Thus a draft of the decision needs to be circulated to various internal committees prior to its publication, which increases the chances that rumors about a pending decision are picked up by the press. The length of this process certainly poses a challenge if the Commission wanted to manipulate the timing, as does the spreading of rumors. Note that many predictable news events last several weeks though. For example, the Winter Olympics last over two weeks and the FIFA World Cup more than four weeks. Thus it would not be necessary to aim for a specific date but it would suffice to target an extended range of dates.⁶ However, in contrast to statements of objections, the payoff of preponing or delaying prohibition decisions is likely larger, considering that this step is typically associated with

⁵ See Articles 17 – 22 of Council Regulation (EC) No 1/2003 and “Explanatory note on Commission inspections pursuant to Article 20(4) of Council Regulation No 1/2003”; https://ec.europa.eu/competition/antitrust/explanatory_note/en.pdf.

⁶ In fact, all prohibition decisions in our sample that coincide with a predictable news event (see Section 3.3 for details) were issued during the FIFA World Cup or the UEFA European Championships. Similar to the Canned Mushrooms Cartel mentioned in the Introduction, most of these decisions took place towards the end of June, which

a large decrease in firm valuation (Aguzzoni, Langus, and Motta, 2013; Günster and van Dijk, 2016).

Strategic timing is likely the least costly in regard to the publication of press releases about the proceedings, because here the Commission faces no restrictions other coordinating the release in relation to other topics on its daily agenda. Note that the Directorate-General for Communication is in charge of publishing press releases, not the Directorate-General for Competition. The former devotes substantial efforts and resources to maintain its public relations: With a budget of about 160 million euros, the Directorate-General for Communication had 680 permanent and 445 external staff members in 2014 (European Commission, 2014). The directorate develops media strategies and advises other branches of the Commission to maximize the impact of their external communication. In particular, it engages in “polling and analysis of the public opinion and media monitoring [...], as the systematic media analysis contributes to the coherent, well-targeted long-term media relations strategy” (European Commission, 2014, p. 21). According to the directorate’s guidelines for the evaluation of communication activities, media monitoring of a news item should consider “major events happening in the news which may de-prioritise this particular news item” as well as “similar national or international news and events which may be happening at the same time” (European Commission, 2015, p. 109). Considering its mandate, the Commission should use this expertise to maximize the visibility of all antitrust actions by optimizing the flow of information related to the EU, both in regard to news competition within and outside the institution. However, it is clear that the resources and expertise would also be useful if the Commission wanted to achieve that certain press releases receive less attention than others.

In summary, raids are an unlikely candidate for strategic timing, because of the prohibitively high costs. The timing of statements of objections would be much easier to manipulate, but the benefits are questionable, considering that this step usually does not involve much bad publicity for firms. In contrast, it would be both valuable and feasible to manipulate the timing of prohibition decisions, given the Commission’s internal processes and the large effects of this step on firm valuation. The existing literature has not investigated the effects of cartel-related press releases

is when the final stage of these tournaments begins. Note that these (coinciding) decisions mostly refer to EU companies (83 out of 98 firms).

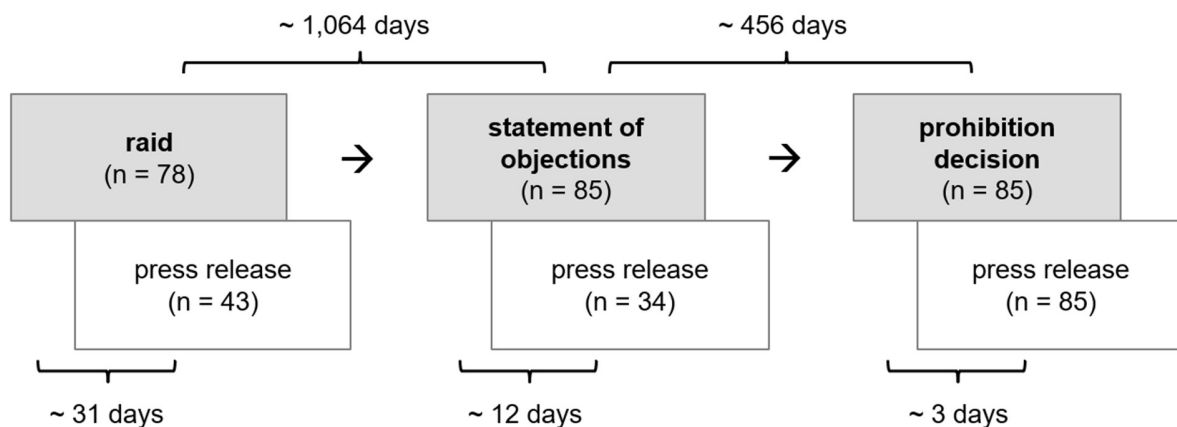
on stock returns, but this type of action is also a potential candidate for strategic timing, given the Commission's communication expertise.

3. Data

3.1 Cartels and companies

We use the case search tool of the Directorate-General for Competition to collect data on all 85 cartels for which the Commission issued an infringement or rejection decision between 1 May 2004 and 31 December 2015.⁷ We observe a total of 248 procedural steps (i.e., raids, statements of objections, and decisions) and 162 press releases related to the investigation of these cartels.

Figure 1: Cartel proceedings by the European Commission



Notes: The figure shows the main procedural steps of cartel investigations. Each step can be accompanied by press releases of the European Commission. The values next to the curly brackets denote the average number of days between procedural steps, and between procedural steps and press releases, respectively.

⁷ See <http://ec.europa.eu/competition/elojade/isef/index.cfm>. Our period of investigation ends shortly before we started collecting data for the project in 2016. The start date is chosen to match the date when Council Regulation (EC) No 1/2003 came into effect, which implemented the most consequential reform of European antitrust regulation since 1962. The date also coincides with the largest expansion of the EU, the May 2004 accession of the Eastern European member states. Note that our sample includes a few observations on raids and statements of objections before May 2004, since the Commission's decision is only the last step of the cartel proceedings. We prefer to restrict the sample in this way to have a relatively homogenous set of cases, and because most data on public attention are only available as of this time. See Table A1 in the Online Appendix for a list of the included cases.

Figure 1 summarizes the main steps and empirical patterns. Accordingly, the Commission published press releases on about 55% of the raids, 40% of the statements of objections, and all decisions. While press releases related to decisions are usually published on the same day as the decision, those related to raids and statements of objections are often released on a different date. The average delay amounts to 19 days in the case of statements of objections and 26 days in the case of raids.

