Political Announcement Return

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Abstract

Major political events, such as Elections and the delivery of the State of the Union (SOTU) address, reveal subsequent course of government policy and set future political agenda in the U.S. Similar to traditional macroeconomic and monetary policy announcements, political announcements are associated with abnormal stock market returns of 50 bp on Election and 30 bp on SOTU days, relative to 3 bp daily average. Political announcement returns increase in adverse times of low economic growth and high aggregate volatility, and exhibit pre-announcement drift. We develop an illustrative model for political announcements and show that channels of risk premium/early resolution of uncertainty and optimal choice of government policy can account for the evidence in the data.

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Introduction

A central question in financial economics concerns the nature of risk and return in asset markets. Risky assets like equities consistently deliver high excess returns over the risk-free rate, and recent evidence suggests that these returns are especially pronounced on the days of monetary policy (FOMC) or macroeconomic announcements. Remarkably, Savor and Wilson (2013) and Lucca and Moench (2015) find that average returns are about ten times larger on announcement days than on all the other days of the year, so that the majority of the total equity return can be attributed to announcement days. A large subsequent macro-finance literature has emerged to explain the evidence and uncover the economic determinants of the announcement effect on asset prices.

The findings of large announcement premia, while intriguing economically, are subject to empirical and statistical challenges in the literature. The data sample is relatively short: while macroeconomic announcements date back to mid-1960s, it is quite common to limit the sample to post 1994 to focus on scheduled FOMC announcements. The short time period dominated by the easing policy of the Fed raises sample selection issues, and may bias sample averages away from the true population means (Cieslak, 2018, Cieslak, Morse, and Vissing-Jorgensen, 2019, Ghaderi and Seo, 2020). Macroeconomic announcements further appear contaminated by calendar and trading day effects (Ernst, Gilbert, and Hrdlicka, 2019).

In this paper, we aim to expand the scope of the announcement literature by considering major political events in the United States. On the empirical side, we provide novel evidence for the linkages between political announcements, real economy, and asset markets. On the theoretical side, we develop an illustrative model for policy announcements, and argue that the economic channels of uncertainty resolution and optimal government policy can help interpret the key facts of the data.

Specifically, we focus on two sets of major political events in the U.S. The first includes general elections which determine the presidential candidate (presidential elections) and the Congress (midterm elections). As we discuss later in the literature review, the link of elections to the economy and financial markets have received some attention in the literature, though, not in the context of the announcement effects.

Our second set of events is quite novel to the economic and finance literature, and involves the delivery of the State of the Union (SOTU) address. The SOTU address is long recognized as one of the most important events in the U.S. political calendar (see e.g., Light, 1999 and Rule, Cointet, and Bearman, 2015). SOTU messages pertain to a variety of government activities which are distinct from the monetary policy or macroeconomic announcements. The recurrent themes of the address include fiscal policy matters such as taxation, budget

and spending, the role and size of the government, as well as national security, labor markets, and foreign and domestic concerns. As such, adding the SOTU evidence helps expand and corroborate our findings on political announcements beyond the elections effects.

Broadly, we think of elections and SOTU addresses as important political events which, at least from an ex-ante perspective, contain news about subsequent political framework and government policy in the U.S. Similar to the literature which analyzes FOMC and macroeconomic announcements, we treat the elections and SOTU days as periods of major political announcements. Unlike standard FOMC or macroeconomic announcements, the consistent data on election and SOTU go back in time to the beginning of the twentieth century, which allows us to extend and refine the evidence for announcement effects in a longer sample and alternative context. An important caveat, however, is that the major political events are less frequent than other announcements – presidential elections occur every 4 years; midterm elections every 2 years, and the SOTU addresses are delivered once every one or two years – which challenges statistical inference even over longer samples.

Our key empirical findings can be summarized as follows. Unconditionally, the average excess market return is over 50 basis points, daily, on Election days, and is nearly 30 basis points on SOTU days, which far exceed a 3 basis point average on a typical day. These estimates are at least as large as, and often larger than, FOMC and macroeconomic announcement-day returns, are significant over the whole 1926-2020 sample, and are remarkably stable over time. For example, SOTU-day returns exceed the non SOTU-day ones for all the 14 presidents in the sample with a single exception of Dwight D. Eisenhower. The returns tend to be less volatile over political announcements relative to non-announcement or other announcement days, and exhibit thinner left tails.

We next consider the economic determinants of the political announcement return. We find that returns tend to be higher in adverse economic times, as captured by low GDP growth, high unemployment, or high economic and financial market volatility. The evidence is particularly striking for the VIX index which predicts the next-day election and SOTU excess return with an R^2 of over 30% and 20%, respectively. A positive relation of political announcement returns to ex-ante volatility and uncertainty is noteworthy, and is suggestive of a high risk/high return relationship on political announcement days. The predictability is nearly absent on non-announcement days, and is much smaller on the FOMC and especially macroeconomic announcement days. A related though distinct evidence shows that uncertainty tends to decrease on both the election and SOTU days, and the volatility leverage effects are magnified on political announcement days compared to other days of the year.

We then examine other aspects of the political announcement return, beyond the daily stock market data. Similar to the monetary policy and macroeconomic announcements, we

find that the political announcement return is earned shortly before the political event. The price drift appears especially pronounced before the elections, and may unfold over 2 to 3 days before the event: the average daily return is about 30 basis points 3 and 2 days before the elections, 40 basis points the day prior the elections, and 50 basis points on the Election day. Similar to the FOMC and macroeconomic announcements, we do not find significant drifts after the political announcement days.

As an additional, corroborative evidence, we show that our main results hold in the foreign stock markets, both on the days of the U.S. and foreign-country elections. We find systematic returns in bond markets, a general market-factor increase in the cross-section of equity returns, and a reduction in trading volume on the political announcement days.

From a theoretical perspective, we argue that our evidence can be rationalized by a combination of two economic mechanisms: the uncertainty resolution/risk premium channel for announcement returns (see e.g. Ai and Bansal, 2018, Wachter and Zhu, 2021, Ai, Bansal, and Han, 2021, Hu, Pan, Wang, and Zhu, 2021), and the endogenous government policy choice (Pastor and Veronesi, 2012, 2013). Preference for early resolution of uncertainty generates a positive risk premium on the days of announcements about future economic fundamentals, and can explain a positive risk-return relationship between past uncertainty and the announcement-day return. To the extent that the related news trickle in prior to the announcement, as opposed to being released at once at the announcement event, the continuous resolution of uncertainty could give rise to the pre-announcement drift. At the same time, benevolent government is more likely to introduce new policies when the economy is doing poorly, thus linking the announcement day return to past economic fundamentals. We embed these insights from the literature into an illustrative model of political announcements, and show that it interpret the key facts of the data.

Related Literature. Broadly, our paper is related to an extensive political economy literature which studies the relationship between political cycles, macroeconomy, and asset markets. The literature typically focuses on low-frequency causes and effects of the political variables on economic fundamentals. Indeed, early contributions by Nordhaus (1975) and MacRae (1977) sparked a large research field which studies the incentives and implications of governments seeking re-elections, and ensuing complex interactions between the political and economic business cycles.[1] The empirical research in this literature tests low frequency relationships between political and economic variables, exemplified by the theories of the four-year political cycle centered around elections. An interest in a political cycle connection to the stock market is particularly pronounced among the industry professionals, see

[1]See among many others, Alesina (1988), Drazen (2001), Alesina, Roubini, and Cohen (1997) for a summary and overview of the recent developments and debates.

e.g. Herbst and Slinkman (1984); Foerster and Schmitz (1997); Allivine and O'Neil (1980); Huang (1985) and more recently, Kraussl, Lucas, Rijsbergen, van der Sluis, and Vrugt (2014) and Sturm (2013). Another low-frequency relation between the political, economic and asset-market factors concerns the "presidential puzzle" which argues that the average stock market returns are higher under the Democratic than the Republican presidents (Santa-Clara and Valkanov, 2003 and Pástor and Veronesi, 2020). By focusing on low-frequency patterns in the data, these studies do not consider the announcement angle embedded in political events, which is the focus of our study.

The high-frequency evidence in our study is most related to Pantzalis, Stangeland, and Turtle (2000) and Niederhofer, Gibbs, and Bullock (1970) who document abnormal returns on the stock market prior to the Election day. The former study in particular shows that high excess returns are concentrated during the two-week period prior to the elections across 33 countries in the 1974-1995 sample period, and places the evidence in the context of the uncertain information hypothesis of Brown, Harlow, and Tinic (1988). Niederhofer, Gibbs, and Bullock (1970) also document evidence for short-term movements in the stock market in the days and weeks surrounding the Presidential elections in an early sample ending in 1968. Empirically, we organize and interpret the data to highlight the announcement effects embedded in the political events; expand the evidence to include SOTU addresses and additional economic factors; and rely on channels of early resolution of uncertainty and optimal government policy to explain our findings.

The evidence in our paper contributes to the announcement literature which rationalizes the abnormal positive return on the FOMC and macroeconomic announcement days through a risk compensation channel; see e.g. Ai and Bansal (2018), Wachter and Zhu (2021). Interestingly, the empirical evidence for political announcement returns stands out among monetary policy and macroeconomic news releases. Political announcements are less frequent and more wide-ranging than traditional announcements. Arguably, the quantity of policy risk is likely to be larger before Elections and SOTU addresses compared to more frequent and more narrowly defined monetary policy or macroeconomic announcements. While in our paper we do not directly relate our evidence to policy risk, our empirical evidence and the theoretical mechanism speaks to the literature which shows its importance to capture fluctuations in economic growth and financial markets; see for instance Kelly, Pastor, and Veronesi (2016) and Brogaard, Dai, Ngo, and Zhang (2020) for a recent empirical evidence and Dai and Zhang (2019) for a survey of the political uncertainty literature. We also borrow the theoretical insights of Pastor and Veronesi (2012) and Pastor and Veronesi (2013) to set up the government problem, in a recursive utility environment, and derive the optimal determinants of the policy choice as a function of past economic performance.

Our evidence also has implications for the leakage hypothesis suggested in the literature. Cieslak, Morse, and Vissing-Jorgensen (2019) argue that the contents of the announcement are revealed prior to its delivery, which can give rise to the pre-announcement drift. It is less clear how private information from Elections or SOTU addresses could have been routinely used to make stock market gains over the long sample and for nearly every president in office. The leakage hypothesis further hinges on systematic announcement surprises by investors which do not average out to zero. Systematic errors are plausible in short and potentially non-representative samples, say, dominated by Fed easing (see Cieslak, 2018). They are arguably less prevalent over the long sample post 1926 sample and in the context of broader government policy. We further find additional features of the political announcement data that are hard to reconcile with the leakage hypothesis, consistent with the arguments in Ai, Bansal, and Han (2021) in the context of FOMC and macroeconomic announcements. Bernile, Hu, and Tang (2016) and Kurov, Sancetta, Strasser, and Wolfe (2019) further uncover substantial informed trading activity approximately 30 minutes before the FOMC or macroeconomic announcement releases due to pre-release of information to the news agencies. While similar reporting arrangements are in place for SOTU address, the fact that it occurs hours after the market close helps mitigate these concerns.

Our paper is also related to other studies which analyze the implications of announcement effects in other markets and for other economic margins. Cieslak and Pang (2021) consider, among other things, the joint evidence of FOMC announcement effects in equity and bond markets. Ai, Han, Pan, and Xu (2021) study the monetary policy announcement premium in the cross-section of stock returns. Mueller, Tahbaz-Salehi, and Vedolin (2017) analyze the FOMC announcement implications in the context of currency markets. We provide related evidence for the political announcement effects on nominal bond returns and equity portfolio spreads. We find evidence for a significant return spread for firms sorted on market beta, consistent with the evidence in Savor and Wilson (2014) that the CAPM holds well on announcement days. Di Maggio, Franzoni, Kogan, and Xing (2021) highlight institutional margins for trading activity before the scheduled announcements. In a behavioral context, Fisher, Martineau, and Sheng (2020) consider the dynamics of attention around the announcements and the implication for the asset prices.

