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Article:
Wisniewski, Tomasz Piotr, Lambe, Brendan John and Dias, Alexandra (2020) The Influence of General Strikes against Government on Stock Market Behavior. Scottish Journal of Political Economy. pp. 72-99. ISSN: 0036-9292

https://doi.org/10.1111/sjpe.12224

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The Influence of General Strikes against Government on Stock Market Behavior

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The Influence of General Strikes against Government on Stock Market Behavior

Abstract

Using a sample of 76 countries, this paper examines the impact of major strikes against government and its policies on stock market behavior. An occurrence of a general strike is detrimental to the value of equities, as documented by the *ceteris paribus* 6.11% fall in dollar-denominated stock market indices of the affected countries. This event is also accompanied by a statistically significant increase in risk, as measured by the standard deviation of returns and Value-at-Risk metrics. Taken together, these results imply that general strikes have serious ramifications for stock market investors.

Keywords: General strikes, stock prices, political effects

JEL Codes: G12, J52

I. Introduction

Extant academic literature recognizes that developments on the political stage may be reflected in stock market valuations and volatility. A number of authors traced the link between equity pricing and important events, such as issuances of policy-related communiqués (Wisniewski and Moro, 2014), international political crises and wars (Berkman *et al.* 2011), revolutions (Acemoglu et al, 2014), *coup d'états* (Bautista, 2003; Dube *et al*., 2011), or assassinations of key public figures (Zussman and Zussman, 2006). Surprisingly, the existing scholarship neglects to elucidate the impact of another important event, which has the capacity to generate political tension and create economic uncertainty. When discontent within the workforce grows to critical levels, it materializes in the form of a general strike which transcends regional and firm-level considerations. Such strike action would typically involve mass walkouts of workers across a multitude of employers organized in protest against government impositions.

A number of authors point out that the rate with which strikes against individual employers occur in Western Europe has decreased sharply over the last couple of decades, while at the same time the incidence of general strikes has risen (Kelly and Hamann, 2010; Vandeale, 2011; Gall, 2013). The distinction between the economic and general strikes is important, as the latter mobilizes workers to mount pressure on the government, rather than employers. While the industrial relations literature abounds with rationalizations for economic strikes, the theoretical frameworks that have been developed in this field are not well equipped to deal with politically motivated mass walkouts (Hamann, Johnston and Kelly, 2013a). To compound this problem, academic scholarship on general strikes is currently in an incipient state. Considering that the national work stoppages have potentially far-reaching economic and societal consequences, further inquiry into this area is warranted.

The research that has been done to date focused primarily on the incidence of general strikes and the motivations that drive the unions to stage opposition to government plans and reforms (Vandeale, 2011; Gall, 2013; Hamann, Johnston and Kelly, 2013a). A number of papers considered the determinants of union success, which can be measured according to the concessions granted by the government (Johnson, 2000; Hamann, Johnston and Kelly, 2013b; Nowak and Gallas, 2014). Implications for policy makers were further highlighted by Hamann, Johnston and Kelly (2013c) who documented the vote share losses of incumbents in the presence of general strikes. This is unsurprising considering the substantial efforts exerted by the unions to engage voters, generate news stories and expose the alleged incompetency of the government. To counter the resultant electoral losses, a country's leadership that faces popular protests is more likely to align fiscal policy with the election cycle. More specifically, Klomp and de Haan (2013) showed that affected governments increase their spending and deficits in the pre-election year in order to temporarily stimulate the economy and, as a consequence, boost popular support.

While some clarity may have emerged with respect to the outcomes encountered by workers and governments, the literature remains silent with regards to the ramifications faced by employers. It is this void in the body of knowledge that our paper intends to fill. Even if the general strikes are not strictly directed against companies, their value may be adversely affected for several reasons. First, the unproductive periods impose costs in terms of lower levels of output and profits. Although general strikes are typically short in duration, the large number of employees involved has a bearing on the total number of days not worked (Gall, 2013). Second, such manifestations of popular dissent signal to the market the workforce's frustration with the government and its policies. In the case where policy-makers are responsive to the demands being made, a general strike may also signal the weakening position of capital providers and other sources of power within the productive process.

Corporations may also be forced into a position of carrying the burden of government concessions and the costs of social pacts that are agreed in the aftermath of a general strike. Third, in instances where the future response of the government is not known with certainty, additional investment risk is created. Such risk will raise the time-varying discount rates leading to lower stock valuations and increased market volatility. Fourth, conceding to workers' demands may lead to a deterioration in a government's financial position, which will exert upward pressure on bond yields and discount rates. This, in turn, would further aggravate the falls in stock prices.

Our findings in this study reflect the abovementioned considerations. Through investigating a large sample spanning an array of countries, we demonstrate a valuation impact that is both statistically and economically significant. Since the magnitude of the fall in stock prices coinciding with the occurrence of a general strike is substantial, investors should pay particular attention to this type of event. Furthermore, we record significant increases in stock index return volatility and Value-at-Risk[2] in the year of the event, which could be indicative of the policy uncertainty that arises alongside mass strike action. Such findings should be brought into consideration by those on both sides of the divide who are engaged in the collective bargaining process.

Market vulnerability around times of mass strike action could be particularly distressing to shareholders who are not internationally diversified. The problem is of concern not only to frontline investors but extends to a wider swathe of the population invested in the market through pension funds. It is neither in the interest of trade unions nor governments to adversely affect the value of retirement portfolios. For this reason, both parties should seek alternative resolutions that do not involve walkouts. This means that in order to avoid costly

[2] Value-at-Risk (VaR) measures the expected value of loss that will be surpassed with a small probability during a specific period.

economic frictions, governments should be wary of situations which may inflame worker indignation. Similarly, trade unions should consider the full welfare implications for their members before staging a mass protest.

The remainder of the paper is organized as follows. The next section reviews the literature on general strikes and considers their implications for policy uncertainty and stock prices. Section III describes our data sources and variable definitions. Basic summary statistics and correlation analysis are also provided. Section IV presents estimates for our return and risk models and propounds an interpretation of our findings. This is followed by a battery of robustness checks and additional results, which are presented in Section V. The paper ends with conclusions and suggestions for future research.

II. General Strikes, Political Uncertainty and Stock Prices

Strikes against employers, which typically relate to wage negotiations, are an integral part of industrial relations. They impose a burden on the affected companies by introducing output disruptions, triggering disgruntlement among the workforce, causing losses in market share to competitors, attracting negative publicity and creating a bill for post-strike overtime payments. A large body of literature examined the detrimental influence that strikes exert on shareholder wealth from the perspective of individual firms (Neumann, 1980; Becker and Olson, 1986; De Fusco and Fuess, 1991; Nelson *et al.*, 1994; Kramer and Vasconcellos, 1996; Kramer and Hyclack, 2002), affected industries (Dinardo and Hallock, 2002), or both (Persons, 1995). The estimates of equity value lost by the companies which experience workforce strikes vary depending on the sample and time frame considered. These range from a fraction of a percentage point in the days immediately surrounding the announcement date (Neumann, 1980; Kramer and Hyclack, 2002) to over 4 percent for longer event windows (Becker and Olson, 1986). Stock prices tend to predict strike occurrences

(Neumann, 1980; Becker and Olson 1986) and can rebound partially after a settlement between the workforce and management is reached (Kramer and Vasconcellous, 1996). A small positive response to a walkout is registered by unaffected competitors (De Fusco and Fuess, 1991; Kramer and Hylack, 2002) and a spillover effect can occur in closely related industries (Persons, 1995). Peress (2014) notes that newspaper strikes are of particular importance to stock markets, as they decrease trading activity and the dispersion of returns. Myriad theories have been developed to clarify why labor disputes arise and the most influential of these are described in Kramer and Hyclak (2002).

