Do political blogs matter? Corruption in state-controlled companies, blog postings, and DDoS attacks*

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Abstract

Though new media has become a popular source of information, it is less clear whether or not they have a real impact on economic activity. In authoritarian regimes, where the traditional media are not free, this potential impact might be especially important. We study consequences of blog postings of a popular Russian anti-corruption blogger and shareholder activist Alexei Navalny on the stock prices of state-controlled companies. In an event-study analysis, we find a negative effect of company-related blog postings on both daily abnormal returns and within-day 5-minute returns. To cope with identification problem, we use the incidence of distributed denial-of-services (DDoS) attacks as a variable that negatively affects blog postings, but is uncorrelated with other determinants of asset prices. There is a substantial positive effect of the DDoS attacks on abnormal returns of the companies Navalny wrote about, and this effect is increasing in amount of his attention to these companies. The effect is decreasing in attention to posts of other top bloggers, increasing in visitors' attention to Navalny's posts, and is consistent with more pronounced individual, in contrast to institutional, trading. Finally, there are long-term effects of certain types of posts on stock returns, trading volume, and volatility. Overall, our evidence implies that blog postings about corruption in state-controlled companies have a negative causal impact on stock performance of these companies.

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1. Introduction

In a democracy, mass media is an important instrument for monitoring behavior of public officials and limiting corruption (e.g., Besley and Prat, 2006, Ferraz and Finnan, 2008, Snyder and Strömberg 2010). Perhaps the most famous case is the Watergate scandal, in which information uncovered by investigative journalists eventually forced U.S. President Richard Nixon to resign. In non-democracies, where the governments censor news and suppress electoral institutions, the role of media in providing accountability is often limited. This can be one of the reasons why in such regimes corruption is abundant, public policy is inefficient, and political rents of the incumbents are large (e.g., Acemoglu and Robinson, 2006, , Bardhan, 1997; Brunetti and Weder, 2003).

When the government has tight control over the traditional media, emerging new media become an alternative source of independent information for citizens[1] and, potentially, an agent of political change. There is voluminous anecdotal evidence on the critical role bloggers played in the uprisings of Arab Spring and elsewhere (e.g., Lynch, 2011, Lotan et al., 2011, Sabadelo, 2011), yet systematic study of the impact of online social media in authoritarian regimes is missing.[2] In this paper, we address the following question: in a country with controlled offline media, do anti-corruption blogs make a difference?

We look at the effect of blogging about corruption in state-controlled companies in Russia. We analyze the outcomes that can incentivize the management of these companies as a first step in establishing the relationship between new media and accountability. Specifically, we study whether blog postings of a popular Russian blogger, shareholder activist, and, subsequently, one of the leaders of emerging opposition to President Putin's regime, Alexei Navalny, have had an impact on stock performance of the companies whose wrongdoings he uncovered and made public. We study both short-term and long-term effects of blog postings and presume that lower returns and higher volatility of stocks can provide a disciplining effect on the behavior of top managers of state-controlled companies.

First, we show that daily abnormal returns of the companies Navalny wrote about were significantly lower after Navalny's posts about them. The results hold if we control for mentions of these companies in other types of media (business newspapers, online

[1] E.g. in China censored information almost never goes through traditional media, but is available online for at least several hours. (King et al. 2012)

[2] Systematic evidence on the impact of new media in advanced democracies remains scarce as well (Gopinath et al., 2011, and McKenzie and Özler, 2011, are rare exceptions).

newspapers, and blogs) and for company-year and year-month fixed effects. In addition to looking at daily abnormal returns, we show similar results for 5-minute abnormal returns even controlling for trading day fixed effects. The magnitude of this effect is quite sizable with a daily decline of 0.5 p.p. after an average blog posting, and a daily decline of 0.9 p.p. after an important blog posting.

To separate the effect of blog postings from the effect of actual events, we look if actual events have the same effects as blog postings about them. We find that though blog postings about court hearings or shareholder meetings have negative impact on daily stock returns, the effect of actual events is not significant. We go further and look if events that are not discussed in the blog have similar negative impact on asset prices as the events discussed in the blog. We find that there is no significant effect of real shareholder meetings, both those discussed and not discussed in blog postings. For the court hearings, we find that actual court hearings not reported in the blog had no effects, but actual court hearings that were discussed in the blog had a negative and marginally significant effect.[3]

Next, we provide evidence that the impact of blogging on stock performance is causal.[4] Although the results described above are consistent with the negative impact of blogging, they could be explained, e.g., by selective exposure. Indeed, Navalny could have chosen to write about a company only when something negative for this company was happening. To identify the causal effect of blog postings we use an external variable, distributed denial-of-service (DDoS) attack on a blog service, as a source of exogenous variation. Specifically, we collected data on DDoS attacks that made LiveJournal.com blog platform almost inaccessible for at least several hours. These DDoS attacks were, allegedly, politically motivated and were not sponsored by the state-controlled companies we study. The attacks were targeting either specific bloggers other than Navalny or all top bloggers from the list of most popular bloggers. Although they were not specifically targeting the Navalny's blog, they affected the accessibility of the whole blog platform, and the Navalny's blog was also affected. As a result, DDoS attacks either prevented Navalny from writing a post or prevented his readers from reading his blog, but there was no obvious reason why they might influence fundamental determinants of stock prices of the companies Navalny wrote about.

[3] Note, however, that it might be difficult to separate the effect of the blog and the effect of the actual event as many posts about court hearings were made on the very day of the court hearing.

[4] The presence of any causal effect of blogging is unclear as readers of the blogs self-select to choose blogs they read according to their preferences (Gentzkow and Shapiro, 2011), and, in general, there are plenty of other sources of information. Nevertheless, blogs might have a more substantial impact on people's behavior in countries where information is scarce.

In a reduced form model we find significant positive effect of DDoS attacks on daily abnormal returns of the companies Navalny wrote about, and this effect is stronger for the companies Navalny was more focused on (the latter result holds even with DDoS attack fixed effects). Quantitatively, the effect of DDoS attack is similar to the absence of the post or to the presence of the post with no information about the company in question. We also show that though DDoS effect is increasing in Navalny's attention to the companies he was writing about, it is not increasing in the amount of general news attention to these companies.

To ensure that our results are not driven by spurious correlation, we also conduct additional placebo tests to show that our results are consistent with causal effect of blog postings and are not consistent with other explanations. Simple placebo tests imply that the corresponding effect was insignificant for the companies Navalny did not write about, and the effect became negative and insignificant for the state-controlled companies Navalny did not write about. This implies that the absence of blog postings in LiveJournal.com induced by DDoS attacks was helpful only for the companies Navalny has been writing about, and not for others. In addition, we find that leads and lags of blog postings do not have any influence on stock returns. Finally, we show that DDoS attacks before 2008, when Navalny started his activist campaign, did not have any effect on stock returns of the companies in question. We also provide additional evidence that lack of attention to Navalny's blog postings decreases the effect substantially. Specifically, we show that the effect of Navalny's blog postings is decreasing in the readers' attention to other LiveJournal posts on the same day. We also show that Navalny's posts were more influential when they were mentioned in the list of top-30 most interesting posts of the day, though we have to admit that it is hard to draw causal conclusions from the latter result.

Finally, in addition to short-term effects we just described, we look at the longer-term one-month effects of blog postings. Looking at long-term effects is important to understand whether blog postings can provide additional incentives to limit corruption and profit diversion for people managing state-controlled companies. We find that although there were no long-term effects of the ordinary postings, there were negative and significant long-term effects of the most important postings, as proxied by at least 5 mentions of a company in the post. In addition, during the month after a blog posting there was a larger volatility of stock returns and a larger trading volume. It appears that the number of transactions, controlling for trading volume, was significantly larger in both short-term and longer-term perspective. Smaller average transactions are consistent with more individual, in contrast to institutional, trading, which suggest that short-run effects of blog posting are driven by attention effects, rather than provision of new information. Overall, all our results are consistent with a

negative causal impact of blog postings on stock performance of state-controlled companies, and imply that potentially there is a disciplining effect on the behavior of public officials who manage these companies.

