DOI: 10.1111/polp.12456

ORIGINAL ARTICLE

P&P POLITICS & POLICY

Monetary policy and anxious presidents: The effects of monetary shocks on presidential job approval

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Abstract

Using high-frequency identification, I show that the Federal Reserve significantly influences its political environment. A 50-bp exogenous contractionary monetary shock is associated with a decline in the U.S. president's job approval by up to five percentage points in the subsequent 12 to 24 months. This loss exceeds the victory margin in six out of the eight latest elections. My findings also suggest that presidents who are in the second half of their terms are particularly vulnerable to monetary shocks. Such vulnerability is largely explained by the evolving attitudes toward key macroeconomic factors like unemployment and inflation over the presidential life cycle.

KEYWORDS

economic policy, Federal Reserve, monetary policy, monetary shocks, political business cycle, political economy, presidential approval, United States, voter-popularity function, voting behavior

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… WHERE IS THE FEDERAL RESERVE?

President Donald J. Trump.
August 21, 2019 @ 12:56 am EDT, Twitter.

The above tweet by former U.S. President Donald Trump openly urges the Federal Reserve (Fed) to engage in more stimulative actions to boost the U.S. economy, especially in the presence of low inflationary pressures. While President Trump's tone was quite explicit relative to his predecessors, the relationship between the Fed and the executive branch has been contentious at various times. Former Fed Chairman Paul Volker reveals in his memoirs that he was overtly asked by President Ronald Reagan's Chief of Staff not to raise interest rates ahead of the 1984 presidential elections (Volcker & Harper, 2018). Likewise, former Fed Chairman Alan Greenspan, who served under four consecutive presidents (Reagan, Bush Sr., Clinton, and Bush Jr.), affirms that presidents try to sway Fed decisions "all the time" (Cox, 2018, p. 2). As the events of the 2008 financial crisis unfolded, monetary policy towered over alternative policies. With political polarization frequently hindering the fiscal response to economic challenges, monetary policy emerged as an effective technical tool that can navigate the trade-offs between unemployment and inflation (Bartels, 2013; Jacobs & King, 2016). The growing role of central banks in economic management, and their influence in shaping their socioeconomic environment, became consequential to the point where they are labeled as "the only game in town" (El-Erian, 2016, p. 29).

This article provides an empirical rationalization for the anecdotal evidence on the presidential urge to influence the Fed's policies by assessing the extent to which federal policy shapes its political environment. More specifically, I examine whether there is a causal impact of monetary shocks on the level of presidential approval. This latter measure is an integral part of the presidential political arsenal. In addition to increasing the odds of re-election, high popularity encourages presidents to become more assertive in their decision making by issuing more executive orders (Christenson & Kriner, 2019). Presidents with high approval ratings are also successful in pushing their agenda through Congress (Barrett & Eshbaugh-Soha, 2007) and do not need to exhaust a large political capital to ensure the confirmation of their supreme court nominees (Johnson & Roberts, 2004). There is also evidence that high approval ratings strengthen the presidents' hand in international dealings (Andrade & Young, 1996). Emphasizing the relevance of high popularity to the survival of the incumbent administration, this measure was labeled as "arguably the most important time series in U.S. polling history" (Newport & Saad, 2021, p. 223).

The macroeconomic literature provides robust evidence that exogenous expansionary (contractionary) monetary shocks contribute to an increase (decrease) in output and employment (Gertler & Karadi, 2015; Jarociński & Karadi, 2020). Such key economic indicators are known to influence presidential popularity (Berlemann & Enkelmann, 2014). Nevertheless, whether expansionary (contractionary) monetary shocks lead to higher (lower) presidential approval depends on the extent to which voters attribute the central-bank-driven economic conditions to the economic management of the sitting president. Do monetary shocks that extend beyond

mere endogenous responses to the prevailing economic conditions influence the political capital of the sitting president?

I build on the literature suggesting that voters face significant informational challenges in assessing politicians' performance (Leigh, 2009; Nordhaus, 1975; Rogoff, 1990; Rogoff & Sibert, 1988; Wlezien, 2015). In an informationally perfect world with precise economic measurement and unlimited computing power, a change in economic output would be decomposed into various components reflecting the roles of the economic management by the president, fundamental economic factors that cannot be controlled by the executive branch, and independent policy decisions conducted by the Fed. Similarly, a newly hired (or fired) citizen would receive a report presenting the contribution of each of these factors to the odds of her gain (loss) of employment. Other things held constant, remarkably rational voters would approve (disapprove) the performance of presidents who exceptionally contribute to their economic well-being, without blaming the incumbent president for events beyond his control or the actions of an independent Fed.

While voters may display rational behavior in assessing the ruling party's performance in the aftermath of isolated events (Duch & Stevenson, 2010; Ebeid & Rodden, 2006; Healy & Malhotra, 2010), identifying the economic effects of an independent monetary policy and disentangling them from other economic forces are far from straightforward tasks (Caplan, 2011). Determining the channels through which monetary policy influences the economy still baffles economists (Bernanke & Blinder, 1992; Bernanke & Gertler, 1995; Boivin et al., 2010; Krolzig & Sserwanja, 2014). For example, it was not until the publication of Friedman (1963) that specialized economists began to understand the contribution of tight monetary policy to the economic difficulties of the Great Depression. Moreover, the type of information conveyed to investors by monetary shocks, the direction of these shocks' impact on economic activity, and the length of time needed for this impact to fully materialize are still subject to various theoretical and methodological disagreements (Gerko & Rey, 2017; Gertler & Karadi, 2015; Jarociński & Karadi, 2020; Nakamura & Steinsson, 2018). Political scientists, in turn, are still debating the extent to which monetary policy decisions can be independent of political pressure, and the role played by the political establishment in shaping the Fed's decisions (Jacobs & King, 2016; Spindel & Binder, 2017).

The overly complicated nature of the dynamics governing the Fed's economic influence and the blurry lines separating monetary policy from the overall macroeconomic approach of the incumbent president make rational ignorance (Downs, 1957) an optimal strategy for the average voter when assessing the president's performance. After all, presidents never shy away from taking credit for booming economic conditions, while the opposition never hesitates to blame the president for aggravating economic performance (Vavreck, 2009).

My main conjecture here is that the presidential urge to influence monetary policy is a rational response to the growing role of the Fed in influencing economic conditions (Barakchian & Crowe, 2013). This study's key prediction is that monetary shocks have a statistically and politically significant causal and independent impact on presidential approval. In particular, I predict that expansionary shocks—which are known to increase output/employment and ease up lending conditions—contribute to a subsequent rise in presidential popularity. The emphasis on the notion of rational ignorance (Congleton, 2001; Downs, 1957) as the key driver behind this causal impact suggests that voters are not interested in the dynamics of monetary shocks *per se*, but they are interested in these shocks' observable impact on the prevailing economic conditions. In other words, voters are presumed to be "much more attentive to ends than to means, and they tend to reward or punish incumbent governments based on simple assessments of immediate success or failure" (Bartels, 2013, p. 49). Accordingly, I also predict the causal impact of monetary shocks on presidential approval to be explained by the resulting variation in economic conditions.

A causal influence of the Fed on job approval requires identifying changes in interest rates attributed to Fed decisions that extend beyond the regular and predictable economic relations. Accordingly, testing my predictions is empirically challenging due to the need to identify exogenous monetary shocks and track their impact on presidential popularity. Given the Fed's dual mandate of ensuring price stability and maximum sustainable employment, an empiricist might conflate the Fed's independent economic effect with its endogenous and predictable reactions to the prevailing state of the economy. Moreover, the zero-lower-bound in the aftermath of the 2008 financial crisis invalidates the use of the Fed funds rate as a key policy indicator. I address these challenges by relying on a set of innovative approaches from the macroeconometric literature (Gertler & Karadi, 2015; Jarociński & Karadi, 2020; Jordà, 2005; Stock & Watson, 2012). Specifically, I apply a high-frequency identification (HFI) strategy by which the variations in Fed Funds Futures in the 30-min window surrounding announcements by the Federal Open Market Committee (FOMC) are used to identify monetary shocks. This identification is carried in a proxy SVAR model where the one-year bond rate is treated as a policy indicator. The effects of monetary shocks extracted from the proxy SVAR on presidential approval are assessed using the local projection method of Jordà (2005) on a dataset that covers the terms of four presidents: George H. W. Bush, Bill Clinton, George W. Bush, and Barack Obama.

The evidence impulse analysis suggests that an exogenous shock of 50 bp triggers a decline of up to 3% in presidential approval in the subsequent 12 to 24 months. This negative effect holds after controlling for a wide range of economic factors and non-economic events that influenced presidential approval in the 26 years covered in this study. Building on the notion that the salience of the issues varies over the presidential life cycle (Edwards et al., 1995; Sances, 2021), I expand my analysis to assess the way the impact of exogenous monetary shocks varies over the incumbent's term. Vavreck's (2009) key insight is that the economy's relevance to presidential popularity becomes more consequential as the country approaches the presidential election. This is because the economy is a strategic issue used by campaigns to prime voters: the ruling party that runs under favorable economic performance increases the emphasis on the incumbent's economic management. Indeed, a main empirical result by Vavreck (2009) is that candidates who capitalize on a favorable economic platform almost always win. In turn, deteriorating economic conditions offer a strong economic incentive for the opposing candidate to bring out the incumbent's failure to address key economic challenges. Hence, through strategic campaigning of either the incumbent or the challenger, the economy is expected to play a more prominent role in the voter-popularity (VP) function during the time leading to the presidential election.