While the aforementioned theories and the findings of empirical studies illuminate the causes and consequences of labor disputes within companies, they cannot shed much light on general strikes. This is because instead of targeting issues related to a single employer, general strikes mobilize the broader workforce to protest against current or planned governmental action. More specifically, we define general strikes as a large number of workers employed by more than one company coming together with the intent to oppose government policies or its authority. Kelly and Hamann (2010) rightly note that despite the increasing frequency of general strikes in Western Europe, the literature on this topic is rather scant. Theirs is the first attempt to theorize the motivations underlying this phenomenon. According to their framework, general strikes are more likely to occur whenever the government is right-leaning or when it tries to intervene in labor markets, wages or the welfare system. The likelihood is also greater in nations that protect the right to strike through their constitution and when governments exclude unions from consultations on social reforms.

An anti-government nationwide walkout may be of concern to capital markets for several reasons. First, there is the non-trivial output loss associated with en-masse work stoppages. Second, investors may fear that, once subjected to the pressure of public opinion

and trade unions, the government may be more inclined to pass legislation that benefits workers at the expense of capital owners. Third, and perhaps most importantly, a general strike is a manifestation of political tensions that permeate the whole of society and may be perceived as a popular vote of no confidence in the government. Facing the lack of societal support may force the government to reconsider its plans, which in turn introduces a great deal of policy uncertainty.

Several authors have already examined the relationship between the level of political risk and the pricing of securities. Their findings serve to illuminate and guide our investigation. Bittlingmayer (1998) focused on a turbulent period in German history, which ranged from 1880 to 1940 and encapsulates World War I, insurrection, revolution, hyperinflation and extreme political turmoil. He concludes that political uncertainty caused output slumps and increased stock return volatility. In a similar vein, Bautista (2003) who examined the case of the Philippines discovered that the military coup attempts which occurred there in the 1980s induced pronounced stock market fluctuations.

Attempts to measure political risk by means of continuous indices have also been made. Baker *et al.* (2013) constructed a measure for the United States which amalgamates the frequency with which newspapers refer to policy uncertainty, the degree to which forecasters disagree about the future consumer price index and government purchases, as well as information on expiring tax code provisions. In their paper, Pástor and Veronesi (2013) show that this index is positively associated with realized and implied stock market volatility. Antonakakis *et al.* (2013) confirm this finding and additionally show that stock prices are depressed in times of heightened policy uncertainty. This relationship can be easily rationalized in a framework which allows for time-varying risk-adjusted discount rates. Another useful version of a continuous index to reflect uncertainty has been developed by Political Risk Services and is disseminated in their International Country Risk Guide dataset.

It provides aggregated survey responses regarding a wide range of political risk characteristics and covers a large number of countries. Diamonte *et al.* (1996) and Bilson *et al.* (2002) who employed this index demonstrate that changes in the political risk rating are instantaneously reflected in stock prices, and that in the long-term, investors can expect to be compensated for being exposed to political uncertainty.

The review of existing literature presented above shapes our *a priori* expectations regarding the relationship between general strikes and stock markets. With the clearly signaled lack of popular support for government policies and the increased discount rates that accompany heightened political risk, one would expect the timing of mass anti-government protests to coincide with negative returns. In addition, following the observations made in the previous studies reviewed here, it can be anticipated that the magnitude of stock market fluctuations will increase in times of politically-motivated tumult. One should be able to detect this phenomenon by examining the evolution of return volatility and Value-at-Risk over time.

III. Data

Our empirical analysis relies on capitalization-weighted country-level stock market indices constructed by MSCI. At the time of writing, 77 country indices were available for developed, emerging, frontier and standalone markets. We downloaded this data from Thomson Reuters Datastream for a period ranging from 1970 to 2014. The returns used here are continuously compounded and denominated in US dollars in order to facilitate international comparisons. In one set of regressions we choose the annual index return as our dependent variable. However, the computation of our risk proxies requires the use of data with a higher sampling frequency. More specifically, *Volatility* is defined as the annualized standard deviation of daily returns within a given calendar year, while *VaR* is an annualized

Value-at-Risk measure estimated through historical simulation based on daily returns. Our *VaR* assumes a 95% probability and an investment of one US dollar. The Value-at-Risk approach is commonly viewed as a superior means by which downside risk can be appropriately estimated, particularly in cases where return distribution is skewed and leptokurtic.

The information on our main variable of interest *General_Strikes* is sourced from the Cross-National Time-Series Data Archive 2015. The variable is defined as the number of strikes against governmental authority or policies involving at least 1,000 workers from a minimum of two employers. The sampling frequency is annual and the data covers all of the countries for which an MSCI index is available, with the notable exception of Hong Kong. This means that our analysis can be performed on an unbalanced panel of 76 countries and 1,733 country-years. A complete list of nations is provided in Appendix A. The number of observations and nations is reduced in regressions with additional control variables due to the problem of missing values.

One could be tempted to hypothesize that general strikes are merely a symptom of poor macroeconomic fundamentals. To invalidate this assertion and demonstrate that their occurrence carries additional information relevant to the markets, we need to take into account the prevailing macroeconomic conditions. To this end, we collected data on the logged GDP level, GDP growth, inflation in consumer prices and unemployment rates. In addition, information on central government debt, its final consumption expenditure and stock market capitalization (all expressed as a percentage of GDP) has been gathered. The source of the abovementioned data is World Development Indicators, which is hosted on UK Data Service portal.

Furthermore, Kelly and Hamann (2010) allude to the possibility that general strikes may be a by-product of the political environment, so in order to cleanly disentangle their impact from that of other political developments, we need to introduce additional controls. We source data on electoral and political constellations from the Database of Political Institutions 2015, a dataset that was initially constructed by the World Bank and subsequently updated by the Inter-American Development Bank. Since warmongering has been previously shown to have a detrimental effect on equity prices (Rigobon and Sack, 2005; Wolfers and Zitzewitz, 2009; Berkman et al., 2011), we consider a dummy indicating country-years in which the Chief Executive was a military officer. By 'Chief Executive' we mean a prime minister in parliamentary systems or a president in presidential systems. In the context of FDI flows, Wisniewski and Pathan (2014) document that investors show a preference for presidential systems, which motivates us to include a system dummy to control for such potential regularity in our empirical inquiry. The length of time the Chief Executive spent in office is also considered to proxy for lack of political competition and entrenchment. There has been a debate amongst scholars as to whether the political orientation of the executive holds ramifications for the distribution of stock returns (see Wisniewski (2016) for a literature review on this topic). In the analysis that follows we consider dummies for leftist and centrist executives, with the right-wing orientation serving as a benchmark. Since the results reported in Pantzalis *et al.* (2000) and Bialkowski *et al.* (2008) suggest that the first two moments of return distribution could be affected by the occurrence of national elections, we create an executive election dummy to capture such effects. The political instability indicators in the form of the number of public demonstrations and situations threatening regime collapse were sourced from Cross-National Time-Series Data Archive. Lastly, we retrieved measures for lack of corruption and law and order from the International Country Risk Guide to proxy for the integrity of the political system.

[Table I about here]

[Table II about here]

Table I catalogues all of our variables with their corresponding definitions, while Table II presents summary statistics. The continuously compounded stock index return was on average 5.22% per annum, with an accompanying annualized within-year return volatility of 24.03% and annualized VaR of 37.16 cents. Economies grew by 3.84% per annum and had an unemployment rate of 8.49%. The mean of inflation appears high and is affected by hyperinflationary periods in Israel, Peru, Ukraine and Kazakhstan during the 80s and 90s and in the CEE countries during the communist rule and immediately after its fall. Interestingly, all of these cases are automatically eliminated from our regression estimation, as MSCI did not provide stock market data for the hyperinflationary periods in these particular countries. The government debt averages at 55.92% of GDP, while the final government consumption expenditure as a proportion of GDP has a mean of 17.59%. Market capitalization of domestic firms listed on local stock exchanges exceeded half of the value of goods and services produced annually.

