Landslide Elections, Authoritarian Elections, and Policy Uncertainty: Why Markets Bounce Even After Electoral Blowouts

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Abstract

Are authoritarian elections more "certain" than democratic elections? Conventional wisdom suggests that this is a fundamental difference between democracies and autocracies. Building off research on stock markets and elections, we differentiate between "electoral uncertainty," which pertains to the outcome of the election, and "economic policy uncertainty," which pertains to potential post-electoral policy changes. While democracies likely feature more electoral uncertainty through the mechanism of elections that are typically closer, both democracies and autocracies feature economic policy uncertainty regardless of electoral closeness. We test key implications of our argument using stock market volatility as a proxy for investor uncertainty. We find that in pre-electoral periods, democracies feature greater volatility than autocracies by virtue of closer elections. However, in the post-electoral period, both democracies and autocracies feature heightened volatility regardless of closeness. Our findings point to an underappreciated source of uncertainty surrounding authoritarian elections and blowout elections in democracies.

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1 Introduction

Are authoritarian elections more "certain" than democratic elections? The relationship between uncertainty and elections is fundamental to how political science defines democracies and autocracies. Indeed, "ex ante uncertainty" in electoral outcomes, or what we call "electoral uncertainty," is the defining criterion separating democracies from autocracies according to one of the most widely used regime type data sets (Przeworski, Alvarez, and Cheibub 2000; Cheibub, Gandhi, and Vreeland 2010). While many challenge this binary view of authoritarian elections as "certain" (Hyde and Marinov 2012), few would dispute that the modal authoritarian election carries greater certainty about the electoral outcome than the modal democratic election.

While an important, defining difference between democracies and autocracies, the focus on electoral uncertainty masks two things. First, the outcomes of many democratic elections are not particularly close. Indeed, in our data set, the average margin of victory for democratic elections is not particularly close at 11.7 percentage points. Using a 5 percentage point victory as a cutoff, less than half of democratic elections are deemed "close." This would suggest that if we think of uncertainty as constrained to a specific election, many democratic elections are not as different from autocratic elections on this criterion as one might expect.

Second, non-close democratic and autocratic elections may contain more uncertainty than commonly realized. A growing literature suggests authoritarian elections can generate uncertainty around a range of other outcomes such as violence, protests, or regime change by acting as focal points for dissent (Pop-Eleches and Robertson 2015; Teorell and Hadenius 2009; Harish and Little 2017; Hafner-Burton et al. 2014; Tucker 2007; Brancati 2016; Schuler, Gueorguiev, and Cantu 2013; Knutsen, Nygård, and Wig 2017). This suggests that autocratic and democratic elections alike may contain other sources of uncertainty with important ramifications for economic and political outcomes.

Building off research on market volatility and elections, we suggest another form of uncertainty that can surround even the most quiescent, blowout elections – "economic policy

uncertainty" (Goodell, McGee, and McGroarty 2020). As we outline in our theory section, candidates in democratic and autocratic elections have incentives to make vague promises on the campaign trail and hide potentially unpopular decisions until after elections. This is because candidates want to win even the most certain elections by the largest margin possible. In democracies, if candidates win by wider vote margins, they increase their mandate such that they can make greater post-electoral policy changes (Goodell and Vähämaa 2013). Autocrats may want to win by large margins because of the signalling value of overwhelming victories (Simpser 2013; Gehlbach and Simpser 2015).

As such, victors in certain or uncertain elections are likely to save important policy announcements until immediately following the election. This can mean that sweeping policy changes that can either rattle or rally markets may follow elections where the outcome was a foregone conclusion. Egypt's 1999 election – one of the most certain electoral contests in recent history – demonstrates the possible existence of this source of uncertainty. In that election, where Hosni Mubarak was the only candidate on the ballot, the president waited until after the election to appoint a pro-reform prime minister, Atef Ebeid – a move that caused an immediate spike in the market.[1] In a democratic context, despite near certainty that the Liberal Democratic Party (LDP) would retain control in Japan's 1990 general election, the LDP delayed important trade negotiation issues with the US until after the election, also resulting in market volatility.[2]

To demonstrate this possible form of uncertainty surrounding blowout elections, we turn to stock markets as a proxy for such uncertainty. Markets are a useful proxy, as research on elections and market volatility emphasizes the importance of electoral uncertainty on market outcomes. This research suggests that greater electoral uncertainty should lead to greater stock market volatility as investors react to subtle shifts in the possibility that a given candidate will win the election (Bernhard and Leblang 2006; Białkowski, Gottschalk, and Wisniewski 2008; Kelly, Pástor, and Veronesi 2016). This would imply that democratic

[1] Agence France Presse. "Egypt leads Arab bourses amid high hopes for new premier." October 9, 1999.
[2] Butts, David. "Japan Turns to Trade Issues." United Press International. February 19, 1990.

elections, particularly close elections, should lead to greater stock market volatility than in autocracies.

We agree that electoral closeness explains some uncertainty and largely accounts for differences in electoral market volatility between democracies and autocracies prior to elections. However, we argue that electoral closeness alone does not explain a significant amount of uncertainty in the form of policy uncertainty, which we argue will manifest in the immediate aftermath of the election. Because this source of uncertainty does not depend on electoral closeness, we argue that it will occur in both democratic and autocratic contexts, thus leading to post-electoral market volatility in both settings.

In terms of testing this prediction, few studies examine the impact of elections on market uncertainty in less democratic contexts. Lehkonen and Heimonen (2015) examine the impact of regime type on volatility, showing that anocracies have a higher level of volatility than autocracies or democracies, but do not assess the impact of elections within regimes. Others have looked at individual elections (Liew and Rowland 2016), but do not compare across different countries.

Therefore, to test our theory, we created a unique data set by combining stock market volatility and election data for 511 elections in 79 autocracies and democracies since 1945. Our volatility event study and regression analysis show that, consistent with the notion of economic policy uncertainty driving volatility, post-electoral volatility is higher than pre-electoral volatility in both democracies and autocracies. Furthermore, while electoral closeness explains a small amount of increased volatility we see in democracies relative to autocracies, once accounting for electoral closeness we find that both autocracies and democracies feature nearly equivalent levels of abnormal post-electoral volatility. If anything, after accounting for electoral closeness, autocracies may actually feature greater volatility than democracies.

These findings have important implications for our understanding of the impact of elections on market volatility. Importantly, they suggest that the typical authoritarian election

generates increased post-electoral volatility. Additionally, this volatility is similar to the level of volatility we see in democracies regardless of the closeness of the election. In short, post-electoral volatility is a feature of elections that is relatively independent from the closeness of elections or regime type.

Our findings and theory also carry important implications for our understanding of uncertainty surrounding authoritarian elections. Even non-competitive elections generate uncertainty around a range of other outcomes such as violence, protests, or regime change (Pop-Eleches and Robertson 2015; Teorell and Hadenius 2009; Harish and Little 2017; Hafner-Burton et al. 2014; Tucker 2007; Brancati 2016; Schuler, Gueorguiev, and Cantu 2013; Knutsen, Nygård, and Wig 2017). In this paper, we suggest policy uncertainty driven by candidates strategically hiding their post-electoral policy intentions is another important source of such uncertainty. Importantly, this suggests that elections where outcomes are foregone conclusions are still worthy of attention.

2 Markets and Elections

Before developing our theory and hypotheses, this section reviews literature examining the effect of elections on markets. Existing research generates conflicting predictions about the differential impact of elections on markets in democracies and autocracies. Some research from democracies finds that the closer the election, the greater the volatility (Białkowski, Gottschalk, and Wisniewski 2008). Under the standard account, elections generate policy uncertainty by virtue of uncertainty over the winner. This electoral uncertainty undermines corporate investment (Julio and Yook 2012) and generates heightened asset price volatility (Białkowski, Gottschalk, and Wisniewski 2008). However, others posit a different model. Goodell and Vähämaa (2013), for example, find a positive correlation between the probability of the eventual winner winning and volatility in US presidential elections. They suggest that a higher margin of victory could lead to greater changes in macroeconomic policy, potentially

because the president with a large vote margin could feel that they have a sweeping mandate for change. This is the economic policy uncertainty model.

These theories are largely developed to explain the relationship between volatility and markets in democracies. How would they apply to autocracies? Unfortunately, little research examines the impact of authoritarian elections on market volatility. One study examines the impact of democratization on market volatility, suggesting that the disintegration of Mubarak's stable autocracy in Egypt has heightened volatility and depressed stock prices (Ahmed 2017). While illuminating, this does not speak to the effects of elections while Mubarak was still in power.

Other work that compares democracies and autocracies suggests that anocracies may feature higher overall levels of volatility (Lehkonen and Heimonen 2015). This is in line with a larger set of findings showing that anocracies, or countries that are neither fully authoritarian nor fully democratic, feature higher levels of violence and repression (Hegre et al. 2001).[3] While this is related to our question, these studies do not argue that market volatility is a result of elections (Lehkonen and Heimonen 2015). Rather, anocratic volatility is a function of broader instability. As such, it does not measure the impact of elections on volatility, but rather of regime type on average levels of volatility over time.

