Sentiment, Electoral Uncertainty and Stock Returns*

Carlos Carvalho  
Central Bank of Brazil  
PUC-Rio

Ruy Ribeiro  
PUC-Rio

Eduardo Zilberman  
PUC-Rio

July 2017

Abstract

We study the effect a huge sentiment shock, not related to economic conditions or government actions, on both political and stock market outcomes. To do so, we explore an empirical strategy that allows us to extract daily political news content from stock market data. Brazil’s 7-1 humiliating defeat to Germany in the 2014 World Cup was perceived by financial market participants to lead to a substantial punishment against the incumbent candidate at the polls three months later. A long-short portfolio strategy aiming to profit from political developments against the incumbent had a 6.4 percent return after the 7-1 match, while the overall market was up by 1.7 percent. According to this metric, the 7-1 match was the third largest political development against the incumbent (and sixth overall) during the election period. Hence, the effect of a negative change in investor mood on stock prices may not be necessarily negative as found in the literature, whenever the change in mood also has an impact on the expected outcome of closely disputed general elections.

Keywords: sentiment; stock returns; electoral uncertainty; voting behavior; event study; soccer.

JEL Classification: G12; G14; G18; C58; D72.

*For comments and suggestions we thank Claudio Ferraz, Marcio Firmo and Felipe Schwartzman. We also thank Daniel Coutinho for research assistance. All errors are ours. Earlier versions of this paper circulated as “Germany 7-1 Brazil: A Political Shock” and “Frustration and Voting Behavior: Evidence from Stock Market Data.” The views expressed in this paper are those of the authors and do not necessarily reflect the position of the Central Bank of Brazil. Carvalho: cvianac@econ.puc-rio.br. Ribeiro: ruy.ribeiro@econ.puc-rio.br. Zilberman (corresponding author): zilberman@econ.puc-rio.br.
1 Introduction

In this paper, we study the effect of a huge sentiment shock, not related to economic conditions or government actions, on both political and stock market outcomes. We provide evidence that the effect of a negative change in investor mood on stock prices may not be necessarily negative as found in the literature, whenever the change in mood also has an impact on the expected outcome of closely disputed general elections. After Brazil’s humiliating 7-1 defeat to Germany in the semi-final of the 2014 World Cup played at home, Brazilians were deeply frustrated and perplexed. We find that this huge sentiment shock was perceived by financial market participants to lead to a substantial punishment against the incumbent candidate at the polls three months later, benefiting disproportionately firms that were seem to be hurt by incumbent’s policies. A long-short portfolio strategy aiming to profit from political developments against the incumbent had a 6.4 percent excess return after the 7-1 match, while the overall market was up by 1.7 percent. According to this metric, the 7-1 match corresponds to the third largest political shock against the incumbent (and sixth overall) during the election period.

In order to do so, we explore an empirical strategy that allows us to extract daily political news from cross-sectional differences in stock returns using the heterogeneity in political sensitiveness across firms. Unlike the common approach in the literature, we do not use a pre-determined measure of political sensitivity. Instead, we innovate by using clearly discernible political shocks to measure the degree of political exposure by firms. We assume that, in the day after close elections, most of the stock price movements are driven by the resolution of the political uncertainty. More precisely, after controlling for aggregate factors, we assume that the bulk of the cross-sectional variation of stock returns during these periods is mainly due to political news. Hence, such cross-sectional variation represents per se a measure of the degree of political sensitivity. We find this measure preferable whenever it is hard to conceive a single objective measure of political sensitivity that can fully account for the multi-dimensional aspect of government intervention. During the incumbent mandate, firm-specific policies, such as credit subsidies, temporary tax cuts and price controls, played a prominent role. Hence, political
shocks against the incumbent candidate, President Rousseff, during the 2014 electoral run affected stock returns asymmetrically and significantly.\textsuperscript{1}

This approach can be applied to extract the political content of any event that occurs around close elections, whenever the degree of political sensitivity varies across firms and is hard to measure. In this paper we apply this methodology to a detailed analysis of the 7-1 event, which represents a perfect case of a massive negative sentiment shock due to a sports event near to a closely disputed election. Indeed, right after the World Cup, the whole country was immersed in the closest and most unpredictable presidential election in recent Brazilian democratic history. Each of three major candidates was leading the voting intention polls at some point. Since each candidate represented a different prospect for the economy, financial markets were highly volatile due to weekly – and perhaps daily – political shocks. Elections in Brazil are held in a two-round system, thus we consider two political shocks as a metric to measure the political news content reflected in the cross section of abnormal returns after several events. First, the first-round vote revealed that the difference between Dilma Rousseff (the incumbent and front-runner) and Aécio Neves (the runner-up) was far smaller than predicted by the polls. Second, the uncertainty resolution after the second-round vote that confirmed Rousseff’s victory by a small margin. Out of 159 dates (or possible political events) during the electoral cycle, the humiliating 7-1 defeat to Germany was among those perceived to have a huge political impact.\textsuperscript{2}

This paper provides additional evidence that sports outcomes affect stock returns. Edmans et al. [2007], for instance, find that, due to investor mood effects, the stock market in a given country declines after the elimination of its national team from the World Cup. Ehrmann and Jansen [2016] show that this underpricing effect materializes as the game unfold. In addition, Kaplanski and Levy [2010] document a negative aggregate effect stemming from these losses in the US stock market during the World Cup period.\textsuperscript{3}

\textsuperscript{1}Carvalho and Guimaraes [2016], for instance, use stock options and stock prices data to show that President Rousseff’s reelection had a negative and asymmetric impact on the value of several companies.

\textsuperscript{2}A similar empirical strategy is formalized by Fulford and Schwartzman [2016], who argue that the U.S. presidential election in 1896 represented a positive shock to commitment to the gold standard. To that end, they exploit the cross-sectional impact of this shock on bank leverage across U.S. states to recover a latent factor driving commitment around this period.

\textsuperscript{3}Other papers in this literature on sports and asset pricing include Ashton et al. [2003], Palomino et al.
An immediate extrapolation of these results would imply a decline in the stock market index after the 7-1 event. However, the stock market index (after we factor out external factors) increased by 1.7 percent, mainly driven by a significant rally of the politically sensitive firms that were seem to be hurt by policies of the incumbent candidate. In fact, the cross-sectional difference in returns were more significant than the overall market performance.

In order to justify the use of stock market data to claim that the 7-1 match was perceived to have a political impact, we rely on two well-established empirical facts. First, the ups and downs of close elections affect current economic outcomes and, thus, trades in the stock exchange. Indeed, Snowberg et al. [2007] show that on the 2004 election day in the US, financial markets anticipated higher equity prices, interest rates and oil prices as well as an appreciated exchange rate under George Bush presidency than John Kerry. Julio and Yook [2012], for instance, use a panel of countries to argue that close elections are associated with less corporate investment during the election year due to uncertainty regarding the possible prospects for the economy. More generally, a growing literature has studied the effects of political uncertainty on financial outcomes. See, for example, Pástor and Veronesi [2012], Bouchkova et al. [2012], Pástor and Veronesi [2013], Brogaard and Detzel [2015], Gulen and Ion [2015], Kelly et al. [2016] and Bird et al. [2017].

Second, political developments affect the pattern of stock returns in the cross section. Indeed, Fisman [2001] documents smaller returns for politically connected Indonesian firms after an adverse rumor about president Suharto’s health. After this seminal paper, similar results associating political connection and stock returns were documented in other contexts. The cross-sectional pattern of stock returns after a political shock may also be explained by other reasons than political connections. Knight [2007], for instance, shows that stock returns of firms favored under Bush (Gore) platform are positively associated with the probability of a Bush (Gore) victory during the 2000 campaign in the US. Similarly, Belo et al. [2013] show that US firms with high exposure to government spending
have higher (lower) stock returns during Democratic (Republican) presidencies. Finally, Akey and Lewellen [2016] emphasize that firms’ different degrees of policy sensitivity could be a confounding factor for political connectedness. In contrast with the bulk of this literature, rather than using a pre-determined measure of political sensitivity, we let financial markets determine it.

Finally, our indirect evidence on voting behavior also adds to the growing body of evidence showing that voters react to events unrelated to the politicians’ actions. Incumbents, for instance, are punished at the polls for natural disasters (Achen and Bartels [2004]), external economic shocks (Wolfers [2007], Leigh [2009], Campello and Zucco [2016]), sports outcomes (Healy et al. [2010]) and lotteries outcomes (Bagues and Esteve-Volart [2016]). Altogether, these findings can be interpreted as evidence that voters’ mood leads them to make mistakes, although for most cases other possible explanations cannot be ruled out. Closely related is Healy et al. [2010] who document in the US an electoral impact favoring the incumbent of wins in local college football games. The authors offer a mood interpretation for their results.