Among Chief Executives, 10.57% were military officers, 42.40% were leftist and 12.81% were centrists. On average, they spent 6.66 years in office and 39.73% of them operated in a system which conferred substantial executive power to the president. The mean of the *Election* variable appears to be small, however, one needs to remember that some countries like Qatar or China do not hold elections, while the communist states in CEE existing prior to 1989 were undemocratic. Furthermore, in some countries (e.g. Czech Republic, Italy, or Germany) the prime minister or chancellor is nominated/appointed by the president. The Database of Political Institutions does not classify such an event as an executive election. Crises threatening the collapse of government occurs on average every

five years, while demonstrations, statistically speaking, happen once per annum. The means of *Lack_of_Corruption* and *Law_and_Order* are comparable within our sample.

[Table III about here]

Table III reports Pearson correlation coefficients between our dependent and explanatory variables. Most importantly, we can infer that the occurrence of general strikes coincides with significantly lower returns and elevated levels of volatility risk and VaR. However, before reaching definite conclusions, one needs to remember that correlation analysis is simplistic in the sense that it does not simultaneously control for other factors that can affect risk and reward. Consequently, a multivariate regression analysis is required to confirm this finding.

IV. Results

For the purposes of our empirical modeling we employ a two-way fixed effect panel. This methodological choice is motivated by two observations. Firstly, the Hausman (1978) test rejects the null hypothesis of the orthogonality of the random effects and the regressors in a large proportion of our specifications. This, in turn, means that a random effect specification will not be able to provide consistent estimates. Secondly, the hypothesis that both cross-sectional and time period dummies are jointly insignificant is strongly rejected in all of our models. Conceptually, the cross-sectional fixed effects account for the time-invariant differences between countries, while the time fixed effects capture global trends in the dependent variable. In other words, our specification allows us to isolate the country-specific component of variation in the regressor. Lastly, we use the Arellano (1987) approach

to estimate heteroscedasticity and autocorrelation consistent standard errors. Since our data has $N = 76$ countries and $T = 45$ years, we assume that N is sufficiently large to allow us to adopt the Arellano (1987) method. This approach estimates the heteroscedasticity and autocorrelation consistent standard errors assuming that the errors are independently distributed across countries but allowing for within country heteroscedasticity and serial correlation of unknown forms.

Our two-way fixed effect panel regression equation can be written down as follows:

$$Return_{i,t} = c_i + \lambda_t + \beta_1 General_Strikes_{i,t} + \sum_{j=1}^{7} \gamma_j Economic_Indicator(j)_{i,t} + \sum_{k=1}^{10} \delta_k Political_Indicator(k)_{i,t} + \varepsilon_{i,t} \quad [1]$$

where c_i and λ_t denote fixed effects for country i and year t, *General_Strikes* is the main explanatory variable of interest in our model, the set of economic indicators consists of {*GDP_Growth, Inflation, Unemployment, Debt_to_GDP, Government_Consumption, Capitalization_to_GDP and Economy_Size*}, the political indicators include {*Military, Left, Centre, Election, Government_Crisis, Demonstrations, Lack_of_Corruption, Law_and_Order, Executive_Years_in_Office, Presidential_System*}, while $\varepsilon_{i,t}$ is an error term. In most specifications we impose parameter restrictions, setting some of the coefficient to equal zero. To investigate other aspects of market behavior we also estimate regressions analogous to [1] with the exception that we substitute the dependent variable with either *Volatility* or *VaR*.

Although including a wide range of controls in equation [1] allows us to mitigate the omitted variable bias, it also reduces the number of observations available for estimation. This is because each of the indicators has missing values, which leads to a significantly reduced sample when a numerous controls are considered. To address this problem, we have designed a formalized procedure to eliminate redundant independent variables. More

specifically, we endeavor to achieve a parsimonious specification, which is arrived at by iteratively dropping a regressor with the highest *p*-value until every explanatory factor in the regression is statistically significant. We operate on the assumption that the parsimonious model is the most appropriate, as it reaches a balance between reducing omitted variable bias and maximizing the number of observations necessary for precise estimation.

What characterizes empirical studies in financial economics is the problem of identification. Several interrelated variables, some which may even be unobservable or not amenable to exact measurement, can play a role in the financial markets when general strikes against the government take place. Attempts to attain correct identification include using instrumental variables (see for instance Roberts and Schlenker, 2013), recursive structures and inequality constraints. In the context of this empirical investigation, finding good instruments would require a detailed knowledge of the economic mechanism that motivates general strikes (Angrist and Krueger, 2001) for all of the 76 sample countries. In our study we rely on the theoretical justification assuming that the dynamic mechanisms leading to strikes are stable over time and have not operated in this way only for the case of the general strikes in the data. This idea was originally posited by Wright (1929), a pioneer on the use of instrumental variables. Hence, we proceed by including several control variables for which data is available, and lagged market returns (Section 5.1), in an attempt to mitigate the identification problem. We remain aware that this might not eliminate the identification problem entirely. Accordingly, we do not make claims about causality between general strikes and market returns but, owing to the size of the sample and the controls included, we instead make inferences about the possibility of a relationship between the two.

[Insert Table IV about here]

Table IV reports estimates of panel models that explain the variation in stock index returns. Depending on the specification, a general strike leads to a change in share valuations ranging in magnitude from -3.48% to -6.11%. The latter figure represents an estimate from our preferred parsimonious model in which only statistically significant controls are used. This huge decline implies that the impact of general strikes extends beyond simple output losses. Even if we were to assume that the entire population of a country participates in a general strike, these losses would be equivalent to around 0.4% of GDP per day and would not necessarily imply any declines in future productivity. This suggests that stock market investors apply a much broader interpretation to this type of event. Perhaps the discount rates increase due to the perceived escalation of policy uncertainty, resulting in lower valuations. The occurrence of a general strike could be also viewed as either a manifestation of the workforce's dissent or a signal that government policies are misguided. However, due to the difficulties inherent in measuring such phenomena, these assertions would be difficult to validate empirically.

Several of the control variables also prove to exert an influence on stock valuations. There is some weak evidence to suggest that prices are propelled by real activity, which is in line with the findings of several earlier papers (see for instance Chen et al., 1986 and Nasseh and Strauss, 2000). The positive coefficient on the unemployment rate may at first blush appear counterintuitive but can be easily rationalized within the Tobin's q theory (Tobin 1969, 1998). High stock market returns are likely to raise the Tobin's q, defined as the market valuation of capital assets to their replacement value, which incentivizes companies to make additional capital investments. Since new capital can be used to procure technologies that may be labor saving, a negative relationship between returns and unemployment is not entirely unexpected. Furthermore, stock market capitalization to GDP ratio has a strong and positive bearing on returns. This is consistent with the results of Levine and Zervos (1996)

who demonstrate that equity market development stimulates long-term economic growth, possibly through the channels of improved resource allocation, securement of a better regimen of corporate control and an enhancement of risk management opportunities.