Finally, some research suggests that the policy orientation of the winner plays an important role, with volatility increasing and stock prices declining under left-wing governments (Jensen and Schmith 2005; Leblang and Mukherjee 2005; Mukherjee and Leblang 2007; Bechtel 2009; Sattler 2013). This literature provides some important insights for the direction of the policy changes we identify in our data. However, given the presence of right-wing and left-wing authoritarian regimes (Dinas and Northmore-Ball 2020), this literature does not provide any direct predictions on the degree to which authoritarian and democratic elections drive stock market volatility.

Some anecdotal evidence lends credence to the possibility that the economic policy un-

[3]See Vreeland (2008) for an important critique of this work.

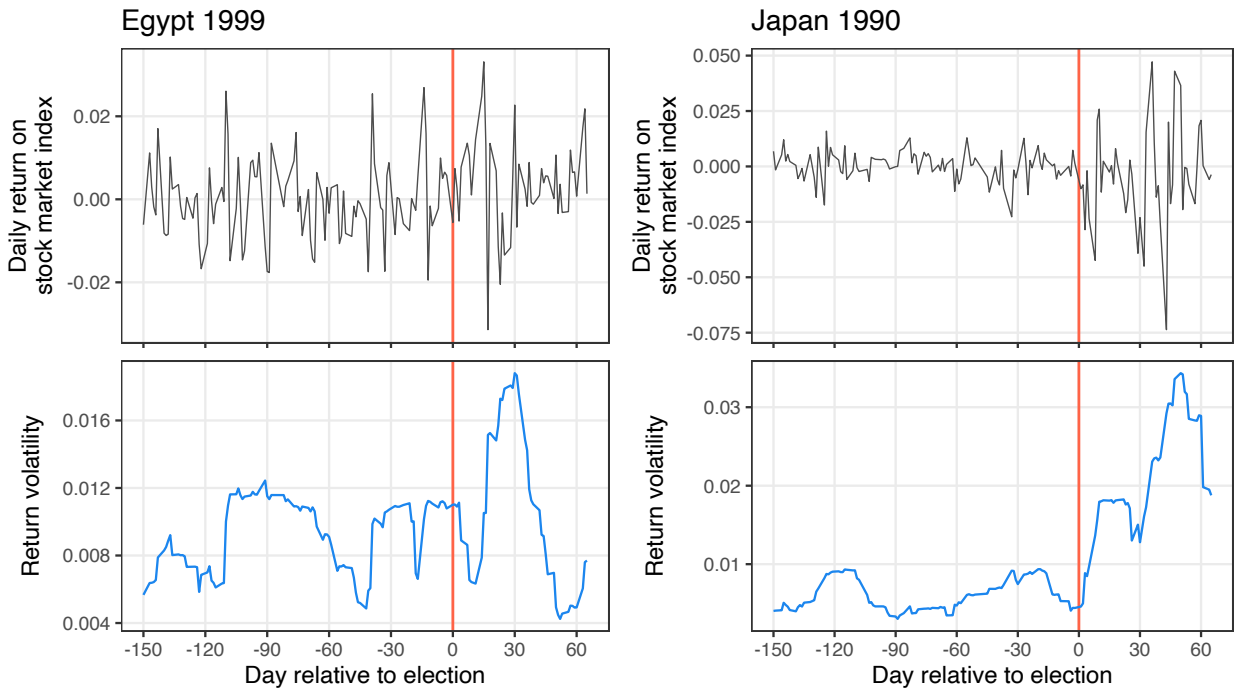

Figure 1. Stock market volatility around Egypt's 1999 presidential referendum and Japan's 1990 general election. The top panels show the daily return on the country's main stock market index and the bottom panels show the return volatility as measured by the 14-day rolling standard deviation.

certainty model could drive stock market volatility in autocracies. In the 1999 Egyptian presidential election, where Hosni Mubarak was the only candidate on the ballot, 93.8 percent of voters affirmed his selection. However, concerned about backlash from the left, Mubarak waited until after the election to appoint a pro-reform prime minister, Atef Ebeid – a move that caused an immediate market reaction.[4] As Figure 1 shows, volatility spiked in the Egyptian market following the pronouncement.

Similarly, in Japan in 1990, while there was some concern about the size of the LDP majority, most analysts were certain the party would retain control of the government.[5] The ruling party, however, delayed addressing potentially controversial issues, such as trade, which coincided with market volatility after the election.[6] According to one analyst: "With a stable majority, the Liberal Democrats have greater freedom to make concessions to the

[4]Agence France Presse. "Egypt leads Arab bourses amid high hopes for new premier." October 9, 1999.
[5]Sullivan, Kevin. "Japan's New Old Guard Set for Election Victory." The Guardian, January 25, 1990.
[6]Butts, David. "Japan Turns to Trade Issues." United Press International, February 19, 1990.

external world without fear of losing their traditional support base."[7]

With these examples in mind, we posit that the policy uncertainty model could provide explanatory power for understanding stock market volatility and lead to predictions of greater volatility in autocracies than is often presumed. To develop our intuition, we now turn to a theory of why policy uncertainty might be important in close and non-close elections in authoritarian and democratic contexts.

3 Theory: Elections and Policy Uncertainty

In developing our hypotheses, we first distinguish between the pre-electoral and post-electoral periods. Uncertainty about the victor due to competitive elections is likely to manifest prior to the election through the first day the market convenes following the election. We refer to this as the pre-electoral period. We refer to the post-electoral period as the period following the revelation of the results of the election, as this is the time when the elected leader is most likely to make announcements about the new policy directions the country will take. This is important for structuring our hypotheses, because we anticipate that the effects of electoral uncertainty and economic policy uncertainty will manifest in different periods.

Our first theoretical prediction concerns the relationship between electoral closeness and stock market volatility. Consistent with existing literature (Bernhard and Leblang 2006; Białkowski, Gottschalk, and Wisniewski 2008; Kelly, Pástor, and Veronesi 2016), greater electoral uncertainty should lead to greater stock market volatility as investors react to subtle shifts in the possibility that a given candidate will win the election. This would imply that democratic elections, particularly close elections, should lead to greater stock market volatility than autocratic ones.

However, in contrast to existing work, by distinguishing between pre-electoral and post-electoral uncertainty, we refine our predictions by suggesting that the impact of election closeness should be felt most before elections. This is because electoral closeness impacts

[7] Ibid.

volatility through conflicting interpretations of how events in the campaign will impact the success of a given candidate. This form of volatility can only last through the revelation of the election results. As such, we make the following prediction with regard to election closeness and volatility:

> H1: *Electoral closeness will increase market volatility in the pre-electoral period in democracies and autocracies.*

Additionally, as an auxiliary hypothesis, we posit that election closeness accounts for much of the difference in stock market volatility between democratic and autocratic elections. While democratic elections are on average closer, once election closeness is accounted for there should be no difference in pre-electoral volatility between democracies and autocracies.

> H2: *After accounting for electoral closeness, democracies and autocracies will feature similar levels of stock market volatility in the pre-electoral period.*

Turning to our main theoretical contribution, we suggest that election closeness does not account for all of the electoral volatility we are likely to see as a result of elections. Furthermore, the additional source of electoral volatility we theorize should not depend on whether the country is democratic or authoritarian or whether the election is close or a landslide.

In democracies, elections can drive post-electoral volatility due to uncertainty about the economic policy winners may take. Importantly, this uncertainty is not likely to be resolved until after the election. Research on campaign promises in democracies suggests that while candidates may provide some credible information on the likely policies they will adopt if elected (Grimmer 2013; Sulkin 2011; Schnakenberg 2016), they like to keep their messages as ambiguous as possible. This is because voters tend to punish candidates that are too specific in their appeals (Hersh and Schaffner 2013). For this reason, major policy directions will likely not be confirmed until after the election, even in contexts where one candidate is sure to win. This is economic policy uncertainty.

We contend this should apply to autocratic elections as well. Given the incentives autocrats have to hold elections, incumbents in autocracies will also campaign in ways that hide potentially unpopular decisions. A large literature discusses the reasons why autocrats may hold elections (Gandhi and Lust-Okar 2009). These reasons include collecting information on citizen preferences (Truex 2016; Miller 2015; Malesky and Schuler 2011), opposition strength (Geddes 2005), the quality of local officials (Manion 2015; Malesky and Schuler 2011), or regime popularity (Slater and Wong 2013). Elections may also be useful for distributing patronage (Lust-Okar 2006; Blaydes 2010). Others suggest that it may serve to signal strength (Magaloni 2006; Simpser 2013; Rozenas 2016) or disaggregate the opposition (Magaloni 2006; Diaz-Cayeros, Magaloni, and Weingast 2003).

While these incentives are not necessarily mutually exclusive, what is important is the incentives they hold for the regime to withhold information during the campaign about the autocrat's likely policy direction after the election, and how they will respond to the results once they come in. First, given these incentives, incumbent candidates in autocracies may withhold information on policy changes until after the election. Just as in democracies, autocrats want to win elections by as large a vote margin as possible. This is because of the value overwhelming victories have for signalling that the regime cannot be resisted. For this reason, autocrats often engage in electoral fraud even when it is not necessary to win the election (Simpser 2013). High electoral totals may also be useful in enforcing compliance within the bureaucracy (Gehlbach and Simpser 2015).

