Signal and Noise: Quantifying the Information Content of Elections Using Financial Data*

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Abstract

We attempt to quantify the information content of elections using financial data. Using a unique panel dataset on bond, currency, and equity markets for 190 countries going back as far as 1960, we disentangle the effect of elections on market volatility by election and market type. The overall effect is highly significant. We then examine whether the response of markets on the day following an election carries predictive signal about the country's trajectory in the post-election period. We find modest evidence in support of this idea. The predictive capacity of post-election returns is highest in countries with single-member plurality systems compared to those with PR. We also perform an analysis of discourse surrounding each election, which corroborates the idea that there is some signal in elections regarding future growth. Nonetheless, under conservative statistical assumptions, this signal cannot be reasonably distinguished from noise.

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1 Introduction

On the night of November 8, 2016, Dow futures fell sharply after Donald J. Trump took key battleground states. Yet, by the end of trading on November 9, the Dow had in fact risen 250 points, with some areas (such as the financial sector) experiencing gains of 4%. The subsequent year saw a 2.3% increase in real GDP, up from 1.5% in 2016. Are these facts part of a broader story? Do markets respond predictably to elections? Are market signals accurate? Can we use the fact that the financial system is exquisitely sensitive to the release of new data in an attempt to *quantify* the information content of elections?

These questions are not relevant only for social scientists making sense of the political economy of elections. They also hold implications for citizens, especially as their elected officials can explicitly refer to financial markets to justify their leadership. For example, on January 5, 2018, Trump stated: "Dow goes from 18,589 on November 9, 2016, to 25,075 today, for a new all-time Record. [...] This is all about the Make America Great Again agenda! Jobs, Jobs, Jobs. Six trillion dollars in value created!" Here, we see a clear connection drawn between an election outcome, financial market dynamics, and the real economy. How can we use observable data to evaluate such claims and to thereby supply quantitative insights to ongoing public debates?

In our attempt to address these questions, we use data from bond, currency, equity, and derivative markets in a daily panel for 190 countries going back as far as 1960. We first provide evidence that national elections are important events for financial markets: bond, currency, and especially equity markets show higher levels of volatility on the day following an election (when the results are usually announced). The effect is more pronounced on the day following legislative elections compared to votes for government head

or referendums.

We next consider whether the nature of these responses can give us clues about the information buried in elections about the country's future. For example, canonical economic models would predict that positive shocks in equity markets on the day following an election should be correlated with positive future changes in economic factors related to corporate profits or the value of firms' productive assets (R. E. Hall, 2001). On the other hand, if the signal coming from election results about the future is weak, the correlation between changes in market valuations after an election and changes to the real economy in future periods would be close to zero.

Our empirical findings suggest that there is some but limited evidence for the idea that news about election results by themselves contain important information about future changes in a country's economy. Among about 100 possible outcomes, we find that the sign of the return on the day following a legislative or government head election is most highly predictive of future excess GDP growth. However, after taking into account multiple testing issues, we find that even this strongest relationship is not statistically significant.

Finally, we seek to understand the deeper mechanisms behind when and why elections may sometimes convey signal about to observers about the future. We find that political institutions may matter to an extent: the correlation between future GDP growth and the financial response to electoral outcomes is weakest in countries with proportional representation (which is thought to constrain lawmakers (Iversen and Soskice, 2006)) but quite strong in countries with single-member plurality systems. Moreover, we analyze text from Wikipedia which summarizes each election. We observe that language associated

with wealth creation tends to predict higher market returns although the out-of-sample predictive power of our text model is relatively weak. We conclude by discussing several interpretations of our results.

2 Theoretical Background

At the core of this analysis is a simple line of reasoning inspired by the classic work, Roll (1984). That is to say, it is generally believed that financial markets respond to the release of new information (Ederington and Lee, 1993).[1] Lawmakers—through tax policy, government spending, central bank actions, and education policy—can alter the future profitability of domestic corporations, demand for a local currency, levels of government debt (see, for example, Voth (2003)). It follows that financial markets should respond to expected changes in government policy following elections. These expected changes are subsequently tied to expected changes in the real economy. Because we can easily measure and observe such changes, we can see whether there is a correlation between them and the market response to the election. If such a correlation exists, this evidence would suggest that the election results contained robust signal about the future. This signal could then be characterized empirically.

2.1 Formal Description

A more formal approach can help clarify this logic. Assume that there are N units in a marketplace for shares of company. The true value of a share is defined by the following

[1] However, the importance of this response and its specific nature are more controversial (Cutler, Poterba, and Summers, 1989; Grossman, 1976)

recursive relation, $V_t = M_{t,t+1}(F_{t+1} + V_{t+1})$, where $M_{t,t+1}$ is the discount factor between period t and $t+1$ and F_{t+1} is the payoff (i.e. dividend) given by company for each share.

Actors do not know V_t, but must estimate it: $\hat{V}_t^{(i)} = M_{t,t+1}(\hat{F}_{t+1}^{(i)} + \hat{V}_{t+1}^{(i)})$. The superscript captures the fact that each unit (i) has a potentially different estimation strategy. The average estimate in the marketplace, $\overline{\hat{V}_t}$, determines the price of a share, $P_t = \overline{\hat{V}_t}$ and $\mathbb{E}[P_t] = V_t$.

Crucially, estimates about the future are sculpted by the happenings of the present. In symbolic terms, $\hat{V}_t^{(i)} = \hat{f}_{it}(X_t)$. The subscript (it) on $\hat{f}$ means that we allow for evolution in the predictive model incorporating covariates at time t for unit i. We are interested in the aggregate model relating the covariates to the outcome: $\overline{\hat{V}_t} = \overline{\hat{f}_{it}}(X_t)$.