Evidence from nonlinear impulse response analysis supports this view by showing that presidents are particularly vulnerable to monetary shocks when in the second half of their term. During these periods, positive coverage by the media generally declines, the president's legislative agenda stalls, and more alternatives are presented to voters as the country heads for a new presidential election (Beckmann & Godfrey, 2007). An exogenous shock of 50 bp during this period triggers a subsequent decline of up to 5% in the approval rating of the sitting president. The magnitude of this decline exceeds the victory margin in the popular vote in six of the eight presidential elections that took place since 1992.

I assess the robustness of my results by filtering out the informational component of the monetary shocks. Given that economy-wide information occupies half of the announcements made by large central banks (Cieslak & Schrimpf, 2019), the market's reaction around FOMC announcement may not necessarily be driven by monetary policy decisions but by the central bank's forecasts of future economic activity. Accordingly, a rise in Fed funds futures might reflect improved Fed projection of future economic growth rather than a monetary tightening (Jarociński & Karadi, 2020; Nakamura & Steinsson, 2018). To avoid conflating conventional monetary shocks with central bank information shocks, I adopt the Jarociński and

Karadi (2020) approach which separates these effects by exploiting the high-frequency correlation between the stock and bond markets at the times of FOMC announcements. Evidence from this modified approach suggests that my initial results are not influenced by the informational component of central bank decisions. Moreover, the parametric analysis of the VP function supports the rational-ignorance-based motivation of my initial causal inferences. Specifically, the politically and statistically significant leading effect of monetary shocks on presidential approval is absorbed by the influence of contemporaneous and observable economic factors such as unemployment, consumer confidence, and interest rates.

This paper's emphasis on the causal impact of the Fed provides direct empirical rationalizations in support of the political business cycle models, originally pioneered by Nordhaus (1975). Such models posit that incumbents, irrespective of their political affiliations, try to create favorable economic conditions in the run-up to elections. While the assumption of independence characterizes almost every analysis of the Fed in the economic literature, such notion is highly nuanced (Woolley, 1994): the key insight from this article's results is that executive pressure on the Fed to create an accommodating economic environment is a predictably rational response, as the Fed actions influence presidential popularity at the most critical times of the presidential life cycle.

The anecdotal evidence at the beginning of the article offers a glimpse of such pressure. Moreover, Spindel and Binder (2017) provide robust evidence that major monetary policy decisions are contingent on generally securing political support. President Regan's replacing of Paul Volcker with the more accommodating Alan Greenspan is a paradigmatic case of the executive branch's frustration with the dissenting views of the Fed chair. While Mr. Volcker was not "fired" in the formal sense, the appointment of new Fed board members who outvoted him on critical decisions considerably undermined his powers and left him no choice but to resign (Volcker & Harper, 2018). Indeed, the pioneering work of Abrams and Iossifov (2006) shows that, on average, the executive branch's attempt to influence Fed decisions is generally effective: when the Fed chair and the sitting president share the same political party affiliation, the Fed engages in expansionary policy in the seven quarters preceding the election.[1]

This study's results also contribute to the literature focusing on the challenges that a democratic system faces when dealing with strong policy-making institutions that are weakly accountable (Jacobs & King, 2016; Woolley, 1994). While generally perceived as an institution that primarily deals with a technical economic issue, the Fed's influences on its socioeconomic and political surroundings are multidimensional. In addition to driving up to 50% of the variation in economic output (Barakchian & Crowe, 2013), the Fed is also recognized by its former Chair Ben Bernanke as a key contributor to rising income inequality through its primary focus on financial assets in conducting monetary operations (Bernanke, 2015). Despite such growing influence, the Fed has managed to slip "Madison's net of accountability" (Jacobs & King, 2016, p. 11) mainly by suppressing public debates about its role and hiding behind the technical allure of its operations. This article's results add another layer to the growing concerns about the Fed's power by showing that monetary shocks can alter the political fortunes of the holder of the highest office in the land. A natural extension of its findings is to apply this analysis to the monetary shocks' impact on gubernatorial politics (Ebeid & Rodden, 2006) and the dynamics of decisionmaking within Congress (Spindel & Binder, 2017). In the last section of this article, I tackle the normative implication of these results and cover possible remedies ranging from the radical approach of ending the Fed (Paul, 2009) to the more regulatory oriented approach of following the more transparent Canadian model in conducting monetary affairs (Jacobs & King, 2016).

This article proceeds as follows: the first section describes the identification of monetary shocks; the second section presents the presidential approval data; the fourth section discusses the results and their implications, and the last section provides a conclusion and elaborates on possible regulatory and political remedies.

IDENTIFYING MONETARY SHOCKS

Monetary surprises

A common approach to evaluate the effects of monetary shocks is to estimate the reaction of economic variables to innovations in the federal funds rate in Vector Autoregression (VAR) models (Adra et al., 2020; Bernanke & Blinder, 1992; Christiano et al., 1996). However, treating the variation in the funds rate as a proxy for the monetary shocks might lead the empiricist to conflate the political consequences of monetary policy with the macroeconomic indicators to which the Fed is reacting. For instance, VAR methods consider the decrease in interest rates in the aftermath of the September 11 attacks as an expansionary monetary shock. Nevertheless, such a drop was expected by the market as a response to the economic ramifications of the terrorist attacks (Cochrane & Piazzesi, 2002).

Given that unanticipated changes in interest rates are key drivers of the variations in asset returns (Fair, 2002; Kuttner, 2001), a recent strand in the literature identifies monetary shocks through the variation in the Fed funds futures around FOMC announcements. An increase (decrease) in these rates within the 30-min window surrounding the FOMC announcement is treated as a proxy for unanticipated monetary tightening (easing) (Gertler & Karadi, 2015; Jarociński & Karadi, 2020; Nakamura & Steinsson, 2018). This approach gains more relevance in the period that follows the financial crisis of 2008 when forward guidance became an integral tool of monetary policy (Gertler & Karadi, 2015). Another key advantage of this market-based measure is its availability for an extended period relative to the narrative-based measure of Romer and Romer (2004).

Monetary surprises are retrieved from the online appendix of Jarociński and Karadi (2020) which covers the reactions of Fed funds futures for 239 FOMC announcements between 1990 and 2016. As the FOMC did not officially announce its policy decisions before 1994, the monetary surprises for the 1990–1994 period are measured when the open market operations take place usually at 11:15 a.m. on the day that follows the FOMC announcement. The primary measure of monetary shocks is the change in three-month Fed funds futures between 10 min before and 20 min after the release of the FOMC statement.[2] When two meetings are held within the same month, the average value of both surprises is assigned to the month.

Figure 1 shows that the magnitude of monetary surprises throughout the period covered in this study is aligned with the common views about the Fed's response to changing economic conditions. Contractionary surprises are more pronounced during periods of economic expansion while expansionary surprises cluster in periods of challenging economic conditions (early 1990s, the recession of the early 2000s, the aftermath of the 2008 financial crisis). It is also noticeable that monetary policy was considerably more predictable during the periods of quantitative easing.

Despite the ability of high-frequency measures to capture the presence of monetary surprises, such measures remain imperfect and noisy proxies of the true monetary shocks (Gertler & Karadi, 2015). In addition to this, the reliance on short-term event windows to estimate these measures makes it empirically challenging to examine how monetary surprises influence low-frequency and highly aggregated measures such as output or inflation. This raises the need for an empirical adjustment that allows for the appropriate scaling of high-frequency shocks to make their effects on low-frequency outcomes easily interpretable, while also ensuring that these shocks' causal effects are not conflated with the effects of alternative economic factors (Nakamura & Steinsson, 2018).[3]

A hybrid approach that combines VAR and HFI enables the empiricist to overcome the limitations that arise from exclusively relying on HFI (Nakamura & Steinsson, 2018; Stock & Watson, 2012). Specifically, incorporating monetary surprises as instruments in SVAR models allows for the retrieval of a monthly monetary shock series that is suitable for my empirical

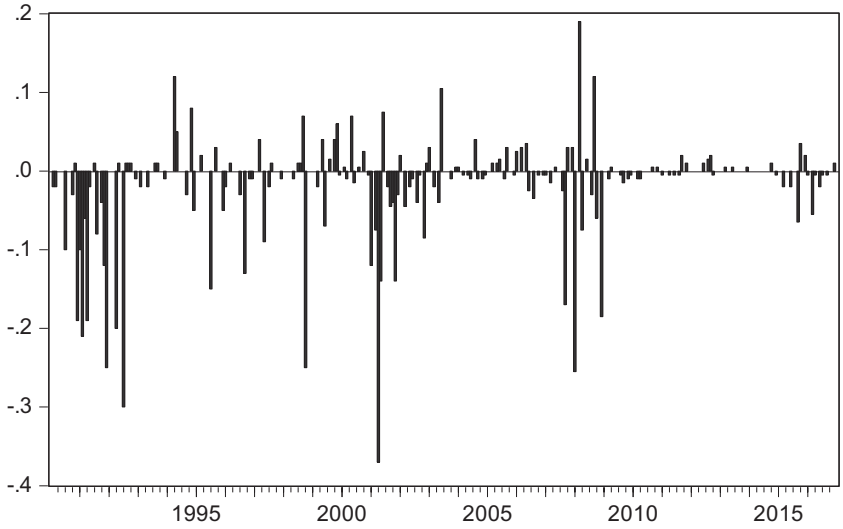

FIGURE 1 The high-frequency monetary surprises. The changes in the three-month Fed funds futures from 10 min before to 20 min after the release of the FOMC statement, as reported by Jarociński and Karadi (2020)

analysis. Mertens and Raven (2013) combine VAR and HFI to examine the dynamic effect of changes in taxes on economic output in the United States by using narrative accounts of federal tax changes as instruments. In the monetary sphere, this method is used to examine the effect of monetary shocks on credit costs and economic activity (Gertler & Karadi, 2015; Jarociński & Karadi, 2020).