The paper is organized as follows. Section 2 develops the empirical strategy and reports the results. Section 3 performs sensitivity analyses. Finally, Section 4 provides a discussion of the results.

2 Empirical Strategy, Data and Results

In this paper, we argue that Brazil’s 7-1 defeat to Germany was perceived as a political development against the incumbent in power, which affected substantially stock returns. Instead of following the common approach in the literature that, based on a

5 Other papers that study the impact of political factors on stock returns include Kim et al. [2012] and Cohen et al. [2013].

6 Bagues and Esteve-Volart [2016], for example, argue that rich people may have stronger preferences for the status quo and, thus, lottery prizes or positive external economic shocks may simply shift preferences in favor of incumbents. In addition, Ashworth et al. [2017] argue that exogenous shocks, such as natural disasters, give an opportunity for voters to learn new information about the quality of the government, e.g., emergency preparedness.

7 In the appendix, we provide a brief description of the main events during the 2014 presidential election in Brazil through the lens of the metric developed to measure the political news content reflected in the cross-section of abnormal returns. We also discuss possible links between soccer and politics and compile anecdotal evidence suggesting how these links operated in practice after the 7-1 match.
pre-determined measure of political sensitivity, studies whether specific events affected disproportionately stock returns of politically sensitive firms, we innovate by using two clearly discernible political shocks to measure the degree of political exposure by firms. Under the assumption that, after controlling for aggregate factors, the bulk of the cross-sectional variation of abnormal returns after these shocks was mainly due to political factors, such abnormal returns represent *per se* a measure of the degree of political sensitivity.

We find this alternative measure of political sensitivity preferable for the following reason. In her first mandate, President Rousseff carried out policies that included large amount of credit subsidies (and other benefits such as temporary tax cuts) to some firms as well as high degree of government intervention in specific firms. Mainly through subsidized credit directed by the BNDES (Portuguese acronym for *National Development Bank*), the government fostered the so-called national champions in allegedly strategic sectors. These politically connected firms included the oil and gas company *OGX* (ticker OGXP3 at Bovespa – the São Paulo Stock Exchange), the telecommunication company *Oi* (OIBR3, OIBR4), the meat processing company *JBS* (JBSS3), among others. A political shock against the incumbent could affect these firms negatively. Also, many companies under control of the Brazilian government, such as the oil and gas company *Petrobras* (PETR3, PETR4), *Banco do Brasil* (BBAS3) bank, electric utilities company *Eletrobras* (ELET3, ELET5, ELET6), among others, suffered from government intervention such as price controls. These firms are expected to perform positively after a political shock that reduces the odds of Rousseff’s second mandate. More generally, as other candidates represent different prospects for different firms, the ups and downs during the disputed election of 2014 impacted asset prices asymmetrically. It is hard to conceive a single objective measure of political sensitivity that can fully account for this complex environment. We overcome this challenge by letting financial markets determine the degree of political sensitivity of each firm.\(^8\)

\(^8\)Carvalho and Guimaraes [2016] claim that, among twenty stocks traded at the São Paulo Stock Exchange, PETR3, PETR4 and BBAS3 were the most negatively affected by Rousseff’s reelection. Interestingly, JBSS3 was also negatively affected, but not as much as state-controlled companies and the banking industry as whole. During Rousseff’s first mandate, the banking industry was pressured by the government to reduce interest rates to borrowers.
Our empirical strategy requires the realization of a large political shock that drives the bulk of the cross-sectional variation in abnormal returns. We assume that, whenever candidates represent distinct prospects for different firms, the cross section of abnormal returns in the day after uncertain and close elections will be dominated by the resolution of political uncertainty. As presidents are elected in Brazil by absolute majority in a two-round system, we are able to use first- and second-round results as political shocks. A close inspection of Appendix B, which describes the main events in the 2014 presidential election in Brazil, reveals that the dynamics of the 2014 electoral run were highly uncertain during both rounds. For each of the three major candidates, Dilma Rousseff (the incumbent and front-runner), Aécio Neves (the runner-up) and Marina Silva (the third place), the odds of winning the election was changing every week, perhaps every day. Indeed, each of them led the voting intention polls at some point during the run.9

The first-round vote – held on Sunday, October 5th – revealed that the difference between Rousseff and Neves was far smaller than predicted by the polls. On Thursday, October 2nd, Datafolha and Ibope, the main pooling institutes in Brazil, released polls showing Rousseff with 40%, Neves with nearly 21% and Silva with 24% of the votes in the first round. During the weekend, after a debate broadcasted live at Friday night, the new polls indicated Rousseff with 40%, Neves with 24% and Silva with nearly 22% of the votes. On the election day, Rousseff, Neves and Silva had 37.58%, 30.31% and 19.26%, respectively, of the votes (including null votes). These results were known by night on the election day. We interpret them as an unexpected political shock that led to an update of the odds of winning in favor of Neves. In other words, the polls underestimated the strength of Neves.

9 Alternatively, one may attempt to identify a large political shock by considering the voting intention polls at the time they were released. However, given the high sensitivity of asset prices to the 2014 electoral outcome, the information content in polls was likely to be anticipated by financial firms and, thus, stock prices should not react much after they were released. The online appendix of Fernandes and Novaes [2017], for instance, investigates how these polls affected stock prices during the second round of the presidential election. Effects, though, are not very statistically significant. Moreover, there is anecdotal evidence suggesting that these firms had daily access to private electoral polls, never released to the general public. In September 26th, for instance, the Valor Econômico, the largest newspaper specializing in business, financial and economic news, published online at 4pm an article mentioning that private polls were conducted aiming to anticipate the results of a Datafolha (one of the main pooling institutes in Brazil) poll that would be released at night. See: http://www.valor.com.br/financas/3712464/bovespa-avanca-25-com-disparada-do-kit-eleicao-antes-do-datafolha.
The second-round vote – held on Sunday, October 26th – confirmed Rousseff’s victory by a small margin, qualitatively and quantitatively in line with the intention polls. On Friday, October 24th, electoral outcome was expected to be close and, thus, highly uncertain. In this case, we interpret the uncertainty resolution as a large political shock in favor of Rousseff that was not fully priced in advance.

In what follows, we explain how we use these two political shocks, i.e. trading days after each round vote, to construct a measure of the political content in the cross-sectional variation of stock returns in any given day during the political campaign. First, we obtain abnormal returns for each individual stock using both domestic and international factors. Second, assuming that abnormal returns are mainly determined by the resolution of political uncertainty in the trading day after each round vote, we construct a long-short portfolio that profits whenever the market anticipates a lower probability of reelection. The return of this portfolio can also be interpreted as a measure of the political factor in stock returns.

Let the excess return \( r_{i,t} \) of a stock \( i \) in a given date \( t \) be \( \log p_{i,t} - \log p_{i,t-1} - r_f,t \), where \( p \) is the adjusted closing price\(^{10}\) and \( r_f \) is the risk free rate proxied by the SELIC overnight interest rate.\(^{11}\) For each stock \( i \), we consider the following equation,

\[
    r_{i,t} = \alpha_i + \rho_i r_{i,t-1} + \beta_i X_t + \gamma_i D_t + \epsilon_{i,t},
\]

where \( X_t \) is a set of controls including: (i) the excess return associated with the Bovespa Index;\(^{12}\) (ii) the excess return associated with the exchange rate (R$/U$) depreciation;\(^{13}\) (iii) the excess return associated with the S&P 500 Index; and (iv) the S&P GSCI Crude Oil Excess Return Index. The idea is to factor out the variation of individual returns that is associated with the variation of those aggregate factors that were highly sensitive to political outcomes (local market returns and exchange rate variations) and external factors. We add the lagged individual stock return to account for illiquidity. Regarding

\(^{10}\)All data on stock prices are from Economatica.
\(^{11}\)SELIC is the policy rate targeted by the Central Bank of Brazil. It is an average of the interbank interest rates on overnight loans that require governments securities as guarantee.
\(^{12}\)An index comprised of the most liquid stocks traded at the São Paulo Stock Exchange.
\(^{13}\)The proxy for the US risk free rate is the 1-month Treasury constant maturity rate.
the external factors, we also add them in lag to account for the fact that markets open earlier in Brazil than in the US. Due to weekends and holidays, the lag between two adjacent trading days, \( t \) and \( t - 1 \), ranges from one to five days. Hence, we also control for a set of calendar variables \( D_t \) that include: (i) dummy variables for Monday through Thursday; and (ii) dummy variables for lags between two adjacent dates ranging from two (except weekends) to five days. As in Edmans et al. [2007], the later set of dummy variables aims to control for non-weekend holidays. After estimating equation (1) by OLS, we follow MacKinlay [1997] and define abnormal returns for each stock \( i \) in date \( t \) as

\[
\hat{\epsilon}_{i,t} = r_{i,t} - \hat{\alpha}_i - \hat{\rho}_{i,t} r_{i,t-1} - \hat{\beta}_i X_t - \hat{\gamma}_i D_t.
\]