Now, with this simple sketch in place, we can more formally state our aims.

- How does $\overline{\hat{f}_{it}}(\cdot)$ weigh new information following an election? What is the nature of the observed correlation between elections and market movements?

- How predictive is the new political information about the future? The true V_{t+1} is determined by the future covariates, X_{t+1}. If we observe a correlation between election-induced changes in $\overline{\hat{V}_t}$ and X_{t+1}, this fact would allow us to characterize the relationship between $\overline{\hat{f}_{it}}$ and the true V_{t+1}-X_{t+1} relationship.

These questions are fundamentally empirical in nature: we seek to understand the prediction problem that actors face in the wake of election results. Moreover, by understanding this prediction problem, we can gain some insight into the relative importance of elections in shaping the economy: when actors update their beliefs about the future following elections, do they turn out to be right, at least to an extent? Answering this last question

allows us to speculate in the conclusion about the nature of predictability in the social sciences.

2.2 Relationship with Prior Literature

This analysis builds directly on a rich literature which has focused on the financial system and political change. Much of initial work focused on the United States and sought to understand effect of government action on market prices, especially in the context of the presidential election cycle theory (Huang, 1985; Niederhoffer, Gibbs, and Bullock, 1970; Stoken, 1984). This theory stated that stock returns should be depressed during the first year of a president's term: during this early period, the president rewards the political interests which helped bring him power at the expense of the domestic the economy. Leading up to the next presidential election, priority would then shift to improving the economy in order to win support for reelection. Support for this hypothesis gradually waned, but it remains a historically important idea.

Another long line of research has sought to quantify explain financial market volatility with reference to elections or political news more generally. Cutler, Poterba, and Summers (1989) examined political and macroeconomic news and found that it alone could explain about a third of the variance of aggregate stock returns in the United States. Pantzalis, Stangeland, and Turtle (2000) examined financial market volatility around elections, and argued that various factors such as press freedom explain the behavior of shock market volatility around elections: when media freedom is suppressed, the election results are more likely to convey new information to investors and thus to large market fluctuations. Likewise, Białkowski, Gottschalk, and Wisniewski (2008) examined volatility

around elections in 27 OECD countries and finds that market volatility can indeed double during the week around an election. They find that "several factors, such as a narrow margin of victory [...], contribute to the magnitude of the election shock." There are also a number of papers examining elections and financial market behavior in specific historical cases. For example, Ndwiga and Muriu (2016) studied elections, policy change, and financial volatility in Kenya, while Blanchard et al. (2018) studied the evolution of US stock prices from the 2016 election until the end of 2017, arguing that a "general improvement in economic activity [...] were the main factors behind the stock market increase."

Our analysis contributes to this literature in several ways. First, we present some of the first evidence we are aware of that compares the behavior of several different financial markets to several different election types. This comparison allows us to see what sort of information is contained in elections about the future: for example, are they most salient for equity valuations, for exchange rates, or for bond market dynamics? Next, we also focus extensively on the deeper mechanisms behind the possible influence of elections on the financial system. If financial markets show greater volatility around elections, does this imply that these elections are giving genuine signal about how the economy may evolve? Finally, we create a unique text dataset which allows us to see what sort language is associated with market behavior around elections.

3 Research Design

3.1 Design Logic

The theoretical literature on financial markets motivates many of our research design choices. Economic theory and empirical studies both suggests that new information is more or less instantaneously incorporated into market valuations (Grossman and Stiglitz, 1976; Laughlin, Aguirre, and Grundfest, 2014). If we were to expand our time horizon past the first trading day following an election, awkward questions would emerge regarding the period of time necessary for markets to fully incorporate new information about the electoral outcome. Thus, our data need to be daily in nature. Because electoral results are usually released the evening of or day after the election itself, we focus on market changes the business day following each election.

Our focus on the single day following each election is also important to address concerns about endogeneity (Robins and Morgenstern, 1987): is the market change subsequent to the election itself driving later economic or political changes? On the one hand, over the course of months or years, markets can undergo changes that could have broad effects on the domestic economy. For instance, between 2016 and the beginning of 2018, US equity markets rose by almost 40%. This change in stock market values could induce changes in the real economy. If millions of retirees (many of whom have some of their savings exposed to equity markets) suddenly experienced even a 15% increase in their total portfolio amount, their spending habits could become less thrifty, which could indirectly influence corporate profitability or GDP growth. On the other hand, because we focus on daily change and equity markets rarely change by 5% on a daily basis, we are

able to minimize this concern. Except in extreme cases, it would be difficult to argue that a single daily return could induce a large decrease in GDP per capita.

There is one final point to note. Ideally, we would focus our attention only on close elections. When an election is a landslide, expectations about the election result would generally be embedded into prices far in advance of the actual election. Yet, what constitutes a close election can vary greatly from electoral institution to institution. Also, many countries run multiple races simultaneously on election day. Some of those races may be close; some may be landslides. Each individual race might be a landslide but the party-level balance of power could turn out even so that the overall election is tight. Moreover, we cannot simply perform our analysis on the subset of elections which do in fact turn out to have a large impact on financial markets. This design choice would amount to selection on the dependent variable (King, Keohane, and Verba, 1994). For these reasons, we examine all elections that occurred in democracies (for whom the "polity2" indicator is greater than or equal to 5).