This paper contributes to the literature on media effects on political and economic outcomes. In recent years, there emerged literature on media effects on voting behavior (DellaVigna and Kaplan, 2007, Bergen, Karlan, Bergan, 2009, Enikolopov, Petrova, and Zhuravskaya, 2011, Gentzkow 2006, Gentzkow et al. 2011), public policies (Strömberg 2004, Eisensee and Strömberg, 2007, Snyder and Strömberg 2010), and ethnic hatred (DellaVigna et al. 2011, Yanagizawa 2011). Bailard (2012) and Miner (2011) study the impact of the availability of Internet on political and economic outcomes. McKenzie and Özle (2011) documented the impact of blogs of academic economists on the number of downloads of their papers. Gopinath et al., 2011 analyze how pre-release blog postings about movies affect first day sale revenues.

Also, the paper is related to the literature on the role of media in exposing corporate fraud (Dyck, Morse, and Zingales, 2009; Miller, 2006). Dyck, Volchkova, and Zingales (2008) studied the impact of media coverage of corporate governance violations in Russia. They also suggest that in a country with poor investor protection, limited media freedom, corrupt courts, and weak democratic institutions, bringing media attention to corporate fraud is one of rare tools available for minority shareholders to protect themselves. The method used by Hermitage Capital, discussed in Dyck, Volchkova, and Zingales (2008), was to lobby foreign press. Our results suggest that there is an alternative way to do it: to write a blog.

The paper is also related to emerging literature on the causal impact of mass media in financial markets (Engelberg and Parsons 2011, Peress 2011), who use either incidence of extreme weather that delayed newspaper delivery of newspaper strikes as sources of exogenous variation. More generally, the paper is related to the literature on the role of media in asset prices, pioneered by Dyck and Zingales (2003) and Tetlock (2007). Meschke and Kim (2010) show that markets were responsive to CEO appearances for interviews at CNBC, and the patterns of trade are consistent with individual rather than institutional trading. Griffin, Hirschey, and Kelly (2011) find that asset prices react more to news in developed markets, as compared with emerging markets. Our findings can explain why it is the case: in many emerging markets media freedom is limited, and large companies have too much power to allow negative news about themselves to be published in traditional media. In these countries, most probably sensitive information can be published only in blogs.

The rest of the paper is organized as follows. Section 2 provides some background information on the LiveJournal blog service and Alexei Navalny's blog. Section 3 describes

data, Section 4 outlines our methodology, while Section 5 presents graphic evidence. Section 6 is the main section: it contains empirical results, and reports robustness checks. Section 7 concludes.

2. Background

State-controlled companies play an important role in the Russian economy. In 2005-2011, their output accounted for more than 50 percent of the Russian GDP. In theory, their management power is checked by the board, in which majority of the members are appointed by the government. In practice, management of Russian state-owned companies typically enjoy a degree of freedom unheard of in privately-held companies. Though some attempts by private investors to gain by forcing the management to improve corporate governance were successful (e.g., Dyck, Volchkova, and Zingales, 2008), they often back-fired. In a well-publicized episode, William Browder, the founder of the Hermitage capital fund, have been denied Russian visa in 2005.

Alexei Navalny has a law degree and a business background; he was a member of leadership in the Yabloko party before turning to shareholder activism around 2010. Alexei Navalny's blog (navalny.livejournal.com) is one of the most popular (top 10 by Yandex blog ranking) blogs in Russia, with more than 66,000 regular followers. Its popularity surged after Navalny launched the "Rospil" project focused on protecting minority shareholders of large state-owned companies (and, by extent, on the management of the taxpayers' property by the Putin government). In particular, Navalny used his blog to organize large-scale petitioning and litigation campaigns related to corruption in state-controlled companies. As a result of these activities, Navalny was described by BBC as "arguably the only major opposition figure to emerge in Russia in the past five years" in 2011[5] and Wall Street Journal have called him "the man Vladimir Putin fears most" in March 2012.[6]

LiveJournal.com, an internet-based platform for blogs, is incorporated in the US. Initially aimed at the English-language audience, by mid-2000s it gained significant popularity in Russia, serving, essentially as the major country-wide social network. By 2005, the Russian-language part of LiveJournal hosted 9 million accounts; at this time 45 percent of

[5] http://www.bbc.co.uk/news/world-europe-16057045 (accessed on September 24, 2012).

[6] http://online.wsj.com/article/SB10001424052970203986604577257321601811092.html (accessed on September 24, 2012).

all blog posts in Russia were made in LiveJournal. In 2007, it was bought by a Russian media company SUP.

As a major social network, LiveJournal was primary means of transmitting information and enhancing political debate, which was gradually phased out from Russian TV channels and major newspapers. By 2009, Freedom House ranked Russian media as "not free" (see Gehlbach, 2010, Gehlbach and Sonin, 2009, on the government control of media in Russia).

3. Data and Empirical Strategy

Data

We compile data from several sources. First, we use data on Navalny's blog postings at Navalny.LiveJournal.com about specific companies between January 2008 and August 2011. We focus on this period because before January 2008 Navalny was not involved in anti-corruption campaign, and after August 2011 the content of his blog postings became almost exclusively political.

For each post we record exact time at which it became available and code its content. The coding of the content of postings, i.e. whether it contained information about courts, links to other media, letters from Public Prosecution Office, reports about shareholder meetings etc, was done independently by two research assistants and double checked by the authors of the paper. We also collected data on the number of comments for each posting. Since Navalny reported almost exclusively negative information on the companies he wrote about, we do not classify postings into positive and negative, and it allows us to avoid subjective estimates of the tone of the coverage. In total, there are 318 blog postings about the companies in our dataset.

The sample of companies consists of all the companies Navalny owned shares at and wrote about. This baseline set of companies includes 10 companies: Transneft, VTB, Gazprom, Rosneft, Sberbank, Surgutneftegas, Lukoil, Gazpromneft, RusHydro, and Inter RAO UES. Table A2 presents basic summary statistics for blog postings by type and by company. In the analysis, we sometimes look separately at four companies to which Navalny paid special attention, which we define as having more than 75 posts about a company (Transneft, VTB, Gazprom, Rosneft).

Second, we employ data on stock prices at MICEX, Russian stock exchange, from finam.ru (intraday data), export.rbc.ru (daily data), and micex.ru (data on the number of transactions). We use data on stock prices, trading volume, and the number of transactions. In the estimation, we compute abnormal return as a predicted residual from the following equation: $r_{it} = \alpha + \beta_i r_{mt} + \gamma_i + \epsilon_{it}$, where r_{mt} is market return, and γ_i is a company fixed

effect. We estimate within-day volatility as a standard deviation of close price based on 5-minute data.

Third, we use data on the dates of court hearings and court applications in which Navalny was involved from online catalog of Russian Arbitrage Court (available at http://kad.arbitr.ru/, accessed on December 8, 2011).

Fourth, we collected data on the dates of shareholder meetings of the companies in the sample from companies' websites (see Table A1 in Appendix for the list of sources).

Fifth, we use data from content analysis of the news sources covered by Yandex News, a news aggregator service of the most popular search engine in Russia. Specifically, for each day we collect number of mentions of each company and, separately, the number of mentions of each company in one article with Navalny last name. We also collected data on the mentions of companies in blogs, using Yandex blog aggregator service. We supplement news data from Yandex with news data on the mentions of companies with and without word "Navalny" from two most respectable Russian business daily newspapers, *Vedomosti* (co-sponsored by Financial Times and Wall Street Journal) and *Kommersant*. We access newspapers' content via securities.com, an online archive of media content provided by the ISI Emerging Markets.

Sixth, we collected data on DDoS attacks on LiveJournal blog service during 2003-2011 years. Using Google News and Yandex News services for specific time periods we identify the incidence and the timing of attacks using publications in online newspapers worldwide (see Table A1 in Appendix for the list of sources). We double-check our data with a worldwide list of such attacks compiled by Zukerman et al. (2010). Overall, we identify 17 episodes of such attacks 10 of which happen in or after 2008, after Navalny started his anti-corruption blogging.[7]

Finally, we use data on LiveJournal.com attendance from http://top100.rambler.ru/ and the data on top-30 blog postings from yablor.ru.Empirical Strategy

For our baseline results we estimate the following empirical specification:

$$AR_{it} = \gamma_0 + \gamma_1 post_{it} + \gamma_2 X_{it} + \varepsilon_{it} \quad (1)$$

Here AR_{it} is daily abnormal return of company *i* at day *t*, estimated from the market model, $post_{it}$ is a dummy variable equal to 1 if Navalny posted about company *i* at day *t*, and X_{it} is the vector of controls that includes mentions of company *i* in online newspapers, in

[7] Note that our sample period ends in August 2011 and does not include pre- and post-election attacks in November and December of 2011.

offline business newspapers, and in blogs, and also company-year, day of the week, and year-month fixed effects. Standard errors are clustered by trading day.