Specifications (3) to (5) indicate that actions of political executives with military credentials appear to erode equity values. This observed phenomenon could arise due to a higher perceived probability of military conflict. The devastating effect that wars have on shareholders' wealth has been extensively documented in the literature (Rigobon and Sack, 2005; Wolfers and Zitzewitz, 2009; Wisniewski, 2009; Omar *et al*., 2017). Berkman *et al*. (2001) estimate that in the complete absence of international political crises and wars, the annual global stock returns would be 3.6% higher. With regard to political orientation, our dataset allows us to partition the political spectrum into three segments. All of the previous papers in the field applied a simple left-wing / right-wing categorization, without any allowance for centrist executives (for a list of these papers see Wisniewski (2016)). Our results are similar to those reported in Gottschalk and Bohl (2006) who fail to detect any significant return differences between left- and right-leaning leaders in a panel of 15 countries. We also note that investors are not significantly compensated for taking on election risk, which to a large extent confirms the earlier findings of Bialkowski *et al*. (2008). As also indicated by our econometric results, circumstances which can be construed as government crisis are not conducive to generating healthy capital gains on equities. However, a political context characterized by demonstrations, corruption and the crumbling of law and order does not have strong explanatory power in our regressions. Finally, stock prices appreciate faster in nations where the president holds substantial executive power. Under a typical presidential system, the Chief Executive is able to implement policies in a relatively expedient manner and veto legislative acts, which could potentially prevent abuses of power. According to our results, this political setup appears to be conducive to building shareholder value.

[Table V about here]

Table V reports our results regarding the volatility of stock market indices. This volatility is of great importance, as it affects the magnitude of systematic risk of every listed stock. Interestingly, general strikes coincide with a significant increase in the standard deviation of index returns. Depending on the specification, one strike leads to a *ceteris paribus* increase of about 1.19 to 1.86 percentage points. This means that investors face inferior Sharpe ratios due to a simultaneous decrease in reward and an exacerbated riskiness. When examining the coefficients on our control variables, we are able to reinforce the earlier findings of Schwert (1989) that return volatility is higher in times of recession and we observe a similar tendency for economies struggling with high inflation. Weak evidence emerges to suggest that government consumption acts as a financial stabilizer, while larger economies tend to experience a lesser degree of fluctuation. There also appears to be robust evidence that market movements are amplified when left-wing executives are in power. Our results cohere with the conclusions of Bialkowski *et al.* (2008) and Kelly *et al.* (2016) who argue that stock market riskiness is elevated during periods of national elections. Moreover, circumstances which threaten the current regime significantly contribute to gyrations in the markets. The slight indication that corruption can reduce stock market volatility is consistent with previously reported results by Lau *et al*. (2013) who argue that corporate bribery of state representatives is an effective tool in reducing government policy uncertainty.

[Table VI about here]

Table VI presents estimation results for models focusing on Value-at-Risk. Broadly speaking, these results are congruent with our abovementioned findings for volatility. From the parsimonious model, one can infer that the occurrence of a general strike increases the annualized VaR by about 2.21 cents for every dollar invested. This metric is elevated during

recessionary and inflationary periods but appears smaller in sizable economies and somewhat moderated by government expenditure. The nature of the political executive is also influential in the regressions, with left-wing and military oriented leaderships magnifying downside risk. An increase of about 3.7 cents is observed in election years and in periods of left-wing rule. There is some indication that VaR is greater when the political system is plagued with episodes of crises and that companies can pay-off government officials to reduce the policy change risk. We note at this stage that all of the models reported in this paper perform well in terms of the goodness of fit and the null hypothesis that the regressors are jointly insignificant is always strongly rejected.

V. Further Considerations

5.1. Alternative Specifications

In an attempt to win popular support, political parties cater for the needs of their respective electorates. Parties on the left of the political spectrum tend to draw their support from workers, while the right typically protects the interests of capital holders (Hibbs, 1977). Consequently, it may be reasonable to assume that leftist incumbents are more likely to yield to the demands of organized labor. In the context of our investigation, it would be interesting to verify whether the orientation of the political executive relates to a set of outcomes from general strikes. To investigate this idea, we interact three dummies representing government orientation with our *General_Strikes* indicator and use these terms as explanatory variables in our return regression (see model (1) in Table VII). The regression specification is a variant of the parsimonious model, which we consider to be the most appropriate. Everything else held constant, the fall in stock market valuations is large under leftist (-7.73%) and centrists (-

9.00%) and relatively smaller under right-wing administrations (-3.89%). While the difference appears economically significant, the null hypothesis that the regression coefficient is equal across the three orientations specified cannot be rejected at the conventional significance levels (F-statistic = 0.9436, p-value = 0.3898).

[Table VII about here]

During election years, incumbents will prioritize image management through avoiding events which may resonate negatively throughout the society. Consequently, governments may be more inclined to reach an agreement with the unions that do not favor the interests of capital. To test whether this assertion is supported by our data, we rerun the parsimonious return model where the *General_Strikes* variable is interacted with dummies for election and non-election years. Specification (2) in Table VII demonstrates that, c*eteris paribus*, the losses to capital owners arising from mass strike action against the government are higher in years when voters cast their ballots (-8.31%), as opposed to times when they do not (-5.73%). However, an F-test for the equality of coefficients on the interaction terms fails to reject the null hypothesis (F-statistic = 1.4016, p-value = 0.2368).

Finally, we inspect if the observed drop in the stock market indices can be attributable to lagged stock returns rather than general strikes. To this end, we consider a simple dynamic panel model (see specification (3) in Table VII). We fit a two-way fixed effects dynamic panel model using the Arellano and Bond (1991) generalised method of moments (GMM) approach. Further lags of the stock index returns are used as GMM instruments and *General_Strikes* is used as a normal instrument. From fitting the model we observe that general strikes retain their statistical and economic significance, even after lagged returns are introduced as an explanatory variable. This finding clearly attests to the robustness of our results. Considering that our data has relatively low sampling frequency, the negative

autoregressive coefficient in our model corroborates the story of mean reversion in stock prices over long horizons which was put forward by Poterba and Summers (1988).

5.2. Event Study

The data on general strikes from the Cross-National Time-Series Data Archive used in this study has an annual sampling frequency and is constructed based on newspaper reports. We have managed to obtain links to these reports from the data vendor for the 2011-2015 period. Based on this information, we were able to precisely identify the starting dates for 89 general strikes. This permitted us to analyze the domestic stock market behavior during the days immediately surrounding the strike action. Narrowing the focus from an annual period to a much shorter event window significantly ameliorates the problem of confounding variables. To operationalize the analysis, we employed standard event study methodology commonly used in the finance literature (Brown and Warner, 1980; 1985).

In what follows, we concentrate our attention on a period starting 10 working days prior to the general strike and ending 10 working days thereafter. This span defines our (-10,10) event window centered upon the day on which mass labor action begins (Day 0). In cases where the onset of a strike coincided with a weekend or bank holiday, Day 0 was assumed to be the first trading day that followed. A selection of relatively short 21-day period of analysis permits us to limit the number of confounding events that abnormally increase the event-induced variance. Furthermore, our event dates are exact rather than noisy, obviating the need for extending the period under analysis (Ahern, 2009). Furthermore, it needs to be noted that longer event windows decrease the reliability and validity of the event study (Brown and Warner, 1985; de Jong and Naumovska, 2016; Lyon, Barber, and Tsai, 1999).

Within the abovementioned (-10,10) event window, we analyze the abnormal behavior of returns, which are the defined as the difference between observed returns and those that

would have materialized had the general strike not occurred. The latter return is a purely theoretical construct which cannot be observed directly and is approximated using a statistical benchmark model. In our calculations, we decided to utilize a market model, which we estimate over a 250-trading day window immediately preceding the event window. The model can be expressed as follows:

$$R_{i,t} = \hat{\alpha} + \hat{\beta} R_{m,t} + \varepsilon_{i,t}, \quad t \in (-260, -11) \qquad [2]$$

where $R_{i,t}$ is the MSCI stock index return for the country in which general strike i occurred, $R_{m,t}$ is the MSCI world stock market index return denominated in US dollars and $\varepsilon_{i,t}$ is the regression residual. We subsequently focus on the event window and proceed to calculate abnormal returns (*AR*s) based on the parameter estimates of the market model:

$$AR_{i,t} = R_{i,t} - (\hat{\alpha} + \hat{\beta} R_{m,t}), \quad t \in (-10, 10) \qquad [3]$$

These abnormal returns are averaged across all N events and cumulated over time to create the cumulative abnormal return (*CAR*):

$$CAR_t = \sum_{j=-10}^{t} \sum_{i=1}^{N} \frac{AR_{i,j}}{N}, \quad t \in (-10, 10) \qquad [4]$$

These CARs represent the returns attributable entirely to general strikes episodes and their statistical significance is assessed using a test described in Kothari and Warner (2007).