Proxy SVAR

The monetary shock series is identified from a SVAR model that includes a policy-based indicator and multiple financial and economic variables. The model has the following specification:

$$\mathbf{Y}_t = \sum_{j=1}^{p} \boldsymbol{\alpha}_j \mathbf{Y}_{t-j} + \mathbf{S}\,\boldsymbol{\varepsilon}_t \tag{1}$$

$\mathbf{Y}_t$ is a $N \times 1$ vector containing a low-frequency interest rate and a set of macroeconomic factors. As in Gertler and Karadi (2015) and Jarociński and Karadi (2020), the monthly average of the one-year constant maturity Treasury yield is used as the low-frequency policy rate. The one-year maturity permits the incorporation of the effect of forward guidance which became a critical monetary policy tool when the funds rate was bounded by zero. For additional regressors, I follow the common approach in monetary VARs by adding the monthly levels of industrial production and Consumer Price Index (CPI) in logarithmic forms to represent the variation in economic activity and inflation, respectively. Finally, the excess bond premium is used as a proxy for the prevailing financial conditions. This premium is the average corporate bond spread after filtering the impact of default compensation. Appendix A describes the variables used in this model. The model includes the p lags. I follow the convention in the literature and set $p = 12$.

$\boldsymbol{S}$ is a $N \times N$ matrix of coefficients. Instead of imposing a wide set of restrictions on the model to identify all the coefficients in $\boldsymbol{S}$, my main interest is estimating the structural shock to the one-year treasury rate. Accordingly, the $N \times 1$ vector of shocks $\boldsymbol{\varepsilon}_t$ can be presented as:

$$\boldsymbol{\varepsilon_t} = \begin{bmatrix} \varepsilon_{r,t} \\ \boldsymbol{\varepsilon_{o,t}} \end{bmatrix} \tag{2}$$

where $\varepsilon_{r,t}$ represents the shock in one-year interest rate which is my main shock of interest, and $\boldsymbol{\varepsilon_{O,t}}$ is a $(N-1)\times 1$ vector representing the other structural shocks in the model. Hence, the impulse only requires the estimation of $\boldsymbol{s}$, which is the first column of $\boldsymbol{S}$.

The Mertens and Raven (2013) approach consists of identifying $\varepsilon_{r,t}$ with an external instrument (proxy). The instrument must be correlated with $\varepsilon_{r,t}$, uncorrelated with the other shocks, and uninfluenced by the lagged levels of the dependent variables in the model. The high-frequency monetary surprise discussed earlier satisfies these conditions, as validated by previous studies (Gerko & Rey, 2017; Gertler & Karadi, 2015).

This approach consists of (a) running the reduced-form VAR using Ordinary Least Squares (OLS), (b) using the high-frequency surprises as an instrument in regressions involving errors from the reduced-form VARs, and (c) applying impulse response analysis of the effects of innovations in $\varepsilon_{r,t}$ on the remaining variables in the model. Details of this approach are quite standard in the literature (Mertens & Raven, 2013; Stock & Watson, 2012).

I estimate the reduced-form VAR using a dataset that starts in July 1979, with the beginning of Paul Volker's tenure, as in Gertler and Karadi (2015). The descriptive statistics of these variables are presented in Table 1. The residuals from this VAR model are then instrumentalized using the high-frequency monetary surprises from the period starting in February 1990.

Appendix B presents the impulse response analysis of the monetary shocks on the remaining variables in the VAR model. Overall, the resulting patterns are identical to the ones reported in earlier studies (Gertler & Karadi, 2015).

I follow the approach described by Stock and Watson (2012) to get an estimate $\widehat{\varepsilon_{r,t}}$ of $\varepsilon_{r,t}$. $\widehat{\varepsilon_{r,t}}$ is calculated as the predicted value of the regression of the high-frequency instrument that the residual of the one-year treasury yields from the reduced-form VAR. The scale and sign restrictions are satisfied by normalizing the shock to make a one-percentage point increase in this shock associated with a one-percentage point increase in the one-year rate.

PRESIDENTIAL APPROVAL DATA

My measure of presidential approval is retrieved from the widely cited Gallup polls, as reported by the American Presidency Project of the University of California Santa Barbara. The Gallup poll covers the percentage of respondents who approve of the sitting president's

TABLE 1 Descriptive statistics of the variables in the proxy SVAR

Variable	# of Obs.	Mean	Median	Max	Min	SD
Monetary Surprise	323	−.01	.00	.19	−.37	.05
One-year rate	450	5.03	5.01	16.72	.10	3.91
CPI	450	505.06	508.82	549.19	429.05	31.63
IP	450	435.22	446.40	466.97	387.62	25.29
Excess bond premium	450	2.33	2.20	6.01	1.10	.72

Notes: The *Monetary Surprise* variable covers the period from February 1990 to December 2016. The remaining variables are used to estimate the reduced-form VAR model and cover the period from July 1979 to December 2016. For each variable, this table reports the number of observations, the mean, median, maximum, minimum, and standard deviations.

performance. Throughout my analysis in this paper, the reported approval rating in the last poll conducted during the month is treated as the level of presidential approval.

Figure 2 visualizes the time variation of the presidential approval ratings during the period covered in my study and for which the high-frequency monetary surprise data are available in the data appendix of Jarociński and Karadi (2020). This period ranges between February 1990 and December 2016. Accordingly, this dataset covers three years from the term of George H. W. Bush in addition to the full eight-year presidential terms of Bill Clinton, George W. Bush, and Barack Obama.

The patterns depicted in Figure 2 are aligned with the widely held perceptions on the role of political and economic events in influencing presidential popularity. Emphasizing the "rally-around-the-flag" effects at the early stages of wars, both Bush Sr. and Bush Jr. experienced noticeable boosts in approval ratings when announcing military action in Iraq. Bill Clinton's popularity also rose with the NATO bombing of Serbia. As predicted, Bush Jr. experienced an unmatched rise in popularity in the aftermath of the 9/11 attacks and the start of the war in Afghanistan. On the economic front, the economic difficulties at the end of Bush Sr.'s only term and the beginning of Bill Clinton's first term led to a significant deterioration in their approval ratings. Likewise, the financial crisis of 2008 and the subsequent Great Recession pointedly reduced Bush Jr.'s popularity.

RESULTS AND DISCUSSION

Filtering the effects of non-economic events

As the level of presidential approval is markedly influenced by non-economic events, explicitly filtering out the effect of such events on presidential popularity is an essential requirement before applying impulse response analysis. For instance, George W. Bush's approval rating rose to 90% in the aftermath of the September 11 attacks. The failure to explicitly isolate this

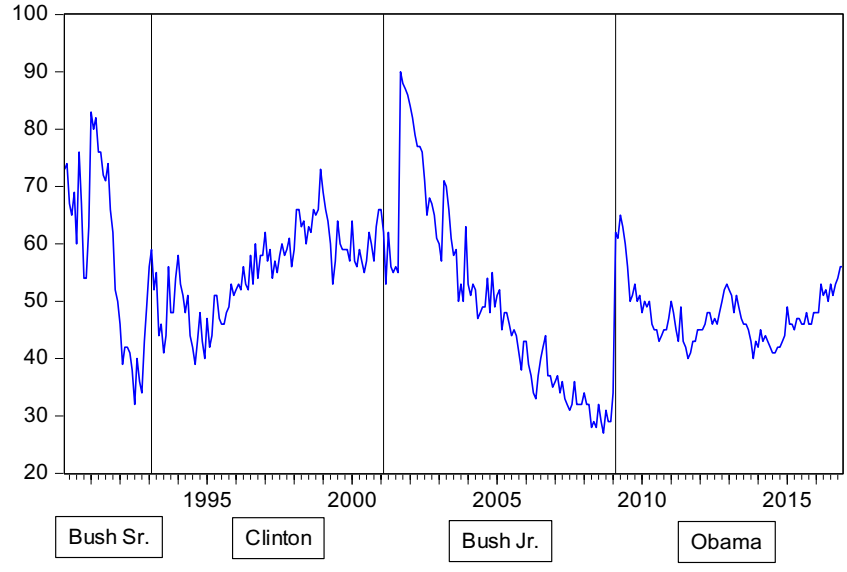

FIGURE 2 Time variation on presidential approval. The monthly levels of presidential approval of four U.S. presidents (Bush Sr., Clinton, Bush Jr., and Obama) between February 1990 and December 2016. The approval rating is the percentage of poll respondents who approve the president's performance based on the last poll conducted in each calendar month. *Source*: Gallup polls reported by the American presidency project

effect might invalidate any inferences about the direction and magnitude of the impact of prior monetary shocks on Bush's approval. Accordingly, I construct the variable *Filtered Approval* which is the level of residual from the regression of the level of presidential approval on key timing-related and non-economic events.

Berlemann and Enkelmann (2014) recognize the empirical difficulty of introducing non-economic events to the econometric analysis, especially in the absence of consensus on how to identify such events and their durations. Nevertheless, the approach developed by Newman and Forcehimes (2010) is gaining more relevance as the standard scheme to design event-specific covariates (Berlemann & Enkelmann, 2014; Liu & Shaliastovich, 2022). This approach consists of collecting a list of the year's major events (primarily from the Gallup Poll), eliminating events that do not directly involve the United States and the sitting president, and then selecting events that appeared on the front page of the *New York Times* three times in a given month.