This assumption is backed by a large number of studies showing that autocrats hope to win high vote shares, and delay unpopular actions in order to do so. For example, studies show that autocrats "prime the pump" with high fiscal spending ahead of elections just as they do in democracies (Blaydes 2006; Pepinsky 2007; Guo 2009). Autocrats even condition repression of citizens on elections, withholding repression prior to the election to win support before resuming repression after the election is over (Bhasin and Gandhi 2013). These patterns suggest that even autocrats that have little chance of losing an election care

about their margin of victory. As the case of Mubarak's prime minister selection indicates, even autocrats with a low degree of electoral victor uncertainty may withhold unpopular decisions until after the election to run up their vote totals.

If this is the case, investors may hold their breath until the election to assess the direction the autocrat takes once the election is over, thus leading to post-electoral volatility. In fact, given the lower degree of executive constraints under authoritarian rule, we might expect greater policy shifts in an autocracy than a democracy (MacIntyre 2001; Tsebelis 2002; Jones and Olken 2005). If autocrats have an incentive to postpone decisions until after elections, they may have a greater ability to make sweeping changes than democratic leaders.

A second source of post-electoral policy uncertainty in autocracies is how autocrats will respond to election results. While the outcome of the election may be certain, elections may nonetheless contain surprises in terms of the outcome. In Singapore in 2020, for example, media reports frequently noted that, although the ruling PAP won 89 percent of seats, the fact that the opposition Worker's Party won even 11 percent was noteworthy as their largest ever total.[8] What is even more important is the potential signal this sent to the PAP that it may have to shift its policies to avoid further erosion of support.[9]

Empirical evidence bolsters the idea that authoritarian elections can lead to economic policy shifts. Miller (2015), for example, shows that after declines in vote shares, autocrats respond by increasing social spending. Based on these results, it also suggests that overwhelmingly large victories give the autocrat a large mandate to reduce social spending and devote more resources to their priorities.

Given these two mechanisms – the incentive to withhold unpopular decisions and responding to the effect of a poor or successful election performance – we suggest that the post-electoral period in authoritarian elections should also contain a great deal of economic policy uncertainty. In terms of empirical predictions, if economic policy uncertainty obtains,

[8]https://www.scmp.com/week-asia/politics/article/3092758/singapore-election-workers-partys-sengkang-win-boosts-opposition

[9]https://foreignpolicy.com/2020/07/14/singapore-election-opposition-victories-democracy-covid-19/

we should expect three empirical regularities. First, this source of volatility will be similar in democracies and autocracies. Second, it will not depend on election closeness. Third, it will manifest in the post-electoral period, once major policy decisions are announced. This leads to the following hypothesis:

> H3: *Democracies and autocracies will see increased market volatility during post-electoral periods in close and non-close elections.*

4 Data

To test our predictions, we examine stock market volatility around democratic and autocratic elections in 79 countries between 1945 and 2012, for a total of 511 elections. Our analysis proceeds in two parts. First, we conduct a volatility event study to determine whether and by how much elections in autocracies and democracies increase volatility in stock markets. Second, we use regression analysis to explicitly test our hypotheses about differences in election-induced market volatility based on regime type, election closeness, and type of uncertainty (pre-electoral uncertainty about the winner vs. post-electoral policy uncertainty).

Our study focuses on the variance, or volatility, of stock market returns. Asset price volatility is a traditional measure of uncertainty in financial markets (Freeman, Hays, and Stix 2000; Leblang and Mukherjee 2005; Berger, Dew-Becker, and Giglio 2020). A higher return variance indicates greater investor uncertainty about future returns. When it comes to elections, uncertainty produces higher stock market volatility through multiple mechanisms. First, election-related uncertainty leads to more heterogeneous return expectations among investors. Under high uncertainty, individual investors may interpret political events differently or they may assess risk differently, often taking opposing positions. Greater investor disagreement over return forecasts under uncertainty will produce more volatile stock prices (Xiong and Yan 2010; Atmaz and Basak 2018). Second, volatility can result from height-

ened subjective uncertainty. Election-related uncertainty reduces investors' confidence in their own return expectations, thus widening the confidence bands around their return forecasts (Leblang and Bernhard 2006; Bernhard and Leblang 2006; Pástor and Veronesi 2012). Finally, volatility may result from a shift towards short-term trading. When election outcomes and their policy consequences are uncertain, even otherwise minor news can easily shift investors' beliefs about the future, especially beliefs about the risk of bad news (Bittlingmayer 1998). This may result in more volatile trading behavior, which translates into higher price volatility (Gallant, Rossi, and Tauchen 1992; Mukherjee and Leblang 2007).

To assess the effect of elections on the volatility of domestic stock markets, we collect data on the daily closing price of broad-based national stock market indices. In working with historical stock market data, we face a trade-off between frequency and coverage. High frequency measurement is important when analyzing stock market volatility around elections, because most of the effect is expected to take place over a short window of a couple of months around the election. Moreover, temporal aggregation in time series data is known to cause substantial information loss about the underlying data process. Therefore, lower frequency (e.g. monthly) data is likely to obscure important dynamics in market volatility. On the other hand, daily data on national stock indices typically has more limited country and temporal coverage than aggregate data.

To maximize both measurement quality and sample coverage, we combine daily price data for the main national stock market index of each available country with the historical stock market indices constructed by Global Financial Data.[10] To avoid problems of incommensurability across different indices for the same country, we are careful not to combine prices from different indices when computing returns and when estimating model-based quantities, as described below.

The resulting data set covers 511 democratic and autocratic elections in developing and developed countries. We obtain election dates from the NELDA and V-Dem data sets

[10]We provide a full list of the included indices in the Online Supplementary Information.

(Hyde and Marinov 2012; Coppedge et al. 2016). Our sample includes presidential elections in presidential countries and general parliamentary elections in parliamentary countries, because our goal is to analyze market volatility around those elections that have the potential to change national governments and policies. For each country, the date of the first included election is determined by the starting date of its respective stock index series. In addition, the analysis only includes elections that took place at least 250 trading days ($\sim$ 1 calendar year) after the starting date of the country's stock index series. This ensures that we have enough data to model normal market behavior in the non-electoral period that precedes each election, as required by our volatility event study design (see below).

We code elections as democratic or autocratic using data from Geddes, Wright, and Frantz (2014). For our main set of analyses, we use a democracy indicator coded one if the election took place in a democratic country-year, and zero otherwise. In our sample, 81% (366) of the elections are democratic and 19% (88) are autocratic. We use a dichotomous regime type measure because our hypotheses involve discrete comparisons between democratic and autocratic elections. Among the available dichotomous measures of regime type, the GWF data overlaps the most with our stock market data in terms of country and years. Nonetheless, we report robustness checks that show that our conclusions are invariant to the choice of regime type measure.

We also collect data on election closeness, which we measure both continuously and discretely. We use the margin of victory – the difference between the vote shares of the winning candidate/party and the runner-up – as a proxy for ex ante uncertainty about the election outcome. In addition, we allow for the possibility of a non-linear relationship between winning margin and uncertainty. Stock market investors may behave qualitatively different when an election is "close enough" compared to when an election is not deemed to be close. Thus, we also use a close election indicator, coded one if the margin of victory is less than or equal to 5 percentage points, and zero otherwise. While there is no definitive cutoff for defining an election as close, previous work indicates that a 5 percentage point margin is

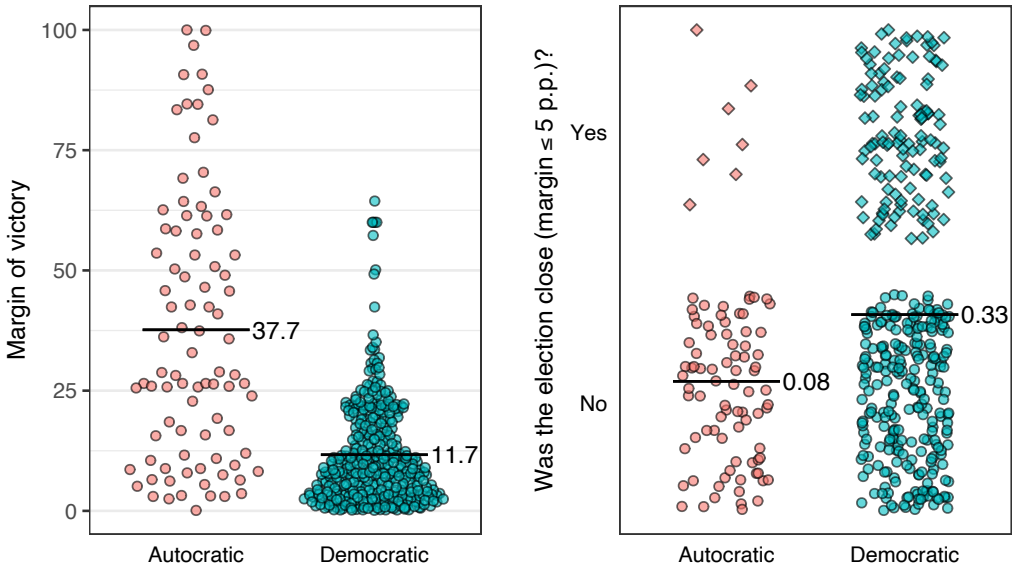

Figure 2. Distribution of electoral closeness by regime type. In the left and right panels, horizontal bars show the mean margin and the proportion of close elections by regime type, respectively.

a good approximation (Brollo and Nannicini 2012). For those countries where high-quality electoral polling is widely available, a 5-point margin will typically fall within the error range of conventional polls. In contrast, in lower information environments, such as developing countries or autocratic regimes, elections with margins greater than 5 percentage points might still be considered uncertain enough to produce stock market volatility. Therefore, in robustness checks we show that our results also hold when using a 10 percentage point cutoff.