3.2 Data

To establish the timing of elections, we aggregated three databases. We combined the Global Elections Database, the Inter-Parliamentary Union's PARLINE database on legislative elections, and the International Foundation for Electoral Systems database on parliamentary, presidential, and special elections. All told, we were able to identify election dates for 271 parliamentary chambers in 193 countries, most often going back to the 1960s. We were able to identify election dates for referendums and presidential elections in over 150 countries. Election dates and types were confirmed manually. The total num-

ber of elections identified and confirmed is 3,102. For many elections, we were also able to obtain data on the election participants and results. Where possible, we also retrieved each election's corresponding Wikipedia article. For the text analysis, we use vector representations for words (GloVe embeddings) pre-trained by the Stanford Natural Language Processing group (Pennington, Socher, and Manning, 2014).

We linked our electoral database with data on stock, bond, and currency markets in over 190 countries going back in many cases to the 1960s. Historical data on international stock indices were taken from Bloomberg. Each country-level index is constructed by taking a weighted average of the share price of the largest companies based in the country, where the weights are usually proportional to the market capitalization of each company (where market capitalization denotes the share price times the number of shares outstanding). Foreign exchange data were taken from Forex. Five-year bond yield data were taken from the Wall Street Journal (two- and ten- year bond yields give essentially the same results as those we present below).

The outcome of interest for the financial data is arithmetic returns, which we calculate by taking $(P_t - P_{t-1})/P_t$. In equity markets, P_t corresponds to the index value at t. For the currency markets, P_t corresponds to the exchange rate between as a country's local currency and US dollars (we exclude currency unions; the US itself is also excluded this part of the analysis). For bond markets, P_t corresponds to the latest yield for 5-year maturity bonds.

It is important to consider both the strengths and limitations of our data. There are gaps in geographic coverage. Historical figures for equity markets are difficult to obtain for small, developing, or autocratic countries. Some countries (such as Chad, Niger,

Liechtenstein, and Gambia) do not have a domestic stock exchange. Foreign exchange coverage is better geographically. Our data on bond yields is confined to a subset of the OECD countries. For a summary of the countries and years included, see Tables 7-10 in the Appendix. We also use a larger and more diverse country sample than previous work (Pantzalis, Stangeland, and Turtle (2000) and Białkowski, Gottschalk, and Wisniewski (2008)), with four times as many elections included and better geographic coverage (17 additional countries). We also extend previous work in examining not only behavior in the stock market, but the bond and currency markets as well. Finally, we link our database to various economic and political indicators indicators come from the World Bank, the Comparative Political Data Set (Armingeon et al., 2018), the Polity study (Marshall and Elzinga-Marshall, 2017), and the Free and Fair Elections dataset (S. Bishop and Hoeffler, 2014).

4 Results

4.1 Information Content by Election & Market Type

We find that national elections, especially those for the legislature, convey a significant amount of information to observers. We first find that absolute returns show no increase on election day itself, or in the period preceding the election. However, the day following an election shows a sharp increase in the magnitude of absolute returns. This increase makes good sense because election results are often announced in the evening of or the day following the election. The large magnitude of returns the following day is an indication that investors are incorporating—during the next trading day—substantial new

information about the new government's likely regulatory, taxation, and spending polices into their expectations.

There is one other novel observation to note at the outset. We see something reminiscent of Ashenfelter's Dip just prior to the release of the new election information (Heckman and Smith, 1994): on the day of the election itself, returns are significantly *lower* than the average of the 14 days prior to the election. It appears that volatility is diminished as agents in the marketplace wait for the election news to come out. However, this decrease in the magnitude of returns is not as dramatic as the increase we see in the day immediately following the election.

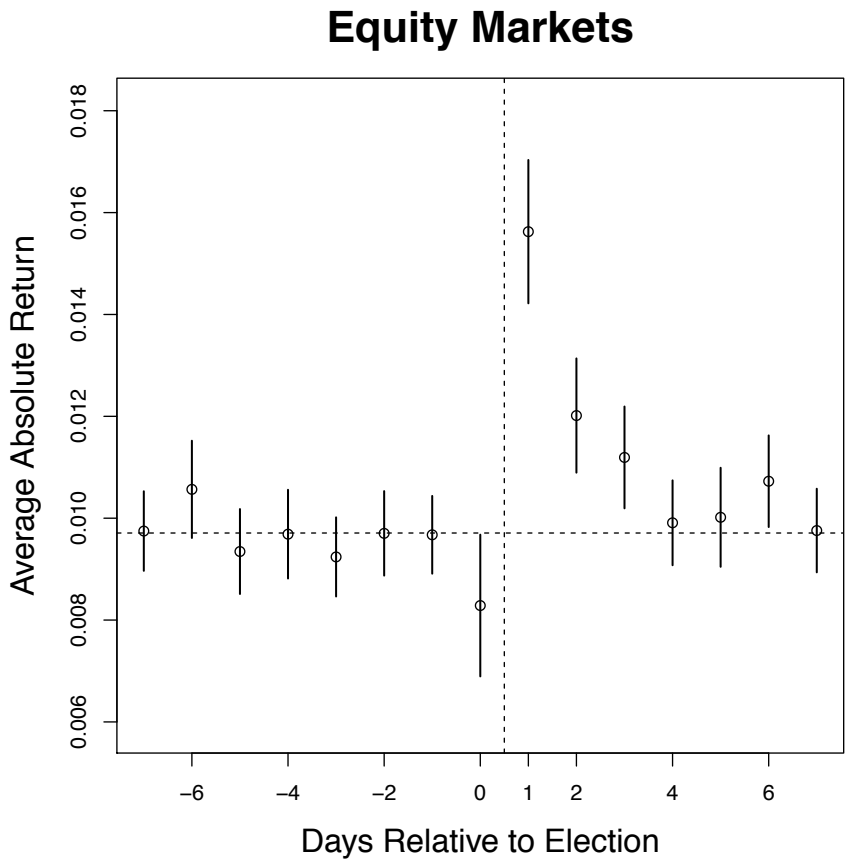

Figure 1: *The day following an election shows a noticeable increase in absolute returns. Dashed horizontal line indicates the absolute return averaged over 14 days preceding the election. 95% confidence intervals for the mean are presented.*