While Newman and Forcehimes' (2010) list of events ends in 2006, Ostrom and others (2018) extend it to cover the critical events of the Bush presidency. The Ostrom and others (2018) approach starts by classifying ordinary events into four categories: positive domestic (PD), negative domestic (ND), positive international (PI), and negative international (NI). The month associated with each key event is assigned the value of 1 in at least one of the categories. Then, the value assigned to each of the variables PD, ND, PI, and NI in a given month is the sum of events given the value of 1. Ostrom and others (2018) also recognize the primacy of extraordinary events that dominate public discourse and newspaper coverage for an extended period over the events that could be labeled ordinary due to their short-term coverage. For the period covering the Bush presidency, they included the 9/11 terror attacks, the invasion of Iraq, and the stock market crash of 2008 in this category and introduced them as separate variables in their analysis. For example, the Iraq invasion dominated newspaper headlines for six months starting March 2003. Accordingly, the Iraq invasion variable is assigned the value of 1 for each month between March 2003 and August 2003, inclusive, and 0 otherwise.

As my analysis also covers the Obama presidency, I extend the Newman and Forcehimes (2010) approach to the end of 2016. The dates of key events are retrieved from the report produced by the Miller Center of the University of Virginia (UVA, 2021). Events that are mentioned on the front page of the *New York Times* more than three times in a single month are assigned the value of 1 within at least one of the PD, ND, PI, and NI categories. In the set of extraordinary events, I add the global effort to include the Islamic State of Iraq and Syria (ISIS) as a separate event due to its extended coverage during the Obama presidency. The period covered in my study also encompasses the Gulf War and the Lewinsky scandal, both of which were tackled for extended periods. Based on the table reported in Newman and Forcehimes (2010), I introduce these events via separate covariates. Appendix C describes the key months and events leading to the construction of PD, ND, PI, and NI.

It is worth noting that the key results from my analysis are not sensitive to changes in the classification scheme. For example, while the passing of the Affordable Care Act is classified as a positive domestic event and a political victory for President Barack Obama, my key insights are not altered if the passing of this act was classified as an ND event due to its polarizing effect on the electorate. Moreover, while the NATO bombing of Serbia is not mentioned in the Newman and Forcehimes (2010) table, it was widely covered in the *New York Times* between March and June 1999. Still, my results do not change if this event was introduced as (a) a separate dummy variable or (b) a contributor to the PI variable. The robustness of my conclusions to changes in the classification scheme as aligned with the observation by Berlemann and Enkelmann (2014) that insights about the economy's effects on presidential popularity are generally robust to how key events are introduced to the econometric analysis.

TABLE 2 Descriptive statistics of the variables used in the analysis of presidential approval

Variable	# of Obs.	Mean	Median	Max	Min	SD
Approval	323	51.74	50.00	90.00	27.00	11.96
Unemp	323	6.05	5.60	10.00	3.80	1.55
Inflation	323	2.48	2.59	6.38	−1.96	1.32
Stock market	323	10.26	13.23	45.74	−51.71	16.18
Consumer confidence	323	86.48	88.40	112.00	55.30	12.54
Time in office	323	46.34	44.00	96.00	1.00	26.90
Interest	323	4.73	4.67	8.89	1.50	1.89
Iraq casualties	323	15.00	.00	141.00	.00	30.23
Afghanistan casualties	323	10.91	1.00	103.00	.00	18.35
PD	323	.06	.00	1.00	.00	.24
ND	323	.05	.00	1.00	.00	.22
PI	323	.07	.00	1.00	.00	.25
NI	323	.02	.00	1.00	.00	.14

Note: For each variable, this table reports the number of observations, the mean, median, maximum, minimum, and standard deviations.

In addition to introducing dummy variables referring to each presidential term with H. W. Bush's tenure as the baseline, I follow Berlemann and Enkelmann (2014) by using the monthly casualties in the Iraq and Afghanistan wars as separate covariates. Following the evidence that the level of presidential popularity varies over the presidential life cycle (Berlemann & Enkelmann, 2014; Eisenstein & Witting, 2000; Lewis-Beck & Stegmaier, 2013), I also control for the number of months representing the incumbent's time in office. The main empirical variables and their descriptive statistics are presented in Table 2.

Table 3 presents two models, an OLS regression and a Tobit model that censors the dependent variable (*Approval*) between 0 and 100. The results presented in Table 3 are generally aligned with prior literature. The level of presidential approval declines through the president's time in office. The "rally-around-the-flag" effect in the aftermath of the September 11 attacks and the wars in Iraq (Gulf War and 2003 invasion) is a significant positive predictor of presidential approval. Moreover, the financial meltdown of 2008 significantly hurt George W. Bush's popularity. The casualties of the Iraq and Afghanistan Wars are also pertinent negative predictors of presidential approval. The effects of PD and ND and international events are generally aligned with the predictions, with PI events and ND events having statistically significant effects. It is also worth noting that all the effects of PD, ND, PI, and NI become statistically significant if the president-specific effects are dropped from the model. Model (1) shows that these key timing and political events explain almost more than 50% of the variation in presidential approval. Interestingly, both models depict roughly similar coefficients, which suggests that the estimates are not influenced by the bounded nature of the dependent variable. The residuals from Model (2) (*Filtered Approval*) are used as the dependent variable in my local projection analysis.

Linear local projection

I apply an impulse response analysis to evaluate the effects of the monetary shocks on presidential job approval. My baseline linear specification is the local projection developed by

TABLE 3 Constructing a filtered measure of presidential approval

Dependent variable	Approval	Approval
Model type	OLS	Tobit
Explanatory variable\model (.)	(1)	(2)
Intercept	52.429***	52.429***
	(2.846)	(2.766)
Clinton	3.797	3.797
	(2.724)	(2.647)
Bush Jr.	1.581	1.581
	(3.207)	(3.116)
Obama	6.900**	6.900***
	(3.095)	(3.007)
Iraq casualties	−.052*	−.052+
	(.029)	(.029)
Afghanistan casualties	−.221***	−.221***
	(.039)	(.038)
PD	1.538	1.538
	(1.966)	(1.910)
PI	4.759***	4.759***
	(1.695)	(1.647)
ND	−2.631*	−2.631*
	(1.549)	(1.506)
NI	−2.805	−2.805
	(3.093)	(3.005)
September 11	29.654***	29.654***
	(2.526)	(2.454)
Iraq invasion	16.629***	16.629***
	(2.856)	(2.775)
Gulf War	18.210***	18.210***
	(3.998)	(3.884)
ISIS	−7.722***	−7.722***
	(2.007)	(1.951)
Lewinski	10.477***	10.477***
	(1.673)	(1.625)
Financial meltdown	−12.468***	−12.468***
	(2.157)	(2.097)
Time in office	−.084***	−.084***
	(.029)	(.028)
Divided government	2.176*	2.176*
	(1.283)	(1.246)
Censored Obs.	–	0
Adjusted *R*-squared	.59	–
N	323	323

Notes: Two models describing how non-economic events affect presidential approval. The first model is an OLS regression while the second model is a Tobit regression. The standard errors reported in parentheses are corrected for heteroskedasticity. *N* indicates the number of observations. See Appendix D for an accurate description of the variables.

***$p < .01$; **$p < .05$; *$p < .10$.

Jordà (2005) and applied in various seminal studies (Hamilton, 2011; Ramey, 2016; Ramey & Zubairy, 2018; Tenreyro & Thwaites, 2016). While conventional impulse responses from VAR models require the estimation of multistep forecasts, the local projection approach linearly

estimates forecasts for each horizon of interest (Jordà, 2005). In addition to the ease of its application, the local projection approach yields more robust estimates even when the underlying model is misspecified.

In the context of my analysis, the Jordà (2005) approach consists of running the following regression at different horizons[4]:

$$Filtered\ Approval_{t+h} = \alpha^h + \beta_h Shock_t + \sum_{k=1}^{N} \gamma_k X_{k,t} + u^h_{t+h} \quad (3)$$

where $Filtered\ Approval_{t+h}$ is the level of filtered presidential approval estimated in Section 5.1 h months after the month of the monetary shock $Shock_t$. α^h is the regression intercept, and β_h corresponds to the response of filtered presidential approval rating to the shock at each horizon. u^h_{t+h} is the error term in the regression. $\sum_{k=1}^{N} \gamma_k X_{k,t}$ represents the effect of N control variables at the time of the shocks. These variables are widely applied in the literature (Berlemann & Enkelmann, 2014; Lewis-Beck & Stegmaier, 2013). I control for the effect of unemployment on presidential approval using the variable *Unemp*, which is the number of unemployed (aged 16 and above) as a percentage of the labor force. Building on the Choi and others (2016) threshold effect analysis showing that when unemployment is "slightly above 7%" (p. 4558), its decline (rise) is more impactful on presidential approval, I construct a dummy variable explicitly separating the unemployment levels above 7.5% from those below it. In particular, Unemp > 7.5% is assigned the value of 1 if the unemployment rate is higher than 7.5%, and 0 otherwise. This variable is introduced alongside the continuous unemployment rate. *Inflation* is the annual growth in the CPI. *Consumer Confidence* is the natural logarithm of the University of Michigan's consumer confidence index at the end of each month.[5] To further ensure that the effects of monetary shocks are separated from the effects of regular variation in interest rate, I control for the effects of the 10-year Treasury Constant Maturity rate. The contemporaneous effects of these factors on presidential approval are explored in detail shortly.