We define companies in the same way as the Commission does in its decisions, observing a total of 580 firms. The Commission sometimes fines several divisions of a company individually (e.g., ArcelorMittal Verderio Srl and ArcelorMittal SA in case 38344). Occasionally, it sanctions firms jointly and severally (e.g., Mitsubishi and Toshiba in case 38899). We do not aggregate or disaggregate (divisions of) companies because in many cases it would not be possible to assign the fines.

In addition to the dates of the procedural steps and press releases, we obtain the amount of the fine at the time of the decision, potential reductions due to leniency or settlement regulations, companies' turnover in the last year of the infringement, and company headquarters. We follow the literature (Aktas, Bodt, and Roll, 2007; Dinc and Erel, 2013; Cremieux and Snyder, 2016) and use the latter variable to distinguish between European and non-European firms. It could be argued that it would be more accurate to measure firm nationality in terms of capital composition and the location of shareholders. However, the Commission itself uses company headquarters in its decisions and press releases to make this kind of classification. For that reason, we also use company headquarters as our main measure of firm nationality and verify the robustness of our results using a measure based on capital composition. Data on the latter variable come from FactSet Ownership, which we use to measure nationality on a continuous scale, ranging from 0 (0% of the company owned by shareholders from the EU) to 1 (100% owned by shareholders from the EU).

Actions by the Commission are taken at the level of the cartel rather than the individual company. Thus it is necessary to capture the extent of how "European" a cartel is. A straightforward approach would be to compare EU-only cartels and non-EU cartels. However, this approach is not feasible because our data include only five cartels that exclusively consist of foreign companies. Instead we compare the timing of actions against EU-only cartels with the timing for other cartels.

In addition, we evaluate the exact composition of the cartels. It is not clear a priori whether cartels with a high share of EU firms, a high total number of EU firms, or both should be more likely to benefit from a differential treatment if the Commission wanted to favor domestic companies. It could be argued that the total publicity payoff is greater, the higher the absolute number of EU firms in a cartel, simply because more entities would benefit from the preferential treatment. For instance, a cartel consisting of two EU firms and one non-EU firm has a relatively high share of EU companies (66%), but the payoff might be higher for a cartel consisting of five EU firms and five non-EU firms (50% share). Ultimately, this is an empirical question, which is why we evaluate both the share and the number of EU firms per cartel. Summary statistics are provided in Table A2.

3.2 Public attention to cartel proceedings

We construct measures of attention based on four categories of information: (1) press releases by the European Commission, (2) reports by news agencies, (3) newspaper articles, and (4) Google searches. Using different measures allows us to make a stronger case if the findings can be generalized across these categories. To some extent, evaluating these measures makes it also possible to trace the chain of information transmission, and evaluate at what stages a crowding out of news takes place. Press releases by the Commission are in many cases the first link in the transmission chain of news about cartel proceedings. This measure is quite different from the other measures of attention, as it could be directly affected by intentions of the Commission to manipulate the visibility of individual cases. The next link in the chain are news agencies and newspapers, which decide to pick up information about cartel proceedings or not. Google searches capture public attention in a more general way, even though this measure does not cover offline groups.

Information on press releases by the Commission on the cartel proceedings in our sample are retrieved via the case search tool of the Directorate-General for Competition. The database links relevant press releases to corresponding cases, based on which we obtain daily release and word counts. We normalize these time series by the overall daily amount of press releases by the Commission, to account for variation in general communication activities and competition by news on other topics. This approach is equivalent to using absolute word counts and cartel-related releases

while controlling for the overall amount of releases. However, normalizing is less data intensive, as we do not need information about days with zero cartel-related press releases. As discussed in the results section, our estimates are generally similar for raw and normalized time series though.

Data on reports by news agencies come from the Nexis database (www.nexis.com). We include all European agencies that are consistently archived in Nexis between 2000 and 2015, except for providers specialized in individual industries or topics. This restriction leaves us with a sample of 9 agencies, including Agence France Press and Deutsche Presse-Agentur. Nexis does not consistently cover Reuters, the third of the three large agencies in Europe. Our sample includes three other agencies from the UK though, as well as providers from the Czech Republic, Estonia, and Hungary (see Table A3 in the Online Appendix). It is straightforward to identify reports on European cartel proceedings because the news agencies all have English language editions. We retrieve a total of 477 reports that contain the terms “cartel” and “european commission” in the (sub)heading. Restricting our search query to the (sub)heading reduces the number of false positives (less than 2%). We also check various combinations of related keywords, such as “antitrust”, “price fixing”, “brussels”, “authority”, “investigation”, and “regulator”. However, these and other terms do not yield additional hits, or they involve too many false positives.⁸ We use the retrieved reports to construct time series of daily article and word counts, again normalized by the overall daily output of the news agencies.

Data on newspaper coverage about the cartel proceedings are also obtained from Nexis. We include all national daily outlets from France, Germany, Italy, Spain, and the UK, if these outlets are consistently archived in the database. Our focus is on these countries because of their leading role in the EU. They account for more than half of the EU population and a similarly large share of the economic output. The resulting newspaper sample consists of 16 outlets, see Table A4 for details.⁹ We focus on general interest newspapers rather than niche publications because the goal

⁸ Using the keywords “antitrust” and “price fixing” as substitutes for “cartel” does not result in additional hits. The same applies when using “brussels” as a substitute for “european commission”. Substituting “european commission” with “authorit*” or “investigat*” or “regulat*” leads to a substantially greater number of hits. However, inspecting random samples of 100 articles for each of these alternative keywords indicates false positive rates between 93% and 98%, while most of the true positives are already included in the search that combines “cartel” and “european commission”.

⁹ The sample misses some important European outlets (e.g., ABC, Corriere della Sera, Frankfurter Allgemeine Zeitung, Libération). However, our analysis does not require a sample that accurately represents the European newspaper landscape. A more representative sample would be necessary if we studied effects of newspaper coverage on

is to investigate public attention to cartel proceedings at a broad level. Companies may not only be affected by bad publicity among specific audiences (e.g., institutional investors, readers of newspapers' business or politics sections), but for many firms it likely matters if ordinary customers learn about the investigations. As with the news agencies, we extract all newspaper articles that contain the terms "cartel" and "european commission" in the (sub)heading, or equivalent keywords in the newspapers' respective language. The search retrieves a total of 828 reports between 2000 and 2015, based on which we compute daily (normalized) article and word counts.