Next, we look at different types of content, and estimate equation (1) with dummies for different types of postings instead of $post_{it}$. We also estimate separately the impact of real events underlying some types of postings and the impact of blog postings, to exclude potential reverse causality story.

Our next step is to use DDoS attacks as a plausibly exogenous variable that is correlated with Navalny's blog postings, but is orthogonal to other determinants of stock prices. We start by presenting the results of estimation of reduced-form model, in which dummy for DDoS attack is used instead of a dummy for $post_{it}$ in equation (1). In addition, we estimate the following interaction model:

$$AR_{it} = \gamma_0 + \gamma_1 DDoS_t \cdot interest_i + \gamma_2 DDoS_t + \gamma_3 X_{it} + \varepsilon_{it} \quad (2)$$

Here $DDoS_t$ is a dummy for DDoS attack at day *t*, $interest_i$ is a proxy for Navalny's interest in the company (e.g. log of the number of blog postings), and X_{it} is the same vector of controls as used above. Note that we use company-year fixed effects, so there is no need to separately include a direct effect of $interest_i$ into the estimated model. In some specifications, we also include fixed effects for DDoS attacks into estimation.

In addition to a reduced form model, we use a number of placebo specifications, to show that our results are consistent with causal impact of DDoS attacks, but not consistent with alternative explanations. In particular, we check whether leads or lags of DDoS attacks are associated with significant (positive or negative) abnormal returns of the companies in question. We also checked whether DDoS attacks that happened before Navalny started his activity were associated with stock returns, and whether the effects of DDoS are increasing in news attention to the companies.

We also look whether there is a significant interaction of blogging effect with a large number of comments to other top posts at LiveJournal.com. This allows us to capture potential amplifying or mitigating effect of unusually large attention of Russian users to all volume of blogs at LiveJournal.com.

Finally, to capture potential long-term effects of Navalny's blog postings, we employed 30-day variables. We estimate equation (1) with $post_{it}$ being a dummy for a blog posting in the last 30 days. In addition to abnormal returns, we use such outcomes as volume, volatility (estimated on within-day data), and the number of trades, conditional on trading volume, to capture whether smaller transactions were more likely on the days of blog postings.

4. Graphic Evidence

Figure1 depicts the number of mentions of one of the companies Navalny wrote about, Transneft, in the Russian blogosphere, together with mentions of Navalny himself for two consecutive months in 2010. The picture aims to show that despite the fact that we focus on a single blog, it still provides a significant part of information about the company that was published in Russian blogs. The number of mentions of Navalny and of Transneft are strongly correlated and similar in magnitudes, though during this period Navalny is mentioned, on average, somewhat less often than Transneft.

Figure 2 reports how cumulative abnormal returns change from 8 hours before a blog posting to 8 hours after a blog posting. The reported coefficients are cumulative abnormal returns since the time of blog posting in a regression with 5-minute abnormal return as dependent variable, which includes trading day fixed effects. We show these results for all posts (panel A), and for significant posts (panel B), which have at least five mentions of a company in the body of blog posting. One can make two observations based on this picture. First, though there is no significant change in abnormal returns before blog postings, there is a significant drop in abnormal returns for several hours after the time of blog posting for both panels. Second, though the effect is negative and significant for all blog postings, the magnitude of a decrease is more pronounced for important blog postings. However, smaller number of important postings leads to substantially larger standard errors, which makes the difference statistically insignificant.

Figure 3 explores longer-term effects and shows cumulative abnormal returns for 2-month period around the day of blog postings. It shows the results, which are strikingly different from Figure 2: the effect of blog postings on the same day abnormal return is hardly visible, but there is a significant negative long-term effect of a blog posting, especially pronounced 20-30 days after the posting.

5. Empirical Results

Basic results

Table 1 presents the results of estimation of equation (1), with all the controls added one by one, with the last specification in column (6) controlling for the volume of online news, publications in business newspaper, publication in blogs, company-year, year-month,

and the day of the week fixed effects.[8] In all specifications, the coefficient is negative, significant at 5% level, and steadily increases in magnitude from being -0.42 percentage points for bivariate specification to -0.49 p.p. in the specification with the most controls. The coefficient implies that a company's daily abnormal return was, on average, 0.49 p.p. smaller during the days of a blog posting about the company than abnormal returns during the days without postings. The fact that the coefficient does not change much, and its magnitude slightly increases as controls are added, implies that it is unlikely that some omitted variable drives the relationship that we study.

Although the evidence in Table 1 is consistent with causal impact of blog postings, it is also consistent with selective exposure explanation, and we are not yet able to identify the mechanism that explains observed correlation.

Different types of blog postings

Results presented in Table 2 analyze which particular kinds of blog postings were mostly responsible for the negative effect of blog postings on stock returns documented above. In columns (1) and (2), we separate blog postings using the number of mentions of company names in blog postings. Specifically, column (1) shows that the relationship between the number of mentions (logged) and abnormal returns is negative and significant, with a coefficient implying that that the effect of doubling the mentions of a company is associated with a 0.25 p.p. drop in a company's abnormal return. Column (2) shows that this effect is concentrated among the posts with at least 5 mentions of the company, associated with average 0.9 p.p. decline significant at 1% level, with the effect of posts with a smaller number of mentions being not significant. Column (3) demonstrates that the effect of the number of mentions is not driven by the length of the posts, as the corresponding coefficient is not significant.

Column (4) looks at the effect of blog postings with different content. Specifically, the specification includes dummies for posts about court hearings, court applications, shareholder meetings, calls to action, posts about letters from Persecution Office, posts with other important information, and other types of posts. In this analysis, the only significant coefficients are for dummies for posts about court hearings and the posts about shareholder meetings. The magnitudes of these coefficients is quite large, with posts about court hearings

[8] In all the subsequent specifications in the paper we include the full set of controls as in column 6, unless we explicitly indicate a different set of controls.

being associated with a 2.05 p.p. drop in daily abnormal return, and the posts about shareholder meetings being associated with 1.50 p.p. drop in daily return. However, it remains unclear if the observed correlations are the effects of events themselves or the effects of blog postings about the events.

Blog postings and real events

Table 3 tries to separate the effect of blog postings and the effect of real events. In addition, it compares the effect of real events that are covered in Navalny blog with the effect of real events that are not covered. To do that, we use data on the dates of actual court hearings in which Navalny was involved and shareholder meetings. Columns (1), (2), (5), and (6) show that while there is a negative and significant effect of blog postings about these events, there is no significant drop or increase in the abnormal return on the days of court hearings or shareholder meetings. These results provide evidence in favor of causal effect of blog postings, but still do not rule out selective coverage, i.e. it could be that the author of the blog is writing only about significant events in his blog.

As a next step, we try to separate real events to be posted about from real events that were covered in the blog, by taking advantage of the fact that sometimes Navalny wrote in his blog about an event on the next day. Columns (3) and (4) show that court hearings to be covered are indeed different from the court hearings that were not covered, though it could be due to the fact that in the majority of cases Navalny wrote about court hearings on the same day as the hearing happened. Columns (7) and (8) show that for either type of shareholder meetings there is no significant effect of the meeting itself, but the coefficient in (5) implies that there is an effect of blog postings about these meetings.

Causal inference and DDoS attacks

The evidence so far implies that there is correlation between Navalny's blog postings and abnormal stock return following these postings. To find out if this relationship can be interpreted as causal, we present the results of estimation of equation (1) with DDoS attack as an independent variable. We expect the sign of this coefficient to be positive, as DDoS attack implies that there was no negative information about the company from Navalny. Note that Navalny was writing something in his blog on most of the days in the sample, though not all of his posts were about Russian state-owned companies.

Figure 4 shows how the audience and page loads of LiveJournal.com are different in the days of DDoS attacks, in contrast to the days without DDoS attacks. Though the decrease in the number of unique visitors attempting to visit LiveJournal.com during DDoS attacks is not significantly (see Figure 4B), the decrease in the number of page loads is statistically

significant (see Figure 4A). This implies that DDoS attacks have substantial influence on the exposure to LiveJournal.com posts.