Once we fix the dates for the aforementioned large political shocks, say date \( t = s_1 \) for the day after the first-round vote and \( t = s_2 \) for the second-round, we implicitly assume that the bulk of the cross-sectional variation of abnormal returns after these shocks was mainly due to the political shock. Hence, these abnormal returns serve as a measure to rank the degree of political sensitivity among Brazilian firms. Based on this rank, we construct the following long-short “anti-Rousseff” portfolio, in which the weight of stock \( i \) is proportional to \((\hat{\epsilon}_{i,s_1} - \hat{\epsilon}_{i,s_2})\). Since political shocks after the first-round and second-round votes were anti-Rousseff and pro-Rousseff, respectively, \( \hat{\epsilon}_{i,s_1} \) should enter positively whereas \( \hat{\epsilon}_{i,s_2} \) negatively as weights in an anti-Rousseff portfolio. By considering the sum of both, the role of firm-specific developments that might have affected abnormal returns in these dates is mitigated. The return \( R_t \) of such portfolio is given by:

\[
R_t = \sum_i \left( \frac{\hat{\epsilon}_{i,s_1} - \hat{\epsilon}_{i,s_2}}{\sum_i |\hat{\epsilon}_{i,s_1} - \hat{\epsilon}_{i,s_2}|} \right) \times \hat{\epsilon}_{i,t},
\]

where we normalize weights by \( \sum_i |\hat{\epsilon}_{i,s_1} - \hat{\epsilon}_{i,s_2}| \) to make the sum of absolute weights equal to one. We rescale these weights to make returns comparable to those of the Bovespa Index. Notice that the higher the absolute value of \( R_t \), the more likely the cross-section of abnormal returns is driven by the political factor in any particular day, something we explore below to rank dates according to their political content.

In Appendices A and B, we provide evidence that stocks rally due to political factors
started as of March 2014, which could bias the estimation of the coefficients associated with local and external factors. Hence, in our benchmark analysis, we estimate the set of regressions in (1) using daily data between March 2013 and February 2014 (pre-event estimation window). Moreover, we consider the set of the 50th most liquid stocks traded at the São Paulo Stock Exchange (Bovespa) in this period, which comprises nearly 65 percent of the volume traded. If a firm has both common and preferred shares, we consider the most liquid one.\textsuperscript{14} In Section 3 we perform sensitivity analysis by varying the set of stocks and the pre-event estimation window. Notice that after estimating this set of regressions by OLS, we can compute the estimated cross-sectional variation of abnormal returns, $\hat{\epsilon}_{i,t}$ for all $i$, after March 2014, the period of interest.

Figure 1 plots the weights, $\hat{\epsilon}_{i,s_1} - \hat{\epsilon}_{i,s_2}$, in ascending order for the 50th most liquid stocks. In line with the aforementioned arguments, if someone is willing to bet against the incumbent, an anti-Rousseff portfolio should buy (i.e. place positive weights on) stocks from state-owned firms, such as PETR4 or BBAS3, and short sell (i.e. place negative weights on) highly subsidized firms, such as OGXP3 or OIBR4.

In order to gauge the political content of the 7-1 event, we rank dates, from March 6th,\textsuperscript{15} March 1st to March 5th encompasses the weekend and carnival, a three-day holiday in Brazil.
before the stocks rally, to October 27th, right after the second-round vote, according to the absolute return of the long-short portfolio described above. Out of 159 dates or possible political developments, Table 1 reports the top fifteen political shocks according to this metric. This table also reports, for each of these dates, the return $R_t$ of the anti-Rousseff portfolio, the Bovespa Index raw excess return, the Bovespa Index “abnormal excess return” in which we factor out external factors, the ranking position of each date when weights are constructed based on a single political shock (either the first-round or the second-round vote), rather than the sum of both.

Table 1: Top 15 “political shocks” during the 2014 presidential election.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Date</th>
<th>R</th>
<th>Raw</th>
<th>Abnormal</th>
<th>1st round</th>
<th>2nd round</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>27-Oct</td>
<td>-10.5%</td>
<td>-2.8%</td>
<td>-2.6%</td>
<td>19</td>
<td>1</td>
<td>2nd round</td>
</tr>
<tr>
<td>2</td>
<td>6-Oct</td>
<td>9.7%</td>
<td>4.6%</td>
<td>4.8%</td>
<td>1</td>
<td>4</td>
<td>1st round</td>
</tr>
<tr>
<td>3</td>
<td>21-Oct</td>
<td>-8.4%</td>
<td>-3.5%</td>
<td>-5.1%</td>
<td>2</td>
<td>11</td>
<td>pro-Dilma</td>
</tr>
<tr>
<td>4</td>
<td>13-Oct</td>
<td>8.4%</td>
<td>4.6%</td>
<td>5.9%</td>
<td>4</td>
<td>2</td>
<td>anti-Dilma</td>
</tr>
<tr>
<td>5</td>
<td>23-Oct</td>
<td>-6.6%</td>
<td>-3.3%</td>
<td>-4.3%</td>
<td>3</td>
<td>20</td>
<td>pro-Dilma</td>
</tr>
<tr>
<td>6</td>
<td>10-Jul</td>
<td>6.4%</td>
<td>1.7%</td>
<td>1.7%</td>
<td>5</td>
<td>7</td>
<td>7-1 match</td>
</tr>
<tr>
<td>7</td>
<td>7-Apr</td>
<td>6.1%</td>
<td>2.0%</td>
<td>2.8%</td>
<td>7</td>
<td>5</td>
<td>anti-Dilma</td>
</tr>
<tr>
<td>8</td>
<td>30-Sep</td>
<td>-5.8%</td>
<td>-1.0%</td>
<td>-0.7%</td>
<td>6</td>
<td>12</td>
<td>pro-Dilma</td>
</tr>
<tr>
<td>9</td>
<td>16-Oct</td>
<td>-5.7%</td>
<td>-3.4%</td>
<td>-3.5%</td>
<td>13</td>
<td>3</td>
<td>pro-Dilma</td>
</tr>
<tr>
<td>10</td>
<td>6-Jun</td>
<td>5.5%</td>
<td>3.0%</td>
<td>2.6%</td>
<td>8</td>
<td>9</td>
<td>anti-Dilma</td>
</tr>
<tr>
<td>11</td>
<td>27-Mar</td>
<td>5.1%</td>
<td>3.4%</td>
<td>3.4%</td>
<td>10</td>
<td>13</td>
<td>anti-Dilma</td>
</tr>
<tr>
<td>12</td>
<td>18-Jul</td>
<td>4.9%</td>
<td>2.4%</td>
<td>1.4%</td>
<td>17</td>
<td>8</td>
<td>anti-Dilma</td>
</tr>
<tr>
<td>13</td>
<td>4-Sep</td>
<td>-4.8%</td>
<td>-1.7%</td>
<td>-1.8%</td>
<td>12</td>
<td>15</td>
<td>pro-Dilma</td>
</tr>
<tr>
<td>14</td>
<td>11-Apr</td>
<td>4.6%</td>
<td>1.4%</td>
<td>2.0%</td>
<td>9</td>
<td>25</td>
<td>unrelated</td>
</tr>
<tr>
<td>15</td>
<td>24-Oct</td>
<td>4.3%</td>
<td>2.4%</td>
<td>1.8%</td>
<td>21</td>
<td>14</td>
<td>anti-Dilma</td>
</tr>
</tbody>
</table>

Notice that the 7-1 match, ranked 6th, was perceived to have a huge political impact. In fact, the anti-Rousseff portfolio would yield a 6.4 percent excess return at this date. Aside the first- and second-round votes, which were clearly discernible large political
shocks, the 7-1 match corresponds to the fourth highest political shock, and the second highest against the incumbent. Moreover, even considering each portfolio constructed with weights associated with a single political shock, the 7-1 match is still ranked high. Importantly, we carefully inspect print and online news in four large newspapers around the 7-1 match, between July 7th and July 11th, looking for possible political developments. We run queries in Estadão, Folha de São Paulo and O Globo, the largest daily newspapers in Brazil, as well as in the Valor Econômico, the largest newspaper specializing in business, financial and economic news. Of course, there were some political news, but we could not track any news that might have triggered a large political shock. Moreover, many analysts attributed the movements in the stock prices during this period to political spillovers from the 7-1 match.\textsuperscript{16}

The anti-Rousseff portfolio after the 7-1 match had an excess return well above the overall market, which was up by 1.7 percent. Importantly, this increase was mainly driven by a significant rally of the politically sensitive firms that were seem to be hurt by the incumbent firm-specific policies. Hence, the effect of a large negative sentiment shock on stock prices is not necessarily negative as found in the previous literature, as long as this shock is also expected to have an impact on closely disputed presidential elections.