Finally, we use Google Trends (trends.google.com) to obtain data on Google searches related to European cartel proceedings. The platform provides search data both on individual keywords as well as so-called search topics. Both methods have their pros and cons. Using our preferred keywords "cartel" and "european commission" would be consistent with our approach used for the news agencies and newspapers. However, in the context of Google Trends, this approach requires keyword translations into at least 24 European languages. Inaccurate translations cause measurement error, a problem that is aggravated by difficulties to map search queries to countries where multiple languages are used, such as Belgium or Cyprus. In addition, Google Trends does not allow to use word truncations (i.e., wild cards), which makes it impossible to account for the grammatical peculiarities of individual languages, including inflections of the adjective "european" and the grammatical number of the relevant nouns. Google search topics, which combine information from multiple keywords selected by Google algorithms, avoid these kinds of language-related complications. On the downside, search topics are pre-defined and thus do not always offer the best fit. In our case, the most closely related search topic is "European Union competition law". According to Google Trends, this topic captures searches on major cartels and antitrust cases, the Directorate-General for Competition, commissioners for competition, and more. Thus the search topic fits our context quite well, which is why we choose this approach over the one based on individual keywords.

some outcome variable. This is not the case though, as we are interested in investigating if coverage of cartel proceedings is affected by other newsworthy incidents. The omission of certain outlets would only be problematic if the availability of news sources in Nexis correlates with outlets' propensity to substitute cartel-related reporting with coverage about competing news events, which is implausible to assume.

The corresponding data are available as of 2004 and refer to the search volume relative to the maximum absolute number of searches measured in a given period of time. At the time of collecting the data, it is only possible to download daily data in three-month segments from Google Trends, whereas monthly data can be obtained without restrictions. We follow the approach by Durante and Zhuravskaya (2018) and use the monthly data to standardize the scale of the three-months segments of daily information and combine them into a single series. The resulting variable ranges from 0 to 100% and captures the daily relative search volume on the topic. Google Trends only allows to retrieve search data on individual countries but not on the EU as a whole. Thus we retrieve country-level data and construct an aggregate, EU-wide measure by weighting the search *volume* in member state i on day t by the number of Internet *users* in the same country in year y :¹⁰

$$volume_t^{EU} = \frac{\sum_{i=1}^n volume_{i,t} users_{i,y}}{\sum_{i=1}^n users_{i,y}} \quad (1)$$

To ease the interpretation of the regression results, we rescale all attention measures x – press releases by the Commission, news agency reports, newspaper reports, and Google searches – to vary between 0 and 1, using their empirical minimum and maximum values:

$$Y = \frac{x - \min(x)}{\max(x) - \min(x)} \quad (2)$$

Table A5 presents summary statistics of the raw attention measures x , whereas Figures A1–A4 show the normalized and rescaled variables Y .

¹⁰ Data on Internet users are obtained from the World Development Indicators database of the World Bank. Note that we cannot include a few smaller member states in the index, since Google Trends does not provide any data when the search volume is too low (e.g., Luxembourg, Malta, Cyprus, and the Baltics). Stephens-Davidowitz (2014) proposes to add an unrelated keyword to the query to lift the search volume over Google’s threshold, and then subtract the search volume for the unrelated keyword from the combined query. Unfortunately, this approach is not feasible when using search topics (rather than keywords) to construct Google search measures.

3.3 Competing news events

For the European Commission to be able and worth to manipulate the timing of its actions, competing news events have to fulfill two conditions. First, the exact dates of the events need to be fixed and known sufficiently in advance so that there is enough time to adapt. Second, the events need to be newsworthy enough to distract the public. Therefore, we only consider events that (a) are unambiguously predictable and (b) have an exceptional news value. Our approach to select specific events that fulfil both criteria is guided by previous studies on strategic timing, which typically rely on major sports events and important elections (Eisensee and Strömberg, 2007; Couttenier and Hatte, 2016; Garz and Sörensen, 2017; Durante and Zhuravskaya, 2018).

However, creating a list of events based on the suggestions of the existing literature still leaves a lot of leeway about which events to include exactly. For instance, it could be appropriate to include the Super Bowl when investigating public attention in the US, but it is questionable if this is a relevant event in the European context. To reduce researcher degrees of freedom, we follow studies that use Wikipedia as a tool for objective decision making (e.g., Hienert and Luciano, 2012; Whiting, Jose, and Alonso, 2014; Kämpf et al., 2015) and strictly rely on the events that the Wikipedia community considers “important enough”. Specifically, in line with the working languages of the Commission, we consult the English, French, and German Wikipedia editions of the annual year review pages (e.g., wikipedia.org/wiki/2005).

For each year, the corresponding Wikipedia page lists the most important world events, such as catastrophes, celebrity deaths, armed conflicts, discoveries, and elections. The selection of these events is made by the community, based on a process that is guided by Wikipedia’s relevance criteria and complemented by public discussions. Therefore, the lists constitute a form of crowd-sourced consensus about the importance of world events. We assume that the crowd considers elections in those countries “important enough” that are consistently listed in the above-mentioned language editions of the year reviews. This criterion is met by the FIFA World Cup, UEFA European Championships¹¹, the Summer and Winter Olympics, as well as elections in France,

¹¹ Not to be confused with the UEFA Champions League, which is a tournament contested by European clubs, rather than national teams.

Germany, the UK, the US, and to the European Parliament.¹² Further potentially important events are either not consistently listed or do not meet the predictability criterion (e.g., airplane crashes, celebrity deaths, military operations). However, robustness checks confirm that our results remain similar when we add further predictable events, including national elections in Canada, Italy, Japan, Russia, and Spain, as well as the annual Academy Awards ceremony (“Oscars”) and the annual summit of the Group of Eight.

Table A6 lists the predictable events and provides information about coinciding actions taken by the Commission. Note that actions do not take place during the Summer Olympics, since the College of Commissioners does not meet in August. It is also worth noting that we do not observe any actions on the same day of elections. There are some cases in which actions take place on the day before though. As the timeline in Figure A5 shows, the events occur at regular intervals, so there are recurring opportunities to pre- or postpone actions.

We use a binary variable to capture actions that coincide with the predictable news events. We also consider various approaches to construct more explicit measures of distraction. For example, Eisensee and Strömberg (2007) and Durante and Zhuravskaya (2018) use the length of the first three stories of US newscasts to create news pressure variables, whereas Garz and Sörensen (2017) exploit the length of the cover story of a single German newspaper. Unfortunately, we cannot pursue either approach because of the lack of data in our context. We do not have access to transcripts of newscasts – at least not for a large enough number of European countries – nor are we aware of newspaper databases that would allow us to distinguish newspapers’ cover stories from other front-page stories for a sufficient number of outlets from different European countries. Instead we rely on EU-wide Google searches on the predictable events listed above to construct an explicit measure of distraction. In particular, we first extract country-specific data on the Google search topics “World Cup”, “UEFA European Championship”, “Olympic Games”, and “Election”. For each of the four search topics, we then compute a daily EU-wide measure, following the same approach as described in Section 3.2, especially Equation (1). As a final step, we

¹² It could be argued that major sports events have no relevance or link to cartel proceedings. However, as previous studies on strategic timing show, it is quite common that seemingly unrelated events are in fact related. For instance, the Olympic Games matter for TV coverage about natural disasters and governmental decisions about disaster relief (Eisensee and Strömberg, 2007); TV coverage of the FIFA World Cup crowds out news about the Israeli-Palestinian conflict (Durante and Zhuravskaya, 2018); and the dates of baseball, football, and basketball games affect the timing of executive orders of the US president (Djourelouva and Durante, 2019).