1 Empirical Evidence

1.1 Data Description

Our key goal in this work is to describe and interpret the dynamics of financial markets around the key political announcements. In this paper, we identify two sets of major political events. The first pertains to the U.S. presidential and midterm elections, and the second is associated with the delivery of the State of the Union (SOTU) address by the U.S. President. Both cases represent days with news that have a potential to shape the political landscape and the government policy in the U.S. in subsequent years.

Elections. The Title 3 of the United States Code specifies that the Election day occurs on "the Tuesday next after the first Monday in November." General elections that determine the vote for the president and the vice president of the United States occur every four years. Midterm elections are held near the midpoint of a presidential term, and determine all the seats in the United States House of Representatives, a third of the seats in the United States Senate, and governors in 34 of the 50 states.

Election day constituted a stock market holiday before 1969. In the early period, we take the calendar day prior to election as the event day.

State of the Union Address. As documented by Light (1999) and Rule, Cointet, and Bearman (2015) among others, the SOTU address is one of the most important events in the U.S. political calendar. It stands out among other public activities of the executive power in its attempt to reach out the widest audience and announce the policy goals to Congress and the general public. The address is supplemented by the Budget Message and the Economic Report of the President which serve as a starting point for the Congressional own budget process.

Historically, the address functions "to announce and rally support for the President's legislative agenda for the coming year," "convey a vision [of the chief executive] for the nation," and provide "a report to Congress and the nation on national conditions" (CRS, 2021). Congress, the public and the media proceed to debate these issues in the upcoming cycle, which gives the President a chance to take position and define the priorities of the government (Edwards and Barrett, 2000). Cummins (2008) further analyzes the connection between the presidential rhetoric in SOTU address and their subsequent actions, and finds that presidents tend to follow up on their economic policy and foreign affairs proposals.

Figure 3 gives a snapshot of the main topics discussed by the President. To assess the content of speeches, we use the vocabulary complied by Baker, Bloom, and Davis (2016), and count the words corresponding to each topic. As shown in the Figure, the main themes of the address concern national security, economic policy, and health and social welfare policy,

followed up by entitlement and government spending. At the same time, presidents spend relatively less time addressing monetary policy, financial regulations, or debt and currency crises. The relative importance of the topics remains stable over time, with taxes becoming the primary issue in the second half of the sample. The following three messages exemplify the "big picture" agendas of the addresses: Franklin Roosevelt's outline of "four freedoms" to make a case for more U.S. involvement in World War II in 1942; Lindon Johnson's declaration of "unconditional war on poverty" in 1964; and Bill Clinton's declaration "the era of big government is over" in 1996.

The address is delivered by the President of the United States to a Joint Session of Congress in the beginning of nearly every year. Rooted in the U.S. Constitution, the tradition dates back to George Washington and John Adams in the 18th century. The in-person delivery was revived by Woodrow Wilson in 1913, and since 1930s the address is delivered regularly every January or February, with an exception of the first year of the presidential term when the inaugural speech takes place instead. To promote publicity, the address was first broadcast on the radio in 1923, on TV in 1947, and on internet in 2002. Its U.S. TV viewership averages around 40 million in the beginning of the 21st century.

Other data. For our empirical analysis, we collect the information on the general elections and the State of the Union addresses, and asset price and macroeconomic data for the U.S. and a panel of foreign countries. We further collect the days of the monetary policy (FOMC) and macroeconomic (unemployment and inflation) announcements. VIX, GDP, and inflation data come from the FRED database. We use monthly real, macroeconomic, and financial uncertainty indices from Jurado, Ludvigson, and Ng (2015) and daily economic policy uncertainty from Baker, Bloom, and Davis (2016). Intrady hourly Dow Jones Industrial Average Price index is from the Global Financial Database. Stock portfolio returns are from Kenneth French Data Library. Bond returns are from CRSP, and international stock returns are based on the MSCI indices. Whenever possible, the data are at a daily or higher frequency over the Jan 1926 - Feb 2020 period. The full sample spans 47 election days and 76 SOTU addresses over 14 different presidents.

1.2 Stock Market Returns on Political Announcement Days

Figure 2 shows the time-series of excess market returns on S&P 500 index on 47 Election days and 76 SOTU days over the 1926-2020 sample. Table 1 provides summary statistics and compares the market return evidence to the FOMC and macroeconomic announcements.

In the full sample the average excess return is just under 3 basis points daily, and its standard deviation is about 1%. On the election days, the mean return is an order of

magnitude higher, and is over 50 basis points. These findings are consistent with an early evidence of Niederhofer, Gibbs, and Bullock (1970) and, more recently, Pantzalis, Stangeland, and Turtle (2000) who document abnormal returns on the stock market prior to the Election day. The distribution of Election-day returns has less variance, and much less heavier left tail than that for the other days in the sample.

Novel to the literature, the returns are also substantially elevated on SOTU days. The average SOTU-day return in about 30 basis points, and the standard deviation of returns across SOTU days of 76 basis points is just three-quarters of that on other days. The kurtosis of announcement returns is quite low as well, which suggests little evidence of heavy tails typical on other days.

The Table further breaks down the evidence over three sub-samples: from 1926 to 1964; from 1965 to 1993; and from 1994 to 2020. The political announcement returns are remarkably stable over the sub-samples, even though they are computed off one-to-two dozen observations. The average return ranges between 34 and 64 basis points on election days, and 23 to 40 basis points for SOTU address. As in the full sample, the returns are less volatile and have less heavy tails on SOTU relative to other days in each of the sub-sample.

We consider further sub-sample break-downs of the evidence in the Appendix Table A.1. We show that the election returns are higher on presidential than midterm election days (69 versus 40 basis points); are about 80 basis points when Republicans are in power; and are similar to the average in the first versus second term of the president.[2] The SOTU-day returns remain remarkably consistent across presidents, time, days of the week, and weeks of the year. The average SOTU return turns negative only for Dwight Eisenhower, one president out of 14, and only over his term the average return on SOTU days is below that on non-SOTU days. The average SOTU returns are positive and in double digits for nearly all of the remaining presidents. They remain large in recent times, averaging over 30 basis points during both Obama's and Trump's terms.[3] Figure 2 further confirms that evidence is not driven by particular economic or political times, sub-samples, or abnormal outliers.[4]

[2]The Election day results thus go in the opposite direction to the "presidential puzzle" of Santa-Clara and Valkanov (2003) and Pástor and Veronesi (2020) who find that average stock market returns are higher under Democratic than Republican presidents.

[3]We conduct a bootstrap exercise in which we randomly select pseudo-SOTU returns in each president's period. We find that the estimated probability of obtaining one or fewer negative average SOTU return across 14 presidents is below 0.3%. Based on this estimate, it is very unlikely that the observed pattern is generated by a pure chance.

[4]Interestingly, the largest SOTU return, in absolute value, corresponds to a 2.5% drop in the index on January 29th, 2002, the day of the SOTU address by George W. Bush. Incidentally, the news in media attribute the decline to an accounting scandal caused by Enron-like revisions of financial statements by a number of firms, pushing stocks to the 10-week low on that day. To be conservative, we keep all the SOTU observations in the sample, even though in a small sample negative outliers unrelated to political announcements are likely to introduce a bias against positive average returns on the announcement days.

Bottom panel of the Table 1 compares the Election and SOTU day returns to those associated with monetary policy (FOMC) and macroeconomic announcements established in the prior literature. The Table shows the findings in the 1965-1993 and 1994-2020 subsamples; unlike elections and the SOTU addresses, the other announcements do not go further back in time. Consistent with the literature, we find that average returns are larger on FOMC and macroeconomic announcement days. Over the earlier 1965-1993 sample, the average return on Election and SOTU days of 34 and 40 basis points exceed the FOMC and macroeconomic ones of 13 and 5 basis points, respectively. The SOTU and FOMC returns are comparable in the later period from 1994 onward, 24 and 29 basis points, respectively. They are below 61 basis points average return on Election days, and all are larger than the average returns on macroeconomic announcement days of 10 basis points. Interestingly, returns tend to be quite volatile across the monetary policy and macroeconomic announcement days, especially in the later sample.

We conclude the analysis by assessing the statistical significance of the evidence. As shown in Table 2, average returns are significantly higher on political announcement days over the 1926-2020 sample. The estimates of the difference and the standard error barely change if we control for lag returns, January, week day, and trading day effects. The evidence remains robust to including indicators for FOMC and Macroeconomic announcements; incidentally, macro announcement effect itself becomes insignificant with trading day controls, consistent with Ernst, Gilbert, and Hrdlicka (2019).

We further consider an alternative, non-parametric approach to assess the significance of the political announcement evidence. For Elections and SOTU separately, we run a bootstrap exercise in which we randomly draw a date within the same time frame of each event. We then compute the average return on these pseudo-announcement days, and consider the empirical distribution of the average returns across the simulations. Figure 3 plots the empirical densities of returns on the (pseudo) Elections and SOTU days. In the left column we show the distributions of returns drawn within the same year of the event, and in the right column we choose the window to match the month and year of the event. We also report the p-values for the test that the random draw from the empirical distribution exceeds the sample average return in the data. Across all the tests, we find that the p-values are well below 1%, which reinforces the Newey-West based evidence for the statistical significance of the political announcement return in Table 2.

1.3 Determinants of Announcement Returns

We next consider potential determinants of stock market reactions on the days of Election and SOTU address. We document that average returns at the political announcement days are higher at times of adverse economic conditions exemplified by low economic growth and high macroeconomic and financial volatility. These linkages appear substantially larger than for the FOMC and macroeconomic announcements.

Economic Growth. To link stock market reactions on announcement days to economic conditions, we run a regression of announcement-day excess market returns on lagged values of factors of interest:

$$r_t^{announcement} = const + \beta X_{t-1} + e_t. \tag{1}$$

Specifically, if t is the year of the Election or SOTU address, we use the values of the factors as of the end of December of the preceding year, $t-1$. To capture aggregate economic conditions, the factor X corresponds to annual changes in real GDP growth or unemployment.

Table 3 shows that political announcement-day returns are higher at times of low economic growth. The slope coefficients are negative on GDP growth and positive on unemployment, and are significant over the 1926-2020 sample. Interestingly, the link between returns and past economic conditions is considerably stronger on political announcement days compared to typical days in the sample, or days of FOMC and macroeconomic announcements. As shown in Figure 4, in most cases the slope coefficients on the factors are magnified, and the predictive R^2s are larger on the days of political announcements compared to monetary policy and especially macroeconomic announcement days.

Volatility and Uncertainty. Intuitively, times of announcements coincide a build up of uncertainty which resolves with the news. Following the announcement literature, we next examine the relation of excess returns to past or current measures of aggregate uncertainty and volatility.

Figure 5 shows the average dynamics of VIX three days before and after the announcement days. The SOTU and FOMC patterns are remarkably similar in the overall level and dynamics around the announcements: market volatility builds up prior to the delivery day, and then goes down at the announcement day. The elections are associated with an even larger level of uncertainty, which also dissipates leading to and after the election day. Quantitatively, the VIX drops by about 6% over the three day before the Elections and by about 2% before the SOTU and FOMC days.

The amount of volatility and uncertainty prior to the announcement is a significant predictor of the excess market return on that day. To assess the statistical evidence, we adopt the same predictive setup as in (1), and regress realized excess announcement-day returns

on past measures of volatility. Some of our volatility indicators are available on daily frequency. These include the VIX, Economic policy uncertainty index of Baker, Bloom, and Davis (2016), 30-day realized variance of stock market returns, GARCH(1,1) measure of conditional daily variance, and the cross-sectional volatility constructed as a cross-sectional variance of returns across 49 industry portfolios. For these measures we analyze the relationship between announcement-day returns and the volatility the day prior. Real, macroeconomic, and financial uncertainty indices of Jurado, Ludvigson, and Ng (2015) are available monthly, so we take their values as of the end of the month prior to the announcement. To guard against the effect of potential outliers in small samples, we take a log of the volatility measures.