[Figure I about here]

Figure 1 plots the evolution of CARs in the event window. As general strikes are often pre-announced, it is unsurprising that the onset of stock index declines materialize prior to Day 0. Such a reaction is testament to the informational efficiency of the market in which common knowledge is instantly reflected in the stock prices. The unfavourable trend appears to continue long after the outbreak of protests, depressing equity valuations even further. The

magnitude of CAR in the window considered here is -1.77%, which significantly differs from zero in the statistical sense (t-statistic = -2.25). While the estimate of this fall is substantial, it is somewhat more conservative than that implied by our panel regressions. Two explanations may be offered for this observation. Firstly, the pricing ramifications of general strikes may extend beyond the short 21-day window, as the impact exerted on the political environment may be long-lasting and uncertain at first. Secondly, general strikes happening after 2011 that were the subject of this event study analysis may not be representative of our panel data sample that started in 1970. Nowak and Gallas (2014) note that the mass strikes against austerity that followed the 2008 financial crisis were largely unsuccessful, while those that took place prior to the crisis frequently managed to secure government concessions (Hamann, Johnston and Kelly, 2013b).

It may be instructive to put the market implications of general strikes into context by considering different types of walkouts and protests. King and Soule (2007) scrutinize the impact of social movement protests targeting particular firms and conclude that the mean CAR around the event is -1.03%. With regards to industrial strikes, the magnitude of shareholder value destruction reported in the literature varies depending on the sample used. Lower estimates provided Neumann (1980), Kramer and Vasconcellos, (1996) and Kramer and Hyclak (2002) imply an abnormal loss of merely a fraction of a percentage point. On the other end of the spectrum, Becker and Olson (1986) show that stock prices of struck firms drop abnormally by 1.38% prior to the strike with further losses of 2.73% following shortly thereafter. Contemplation of these figures leads us to conclude that, from the shareholders' point of view, the problem of general strikes against the government is of a similar order of magnitude as the strikes and protests that are directed against the company itself.

5.3. Bootstrap Approach

Our methodological approach implemented thus far relied heavily on estimating panel regressions. For the purposes of a robustness check, we abandon this mode of inquiry and instead implement a bootstrap matched-pair analysis with a counterfactual. To start with, we note that in our sample we have 201 country-years which have witnessed at least one general strike and for which stock return data was available. The average annual return for these observations is -4.30%. We then proceed to draw at random 201 observations from the sub-sample of country-years that experienced no general strike and compute the corresponding mean return. This step is repeated 10,000 times in order to generate an empirical distribution for the mean return conditional on no strike. This distribution (depicted in Figure 2) appears to be centered on a value of 6.44%; a figure substantially higher than the strike return average. In fact, only one of our 10,000 iterations produced a mean below -4.30%, which in turn implies that the bootstrap *p*-value for the null hypothesis that the general strike country-years come from the same distribution as the rest of the observations is 0.0001. The strong rejection of the null is consistent with the main story outlined in our paper.

[Figure II about here]

5.4. Government Bond Yields

Prior literature documented a link between political uncertainty and the probability of rescheduling and defaulting on government debt (Balkan, 1992; Cuadra and Sapienza, 2008). In an efficient market the risk attached to the probability of an interrupted payment will be reflected in bond yields. General strikes as a facet of political uncertainty could, therefore, affect government-issued fixed income securities. To investigate this point, we have collected data on the long-term government bond yields for our sample countries from the International Financial Statistics database compiled by the International Monetary Fund. Table VIII reports estimates from two-way fixed effect regressions linking general strikes to yields. In model (1)

we perform the estimation in the absence of controls, whilst in the second model we include all the regressors collected earlier with the exception of *Presidenital_System* that happens to be perfectly collinear with country fixed effects in this particular sample. The final parsimonious specification (3) excluded all insignificant variables using the iterative procedure described in Section IV. Our *General_Strikes* variable bears a positive coefficient and is statistically significant in all regressions. In the parsimoniously specified model, the magnitude of increase is 0.43 basis points per strike. This *prima facie* may not appear large, however, considering the amounts raised by governments in the bond market, the nominal value of this effect could be substantial. As an illustration, we would like to note that the value of central government debt across OECD member countries was approximately equal to their GDP in 2015.[3]

[Table VIII about here]

VI. Conclusions

There is a rich literature in industrial relations focusing on strikes against employers and the ramifications these have for the market capitalization of affected companies (see for instance Neumann, 1980; Kramer and Vasconellos, 1996; Kramer and Hyclack, 2002). In comparison, the body of work on general strikes, while illuminating, is less voluminous. Within this scholarship, attention is directed towards the unionized workers (Johnson, 2000; Hamann, Johnston and Kelly, 2013b) or governments (Hamann, Johnston and Kelly, 2013c; Klomp and De Haan, 2013). Ours is a paper which views the instances of general strikes from a different angle, namely that of capital providers.

Specifically, we show that general strikes hold grave ramifications for stock markets. The losses to shareholders holding a passive portfolio invested locally are estimated in our

[3] Data sourced from World Development Indicators.

preferred model to be in the order of 6.11% in the year of the event. This loss does not appear to be attributable to other factors in the macroeconomic, financial and political arena, as we comprehensively control for these. The fact that our result is not a consequence of confounding influences is further reaffirmed by the event study analysis which shows the presence of negative returns in the days immediately surrounding strike action. The estimated price declines are too substantial to be entirely justified by the output forgone due to the walkout. Apparently, investors look at this event from a much broader perspective. Such a manifestation of discontent within the workforce can exacerbate policy uncertainty and, in turn, lead to an increase in discount rates. This rationalization could imply significant price declines and increases in market riskiness. Interestingly, during the years in which general strikes take place, substantial aggrandizement in risk is clearly observable. Annualized standard deviation of index returns goes up by 1.19 percentage points, while the annualized Value-at-Risk jumps by 2.21 cents for every dollar invested. When we examine government long-term bond yields during the period of a labor standoff, we find a statistically significant increase, reflecting possible fiscal considerations of concessions.

Clearly, these documented tendencies are problematic from the investors' point of view. General strikes appear to reduce the reward to capital holders, while simultaneously heightening the risks involved. Furthermore, governments should bear in mind the additional negative externalities which their tense relations with organized labor could generate. Since a large proportion of the electorate may be affected through their shareholdings, the penalties to incumbents may ultimately be borne out at the ballot box. Since governments are further penalized by increased costs of servicing public debt, they should engage in a more comprehensive cost-benefit analysis of countering the discontent of organized labor. Our findings are also relevant to trade union leaders who are contemplating a mass walkout against government policies. Since negative stock returns can deplete pension pots, the costs

of general strikes to workers need to be accounted for accurately. Clearly, the real costs of striking surpasses the total of wages forgone.

While there are many theories related to firm-level labor disputes, theorizing about general strikes is in a rather embryonic state. Although some attempts to address this issue have been made by Kelly and Hamann (2010), fellow researchers should still endeavor to formulate conceptual frameworks explaining this phenomenon. Only after we gain a full understanding of the causes underlying general strikes, will we be able to construct reliable predictive models. Such models could be potentially useful to those who trade actively in the stock market.