Every day, after the Bovespa closes, the Valor Econômico newspaper publishes online possible explanations it attributes for the behavior of some stocks in the Bovespa. We use these articles, for which the links are listed in Appendix C, as an attempt to support each of these fifteen dates with a political event. Interestingly, for July 10th after the 7-1 match, ranked 6th out of 159 dates, the newspaper attributed movements in the stock market to possible spillovers from the failure of the national team in the World Cup to the presidential run.

For the other better ranked days, except for one unrelated case (April 11th), part of the explanations put forth by the newspaper fits within the electoral dynamics. The behavior of stock returns in these days are partially attributed to voting intention polls release (April 7th, June 6th, July 18th, September 4th, September 30th, October 16th, October 16th).

21st, October 23rd), Rousseff’s popularity polls release (March 27th), and weekend politi
cal events (October 13th, October 24th). Notice that our empirical strategy selected political shocks that encompassed the whole electoral dynamics, ranging from March to October, although clearly concentrated during the second-round campaign when financial markets were particularly volatile. Moreover, the sign of the anti-Rousseff portfolio return is in line with the qualitative nature of the political event, as we discuss in Appendix B. It is reassuring that our approach to measuring the political content in stock prices is backed by subjective evaluations of the events that drove them. Furthermore, except for the only date classified as unrelated, all dates are ranked among the top twenty-one political shocks were weights constructed based on a single political shock (either the first-round or the second-round vote), rather than the sum of both.

Figure 2 highlights some of the main political events during the 2014 electoral run, described in details in Appendix B. The run was the closest and most unpredictable presidential election in recent Brazilian democratic history, subject to weekly – and perhaps daily – political shocks. By plotting the evolution of cumulative excess returns associated with both the Bovespa Index (net of external factors) and the anti-Rousseff portfolio, Figure 2 shows that our metric, $R_t$, accounts reasonably well for the electoral dynamics, which reinforces the interpretation that the 7-1 event was perceived to be a huge political shock.
We set March 5th as the reference date, when cumulative are returns are normalized to zero. Around this period, when the electoral rally started, financial markets reassessed for the first time Rousseff’s favoritism. Notice that both series nearly overlapped up to the end of March. After that, the cross-section of abnormal returns seemed to reflect better the political developments than the stock market index.

Interestingly, after a relative calm period during the World Cup, the 7-1 match triggered one of the most intense electoral rally with the anti-Rousseff portfolio yielding an excess return of 15.1% in a few days (from July 10th to July 18th). As we argue below, the perception that the 7-1 match might affect the electoral outcome was reinforced in the final weekend of the World Cup, when Brazil was defeated by Netherlands in the dispute for third place, again by a wide score of 3-0, which might have amplified and prolonged the sentiment shock triggered by the defeat to Germany. In addition, the end of the World Cup might have led to a deeper evaluation of the national team performance, and reinforced the view that the 7-1 defeat had a political impact. On Monday, July 14th,
right after the final weekend of the World Cup, the anti-Rousseff portfolio yielded a return of 3.6% (the 23rd highest political shock according to our metric). In addition, perhaps caused by the humiliating 7-1 defeat, voting intention and popularity polls released by Datafolha on July 17th at night portrayed a weaker incumbent. On July 18th, the anti-Rousseff portfolio yielded a return of 4.9% (the 12th highest shock).

Finally, Figure 3 plots the ratio of the weighted sum of stocks' volume that compose the anti-Rousseff portfolio to the total volume traded at the Bovespa, as well as its fifteen days centered moving average (dashed-line). Weights are the absolute values of the weights used to compute the anti-Rousseff portfolio return. We normalize this ratio to one at March 5th, before the beginning of the electoral rally. The higher this measure, the more traders are investing and monitoring stocks that are sensitive to political developments. In addition, this measure also reflects electoral uncertainty to the extent that it creates trading opportunities, inducing investors to construct either pro- or anti-Rousseff portfolios.

![Figure 3: Volume (portfolio/Bovespa).](image-url)
Up to the 7-1 match, the moving average version of this measure oscillated in between 1.0 and 1.2. After the rally triggered by the 7-1 match, this variable had increased systematically, reaching nearly 1.5 right before the first-round vote. Then, it had reduced gradually during the second-round campaign to nearly 1.3. As of the end of the electoral run, it had fell steadily reaching approximately 1.15 by the end of the year. If the political factor started to be relevant around March, it seemed to dominate the dynamics of the stock market only right after the 7-1 match, reinforcing our claim that this event was perceived to be a massive political shock.

3 Sensitivity Analysis

In this section, we provide several sensitivity analyses that reassure that the 7-1 event was a political development against the incumbent in charge. First, we consider different samples of stocks, ranging from the 10th to the 90th most liquid stocks. Second, we address the role of influential stocks that might be subject to firm-specific developments around the first- and second-round votes. Third, we consider a different pre-event estimation window. Finally, we discuss the political content of other World Cup matches.

3.1 Number of Stocks

In this section we recompute the weights associated with the anti-Rousseff portfolio for different samples of stocks. In particular, we vary the number of shares from the 10th to the 90th most liquid stocks. Figure 4 plots both the rank position (top graph) and the return of the anti-Rousseff portfolio (bottom graph) associated with the 7-1 event for each sample. In the x-axis we vary the number of stocks considered.
Irrespective of the number of stocks used to build the anti-Rousseff portfolio, the 7-1 event is always ranked high, among the top fifteen political developments (top graph). Moreover, the portfolio is always well above the market excess return of 1.7 percent (full line in the bottom graph), reaching 12.0 percent if constructed solely with the 10th most liquid stocks. Finally, rank positions and portfolio returns seem not to be stable if the sample consists of small number of shares. Once a larger number of stocks is considered, however, the rank position is always between fifth and eighth, whereas the portfolio return is always between 4.5 and 6.5 percent, mitigating the concern that some influential stocks might be driving our results. We further address this concern in the following section.
3.2 Influential Stocks

Our empirical strategy relies on the implicit assumption that the bulk of the cross-sectional variation of stock returns the day after election days is due to the political-driven news. However, some spurious firm-specific developments not related to the electoral dynamics may have biased our results towards finding that the 7-1 match is politically relevant. In order to address this issue, we reproduce the analysis above several times, each of them excluding one of the fifty firms at a time from the sample and recomputing the weights associated with the anti-Rousseff portfolio.

Results are reported in Figure 5. The top (bottom) panel plots the rank position (anti-Rousseff portfolio return) after excluding one of the stocks at a time from the sample. The x-axis reports the excluded stock, which is ordered according to the weight assigned in the anti-Rousseff portfolio (see Figure 1). Dotted lines mark one position above and below the rank position of the 7-1 event once the fifty shares are considered.
We identify two influential stocks, both “chosen” by the government to be the so-called national champions in allegedly strategic sectors. Namely, the aforementioned telecommunication company Oi and oil and gas company OGX. In fact, by excluding the ticker OIBR4 from the sample, the rank position falls from 6th to 10th, whereas the portfolio return reduces from 6.4 to 5.1 percent. Once the ticker OGXP3 is excluded, although the rank position remains the same, the portfolio return falls from 6.4 to 4.0 percent. In both cases, the qualitative interpretation that the 7-1 match was a huge political shock remains. Finally, by excluding both tickers, the rank position falls to 18th and the portfolio return reduces to 2.3 percent, still a highly relevant political development yielding an excess return above the market.