Figure 2 shows the distribution of the margin of victory variable and the proportion of close elections across democratic and autocratic elections. The left-hand panel shows that the mean margin is 37.7 percentage points in autocratic elections and 11.7 percentage points in democratic ones. Unsurprisingly, a large number of autocratic elections are won by a high margin. Accordingly, the right-hand panel shows that 33% of democratic elections are considered close by our definition, whereas only 8% of autocratic elections are close.

5 Volatility Event Study

We first assess the effect of democratic and autocratic elections on stock market volatility using a volatility event study design. The goal of the event study is to establish descriptively our claim that autocratic and democratic elections generate market volatility after elections. Event studies have been widely used in political science to estimate the effect of political events on financial markets. However, these studies have typically focused on the effect of political events on the conditional mean of stock returns (see e.g. Bernhard and Leblang 2006; Sattler 2013). We examine instead the effect of elections on the conditional variance, or volatility, of stock market returns to directly capture the uncertainty-generating effect of elections (Białkowski, Gottschalk, and Wisniewski 2008). Here we describe the main elements of the event study design. We refer the interested reader to the Online Supplementary Information for details on estimation and inference.

We start by isolating the country-specific component of the volatility of national stock market returns. Variation in national stock market performance is typically driven by a combination of country-level and common external factors. Isolating country-specific volatility is a critical step because trends towards global financial integration have only increased co-movement among national financial markets and amplified the importance of global factors in explaining domestic market performance. To assess the impact of elections on national stock markets, one must therefore separate the country-specific component of market volatility from external sources of domestic volatility. We do so within a GARCH$(1,1)$ framework[11]:

$$\begin{aligned} R_{it} &= \alpha + \beta R_t^* + \varepsilon_{it}, \quad \varepsilon_{it} \sim N(0, h_{it}) \\ h_{it} &= \gamma_0 + \gamma_1 h_{i,t-1} + \gamma_2 \varepsilon_{i,t-1}^2, \end{aligned} \tag{1}$$

where where R_{it} and R_t^* represent the continuously compounded return on the stock market index in country i on day t and on the global stock market index on day t, respectively; ε_{it}

[11] The generalized autoregressive conditional heteroscedasticity (GARCH) model describes the conditional mean and variance as a function of exogenous covariates, as well as the size and variance of past shocks.

is the country-specific component of the return on the national stock market index; and h_{it} is the conditional variance, or volatility, of the index return. The residuals, ε_{it}, therefore capture country-level shocks to the domestic market net of common external factors.

An important decision when isolating the country-specific return is the choice of global stock market index. We face a trade-off between global representativeness and time coverage. Existing global indices such as the MSCI World Index – which tracks all developed equity markets – capture shocks originating in the world's major markets, but have limited historical coverage.[12] This restricts the number of elections that we can include in our sample. We opt instead for the S&P 500 index, the main broad-based index for the US stock market, with data that goes as far back as the 1920s. With a historical share of world stock market capitalization between 40–50%, the US is central to global equity markets and accounts for a disproportionate share of global shocks (Karolyi and Stulz 2003; Miranda-Agrippino and Rey 2020). We thus model national stock markets as a combination of country-specific returns and global returns, the latter proxied by the US market. We also perform robustness checks using the MSCI World Index to ensure that our conclusions are not driven by this choice.

To estimate election-induced abnormal volatility, we must compare the variance of the country-specific return around the election against its normal level in non-electoral periods. We use the GARCH model above to obtain the benchmark volatility for the non-electoral period. Exploiting only information from before the electoral period, we can use the model's out-of-sample volatility forecast for the electoral period as a measure of what the volatility would have been if the election had not occurred.

Białkowski, Gottschalk, and Wisniewski (2008) show that the distribution of the country-specific return during the electoral period can be described as $\varepsilon_{it} \sim N(AR_t, M_t \cdot E[h_{it}|\Omega_{t*}])$, where M_t is the multiplicative effect of the election on the stock market volatility; $E[h_{it}|\Omega_{t*}]$ is the (counterfactual) expected variance of the country-specific return during the electoral period had the election not occurred (where Ω_{t*} indicates that the volatility forecast for the

[12] Daily data for the MSCI World Index starts in 1987.

electoral period is conditioned on information available prior to the election); and AR_t is the election-induced abnormal return. Under the null hypothesis that elections do not affect stock market volatility, the multiplicative effect of elections, M_t, equals one.

Our quantity of interest is thus M_t, the effect of elections on stock market volatility. We can estimate this quantity by exploiting the cross-national variance of the country-specific return (see Białkowski, Gottschalk, and Wisniewski 2008, 1942):

$$\widehat{M_t} = \frac{1}{N-1} \times \sum_{i=1}^{N} \frac{\left(N \cdot \hat{\varepsilon}_{it} - \sum_{j=1}^{N} \hat{\varepsilon}_{jt}\right)^2}{N \cdot (N-2) \cdot E[h_{it}|\Omega_{t*}] + \sum_{j=1}^{N} E[h_{jt}|\Omega_{t*}]}, \tag{2}$$

where $\hat{\varepsilon}_{it}$ is the estimated country-specific return, computed as $\hat{\varepsilon}_{it} = R_{it} - (\hat{\alpha} + \hat{\beta} R_t^*)$.

Given that M_t equals one under the null of no election-induced volatility, the abnormal percentage change in stock market volatility on day t of the election event window is $M_t - 1$. For an election window (n_1, n_2), where n_1 is the start day of the electoral window relative to election day and n_2 is the end day of the window relative to election day, we can calculate the cumulative abnormal volatility (CAV) over the election window as:

$$\text{CAV}(n_1, n_2) = \left(\sum_{t=n_1}^{n_2} \widehat{M_t}\right) - (n_2 - n_1 + 1). \tag{3}$$

The cumulative abnormal volatility provides an intuitive way to assess the total accumulated impact of elections on stock market volatility relative to the normal volatility in non-electoral times. We calculate the cumulative abnormal volatility over the $(-21, 21)$ event window, that is, from 21 trading days before to 21 trading days after the election (~ 1 calendar month before and after the election).[13] This allows us to evaluate the contribution of pre-electoral uncertainty, post-electoral uncertainty, and the election-day surprise itself to stock market volatility. We can test the hypothesis of CAV $= 0$ for any portion of the event window using the procedures described in the Online Supplementary Information. Us-

[13] If the election takes place on a weekend or holiday, we count from the first trading day after the election.

ing this strategy, we first estimate election-induced abnormal volatility in the full sample of elections. We then assess the degree of heterogeneity across regime types by estimating abnormal volatility separately in democratic and autocratic elections.

5.1 Results

Figure 3 shows the behavior of cumulative abnormal volatility (CAV) around elections for the pooled sample of 511 democratic and autocratic elections. Cumulative abnormal volatility is calculated over the $(-21, 21)$ event window defined in terms of the number of trading days relative to the election day. The bottom panel shows p-values for the null hypothesis of no increase in the country-specific return variance.

Figure 3 shows that volatility significantly increases after elections. The cumulative abnormal volatility estimates indicate some pre-electoral volatility, but most of the effect is observed around the election day and after the election. Overall, we find increases in volatility at three different moments. Volatility first increases in the run-up to elections, a finding consistent with previous work that emphasizes the effects of ex ante uncertainty about the election winner. Abnormal volatility also increases significantly on election day. Indeed, in elections where there is at least some uncertainty about the outcome, stock prices will react on or immediately after the election day, as new information is revealed about the identity of the winner. Finally, we find a steep rise in abnormal stock market volatility following the election, as predicted by our argument.

A sustained increase in volatility after the election indicates that uncertainty is not entirely resolved as the election comes to an end. Significant post-electoral volatility is consistent with our notion of economic policy uncertainty. We note that post-electoral volatility could also be driven by uncertainty over delayed vote counts, legal challenges to the results, or protracted coalition building processes. However, below we show that such residual uncertainty over election results cannot fully account for the sharp increase in post-electoral volatility, because even predictable and decisive elections in both democracies and

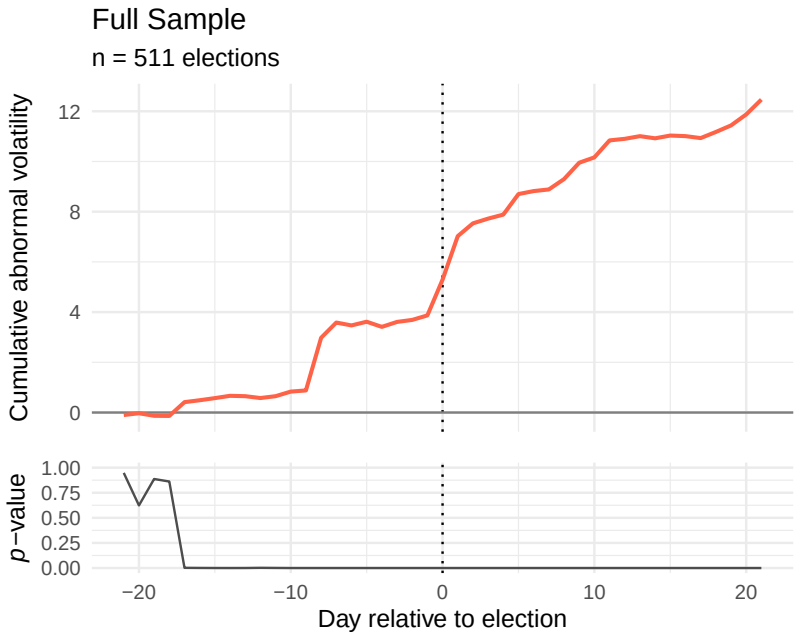

Figure 3. Cumulative abnormal volatility around election day. The p-values in the bottom panel are obtained from a χ^2-test for the null hypothesis of no change in country-specific volatility.

autocracies experience heightened volatility in the post-election period.