Appendix A

List of countries included in our empirical study categorized using the MSCI convention.

Developed Markets:	Canada, US, Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Israel, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, UK, Australia, Japan, New Zealand, Singapore
Emerging Markets:	Brazil, Chile, Colombia, Mexico, Peru, Czech Republic, Egypt, Greece, Hungary, Poland, Qatar, Russia, South Africa, Turkey, UAE, China, Indonesia, Korea, Malaysia, Philippines, Taiwan, Thailand
Frontier Markets:	Argentina, Bulgaria, Croatia, Estonia, Lithuania, Kazakhstan, Romania, Serbia, Slovenia, Kenya, Mauritius, Morocco, Nigeria, Tunisia, Bahrain, Jordan, Kuwait, Oman, Bangladesh, Pakistan, Sri Lanka, Vietnam
Standalone Markets:	Saudi Arabia, Jamaica, Trinidad & Tobago, Bosnia and Herzegovina, Ukraine, Botswana, Ghana, Zimbabwe, Palestine, Lebanon

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Table I

Variable Definitions

Variable Name	Definition	Source
Return	Continuously compounded US dollar-denominated return on the country's MSCI capitalization-weighted stock market index computed for a given calendar year.	Datastream
Volatility	Standard deviation of daily continuously compounded returns on MSCI stock market index computed for a given country-year. This standard deviation was annualized on the assumption that there are 252 trading days in a calendar year.	Own calculations
VaR	5^{th} percentile of historical daily return distribution within a given year times minus one times the square root of 252.	Own calculations
General_Strikes	Number of strikes against government policies or authority involving more than 1,000 workers from more than one employer.	Cross-National Time-Series Data Archive 2015
GDP_Growth	Annual percentage growth rate in real GDP.	World Development Indicators
Inflation	Annual percentage change in consumer price index.	World Development Indicators
Unemployment	Harmonized ILO estimate of unemployment rate.	World Development Indicators
Debt_to_GDP	Central government debt (% of GDP).	World Development Indicators
Government_Consumption	General government final consumption expenditure scaled by GDP (derived variable).	World Development Indicators
Capitalization_to_GDP	Market capitalization of domestic firms listed on the stock exchange (% of GDP).	World Development Indicators
Economy_Size	Natural logarithm of GDP (constant 2010 US dollars).	World Development Indicators
Military	A dummy variable taking a value of 1 when the political executive is a military officer and 0 otherwise.	Database of Political Institutions 2015
Left	A dummy variable indicating country-years in which the party orientation with respect to economic policy can be best defined as communist, socialist, social democratic, or left-wing.	Database of Political Institutions 2015
Centre	A dummy variable indicating country-years in which the ruling party has a centrist ideology.	Database of Political Institutions 2015

Election	A dummy variable taking a value of 1 for country-years in which executive election took place and 0 otherwise.	Database of Political Institutions 2015
Government_Crisis	Number of situations threatening the collapse of the current regime (excluding revolts).	Cross-National Time-Series Data Archive
Demonstrations	Number of public demonstrations of 100 people or more countering government or its policies (excluding those anti-foreign in nature).	Cross-National Time-Series Data Archive
Lack_of_Corruption	A variable gauging the extent of corruption within political system, measured on a six-point scale. High values indicate a system with greater integrity.	International Country Risk Guide
Law_and_Order	An aggregate measure of the strength and impartiality of the legal system and popular adherence to the law.	International Country Risk Guide
Executive_Years_in_Office	Number of years the chief executive has been in office.	Database of Political Institutions 2015
Presidential_System	A dummy variable for systems in which the president holds the executive power. This embraces countries with unelected executives as well as those with elected presidents but no prime minister. Nations that have both the president and the prime minister fall into this category when the president has the right to veto legislation and the veto can be only overridden by a parliamentary supermajority or when the president has both the power to appoint/dismiss the prime minister and dissolve parliament.	Database of Political Institutions 2015

Table II

Summary Statistics

This table contains basic summary statistics for the variables used in the study. These variables have been defined in Table I. The second column reports the number of observations available for each indicator. In the third and fourth column we display arithmetic averages and sample standard deviations. The last three statistics shown in the table are the 25th, 50th a 75th percentile of the variable distribution.

Variable Name	No. Obs.	Mean	Standard Deviation	25th Percentile	Median	75th Percentile
Return	1753	0.0522	0.3611	-0.1368	0.0801	0.2603
Volatility	1719	0.2403	0.1249	0.1622	0.2106	0.2847
VaR	1719	0.3716	0.1965	0.2439	0.3182	0.4448
General_Strikes	3096	0.1899	0.6907	0.0000	0.0000	0.0000
GDP_Growth	2889	0.0384	0.0515	0.0165	0.0381	0.0604
Inflation	2668	0.2514	2.1448	0.0253	0.0566	0.1127
Unemployment	1702	0.0849	0.0518	0.0483	0.0760	0.1040
Debt_to_GDP	1058	0.5592	0.8652	0.2820	0.4792	0.6868
Government_Consumption	2551	0.1759	0.0668	0.1253	0.1828	0.2168
Capitalization_to_GDP	1548	0.5388	0.5031	0.1894	0.3781	0.7312
Economy_Size	2928	26.6448	53.6559	24.4231	25.7336	26.7278
Military	2809	0.1057	0.3075	0.0000	0.0000	0.0000
Left	1842	0.4240	0.4943	0.0000	0.0000	1.0000
Centre	1842	0.1281	0.3343	0.0000	0.0000	0.0000
Election	2821	0.0737	0.2614	0.0000	0.0000	0.0000
Government_Crisis	3096	0.1957	0.5379	0.0000	0.0000	0.0000
Demonstrations	3096	1.0203	3.0751	0.0000	0.0000	1.0000
Lack_of_Corruption	1361	4.4730	1.3855	3.5000	5.0000	6.0000
Law_and_Order	1361	4.2922	1.2870	3.5000	4.5000	5.0000
Executive_Years_in_Office	2812	6.6604	7.3058	2.0000	4.0000	8.0000
Presidential_System	2814	0.3973	0.4894	0.0000	0.0000	1.0000

Table III

Correlations between Dependent and Explanatory Variables

This table reports Pearson correlation coefficients with the corresponding significance levels. For definitions of the variables please see Table I. ***, **, * denote statistical significance at the 1%, 5% and 10% level, respectively.

Variable Name	*Return*	*Volatility*	*VaR*
General_Strikes	-0.0890***	0.0950***	0.0967***
GDP_Growth	0.0724***	-0.1787***	-0.1690***
Inflation	-0.0112	0.2222***	0.2325***
Unemployment	0.0646**	0.0079	-0.0017
Debt_to_GDP	0.0143	-0.0764**	-0.0639*
Government_Consumption	0.0351	-0.1343***	-0.1208***
Capitalization_to_GDP	0.1372***	-0.1699***	-0.1583***
Economy_Size	0.0097	0.0158	0.0718***
Military	0.0137	0.0655***	0.0315
Left	0.0071	-0.0243	-0.0066
Centre	-0.0247	0.1080***	0.0886***
Election	0.0119	0.0997***	0.0908***
Government_Crisis	-0.0776***	0.1582***	0.1359***
Demonstrations	-0.0845***	0.0350	0.0424*
Lack_of_Corruption	-0.0177	-0.1070***	-0.0551***
Law_and_Order	-0.0161	-0.1437***	-0.1040***
Executive_Years_in_Office	-0.0338	-0.0596**	-0.0874***
Presidential_System	-0.0090	0.1274***	0.1211***