To corroborate the significance of the election day shock by market and election type, we performed the following series of tests. We first calculated the fraction of the 100 days preceding each election with returns as more more extreme than on the day following the vote. We can repeat this process for a placebo date (which we take to be the day one year preceding the vote). If an election had no effect on absolute returns, the fraction in the two cases should be the same (for more on this logic, see Neumayer and Plumper (2017)). Table 1 summarizes our results. We find that the effect of legislative elections and elections for government head are highly significant for currency and equity markets. Referendums, when held alone, do not have a significant impact on equity or bond markets. Interestingly, bond markets are much less reactive than equity or currency markets to elections, possibly because bond markets are sensitive to central bank policies but many central banks have a degree of independence from both the legislature and the government head. Nevertheless, we do observe a significant increase in the magnitude of returns in domestic bond markets when legislative and government head elections are jointly held. Tables 5 and 6 in the Appendix are identical to Table 1, but convey results for the bond and currency markets.

Table 1: *Stock Volatility Results by Election Type*

Election Type	Mean Frac. More Extreme	Mean Frac. More Extreme, Placebo	t-stat. of diff.
Legislative or Gov't Head Election	0.41	0.49	5.75
Legislative + Gov't Head Election	0.4	0.56	3
Legislative Election Only	0.39	0.49	5.28
Gov't Head Election Only	0.45	0.48	0.89
Referendum Only	0.5	0.52	0.59

4.2 Are Election Results Predictive of Future Socio-Political Change?

Do changes in investor expectations following elections systematically correspond to the realized future? We answer this question by using the indicator of whether the return following an election is positive or negative to predict changes in about 100 economic, social, and political variables. All of the variables are first differences, not absolute quantity levels, from the year following the the election (Das, 1994). In each linear model, we control for the observed value of the outcome in the election period, the lagged outcome, and a time trend. We calculated the cluster-robust t-statistic and p-value for the return indicator on the day following the election. Table 2 shows the outcomes associated with the minimum six p-values. These results are substantively unchanged when we examine the cumulative effect 1, 2, or 3 years following the election in question.

Table 2: *Minimum p-values for the coefficient on the sign of returns indicator. We control for the realized outcome in election year, the lagged outcome, and a time trend. The Bonferroni corrected significance threshold is 0.05 / 106 = 0.00047.*

Outcome	Unadjusted p-value
Future GDP growth (annual)	0.013
Future Changes in Interest Payments on External Debt (as fraction of exports)	0.02
Future Changes in GDP per employed person (constant 2011 USD, PPP)	0.056
Future Changes in Political Fractionalization	0.065
Future Changes in Portfolio Equity Inflows	0.074
Future Changes in GDP per capita (constant 2010 USD)	0.074

For the stock market, the outcome best predicted by the sign of the return following the election is future excess % GDP growth (excess growth is defined as the growth occurring after subtracting out baseline trends; see Barro (1997)). This observation provides some evidence that legislative elections and elections for government head not only give actors new information for updating their predictive model about future economic performance ($\overline{(\hat{f}_t(X_t))}$), but also that these predictions may at least a degree of genuine signal. A placebo

analysis performed with the same setup as just described, but using the sign of the return the year before the election date correctly arrived at null results. Table 3 summarizes this set of results.

Table 3: *Returns immediately following an election predict GDP growth during the subsequent government. Standard errors are clustered by country. We use GDP growth in the year following the period of interest as the outcome. The models use GDP growth in the current and preceding period as additional control variables. They also include a time trend.*

Predictor	Point Estimate	(s.e.)
I{Return, Day After Election >0}	0.0198	(0.0077)
I{Return, Day After Pseudo-Election >0}	-0.0084	(0.0072)

Nevertheless, it is important to keep in mind that the relationship just described, although itself statistically significant according to conventional standards, cannot truly interpreted as significant. Because we performed multiple statistical tests, it is important to account for this fact in the interpretation of statistical significance (Benjamini and Hochberg, 1995; Rubin, Dudoit, and Laan, 2006). The Bonferroni correction is a method for explicitly addressing multiple testing concerns and involves setting the new threshold for statistical significance at α/m, where α here equals 0.05 and m denotes the number of tests (which is here 106). The method is conservative because it assumes independence across tests, an implausible assumption in this context given the the intimate relationships described in the social science literature between the political and economic variables used in the analysis. Nevertheless, even for percent GDP growth (the outcome yielding the tightest relationship), there is no signifance after the Bonferroni correction. Thus, using the most conservative assumptions, we cannot conclude that the reaction of financial markets to election results carries significant signal about future political or socio-economic changes.