Though, according to local and international press, these attacks were clearly politically motivated, they presumably were unrelated to the state-controlled companies we are considering in the paper. Attacks in 2008-2009 were supposedly targeted at *suxumu*, a Russian-language blogger located in South Ossetia region in Georgia. Attacks in 2011 were targeted to all top bloggers, most of whom do not write about politics.

In February 2012, a group of anonymous hackers published a collection of private emails of leaders of Kremlin-related youth organizations and government officials, including the Minister for Youth Affairs Vassily Yakemenko. The content suggests that the state-sponsored organizations were responsible for some of the DDoS attacks on web-sites of Russian media during that period. So far, there has been no direct evidence that Alexei Navalny's blog was a target for DDoS attacks by these groups, though there is evidence that Navalny himself was a target of a slander campaign.

Although it could be the case that DDoS attacks were used by the Russian government in times when it perceived a threat to its political prospects, this effect would bias our results downwards.

We expect DDoS attack to be equivalent to the absence of postings or to the presence of a posting unrelated to state-owned companies. To test whether it is the case, in addition, to DDoS variable, we also include the dummy for no post of Navalny in a given day and the dummy for the presence of Navalny's post not mentioning the company in question.[9]

Table 4 shows the effect of DDoS attacks on abnormal returns of different groups of companies. Column 1 shows that during DDoS attack, daily abnormal returns of the companies from a baseline sample (sample of the companies Navalny wrote about) were significantly higher by 0.56 p.p., as compared with the rest of time period, at 5% significance level. This column also shows that the effect of DDoS attack is comparable in its size to the effect of the absence of posting (0.50 p.p.) and to the effect of postings about anything except the company in question (0.48 p.p.), with F-statistics for Wald test implying that the hypothesis of equality of the coefficients cannot be rejected. This is consistent with assumption that the investors interpret DDoS attack as the event similar to the absence of postings about a company.

[9] Note that the results without these additional variables are very similar to those presented. We chose to omit these results to save space.

Column 3 reports that the effect of DDoS attacks is especially significant (at 1% level) in "high-attention" sample, the sample of companies Navalny wrote about. Numerically, the coefficients of both DDoS attacks (0.51 p.p.) and dummies for no postings about companies (0.53 p.p. and 0.63 p.p.) are similar to those for a baseline sample, reported in column (1).

Column 3 shows that abnormal returns of the companies Navalny did not write about were not significantly higher during DDoS attacks. The numerical coefficient is 0.13 that is approximately four times lower as compared with the companies from the baseline or the high attention samples, with the standard error being larger than the coefficient. This is an important placebo specification that is consistent with our interpretation of DDoS coefficient.

Column 4 reports another placebo test and shows that abnormal returns of state-owned companies which Navalny did not own and did not write about were not significantly different in times of DDoS attacks. The coefficient for DDoS attack even changes its sign and becomes negative, though remains insignificant. This test allows us to reject the hypothesis that DDoS attacks were just helpful for all state-owned companies as they could, presumably, demonstrate the strength of the government to the markets.

Overall, the results in Table 4 present evidence in favor of the causal impact of blog postings on stock returns.

Effect of DDoS attacks on different companies

Table 5 show the coefficients from the estimation of model (2) which examines how the effect of DDoS attacks depends on the amount of attention Navalny paid to a company. Navalny's interest in the company is measured either using three different proxies: dummy for a baseline sample of companies Navalny was writing about; dummy for high-attention sample; or the logged number of posts Navalny wrote about this company in 2008-2011. During DDoS attacks, the effect of being in a baseline or high attention sample is approximately 0.35 p.p., with the plain effect of DDoS attack being insignificant for companies Navalny did not write about (columns 1 and 2). Columns 5-6 imply that the positive effect of DDoS attacks is increasing in the number of posts Navalny wrote about the company, and corresponding coefficients are positive and significant at 1% level. Note that the specifications in columns 2,4, and 6 include DDoS attack fixed effects, to control for any other potential day-specific factors that might be associated with asset prices.

It could be the case that the companies that Navalny wrote about are generally more newsworthy than other companies, and any external shock to information environment makes the stocks of these companies more volatile. However, the results of Table 6 indicate that it is not the case. If we use measure of attention paid to the companies by on-line media, instead of the attention of Navalny's blog postings, the results of DDoS attacks disappear, despite the

fact that there is a substantial intersection between companies that Navalny wrote about and the companies that online media were most focused on. Thus, the results suggest that Navalny's attention is not just a proxy for general media attention.

Placebo tests

Note that we have already discussed some placebo results from Table 4 that show that there is no effect of DDoS attack for all the companies from MICEX index with no posts of Navalny about them, and, similarly, there is no effect of DDoS attacks for state-owned companies not mentioned in Navalny's blog. In this section, we present two additional placebo tests consistent with causal interpretation of relationship between postings and abnormal returns.

First, we show that the effect of DDoS attack disappears if we take leads or lags of DDoS attacks, implying, in particular, that some important positive events were not preceding DDoS attacks in our sample (Table 7). In fact, abnormal returns were even smaller the day before DDoS attacks (column 3), but this effect is not significant, with a standard error being 1.5 times larger than the coefficient.

Second, we show that pre-2008 DDoS attacks (Table 8) do not have any positive significant impact on stock returns for all groups of companies considered in Table 4. Regardless of whether Navalny wrote about these companies later, the coefficient for pre-2008 attacks is not significant and even negative in all the specifications.

Overall, the results in Tables 7-8 are consistent with causal impact of Navalny's blog postings on stock returns.

Interactions with attention proxies

In this section, we examine how the effect on stock returns depends on the attention paid to Navalny's blog by Internet users. In particular, we present the results of estimation of equation (1) with a dummy for blog posting interacted with a proxy for attention to other posts and for attention to Navalny's posts. Specifically, we look whether the effect is different for those days for which there is a popular blog post, attracted a large number of comments, and for those days, when Navalny's post was in the list of Top-30 LiveJournal posts of the day. These results are presented in Table 9. Column (1) implies that the effect of Navalny's postings was especially large (0.62 p.p.), if it was considered a Top-30 post. Column (2) suggests that the impact of a blog posting was smaller if they were written during the days when postings of other bloggers attracted a lot of attention, proxied by the largest number of comments to an alternative blog posting. Numerically, the effect of a blog posting

becomes insignificant if the number of comments to some other important post approaches 1000, which is around 25 percentile of the sample.

Overall, the results of this section are consistent with a hypothesis that the effect of Navalny's blog posting is increasing in attention of LiveJournal.com visitors.

Short-term vs long-term effects

In addition to looking at short-term effects, we also look at cumulative effects of a blog posting during the month after the posting. Specifically, we look at the effect of an ordinary and an important blog postings on stock returns and other outcomes, such as trading volume and volatility. The results of this estimation are presented in Table 10. First two columns show that while there was a substantial effect of Navalny's blog postings within a day after a posting, this effect disappears on a longer time horizon. This evidence is also in favor of Navalny's effect being an attention effect. However, the long-term effect of important postings (with at least 5 mentions of a company name), reported in column (4), persists and remains significant even after 30 days after blog post was written. In addition, on a longer time horizon one can observe that Navalny's posts were associated with a larger trading volume (column 6) and with a larger intra-day volatility (column 8).

Finally, we look whether the effect of blog postings is consistent with more individual, in contrast to institutional, trading. Unfortunately, we do not have direct data on individual or institutional trading, but we can test it indirectly by using data on the number of transactions conditional on trading volume. Columns (9) and (10) report within day and within month effects of blog postings on the number of trades, controlling for a trading volume. The results imply that there were more transactions for a given trading volume both during a day and during a month after Navalny's blog postings, consistent with a smaller average size of each transaction and more individual trading.

Overall, the results of this section imply that blog postings can indeed affect the outcomes that are presumably important for decision makers in state-controlled companies, such as monthly cumulative returns and stock volatility, and, as a result, can provide additional incentives to management of the companies.

Robustness checks

We also tried a number of alternative specifications to investigate sensitivity of our results. First, we estimate our baseline results with bootstrapped, rather than clustered, standard errors, and our results remain very similar.

Second, we checked that our result survive if we control for company-year-month fixed effects. This allows us to solve an important methodological problem. Ideally, we would like

to control for 4 Fama-French factors in a market model. However, such features of Russian market as low liquidity of companies not included in the MICEX index and almost full absence of small publicly traded companies make it difficult to estimate these factors. It is possible to estimate these factors on a monthly basis, but that becomes redundant as our results are robust to company-month fixed effects.