Table 3 shows that volatility and uncertainty measures forecast higher announcement-day returns, consistently across different measures, sub-samples, and data frequencies. The estimated coefficients on volatility indicators are all positive and statistically significant, and the amount of explained variation is quite pronounced. With an exception of the EPU, the R^2s in predicting the Election-day returns are all in double digits, and range between 18% for the cross-sectional volatility to 32% for the VIX and real uncertainty index. For the SOTU address, the R^2s are 5% for the GARCH, realized market volatility, and macro and real uncertainty indices, and rise to 12% for the financial volatility and 23% for the VIX index.

The high predictability of market returns by past volatility is accentuated on political-announcement days, relative to all the other days or the days of FOMC or Macro announcements. As shown in Figure 6 and as is known in the literature, past volatility is a poor predictor of short-term stock returns on typical days, so that the predictive slope coefficients and the R^2s are essentially zero across all the volatility measures. The return predictability is also absent on macroeconomic announcement days. There is some evidence in the data for a positive relation between past volatility and stock returns on the FOMC announcement days. Across all the volatility indicators, however, the predictive R^2 are larger for the returns on political announcement days.

An increase in the stock market index on SOTU days further coincides with a concurrent drop in VIX. The relationship is consistent with a standard volatility leverage effect, which prescribes a negative conditional correlation between returns and volatility. To examine the effects of current and past volatility on current stock returns, we augment the regression specification in equation (1) to include both the past-level of VIX and a contemporaneous change in the VIX index. As shown in Table A.2, the leverage effect are very significant and negative on announcement days. Combined with a predictive effect of the volatility, the current VIX explains two-thirds of the variation in Election-day and three-quarters of the

variation in SOTU-day returns. These magnitudes are quite larger than on typical days, or days of FOMC and Macroeconomic announcements, on which the current and past VIX explains only about 50% of the return variation.

1.4 Other Asset Markets

In this section we expand our evidence beyond the daily returns on the U.S. aggregate stock market index.

Pre- and Post-announcement Effects. Our benchmark analysis focuses on the stock market reaction on the day of the political announcement versus all the other days. Following the literature, we next examine the evidence for systematic price changes preceding to and following the announcements.

Table 4 shows the average stock market returns three days before and after the Elections and SOTU address, and compares the evidence to the FOMC and Macroeconomic announcements. There is no evidence in the data for sizeable systematic market adjustments in the days following the political, monetary, or macroeconomic announcements. The next-day average returns following the elections or macroeconomic announcements (the so-called "post-announcement drift") are actually negative in our sample, and they are near the all-time average following the FOMC meetings. The average returns on the days following the SOTU address are 13 basis points, just under a half of the SOTU-day average. The estimate is insignificant over the whole sample, with a Newey-West t-statistic under 1, and appears to be driven by the first half of the sample. As shown in Table A.3 in the Appendix, the next-day average return decreases from 23 basis points over the 1926-1964 sample to 13 basis points in 1965-1993, to under 2 basis points post 1994. The evidence for a decline of the post-announcement return can potentially be attributable to technological improvements which made the President's message more readily available and easily interpretable in real time. The SOTU address was first broadcast on television back to 1947, and the delivery switched from afternoon to evening in 1965. These changes potentially allow the markets to digest the news and incorporate the information into asset prices faster, thus reducing systematic price reactions days following the announcement.[5]

Similarly, there is no evidence in the data for systematic price reactions preceding the SOTU address: the average daily returns drop to single-digit basis points, and their standard deviation increases, so the returns are statistically and economically indistinguishable

[5]The decline in the post-announcement drift also occurs for the FOMC days. Indeed, the Table shows that the stock market returns average 10 basis points the day after the FOMC announcement prior to 1994 and go down to -0.3 basis points post 1994, so there is no significant market reaction the day after SOTU or FOMC messages in the modern post-1994 period.

from the all-day average. Consistent with the stock behavior over the FOMC and Macro announcements, the SOTU-day abnormal return (the so-called "pre-announcement drift") is thus concentrated on the day of the address. Interestingly, the evidence suggests a stronger drift pre Elections, which may extend over several days. The average daily return stays at about 30 basis points 3 and 2 days before the elections, and it rises to 40 basis the day prior the elections and to 50 basis points on the Election day. At the same time, the standard deviation of returns also increases before the elections, so it is challenging to evaluate the statistical significance of the evidence beyond 2 to 3 day horizon.

We next zoom in on intraday patterns to understand the dynamics of the stock market leading to the SOTU address. For this exercise, we use hourly price changes in the Dow Jones index which go back to the 1930s. The top panel of Table 5 shows that the run-up in prices is concentrated on the day of and hours leading to the address, with limited average market reaction the night before and after. The systematic increase in stock prices over a short time interval prior to the message parallels the findings of the pre-announcement drift around the FOMC and macroeconomic announcements (Lucca and Moench (2015), Hu, Pan, Wang, and Zhu (2021)). Interestingly, the timing of the address changed from early afternoon (before market close) to late evening (after market close) in 1964, which provides a "natural experiment" to understand the effect of announcement timing on price changes. In pre-1964 sample the price run-up takes place in the morning prior to the start of the SOTU delivery, with little average market reaction in the afternoon. Since 1964, however, the timing of the price run-up changes from morning to afternoon, following the move of the address from afternoon to evening. The concomitant change in the timings of the price reaction and the address provides further direct evidence for the pre-announcement effects found in the literature.

In the same vein, we can explore the change in the stock market trading on the Election day. Before 1969, Election day was a stock market holiday, so the stock markets were closed. For this period, we use the calendar day prior to elections to measure stock market return on the day of the event. Post 1970, the stock markets are open on the Election day, and the stock market return can be measured on the same calendar day. The evidence is very similar across the two subsamples. Average returns are increasing as we approach the event day, and the highest return is realized on the calendar day just before the elections in the early sample, or on the Election day in the later part of the sample.

Foreign Stock Markets: U.S. Political Announcements. Do foreign stock markets also rise on the days of the U.S. political announcements? Table 7 shows the evidence within the G7 countries, along with an equally-weighted index excluding the U.S. Since 1980 the stock market return in the U.S. averages 51 basis points on the Election days and 35 basis points

on the SOTU days, relative to under 3 basis points on all the other days, consistent with the benchmark findings in Table 1. Similar to the U.S., the average return on the G6 ex-US index is 61 and 25 basis points on the Election and SOTU days, respectively, compared to under 2 basis points on other days. In the U.S. and internationally, the difference in returns on announcement and non-announcement days is economically and statistically significant.

The U.S. stock markets do not show any systematic reaction on the days following the elections or SOTU address. The post-election price drift is likewise absent in the foreign markets. At the same time, foreign stock returns appear quite large the day after the SOTU delivery. The next-day return on the G6 ex-US index averages nearly 28 basis points, which is even larger than the the index return on the day of the SOTU address. We conjecture that high post SOTU-day return internationally can be due to the time zone differences between the U.S. and other countries. The late evening delivery of SOTU in the U.S. occurs late night or early morning in Europe and Asia, so that close-to-close next-day return abroad can include the announcement effects. To verify this hypothesis, we collect open prices for several international indices. The sample is short: it starts in 1980s or 1990s for some countries, and the data is subject to measurement issues as the open-day prices occasionally appear stale (identical to close prices on the previous day). Table A.4 shows that indeed, most of the next-day return is driven by the overnight close-to-open price change, so that the next-day return is potentially affected by the pre-announcement effects.[6]

Foreign Stock Markets: Domestic Political Announcements. Alternatively, we can examine whether foreign stock markets rise on the days of the domestic political announcements. In Table 8 we show the results for the stock markets within the G6 ex-US group. The sample period is from 1970 to 2020, so the number of elections is limited and varies between 15 in Italy to 36 in France. Nevertheless, we find strong evidence in the data that international stock markets experience large excess return on their corresponding election days. The average election-day return ranges from 18 basis points in Japan to nearly 120 basis points in Canada, while the average returns on all the days is under 3 basis points. These patterns are consistent with the evidence in Pantzalis, Stangeland, and Turtle (2000) who, using weekly data, find positive abnormal return in international markets during the the two-week period prior to elections.

Bond Markets. Table 9 shows the evidence for nominal bond prices over the 1961 to 2020 sample. The overall patterns are quite similar on the Election and SOTU days. Bond prices systematically increase on the political announcement days, especially at the long end,

[6]The fact that we do not observe similar patterns for post-Election returns in foreign markets could be attributed by a more gradual dissemination of the election news over the day, and a relative ease in interpreting the election results over the SOTU address.

and they fall by about the same magnitude the following day. The evidence is marginally statistically significant, especially on the days following the announcement which experience large volatility in bond prices. The bond price reactions are smaller than for equities, and the implied changes in yields are under 1 basis point on average.

Trading Behavior. We next examine the trading behavior around the announcement days. Table 10 shows that stock volume declines on the days of political and monetary policy announcements and significantly spikes the next day. The evidence is weaker for macroeconomic announcements, for which the drop in the stock volume appears concentrated on the next day.

For political announcements and SOTU in particular, the statistical evidence is broadly consistent with the newspaper narrative describing the stock market behavior through time. To provide a few representative quotes from the newspaper articles: investors are "in a cautious mood awaiting SOTU" (1962), "investors showed further caution as they waited for SOTU" (1985), and "Directly after the delivery of the Message to Congress had been concluded selling broke out on the Stock Market" (1934);

Cross-Section of Equity Returns. We next consider the evidence for selected cross-sections of equity returns, as opposed to just the aggregate index. We examine the traditional size, book-to-market, and momentum portfolios, and add beta-sorted portfolios to examine the overall market effects.

Table 6 shows that there is a strong market effect across all the portfolios: all the returns in the cross-section are large on political announcement days. The high-to-low spreads tend to be larger on these days as well, but the statistical and economic magnitudes of the spreads vary across sorts. Stocks with high exposure to the market tend to outperform those with a low exposure. Indeed, the spread on the market-beta sorted portfolios is positive and about 20 times larger on Election and SOTU days versus all days. This parallels the evidence in Savor and Wilson (2014) who find that the CAPM holds well on FOMC and macro announcement days.

At the same time, the effects are mixed for traditional size, book-to-market, or momentum sorts. A size spread is large and negative on SOTU days; however, the evidence is driven by an early part of the sample. There are no systematic effects for the value spreads over the whole sample. The book-to-market spread is not statistically different on political announcement days, while the momentum spread is actually smaller on Election days.

2 Economic Interpretation

Theoretically, our evidence on stock market reaction on political event days is related to two concurrent economic mechanisms: the uncertainty resolution/risk premium channel for announcement returns (see e.g. Ai and Bansal, 2018, Wachter and Zhu, 2021, Ai, Bansal, and Han, 2021, Hu, Pan, Wang, and Zhu, 2021), and the endogenous government policy choice (Pastor and Veronesi, 2013, 2012).

The announcement risk premium literature maintains that the announcement days are associated with public releases of information about aggregate economic conditions. Investors are exposed to systematic announcement news, and higher risk prior to the announcement manifests in elevated asset risk premium on announcement days. Consistent with this story, we find that the average excess market returns are larger on political event days, even exceeding the ones on FOMC or macroeconomic release days. In addition, in the time series, aggregate volatility measures are significantly positively related to political announcement returns, suggestive of a high risk/high return relationship on these days. A related though distinct argument is the uncertainty resolution channel: uncertainty tends to decrease on announcement days, and quantitatively, past and current volatility accounts for a large fraction of the variation in realized returns. To the extent that the related news trickle in prior to the announcement, as opposed to being released at once at the announcement event, the continuous resolution of uncertainty could give rise to the pre-announcement drift (Hu, Pan, Wang, and Zhu, 2021, Ai, Bansal, and Han, 2021, Laarits, 2019).

Our evidence further shows that political announcement returns tend to be higher in adverse economic times, as captured by low GDP growth or high unemployment. This evidence is consistent with an insight in Pastor and Veronesi (2013) that government is more likely to introduce new policies when the economy is doing poorly. As investors expect these policies to be introduced at the political event days, the heightened policy premium is embedded in election and SOTU-day returns.