The result of the impulse response in Figure 3 supports the prediction that monetary shocks lead to a subsequent reduction in popularity. After a brief delay, a 50-bp shock leads to a popularity decline that reaches a peak of 3.5% in the 12-to-24-month period after the initial shock. Interestingly, the length of this period coincides with the time needed for the economic effects of monetary shocks to fully materialize (Gertler & Karadi, 2015; Wu & Xia, 2016).

Figure 3 also shows that the overall presidential approval eventually starts to recover after almost 26 months from the initial shock as the economy recuperates from the consequences of the monetary shock. However, the length of the period needed before the recovery kicks in suggests that the president who was in office at the time of the monetary shock is likely to go through an election or leave office before the negative effects of this shock on the office of the presidency start to reverse. These findings testify to the impact of monetary policy on the fate of the incumbent president and justify the continuous tendency of presidents to affect the Fed's decisions.

Nonlinear local projection

I extend my analysis to assess the time-varying effects of monetary shocks on presidential approval. A reasonable conjecture is that the effects of monetary shocks on presidential approval are more consequential in the second half of the presidential term. During this period, presidents receive less positive coverage by the press, and voters are presented with new candidates who challenge the president's handling of the economy (Beckmann & Godfrey, 2007). The work of Vavreck (2009) discussed earlier suggests that the political importance of the

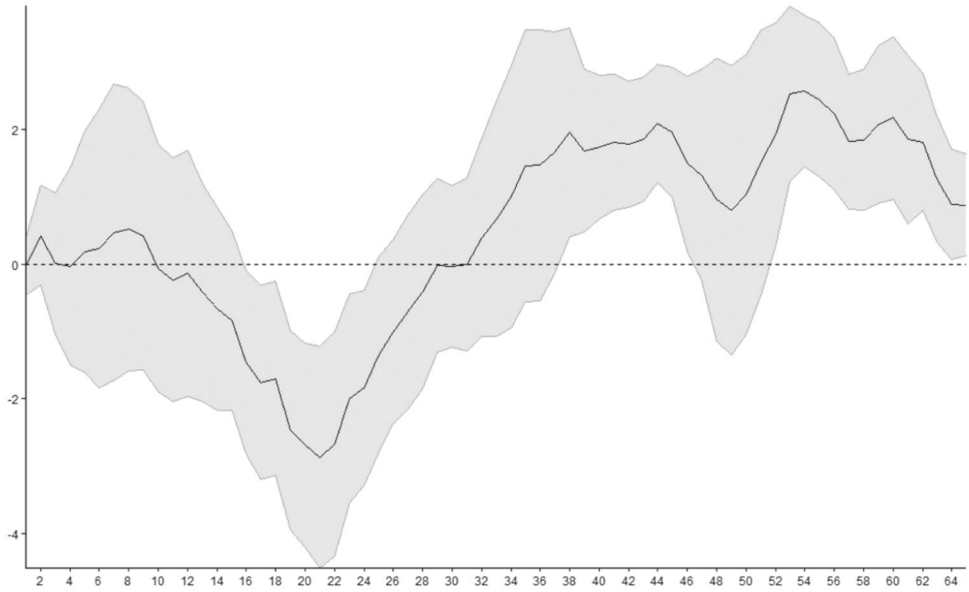

FIGURE 3 The response of presidential approval to a 50-bp exogenous monetary shock. The effect of a 50-bp interest rate shock on the filtered measure of presidential approval. The blue line presents the rolling four-month average to reduce the impact of noisiness. The shaded area represents the 90% confidence interval

economy becomes more pronounced as the country approaches a new presidential election. In particular, voters become more primed to value economic performance because of either (a) the incumbent aiming to take credit for the strong economy or (b) the challenger blaming the incumbent for the poor economic conditions. Accordingly, I predict the effect of monetary shocks on presidential approval to become more pronounced in the second half of the presidential term.

I test this prediction by a nonlinear local projection approach that examines the impact of two shocks on presidential approval. *EarlyShock* refers to monetary shocks only during the first half of each presidential term in my sample while *LateShock* refers to the monetary shocks' effects in the second half of each presidential term.

$$Filtered\,Approval_{t+h} = \alpha^h + \beta_h^{Early} EarlyShock_t + \beta_h^{Late} LateShock_t + \sum_{k=1}^{N} \gamma_k X_{k,t} + u_{t+h}^h \quad (4)$$

The nonlinear impulse response results in Figure 4 suggest that monetary shocks are noticeably more impactful in the second half of the presidential term. This figure shows that these shocks lead to up to a 5% decline in presidential approval in the second half of the presidential term. In contrast, Figure 5 shows the effect of monetary shocks to be positive but quite small and imprecise when they take place during the first two years of the presidential term. It seems that presidents are relatively immune to the impact of monetary shocks in the early part of their term, as media coverage is generally positive, and voters give a newly elected president a grace period in which he is not blamed for the impacts of monetary shocks.

Emphasizing the political relevance of this decline, it is worth noting that, based on data from the American Presidency Project, Bush Jr. lost the popular vote in the 2000 election by 1.5% and defeated Kerry by 2.5% in 2004. Trump lost the 2016 popular vote to Clinton by 2%. Obama defeated McCain by 7.2% and Romney by 4%. Clinton, in turn, defeated Bush Sr. in

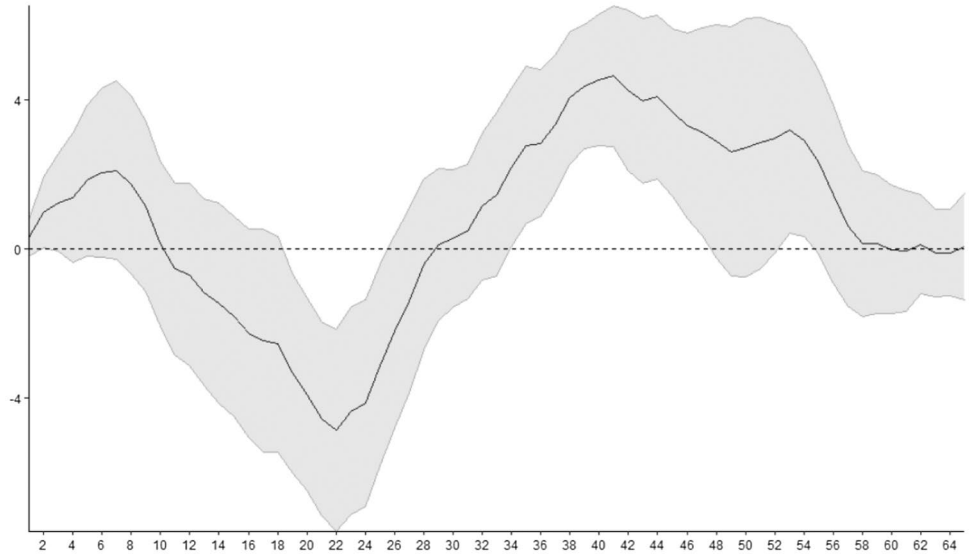

FIGURE 4 The effect of a 50-bp monetary shock in the second half of the presidential term. The effect of a 50-bp interest rate shock on the filtered measure of presidential approval in the second half of each presidential term. The blue line presents the rolling four-month average to reduce the impact of noisiness. The shaded area represents the 90% confidence interval

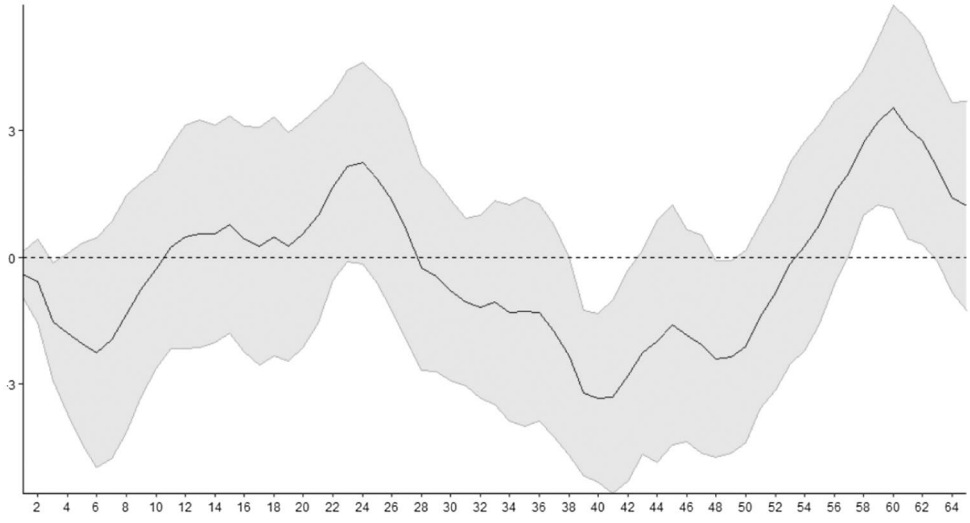

FIGURE 5 The effect of a 50-bp monetary shock in the first half of the presidential term. The effect of a 50-bp interest rate shock on the filtered measure of presidential approval in the first half of each presidential term. The blue line presents the rolling four-month average to reduce the impact of noisiness. The shaded area represents the 90% confidence interval

1992 by 6% and Dole in 1996 by 9%. Trump lost to Biden by 4%. This makes the Clinton versus Dole and Obama versus McCain the only two elections in the recent 30 years in which the margin of victory in the popular vote exceeded the impact of a 50-bp exogenous shock.