In Figure 4, we break down cumulative abnormal volatility around elections by regime type. The graph underscores important similarities between democratic and autocratic elections. Foremost, we find that both autocratic and democratic elections are accompanied by significant post-electoral volatility. A comparison of cumulative abnormal volatility in panels A and B shows a sharp increase in volatility after the election, regardless of regime type. The increase in post-electoral volatility observed in the pooled sample (Figure 3) thus cannot be entirely explained by uncertainty over coalition bargaining or delayed vote counts in democratic regimes.

Nonetheless, there are also marked differences across regime types. In the run-up to elections, market volatility discernibly increases in democracies, but not in autocracies. In fact, in autocracies volatility appears to decrease at first and then rise immediately before the election. The p-values in panel B show that changes in abnormal volatility in autocratic elections only reach conventional levels of statistical significance on election day and thereafter. Furthermore, in contrast to autocracies, democracies typically experience a larger

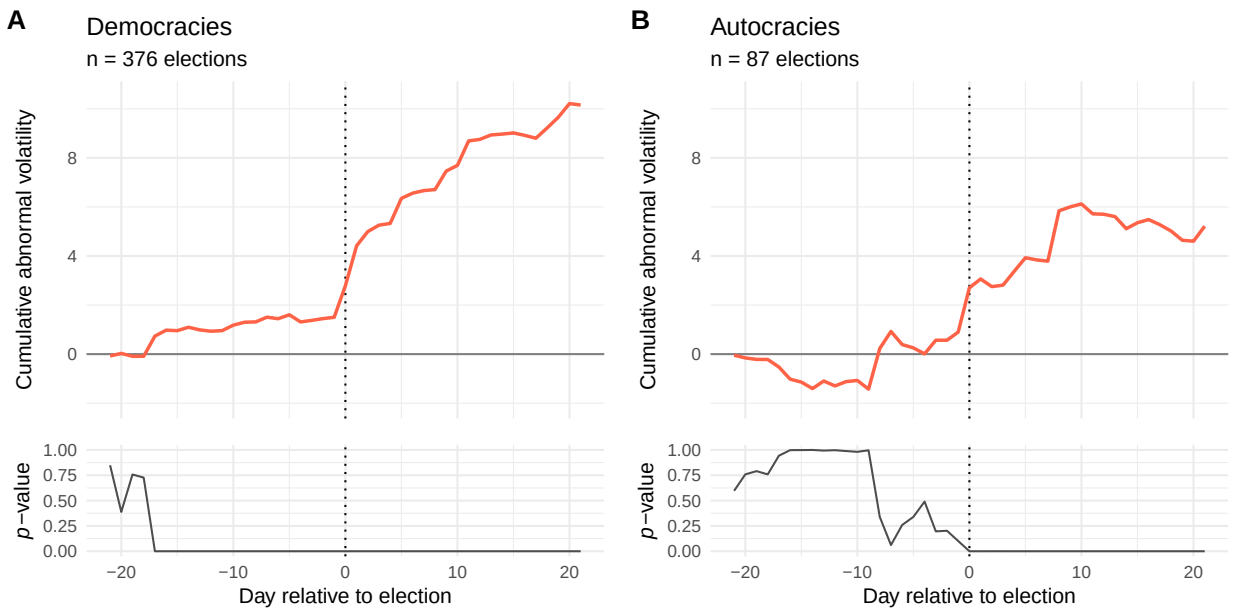

Figure 4. Cumulative abnormal volatility around election day by regime type. The p-values in the bottom panels are obtained from a χ^2-test for the null hypothesis of no change in country-specific volatility.

election surprise. Panel A in Figure 4 shows a steep increase in volatility just around the election day in democratic elections, while autocratic elections do not produce as large a surprise.

In Table 1, we further inspect these differences by examining the behavior of cumulative abnormal volatility in democratic and autocratic elections over varying event windows. Panels A and B show windows of increasing size for the pre- and post-election periods, respectively. The table reports the cumulative abnormal volatility calculated over each window, as well as the implied percentage change in the country-specific volatility for ease of interpretation.[14] The results confirm that the main difference between democratic and autocratic elections is the election surprise – the sharp increase in volatility immediately around the election day. Panel A estimates indicate that in democracies stock market volatility increases by 134% over the $(-2, 1)$ window – that is, from two days before to one day after the election. Autocratic elections also produce a significant election surprise on average, but

[14]The implied percentage increase in volatility relative to its non-electoral benchmark equals the CAV divided by the number of days in the event window: $\text{CAV}/(n_2 - n_1 + 1)$.

Table 1. Cumulative abnormal volatility before and after elections by regime type

	Democracies			Autocracies		
Window	CAV	Implied % change	p-value	CAV	Implied % change	p-value
A: Pre-election event window (including election)						
$(-2, 1)$	5.36	133.88	0.000	2.02	50.57	0.000
$(-5, 1)$	5.42	77.41	0.000	3.57	50.94	0.000
$(-10, 1)$	4.96	41.31	0.000	4.21	35.06	0.000
$(-21, 1)$	4.42	19.21	0.000	3.16	13.72	0.000
B: Post-election event window						
$(2, 5)$	1.15	28.72	0.000	0.95	23.63	0.002
$(2, 8)$	1.03	14.69	0.000	3.48	49.70	0.000
$(2, 12)$	2.43	22.07	0.000	4.31	39.18	0.000
$(2, 21)$	3.01	15.05	0.000	3.79	18.95	0.000

Notes: The data set consists of 383 democratic elections held in 64 countries and 88 autocratic elections held in 28 countries. The implied percentage change in country-specific volatility relative to the non-electoral benchmark is reported in the third and sixth columns. An event window of 21 trading days corresponds to one calendar month. p-values are obtained from a χ^2-test for the null hypothesis of no change in country-specific volatility. A list of included countries and elections appears in the Online Supplementary Information.

of a lower magnitude – a 50% increase in volatility immediately around election day relative to the non-electoral benchmark.

Despite these differences, panel B in Table 1 shows that the post-election increase in volatility is remarkably similar in size across regime types. If anything, autocracies may even be more volatile than democracies. Over the period of two weeks following the election, CAV$(2, 12)$[15], stock market volatility is 22% higher in democracies and 39% higher in autocracies relative to the non-electoral benchmark. Similarly, over the window of one month following the election, CAV$(2, 21)$, cumulative abnormal volatility is 15% higher in democracies and 19% higher in autocracies relative to the non-electoral benchmark.

[15]Remember that the event window is defined in trading days. Therefore, a $(2, 12)$ window spans 10 trading days, which is equivalent to 14 calendar days.

6 Regression Analysis of Election-Induced Volatility

We further assess these differences and formally test our hypotheses about differences in election-induced volatility due to regime type, election closeness, and type of uncertainty (pre-electoral outcome uncertainty vs. post-electoral policy uncertainty) in a regression framework. In the regression analysis, the unit of analysis is the election and the dependent variable is the excess market volatility during the electoral period. Excess volatility is calculated for each election as the natural logarithm of the volatility ratio – the latter defined as the quotient of the return variance computed over the electoral event window and the return variance in non-electoral periods.

For the pre-electoral period, we calculate $ln\Big(var\big(\hat{\varepsilon}_{it}^{pre-electoral}\big)\Big/var\big(\hat{\varepsilon}_{it}^{non-electoral}\big)\Big)$, where the variance of the country-specific return in the pre-electoral period, $var\big(\hat{\varepsilon}_{it}^{pre-electoral}\big)$, is computed over the $(-21, 1)$ window – that is, for the period of 21 trading days before the election through the day after the results are announced. As we discuss below, this is consistent with the notion that uncertainty driven by the outcome of the election should manifest until the day the results are announced.

We calculate post-electoral excess volatility as $ln\Big(var\big(\hat{\varepsilon}_{it}^{post-electoral}\big)\Big/var\big(\hat{\varepsilon}_{it}^{non-electoral}\big)\Big)$, where the variance of the country-specific return after the election, $var\big(\hat{\varepsilon}_{it}^{post-electoral}\big)$, is calculated over the $(2, 21)$ window – that is, over the period of 2 to 21 trading days after the election. The resulting measure of excess volatility takes positive values when stock market volatility is higher in electoral periods than in non-electoral periods, and negative values when market volatility is lower around elections than in non-electoral periods. Elections that have little to no effect on stock market volatility will have excess volatility close to zero.

Note that the election day and the day after the election are included in the pre-electoral window but not the post-electoral window. As noted in the theory section, we conceive of the pre-electoral period as those days when the identity of the winner is not known through the point when the winner is revealed. As we show below, volatility rises on election day and the day after, likely reflecting the case that in many countries the first trading day may occur

after election day, as the results will be revealed in the evening or possibly the following day. Defining the pre- and post-electoral windows in this way allows us to distinguish between pre-electoral uncertainty over the election outcome and post-electoral policy uncertainty. This ensures that any volatility caused by the election surprise is not mistaken for post-election policy uncertainty, but rather is correctly attributed to uncertainty over the winner.