In principle, it is not clear whether both Oi and OGX should be excluded from the sample, as they are expected to be highly sensitive to political shocks. In other words,
someone might be discarding useful information if willing to bet against the incumbent. Nonetheless, firm-specific news released between the close of the stock market on October 3rd (Friday) and October 6th (Monday), or between October 24th (Friday) and October 27th (Monday), may hinder the interpretation that the cross-sectional pattern of stock returns on the first trading day after the first-round, or second-round, vote was shaped primarily by the political news associated with the election results. To guard against this possibility, we run queries from March 1st 2014 to October 31st 2014 in the dataset of news articles of Brazil’s main business newspaper, Valor Econômico. We search for news on OGX and Oi, the two influential stocks identified above, that might justify movements in the residual returns around the first- and second-round votes that are unrelated to politics. Our conclusions for each of these firms are the following.

- **OGX** (OGXP3). On October 30th 2013, OGX filed for bankruptcy protection in Brazil. Since then, several judicial disputes have followed. The news flow was particularly intense during the campaign, also around the election days, as a re-structuring plan was being implemented. Moreover, former executives of OGX were facing criminal charges at this time. We should emphasize, however, that after the first- and second-round votes, when election results were clearly anti- and pro-Rousseff, abnormal returns were -16.6 and 11.0 percent, respectively. Importantly, we could not track any firm-specific news that could justify such hike after the second-round vote.

- **Oi** (OIBR4). On October 2nd 2013, when the company was already facing financial problems, a merger between Oi and the Portuguese company Portugal Telecom was announced. This merger had been in process throughout 2014. The news flow for this firm was particularly intense during the campaign, including around the election days. In particular, an unexpected exposure of Portugal Telecom to the financially troubled Espírito Santo bank raised many concerns regarding the merger. Moreover, during October 2014, Oi’s CEO resigned, Portugal Telecom’s assets were sold abroad, and possible offers to buy Portugal Telecom were reported. After the first- and second-round votes, when election results were clearly anti- and pro-Rousseff, abnormal returns were -10.3 and 1.3 percent, respectively.
Next sections present more sensitivity analyses. Given the considerations above regarding both OGX and Oi, and keeping in mind that we might be discarding useful information, we also comment how results would change were these companies dropped from the sample.

### 3.3 Pre-Event Estimation Window

We argue in Appendixes A and B that stocks rally due to expected electoral outcomes started by March 2014. Hence, we consider the pre-event estimation window between March 2013 and February 2014. As a robustness check, to reassure that the pre-event estimation period is not contaminated by electoral factors, we consider a more conservative window between January 2013 and December 2013. The set of 50th most liquid stocks during the period remains the same. Results barely change. Indeed, the 7-1 event continues to be the 6th most important political shock, whereas the anti-Rousseff portfolio still yields 6.4 percent in the day after the match. Were OGX (Oi) excluded from the sample, rank position and portfolio excess return would be 7th (9th) and 3.8 (5.1) percent, respectively. Were both excluded, rank position would fall to 16th and portfolio return would reduce to 2.2 percent.

### 3.4 Other Matches

Edmans et al. [2007] find that losses, rather than wins, have a negative impact on the stock market through its effects on investors’ mood. In this section we check whether the patterns of stock returns on trading days after other Brazilian matches (mostly wins) during the World Cup reflect any relevant political content. Results are reported in Table 2.
Table 2: Political content in Brazilian matches during the World Cup.

In fact, except for another loss to Netherlands in the dispute for third place during the final weekend of the World Cup, again by a wide score of 3-0, which is the 22nd most relevant political development according to our metric, other Brazilian matches are ranked relatively low among the 159 dates. A possible borderline exception is a tie without goals against Mexico, at June 18th, which is ranked 58th (more on that below).

We believe that the perception that the 7-1 match might affect the electoral outcome was reinforced in the final weekend of the World Cup, when Brazil was defeated by Netherlands. This loss might have amplified and prolonged the sentiment shock triggered by the defeat to Germany. In addition, the end of the World Cup might have led to a deeper evaluation of the national team performance, and reinforced the view that the 7-1 defeat had a political impact. On Monday, July 14th, right after the final weekend of the World Cup, the anti-Rousseff portfolio yielded a return of 3.6%, nearly two percentage points above the overall market return in this period.

3.5 Inattention in Match Days

Importantly, whenever Brazilian games were held at weekdays, the Bovespa closed earlier than usual. Since Ehrmann and Jansen [2017] argue that, during World Cup matches, lack of attention leads to lower trades and volumes as well as changes in the price for-

\footnote{All matches, except those against Chile and Netherlands, were held at weekdays.
The information process, Table 3 considers an specification in which these days are treated as if the Bovespa were closed. In this case, returns around these matches are the difference between prices one trading day after and one trading day before them.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Date</th>
<th>R</th>
<th>Raw</th>
<th>Abnormal</th>
<th>1st round</th>
<th>2nd round</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>10-Jul</td>
<td>8.4%</td>
<td>1.4%</td>
<td>1.9%</td>
<td>3</td>
<td>3</td>
<td>Brazil 1-7 Germany</td>
</tr>
<tr>
<td>22</td>
<td>14-Jul</td>
<td>3.6%</td>
<td>1.7%</td>
<td>1.5%</td>
<td>26</td>
<td>24</td>
<td>Brazil 3-0 Netherlands</td>
</tr>
<tr>
<td>89</td>
<td>13-Jun</td>
<td>1.2%</td>
<td>-0.6%</td>
<td>-0.4%</td>
<td>83</td>
<td>116</td>
<td>Brazil 3-1 Croatia</td>
</tr>
<tr>
<td>96</td>
<td>24-Jun</td>
<td>1.1%</td>
<td>-0.7%</td>
<td>-0.2%</td>
<td>84</td>
<td>138</td>
<td>Brazil 4-1 Cameroon</td>
</tr>
<tr>
<td>97</td>
<td>18-Jun</td>
<td>1.1%</td>
<td>1.0%</td>
<td>0.2%</td>
<td>131</td>
<td>63</td>
<td>Brazil 0-0 Mexico</td>
</tr>
<tr>
<td>135</td>
<td>30-Jun</td>
<td>-0.4%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>156</td>
<td>96</td>
<td>Brazil 1-1 (3-2) Chile</td>
</tr>
<tr>
<td>137</td>
<td>7-Jul</td>
<td>-0.4%</td>
<td>-0.2%</td>
<td>0.2%</td>
<td>148</td>
<td>131</td>
<td>Brazil 2-1 Colombia</td>
</tr>
</tbody>
</table>

Table 3: Political content in Brazilian matches during the World Cup (excluding days when the Bovespa closed earlier).

Once these days are excluded from the sample, the tie against Mexico falls nearly forty positions. Moreover, every game, except both humiliating defeats to Germany and Netherlands, is ranked very low – below the 100th position – according to at least one of the metrics based on a single political shock used to construct portfolio weights.

It is reassuring, thus, that both humiliating losses remain politically relevant. If anything, the 7-1 match becomes more politically relevant once days when the Bovespa closed earlier are excluded from the sample. After the 7-1 event, the anti-Rousseff portfolio yielded 8.4 percent, being the fourth most relevant political development. If both OGX and Oi were excluded from the sample, its rank position would be 11th, with portfolio returns reduced to 2.6 percent, but still above overall market.

\(^{18}\)The Bovespa also closes earlier (or opens later) at some special holidays, which receive the same treatment as weekdays holding Brazil’s matches.
4 Discussion

In this paper we document that the 7-1 match was perceived by financial markets as a huge political shock against the incumbent in power. In particular, our preferred long-short portfolio strategy aiming to profit from political developments against the incumbent had a 6.4 percent excess return after the 7-1 event, while the overall market was up by 1.7 percent. According to this metric, the 7-1 match was the third largest political development against the incumbent (and the sixth overall) during the election period.

As opposed to the previous literature, our empirical strategy uncovers a positive effect on stock prices stemming from a negative change in investor mood. If the change in mood also has an impact on the expected outcome of closely disputed presidential elections, politically sensitive firms may drive overall market return up, if the beneficiaries of an incumbent loss have large weights in the market index.