Put together, these findings suggest that the incumbent president's popularity is more vulnerable to the central bank's decision when the country is heading for a new presidential election. Hence, contractionary (expansionary) shocks can significantly hurt (benefit) presidents

who are heading for re-election. Even when the president is at the end of his second term, a reduction in his approval can nonetheless noticeably hurt the prospects of his party in the upcoming election.

Robustness: The informational impact of monetary shocks

To emphasize the robustness of my findings, it is important to ensure that my results are not influenced by the nonmonetary news conveyed by the Fed's announcement (Cieslak & Schrimpf, 2019; Nakamura & Steinsson, 2018). Prior literature shows that central banks are highly trusted producers of macroeconomic information (Jarociński & Karadi, 2020; Nakamura & Steinsson, 2018; Romer & Romer, 2000). The informational advantage of the Fed is not due to access to official statistics but the commitment of significant resources to economic forecasting (Romer & Romer, 2000).[6]

Accordingly, an unexpected rise in interest rates might not necessarily reflect a monetary tightening that leads to a deterioration in economic performance. Instead, such an unanticipated rise might convey a positive assessment of the Fed about future economic conditions, and more concerns about inflationary pressure than economic growth. Along these lines, Nakamura and Steinsson (2018) show that the forecasts related to economic growth increase, rather than decrease, in response to monetary tightening. Similar results are reported in earlier work by Campbell and others (2012).

I follow the approach developed by Jarociński and Karadi (2020) to disentangle conventional monetary shocks from the shocks reflecting new macroeconomic forecasts. This approach exploits the high-frequency correlation between stock and bond returns to identify each of these shocks. Specifically, conventional shocks are considered to be those which are characterized by a negative association between stocks and bond returns at the time of the 30-min window around FOMC announcements. In this case, a rise (decline) in interest rates is associated with a reduction (increase) in investment opportunities, which are reflected in lower (higher) stock returns. The informational shocks, in turn, reflect the case when a rise (decline) in interest rates leads to an improvement (deterioration) in the market investors' forecasts of future economic growth, which increases (decreases) stock market valuations.

As my predictions focus on monetary shocks in their conventional sense, I exclusively use the monetary surprises with negative correlation with stock returns as an instrument in re-estimating the proxy SVAR model and identifying shocks. Figures 6 and 7 present the effects of these modified shocks on the filtered presidential approval in the second half and the first half of presidential terms, respectively. The overall patterns depicted in these figures suggest that the effects of monetary contraction on presidential approval in the first and second halves of the presidential terms are almost equivalent to the impacts depicted in Figures 4 and 5. Overall, these impulse responses reinforce the notion that my results are not driven by the nonmonetary component of central bank shocks.

Reassessing the VP function

A fundamental building block of the argument laid at the beginning of this article is that voters resort to rational ignorance as the optimal strategy in assessing presidential performance. In doing so, voters do not care about the intricacies or the magnitude of the exogenous FR-driven monetary shocks *per se*, but the observable changes in their economic environment. To test this premise, we introduce the cumulative lagged monetary shocks from 24 to 12 months before each calendar month (*CumShock*) as an explanatory variable in the VP function. This variable is expected to have a negative and significant effect on presidential approval. Moreover, this

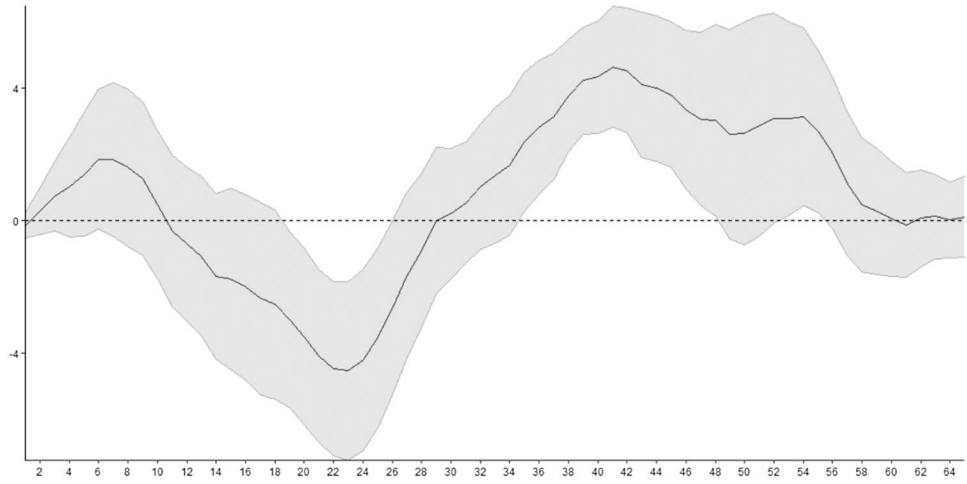

FIGURE 6 The effect of a 50-bp conventional monetary shock in the second half of the presidential term. The effect of a 50-bp interest rate shock on the filtered measure of presidential approval in the second half of each presidential term. The interest rate shock excludes the effects of central bank information shocks. The blue line presents the rolling four-month average to reduce the impact of noisiness. The shaded area represents the 90% confidence interval

effect is expected to weaken after controlling for the effect of contemporaneous observable economic indicators.

These empirical predictions are strongly supported by the models in Table 4. Models (1) and (2), in line with my nonlinear local projection results, show that the negative effect of monetary shocks on presidential approval is larger and statistically significant in the second half of the presidential term. Furthermore, as shown in Model (4), the negative effect of cumulative monetary shocks on presidential approval is absorbed by the contemporaneous effects of unemployment, consumer confidence, and credit costs (i.e., interest rates). The evidence reported in Model (4) also provides further validation for the Vavreck (2009) suggestion that the influence of economic factors on presidential approval becomes more pronounced in the second half of the presidential term as a new presidential election approaches. During this period, voters become less concerned about inflation (inflation coefficient changes from a weakly significant −1.36 to an insignificant .78) and more concerned about factors reflecting economic growth. The positive influence of consumer confidence almost doubles, while voters become considerably less forgiving when it comes to high unemployment and rising interest rates. The increasing preference for low unemployment, more spending, and cheap credit—combined with the limited concerns about inflation—largely explain why prior monetary expansion (contraction) leads to higher (lower) presidential approval.[7]

In addition to emphasizing the ability of observable economic indicators to explain the leading effect of monetary shocks on presidential approval, the results in Table 4 enhance the understanding of the economic determinants of presidential approval (Erikson et al., 2000; Lewis-Beck & Stegmaier, 2000, 2013) and the extent to which they vary over time (Edwards et al., 1995). While both inflation and unemployment are recognized as key contributors to presidential popularity (Paldam, 2008), both the declining influence of inflation and the rising relevance of unemployment over the presidential term testify to the evolving attitude of voters. Contrary to the period of the late 1970s and early 1980s when inflation was the main concern, the low inflationary pressures characterizing the period covered in this article limit the voters'

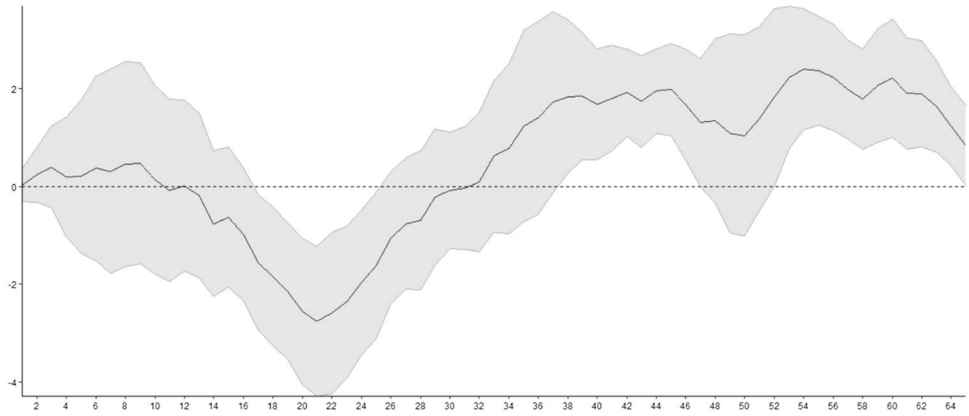

FIGURE 7 The effect of a 50-bp conventional monetary shock in the first half of the presidential term. The effect of a 50-bp interest rate shock on the filtered measure of presidential approval in the first half of each presidential term. The interest rate shock excludes the effects of central bank information shocks. The blue line presents the rolling four-month average to reduce the impact of noisiness. The shaded area represents the 90% confidence interval

concern about inflation. In a low-inflation regime, it is more fruitful for candidates to raise the voters' attention toward economic expansion and low unemployment over price stability, as the latter issue is less pressing.[8]

CONCLUSION AND RAMIFICATIONS

There is widely reported discussion in the press about the frequent attempts of the sitting presidents to sway the Fed toward committing to expansionary monetary policy or at least refraining from engaging in monetary contraction. This study presents the first empirical attempt to assess the direction, magnitude, and time variation of the monetary shocks' causal impact on the level of presidential job approval.

The high-frequency variation in the funds futures at the times of FOMC announcements is used as an instrument to identify exogenous monetary shocks that are shown to significantly influence the level of presidential approval. The negative effect of a 50-bp monetary shock on presidential popularity exceeds the popular vote victory margins in most of the recent U.S. presidential elections. The effects of these shocks are time-varying and more consequential in periods leading up to presidential elections. Emphasizing the view that voters care about observable economic indicators rather than the intricacies of monetary shocks, the parametric analysis of the VP function shows that the leading effect of monetary shocks on presidential approval is absorbed by key contemporaneous observable economic indicators such as unemployment, consumer confidence, and interest rates.