Third, we ensure that our results are robust to the inclusion of the lead of Google Search Volume Index that Da et al. (2011) found to be related to stock performance.

Last, but not least, instead of inclusion of different dummies, we experimented with a traditional, "out-of-sample", event study design, where normal returns are computed for a time period before blog postings, and abnormal returns are computed as out-of-sample prediction. We find that for some reasonable lengths of window this approach generates similar results.

6. Conclusion

In authoritarian countries, the means to hold politicians and public officials accountable are limited, because traditional media is often censored, politics is not competitive, and electoral fraud prevents political turnover. Our results imply that posting in online social networks can affect the stock performance of state-controlled companies, and, as a result, can become an unusual alternative mechanism to put additional checks on the behavior of government officials even without a major change of the government.

We show that there are effects of two types. First, there is a short-term attention effect, which is limited to several hours after the blog posting and is easily diminished if some other interesting postings are made available at the same time. Second, there is a longer-term effect of blog postings that is more consistent with information story. Longer-term effects imply that, presumably, blog postings can provide incentives for the managers of state-controlled companies to behave well.

Our results imply that there is a causal effect of blogging on stock performance. These results, however, are likely to be specific to emerging markets. Further research is needed to investigate whether similar results hold for other times and places, and whether new media can promote accountability through different mechanisms and in other circumstances.

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Fig. 1. Mentions of Navalny and Transneft in the whole Russian blogosphere.

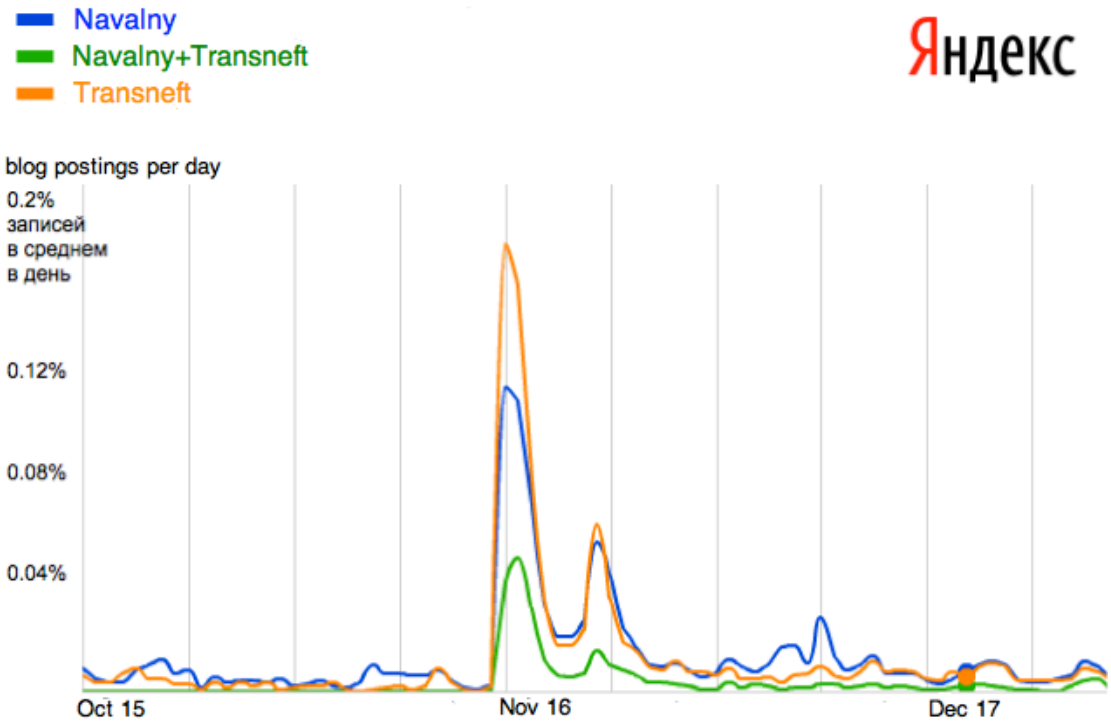
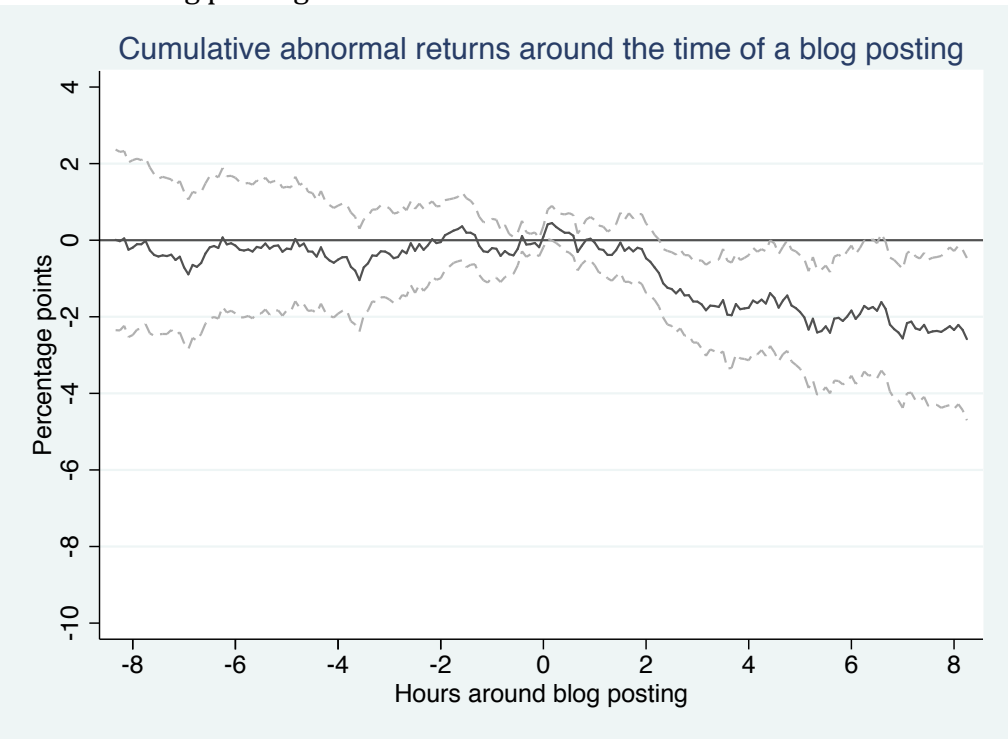


Fig. 2. 5-minute abnormal returns and Navalny's blog postings. Non-trading time (evenings and weekends) excluded.