In the next section, we present an illustrative model which combines the ingredients of the uncertainty resolution and optimal government policy literatures above. We show how these channels relate to and can account for the key empirical facts of the data. In Section 2.4 we present a discussion of further theoretical and empirical extensions.

2.1 Model

Endowment. We assume a discrete-time endowment economy. The time runs from 0 to infinity, and there is a possibility for a one-time change in policy which can happen at a

known time T.[7] We take the time T in the model to correspond to the political event in our empirical analysis.

The endowment growth Δy_t is exogenous, and is i.i.d. over time. Before time T, its distribution is specified in a general form through a moment-generating function:

$$\alpha_0(u) = \ln E e^{u\Delta y_t}, \quad t \leq T. \tag{2}$$

For simplicity, we abstract from learning, and assume that the pre-policy announcement distribution of the endowment growth $\alpha_0(u)$ is known to investors.

At time T the government may choose to implement a new policy which changes the endowment dynamics. This captures, in a reduced form way, the change in governments over the election cycle, or announcements of new policies during the reigning government. Post announcement, the endowment distribution $\alpha_T(u)$ remains at $\alpha_0(u)$ if no new policy is adopted, or is changed to $\tilde{\alpha}(u)$ following the new policy. The investors do not know the new policy and how it affects the endowment before the announcement time T.

Preferences. The preferences of the representative agent are characterized by the Kreps and Porteus (1978) recursive utility of Epstein and Zin (1989) and Weil (1989),

$$U_t = \left[(1-\beta)C_t^{\frac{1-\gamma}{\theta}} + \beta(E_t U_{t+1}^{1-\gamma})^{\frac{1}{\theta}}\right]^{\frac{\theta}{1-\gamma}}, \tag{3}$$

where C_t is consumption, β is the subjective discount factor, γ is the risk-aversion coefficient, and ψ is the intertemporal elasticity of substitution (IES). For ease of notation, the parameter θ is defined as $\theta \equiv \frac{1-\gamma}{1-\frac{1}{\psi}}$. Note that when $\theta = 1$, that is, $\gamma = 1/\psi$, the recursive preferences collapse to expected power utility, in which case the agent is indifferent to the timing of the resolution of uncertainty of the consumption path. When the risk aversion is above (below) the reciprocal of the IES, the agent prefers early (late) resolution of uncertainty. Preference for the timing of uncertainty resolution plays a critical role in explaining the announcement premium, as we show in subsequent analysis and as demonstrated in the literature (see e.g. Ai and Bansal (2018)).

Epstein and Zin (1989) show that the asset pricing restriction for any asset return r_{t+1} satisfies a standard Euler condition:

$$E_t\left[e^{m_{t+1}+r_{t+1}}\right] = 1. \tag{4}$$

[7] It is possible to introduce multiple policy changes which occur at stochastic times, at the expense of analytical tractability of the model. The qualitative insights will remain the same.

The log of the intertemporal marginal rate of substitution m_{t+1} is defined as

$$m_{t+1} = \theta \log \delta - \frac{\theta}{\psi} \triangle c_{t+1} + (\theta - 1)\, r_{c,t+1}, \tag{5}$$

where $\Delta c_{t+1} = \log(C_{t+1}/C_t)$ is the log growth rate of aggregate consumption, and $r_{c,t}$ is the log return on the asset which delivers aggregate consumption as dividends (the wealth portfolio).

We further assume that the government is benevolent, and chooses the optimal policy which maximizes the utility of the representative consumer specified in equation (3). This assumption can be relaxed, say, by introducing stochastic political costs associated with the new policies, as in Pastor and Veronesi (2012) and Pastor and Veronesi (2013).

2.2 Model Solution

We first solve the economy at and after the policy announcement at time T. Next we work backwards to show the solution to asset valuations in the pre-announcement period.

At and After Policy Announcement. The i.i.d. nature of the economy and a one-time policy assumption simplifies our economic analysis. Indeed, the asset price and utility valuations are constant in the post-policy ($t \geq T$) period, and can be computed analytically. At the same time, this tractability allows us make little-to-no assumptions on the general distributions of the endowments and policy changes.

Indeed, we do not need to specify the parametric distribution of the endowment growth, $\alpha(u)$. It can be Gaussian, as in the majority of the literature, or can contain jumps or heavy tails. For our analysis, we only need to keep track of the log certainty equivalent of the endowment growth, defined as:

$$\xi \equiv \frac{1}{1-\gamma} \ln E e^{(1-\gamma)\Delta y} = \frac{\alpha(1-\gamma)}{1-\gamma}. \tag{6}$$

It is comprised of the unconditional mean, variance, and higher-order moments of the fundamentals:

$$\xi \approx E(\Delta c) + \frac{1}{2}(1-\gamma) Var(\Delta c) + \ldots. \tag{7}$$

In particular, the certainty equivalent increases with higher average endowment growth, lower variance, and thinner left tail. The impact of the higher-order moments is magnified by the coefficient of relative risk aversion γ.

Before time T, the distribution of endowment growth α_0 and its certainty equivalent ξ_0 are known to investors. At time T, the government may adopt a new policy, which, from

investors' ex-ante perspective, is a draw from a distribution of possible certainty equivalents $\tilde{\xi}$. For any possible certainty equivalent, we can compute the corresponding post-policy life-time utility of the representative agent:

$$\ln \frac{U_t}{C_t} = \frac{1}{1-\frac{1}{\psi}} \ln \left(\frac{1-\delta}{1-\delta e^{\tilde{\xi}\left(1-\frac{1}{\psi}\right)}} \right), \quad t \geq T. \tag{8}$$

The equation shows that ξ is indeed the sufficient statistics for the entire distribution of the endowment. In particular, the life-time utility is increasing in the certainty equivalent for any preference parameters.

Investors rationally anticipate that the benevolent government will choose an optimal policy to maximize their utility in equation (8). Given a monotone relationship between the life-time utility and the certainty equivalent, the optimal post-announcement endowment dynamics is thus characterized by the maximum between the old certainty equivalent and the potential new selection:

$$\xi_T = \max(\xi_0, \tilde{\xi}). \tag{9}$$

Thus, the endogenous policy choice by the government provides a call-option for the investors in terms of the distribution of their endowment.

Right after the policy change is revealed, the price of the consumption asset $PC_T \equiv \frac{P_T}{C_T}$ can be determined by the Euler equation, and it satisfies:

$$PC_T^{\theta} = (PC_T + 1)^{\theta} e^{\theta \log \delta + (1-\gamma)\xi_T}, \tag{10}$$

so that

$$PC_T = \frac{\delta e^{\xi_T\left(1-\frac{1}{\psi}\right)}}{1-\delta e^{\xi_T\left(1-\frac{1}{\psi}\right)}}. \tag{11}$$

When the inter-temporal elasticity of substitution ψ is bigger than one, post-policy valuations are increasing in the certainty equivalent ξ_T, as the substitution effect dominates the wealth effect. The price-to-consumption ratio remains constant for $t \geq T$.

Before Policy Announcement. To evaluate the announcement effect, let us consider asset valuations an instant Δ before the policy announcement.

Right before the announcement at time $T - \Delta$, the agents do not know the next-instant endowment certainty equivalent ξ_T. Compared to the post-policy equation for price-consumption ratio in equation (10), we now need to introduce an ex-ante expectation in the

right-hand side to condition out the realization of $\tilde{\xi}$ and thus ξ_T :

$$PC_{T-\Delta}^{\theta} = E_{T-\Delta}\left[(PC_T + 1)^{\theta} e^{\theta \log \delta + (1-\gamma)\xi_T)}\right], \tag{12}$$

so that

$$PC_{T-\Delta} = \left(E_{T-\Delta} PC_T^{\theta}\right)^{\frac{1}{\theta}}. \tag{13}$$

Using Jensen's inequality, it immediately follows that

$$E_{T-\Delta}\left(PC_T - PC_{T-\Delta}\right) \geq 0 \qquad \text{if } \theta < 1. \tag{14}$$

That is, for $\psi > 1$, we expect asset prices to systematically increase with the policy announcement when agents have preference for early resolution of uncertainty ($\gamma > 1/\psi$), so that policy event entails a positive announcement premium. When $\theta > 1$, agents have preference for later uncertainty resolution, and the announcement premium is negative. When preferences collapse to a standard expected utility, agents have no preference for uncertainty resolution ($\theta = 1$), and the announcement premium is zero.

The magnitude of the announcement premium is directly determined by the economic conditions. Indeed, when $\psi > 1$ and $\gamma > 1$,

$$\frac{\partial}{\partial \xi_0} E_{T-\Delta}\left(PC_T - PC_{T-\Delta}\right) < 0. \tag{15}$$

In a comparative statics sense, when the pre-policy economy is weak and ξ_0 is low, there is a greater probability that the government will adopt the ex-ante unknown policy. The greater uncertainty leads to a larger pre-announcement premium, consistent with with our empirical evidence that the political announcement returns are larger, on average, following low economic growth and high uncertainty and volatility. Intuitively, the announcement premium further increases in the uncertainty about the distribution of possible policy realizations $\tilde{\xi}$.

To incorporate pre-announcement drift, we can extend the argument and subdivide the $T - \Delta$ to T interval further to capture possible arrival of the new information prior to the announcement. Then, for some $\delta < \Delta$,

$$PC_{T-\Delta+\delta} = \left(E_{T-\Delta+\delta} PC_T^{\theta}\right)^{\frac{1}{\theta}}. \tag{16}$$

It further follows that

$$PC_{T-\Delta} = \left(E_{T-\Delta} PC_T^{\theta}\right)^{\frac{1}{\theta}} = \left(E_{T-\Delta}\left(E_{T-\Delta+\delta} PC_T^{\theta}\right)\right)^{\frac{1}{\theta}} = \left(E_{T-\Delta} PC_{T-\Delta+\delta}^{\theta}\right)^{\frac{1}{\theta}}, \tag{17}$$

and through a similar Jensen's inequality argument, $PC_{T-\Delta} \leq E_{T-\Delta} PC_{T-\Delta+\delta}$.

Finally, because $PC_{T-\Delta+\delta} \leq E_{T-\Delta+\delta} PC_T$, it follows that $E_{T-\Delta} PC_{T-\Delta+\delta} \leq E_{t-\Delta} E_{T-\Delta+\delta} PC_T = E_{T-\Delta} PC_T$. Thus,

$$PC_{T-\Delta} \leq E_{T-\Delta} PC_{T-\Delta+\delta} \leq E_{T-\Delta} PC_T. \tag{18}$$

This captures, in a reduced-form way, the notion that the arrival of new information, in the absence of any news to the realized endowment, leads to the pre-announcement drift. Of course, if there is no new information in period $T - \Delta + \delta$, then $PC_{T-\Delta} = PC_{T-\Delta+\delta}$, and there is no pre-announcement drift.

The solution of the economy can be further extended by characterizing asset prices PC_t for $t \leq T - 1$, much in the same way as the pre-announcement prices above. The exact solutions to prices depends on the belief process of the agents, and how it it interacts with the arrival of signals about the policy $\tilde{\xi}$. It is not relevant for our main object of analysis, so we for brevity we omit this discussion.

2.3 Quantitative Illustration

We consider a quantitative exercise to explain and illustrate the economic channels of the model.

We use daily frequency, to match the main part of our empirical evidence. We calibrate the pre-policy endowment dynamics to follow a Normal distribution with mean and volatility of 2%, annualized. For the preference parameters, we set γ to 10 and ψ to 2, so agents have preference for early resolution of uncertainty. The subjective discount factor is $\delta = 0.99995$, so that without a policy change, the real risk-free rate is just under 2%, annualized.

The certainty equivalent for the Normally-distributed endowment dynamics is calculated as, $\xi = E(\Delta y) + \frac{1}{2}(1-\gamma)Var(\Delta y)$. The distribution of policy realizations $\tilde{\xi}$ is parametrized over the possible certainty equivalents of endowment growth distributions post policy announcement at time T. We make the distribution of policy realizations $\tilde{\xi}$ truncated Normal, centered around the pre-policy certainty equivalent ξ_0. The upper and lower cutoffs for policy distribution are set two standard deviations away from its mean ξ_0, and are chosen to correspond to 0.5%, annualized, increase or reduction in the unconditional endowment mean, respectively. Expectations are computed numerically by discretizing the grid of possible policy realizations.