Our empirical strategy, however, is silent on whether the humiliating defeat to Germany, in fact, influenced electoral outcomes. It could be the case that traders might have simply misinterpreted the 7-1 match as a political development. In this case, stock returns would be affected, but voting intention polls would not. Therefore, one may argue that these polls should be used to measure the political impact of the 7-1 defeat. Indeed, the gap between Rousseff and Neves diminished after the 7-1 match, although the long period in between the two adjacent polls makes any causal interpretation impossible (see Figure 7 in Appendix B). Albeit imperfectly, as long as financial markets somehow grasp, at least partially, how a sentiment shock relates to voting behavior, and factor them into their daily investment decisions, the use of daily stock returns circumvents this problem. Importantly, even if accurate daily polls were available, the use of stock market data might still be preferable. As we argue in Appendix D, linkages from soccer to politics may take time to unfold. In this case, daily polls around the 7-1 match would underestimate the magnitude of the political impact, whereas, due to their forward-looking nature, stock prices might reflect this process to a larger extent.\footnote{By using individual data, Depetris-Chauvin and Durante [2017], for instance, fail to find an effect of victories (even in high-stake games) of national teams from Sub-Saharan Africa on incumbent approval.}
To the extent that stock returns reflected true changes in voting behavior after the 7-1 event, we provide in Appendix D a discussion of possible mechanisms at play behind this transfer of domains from soccer to politics. We also compile some anecdotal evidence suggesting how this transfer of domains operated in practice after the 7-1 match. In addition, we catalogue some of the many episodes, over countries and time, in which politicians turned to soccer as an attempt to obtain political gains. In that sense, this paper provides empirical evidence consistent with the use of soccer as a political instrument in those many episodes.
References


Appendix A - Pre-Event Estimation Window

In order to prevent that political developments specific to the 2014 electoral run affect the estimation of abnormal returns, in Section 2 we restrict the pre-event estimation window to be between March 2013 and February 2014. The implicit assumption is that such developments started to affect stock prices as of March 2014. Figure 6 in this appendix, by comparing the CBOE Volatility Index (VIX Index) for emerging markets and Brazil, provides evidence supporting this assumption.

The presidential election, with its ups and downs, was perhaps the main driving force behind the high volatility in financial markets observed in Brazil during 2014. Both VIX Indexes for emerging markets and Brazil evolved closely enough until February 2014. As of March 2014, the Brazilian index indicated more volatile asset prices, reflecting an uncertain electoral scenario, which reinforces our choice for the pre-event estimation window.
window. As a conservative robustness check in Section 3, we also consider the pre-event estimation window to be between January 2013 and December 2013. Results barely change.

Finally, notice that the gap between both measures increased a bit until July. As of August, the Brazilian index soared reflecting the convoluted electoral scenario after Eduardo Campos – the third place in the voting intention polls at the time – died tragically in a plane crash.20

20The difference between volatilities in Brazil and other emerging markets should be even larger as the VIX Index for emerging markets factors in some Brazilian assets.
Appendix B - 2014 Presidential Election

Presidential elections in Brazil are held every four-year, with the president being elected by absolute majority in a two-round system with mandatory voting. The dynamics of the 2014 electoral run were unpredictable. The objective of this section is to interpret the 2014 electoral events through the lens of the metric developed in Section 2 to measure the political content in the cross-section variation of abnormal returns.

In what follows, we introduce the major candidates and, then, summarize the presidential electoral dynamics.

- Dilma Rousseff. The incumbent president, from Partido dos Trabalhadores (PT), who was running for reelection.

- Aécio Neves. Former Governor of Minas Gerais and Senator from the main opposition party, Partido da Social Democracia Brasileira (PSDB). He was running in a presidential election for the first time.

- Eduardo Campos. Former Governor of Pernambuco from Partido Socialista Brasileiro (PSB). Part of his strategy was to establish a third-way to break the polarization between PT and PSDB. Campos was also running for the first time.

- Marina Silva. Former Senator and vice-president of Campos’ candidacy, who replaced him after his tragic death in a plane crash. She had already ran in the 2010 election, when she finished third, with 19.33% of the valid votes.

Also, there were nine other (minor) candidates in the 2014 presidential run. Together they obtained 3.55% of the valid votes.

---

22 Workers’ Party.
23 Out of twenty and six states, Minas Gerais is the second most populous, the third (ninth) richest in terms of GDP (GDP per capita), and the fourth largest state in the country.
24 Brazilian Social Democracy Party.
25 Pernambuco is the seventh most populous, the ninth (sixteenth) richest in terms of GDP (GDP per capita), and the nineteenth largest state in the country.
26 Brazilian Socialist Party.
27 Since 1994, the dispute has been polarized between the two main candidates, affiliated with PT and PSDB. Fernando Henrique Cardoso, from PSDB, defeated Lula, from PT, in 1994 and 1998; Lula defeated José Serra and Geraldo Alckmin, both from PSDB, in 2002 and 2006, respectively; and Dilma Rousseff defeated José Serra in 2010.
To simplify exposition, we divide the 2014 election dynamics into three phases. The switch from one phase to another was marked by arguably unexpected political shocks.

1. From the beginning of 2014 up to August 13th, when Campos unexpectedly died in a plane crash in the morning.

2. From mid-August up to October 5th, when the first-round vote revealed that the gap between Rousseff and Neves was far smaller than predicted by the polls.

3. From October 6th to October 26th, when Rousseff won the election with 51.64% of the valid votes, the smallest share in Brazilian recent democratic history.

The first phase encompasses the period up to August 13th, when Campos unexpectedly died in a plane crash in the morning. Figure 7 reports the results from twelve polls conducted by Datafolha and Ibope, the main pooling institutes in Brazil, during this phase.\textsuperscript{28} We report results from polls concerning second-round voting intentions.\textsuperscript{29} Left (right) plots consider Datafolha (Ibope) polls, whereas top (bottom) plots consider simulations with Neves (Campos) in the second round against Rousseff. Shares do not sum to 100% as we consider percentages of all possible votes, including null and undecided. Also, there is a discrepancy between Datafolha and Ibope numbers even for close polling dates, which we attribute to methodological differences in the way polls are conducted by each institute.\textsuperscript{30}

\textsuperscript{28}Data were downloaded from http://noticias.uol.com.br/politica/pesquisas/.

\textsuperscript{29}In this section, we choose to report results concerning second-round voting intentions, which are easier to follow and compare across polls. Results concerning first-round voting intentions yield similar trends.

\textsuperscript{30}Those differences regard the ordering (and content of some) of the questions, location of the interviews and sampling strategy.
In the beginning of 2014, many analysts claimed that Rousseff would easily win the elections, perhaps in the first round. Figure 7 shows that this view did not survive a few months. Indeed, the gap between Rousseff and her opponents fell gradually up to Campos’ tragic death.\footnote{We should explain why we did not also consider the unexpected death of Eduardo Campos, who was in the third place according to the polls, as a political shock to measure the political content in the cross-section variation of abnormal returns. Although clearly unanticipated, the impact of this shock on electoral outcomes was uncertain. Many doubts were raised immediately after Campos’ death. Would Marina Silva substitute Eduardo Campos? Would PSB choose another candidate? Or, perhaps, support Aécio Neves or Dilma Rousseff? Though the natural alternative was to launch Silva, the confirmation of her candidacy came only on Saturday, three days after the accident. Hence, although the political shock associated with Campos’ death was clearly unanticipated, its sign was uncertain at the time.}

Economic policies adopted during Rousseff’s first mandate, which included earmarked credit, fiscal lenience and price controls, led Brazil to an economic fiasco. The main economic risk involving Rousseff’s reelection was even more lenience and government
intervention, which would deepen the crisis. Hence, from March 5th (when Rousseff was the clear favorite according to the polls) to August 12th (right before Campos’ death, when the latest polls indicated a gap between Rousseff and Neves of only 4-6p.p.), the version of the Bovespa Index in which we factor out external factors yielded an excess return of 12.1%,\textsuperscript{32} whereas the anti-Rousseff portfolio constructed in Section 2 increased 39.0%.

The second phase goes from August 13th to October 5th, the first-round vote. Figure 8 reports the results from seventeen polls conducted in this period concerning the second round possibilities, with Marina Silva substituting Eduardo Campos as the candidate from PSB.

Figure 8: Phase 2. Polls from mid-August to the first-round vote. Percentage of the votes (including null and undecided). Left (right) plots consider Datafolha (Ibope) polls. Top (bottom) plots consider simulations with Neves (Silva) in the second round against Rousseff. Source: http://noticias.uol.com.br/politica/pesquisas/.

\textsuperscript{32}From now on, Bovespa Index refers to this version of the index.
The commotion after Campos’ death, which gave an enormous visibility to Silva, as well as the recall from the previous presidential election, made her, according to many analysts, the clear favorite to win the elections. The peak of her favoritism was reached by the end of August, when the Datafolha poll indicated that Silva would beat Rousseff by a 10p.p. margin in a second-round vote. However, lacking the powerful structure behind Rousseff’s and Neves’ candidacy, Silva’s candidacy lost steam. As in 2010, she ended up in the third place, with 21.32% of the valid votes.

From August 12th to September 2nd, when Silva’s odds of winning reached its peak, the Bovespa Index increased 6.2% whereas the anti-Rousseff portfolio yielded an excess return of 10.5%. From September 2nd to October 3rd (on the eve of the election day), when Silva’s candidacy had already faltered while Neves’ had not yet taken off, the Bovespa Index fell 12.1% whereas the anti-Rousseff portfolio generated a loss of 21.5%.