4.3 Deeper Mechanisms

Despite this lack of significance under conservative assumptions, it is still useful to examine the factors that explain the observed correlation between returns the day following an election and future economic growth. We find that proportional representation (PR) tends to dampen down the relationship between within-country economic growth and returns the day following an election. We get this evidence by performing the same regression analysis as in Table 3, but sequentially within each country for which we have enough data to estimate the model. Figure 2 presents the resulting t-statistics of the post-election return sign and future GDP growth disaggregated by institution type. In countries with full or partial PR, the average correlation between the post-election returns and future GDP growth is much smaller than the correlation in countries with single-member plurality systems. This result is consistent with the comparative politics literature on the constraining effect of PR on government policy (Iversen and Soskice, 2006). Due to institutional constraints, election outcomes in PR countries would seem to convey less predictive information to observers than in nations with single-member plurality institutions.[2]

Moreover, the observed correlation between returns the day after an election and future GDP growth does not seem to be confounded by the importance of the equity market for the overall economy. The correlation between the country-level t-statistic for the growth-return effect and the total value of stocks traded as a fraction of GDP is 0.28 and is not statistically significant. The correlation falls to 0.04 when the US is removed from the analysis as an outlier (for the US, the value of stocks traded as a fraction of GDP is partic-

[2]We do not have the data to evaluate the possibility that financial market dynamics in PR countries vary from those in plurality-based countries in a more general way, as the influential theories of P. Hall and Soskice (2001) would predict.

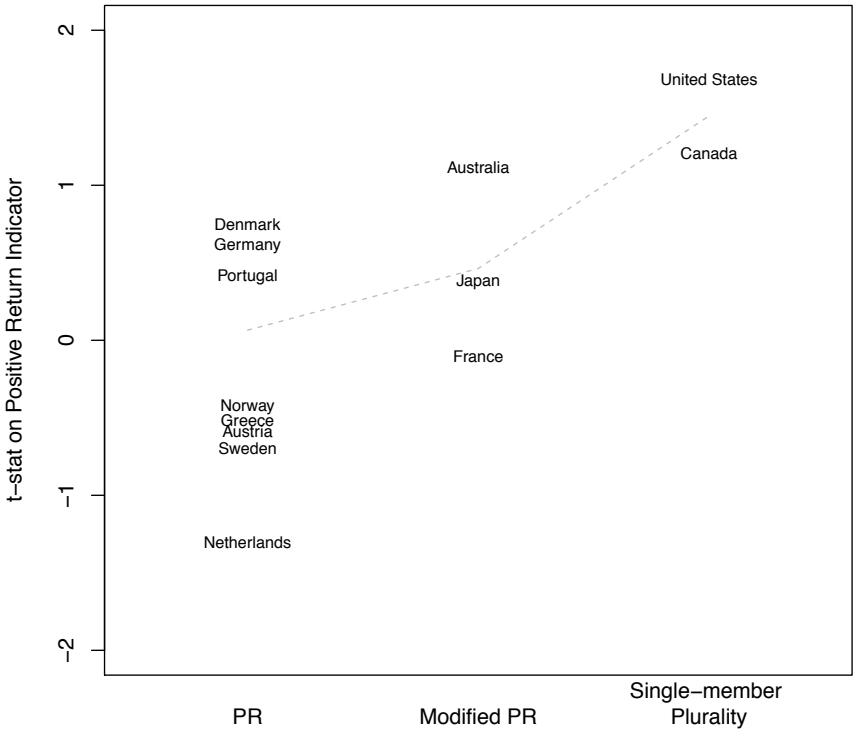

Figure 2: *PR seems to dampen down the predictive power of the return the day following an election for GDP the subsequent year.*

ularly high). Figure 4 in the Appendix visualizes the correlation between the country-level t-statistics and the measure of the stock markets importance in the overall economy.

To further explore the information content of elections, we perform an analysis of the text surrounding each election. When it was available, we retrieved the Wikipedia entry corresponding to each election. We then summarized each document numerically by summarizing its associated word vector content. Terms that are similar have close word vector representations, which were originally introduced in the 1980s (Rumelhart, Hinton, and Williams, 1986) and which have become popular in the text analysis field with the rise of efficient computational models for inferring latent word embeddings from

large text corpora (Mikolov, Chen, Corrado, and Dean, 2013). We employ the global word vector ("GloVe") model of Pennington, Socher, and Manning (2014), which was estimated on a corpus of Wikipedia entries with a vocabulary of about 400,000 terms and which estimated a 200-dimensional vector for each word.

Each document is first represented as a matrix with 200 columns corresponding to the word vector dimensions and n_{Words} rows. For each column, we then take the 10^{th}, 50^{th}, and 90^{th} quantiles and use those ($200\times$ 3 =) 600 resulting features as our numerical representation of each document, following the approach taken in Jerzak, King, and Strezhnev (Working Paper)). One benefit of employing word vector summaries instead of unigrams is that unigrams involve considerable sparsity (most words are used in fewer than 1% of documents), whereas every document has an observed value for every word vector feature. Another benefit is that the summaries are lower-dimensional: whereas a large corpus might contain several thousand unigrams, our dataset contains only 600 features.

We then build a ridge regression model which uses the numerical Wikipedia text summaries as predictors and the sign of the equity market return on the day following an election as the outcome (Hastie, Tibshirani, and Friedman, 2001). Our purpose is to find the most predictive word vector dimensions. We interpret those dimensions by finding the common words high on the significant dimension. Table 4 presents the words highest in the dimensions associated with positive market returns following an election. One top dimensions seems to be associated with wealth creation. A second seems to be associated with corporate policy. Another top dimension seems to be associated with the rule of law. Nonetheless, the accuracy of this text model is weak. The cross-validation classification error is 0.45 (only slightly better than the naive classification error of predicting "positive"

all the time, which gives a cross-validation error of 0.46).