Both the general political discourse and the scholarly work in political science attempt to tackle the growing influence of the Fed and its impact on democratic outcomes. Works, such as Paul (2009), argue that the costs of central banking in terms of distorting the political process and driving large business cycle fluctuations exceed this system's perceived benefits of providing macroeconomic stability. Paul goes to even advocate ending the Fed system and re-adopting the gold standard. A more regulation-oriented solution is proposed by Jacobs and King (2016) who recommend adopting the Canadian model, which divides responsibilities for managing the money supply and financial regulation between the Bank of Canada and the Office of the Superintendent of Financial Institutions. Jacobs and King's (2016) main insight is

TABLE 4 Monetary shocks and the VP function

Dependent variable	Approval	Approval	Approval	Approval
Model type	OLS	OLS	OLS	OLS
Term half	First	First	Second	Second
Explanatory variable\model (.)	(1)	(2)	(3)	(4)
Intercept	43.384***	47.423**	34.732***	54.265**
	(5.811)	(20.410)	(5.793)	(24.203)
CumShock	−1.798	−1.211	−3.359***	−.404
	(1.142)	(1.072)	(1.069)	(.935)
Clinton	4.786	−1.317	17.587***	−.924
	(3.205)	(4.863)	(2.502)	(4.910)
Bush Jr.	1.360	−5.113	4.158	−17.720***
	(3.799)	(6.097)	(5.197)	(5.999)
Obama	5.029	−6.675	16.540	−10.796*
	(5.409)	(6.625)	(3.199)	(5.820)
Iraq casualties	.097	.067**	−.019	−.027
	(.051)	(.032)	(.029)	(.028)
Afghanistan casualties	.006	−.027	−.223***	−.030
	(.053)	(.037)	(.064)	(.058)
PD	.770	.397	2.529*	.985
	(1.718)	(2.051)	(1.477)	(1.463)
PI	2.543	2.015	2.233	3.878**
	(1.627)	(1.471)	(1.676)	(1.776)
ND	−.514	−.641	−4.004	−2.190
	(1.208)	(1.726)	(3.361)	(2.689)
NI	−.431	1.011	−1.417	−.257
	(.722)	(1.040)	(2.180)	(2.023)
September 11	21.497***	20.843***	–	–
	(5.268)	(3.195)		
Iraq invasion	–	–	17.260***	12.632***
			(3.214)	(3.128)
ISIS	−10.047**	−7.211*	−6.809**	−10.898**
	(4.429)	(4.152)	(3.422)	(4.996)
Lewinski	12.778***	9.183***	–	–
	(3.576)	(2.135)		
Financial meltdown	–	–	−8.214***	−3.296
			(2.316)	(5.072)
Time in office	−.243***	−.252***	.066*	−.104*
	(.066)	(.067)	(.037)	(.056)
Divided government	16.715***	12.268***	−4.876	−4.560
	(2.580)	(1.823)	(4.391)	(3.593)
Unemp		−.133		−.683
		(1.774)		(1.991)
Unemp > 7.5%		3.290		−6.232**
		(5.527)		(2.856)
Inflation		−1.361*		.776
		(.768)		(.678)
Consumer confidence		.232**		.459***
		(.097)		(.116)

(Continues)

TABLE 4 (Continued)

Dependent variable	Approval	Approval	Approval	Approval
Interest		−1.848* (.905)		−5.002*** (1.089)
Stock market		−.016 (.063)		−.077 (.068)
Adjusted *R*-squared	.83	.84	.70	.78
N	143	143	157	157

Notes: Four OLS regressions explaining the variation in presidential approval during the period between January 1993 and December 2016. Models (1) and (2) are estimated over the subsample covering the first halves of the presidential terms. Models (3) and (4) are estimated over the subsample covering the second halves of the presidential terms. The standard errors reported in parentheses are corrected for heteroskedasticity. *N* indicates the number of observations. A "–" is used when the extraordinary event is not covered within the subsample. See Appendix D for an accurate description of the variables.
***$p < .01$; **$p < .05$; *$p < .10$.

that such separation leads to more transparency, fewer privileges for the financial sector, and more trust in the financial system.

Nevertheless, ending the Fed in favor of re-adopting the gold standard may not be economically or politically feasible. Moreover, when it comes to introducing regulatory reforms, as discussed in great detail by Spindel and Binder (2017), attempts to curb the Fed's influence in the U.S. system end up assigning more power to the Fed. The Dodd-Frank Act, for example, ended up assigning more, not less, responsibilities to the Fed. Indeed, it is beyond the scope of this primarily empirical article to advocate large-scale adjustment in the monetary system. Dealing with a delicate issue like the power of monetary authorities in a modern democracy requires a clear assessment of the multidimensional influence of central banks and a common language among the social scientists interested in this topic. Without tackling the "silo effect" (Tett, 2015, p. 5) by loosening the barriers between the various disciplines interested in analyzing the Fed, recommendations of large-scale and radical reforms will overlook critical dimensions. The combination of insights from different branches of social science within a common dialect is highly relevant, especially because much of the Fed's growing influence stems from appealing to the technical intricacies of monetary economics to suppress clear and accessible public dialogue (Jacobs & King, 2016).

A key takeaway from the results offered here is that a common area can be established whereby political scientists and economists can join forces to better understand the depth of the Fed's influence on its political environment. On the one hand, political scientists can benefit from the empirical economists' relentless attempts to produce exogenous shock series that facilitate the econometric analysis of the Fed's consequential role. On the other hand, economists should expand their scope of interest to assessing outcomes beyond the strict realms of economic and financial series. This resulting cross-disciplinary effort allows for a clearer demarcation of the Fed's zone of influence and opens the door for more impactful, precise, and politically feasible demands for accountability and reforms.

ACKNOWLEDGMENTS

This article benefitted from the suggestions of Elie Menassa, Faten Hammoud, the *Politics & Policy* editors, and two anonymous reviewers.

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ENDNOTES

[1] In a recent issue of this journal, Pulatov and Ahmad (2021) show that monetary policy is a significant contributor to PBS in former communist European countries.

[2] These surprises are based on tick-by-tick dataset prices of futures obtained from Genesis Financial Technologies.

[3] In both my sample and the Nakamura and Steinsson (2018) sample, the standard deviation of monetary surprises is 5-bp.

[4] I follow Jordà's (2005) recommendation and use of the Newey-West standard errors due to the serial correlation in the error terms.

[5] To control for the effects of the momenta in presidential approval and their economic determinants, I introduce the lagged effects of the endogenous variables for up to 18 months. I also include the one-month lags of the exogenous variables.

[6] In doing so, the central bank accomplishes a useful social function. This is because markets incentivize private agents to produce information that is relevant to particular business or sectors rather than the whole economy (see Hirshleifer, 1971).

[7] To limit the impact of noisiness in the monetary shocks on my results, I re-estimate the VP functions by introducing these shocks in a dummy variable form. In particular, I assign the value of 1 for cumulative shock levels above the 75th percentile in the sample, and 0 otherwise. The inferences from the re-estimated models are aligned with the conclusions derived from Table 4. Specifically, cumulative shocks above the 75th percentile predict a decline in presidential approval by more than 4%. This decline becomes statistically and politically insignificant (−0.5%) when economic factors are controlled for.

[8] A key finding by Donovan and others (2020) suggests that increasing political polarization reduces the impact of economic factors on the voter's assessment of presidential performance. In the context of my analysis, the growing influence of economic factors on presidential approval in the second half of the presidential term should be considerably weakened if there is high political polarization. Empirically, I include the Partisan Conflict Index (PCI) developed by Azzimonti (2018). This index is based on the frequency of newspaper articles related to divisive issues, legislative gridlocks, filibusters, presidential vetoes, etc. This index is available for free on the Website of the Federal Reserve Bank of Philadelphia. The results, available upon request, show that the negative effect of cumulative monetary shocks on presidential approval is neutralized in the presence of considerable partisan conflict (PCI level in the top quartile).

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How to cite this article: Adra, Samer. 2022. "Monetary policy and anxious presidents: The effects of monetary shocks on presidential job approval." *Politics & Policy*. 00:1–30. https://doi.org/10.1111/polp.12456