Table IV

Determinants of Stock Index Returns

The dependent variable in each of the two-way fixed effect panel regressions presented below is the continuously compounded dollar-denominated return on MSCI country stock market index in a given calendar year. Definitions of the explanatory variables can be found in Table I. Coefficient standard errors are reported in parentheses. The five specifications presented below differ with respect to the inclusion of macroeconomic and political controls. The F-statistic and the corresponding probability are for the null hypothesis that the regressors included in a given model are jointly irrelevant to the process being modelled. ***, **, * denote statistical significance at the 1%, 5% and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)
General_Strikes	-0.0348**	-0.0408**	-0.0455***	-0.0401**	-0.0611***
	(0.0085)	*(0.0159)*	*(0.0167)*	*(0.0185)*	*(0.0116)*
GDP_Growth		1.0638*		0.3840	
		(0.5913)		*(0.7119)*	
Inflation		0.0016		0.4853	
		(0.1234)		*(0.8431)*	
Unemployment		1.3499**		1.2169**	1.8109***
		(0.6036)		*(0.5369)*	*(0.5424)*
Debt_to_GDP		0.0569		0.1109	
		(0.1145)		*(0.0991)*	
Government_Consumption		0.9692		2.1617	
		(1.0330)		*(1.8620)*	
Capitalization_to_GDP		0.1977***		0.3923***	0.2333***
		(0.0675)		*(0.1023)*	*(0.0481)*
Economy_Size		-0.0788		0.0668	
		(0.1701)		*(0.2309)*	
Military			-0.4077***	-0.5563***	-0.2271**
			(0.1017)	*(0.0642)*	*(0.0927)*
Left			0.0049	-0.0252	
			(0.0284)	*(0.0343)*	
Centre			-0.0571	-0.0868	

			(0.0357)	*(0.0596)*	
Election			-0.0333	-0.0140	
			(0.0279)	*(0.0336)*	
Government_Crisis			-0.0508*	-0.0679	
			(0.0302)	*(0.0546)*	
Demonstrations			0.0017	0.0016	
			(0.0023)	*(0.0028)*	
Lack_of_Corruption			0.0001	0.0165	
			(0.0359)	*(0.0449)*	
Law_and_Order			0.0127	-0.0237	
			(0.0190)	*(0.0261)*	
Executive_Years_in_Office			-0.0057	0.0009	
			(0.0038)	*(0.0043)*	
Presidential_System			0.1514***	0.3431***	0.2342***
			(0.0567)	*(0.1162)*	*(0.0617)*
No. Obs.	1733	662	765	416	961
Adj. R-squared	44.6252%	58.2214%	54.6666%	66.5242%	56.0375%
F-statistic	12.6315	12.2335	12.3740	12.2973	14.1578
Prob(F-stat)	0.0000	0.0000	0.0000	0.0000	0.0000

Table V

Models of Stock Market Index Volatility

The two-way fixed effect panel regressions presented in the table link annualized stock market index return volatility to the number of general strikes and additional controls. All variable definitions are given in Table I. Standard errors of the coefficients are shown in parenthesis. The specifications included in the table differ in the extent to which they incorporate the macroeconomic and political controls. The F-statistic is for the hypothesis that the regressors are jointly unable to explain the variation in the dependent variable. ***, **, * denote statistical significance at the 1%, 5% and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)
General_Strikes	0.0158**	0.0159***	0.0186***	0.0149***	0.0119***
	(0.0063)	*(0.0059)*	*(0.0036)*	*(0.0054)*	*(0.0031)*
GDP_Growth		-0.8336**		-0.2991	-0.4937**
		(0.3296)		*(0.2827)*	*(0.2277)*
Inflation		0.3103***		0.4327**	
		(0.1166)		*(0.1912)*	
Unemployment		-0.0546		-0.0357	
		(0.2238)		*(0.2587)*	
Debt_to_GDP		0.0091		0.0223	
		(0.0457)		*(0.0424)*	
Government_Consumption		-1.1007***		-0.5932	
		(0.3839)		*(0.5003)*	
Capitalization_to_GDP		0.0108		-0.0257	
		(0.0202)		*(0.0310)*	
Economy_Size		-0.1705***		-0.1720**	-0.1420***
		(0.0418)		*(0.0822)*	*(0.0357)*
Military			0.0264	0.0316	0.0340*
			(0.0318)	*(0.0303)*	*(0.0181)*
Left			0.0198**	0.0224**	0.0231**
			(0.0092)	*(0.0098)*	*(0.0093)*

Centre			0.0098	0.0233	
			(0.0172)	*(0.0261)*	
Election			0.0222***	0.0235**	0.0183**
			(0.0067)	*(0.0109)*	*(0.0068)*
Government_Crisis			0.0241***	0.0097	0.0156**
			(0.0092)	*(0.0098)*	*(0.0073)*
Demonstrations			0.0001	-0.0007	
			(0.0007)	*(0.0007)*	
Lack_of_Corruption			0.0133	0.0146	0.0188**
			(0.0098)	*(0.0111)*	*(0.0084)*
Law_and_Order			0.0000	0.0083	
			(0.0112)	*(0.0101)*	
Executive_Years_in_Office			-0.0001	0.0007	
			(0.0011)	*(0.0013)*	
Presidential_System			0.0278	-0.0258	
			(0.0244)	*(0.0287)*	
No. Obs.	1701	662	765	416	743
Adj. R-squared	53.4701%	74.9445%	64.2732%	77.5881%	66.9516%
F-statistic	17.5556	25.1115	17.9685	20.6807	20.5220
Prob(F-stat)	0.0000	0.0000	0.0000	0.0000	0.0000

Table VI

Regressions for Value at Risk

The panel regressions presented in this table link an annualized Value at Risk (VaR) measure to a range of explanatory variables. For variable definitions please refer to Table I. Figures in parenthesis denote standard errors. The specifications below are two-way fixed effect panel regression differing in the extent to which they incorporate political and macroeconomic control variables. The F-statistic is for the null hypothesis that the regressors are jointly unable to explain the variation in the dependent variable. ***, **, * denote statistical significance at the 1%, 5% and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)
General_Strikes	0.0250**	0.0280***	0.0295***	0.0261***	0.0221***
	(0.0097)	*(0.0103)*	*(0.0063)*	*(0.0098)*	*(0.0051)*
GDP_Growth		-1.1817**		-0.4335	-0.5878*
		(0.4815)		*(0.4677)*	*(0.3082)*
Inflation		0.5444***		0.7497**	
		(0.1249)		*(0.3416)*	
Unemployment		-0.1126		-0.1552	
		(0.3620)		*(0.4358)*	
Debt_to_GDP		-0.0145		0.0264	
		(0.0711)		*(0.0747)*	
Government_Consumption		-1.3753**		-0.7905	
		(0.5789)		*(0.8297)*	
Capitalization_to_GDP		0.0113		-0.0672	
		(0.0352)		*(0.0552)*	
Economy_Size		-0.2662***		-0.3183**	-0.2035***
		(0.0714)		*(0.1482)*	*(0.0545)*
Military			0.0813	0.1106**	0.0894*
			(0.0709)	*(0.0544)*	*(0.0519)*
Left			0.0339**	0.0410**	0.0366**
			(0.0158)	*(0.0190)*	*(0.0150)*
Centre			0.0119	0.0413	
			(0.0158)	*(0.0442)*	

Election			0.0407***	0.0491***	0.0365***
			(0.0128)	*(0.0187)*	*(0.0133)*
Government_Crisis			0.0233*	0.0213	
			(0.0125)	*(0.0192)*	
Demonstrations			0.0002	-0.0010	
			(0.0011)	*(0.0012)*	
Lack_of_Corruption			0.0232	0.0200	0.0313***
			(0.0148)	*(0.0198)*	*(0.0117)*
Law_and_Order			0.0035	0.0158	
			(0.0174)	*(0.0171)*	
Executive_Years_in_Office			-0.0004	0.0006	
			(0.0016)	*(0.0020)*	
Presidential_System			0.0749**	0.0139	
			(0.0381)	*(0.0548)*	
No. Obs.	1701	662	765	416	743
Adj. R-squared	60.6100%	74.1877%	71.3989%	76.2991%	72.9115%
F-statistic	23.1680	24.1683	24.5460	19.3012	27.2786
Prob(F-stat)	0.0000	0.0000	0.0000	0.0000	0.0000