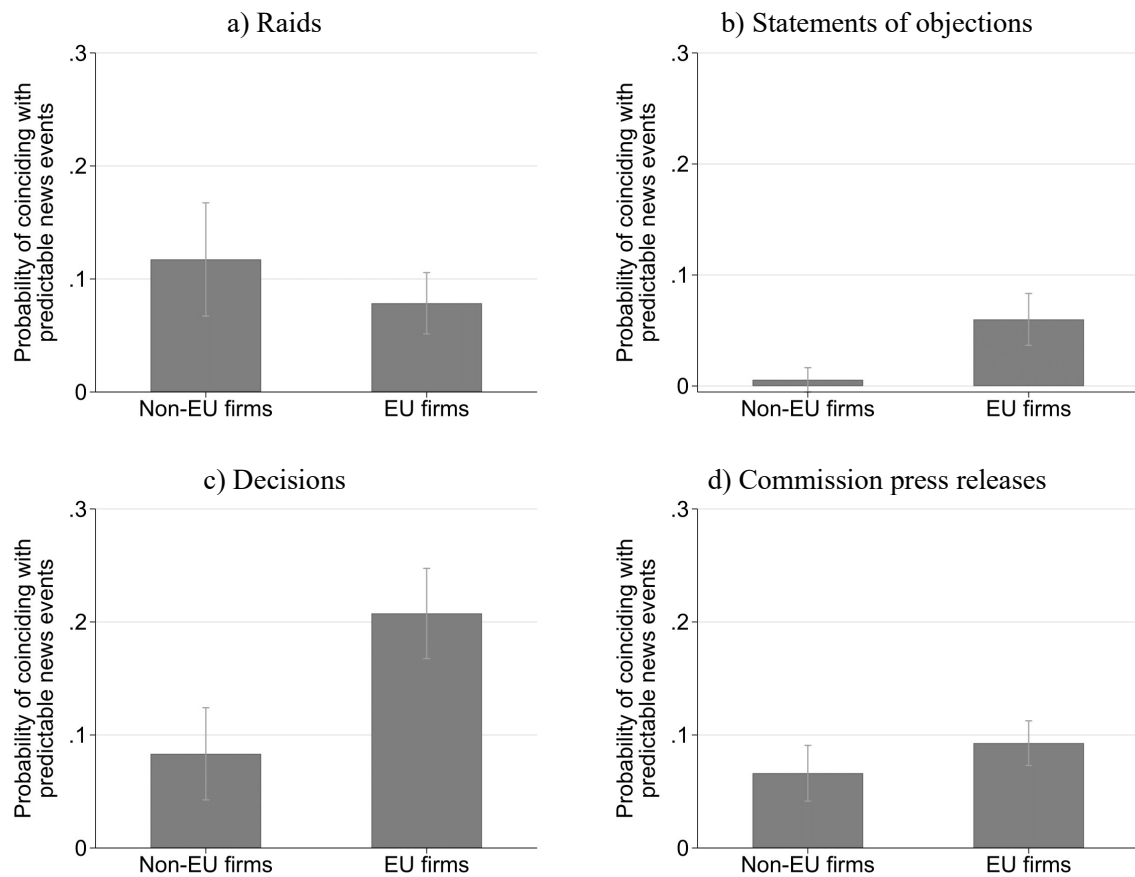
aggregate the four series by taking their daily average, weighted by the relative importance of the search topics to each other. We obtain these weights by using the Google Trends feature that compares multiple search topics. For instance, the overall quantity of searches related to the FIFA World Cup exceeded the amount pertaining to the UEFA European Championships by a factor of 3.

For placebo tests, we also create dummy variables that indicate if actions by the Commission coincide with *unpredictable* competing news events. Following the literature, we construct these variables based on disasters and terrorist attacks (e.g., Jetter, 2017; Balles, Matter, and Stutzer, 2018; Durante and Zhuravskaya, 2018; Garz, 2018; Garz and Pagels, 2018). Information on the date, location, severity, and category of disasters comes from EM-DAT – The Emergency Events Database at the Université catholique de Louvain, Centre for Research on the Epidemiology of Disasters (www.emdat.be). This database covers all natural and technological disasters worldwide if at least ten people were reported to be killed, a state of emergency declared, or international assistance requested. We use the Global Terrorism Database of the National Consortium for the Study of Terrorism and Responses to Terrorism at the University of Maryland (www.start.umd.edu/gtd) to retrieve the same information for terrorist attacks during our period of investigation. This dataset includes all attacks worldwide that were intentional, entailed violence or the immediate threat of violence, and were committed by non-state actors. For each year, location (i.e., worldwide vs. EU), and event category (i.e., biological, climatological, geophysical, hydrological, meteorological, and technological disaster, or terrorist attack), we rank the disasters and attacks by their number of fatalities. We exclude droughts, extreme temperature, and storms, since the timing and location of these types of disasters are somewhat predictable.¹³ For events that lasted longer than one day, we divide the number of fatalities by the corresponding number

¹³ These disasters are all weather events that can be relatively accurately forecasted, thanks to numerical weather prediction methods (e.g., Gneiting and Raftery, 2005; Richardson, 2007). Weather forecasts are very salient and readily available to the public (and decision makers) as they are an essential part of mainstream daily news. In contrast, as discussed in the disaster risk literature (e.g., Smith, 2013), it is much more difficult to predict the timing and location of the other types of disasters categorized in EM-DAT, i.e., earthquakes, volcanic activities, disease outbreaks, floods, landslides, wildfires, and technological accidents.

of days. Based on the ranking, we construct binary variables that indicate if the actions by the European Commission coincided with each year's worst, three worst, and five worst incidents.¹⁴

Figure 2: Firm nationality and timing of actions



Notes: Predictable news events include all FIFA World Cups, the UEFA European Championships, the Olympics, as well as all national elections in France, Germany, the UK, the US, and to the European Parliament between 2000 and 2015. Firm nationality is determined by the location of company headquarters. The error bars represent the 95% confidence interval.