A. All blog postings.



B. Large (with 5+mentions of a company) blog postings

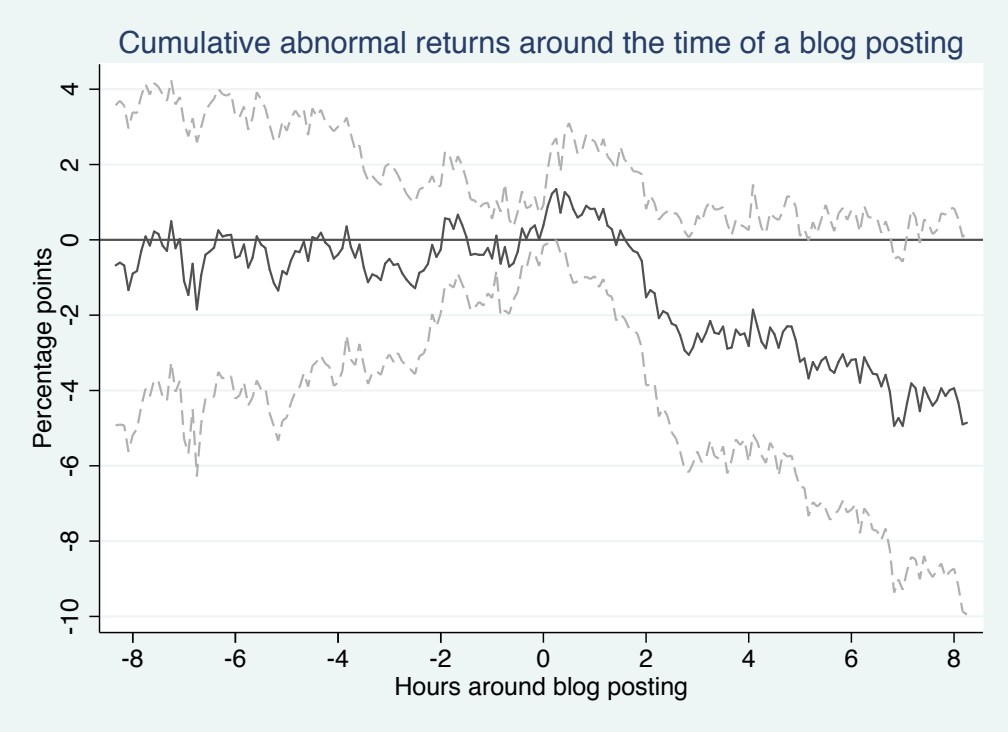
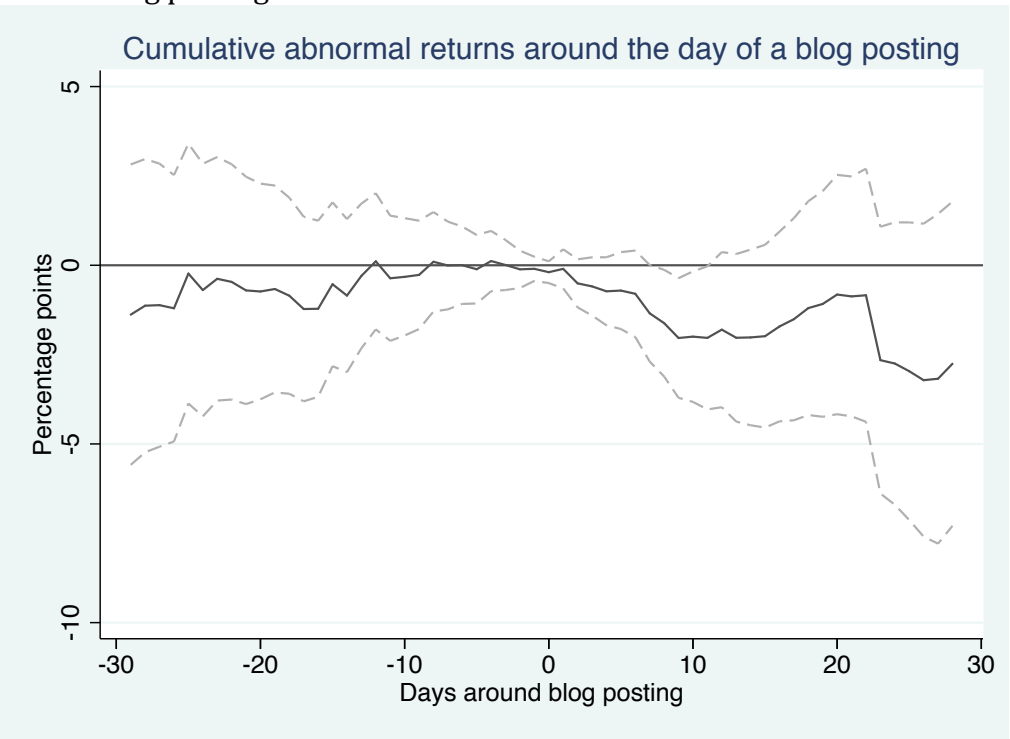


Fig. 3. Daily-minute abnormal returns and Navalny's blog postings. Non-trading days excluded.

A. All blog postings.



B. Large (with 5+mentions of a company) blog postings

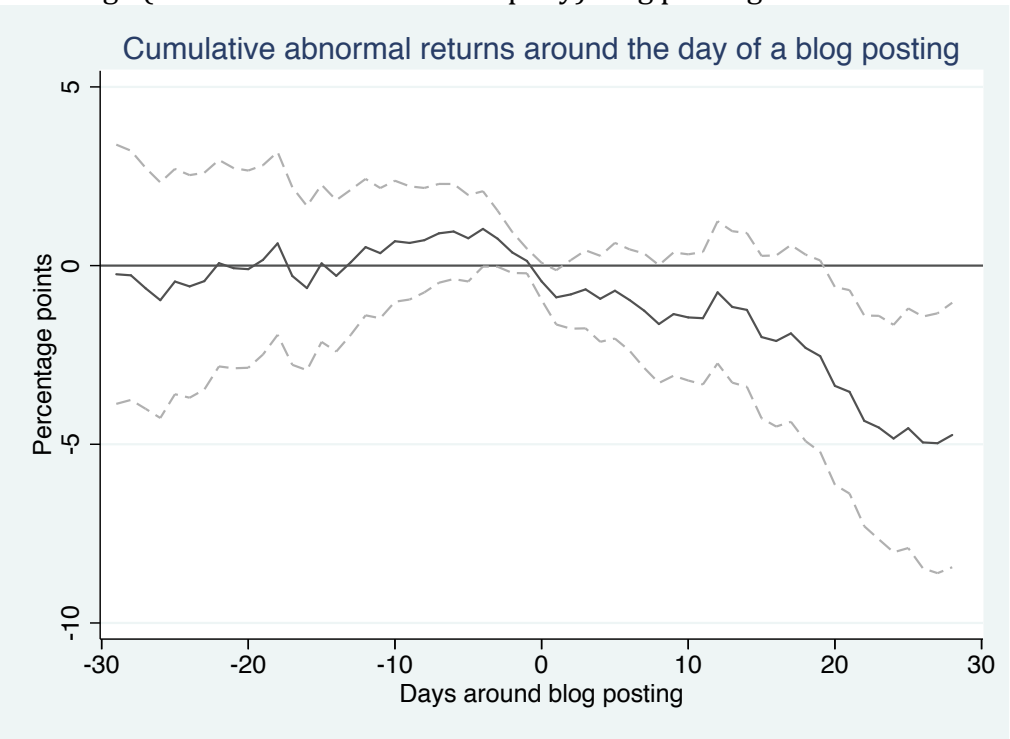


Fig. 4. LiveJournal statistics and DDoS attacks
A. LiveJournal.com daily page views . B. LiveJournal.com daily visitors.

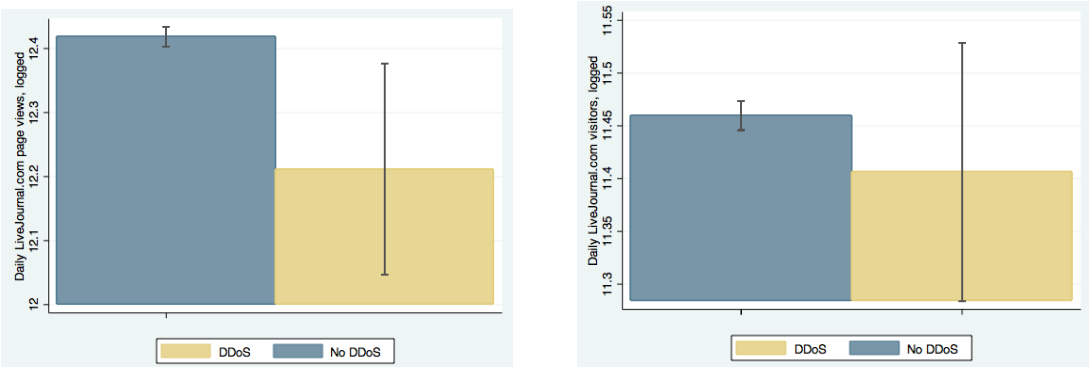


Fig.5. Stock returns and DDoS attacks. A baseline result and placebo tests.