The solid line in Figure 7 depicts the distribution of possible certainty equivalents of endowment growth rates induced by a policy change. The distribution is centered around the current, pre-policy certainty equivalent identified by a dotted vertical line. The dashed hockey-stick line represents the optimal policy choice for the endowment growth after time

T. Investors anticipate that in the worst case, the economy dynamics remain the same as before, and there is a potential for a more favorable scenario with higher certainty equivalent.

We next consider the relation between the announcement premium, which we compute as $[E_{T-\Delta}PC_T/PC_{T-\Delta} - 1]$, and the key model parameters. At the benchmark parameter values, the announcement premium on the consumption asset is 20 basis daily. The announcement premium sharply decreases in the pre-announcement certainty equivalent of the endowment dynamics, as shown in the top panel of Figure 8.[8] In a comparative statics sense, the announcement premium is larger when the pre-announcement economy is performing worse, and has a lower mean or higher variance. Quantitatively, the reduction in the unconditional mean of the endowment growth by 0.2%, annualized, or an increase in endowment variance by 2.2%, annualized, doubles the announcement premium to 40 basis points, daily. In a similar way, the pre-announcement premium is increasing in the risk aversion coefficient γ, and in the standard deviation of possible policy realizations, $Std(\tilde{\xi})$.

2.4 Discussion and Extensions

In the arguments above, we relied on the preference for early resolution of uncertainty channel to explain the systematic patterns in returns at and pre announcement. The literature has also entertained other approaches to explain the evidence.

For example, a popular way to rationalize the pre-announcement drift is through the leakage hypothesis that the content of the announcement becomes revealed prior to its delivery (Cieslak, Morse, and Vissing-Jorgensen (2019)). At a certain level, as it is being prepared, all or parts of the SOTU address are likely to be known in advance by selected White House stuff or party functionaries. It is less obvious whether this argument can be made in the context of elections. Further, it is unclear how the private information from the political announcements could have been routinely used to make stock market gains over the long 1926-2020 sample. Indeed, the leakage hypothesis hinges on systematic errors by investors so that the announcement surprises do not average out to zero. Systematic surprises may occur in short and potentially non-representative samples, say, dominated by Fed easing (see Cieslak (2018)). They are arguably less wide-spread over the long sample and in the context of elections and broader government policy. Finally, some of our supplemental evidence is at odds with intuitive implications of the leakage story; this parallels the arguments of Ai, Bansal, and Han (2021) in the context of the FOMC announcements. Political event, and SOTU in particular, returns are less volatile on average, and there is less trading activity on the day of elections and SOTU address; the reverse should be true if markets receive (or

[8]For this exercise, we fix the distribution of $\tilde{\xi}$ at the benchmark, and do not recenter it at the new value of ξ_0.

perceive to receive) large amounts of private information on these days. Further, returns should persist beyond the announcement day if announcement information is being released at different times to the market. In the data, however, the correlation of returns at the announcement day with the ones the next day is effectively zero.

The literature considers other channels to explain the post-announcement drifts, which include statistical issues and institutional or behavioral explanations. With regards to the former, our key argument is that the political announcement evidence extends the traditional sample used in the literature back to 1926, which helps mitigate short-sample concerns. In addition, SOTU delivery is evenly distributed across days of the week and weeks of January and early February, which alleviates concerns about calendar effects. A drawback of our approach, however, is that major political announcements are much less frequent than FOMC or macroeconomic announcements, so we trade off longer sample for fewer observations. Finally, the literature sets forth explanations based on institutional or behavioural margins; see e.g. Di Maggio, Franzoni, Kogan, and Xing (2021) and Fisher, Martineau, and Sheng (2020). We leave it for future research to uncover and quantify the nature and magnitude of frictions which could consistently explain the stock market behavior over the long post-1926 sample.

3 Conclusion

We examine stock market dynamics around the political events associated with the elections and the SOTU address delivery in the U.S. Unlike macroeconomic and monetary policy announcements studied in the literature, political announcements go back to the 1920s, which allows to extend and refine the announcement evidence in a longer sample and an alternative context of broad government policy.

We find that stock market returns on political announcement days are far larger than on other days of the year. The announcement returns are predictable by economic and volatility fundamentals, and increase significantly in adverse times of low economic growth or heightened uncertainty and volatility. This evidence is consistent with an early resolution of uncertainty and the risk premium channel established in the literature, coupled with an optimal policy choice of the government to time policy adoptions in weak economic conditions.

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Tables and Figures

Table 1: **Announcement Day Market Returns**

	Obs.	Mean	Std. Dev.	Skew	Kurt
		A. All days			
1926-2020	24683	2.9	106.0	-0.1	19.5
		B. Elections			
1926-2020	47	54.3	99.3	0.7	5.9
1926-1964	20	63.9	101.4	0.1	6.9
1965-1994	14	34.3	102.2	0.3	3.2
1994-2020	13	61.0	97.6	2.2	7.8
		C. SOTU address			
1926-2020	76	28.6	76.3	-0.5	4.4
1926-1964	27	22.9	70.0	-0.6	2.6
1965-1994	25	39.8	74.8	0.5	4.0
1994-2020	24	23.5	85.9	-1.2	3.3
		D. FOMC and Macro Announcements			
FOMC 1965-1993	149	12.9	89.3	0.2	3.9
FOMC 1994-2020	209	28.5	115.0	0.9	6.1
Macro 1965-1993	605	4.5	87.9	-1.1	11.0
Macro 1994-2020	621	9.8	118.1	-0.6	9.0

The table reports summary statistics for excess market returns on all the days in the sample (panel A); general election days (Panel B); days of the SOTU address (panel C), and FOMC and Macroeconomic announcements (panel D). The return statistics are in basis points.

Table 2: **Announcement Day Returns: Statistical Significance**

Elec/SOTU	(t-stat)	FOMC	(t-stat)	Macro	(t-stat)	Lag	Jan	Weekday	Trading
				Election:					
51.5	(3.59)								
49.0	(3.43)					Y			
51.7	(3.60)						Y		
59.4	(4.12)							Y	
46.2	(3.24)								Y
52.0	(3.64)					Y	Y	Y	Y
52.0	(3.63)	19.5	(3.49)	5.0	(1.86)				
52.3	(3.66)	16.8	(2.94)	0.7	(0.26)	Y	Y	Y	Y
				SOTU:					
25.8	(2.96)								
25.9	(2.97)					Y			
24.2	(2.72)						Y		
25.9	(2.91)							Y	
24.9	(2.84)								Y
23.8	(2.62)					Y	Y	Y	Y
25.5	(2.92)	19.3	(3.45)	4.9	(1.85)				
23.5	(2.58)	16.6	(2.90)	0.6	(0.24)	Y	Y	Y	Y

The table reports the slope coefficients and the t-statistics in the regressions of excess market returns on Election (top panel) or SOTU (bottom panel) indicators. Additional controls include indicators for FOMC and macroeconomic announcements, as well as lag return, January, weekday, and trading day effects. Data are daily from January 1926 to February 2020; the FOMC announcements data start in 1978 and macroeconomic announcements data start in 1958.

Table 3: **SOTU Market Returns: Macroeconomic and Uncertainty Factors**

	Election			SOTU		
	Effect	tstat	R^2	Effect	tstat	R^2
Macroeconomy:						
GDP	-8.6	(-2.53)	21.4	-2.9	(-1.91)	2.3
Unemployment	0.2	(2.79)	18.3	0.1	(1.80)	2.4
Financial Vol:						
GARCH Volatility	48.2	(2.32)	19.8	26.3	(1.89)	5.3
Realized Volatility	38.1	(2.33)	18.9	19.8	(2.00)	4.8
VIX	142.5	(1.58)	32.4	111.3	(3.51)	23.2
Cross-sectional Volatility	43.0	(1.99)	17.8	32.2	(1.95)	9.7
Financial Uncertainty	40.4	(1.71)	18.4	26.4	(2.50)	11.5
Macro Vol:						
Macro Uncertainty	46.5	(2.22)	24.3	16.9	(1.89)	4.7
Real Uncertainty	53.0	(2.47)	31.5	18.9	(2.01)	5.9
Economic Policy Uncertainty	0.0	(0.16)	0.1	0.4	(1.78)	6.3

The table reports the regression evidence of the predictability of Election or SOTU stock returns by the lag of the macroeconomic and volatility factors. Newey-West standard errors with 1 lag. Data are daily from January 1926 to February 2020.

Table 4: **SOTU Market Returns: Interday Evidence**

	Election		SOTU		FOMC		Macro	
	Mean	Std. Dev.	Effect	Std. Dev.	Effect	Std. Dev.	Effect	Std. Dev.
T-3	34.0	92.8	9.9	94.4	-2.6	102.9	2.7	93.4
T-2	29.6	112.2	1.3	82.7	2.4	91.0	7.4	98.8
T-1	40.2	64.4	1.0	76.6	4.3	115.9	1.1	91.6
T	54.3	99.3	28.6	76.3	22.0	105.2	7.4	98.7
T+1	-7.3	181.4	13.0	88.9	4.2	110.0	-0.4	108.0
T+2	29.8	158.6	-0.4	87.6	6.1	94.5	1.0	96.3
T+3	3.8	126.4	3.3	92.7	5.8	107.9	3.5	95.3

The table reports summary statistics for excess market returns three days before and after political, monetary policy, and macroeconomic announcements. Means and standard deviations are in basis points. Data are daily from January 1926 to February 2020; the FOMC announcements data start in 1978 and macroeconomic announcements data start in 1958.

Table 5: **SOTU Market Returns: Intraday Evidence**

	Obs.	Mean	Std. Dev.
	Jan 1933 - Feb 2020		
T-1 close to T open	76	5.3	33.6
T open to SOTU	76	19.0	70.7
SOTU to T close	76	0.7	26.2
T close to T+1 open	76	6.8	37.1
	Jan 1933 - Dec 1964		
T-1 close to T open	27	0.9	27.0
T open to SOTU	27	14.2	44.9
SOTU to T close	27	2.1	44.4
T close to T+1 open	27	7.4	35.0
	Jan 1965 - Feb 2020		
T-1 close to T open	49	7.7	36.8
T open to T noon	49	4.7	48.3
T noon to T close (SOTU)	49	16.8	59.5
T close to T+1 open	49	6.5	38.5

The table reports summary statistics for the intraday and overnight returns on Dow Jones Industrial Average price index around the SOTU address. Means and standard deviations are in basis points. Data are hourly from January 3 1933 to February 28 2020.

Table 6: **Political Announcement Return in the Cross-Section of Stocks**

	Election			SOTU			All day	
	Mean	Std. Dev.	(t-stat)	Mean	Std. Dev.	(t-stat)	Mean	Std. Dev.
Beta 1	25.2	55.9	(2.13)	23.2	50.3	(2.78)	7.3	63.9
Beta 10	60.2	158.3	(2.12)	67.6	144.9	(3.52)	9.6	186.0
Beta 10-1	35.0	124.1	(1.75)	44.4	137.0	(2.70)	2.3	149.8
SD 1	24.5	49.4	(2.89)	16.0	31.9	(3.55)	3.1	48.5
SD 10	35.4	135.5	(0.89)	83.8	133.5	(4.39)	17.2	151.2
SD 10-1	10.9	102.4	(-0.21)	67.8	125.9	(3.75)	14.1	126.0
Size 1	35.7	109.3	(1.89)	53.3	86.0	(4.98)	4.5	119.4
Size 10	50.4	98.1	(3.20)	26.1	84.2	(2.40)	3.1	99.2
Size 10-1	14.8	110.4	(0.97)	-27.1	96.7	(-2.34)	-1.4	93.0
BM 1	49.0	105.8	(2.89)	25.8	81.9	(2.44)	3.0	106.4
BM 10	45.1	106.9	(2.49)	36.8	112.8	(2.47)	5.0	154.8
BM 10-1	-3.9	77.9	(-0.50)	11.0	93.1	(0.85)	2.0	103.9
Mom 1	57.8	128.5	(2.95)	38.5	127.5	(2.60)	0.7	159.0
Mom 10	34.8	102.7	(1.89)	40.2	103.8	(2.92)	5.7	133.6
Mom 10-1	-23.0	98.7	(-1.88)	1.6	105.4	(-0.27)	4.9	131.0

The table reports summary statistics for excess returns on political announcement days in the cross-section of stocks. Means and standard deviations are in basis points. The t-statistic is for the difference of mean returns on political announcement versus all the other days. Data are daily from January 1926 to February 2020.