¹⁴ Alternatively, it would be possible to define a fixed threshold and create a dummy capturing all incidents above this threshold (e.g., all disasters with more than 100 casualties). However, we prefer to identify each year's worst incidents to account for changes in the news value of disaster and terror fatalities over time. For instance, it is possible that particularly severe incidents (e.g., the 9/11 attacks), or long periods without any incidents, temporarily affect the sensitivity of the media and public. For the same reason, we refrain from using the actual number of fatalities for the placebo tests.

4. Results

Below we first present evidence of differences in the timing of actions. Afterwards we discuss estimates of the effect of competing news events on attention to cartel proceedings.

4.1 Timing of actions

4.1.1 Baseline estimates

The raw data in Figure 2 indicate that statements of objections and prohibition decisions issued by the Commission are significantly more likely to coincide with predictable news events when these actions target EU companies, compared to non-EU firms. The differences are substantial: For statements of objections, the shares of coinciding actions are 0.6% and 6.0% for foreign vs. domestic companies. In the case of decisions, these differences amount to 8.3% vs. 20.8%. Cartel-related press releases by the Commission are also more likely to coincide with predictable news events when they address EU firms (9.3%, compared to 6.6% for non-EU firms), but the difference is not statistically significant in the raw data. For raids, we observe a reversed pattern, but here the difference is not significant either.

We use data at the cartel-level to formally investigate the relationship. Thus we pursue a slightly different estimation approach than other studies on strategic behavior, which typically use time series regression to investigate the timing of actions (e.g., Durante and Zhuravskaya, 2018; Djourelova and Durante, 2019). The main advantage of daily time series models is their ability to examine lags and leads of the variables of interest and thus to model the exact sequence of events. However, in our context, daily time series are not as informative, since most predictable news events under consideration last several weeks (e.g., the FIFA World Cup and the Olympics). In addition, we cannot rule out that the raw differences in the timing are caused by characteristics other than firm nationality, such as cartel size, the amount of fines, or company turnover. With time series regression it is not possible to control for differences across companies and cases as finely as with data at the cartel level. Specifically, we use linear probability models¹⁵ to investigate

¹⁵ We refrain from estimating logit or probit models because maximum likelihood estimators often fail to converge when estimating Equation (3), as the large number of dummy variables leaves many observations without variation in the dependent variable.

the relationship between the *timing* of actions and the nationality of companies in cartel c :

$$timing_c = \beta_1 + \beta_2 composition_c + \beta_3 X_c + \varepsilon_c \quad (3)$$

where we use various measures of the *composition* of cartels (i.e., a binary variable to distinguish EU-only and other cartels, the share of EU firms, and the number of EU firms).

The variable vector X_c accounts for factors that could affect the timing of actions for reasons other than company headquarters. First, companies could vary in their ability and speed to compile evidence or satisfy information requests by the Commission. For instance, large companies with many resources and access to excellent legal counsel might be able to respond faster, which could accelerate the procedure. Similarly, the proceedings could be faster when cartels consist of few companies, due to lower chances that an individual firm slows down the process. In fact, as Figure A7 shows, cartel proceeding last longer when they relate to domestic firms. Including the length of time between actions as a control is not optimal because this variable is not observed for raids and partially missing for other procedural steps. Instead we control for the factors that likely drive the duration of the proceedings, including the average firm turnover, the sum of firm turnovers, the share of market listed firms, the number of market listed firms, and the overall number of companies in the cartel. Second, differences in the timing could be caused by efforts of the Commission to compensate for variation in the visibility of actions. For instance, the Commission might expect less severe cases to be generally less newsworthy, which could be counteracted by taking the relevant actions when there are no expected distractions of the public. We control for possible compensation efforts by including the average amount of the fine, the sum of fines, the average reduction due to the leniency program, the sum of reductions due to the leniency program, the average reduction due to settlement, and the sum of reductions due to settlement. Third, it is conceivable that different working styles of the commissioners lead to differences in the timing of actions. In addition, actions against companies of certain nationalities could be clustered in time simply by chance. Thus we also include commissioner dummies, year dummies, and a dummy to capture cases subject to the 2006 fine-setting guidelines (as opposed to the 1998 guidelines).

We estimate Equation (3) separately for different types of procedural steps (raids, statements of

objections, and decisions) as well as Commission press releases. The reason is that the individual procedural steps involve different costs and benefits if the Commission wanted to manipulate the timing, as detailed in Section 2.2. In addition, the procedural steps are related to the workings of the Directorate-General for Competition, whereas the press releases are issued by the Directorate-General for Communication.

Table 1: Cartel composition and timing of actions

	(1) Raid	(2) Statement of objections	(3) Decision	(4) Commission press release
<i>Panel A</i>				
EU-only cartel (1 = yes, 0 = no)	-0.018 (0.071)	0.029 (0.053)	0.202*** (0.072)	0.118** (0.050)
R-squared	0.727	0.630	0.519	0.523
Partial R-squared of predictor	0.003	0.012	0.247	0.188
Robustness value	0.050	0.106	0.432	0.380
<i>Panel B</i>				
Share of firms with EU headquarters	0.051 (0.115)	0.068 (0.075)	0.156 (0.133)	0.108 (0.087)
R-squared	0.728	0.632	0.461	0.508
Partial R-squared of predictor	0.008	0.033	0.054	0.060
Robustness value	0.087	0.169	0.213	0.223
<i>Panel C</i>				
Number of firms with EU headquarters	0.009 (0.015)	-0.002 (0.010)	0.032** (0.016)	0.016** (0.008)
R-squared	0.728	0.628	0.477	0.509
Partial R-squared of predictor	0.015	0.002	0.143	0.149
Robustness value	0.115	0.040	0.333	0.340
Observations	78	85	85	162

Notes: OLS estimates, using data at the cartel level. Dependent variable: action coincides with predictable news event (1 if yes, 0 otherwise). The column headers denote the type of action. All models include year and commissioner dummies, a dummy to capture cases subject to the 2006 fine-setting guidelines, the number of firms in the cartel, the average amount of the fine, the sum of fines, the average reduction due to the leniency program, the sum of reductions due to the leniency program, the average reduction due to settlement, the sum of reductions due to settlement, the average firm turnover, the sum of firm turnovers, the share of market listed firms, and the number of market listed firms. *Partial R-squared of predictor* indicates how much of the variation in the timing of actions is explained by the regressor, whereas *Robustness value* indicates how strongly unobserved factors would have to affect the timing (in terms of % of R-squared) to drive the estimated coefficient to zero (see Cinelli and Hazlett, 2020). Robust standard errors in parentheses.