For the denominator of our excess volatility measure, we calculate the normal, non-electoral return variance, $var\left(\hat{\varepsilon}_{it}^{non-electoral}\right)$, as the median of the empirical distribution of return variances in non-electoral periods. To obtain this empirical distribution of non-electoral volatility, for each election we randomly sample sequences of consecutive non-electoral days – defined as those periods that do not fall within six months of an election – with each sequence having the same length as the election window. These non-electoral samples are drawn from a total period of up to ten years prior to the election in question, over which we estimate the country-specific daily returns using the same GARCH specification from Eq. 1. For each sampled non-electoral period, we obtain the variance of the daily country-specific return, and we repeat this process 5,000 times to form an empirical distribution of non-electoral return variances. We use the median of this distribution as the denominator in our measure of excess volatility for each election in the sample.

This strategy for estimating the normal, non-electoral return variance addresses a few measurement challenges. First, we define non-electoral periods conservatively as those periods that do not fall within six months before or after an election. This ensures that the effect of elections does not spill over onto our measure of normal, non-electoral volatility. Second, we only use observations prior to the election when generating the non-electoral distribution, so that any longer-run effects of an election do not contaminate our baseline estimates of normal volatility for that election. Finally, we use the median of the empirical distribution to capture the typical return volatility in non-electoral periods to avoid problems arising from the fat-tailed nature of stock return distributions. If some of the sampled periods contain unusually high-variance observations, the median will be a more reliable measure of the

typical non-electoral volatility than the mean.

We regress excess volatility on regime type, electoral closeness, and timing (pre- vs. post-electoral period). In our main analyses, we use a country fixed effects specification to account for unobserved, time invariant country-level factors that might affect both election-related uncertainty and stock market volatility. This strategy relies on within-country variation in excess volatility, and therefore leverages information from those countries that have undergone any regime changes in the period. We also report additional analyses that show that our conclusions are the same across countries as they are within countries over time. To account for within-country error correlation, all analyses cluster standard errors at the country level.

6.1 Results

Table 2 shows results for regressions of excess volatility on election closeness and regime type. The top panel shows results for excess volatility computed over the pre-electoral period, including the election. The pre-electoral event window, $(-21, 1)$, ranges from one calendar month before the election to one day after the election. It thus captures any market volatility that is due to ex ante uncertainty about the election outcome, as well as the election surprise. The bottom panel shows results for the post-electoral period, as captured by the $(2, 21)$ event window, ranging from two days to one calendar month after the election. Table 2 shows estimates for two measures of electoral closeness: margin of victory, defined as the difference in the percentage vote share between the winner and the runner-up, and a binary indicator for close elections, coded one if the margin of victory ≤ 5 percentage points, and zero otherwise.

We find strong evidence for Hypothesis 1, which posits that electoral closeness will increase pre-electoral volatility in democracies and autocracies. Table 2 shows that electoral closeness is strongly associated with stock market volatility in the pre-electoral period. Elections with smaller margins generate higher volatility, as indicated by the negative and statistically significant coefficients for the margin of victory variable in the top panel. In the

Table 2. Election closeness, regime type, and excess stock market volatility around elections

	Dependent Variable:					
	Excess Stock Market Volatility *Before Election* $(-21, 1)$					
	Full Sample		Democracies Only		Autocracies Only	
	(1)	(2)	(3)	(4)	(5)	(6)
Margin of Victory	-0.021^{***}		-0.019^{***}		-0.021^{**}	
	(0.005)		(0.007)		(0.010)	
Close Election (≤ 5 p.p.)		0.456^{***}		0.364^{**}		1.379^{***}
		(0.145)		(0.141)		(0.449)
Democracy	-0.227	-0.252				
	(0.294)	(0.344)				
R^2	0.222	0.206	0.215	0.212	0.433	0.414
	Dependent Variable:					
	Excess Stock Market Volatility *After Election* $(2, 21)$					
	Full Sample		Democracies Only		Autocracies Only	
	(7)	(8)	(9)	(10)	(11)	(12)
Margin of Victory	-0.006		-0.0003		-0.006	
	(0.006)		(0.009)		(0.005)	
Close Election (≤ 5 p.p.)		0.158		0.107		0.254
		(0.198)		(0.206)		(0.263)
Democracy	-0.073	-0.084				
	(0.288)	(0.310)				
R^2	0.223	0.223	0.214	0.215	0.433	0.429
Observations	453	453	365	365	88	88
Countries	74	74	61	61	27	27
Country Fixed Effects	✓	✓	✓	✓	✓	✓

Table shows results of fixed effects regressions of excess stock market volatility. Clustered standard errors at the country level in parentheses. $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

run-up to elections, a one-standard-deviation decrease in the margin of victory ($\Delta = -18.5$) is associated with a 32% increase in volatility (model 1).[16] However, the margin of victory measure could underestimate the effect of electoral closeness on volatility if the stock market

[16]Excess volatility is measured on a log-ratio scale; therefore, a β difference corresponds to a $(e^{\beta} - 1) \times 100$ percent difference in excess volatility.

reaction is qualitatively different for elections that are "close enough" than for those that are not considered close at all. Indeed, we find that in the run-up to elections, excess stock market volatility is 58% higher in close elections than in non-close elections (model 2).

In addition, H1 predicts that the pre-electoral effect of close elections should occur in both democracies and autocracies. Models 3 and 4 in Table 2 estimate the effect of election closeness in democracies only, while models 5 and 6 show results for autocracies. In both subsamples, electoral closeness is strongly associated with pre-electoral volatility. In fact, the results suggest that electoral closeness may even have a larger effect in autocracies than democracies. While this finding may appear surprising at first, it is consistent with existing views on democracy as a system characterized by institutionalized uncertainty (Przeworski 1991, 10). While democratic elections are closer on average than autocratic ones, autocracies' weak constraints on incumbent behavior, electoral competition, and the potential transfer of power mean that close autocratic elections are likely to produce especially high levels of uncertainty.

Table 2 also provides strong evidence for H2, which posits that after accounting for electoral closeness, autocracies and democracies should feature similar levels of pre-electoral volatility. We find no statistically significant difference in stock market volatility in the pre-electoral period across regime types. Indeed, democracies may even be less volatile than autocracies given equally close elections, as suggested by the negative coefficients on the democracy indicator, although we cannot rule out the null of no difference. However, we must note that inferences on the democracy variable may be faulty if election closeness is an intermediate outcome linking regime type and election-induced volatility. To be sure, we estimate additional baseline models where we only include our democracy indicator, which we report in the Online Supplementary Information. Across different baseline specifications and event windows, we find no evidence of differences in election-induced volatility across regime types.

Finally, we find that democracies and autocracies experience increased market volatility

Table 3. Pre-electoral vs. post-electoral excess stock market volatility

	Dependent Variable:	
	Excess Stock Market Volatility Pre $(-21, 1)$ vs. Post $(2, 21)$	
	(1)	(2)
Pre-Election Period	−0.186	−0.186
	(0.117)	(0.117)
Close Election (≤ 5 p.p.)	0.158	0.163
	(0.160)	(0.188)
Pre-Election × Close Election	0.336***	0.336**
	(0.130)	(0.130)
Democracy	−0.048	−0.240
	(0.148)	(0.332)
Constant	0.169	
	(0.127)	
Observations	954	954
Countries	74	74
Country Fixed Effects		✓
R^2	0.015	0.156

Table shows results of regressions of excess stock market volatility. Clustered standard errors at the country level in parentheses. $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

in the post-electoral period both in close and non-close elections, as posited by H3. Table 3 reports a formal test of this hypothesis, where we interact electoral closeness with an indicator of the pre-electoral period, the latter coded one if excess volatility is calculated over the pre-election window and zero if it is calculated over the post-election window. For this test, the data are in "long" format, with two observations per election – one for pre-election and another for post-election excess volatility. The unit of analysis is thus the election-period. Models 1 and 2 in Table 3 report estimates without and with country fixed effects, respectively, for comparison.