Table 7: **Foreign Stock Market Returns: U.S. Political Events**

	Election			Election+1			Non-Election	
	Mean	Std. Dev.	(t-stat)	Mean	Std. Dev.	(t-stat)	Mean	Std. Dev.
Canada	52.9	171.9	(1.49)	-1.3	125.6	(-0.13)	1.8	114.4
France	80.4	140.0	(2.80)	1.9	118.0	(-0.01)	2.1	135.3
Germany	63.5	147.5	(2.08)	-22.2	121.5	(-1.01)	2.2	135.4
Italy	87.9	184.2	(2.37)	1.3	143.7	(0.02)	0.7	153.6
Japan	55.1	137.9	(1.91)	13.3	202.6	(0.27)	2.4	129.6
UK	62.4	130.4	(2.34)	14.8	93.3	(0.71)	1.4	130.1
US	50.8	112.6	(2.15)	-3.0	176.7	(-0.16)	2.5	107.9
G6	67.0	129.9	(2.51)	1.3	87.4	(-0.03)	1.8	97.6
	SOTU			SOTU+1			Non-SOTU	
	Mean	Std. Dev.	(t-stat)	Mean	Std. Dev.	(t-stat)	Mean	Std. Dev.
Canada	10.1	98.5	(0.55)	2.8	96.1	(0.06)	1.9	114.6
France	13.4	100.6	(0.72)	41.6	101.8	(2.53)	2.2	135.5
Germany	47.2	99.8	(2.95)	33.4	122.7	(1.66)	2.2	135.5
Italy	35.8	99.5	(2.30)	20.3	104.7	(1.22)	0.7	153.8
Japan	12.9	136.1	(0.50)	26.1	126.7	(1.22)	2.5	129.6
UK	28.5	125.7	(1.41)	42.5	93.2	(2.88)	1.4	130.1
US	34.7	94.2	(2.24)	2.9	92.4	(0.02)	2.4	107.9
G6	24.6	72.0	(2.07)	27.8	62.5	(2.72)	1.8	97.8

The table reports summary statistics for excess market returns on foreign stock indices on the Election (top panel) and SOTU (bottom panel) day and the following day. Means and standard deviations are in basis points. The t-statistic is for the difference of mean returns on (following) the event versus all the other days. Data are daily from January 1970 to February 2020.

Table 8: **Foreign Stock Market Returns: Foreign Political Events**

	Election			Non-Election		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Canada	15	118.55	275.39	12587	1.79	114.20
France	36	19.82	146.00	12566	2.20	135.37
Germany	13	52.33	99.45	12589	2.28	135.44
Italy	15	43.63	140.44	12587	0.78	153.69
Japan	24	17.63	103.90	12578	2.48	129.64
UK	13	32.74	120.98	12589	1.49	130.12

The table reports summary statistics for excess market returns on foreign stock indices on the days of the elections in the corresponding country. Means and standard deviations are in basis points. Data are daily from January 1970 to February 2020.

Table 9: **Political Announcement Excess Bond Returns**

	Election			Election+1			Non-Election	
	Mean	Std. Dev.	(t-stat)	Mean	Std. Dev.	(t-stat)	Mean	Std. Dev.
1y	1.8	6.2	(1.25)	0.7	6.5	(0.26)	0.3	6.9
5y	10.8	23.3	(2.35)	-5.1	27.0	(-1.20)	0.8	29.4
10y	11.9	32.3	(1.88)	-4.2	59.5	(-0.45)	0.7	43.6
30y	30.5	64.1	(2.52)	-25.3	109.4	(-1.32)	1.0	72.5
10y-1y	10.1	31.3	(1.70)	-4.8	56.6	(-0.51)	0.4	40.6
	SOTU			SOTU+1			Non-SOTU	
	Mean	Std. Dev.	(t-stat)	Mean	Std. Dev.	(t-stat)	Mean	Std. Dev.
1y	1.0	6.7	(0.70)	-0.3	4.4	(-1.02)	0.3	6.9
5y	6.4	26.8	(1.51)	-4.2	20.7	(-1.74)	0.8	29.4
10y	7.7	29.8	(1.67)	-8.2	38.2	(-1.70)	0.7	43.7
30y	13.3	54.7	(1.62)	-13.9	64.4	(-1.67)	1.0	72.6
10y-1y	6.7	27.7	(1.63)	-8.0	37.4	(-1.62)	0.4	40.7

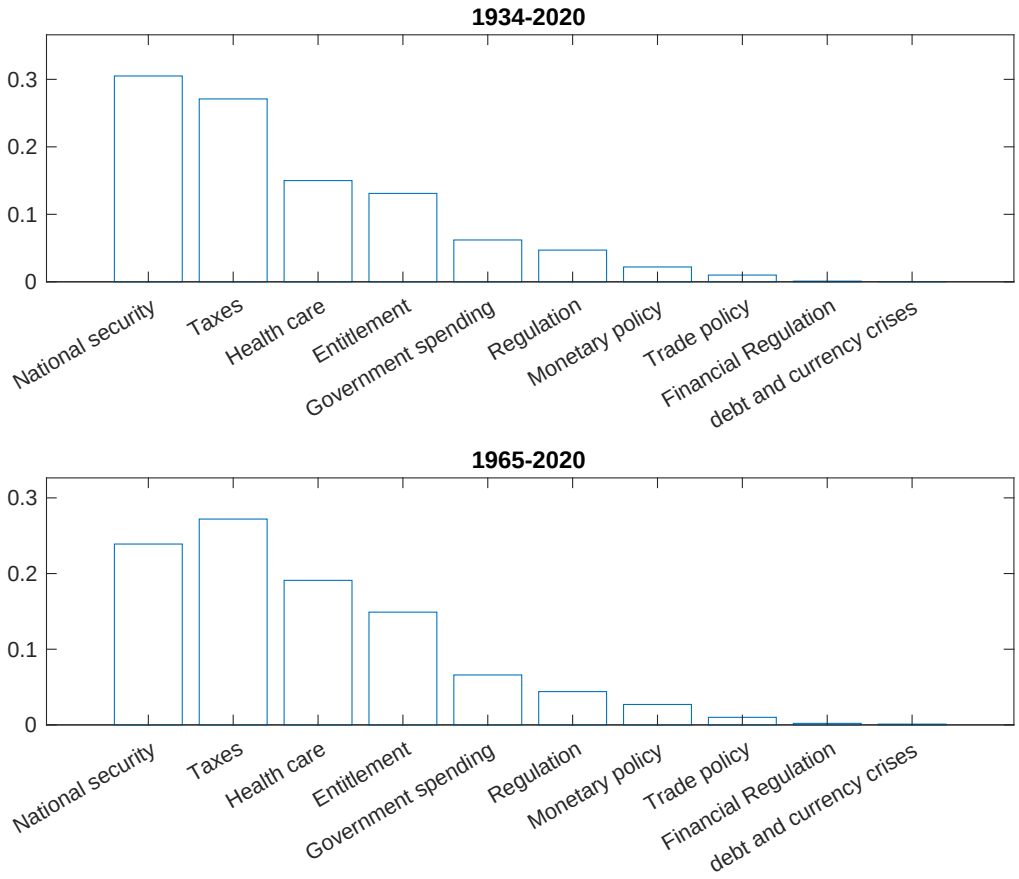
The table reports summary statistics for excess market returns on nominal bonds on political announcement day and the following day. Means and standard deviations are in basis points. The t-statistic is for the difference of mean returns on (following) the event versus all the other days. Data are daily from June 1961 to February 2020.

Table 10: **Political Announcement Day Stock Volume**

	T			T+1		
	Mean	Std. Dev.	t-stat	Mean	Std. Dev.	t-stat
Election	-16.5	47.0	(-2.42)	26.9	43.9	(4.20)
SOTU	-4.5	25.4	(-1.55)	10.8	23.3	(4.07)
FOMC	-1.6	19.0	(-1.60)	7.4	17.4	(7.92)
Macro	-0.1	16.0	(-0.28)	-2.8	18.3	(-5.66)

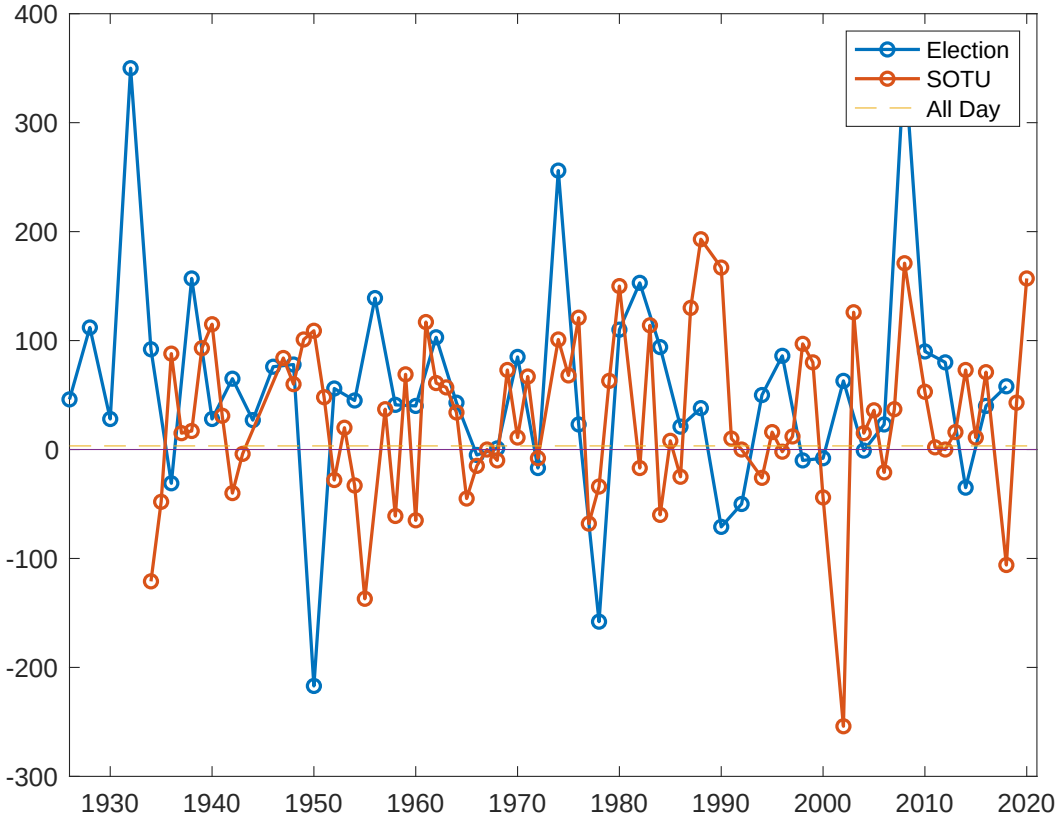
The table reports changes in stock trading volume on (subsequent) to the political, monetary policy, and macroeconomic announcements. The t-statistic is for the difference of effects on SOTU versus all the other days. Data are daily from January 1926 to February 2020; the FOMC announcements data start in 1978 and macroeconomic announcements data start in 1958.