* p<0.10, ** p<0.05, *** p<0.01

Table 1 presents the estimation results. In Panel A, we use a binary variable to distinguish between EU-only and other cartels. In the case of raids and statements of objections, the coefficients are close to zero and statistically insignificant. However, as the estimates in Columns (3) and (4) indicate, prohibition decisions and press releases are significantly more likely to coincide with predictable news events when they relate to EU-only cartels. Decisions against EU-only cartels are 20.2 percentage points more likely to be issued during predictable news events than decisions against other cartels. In the case of Commission press releases, this probability increases by 11.8 percentage points when they relate to EU-only cartels. In Panel B, we investigate if the timing of actions differs when using the share of EU companies in a given cartel as a measure of cartel composition. Here the estimated coefficients are positive for all procedural steps and press releases, suggesting that actions are more likely to coincide with predictable news events when cartels have a high share of EU firms. However, the coefficients are not estimated precisely enough to be statistically significant from zero. Panel C shows results when using the total number of EU firms. Again, we obtain insignificant coefficients that are close to zero for raids and statements of objections, whereas we estimate relatively large and significant effects (at the 5% level) when it comes to decisions and press releases. With one additional EU firm per cartel, the chances that a prohibition decision is issued at the same time as a predictable news event increase by 3.2 percentage points. This value corresponds to a 40% increase compared to the baseline probability of 8.0% that actions coincide. In the case of Commission press releases, one additional EU company implies that the probability of co-occurrence increases by 1.6% percentage points or 20%. These effect sizes are meaningful, considering that the average cartel consists of 4.7 EU firms, with a standard deviation of 5.9 (see Table A2).

Overall, we do not find any differences in the timing of raids and statements of objections. As discussed in Section 2.2, it would most likely not be feasible for the Commission to pre- or postpone a raid in the interest of reducing the bad publicity for EU companies. It should be much easier to engage in strategic timing when it comes to statements of objections. However, as Aguzzoni, Langus, and Motta (2013) and Günster and van Dijk (2016) show, this procedural step does not cause much bad publicity, judging from the development of companies' share prices around the relevant date. As argued in Section 3.1, it is plausible that the *number* of EU firms in a cartel

is more strongly related to the timing of actions than the *share*. Changing the timing of one action has a higher payoff (in terms of reducing bad publicity) when this action relates to many EU companies rather than a few. For that reason – and because the binary measure that distinguishes EU-only and other cartels is a rather coarse measure – we focus on the number of EU firms in our subsequent analyses.

4.1.2 Omitted variable bias

It is possible that Equation (3) fails to identify the effect of the composition of cartels if unobserved factors have a strong influence on the timing of actions. This threat to identification could be aggravated if our controls are bad proxies for the factors causing differences in the speed of the proceedings and potential efforts of the Commission to counteract differences in the newsworthiness and deterrence of cases. It is unclear in which direction the coefficient of interest would be biased due to these factors.

Thus it is useful to quantify the influence of unobserved factors that would be necessary to eliminate the main effect. For that purpose, we follow Cinelli and Hazlitt (2020) and report the *partial R-squared of the predictor* in Table 1, which indicates how much of the variation in the timing of actions is explained by the cartel composition. For our preferred measure of cartel composition in Panel C, we obtain a partial R-squared of 0.143 for decisions and 0.149 for Commission press releases. That is, assuming that unobserved factors are perfectly able to predict the unexplained variance in the timing of actions, then these factors would still need to explain at least 14.3% and 14.9% of the (unexplained) variation in the number of EU firms to fully account for the estimated effects in Panel C.

We also report Cinelli and Hazlitt’s (2020) *robustness value* for the point estimate, which allows us to assess how sensitive the coefficient on the number of EU firms is to unobserved confounding. As shown in Columns (3) and (4) of Panel C, we obtain robustness values of 0.333 and 0.340 for decisions and Commission press releases, respectively. These values imply that any unobserved factor explaining less than about one third of the residual variance of both the timing of actions and the number of EU firms would not be powerful enough to drive the coefficient of

interest to zero.

How likely is it that the two main sources of unobserved confounding – differences in the duration of the proceedings and potential compensation efforts by the Commission – are strong enough to eliminate the main effect?

Regarding the duration, it is difficult to see that variation in the speed of proceedings leads to systematic shifts in the occurrence of actions that would explain one third of the residual variances of both the timing and the cartel composition. These shifts should merely involve a random shuffling of actions that do and do not coincide with predictable news events. An exception could be a scenario where the Commission always initiates certain steps of the proceedings at the same time of the year. In that case, differences in the speed of the proceedings (Figure A7) could affect the chances that actions coincide with major sports events, which follow a fixed schedule as well. However, as Table A7 shows, the estimation results of Equation (3) do not change when we include a variable that measures the number of days since the previous action by the Commission. Thus we can be confident that differences in the speed of the investigations are not an important confounding factor.

As for the second source of confounding, there could be unobserved company- and cartel-related characteristics that affect the visibility of the case or the deterrent effect of the proceedings to a possibly large degree. For instance, European consumers could be less interested in cartel-related news about foreign than domestic companies, which the Commission could be tempted to offset via the timing of its actions. It is unclear if this kind of confounding would be sufficiently strong to drive the coefficient of interest to zero, i.e., explain more than one third of the residual variance of both the timing of actions and the cartel composition. However, it is possible to evaluate if the Commission counteracts potential differences in deterrence and visibility in other ways than through the timing of actions. Specifically, we test whether the composition of cartels affects the likelihood that the Commission uses its discretion when setting the fine. The antitrust regulations mandate that a fine cannot exceed 10% of a company's world turnover. If the Commission wanted to offset potential differences in the deterrent effect of its actions, one would expect that fines imposed on foreign companies more often reach the 10% ceiling. The estimates in Table A8, Column (1) show that this is not the case. The Commission also has some leeway in regard to the publication of press releases about its actions. Prohibition decisions are always covered but press

releases on raids and statements of objections are optional. As Columns (2) and (3) of Table A8 show, the number of EU companies in the cartel does not affect the likelihood of publishing a press release. These findings suggest that the Commission does not use its discretion to compensate for potential differences in deterrence and visibility between cases.

4.1.3 Robustness checks

In Table A9, we evaluate the robustness of the findings when using our explicit measure of distraction – the combined Google search volume related to predictable news events – instead of a binary dependent variable. In line with our main specification, the resulting estimates indicate that decisions and press releases involving a high number of EU firms are more likely to occur when Google users are busy searching for information about predictable news events.

In Table A10, we expand the set of predictable news events by adding national elections in Canada, Italy, Japan, Russia, and Spain, as well as the annual Academy Awards ceremony (“Oscars”) and the annual summit of the Group of Eight. This modification does not lead to different results than the baseline models.