The positive intercept in model 1 indicates increased volatility in the post-electoral period in non-close elections relative to the non-electoral benchmark; moreover, post-electoral volatility in close elections is even higher, as can be gathered by adding the close election co-

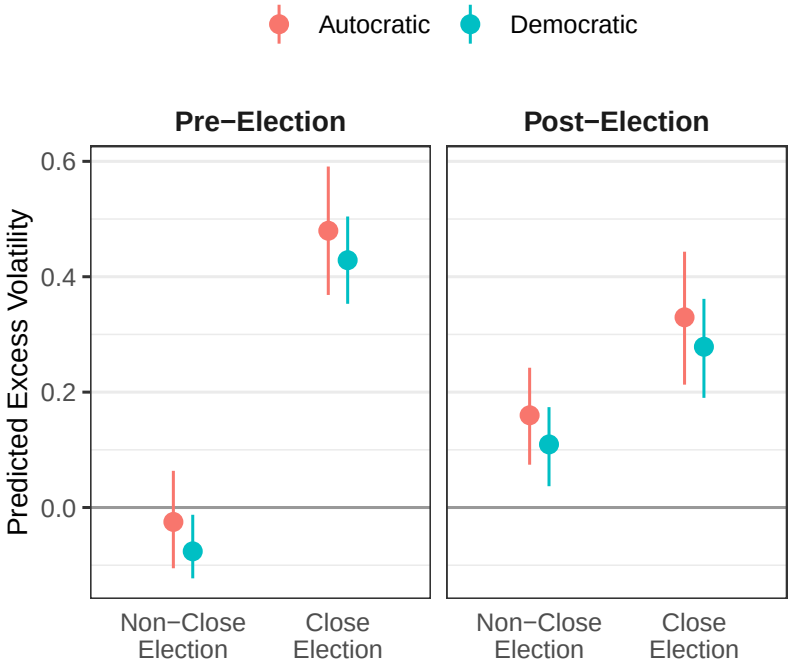

Figure 5. Predicted excess stock market volatility by electoral closeness for democracies and autocracies before and after the election. Estimates from model 1, Table 3. Vertical bars are bootstrapped 95% confidence intervals.

efficient to the intercept. These estimates confirm our event study findings of post-electoral volatility in democracies and autocracies alike, suggesting the importance of post-electoral policy uncertainty. Moreover, models 1 and 2 provide evidence that election closeness matters more for pre-electoral volatility than post-electoral volatility. This further indicates that much of the post-electoral volatility we see in our data is not driven by election closeness, but instead by policy changes.

Figure 5 further underscores the evidence for the post-electoral policy uncertainty mechanism. The plot compares the predicted excess volatility in close and non-close elections for democracies and autocracies before and after elections. Excess volatility is highest in the run-up to close elections, and lowest in the run-up to predictable elections. Indeed, there is no evidence of excess volatility before predictable elections. More importantly, as predicted by our argument, autocracies and democracies experience excess volatility in the post-electoral period even when the election is not close. Converting excess volatility pre-

dictions from log-ratios to percentages, we find that in the month after close elections, stock market volatility is 49% higher in democracies and 51% higher in autocracies relative to the non-electoral benchmark. Similarly, in the month after non-close elections, volatility is 41% higher in democracies and 43% higher in autocracies relative to the non-electoral benchmark.

This aligns with H3, which suggests that post-electoral volatility should exist in democracies and autocracies and be relatively independent of election closeness. While electoral closeness does impact post-electoral volatility somewhat in both democracies and autocracies, it has a substantially smaller impact on post-electoral volatility than on pre-electoral volatility. Furthermore, the small effect that closeness has on post-electoral volatility could be a function of results that are not known until several days after the election.

7 Robustness

In this section, we addresses potential concerns with the previous analysis. One concern is with our measure of democracy and autocracy. To assess whether the lack of difference between democracy and autocracy in volatility is particular to our use of the Geddes, Wright, and Frantz (2014) measure, we replicate the analysis of cumulative abnormal volatility around elections using the Polity IV measure to compare electoral volatility across regime types, with no substantive change in our findings.

Another possible concern is that elections may correspond to factors other than economic uncertainty that could drive post-electoral volatility. To account for this, we show that our regression results hold when we adjust for variables that may be related to both electoral uncertainty and stock market volatility. Economic crises may heighten electoral uncertainty, since poor economic conditions disadvantage incumbents, shrink governing majorities, strengthen the opposition, produce social unrest, and increase overall political uncertainty, while also causing financial market instability (Funke, Schularick, and Trebesch 2016). We thus control for the NELDA indicator of whether an election occurred under

economic crisis. The extent to which elections cause volatility may also be associated with the size and level of development of the stock market, since countries with big stock markets have more efficient, less volatile markets (Demirgüç-Kunt and Levine 1996). We thus adjust for stock market capitalization as a share of GDP. Furthermore, because economic development is related to both regime type and stock market development, we show that our conclusions hold when accounting for GDP per capita.

Finally, we explore different fixed effects specifications. Our main results are based on within-country variation in election-induced volatility using a country fixed effects strategy. To complement this strategy, we explore a two-way (country and year) fixed effects specification to account for common external shocks and time trends. Growing levels of global financial integration have left national financial markets increasingly susceptible to global economic shocks (Quinn and Voth 2008). Moreover, trends towards financial liberalization may be associated with a greater incidence of financial crises and periods of high volatility in global markets (Obstfeld and Taylor 2004). Year fixed effects allow us to flexibly account for these common shocks and trends. Alternatively, because our within-country estimates only use variation from those countries that have undergone regime changes in the period under analysis, we exploit cross-sectional variation in excess volatility by using specifications with no fixed effects. Our findings remain the same across countries as they do within countries over time. Results for all robustness analyses appear in the Online Supporting Information.

8 Conclusion

Electoral uncertainty – meaning uncertainty about the winner of a given election – is a hallmark of democracies. This commonsense notion is the foundation of canonical political science data sets and also undergirds literature examining the link between markets and elections. In this paper, we build on existing research suggesting that elections may contain uncertainty about more than simply the winner of the election. Elections may also delay the

revelation about the policy directions countries will take, even in cases where the winner of the election is relatively certain. We demonstrate our argument using measures of uncertainty derived from stock market returns.

In making our argument, we augment rather than upend existing wisdom. Indeed, part of our results confirm the fact that election uncertainty is higher in democracies and that this uncertainty drives market volatility. However, we also find that there is a fixed degree of uncertainty accompanying any election where people go to the polls, even if only to ratify a single candidate. That uncertainty results from the incentive politicians have to hide potentially unpopular decisions until after elections are over. Using stock market data, we find that in close and non-close elections in democracies and autocracies alike, market volatility increases as victors announce their policies to unsuspecting electorates. For this reason, scholars and observers are right to pay attention to elections, even in cases where the identity of the winner is a foregone conclusion.

References

Ahmed, Walid M.A. 2017. "The Impact of Political Regime Changes on Stock Prices: The Case of Egypt." *International Journal of Emerging Markets* 12(3): 508–531.

Atmaz, Adem, and Suleyman Basak. 2018. "Belief Dispersion in the Stock Market." *The Journal of Finance* 73(3): 1225–1279.

Bechtel, Michael M. 2009. "The Political Sources of Systematic Investment Risk: Lessons from a Consensus Democracy." *The Journal of Politics* 71(2): 661–677.

Berger, David, Ian Dew-Becker, and Stefano Giglio. 2020. "Uncertainty Shocks as Second-Moment News Shocks." *The Review of Economic Studies* 87(1): 40–76.

Bernhard, William, and David Leblang. 2006. *Democratic Processes and Financial Markets: Pricing Politics*. New York, NY: Cambridge University Press.

Bhasin, Tavishi, and Jennifer Gandhi. 2013. "Timing and Targeting of State Repression in Authoritarian Elections." *Electoral Studies* 32(4): 620–631.

Białkowski, Jędrzej, Katrin Gottschalk, and Tomasz Piotr Wisniewski. 2008. "Stock Market Volatility around National Elections." *Journal of Banking & Finance* 32(9): 1941–1953.

Bittlingmayer, George. 1998. "Output, Stock Volatility, and Political Uncertainty in a Natural Experiment: Germany, 1880–1940." *The Journal of Finance* 53(6): 2243–2257.

Blaydes, Lisa. 2006. "Electoral Budget Cycles under Authoritarianism: Economic Opportunism in Mubarak's Egypt." *Paper presented at the Annual Meeting of the American Political Science Association* .

Blaydes, Lisa. 2010. *Elections and Distributive Politics in Mubarak's Egypt*. Cambridge University Press.

Brancati, Dawn. 2016. *Democracy Protests*. Cambridge University Press.

Brollo, Fernanda, and Tommaso Nannicini. 2012. "Tying Your Enemy's Hands in Close Races: The Politics of Federal Transfers in Brazil." *The American Political Science Review* 106(4): 742–761.

Cheibub, José Antonio, Jennifer Gandhi, and James Raymond Vreeland. 2010. "Democracy and Dictatorship Revisited." *Public Choice* 143(1): 67–101.

Coppedge, Michael, John Gerring, Staffan I. Lindberg, Svend-Erik Skaaning, Jan Teorell, David Altman, Michael Bernhard, M. Steven Fish, Adam Glynn, Allen Hicken, Carl Henrik Knutsen, Kyle Marquardt, Kelly McMann, Farhad Miri, Pamela Paxton, Daniel Pemstein, Jeffrey Staton, Eitan Tzelgov, Yi-ting Wang, and Brigitte Zimmerman. 2016. "V-Dem [Country-Year/Country-Date] Dataset V6." *Varieties of Democracy (V-Dem) Project* .

Demirgüç-Kunt, Asli, and Ross Levine. 1996. "Stock Market Development and Financial Intermediaries: Stylized Facts." *The World Bank Economic Review* 10(2): 291–321.

Diaz-Cayeros, Alberto, Beatriz Magaloni, and Barry R. Weingast. 2003. "Tragic Brilliance: Equilibrium Hegemony and Democratization in Mexico." *Working Paper, Stanford University* .

Dinas, Elias, and Ksenia Northmore-Ball. 2020. "The Ideological Shadow of Authoritarianism." *Comparative Political Studies* 53(12): 1957–1991.

Freeman, John R., Jude C. Hays, and Helmut Stix. 2000. "Democracy and Markets: The Case of Exchange Rates." *American Journal of Political Science* 44(3): 449–468.