Table 4: *Words high in vector dimension predictive of positive returns following election. Word presence would signal higher probability of positive returns.*

Dimension A	Dimension B	Dimension C
attorney	foundation	families
violence	cents	filed
civil	dollars	company

The text analysis, then, largely corroborates the analysis using observed economic and political variables: the information from elections most relevant to equity markets seems to centered around future economic growth, but the noise around this relationship is considerable.

5 Conclusion

This study has sought to use financial data to quantify the information content of elections. We found that elections seem to convey the most robust information to actors in equity markets. Currency markets also show significant increases in the average magnitude of returns the day following an election, but the effect is more muted. Bond markets are largely unaffected by elections, except when there is a simultaneous election for government head and for the legislative body. Moreover, we have found evidence that elections for legislature have the highest information content as estimated from the financial data, followed closely by elections for government head. Referendums convey the least amount of discernable economic signal.

Because equity markets seem to be most responsive to elections from an informational standpoint, we then examined the deeper reasons why those markets respond to elections

and whether that response is itself predictive of future political or economic changes. We obtained evidence that the behavior of equity markets the following day is most highly predictive of excess GDP growth during the subsequent year. With multiple testing corrections, the effect is not significant. Nonetheless, an analysis of the text surrounding elections suggests that language associated with corporations and wealth creation are predictive of positive returns following an election (and subsequently GDP performance in the coming year). Finally, institutional characteristics seem to explain some of the dynamics observed in the data, with PR reducing the information content of elections as quantified by our financial data.

There are numerous opportunities for followup research. First, this analysis considered all elections in democracies. However, if future researchers could quantify the closeness of elections across different institutional designs, they could then perform a similar analysis on the subset of close elections. Interpreting the observed effects would be easier, since the results would not be watered down by the fact that some elections are landslides and convey no new information to the public. Second, our text model for predicting the sign of returns following elections was linear in nature so that we could easily interpret the effect of each word vector dimension. However, text regression methods often now incorporate convolutional techniques, which could greatly improve predictive performance (C. Bishop, 1995; Conneau, Schwenk, Barrault, and Lecun, 2016).

Overall, this analysis suggests that elections convey important information to the financial system, but that the financial market reaction is not—using the most conservative statistical assumptions—a significant predictor of future changes in the real economy or in the political system.

6 Appendix

6.1 Financial Market Background

This analysis quantifies the information content of elections using financial data. Because finance terminology may be unfamiliar to those working outside this area, we provide a cursory overview of key terms which are essential in this paper. For a deeper overview of fundamental concepts and terms, interested readers may consult Joshi (2008).

To begin, a market is a venue for the buying and selling a commodity of some kind. In financial markets, the commodity in question is related to a money resource. For example, market participants might buy and sell debt securities, where a security in this context refers to the pledge of future payment (or repayment). Equity (also known as "stock") markets involve the buying and selling of "shares" issued by a company. Shares are issued by the company for raising money (that is, the shares are first purchased by market participants from the company itself). In turn, the company in question usually promises shareholders future dividends, which are a transfer of money from company to shareholders (taken from their cash reserves).

In currency markets, participants trade a certain amount in currency A for a certain amount in currency B. The ratio between these amounts determines the exchange rate between currency A and B. An actors in the currency market may never in fact "need" currency B, but could be hoping for a future beneficial change in the exchange rates for B which they could use to secure a profit. Alternatively, an actor in this market might need currency B for an investment project where currency B is used. Finally, the market for government bonds involves the purchase of government debt, which is acquired by the

state for funding itself.

6.2 Supplemental Figures and Tables

Table 5: *Bond Volatility Results by Election Type*

Election Type	Mean Frac. More Extreme	Mean Frac. More Extreme, Placebo	t-stat. of diff.
Legislative or Gov't Head Election	0.5	0.56	0.95
Legislative + Gov't Head Election	0.14	0.83	4.34
Legislative Election Only	0.5	0.57	1.05
Gov't Head Election Only	0.6	0.42	-1.26
Referendum Only	0.6	0.54	-0.54

Table 6: *Currency Volatility Results by Election Type*

Election Type	Mean Frac. More Extreme	Mean Frac. More Extreme, Placebo	t-stat. of diff.
Legislative or Gov't Head Election	0.54	0.58	2.8
Legislative + Gov't Head Election	0.53	0.58	1.27
Legislative Election Only	0.53	0.58	2.58
Gov't Head Election Only	0.56	0.58	0.58
Referendum Only	0.65	0.54	-2.7