Table A11, Panel A, confirms that our findings are also robust when taking the ownership structure of companies into account. Using the fraction of companies’ shares held by stockholders from the EU (cumulated over all companies), we obtain similar estimates than when using the plain number of EU firms. In Panel B, we find the reverse pattern when we use the number of firms with headquarters outside the EU as a measure of cartel composition. That is, the higher the number of non-EU companies a cartel, the lower the likelihood that decisions and Commission press releases coincide with predictable news events.

Figure A6 shows the coefficient on the number of EU firms when we re-estimate the baseline model for decisions and Commission press releases while removing the cartels with the largest fines at a time. The resulting coefficients do not substantially differ, which confirms that our findings are not driven by any large cartel. As another sample restriction, we exclude observations prior to May 2004, when Council Regulation (EC) No 1/2003 came into effect. The corresponding

results in Table A12 do not substantially differ from the baseline estimates.

Following research on strategic timing in financial markets (e.g., DellaVigna and Pollet, 2009; Doyle and Magilke, 2009; deHaan, Shevlin, and Thornock, 2015; Michaely, Rubin, and Vedrashko, 2016), in Table A13 we evaluate if the number of EU firms in a cartel affects the likelihood that actions take place on Fridays, where investors can be expected to be distracted. We do not find any significant differences here.

Table A14 presents results of placebo regressions. Here we check if the timing of actions differs for *unpredictable* news events, rather than predictable ones. That is, actions against cartels with a high number of EU firms should not be more likely to coincide with severe disasters and terrorist attacks than actions against cartels with few EU companies. The reason is that the occurrence of these events cannot be predicted by the Commission, or at least not precisely enough. The estimation results do not indicate any significant differences, which confirms this argument.

4.2 Public attention to cartel proceedings

4.2.1 Baseline estimates

We use time series regressions to investigate the relationship between the occurrence of competing news events and attention to cartel proceedings. Modeling lags and leads of the relevant variables is of greater interest here than in the previous section, because the speed of responses to new information likely differs across attention categories. In addition, we deliberately use EU-wide measures of attention that do not vary across companies, cartels, or countries.¹⁶ We estimate versions of the following model to investigate if the level of public attention to cartel proceedings is affected by the occurrence of predictable news events:

¹⁶ As described in Section 3.2, we discard attempts to exploit any kind of cross-sectional variation here because there are too many sources of measurement error: Company names often have multiple meanings (e.g., Philips, Shell, and Total) which would lead to a retrieval of many false positives, such as newspaper articles that deal with topics other than cartel investigations. Regarding the Google measures, we cannot combine topic searches with individual queries for companies, and keyword-based searches are not feasible given that there are at least 24 languages in the European Union. In addition, we do not have access to news sources in many smaller countries. As a consequence, companies from countries such as Latvia or Slovenia are hardly ever mentioned. Thus, given the difficulties related to data availability and language diversity in the European context, aggregate measures of attention are arguably more accurate and credible.

$$Y_t = \gamma_1 + \gamma_2 A_t + \gamma_3 E_t + \gamma_4 (A_t \times E_t) + \sum_{\tau=1}^7 \theta_\tau Y_{t-\tau} + \mu_{d_t} + \pi_{m_t} + \tau_{y_t} + \rho_{k_t} + \varepsilon_t \quad (4a)$$

where Y refers to the measures of attention described in Section 3.2. A is a binary variable that takes the value 1 on days t where the Commission takes a cartel-related action (and 0 otherwise), whereas E is a dummy capturing the occurrence of predictable news events. The coefficient of interest is on the interaction between both variables (γ_4), which allows us to test if actions that coincide with predictable news events receive less attention than actions that do not coincide. The θ_τ 's are coefficients on 7 lags of the dependent variable, to account for autocorrelation in the attention measures.¹⁷ μ_{d_t} , π_{m_t} , τ_{y_t} , and ρ_{k_t} are fixed effects for the day of the week, the calendar month, the year, and the commissioner in charge.

We also evaluate the next-day response of public attention (Y_{t+1}), since information about cartel proceedings might diffuse with a delay, as Figures A3 and A4 suggest:

$$Y_{t+1} = \gamma_1 + \gamma_2 A_t + \gamma_3 E_t + \gamma_4 (A_t \times E_t) + \sum_{\tau=1}^7 \theta_\tau Y_{t+1-\tau} + \mu_{d_t} + \pi_{m_t} + \tau_{y_t} + \rho_{k_t} + \varepsilon_t \quad (4b)$$

Results are presented in Table 2. The coefficients on the action dummy confirm the patterns shown in Figures A1–A4: The amount and length of press releases by the Commission and reports by news agencies significantly increase on the very day of an action (Panel A), and to a lesser extent on the day after (Panel B). In contrast, newspaper coverage especially grows on the day after an action, which is consistent with the one-day publication delay that characterizes newspapers. We also note an increase in Google searches on EU competition law on days after an action, but this effect is not significant at conventional levels ($p = 0.136$).

¹⁷ Correlograms suggest that some of the attention measures are autocorrelated up to order 7. However, the results remain similar when we do not include any lags of the dependent variable, or additionally include 7 lags of the action dummy A ; see Tables A19 and A20 for these robustness checks.

Table 2: Timing of actions and public attention to cartel proceedings

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Commission press releases		News agency reports		Newspaper reports		Google searches
	Number	Words	Number	Words	Number	Words	Index
<i>Panel A: same day</i>							
Predictable event	-0.001 (0.001)	-0.001 (0.001)	0.000 (0.003)	-0.001 (0.004)	0.001 (0.003)	0.002 (0.003)	0.001 (0.004)
Action	0.088*** (0.010)	0.105*** (0.012)	0.061*** (0.011)	0.017** (0.007)	0.005 (0.004)	0.008 (0.006)	-0.005 (0.004)
Predictable event \times action	-0.020 (0.029)	-0.035 (0.024)	-0.036* (0.020)	-0.029*** (0.010)	-0.009 (0.008)	-0.008 (0.010)	-0.006 (0.006)
SD of outcome	0.144	0.166	0.152	0.100	0.053	0.079	0.050
R-squared	0.264	0.290	0.091	0.051	0.077	0.044	0.042
<i>Panel B: next day</i>							
Predictable event	-0.001 (0.002)	-0.001 (0.002)	0.000 (0.003)	-0.001 (0.004)	0.003 (0.002)	0.004 (0.003)	0.003 (0.004)
Action	0.010* (0.005)	0.004 (0.004)	0.019** (0.008)	0.017* (0.010)	0.047*** (0.009)	0.042*** (0.009)	0.011 (0.007)
Predictable event \times action	0.032 (0.030)	0.014 (0.009)	-0.017 (0.021)	-0.026* (0.015)	-0.028* (0.015)	-0.037*** (0.013)	-0.019** (0.009)
SD of outcome	0.070	0.040	0.105	0.138	0.127	0.128	0.093
R-squared	0.029	0.035	0.064	0.051	0.101	0.060	0.042
Observations	5837	5837	5837	5837	5837	5837	4376