Funke, Manuel, Moritz Schularick, and Christoph Trebesch. 2016. "Going to Extremes: Politics after Financial Crises, 1870–2014." *European Economic Review* 88: 227–260.

Gallant, A. Ronald, Peter E. Rossi, and George Tauchen. 1992. "Stock Prices and Volume." *The Review of Financial Studies* 5(2): 199–242.

Gandhi, Jennifer, and Ellen Lust-Okar. 2009. "Elections Under Authoritarianism." *Annual Review of Political Science* 12(1): 403–422.

Geddes, Barbara. 2005. "The Role of Elections in Authoritarian Regimes." *Paper presented at the Annual Meeting of the American Political Science Association, Washington, DC* .

Geddes, Barbara, Joseph Wright, and Erica Frantz. 2014. "Autocratic Breakdown and Regime Transitions: A New Data Set." *Perspectives on Politics* 12(2): 313–331.

Gehlbach, Scott, and Alberto Simpser. 2015. "Electoral Manipulation as Bureaucratic Control." *American Journal of Political Science* 59(1): 212–224.

Goodell, John W., and Sami Vähämaa. 2013. "US Presidential Elections and Implied Volatility: The Role of Political Uncertainty." *Journal of Banking & Finance* 37(3): 1108–1117.

Goodell, John W., Richard J. McGee, and Frank McGroarty. 2020. "Election Uncertainty, Economic Policy Uncertainty and Financial Market Uncertainty: A Prediction Market Analysis." *Journal of Banking & Finance* 110: 105684.

Grimmer, Justin. 2013. *Representational Style in Congress: What Legislators Say and Why It Matters*. Cambridge University Press.

Guo, Gang. 2009. "China's Local Political Budget Cycles." *American Journal of Political Science* 53(3): 621–632.

Hafner-Burton, Emilie M., Brad L. LeVeck, David G. Victor, and James H. Fowler. 2014. "Decision Maker Preferences for International Legal Cooperation." *International Organization* 68(September): 845–876.

Harish, S. P., and Andrew T. Little. 2017. "The Political Violence Cycle." *American Political Science Review* 111(2): 237–255.

Hegre, Håvard, Tanja Ellingsen, Scott Gates, and Nils Petter Gleditsch. 2001. "Toward a Democratic Civil Peace? Democracy, Political Change, and Civil War, 1816-1992." *The American Political Science Review* 95(1): 33–48.

Hersh, Eitan D., and Brian F. Schaffner. 2013. "Targeted Campaign Appeals and the Value of Ambiguity." *The Journal of Politics* 75(2): 520–534.

Hyde, Susan D., and Nikolay Marinov. 2012. "Which Elections Can Be Lost?" *Political Analysis* 20(2): 191–210.

Jensen, Nathan M., and Scott Schmith. 2005. "Market Responses to Politics: The Rise of Lula and the Decline of the Brazilian Stock Market." *Comparative Political Studies* 38(10): 1245–1270.

Jones, Benjamin F., and Benjamin A. Olken. 2005. "Do Leaders Matter? National Leadership and Growth Since World War II." *The Quarterly Journal of Economics* 120(3): 835–864.

Julio, Brandon, and Youngsuk Yook. 2012. "Political Uncertainty and Corporate Investment Cycles." *The Journal of Finance* 67(1): 45–83.

Karolyi, G. Andrew, and René M. Stulz. 2003. "Are Financial Assets Priced Locally or Globally?" In *Handbook of the Economics of Finance*, ed. George M. Constantinides, Milton Harris, and René M. Stulz. Vol. 1B Elsevier pp. 975–1020.

Kelly, Bryan, Lubos Pástor, and Pietro Veronesi. 2016. "The Price of Political Uncertainty: Theory and Evidence from the Option Market." *The Journal of Finance* 71(5): 2417–2480.

Knutsen, Carl Henrik, Håvard Mokleiv Nygård, and Tore Wig. 2017. "Autocratic Elections: Stabilizing Tool or Force for Change?" *World Politics* 69(1): 98–143.

Leblang, David, and Bumba Mukherjee. 2005. "Government Partisanship, Elections, and the Stock Market: Examining American and British Stock Returns, 1930–2000." *American Journal of Political Science* 49(4): 780–802.

Leblang, David, and William Bernhard. 2006. "Parliamentary Politics and Foreign Exchange Markets: The World According to GARCH." *International Studies Quarterly* 50(1): 69–92.

Lehkonen, Heikki, and Kari Heimonen. 2015. "Democracy, Political Risks and Stock Market Performance." *Journal of International Money and Finance* 59: 77–99.

Liew, Venus Khim-Sen, and Racquel Rowland. 2016. "The Effect of Malaysia General Election on Stock Market Returns." *SpringerPlus* 5(1): 1975.

Lust-Okar, Ellen. 2006. "Elections under Authoritarianism: Preliminary Lessons from Jordan." *Democratization* 13(3): 456–471.

MacIntyre, Andrew. 2001. "Institutions and Investors: The Politics of the Economic Crisis in Southeast Asia." *International Organization* 55(01): 81–122.

Magaloni, Beatriz. 2006. *Voting for Autocracy: Hegemonic Party Survival and Its Demise in Mexico*. Cambridge University Press.

Malesky, Edmund, and Paul Schuler. 2011. "The Single-Party Dictator's Dilemma: Information in Elections without Opposition." *Legislative Studies Quarterly* 36(4): 491–530.

Manion, Melanie. 2015. *Information for Autocrats: Representation in Chinese Local Congresses*. Cambridge University Press.

Miller, Michael K. 2015. "Elections, Information, and Policy Responsiveness in Autocratic Regimes." *Comparative Political Studies* 48(6): 691–727.

Miranda-Agrippino, Silvia, and Hélène Rey. 2020. "U.S. Monetary Policy and the Global Financial Cycle." *The Review of Economic Studies* 87(6): 2754–2776.

Mukherjee, Bumba, and David Leblang. 2007. "Partisan Politics, Interest Rates and the Stock Market: Evidence from American and British Returns in the Twentieth Century." *Economics & Politics* 19(2): 135–167.

Obstfeld, Maurice, and Alan M. Taylor. 2004. *Global Capital Markets: Integration, Crisis, and Growth*. Cambridge University Press.

Pástor, Ľuboš, and Pietro Veronesi. 2012. "Uncertainty about Government Policy and Stock Prices." *The Journal of Finance* 67(August): 1219–1264.

Pepinsky, Thomas. 2007. "Autocracy, Elections, and Fiscal Policy: Evidence from Malaysia." *Studies in Comparative International Development* 42(1): 136–163.

Pop-Eleches, Grigore, and Graeme B. Robertson. 2015. "Information, Elections, and Political Change." *Comparative Politics* 47(4): 459–495.

Przeworski, Adam. 1991. *Democracy and the Market: Political and Economic Reforms in Eastern Europe and Latin America*. New York: Cambridge University Press.

Przeworski, Adam, Michael E. Alvarez, and José Antonio Cheibub. 2000. *Democracy and Development: Political Institutions and Well-Being in the World, 1950-1990*. Cambridge University Press.

Quinn, Dennis P., and Hans-Joachim Voth. 2008. "A Century of Global Equity Market Correlations." *American Economic Review* 98(2): 535–540.

Rozenas, Arturas. 2016. "Office Insecurity and Electoral Manipulation." *The Journal of Politics* 78(1): 232–248.

Sattler, Thomas. 2013. "Do Markets Punish Left Governments?" *The Journal of Politics* 75(02): 343–356.

Schnakenberg, Keith E. 2016. "Directional Cheap Talk in Electoral Campaigns." *The Journal of Politics* 78(2): 527–541.

Schuler, Paul J., Dimitar D. Gueorguiev, and Francisco Cantu. 2013. "Risk and Reward: The Differential Impact of Authoritarian Elections on Regime Decay and Breakdown." *Working Paper* (December).

Simpser, Alberto. 2013. *Why Governments and Parties Manipulate Elections: Theory, Practice, and Implications*. Cambridge University Press.

Slater, Dan, and Joseph Wong. 2013. "The Strength to Concede: Ruling Parties and Democratization in Developmental Asia." *Perspectives on Politics* 11(3): 717–733.

Sulkin, Tracy. 2011. *The Legislative Legacy of Congressional Campaigns*. Cambridge University Press.

Teorell, Jan, and Axel Hadenius. 2009. "Elections as Levers of Democracy: A Global Inquiry." In *Democratization by Elections: A New Mode of Transition*, ed. Staffan Lindberg. Johns Hopkins University Press pp. 77–100.

Truex, Rory. 2016. *Making Autocracy Work: Representation and Responsiveness in Modern China*. Cambridge University Press.

Tsebelis, George. 2002. *Veto Players: How Political Institutions Work*. Princeton, NJ: Princeton University Press.

Tucker, Joshua A. 2007. "Enough! Electoral Fraud, Collective Action Problems, and Post-Communist Colored Revolutions." *Perspectives on Politics* 5(3): 535–551.

Vreeland, James Raymond. 2008. "The Effect of Political Regime on Civil War: Unpacking Anocracy." *Journal of Conflict Resolution* 52(3): 401–425.

Xiong, Wei, and Hongjun Yan. 2010. "Heterogeneous Expectations and Bond Markets." *The Review of Financial Studies* 23(4): 1433–1466.