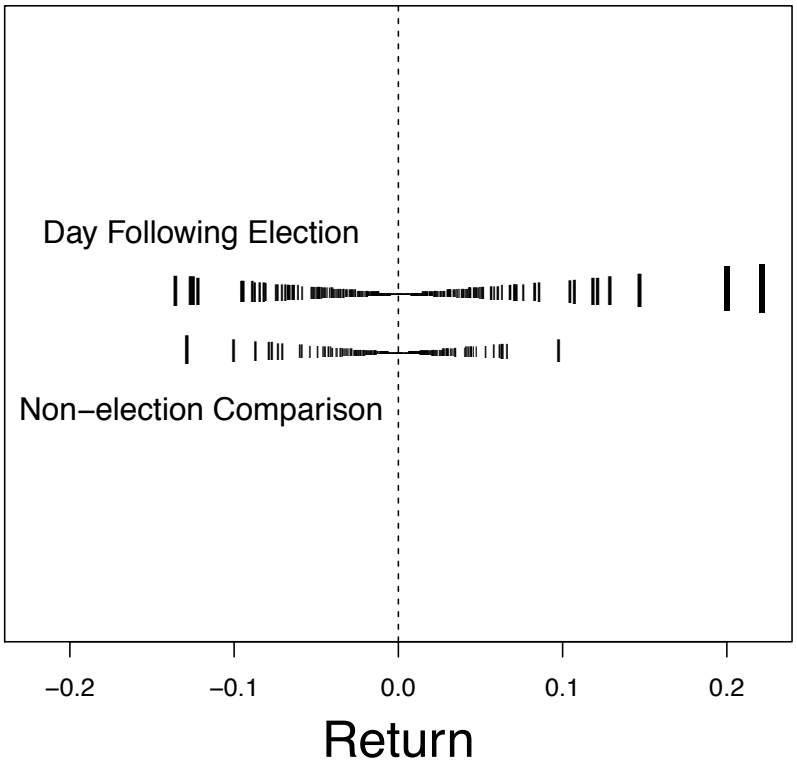

Figure 3: *The day following an election shows a noticeable increase in the spread and kurtosis of absolute returns in equity markets. Each dash represents a single market day. The position of the dash on the horizontal axis represents the return associated with that day. The height and width of each dash is proportional to its distance from the mean value associated with its group (i.e. the group of days following an election and the group of non-election comparison days [which consist of the set of days 1 year prior to each election]).*

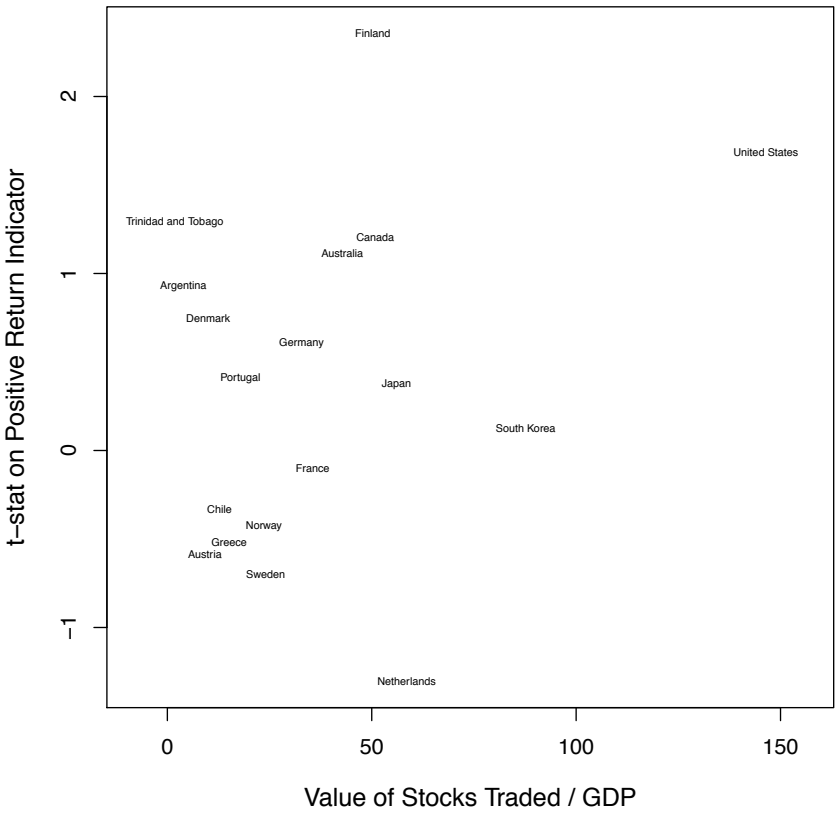

Figure 4: *The role of the stock market in the economy does not seem to explain the predictive power of returns on economic performance in the subsequent year.*

Table 7: *Country coverage, financial data.*

Country	Currency Coverage	Equity Coverage	Bond Coverage
United Kingdom	1971-2017	1962-2017	2007-2017
Switzerland	1971-2017	1970-2017	2007-2011
Sweden	1971-2017	1970-2017	2007-2017
Netherlands	1971-1999	1983-2017	2007-2017
Japan	1971-2017	1970-2017	2007-2017
Italy	1971-1999	1970-2017	2007-2017
Germany	1971-1999	1959-2017	2007-2017
France	1971-1999	1987-2017	2007-2017
Finland	1971-1999	1987-2017	2011-2015
Denmark	1971-1999	1970-2017	2007-2011
Canada	1971-2017	1970-2017	2007-2011
Belgium	1971-1999	1987-2017	2007-2017
Austria	1971-1999	1986-2017	2007-2015
Australia	1971-2017	1935-2017	2007-2017
Spain	1973-1999	1987-2017	2007-2017
Hong Kong	1974-2017	1964-2017	2007-2011
Portugal	1989-1999	1993-2017	2007-2017
South Africa	1971-2017	1993-2017	
Norway	1971-2017	1970-2017	
New Zealand	1971-2017	1992-2017	
Namibia	1971-2017	2004-2017	
Mexico	1971-2017	1988-2017	
Malaysia	1971-2017	1977-2017	
Luxembourg	1971-1999	1999-2017	
Sri Lanka	1973-2017	1985-2017	
India	1973-2017	1993-2017	
Tunisia	1974-2017	1999-2017	
Romania	1974-2017	1997-2017	
Kuwait	1974-2017	1995-2017	
Ireland	1979-1999	1983-2017	
Turkey	1981-2017	2003-2017	
Thailand	1981-2017	1987-2017	
Singapore	1981-2017	1970-2017	
South Korea	1981-2017	1980-2017	
Israel	1981-2017	1993-2017	
Greece	1981-1999	1987-2017	
Chile	1981-2017	1988-2017	
Oman	1983-2017	1992-2017	
Taiwan	1984-2017	1967-2017	
United Arab Emirates	1989-2017	2001-2017	
Kenya	1989-2017	2002-2017	
Tanzania	1989-2017	2006-2017	
Pakistan	1989-2017	1991-2017	
Morocco	1989-2017	1995-2017	
Malta	1989-1999	1996-2017	
Qatar	1989-2017	1998-2017	
Jordan	1989-2017	1988-2017	
Bahrain	1989-2017	2004-2017	
Jamaica	1990-2017	1987-2017	
Philippines	1992-2017	1988-2017	