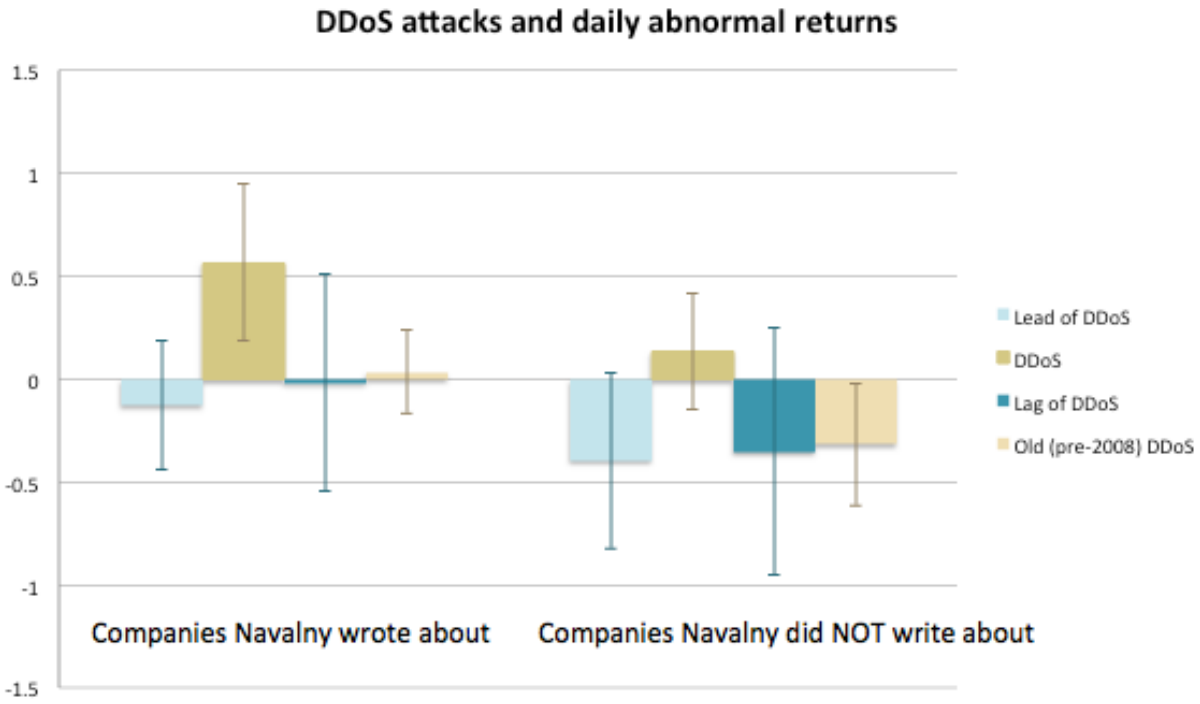


Table 1. Blog postings and abnormal returns. Baseline evidence

	Daily abnormal returns					
	(1)	(2)	(3)	(4)	(5)	(6)
Blog positngs	-0.4254*	-0.4277*	-0.4456*	-0.4574*	-0.4267*	-0.4975**
	[0.2418]	[0.2420]	[0.2457]	[0.2483]	[0.2392]	[0.2371]
Mentions in online news		0.0037	0.0032	-0.011	0.0609	0.109
		[0.0238]	[0.0237]	[0.0574]	[0.0682]	[0.1009]
Mentions in business newspapers			0.0294	0.0233	0.032	-0.086
			[0.0256]	[0.0268]	[0.0268]	[0.0964]
Mentions in blogs				0.0252	-0.0345	0.0666
				[0.0396]	[0.0471]	[0.0745]
Fixed effects	Company	Company	Company	Company	Company, Year-Month, Day of the Week	Company-Year, Year-Month, Day of the Week
Observations	9 271	9 271	9 268	9 018	9 018	9 018
R-squared	0.0004	0.0004	0.0005	0.0006	0.0096	0.0208

Notes: Robust standard errors adjusted for clusters by trading day in brackets * significant at 10%; ** significant at 5%; *** significant at 1%. Abnormal returns are measured in percentage points.

Table 2. Abnormal returns and Content of Blog Postings

Dep. Var.	Daily Abnormal Returns			
	(1)	(2)	(3)	(4)
Number of mentions of a company's name (logged)	-0.2472*			
	[0.1328]			
Less than 5 mentions		0.0758		
		[0.1855]		
5 or more mentions		-0.9093***		
		[0.3308]		
Length of posting			-0.0000	
			[0.0002]	
Post about court hearings				-2.0497**
				[1.0158]
…court applications				-3.1195
				[2.5120]
…shareholder meetings				-1.4997**
				[0.7154]
Calls to action				-0.5253
				[0.3489]
Posts about letters from Persecution Office				-0.2760
				[0.6311]
Posts with other important information				0.3126
				[0.5074]
Other types of posts				0.0140
				[0.3952]
Controls + Fixed Effects	Yes	Yes	Yes	Yes
Observations	9 018	9 018	9 018	9 018
R-squared	0.0207	0.0211	0.0203	0.0224

Notes: All specifications include company-year, year-month, and day of the week fixed effects together with controls for mentions in online news, business newspapers, and other blogs. Robust standard errors adjusted for clusters by trading day in brackets * significant at 10%; ** significant at 5%; *** significant at 1%. Abnormal returns are measured in percentage points.

Table 3. Blog postings and actual events

	Daily abnormal returns							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Posts about court hearings	-2.2053*							
	[1.2199]							
Court hearings		-0.3286						
		[0.4142]						
Court hearings with subsequent postings			-2.4619*					
			[1.2888]					
Court hearings w/o subsequent postings				0.7779				
				[0.6148]				
Posts about shareholder meetings					-1.5786**			
					[0.7744]			
Shareholder meetings						-0.3076		
						[0.3708]		
Shareholder meetings with subsequent postings							-1.1292	
							[0.7918]	
Shareholder meetings w/o subsequent postings								-0.0895
								[0.3815]
Controls + Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9 018	9 018	9 018	9 018	9 018	9 018	9 018	9 018
R-squared	0.0213	0.0203	0.0213	0.0205	0.0206	0.0204	0.0204	0.0203

Notes: All specifications include company-year, year-month, and day of the week fixed effects together with controls for mentions in online news, business newspapers, and other blogs. Robust standard errors adjusted for clusters by trading day in brackets * significant at 10%; ** significant at 5%; *** significant at 1%. Abnormal returns are measured in percentage points.

Table 4. Abnormal returns and DDoS attacks

	Daily Abnormal Returns							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Companies Navalny wrote about		Companies of primary interest of Navalny		Companies Navalny did NOT write about		State-owned companies Navalny did NOT write about	
DDoS attack	0.5718**	0.5652**	0.5341***	0.5064***	0.1289	0.1302	-0.0286	-0.0279
	(0.2294)	(0.2294)	(0.1641)	(0.1618)	(0.1700)	(0.1705)	(0.1882)	(0.1876)
Days w/o Navalny's posts		0.5040*		0.5264**		0.0614		0.03
		(0.2686)		(0.2651)		(0.1150)		-0.1398
Navalny's posts w/o mentioning a company		0.4846**		0.6250***				
		(0.2338)		(0.2280)				
Controls + Fixed Effects	Yes	Yes		Yes		Yes		Yes
Observations	9 018	9 018	3 708	3 708	15 767	15 767	5 343	5 343
R-squared	0.0209	0.0214	0.0221	0.0244	0.0211	0.0212	0.0293	0.0293

Notes: All specifications include company-year, year-month, and day of the week fixed effects together with controls for mentions in online news, business newspapers, and other blogs. Robust standard errors adjusted for clusters by trading day in brackets * significant at 10%; ** significant at 5%; *** significant at 1%. Abnormal returns are measured in percentage points.

Table 5. DDoS attacks, attention to companies, and daily abnormal returns

Dep. Var.	Daily Abnormal Returns					
	(1)	(2)	(3)	(4)	(5)	(6)
DDoS attacks * dummy for companies Navalny wrote about	0.3759**	0.3568**				
	[0.1669]	[0.1659]				
DDoS attacks * dummy for companies of primary interest of Navalny			0.3558***	0.3419***		
			[0.1095]	[0.1090]		
DDoS attacks * logged number of Navalny's posts about a company					0.1196***	0.1139***
					[0.0297]	[0.0293]
DDoS attack	0.1538		0.246		0.1957	
	[0.1560]		[0.1857]		[0.1784]	
Controls + Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
DDoS attack fixed effect	No	Yes	No	Yes	No	Yes
Observations	23392	23392	23392	23392	23392	23392
R-squared	0.0179	0.018	0.0178	0.018	0.0178	0.018

Notes: All specifications include company-year, year-month, and day of the week fixed effects together with controls for mentions in online news, business newspapers, and other blogs. Robust standard errors adjusted for clusters by trading day in brackets * significant at 10%; ** significant at 5%; *** significant at 1%. Abnormal returns are measured in percentage points.