Figure 1: **Content of SOTU Addresses**



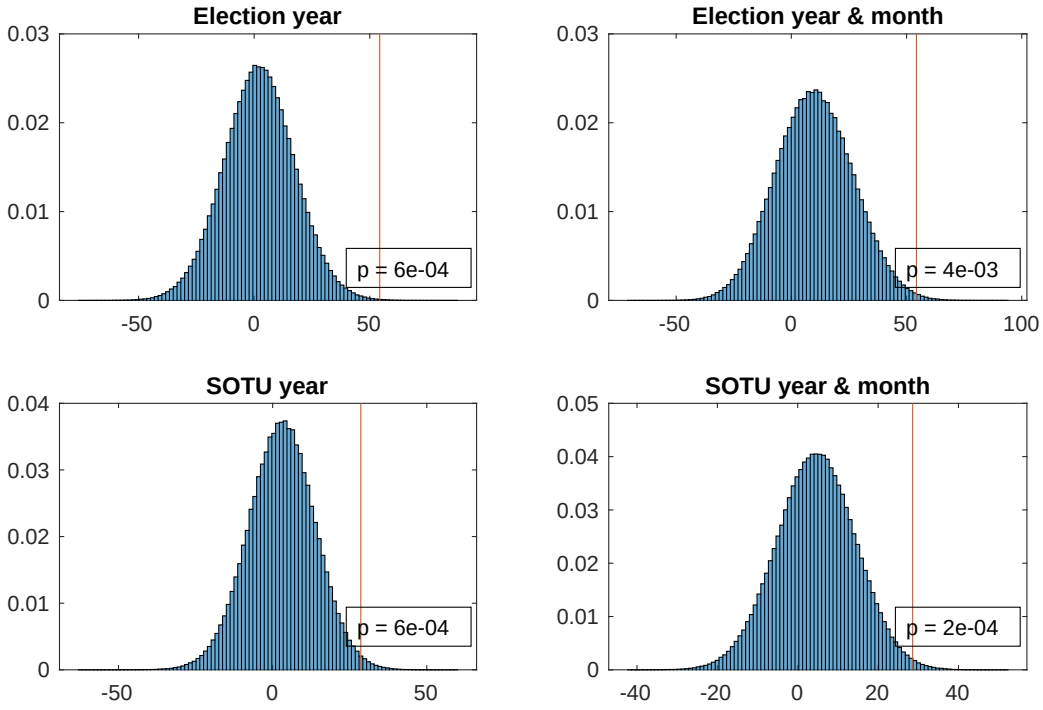
The figure shows the relative share of each topic in the SOTU addresses. The classification is based on word list provided in the vocabulary of Baker, Bloom, and Davis (2016).

Figure 2: **SOTU-day Returns**



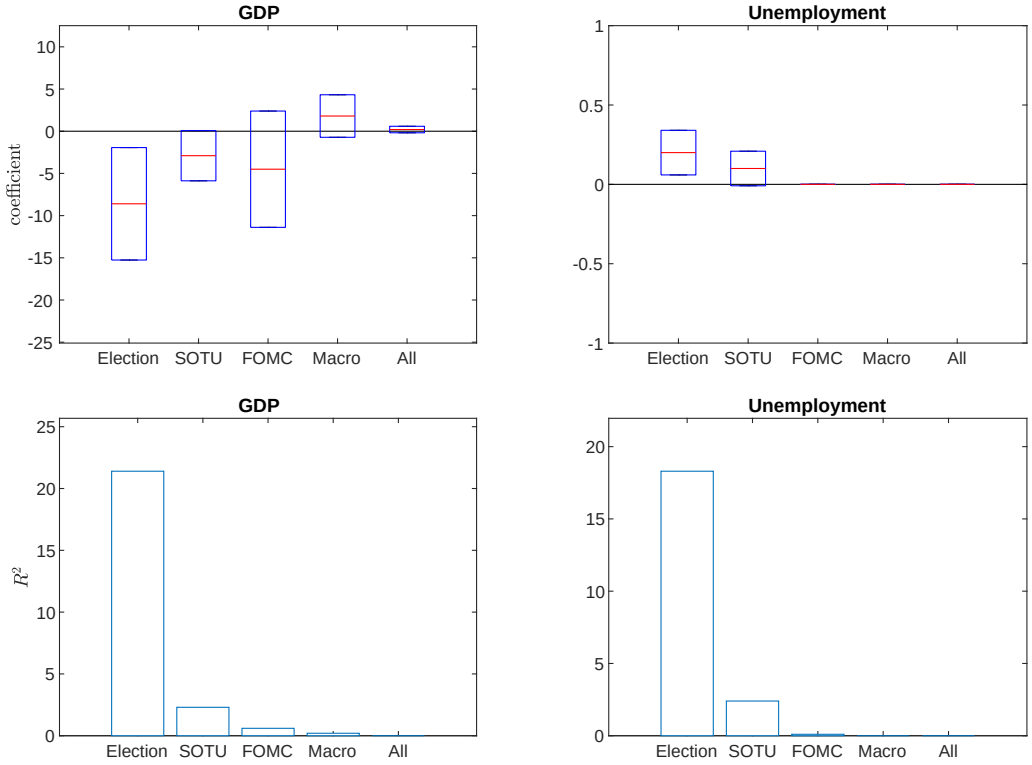
The figure shows excess market returns on political announcement days, in basis points. The red dashed line is the average excess return on all days, 3.3 basis points.

Figure 3: **Empirical Distribution**



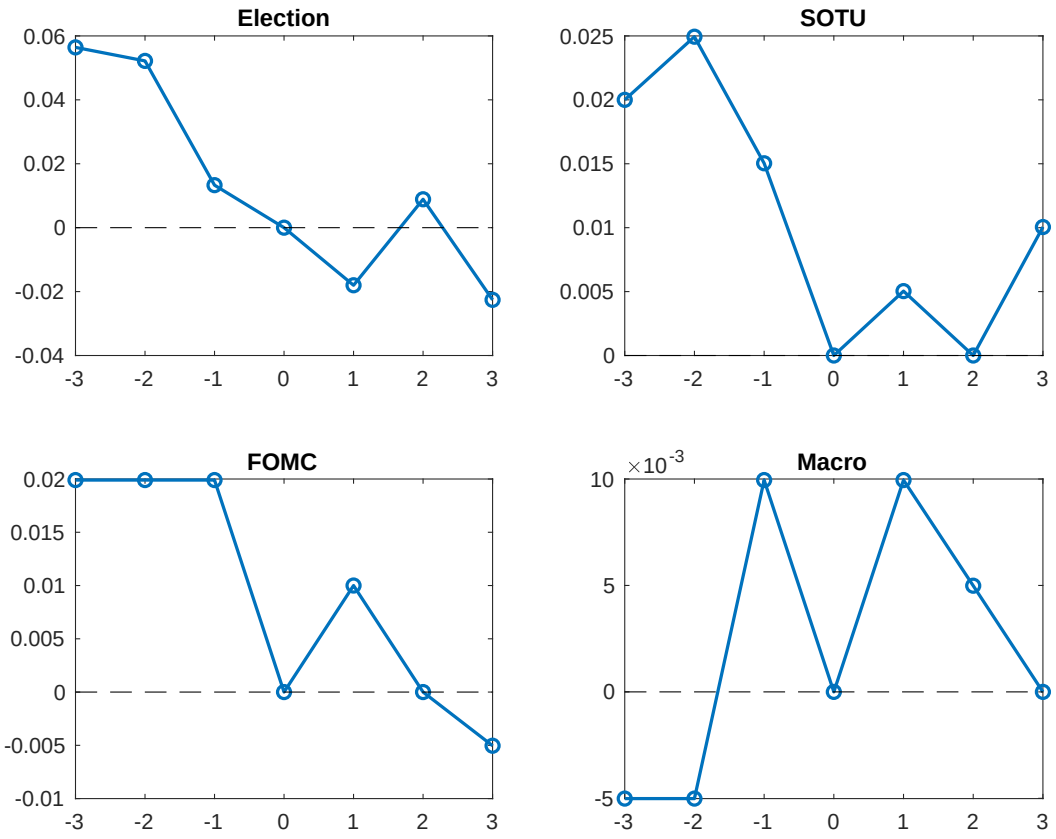
The figure shows the empirical bootstrap distributions associated with Elections and SOTU returns. The returns are drawn within the year (left panel) and year and month (right panel) of the political event. Data are daily from January 1926 to February 2020.

Figure 4: **Announcement Returns: Economic Growth Factors**



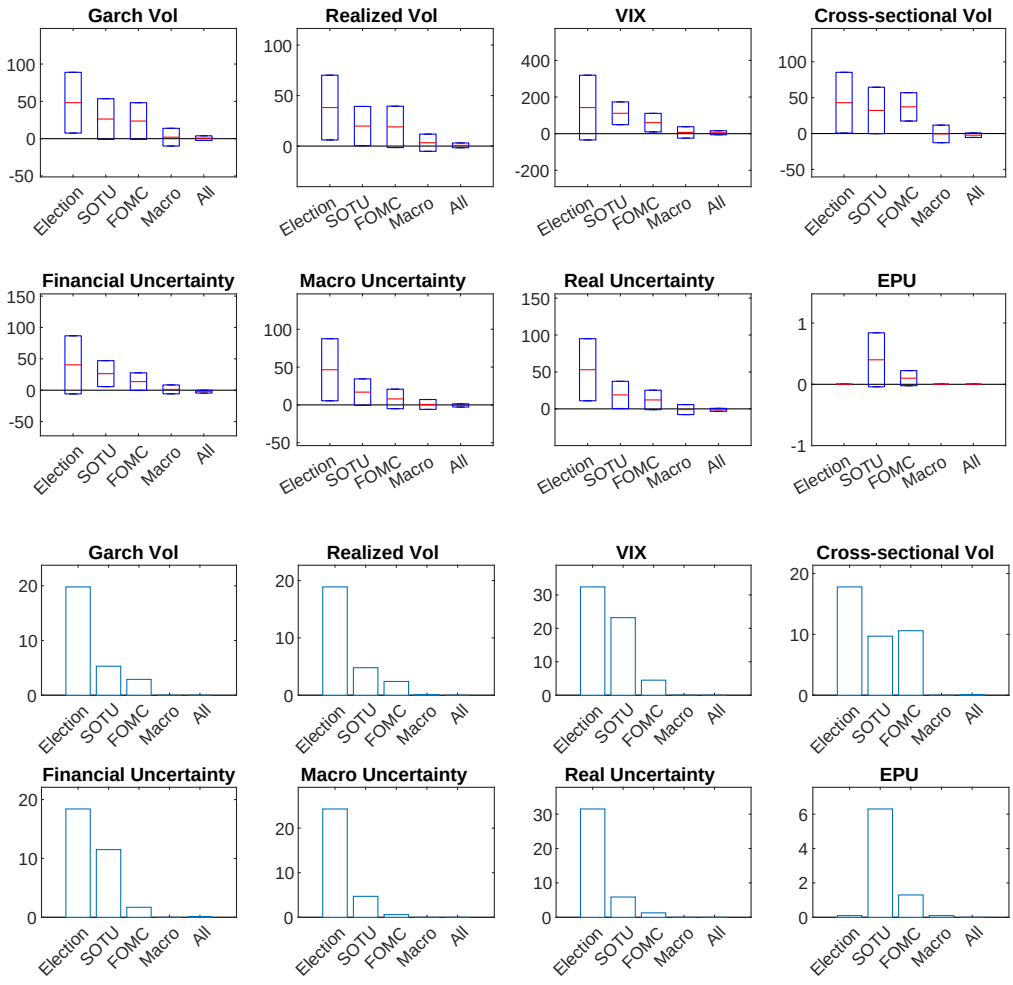
The figure shows the coefficients and the confidence intervals (the upper panel) and the R^2s (the lower panel) in regressions of political, monetary policy, and macroeconomic announcement day returns on prior real GDP growth and unemployment. Data are daily from January 1926 to February 2020; the FOMC announcements data start in 1978 and macroeconomic announcements data start in 1958.