Table 8: *Country coverage, financial data (continued).*

Country	Currency Coverage	Equity Coverage	Bond Coverage
Indonesia	1992-2017	1983-2017	
Brazil	1992-2017	1988-2017	
Argentina	1992-2017	1988-2017	
Peru	1992-2017	1990-2017	
Colombia	1992-2017	1993-2017	
Iceland	1993-2017	1993-2017	
Iran	1993-2016	2000-2017	
Bangladesh	1993-2017	2009-2017	
Poland	1993-2017	1993-2017	
Hungary	1993-2017	1991-2017	
Czech Republic	1993-2017	1995-2017	
Vietnam	1993-2017	2000-2017	
Uganda	1993-2017	2016-2017	
Trinidad and Tobago	1993-2017	1983-2017	
Syria	1993-2014	2010-2017	
Serbia	1993-2017	2005-2017	
Rwanda	1993-2017	2013-2017	
Mongolia	1993-2017	2011-2017	
Mauritius	1993-2017	1989-2017	
Malawi	1993-2017	1996-2017	
Lebanon	1993-2017	1996-2017	
Laos	1993-2017	2011-2017	
Iraq	1993-2017	2009-2017	
Egypt	1993-2017	1993-2017	
Bulgaria	1993-2017	2005-2017	
Barbados	1993-2017	2014-2017	
Russia	1993-2017	1995-2017	
Dominican Republic	1993-2017	2001-2004	
Slovakia	1994-1999	2006-2017	
Nigeria	1994-2017	1998-2017	
Costa Rica	1994-2017	1994-2017	
Ghana	1994-2017	2008-2017	
Ukraine	1995-2017	1998-2017	
Lithuania	1995-1999	2000-2017	
Latvia	1995-1999	2000-2017	
Kazakhstan	1995-2017	2000-2017	
Georgia	1995-2017	1995-2017	
Estonia	1995-1999	1996-2017	
Slovenia	1995-1999	1994-2010	
Croatia	1996-2017	2002-2017	
Maldives	1997-2017	2012-2015	
Cambodia	1997-2017	2012-2017	
Macedonia	1997-2017	2010-2013	
Venezuela	1999-2017	1994-2017	
Botswana	1999-2017	1989-2017	
Zimbabwe	2009-2015	2010-2017	
United States		1928-2017	2007-2017
Swaziland	1971-2017		
Lesotho	1971-2017		
Bhutan	1973-2017		

Table 9: *Country coverage, financial data (continued).*

Country	Currency Coverage	Equity Coverage	Bond Coverage
Andorra	1973-2017		
Tonga	1989-2017		
Aruba	1989-2017		
Vanuatu	1993-2017		
Brunei Darussalam	1993-2017		
Yemen	1993-2017		
Uruguay	1993-2017		
Somalia	1993-2017		
Solomon Islands	1993-2017		
Seychelles	1993-2017		
Paraguay	1993-2017		
Nicaragua	1993-2017		
Mozambique	1993-2017		
Mauritania	1993-2017		
Macau	1993-2017		
Honduras	1993-2017		
Haiti	1993-2017		
Guyana	1993-2017		
Guatemala	1993-2017		
Ethiopia	1993-2017		
El Salvador	1993-2017		
Djibouti	1993-2017		
Democratic Republic of the Congo	1993-2017		
Cape Verde	1993-2017		
Bolivia	1993-2017		
Belize	1993-2017		
Angola	1993-2017		
Gambia	1993-2017		
Burundi	1993-2017		
Algeria	1993-2017		
Albania	1993-2017		
Sao Tome and Principe	1994-2017		
Nepal	1994-2017		
Madagascar	1994-2017		
Zambia	1994-2017		
Libya	1994-2017		
Myanmar	1994-2017		
Uzbekistan	1995-2017		
Turkmenistan	1995-2017		
Moldova	1995-2017		
Kyrgyzstan	1995-2017		
Belarus	1995-2017		
Armenia	1995-2017		
Azerbaijan	1995-2017		
Tajikistan	1996-2017		
Comoros	1997-2017		
Fiji	1999-2017		
Samoa	2000-2017		
Sudan	2000-2015		
Liberia	2001-2017		

Table 10: *Country coverage, financial data (continued).*

Country	Currency Coverage	Equity Coverage	Bond Coverage
Afghanistan	2003-2017		
Suriname	2004-2017		
Sierra Leone	2013-2017		
Panama		1992-2017	
Bermuda		1994-2017	
Palestine		1997-2017	
Cote d'Ivoire		2003-2017	
Bosnia and Herzegovina		2004-2017	
Montenegro		2004-2010	
Cyprus		2004-2017	
Ecuador		2012-2017	

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