The first round results were known by night on the election day, held on Sunday, October 5th. We interpret them as an unexpected political shock that led to an update of the odds of winning in favor of Neves. On Thursday, October 2nd, Datafolha (Ibope) polls were released showing Rousseff with 40% (40%), Neves with 21% (19%) and Silva with 24% (24%) of the votes in first round. During the weekend, after a debate broadcasted live at Friday night, the new polls indicated Rousseff with 40% (40%), Neves with 24% (24%) and Silva with 22% (21%) of the votes. On the election day, Rousseff, Neves and Silva had 37.58%, 30.31% and 19.26%, respectively, of the votes (including null votes). In other words, the polls underestimated the strength of Neves. In the next day, the Bovespa Index and the anti-Rousseff portfolio had an excess return of 4.8% and 9.7%, respectively.

Finally, Figure 9 reports the results from ten polls conducted after the first-round vote. Left (right) plot considers Datafolha (Ibope) polls. After the election day, according to the polls, Neves remained 2p.p. ahead Rousseff up to mid-October, when the anti-Rousseff portfolio reached its peak yielding a cumulative excess return of 50.7% since the beginning of the electoral rally. Then, the structure of Rousseff’s candidacy was able to guarantee her recovery. After this peak up to the election day, the Bovespa Index fell 14.6%. Right after the election day, held on Sunday, October 26th, it fell 2.6% more.
Similarly, the anti-Rousseff portfolio yielded a loss of 21.4% during the same period, and a further loss of 10.5% after the election day. During the second-round campaign, political developments were clearly dictating the volatility in financial markets.

Figure 9: Phase 3. Polls during the second round. Percentage of the votes (including null and undecided). Left (right) plot considers Datafolha (Ibope) simulations. Source: http://noticias.uol.com.br/politica/pesquisas/.

Figure 2 in the main text summarizes this discussion. Altogether, the evidence presented in this section suggests that the 2014 electoral run was characterized by many relevant political developments, reinforcing our finding that the 7-1 match was indeed a huge political shock.
<table>
<thead>
<tr>
<th>Rank</th>
<th>Date</th>
<th>Valor Econômico link</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>4-Sep</td>
<td><a href="http://www.valor.com.br/financas/3683562/bovespa-fecha-em-queda-apos-pesquisas-indicarem-reacao-de-dilma">http://www.valor.com.br/financas/3683562/bovespa-fecha-em-queda-apos-pesquisas-indicarem-reacao-de-dilma</a></td>
</tr>
</tbody>
</table>
Appendix D - Soccer and Politics

To the extent that stock returns reflected changes in voting behavior after the 7-1 event, rather than a misinterpretation of financial markets, we discuss in this section possible mechanisms at play behind this transfer of domains from soccer to politics. We also compile some anecdotal evidence suggesting how this transfer of domains operated in practice after the 7-1 match. Finally, we catalogue some of the many episodes, over countries and time, in which politicians turned to soccer as an attempt to obtain political gains.

A related paper to ours is Healy et al. [2010], who document in the US an electoral impact favoring the incumbent of wins in local college football games. The authors claim that these games, by affecting voters’ sense of well-being, also affect their decisions at the polls. As documented in Edmans et al. [2007] and Healy et al. [2010] (see the references therein), sports results have a significant effect on mood and, thus, sense of well-being. Whenever a team, whether local or national, wins or loses, the sense of well-being among its supporters is affected in a similar way. Importantly, positive emotions may cause people to favor the status quo. Analogously, negative emotions may call for a change. Since people transfer emotions from one domain to another, the emotions triggered by sports outcomes may have fueled the sense of dissatisfaction or satisfaction with the incumbent government. In addition, when people are in a bad mood, they are more likely to recollect negative events. Similarly, voters in a bad mood would tend to remember those negative events associated with the incumbent’s past actions.

Aside using stock market data to recover a political outcome, our results differ from Healy et al. [2010] in at least two dimensions. First, we document a sizeable political shock stemming from the 7-1 match. Indeed, among the many events that happened along the convoluted 2014 presidential election, the 7-1 match was perceived to have a high political impact. In contrast, they find that a win within 10 days before the election day increases locally the incumbent’s vote share in Senate, gubernatorial and presidential elections, on average, by only 1.6p.p. More generally, in reviewing the evidence, Healy and Malhotra [2013] argue that voters commit errors by punishing incumbents for actions beyond their
control, but the aggregate effects of such errors are often small.

Second, our results suggest that a political shock associated with a sports outcome can be very persistent. In fact, the second-round vote took place more than three months after the 7-1 match. In contrast, Healy et al. [2010] did not find an effect of sports outcome outside the 10 days window before the election day. Hence, mood effects must be implausibly persistent (or perceived to be implausibly persistent) so that stock prices reflect political spillovers that would last for such a long time. If very persistent effects of mood were driving our results, other Brazilian games in the World Cup should have a political impact. However, as Tables 2 and 3 in Section 3 highlight, the patterns of stock returns on trading days after other Brazilian matches in the World Cup do not reflect any relevant political content. These matches are ranked very low among the 159 dates. In other words, it does not seem to be only about temporary changes in mood after winning or losing a game as in Healy et al. [2010]. The huge sentiment shock triggered by the 7-1 match should have interacted with other factors so as to engender substantial punishment at the polls months later.

In addition, Healy et al. [2010] also show with a survey conducted during a college basketball tournament that surprising wins and losses affect presidential approval. Importantly, once people are made aware of the reason for their mood, effects on presidential approval are eliminated. The authors interpret it as suggestive evidence that the mood effects operated in the subconscious, but by moving them to the conscious, people rejected information unrelated to the incumbent’s performance. In the context of this paper, given the salience of the 7-1 defeat, it is hard to argue that its mood effects operated subconsciously.

Given that the size, persistence and salience of the political shock associated with the 7-1 event weaken the mood interpretation of the results, we propose an explanation in which the sentiment shock interacted with other elements. Substantial punishment at the polls should be rooted in genuine dissatisfaction (that goes beyond mood) with the government. At the time of the World Cup, two pieces of evidence suggest that Brazilians had enough motives to be deeply frustrated with the incumbent government. First, one year before the World Cup, there were large public demonstrations in several Brazilian
cities, known as the June Journeys. These protests were unexpected and decentralized. Hence, the motives of the protesters were highly diffuse, including high bus ticket prices, bad public services, corruption, police brutality, large public expenses with the World Cup, among others. They were indicative of a latent dissatisfaction with the current state of affairs in politics. Second, Brazil was also facing huge economic failure in 2014. Due mostly to the economic policies adopted during Rousseff’s first mandate, GDP grew only 0.1% whereas inflation was 6.4%. We argue that the huge sentiment shock associated with the failure in the World Cup was perceived by financial traders to trigger a transfer of domains that would lead people to somehow update their beliefs regarding the government’s responsibility for failures in other domains.\textsuperscript{33} This would lead them to tell apart government propaganda – which insisted on denying Rousseff’s responsibility in generating such failures – from reality, and reinforce their genuine dissatisfaction with the government.

The precise mechanism behind such transfer of domains is hard, if not impossible, to test empirically in the context of this paper. Hence, we conjecture below a few, perhaps complementary, possibilities borrowed from political and sociological pieces cited below. As a by-product, we also claim that traders not only intuit or understand, at least partially, the mechanisms described below, but also consider them in their daily trades.\textsuperscript{34} Of course, one can always argue that these mechanisms are not operative in practice and traders simply misinterpreted the sentiment shock associated with the 7-1 match as a political shock.

First, the huge failure at home may have affected negatively the degree of pride in (or identity with) the nation, something we call “national pride” in a broad sense,\textsuperscript{35} which itself may have affected negatively the prospects of Rousseff’s victory. Many authors, such as Duke and Crolley [1996] or DaMatta [2006], claim that national teams are symbols and extensions of the nation-state that go beyond soccer. Successes in the soccer arena become

\textsuperscript{33}In that sense, our paper is also related to an emerging literature that has been studying how biased beliefs shape political behavior and outcomes (e.g. Bischoff and Siemers [2013], Ortoleva and Snowberg [2015] and Levy and Razin [2015]).

\textsuperscript{34}Op-eds in Brazilian newspapers, such as DaMatta [2014] and Werneck [2014], advanced and discussed some of these possible links between the 7-1 match and electoral outcomes.