Table VII

Alternative Specifications of the Return Regression

Contained in the table below are two modified versions of the baseline parsimonious return regression and a dynamic model specification. Definitions of all variables can be found in Table I. The numbers shown within parentheses are standard errors. The first two models are estimated using a two-way fixed effects panel approach with heteroscedasticity and autocorrelation consistent standard errors. Regression (1) includes interactive terms that multiply the dummies for the political orientation of the government with the *General_Strikes* variable. Model (2) measures the *ceteris paribus* impact of general strikes on stock returns conditional on the presence of national political executive elections. The last specification reported is a two-way fixed effect dynamic panel model estimated using the Arellano and Bond (1991) generalised method of moments approach. The Wald test is testing the hypothesis that the coefficients on the two explanatory variables reported in column (3) of the table are equal to zero. ***, **, * denote statistical significance at the 1%, 5% and 10% level, respectively.

	(1)	**(2)**	**(3)**
General_Strikes × *Left*	-0.0773***		
	(0.0183)		
General_Strikes × *Centre*	-0.0900*		
	(0.0511)		
General_Strikes × *Right*	-0.0389**		
	(0.0175)		
General_Strikes × *Election*		-0.0831***	
		(0.0259)	
General_Strikes × (*1-Election*)		-0.0573***	
		(0.0098)	
General_Strikes			-0.0406***
			(0.0102)
Return_Lagged			-0.0987*
			(0.0492)
Unemployment	1.6679***	1.7934***	
	(0.5552)	*(0.5232)*	
Capitalization_to_GDP	0.3084***	0.2323***	
	(0.0602)	*(0.0479)*	
Military	-0.2803**	-0.2275**	
	(0.1204)	*(0.0931)*	
Presidential_System	0.2314***	0.2365***	
	(0.0268)	*(0.0614)*	
No. Obs.	719	961	1508
Adj. R-squared	57.5807%	56.0150%	
F-statistic	13.6575	14.0060	
Prob(F-stat)	0.0000	0.0000	
Wald Test			16.1835
Prob(Wald test)			0.0003

Table VIII

Determinants of Long Term Government Bond Yields

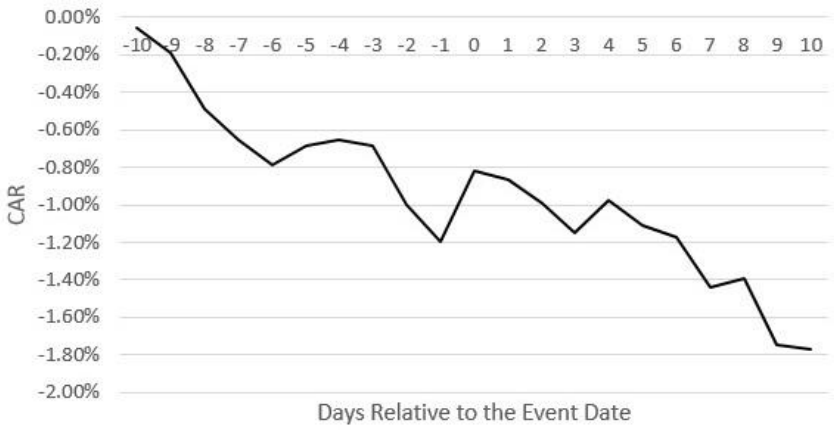
This table reports results for three regression models where long term government bond yields act as a dependent variable. The indicators used in these models are defined in Table I. Standard errors are shown in parentheses. A two-way fixed effect panel estimation with heteroscedasticity and autocorrelation consistent standard errors is employed. The three specifications examine the link between bond yields and general strikes. Model (1) includes no controls, while regression (2) has a full set of controls, with the exception of *Presidential_System*. This variable has been excluded due to perfectly collinearity with the fixed effects. The last column presents a specification considering only statistically significant regressors. ***, **, * denote statistical significance at the 1%, 5% and 10% level, respectively.

	(1)	**(2)**	**(3)**
General_Strikes	0.0077***	0.0026*	0.0043**
	(0.0029)	*(0.0014)*	*(0.0019)*
GDP_Growth		-0.2332***	-0.2103***
		(0.0734)	*(0.0631)*
Inflation		0.3716***	0.4757***
		(0.1294)	*(0.1007)*
Unemployment		0.0863	0.1824***
		(0.0533)	*(0.0353)*
Debt_to_GDP		0.0185***	
		(0.0070)	
Government_Consumption		-0.1417	
		(0.1179)	
Capitalization_to_GDP		-0.0005	
		(0.0036)	
Economy_Size		-0.0457**	
		(0.0211)	
Military		0.1400**	
		(0.0055)	
Left		0.0008	
		(0.0015)	
Centre		0.0060**	
		(0.0029)	
Election		0.0030	
		(0.0034)	
Government_Crisis		0.0027	
		(0.0018)	
Demonstrations		-0.0004***	
		(0.0001)	
Lack_of_Corruption		0.0033*	
		(0.0019)	
Law_and_Order		0.0003	

		(0.0013)	
Executive_Years_in_Office		-0.0001 (0.0003)	
No. Obs.	1356	357	803
Adj. R-squared	26.3186%	91.4397%	85.2900%
F-statistic	6.3778	61.3611	67.4295
Prob(F-stat)	0.0000	0.0000	0.0000

Figure 1

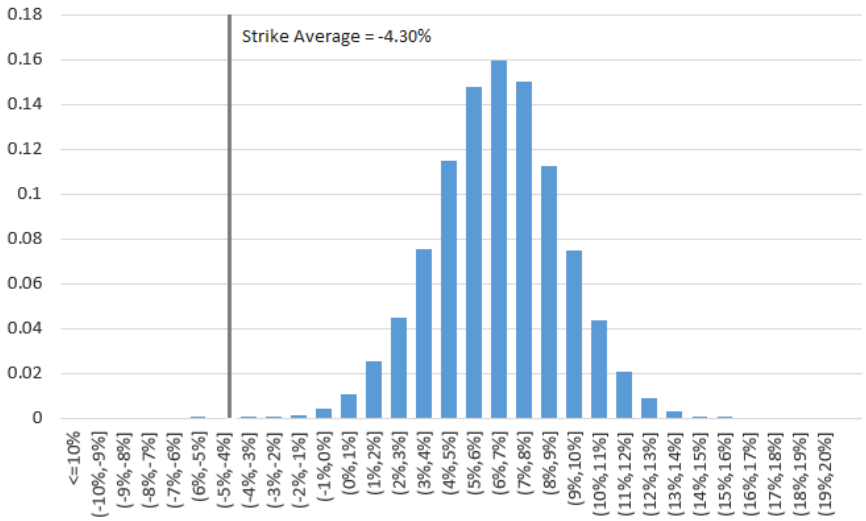
Cumulative Abnormal Returns around the General Strike Date



Note: This figure shows cumulative abnormal returns (CARs) in a symmetrical event window centred on the general strike starting date. The CAR estimates are based on a sample of 89 general strikes that occurred during the period spanning 2011 to 2015.

Figure 2

Simulated Distribution of Mean Return under the Null Hypothesis of No General Strike



Note: The histogram above depicts empirical distribution of mean return under the assumption of no general strikes. It is based on a simulation with 10,000 iterations in which the general strike sample has been matched with a counterfactual sample.