Figure 5: **VIX around Announcements**



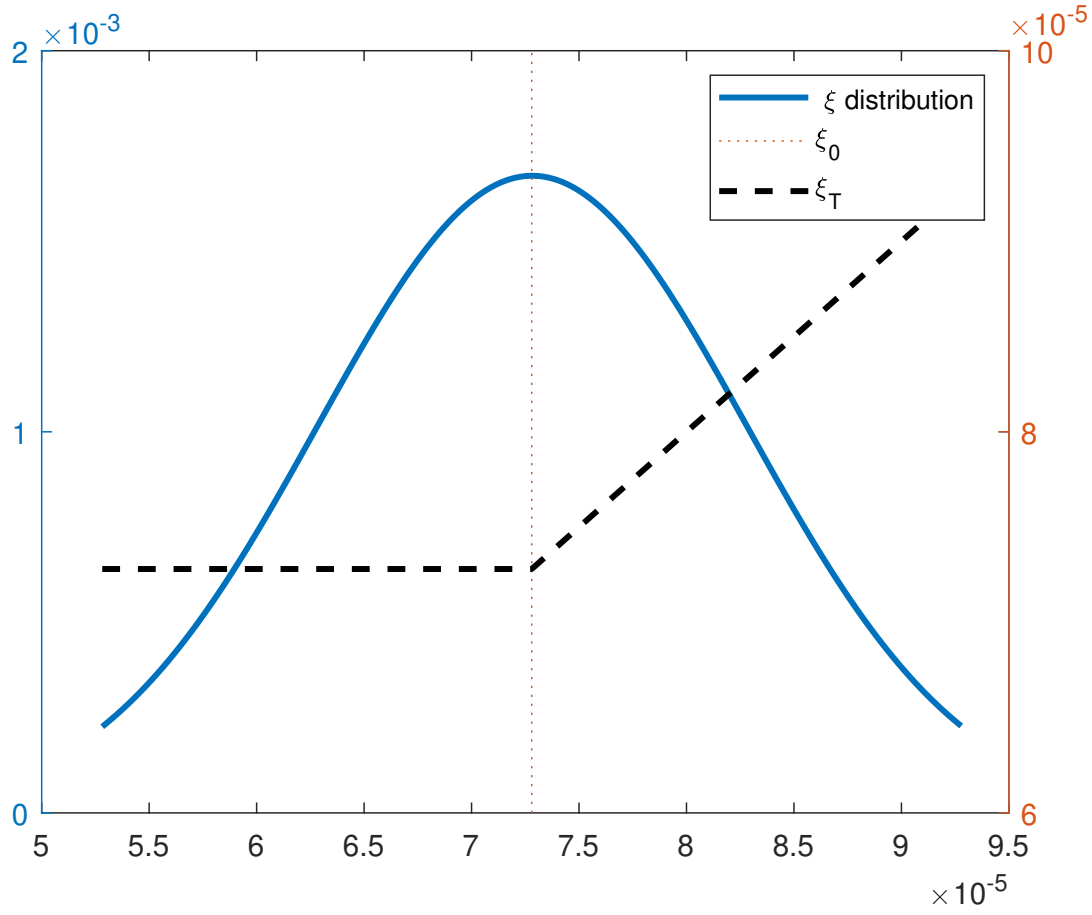
The figure shows the average VIX index, in log units, three days before and after the political, monetary policy, and macroeconomic announcements. The dashed line is the average VIX on all days. Data are daily from January 1986 to February 2020.

Figure 6: **Announcement Returns: Volatility and Uncertainty Factors**



The figure shows the coefficients and the confidence intervals (the upper panel) and the R^2s (the lower panel) in regressions of political, monetary policy, and macroeconomic announcement day returns on prior volatility and uncertainty factors. Data are daily from January 1926 to February 2020; the FOMC announcements data start in 1978 and macroeconomic announcements data start in 1958.

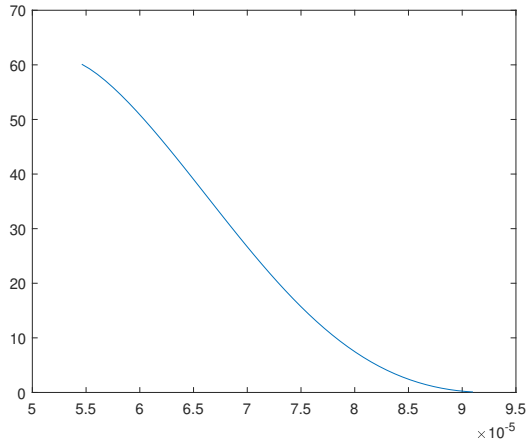
Figure 7: **Optimal Policy Choice**



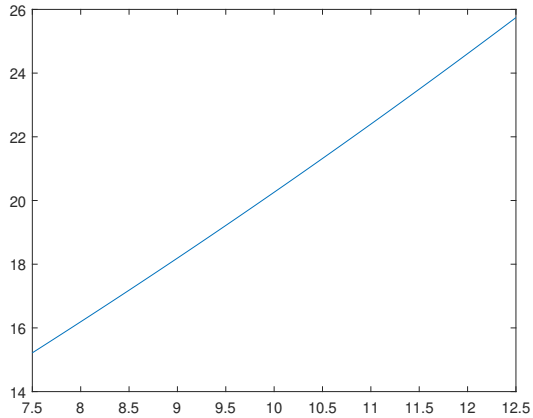
The figure shows the distribution of possible consumption certainty equivalents implied by the policy $\tilde{\xi}$ (blue line with left Y-axis), the certainty equivalent implied by the optimally-adopted policy ξ_T and the pre-policy certainty equivalent ξ_0 (right Y-axis).

Figure 8: **Model Announcement Premium**

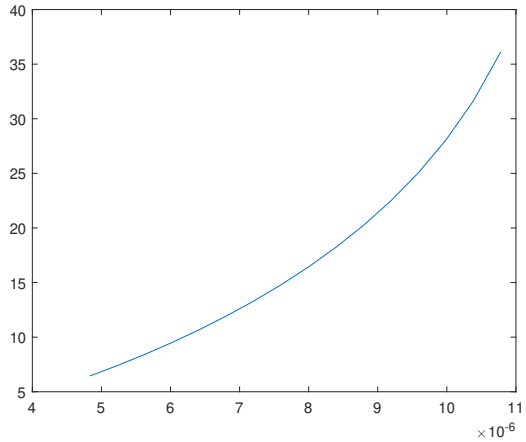
a) As a function of pre-policy certainty equivalent ξ_0



b) As a function of risk aversion γ



c) As a function of policy standard deviation $Std(\tilde{\xi})$



The figure shows the model-implied announcement premium, daily in per cent, for different levels of pre-policy certainty equivalent ξ_0 (top panel), risk aversion γ (middle panel), and the standard deviation of the policy distribution, $Std(\tilde{\xi})$ (bottom panel).

Appendix

Table A.1: **Election and SOTU Market Returns**

	obs.	Return	
		Announcement	Non-announcement
		Election Day:	
General election	23	69.3	2.9
Midterm election	24	39.8	2.9
Republican	23	79.7	1.0
First term	29	57.6	3.2
		SOTU Day:	
Republican	35	25.7	1.5
First term	33	41.6	2.1
President:			
Franklin D. Roosevelt	10	14.6	5.1
Harry S. Truman	6	62.3	4.4
Dwight D. Eisenhower	7	-24.3	5.3
John F. Kennedy	3	78.3	2.0
Lyndon B. Johnson	6	6.2	3.1
Richard M. Nixon	4	42.8	-3.4
Gerald R. Ford	3	40.3	4.2
Jimmy Carter	3	59.7	2.2
Ronald Reagan	7	49.0	2.2
George Bush	3	59.0	3.2
Bill Clinton	7	19.0	4.6
George W. Bush	7	15.7	-1.7
Barack Obama	7	32.3	6.3
Donald J. Trump	3	31.3	3.8
Day of the week:			
Monday	11	74.0	-11.7
Tuesday	30	21.8	2.6
Wednesday	20	40.4	8.5
Thursday	11	-25.2	5.3
Friday	4	44.0	6.1
Week of the year:			
1	14	18.7	19.4
2	15	7.1	-1.8
3	10	37.3	4.0
4	18	43.6	-0.9
5	13	33.8	11.7
6	5	39.0	-4.2
7	1	16.0	10.2

The table reports summary statistics for excess market returns on Elections and SOTU days across Presidents, days of the week, and weeks of the year. Means are in basis points. Data are daily from January 1926 to February 2020.

Table A.2: **Announcement-day Returns: Volatility Leverage Effect**

	VIX lag	tstat	VIX change	tstat	R^2
Election:					
	142.5	(1.58)			32.4
			-0.2	(-3.41)	62.9
	55.6	(1.03)	-0.1	(-3.82)	66.6
SOTU:					
	111.3	(3.51)			23.2
			-0.1	(-8.89)	70.1
	56.2	(2.15)	-0.1	(-5.48)	75.4
FOMC:					
	60.2	(2.33)			4.5
			-0.1	(-12.46)	49.1
	22.0	(1.14)	-0.1	(-12.37)	49.7
Macro:					
	6.7	(0.42)			0.0
			-0.1	(-20.03)	56.6
	-1.4	(-0.11)	-0.1	(-19.96)	56.6
All day:					
	5.0	(0.90)			0.0
			-0.1	(-53.60)	52.5
	-15.1	(-3.84)	-0.1	(-54.30)	52.8

The table reports the slope coefficients in the regressions of excess market returns on announcement days SOTU days on the lag of demeaned VIX index and/or the contemporaneous change in VIX. Newey-West standard errors with 1 lag. Data are daily from January 1926 to February 2020; the FOMC announcements data start in 1978 and macroeconomic announcements data start in 1958.

Table A.3: **Post-Announcement Day Return**

	Obs.	Mean	Std. Dev.	Skew	Kurt
A. SOTU					
		Jan 1933 - Feb 2020			
SOTU	76	13.0	88.9	-0.3	5.9
Non-SOTU	22670	3.3	98.7	-0.3	19.5
		Jan 1933 - Dec 1964			
SOTU	27	23.3	93.1	1.4	5.2
Non-SOTU	8835	4.6	97.6	0.1	22.1
		Jan 1965 - Dec 1993			
SOTU	25	12.8	60.9	-0.1	2.9
Non-SOTU	7273	1.7	83.9	-1.3	33.9
		Jan 1994 - Feb 2020			
SOTU	24	1.5	108.8	-1.4	4.2
Non-SOTU	6562	3.3	114.1	-0.2	10.9
B. FOMC and Macro Annoucements					
		Jan 1965 - Dec 1993			
FOMC	149	10.6	77.2	0.3	5.0
Non-FOMC	7149	1.5	83.9	-1.3	34.3
Macro	605	-1.7	108.6	-6.9	4.4
Non-Macro	6693	2.0	81.2	0.0	11.2
		Jan 1994 - Feb 2020			
FOMC	209	-0.3	128.4	-0.5	4.4
Non-FOMC	6377	3.4	113.5	-0.1	11.2
Macro	621	0.1	115.3	-1.1	9.0
Non-Macro	5965	3.6	113.9	-0.1	11.1

The table reports summary statistics for excess market returns on the day after the SOTU address (top panel), and FOMC and Macro announcements (bottom panel). Means and standard deviations are in basis points. Data are daily from January 1926 to February 2020; the FOMC announcements data start in 1978 and macroeconomic announcements data start in 1958.

Table A.4: **SOTU Market Returns: International Intraday Evidence**

		T close to T+1 close		T close to T+1 open		T+1 open to close	
	Obs	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Canada	27	3.2	93.9	-1.2	26.9	4.3	94.4
France	28	50.1	95.0	33.2	61.2	16.9	102.4
Germany	27	46.3	102.4	33.4	61.1	12.9	101.9
Hong Kong	29	75.2	270.1	33.0	132.4	42.2	164.6
Japan	30	41.1	130.3	19.4	54.9	21.7	95.9
Netherlands	25	24.5	84.6	21.7	58.4	2.8	89.9
Spain	25	30.5	104.4	27.5	53.0	3.0	113.7
Switzerland	27	14.7	104.6	21.4	56.0	-6.7	88.6

The table reports summary statistics for market returns, intraday, and overnight returns on foreign stock indices on the day following SOTU. Means and standard deviations are in basis points. Data are daily post January 1982 to February 2020.