Notes: OLS estimates. The column headers denote the dependent variable. To ease interpretation, all attention measures are rescaled to vary between 0 and 1. *SD of outcome* is the standard deviation of the dependent variable on the days of and the days after the action, respectively. All models include weekday, month, year, and commissioner dummies, as well as seven lags of the dependent variable, and an intercept (output omitted). HAC standard errors (in parentheses) are robust to heteroscedasticity and autocorrelation up to order 7.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Turning to the coefficient on the interaction between predictable events and actions, we do not find significant differences in the amount or length of press releases by the Commission, neither on the day of an action nor on the day after (Columns 1 and 2). However, we find that the same-day amount and especially the length of reports by news agencies are significantly lower when

actions coincide with predictable news events (Panel A, Columns 3 and 4). Compared to the standard deviation on days with an action (0.152), the number of reports decreases by $0.036 / 0.152 = 24\%$. The decrease amounts to $0.029 / 0.100 = 29\%$ of the standard deviation of the sum of words. In addition, we find significantly negative next-day effects for the number of newspaper reports ($-0.028 / 0.127 = -22\%$), the sum of words of these reports ($-0.037 / 0.128 = -29\%$), as well as Google searches ($-0.019 / 0.093 = -20\%$); see Panel B, Columns 5–7.¹⁸

The decreased levels of reporting about and attention to cartel proceedings during predictable news events can be explained by various factors. For instance, newspapers usually face page restrictions that force editors to select which news to report, and to what extent. On days where large sports events or major elections increase the competition between news stories, editors are thus more likely to omit or shorten coverage about cartel proceedings. News agencies do not have page restrictions, but their resources are limited in various ways. In fact, anecdotal evidence compiled in Figure A8 suggests that agencies' daily output is effectively restricted by staff size, because the overall number of press releases drops by a factor of 3 on weekends. News agencies thus need to prioritize certain news as well, which can result in reduced levels of reporting about actions by the Commission on days with high news pressure. In addition, to some degree, news agencies could cater to the topic preferences of their clients (media companies), which in turn may cater to their audiences. If news consumers are less interested in information about cartel proceedings when large sports events or important elections take place, profit-maximizing news agencies and media companies have incentives to shift their attention too.

4.2.2 Robustness checks

The finding that we observe less and shorter news agency and newspaper reports about cartel proceedings, and less related Google searches, is robust to various modifications in variable measurement and model specification. We obtain similar results when we interact the occurrence of actions by the Commission with our explicit measure of distraction (i.e., the combined Google

¹⁸ The placement of newspaper articles could be another important aspect, in addition to their amount and length. For example, a front-page article likely catches more attention than an article of similar length placed in the middle of the newspaper. In Table A15 we evaluate how actions and events affect front-page coverage of cartel proceedings. The results do not indicate any significant differences. This is not surprising, because cartel investigations are hardly ever reported on the cover (only 27 out of the 828 articles in our sample appeared on the front page).

search volume on predictable news events, see Table A16); take the logarithm of our attention measures¹⁹ (Table A17); use the raw attention measures rather than the normalized and rescaled variables (Table A18); estimate the models without lagged dependent variables (Table A19); and include lags of both the dependent variables and the action dummy (Table A20).

Importantly, we obtain evidence that attention to cartel proceedings also decreases when actions occur at the same time as *unpredictable* news events. In Table A21, we interact the occurrence of actions with the occurrence of each year's worst disasters and terrorist attacks. Similar to predictable events, we find that news agency and newspaper reports on cartel investigations are shorter and less common – and related Google searches less likely – when actions coincide with severe disasters and attacks.

5. Conclusion

Using comprehensive data about cartel procedures, involved companies, and public attention, this study analyzes the relationship between the timing of actions by the European Commission and the composition of cartels. As a supranational, independent regulatory body, the Commission should exclusively focus on the functioning of the Common Market. There is no legal basis for company headquarters to influence cartel proceedings. However, our results suggest that prohibition decisions and Commission press releases are more likely to coincide with large predictable news events, the higher the number of EU companies per cartel. We find that reports by news agencies and newspapers about the proceedings, as well as related Google searches, are crowded out during these events. In combination, the results raise the suspicion that the Commission favors domestic companies by reducing the negative publicity associated with the proceedings.

We emphasize that our study does not provide conclusive evidence of favoritism though. Is the differential timing caused by efforts to protect EU firms, or is it perhaps an unintended result of the procedural design of European cartel proceedings? Further research is necessary to uncover the exact mechanism behind the unequal treatment. In addition, as noted in the Introduction, it

¹⁹ We prefer to not use the log transformation in the baseline specification, because our attention measures equal zero on many days, and adding an arbitrary constant before taking the logarithm could be considered a disputable approach.

would be beyond the scope of this study to investigate possible financial consequences of differences in public attention to cartel proceedings. A larger sample of companies and detailed firm-level data are necessary to evaluate effects on firm valuation (i.e., abnormal stock returns) or performance measures, such as sales and return on investment.

Our findings have important implications, even without knowing if the differential timing has direct financial implications for the involved companies, and even if it remains unclear if the patterns are driven by favoritism. Intentional or not, the unequal treatment of EU and non-EU companies is problematic for three reasons: First, the patterns undermine the Commission's role as the guardian of the Common Market. Second, a differential treatment puts European firms in jeopardy of retaliation in antitrust proceedings or other contexts abroad. Third, strategic behavior of regulators could weaken the effectiveness of news media as watchdogs of corporate transgressions, and reduce the ability of customers, employees, and shareholders to hold companies for violations of the law accountable. A solution to the problem could be a self-commitment by the Commission to adhere to certain principles, such as generally avoiding to take action during major sports events and elections. Since this kind of self-commitment might not be feasible, it could be helpful to implement institutional mechanisms that reduce incentives to favor domestic companies. For instance, an international antitrust institution, as discussed in meetings of the World Trade Organization and elsewhere (e.g., Guzman, 2004; Wood, 2005; Budzinski, 2014; Garcia, Paz y Miño, and Torrens, 2018), could be an option to minimize the conflict of interests that (supra)national regulators face.

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