\textsuperscript{35}There are many nuances in defining patriotism, national identity, national pride and nationalism (see Huddy and Khatib [2007]), something from which we abstract in this paper.
a source of national pride and identity.\textsuperscript{36} Depetris-Chauvin and Durante [2017], for instance, show that victories (in high-stake games) of national teams from Sub-Saharan Africa make people identify more with their country and less with their ethnic group. Moreover, as in our case, this effect is sizeable and does not appear to be short-lived.\textsuperscript{37} One may argue that stronger feelings of attachment to the nation lead to more conformity to its political status quo and political norms. Huddy and Khatib [2007], for example, find that national identity promotes political involvement.

Second, the humiliating aspect of the defeat at home may have triggered a general reflexive process, in which Brazilians hoped not only to understand and reconcile with the huge failure in the soccer field, but also beyond it. Indeed, several episodes have been documented in which failures in the soccer arena prompted some sort of soul-searching. See, for example, Crolley and Hand [2002], who argue that “England’s frequent failures on the pitch often become a source of much soul-searching and national mourning”.\textsuperscript{38}

Third, the 7-1 match was perceived to be a disaster, which may have triggered a social search for culprits. As people are ready to listen and willing to blame, such search may facilitate the task of political opponents in communicating, explaining and, perhaps, forging government’s failures in other domains. In addition, as Achen and Bartels [2016] argue after analyzing the electoral impact of natural disasters, government’s blame could be socially constructed even if not responsible for the disasters.

Fourth, the 7-1 match has a narrative potential. Shiller [2017] defines narrative to be “a simple story or easily expressed explanation of events that many people want to bring up in conversation or on news or social media because it can be used to stimulate the concerns or emotions of others, and/or because it appears to advance self-interest.” In that sense, the narrative potential behind the 7-1 match could be strategically fine-tuned and channelled against the government by political opponents, or by citizens unsatisfied

\textsuperscript{36}According to the BBC Global Poll, in a study conducted in 21 countries, 40% of the surveyed people said that their country performance at the Olympics affects a lot their national pride, whereas only 14% said it does not affect their national pride at all. See http://www.bbc.com/news/world-16245075.

\textsuperscript{37}In addition, the authors also claim that victories make people more likely to trust members of other ethnic groups. They also document a transfer of domains by showing that countries that barely qualified to Africa Cup of Nations, relative to countries that barely did not, experienced significant less violent conflict in the following six-months.

\textsuperscript{38}Similarly, in 2010, after France lost one game and tied another in the World Cup, BBC affirmed that “France’s World Cup ‘disaster’ prompts soul-searching”. See: http://www.bbc.com/news/10370449.
with the government. This transfer of domains from soccer to politics, through the linkages described above, might be particularly operative in a country like Brazil, where soccer is a, if not the, major source of pride and glory. Brazil is the most successful national team in the World Cup with five championships, and best overall performance with 70 wins, 17 ties and 17 losses. Moreover, Brazil is the only national team that has played in all editions. This is an impressive performance as soccer is highly subject to unpredictable factors that frequently undermine favoritism. Perhaps, the national soccer team is one of the most successful national institutions in Brazil. The fact that such excellence in soccer was challenged at home in a World Cup promoted at the expenses of taxpayers represents a huge frustration shock, which could set in motion any of the aforementioned social processes.

In what follows, we provide some anecdotal evidence suggesting how this transfer of domains operated in practice, helping people reassess their evaluation of the government. First, given that Fifa, the international soccer federation, requested facilities for the World Cup to be built according to demanding specifications at the expenses of taxpayers, demonstrators before and during the World Cup called for “Fifa-standard” schools and hospitals. The huge failure in the World Cup may have amplified the salience of the underlying motives behind these demonstrations. Second, during some games, especially the opening match (in which President Rousseff was present) and the 7-1 match, Brazilians yelled obscene chants against President Rousseff. Such aggressiveness was not restricted to the soccer arena. Tweets with the hashtag #foradilma

39 On June 19th 2013, an article in the New York Times reports that “[...] tens of thousands protested outside the newly built stadium […], as the police tried to disperse them with tear gas, rubber bullets and pepper spray. In what would normally be a moment of unbridled national pride, demonstrators held up placards demanding schools and hospitals at the “FIFA standard,” challenging the money Brazil is spending on the World Cup instead of on health care or the poorly financed public schools.” One year later, on June 28th 2014, the same New York Times reports that “[…] some residents are expressing their displeasure through graffiti. The side of one building reads: ‘We want FIFA-standard jobs. We want FIFA-standard education and health care.’” See http://www.nytimes.com/2013/06/20/world/americas/brazil-protests.html and https://www.nytimes.com/2014/06/29/sports/worldcup/world-cup-2014-residents-wonder-how-new-stadiums-will-benefit-region-after-cup.html, respectively.

(i.e. #dilmagetout) reached 3.2 and 3.7 thousands on June 12th and July 8th, when Brazil played the opening and the 7-1 matches, respectively. The average of tweets per day with this hashtag during the World Cup was 1.3 thousands, a much smaller figure.\textsuperscript{41} Hence, these matches served as stage for people to demonstrate and communicate openly their frustrations with the government. Finally, at some point during the electoral run, expectations were pointing toward a 7% inflation and 1% growth, yielding an easy analogy with the 7-1 match widely used to link the fiasco in the soccer field with the collapse of the economy. Eduardo Campos, for instance, used such analogy in an interview to \textit{Jornal Nacional}, a primetime news program aired by the largest television network in the country, one day before his death.\textsuperscript{42} Finally, Duke and Crolley [1996] and Kuper [2003], among many others, report several anecdotal evidence over time and countries suggesting that soccer was often used by politicians to obtain political gains. General Franco, for instance, used soccer widely to promote Spanish nationalism and his fascist regime. For example, before each soccer game, the players were obliged to line up, salute General Franco and sing the fascist anthem. In Italy, Silvio Berlusconi used excessively soccer terminology and metaphor to push his political career. The party founded by him in 1993, for example, was named after a soccer chant, \textit{Forza Italia} (meaning something like \textit{Go, Italy!}). In Croatia, after independence from Yugoslavia, President Tudjman changed the name of Dinamo Zagreb, a local soccer club, in order to distance the club from its communist past. The new name, Croatia Zagreb, was never accepted by its supporters. During local elections one month after the name change, political opponents had promised to help the club get its old name back.\textsuperscript{43} In Nigeria during the 1993 presidential run, the candidate Moshood Abiola promised that the national team would reach the World Cup if elected. During the 1970s, Latin America was plagued with military dictatorships that also used soccer aiming to obtain political gains. In Brazil, the marching theme during the successful

\textsuperscript{41}The data we obtained consider the sum of tweets during the 24 hours before 9pm of a given date. Since both games started at 5pm, we conjecture that the bulk of tweets happened in a 4 hours window.

\textsuperscript{42}See \url{http://g1.globo.com/jornal-nacional/noticia/2014/08/eduardo-campos-e-entrevistado-no-jornal-nacional.html}. Even the international press relied on such analogy to describe Brazil’s economic fiasco (see \url{https://www.ft.com/content/b8d3dd00-2842-3d7e-9dd2-7b6f53d478d5}).

\textsuperscript{43}Eventually, the name was changed back to Dinamo Zagreb.
campaign in the 1970 World Cup, *Pra Frente Brasil* (i.e. *Forward Brazil*), had also been used in propaganda promoting the military regime. In Argentina, after the 1976 military coup, the generals were suspected of using improper methods to guarantee Argentina’s triumph in the 1978 World Cup, in line with their view that such triumph would reunite the country. More recently, after the transition to democracy, Argentina provided another powerful example. Right before the 2009 presidential election, the incumbent Cristina Kirchner pushed the Argentina’s soccer association to renege on a long-term contract with a media group, so that the federal government could produce a television program called *Fútbol para Todos* (i.e. *Soccer for All*) for the broadcasting of games in a state-run station.\(^44\) In Iran, whenever the national team succeeded in qualifying matches to the 1998 and 2002 World Cup, celebrations were usually accompanied by demonstrations against the regime. So when the national team lost a game against Bahrain and, thus, did not qualify to the 2002 World Cup, rumours spread that players were pressured to lose. As Kuper [2003] emphasizes, this “may be a unique case of a regime wanting its national team to fail.” Of course, other examples abound.

In that sense, this paper provides empirical evidence in line with the practices of many incumbents, who use soccer in an attempt to enhance their political power.

---

\(^{44}\)This program also featured institutional advertising from the Argentine presidency. Before, most of the matches were broadcasted on cable TV or as pay-per-view events. See Vázquez and Cayón [2014].