Table 6. DDoS attacks, news attention to companies, and daily abnormal returns

Dep. Var.	Daily Abnormal Returns			
	(1)	(2)	(3)	(4)
DDoS attacks *logged number of online news mentions of companies	0.0245	0.0245		
	[0.0531]	[0.0531]		
DDoS attacks * dummy for companies of primary interest of online newspapers			0.5200	0.5200
			[0.3341]	[0.3341]
DDoS attack	0.0237		0.1585	
	[0.5815]		[0.1397]	
Controls + Fixed Effects	Yes	Yes	Yes	Yes
DDoS attack fixed effect	No	Yes	No	Yes
Observations	23 392	23 392	23 392	23 392
R-squared	0.0178	0.0178	0.0179	0.0179

Notes: All specifications include company-year, year-month, and day of the week fixed effects together with controls for mentions in online news, business newspapers, and other blogs. Robust standard errors adjusted for clusters by trading day in brackets * significant at 10%; ** significant at 5%; *** significant at 1%. Abnormal returns are measured in percentage points.

Table 7. Placebo test. Abnormal returns and leads and lags of DDoS attacks

	Daily Abnormal Returns			
	(1)	(2)	(3)	(4)
	Companies Navalny wrote about	Companies of primary interest of Navalny	Companies Navalny did NOT write about	State-owned companies Navalny did NOT write about
DDoS attack, 1-day lag	-0.0219			
	[0.3170]			
DDoS attack, 2-day lag		-0.1229		
		[0.2458]		
DDoS attack, 1-day lead			-0.127	
			[0.1947]	
DDoS attack, 2-day lead				0.3159
				[0.4251]
Controls + Fixed Effects	Yes	Yes	Yes	Yes
Observations	9 018	15 767	3 708	5 343
R-squared	0.0217	0.0189	0.0249	0.0267

Notes: All specifications include company-year, year-month, and day of the week fixed effects together with controls for mentions in online news, business newspapers, and other blogs. Robust standard errors adjusted for clusters by trading day in brackets * significant at 10%; ** significant at 5%; *** significant at 1%. Abnormal returns are measured in percentage points.

Table 8. Placebo test. Abnormal returns and old DDoS attacks

	Daily Abnormal Returns			
	(1)	(2)	(3)	(4)
	Companies Navalny wrote about	Companies of primary interest of Navalny	Companies Navalny did NOT write about	State-owned companies Navalny did NOT write about
DDoS attack	-0.0857	-0.4099	-0.2123	-0.2843
	-0.1173	-0.3049	-0.1542	-0.3111
Controls + Fixed Effects	Yes	Yes	Yes	Yes
Observations	8 227	2 285	11 675	5 945
R-squared	0	0.0005	0.0001	0.0001

Notes: All specifications include company-year, year-month, and day of the week fixed effects together with controls for mentions in online news, business newspapers, and other blogs. Robust standard errors adjusted for clusters by trading day in brackets * significant at 10%; ** significant at 5%; *** significant at 1%. Abnormal returns are measured in percentage points.

Table 9. Abnormal returns and interactions with attention to blog postings

Dep. Var.		
	(1)	(2)
Blog posting x dummy for Navalny's posting in Top-30	-0.6154*	
	[0.3410]	
Blog posting x number of comments to a top non-Navalny's posting		0.4902**
		[0.2471]
Blog posting	0.3396	-3.6980**
	[0.2766]	[1.8395]
Dummy for Navalny's posting in Top-30	0.0665	
	[0.0943]	
Number of comments to a top non-Navalny's posting		-0.0008
		[0.0498]
Other controls + Fixed Effects	Yes	Yes
Observations	4 320	4 320
R-squared	0.0053	0.0055

Notes: All specifications include company-year, year-month, and day of the week fixed effects together with controls for mentions in online news, business newspapers, and other blogs. Column (1) also includes controls for lags of Navalny's posts being in Top-30 over the last week. Column (2) also includes controls for lags of comments to a top non-Navalny's posting over the last week.Robust standard errors adjusted for clusters by trading day in brackets * significant at 10%; ** significant at 5%; *** significant at 1%. Abnormal returns are measured in percentage points.

Table 10. Returns, volume, and volatility. Short-term vs. long-term.

	Daily abnormal return		*Daily abnormal return*		*Trading volume*		*Intra-day volatility*		*Log (number of trades)*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Blog posting	-0.4975**				0.0561		-11.3851		0.0321*	
	[0.2371]				[0.0447]		[22.9393]		[0.0184]	
Blog posting in the last 30 days		-0.0903				0.0273*		20.3050**		0.0280***
		[0.0831]				[0.0165]		[10.1018]		[0.0081]
Posting with 5+ mentions of a company			-0.9170***							
			[0.3278]							
Posting with 5+ mentions of a company in the last 30 days				-0.1360*						
				[0.0763]						
log (trading volume)									0.4724***	0.4738***
									[0.0099]	[0.0102]
Controls + Fixed Effects	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Observations	9,018	8,928	9,018	8,928	9,018	8,928	8,618	8,528	7,024	6,994
R-squared	0.0208	0.0234	0.0211	0.0235	0.9845	0.9847	0.8282	0.8280	0.9724	0.9716

Notes: All specifications include company-year, year-month, and day of the week fixed effects together with controls for mentions in online news, business newspapers, and other blogs. Robust standard errors adjusted for clusters by trading day in brackets * significant at 10%; ** significant at 5%; *** significant at 1%. Abnormal returns are measured in percentage points.

Table A1. Variables and sources.

Variable	Source
Shareholder meeting	http://rosneft.ru/Investors/shareholdersinfo/shareholdersmeeting/; http://www.vtb.ru/we/ir/governance/meeting/; http://www.surgutneftegas.ru/ru/press/news/; http://www.lukoil.ru/static_6_5id_2128_.html; http://ir.gazprom-neft.ru/general-shareholders-meeting; http://gazprom.ru/press/news/shareholders-meeting/; http://sberbank.ru/moscow/ru/investor_relations/shareholders_meetings/
Court hearings	http://kad.arbitr.ru/,
Court applications	http://kad.arbitr.ru/,
Blog postings	navalny.livejournal.com. Classification was done with the help of several research assistants.
Stock returns	Raw data from export.rbc.ru. Authors' calculations.
DDoS attacks	http://webplanet.ru/news/security/2008/10/27/cyxymu.html; http://www.xakep.ru/post/45763/; http://lj-maintenance.livejournal.com/120360.html http://www.pcmag.com/article2/0,2817,2351296,00.asp; http://lj-maintenance.livejournal.com/125027.html; http://www.nytimes.com/2009/08/08/technology/internet/08twitter.html; http://bits.blogs.nytimes.com/2009/08/06/twitter-overwhelmed-by-web-attack/ http://www.prohitec.ru/news_hard-2011-03-31-109735.html http://512kb.ru/content/view/48364/53/ http://512kb.ru/content/view/50304/53/ http://lj-maintenance.livejournal.com/55754.html; http://brad.livejournal.com/1873967.html http://lenta.ru/news/2007/05/24/zhzh/; http://lj-maintenance.livejournal.com/117288.html; http://www.livejournal.ru/themes/?id=398&rel_posts=1; http://www.securitylab.ru/news/296507.php

	http://lj-maintenance.livejournal.com/117288.html http://globalvoicesonline.org/2007/06/05/russia-livejournal-ddos-attacked/; http://community.livejournal.com/sup_ru/171891.html http://news.netcraft.com/archives/2006/05/03/ddos_on_blue_security_blog_knocks_typepad_livejournal_offline.html; http://lj-maintenance.livejournal.com/112766.html; http://net.compulenta.ru/267174/?r1=yandex&r2=news supplemented by data from http://cyber.law.harvard.edu/sites/cyber.law.harvard.edu/files/DDoS%20Public%20Media%20Reports_0.xls
Mentions in Yandex-searchable news	news.yandex.ru
Mentions in blogs	Blogs.yandex.ru
Mentions in offline business newspapers	Vedomosti and Kommersant archives at securities.com
List of state-controlled companies where Navalny is a minority shareholder	http://www.forbes.ru/column/45506-protokoly-korporativnyh-mudretsov
MICEX index	micex.ru
State ownership of companies	Standard and Poors

Table A2. Navalny's blog postings. Some summary statistics.

Panel A. Postings by company

Transneft	VTB	Gazprom	Rosneft	Sberbank	Surgutneftegaz	Lukoil	Gazpromneft	Inter RAO UES	RusHydro
103	86	83	77	37	10	7	6	3	3

Panel B. Postings by type

Ordinary posts (less than 5 mentions)	Important posts (5+ mentions)	Post about court hearings	Posts about court applications	Posts about shareholder meetings	Calls for action	Leters from Prosecutor's office	Very important posts (RA-based classification)
281	82	17	5	11	39	32	64