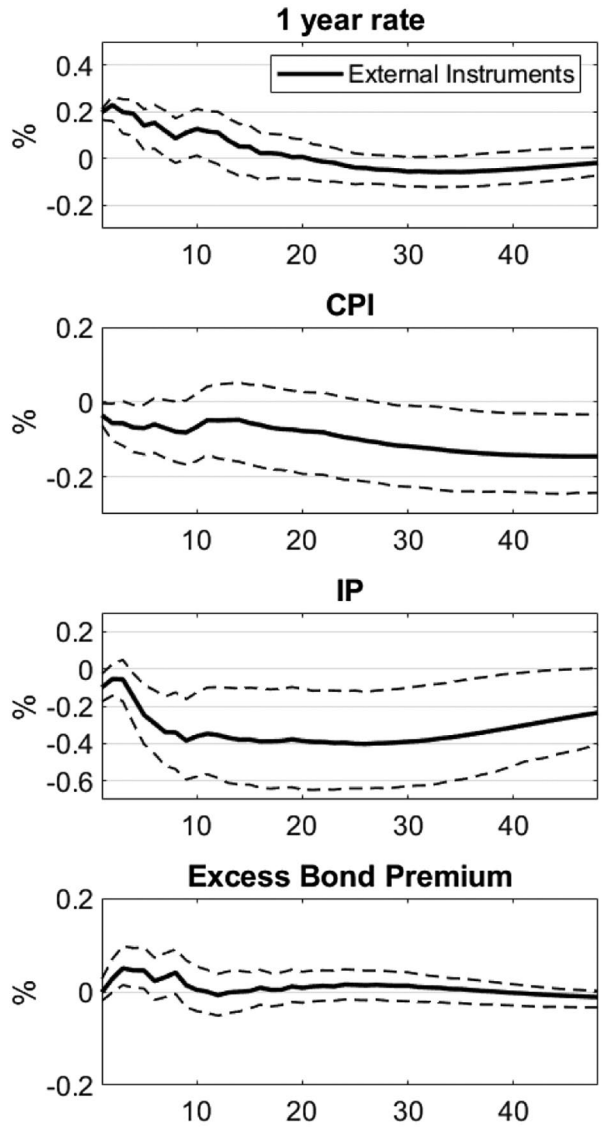
APPENDIX A

Variables in the proxy SVAR model

Variable	Description	Source
One-year rate	The one-year constant maturity rate on U.S. Treasury. This variable is used as the main policy indicator in the Proxy SVAR model	Board of Governors of the Federal Reserve System (US), One-Year Treasury Constant Maturity Rate [GS1]. Retrieved from FRED, Federal Reserve Bank of St Louis
Monetary surprise	The change in the three-month Federal funds futures between 10 min before and 20 min after the release of the FOMC statement	Tick-by-tick prices of futures obtained from Genesis Financial Technologies, as reported in the online appendix of Jarociński and Karadi (2020)
CPI	The natural logarithm of the monthly levels of the Consumer Price Index	U.S. Bureau of Labor Statistics, Consumer Price Index for All Urban Consumers: All items in U.S. City Average [CPIAUCSL]. Retrieved from FRED, Federal Reserve Bank of St Louis
IP	The natural logarithm of the monthly level of the industrial production index	Board of Governors of the Federal Reserve System (US), Industrial Production. Total Index [INDPRO]. Retrieved from FRED, Federal Reserve Bank of St Louis
Excess bond premium	The spread between Moody's Seasoned Baa Corporate Bond and the 10-Year constant maturity U.S. Treasury	Federal Reserve Bank of St Louis, Moody's Seasoned Baa Corporate Bond Yield Relative to Yield on 10-Year Treasury Constant Maturity [BAA10Y]. Retrieved from FRED, Federal Reserve Bank of St Louis

APPENDIX B

Impulse response in the proxy SVAR



First stage regression: F: 18.81 robust F: 14.03 R2: 6.84% Adjusted R2: 6.48%

APPENDIX C

Key events

Date	Ordinary events	Duration
June 1990	Mandela tours US (PD, PI)	1
August 1990	Iraq invades Kuwait (PI)	1
October 1990	Thomas-Hill hearings (ND)	1
December 1991	Sununu resigns (ND)	1
February 1992	New Hampshire primary (Bush 53%, Buchanan 35%) (ND)	1
December 1992	Operation Restore Hope begins (PI)	1
January 1993	Navy launches missiles at Iraq (PI)	1
March 1993	World Trade Center bombing (PD)	1
September 1993	Rabin and Arafat sign accord (PD, PI)	1
February 1995	Surgeon General Foster under fire (ND)	1
December 1995	Budget deadlock leads to government shutdown (ND)	1
July 1996	Bomb in Saudi Arabia kills 19 servicemen in Khobar Towers (PI)	1
August 1996	Bomb at Olympics in Atlanta (PD)	1
September 1996	US missile strike at Iraqi military sites (PI)	1
October 1997	Clinton under fire for campaign abuses of government facilities (ND)	1
February 1998	Saddam Hussein backs down, agrees with UN (PD, PI)	1
August 1998	US embassies in Kenya and Tanzania bombed/Attacks on suspected Bin Laden training camps and chemical factory (PD, PI)	1
November 2000	USS Cole attacked (PI)	1
January 2001	Bush takes office (PD)	1
February 2001	US and UK planes attack Iraq (PI)	1
April 2001	US spy plane collides with Chinese fighter Jet (PI)	1
November 2002	Republicans do well in midterm elections (PD)	1
September 2003	No WMDs (PI, ND)	1
December 2003	Saddam captured (PI)	1
April 2004	Abu Ghraib (NI)	1
November 2004	Bush re-elected (PD)	1
FR 2005	Iraqi popular vote (PI)	1
September 2005	Hurricane Katrina (ND)	1
November 2005	Libby indicted (ND)	1
November 2006	Dems take over Congress in midterms (ND)	1
February 2007	Iraq surge (PI)	1
June 2007	Bush claims Executive Privilege; Libby (ND)	1
March 2008	Bush rescinds ban on waterboarding (NI)	1
November 2008	Republicans do poorly in general election (ND)	1
January 2009	Obama inaugurated (PD)	1
FR 2009	American Recovery and Reinvestment Act 2009 (PD)	1

(Continues)

APPENDIX C (Continued)

Date	Ordinary events	Duration
March 2009	Affordable Care Act (PD)	1
May 2009	Obama speech in Cairo (PI)	1
October 2009	Obama wins Nobel Prize (PI)	1
June 2010	BP oil spill (ND)	1
November 2010	Tea Party makes large wins in midterms (ND)	1
May 2011	Bin Laden killed (PD, PI)	1
October 2011	End of war in Iraq (PD, PI)	1
October 2011	Ghaddafi killed (PI)	1
May 2012	Obama supports gay marriage (PD)	1
September 2012	Benghazi attacks (ND, NI)	1
November 2012	Obama re-elected (PD)	1
December 2012	Sandy Hook shooting (ND)	1
April 2013	Boston bombing (PD)	1
September 2013	Chemical weapons in Syria, Assad crosses "Line in the Sand" (NI)	1
October 2013	Government shutdown (ND)	1
November 2015	Paris Climate Change Conference (PI)	1
January 2016	Deal with Iran (PI)	1
March 2016	Cuba trip (PI)	1
June 2016	Supreme court upholds Obamacare (PD)	1
Date	**Extraordinary events**	**Duration**
January 1991	Gulf War	11
January 1998	Lewinsky scandal	12
September 2001	9/11 Terror attacks	9
March 2003	Invasion of Iraq	6
September 2008	Stock market crash	4
June 2014	International military intervention against ISIS	19

APPENDIX D

Variable definitions in the analysis of presidential approval

Variable	Description	Source
Approval	The percentage of respondents who approve presidential performance in the last Gallup survey conducted in each calendar month	Gallup polls, as reported by the American Presidency Project of the University of California Santa Barbara
Shock	The monthly levels of the monetary shocks from the Proxy SVAR model. These shocks are identified up to a sign and scale restriction	Authors' calculations
EarlyShock	Monetary shocks in the first half of each presidential term	Author's calculations
LateShock	Monetary shocks in the second half of each presidential term	Author's calculations

APPENDIX D (Continued)

Variable	Description	Source
CumShocks	The sum of monetary shocks from 24 to 12 months before each corresponding month	Author's calculations
Filtered approval	The residuals from the regression of presidential approval on variables reflecting key non-economic events	Gallup Polls + Model (2) in Table 3
Unemp	The monthly unemployment rate calculated as the number of unemployed as a percentage of the labor force	U.S. Bureau of Labor Statistics, Unemployment Rate [UNRATE]. Retrieved from FRED, Federal Reserve Bank of St Louis
Inflation	Annual percentage growth in CPI	U.S. Bureau of Labor Statistics, Consumer Price Index for All Urban Consumers: All Items in U.S. City Average [CPIAUCSL]. Retrieved from FRED, Federal Reserve Bank of St Louis
Stock Market	The annual return in the S&P 500	CRSP
Time in office	The number of months since the president's first inauguration	Authors' calculations
Interest	The 10-Year Treasury Constant Maturity Rate	Board of Governors of the Federal Reserve System (US), 10-Year Treasury Constant Maturity Rate [GS10], retrieved from FRED, Federal Reserve Bank of St Louis.
Consumer confidence	The monthly level of the University of Michigan CPI	University of Michigan: Consumer Sentiment [UMCSENT]. Retrieved from FRED, Federal Reserve Bank of St Louis
Iraq casualties	The monthly number of casualties in the Iraq war	http://icasualties.org/
Clinton	A dummy variable assigned the value of 1 for the period covering the presidency of Bill Clinton, and 0 otherwise	Author's calculations
Bush Jr.	A dummy variable assigned the value of 1 for the period covering the presidency of George W. Bush, and 0 otherwise	Author's calculations
September 11	A dummy variable assigned the value of 1 for September 2001 and the subsequent months reported in Appendix C, and 0 otherwise	Ostrom and others (2018) + Author's calculations
Iraq invasion	A dummy variable assigned the value of 1 for the months of the 2003 invasion of Iraq and the five months that followed, and 0 otherwise	Author's calculations
Gulf War	A dummy variable assigned the value of 1 for the period of the Gulf War, reported in Appendix C, and 0 otherwise	Newman and Forcehimes (2010)
ISIS	A dummy variable assigned the value of 1 for the period of the war against ISIS, reported in Appendix C, and 0 otherwise	New York Times Archives

(Continues)

APPENDIX D (Continued)

Variable	Description	Source
Financial meltdown	A dummy variable assigned the value of 1 for the period of the 2008 financial crisis, reported in Appendix C, and 0 otherwise	Ostrom and others (2018) + Author's calculations
Afghanistan casualties	The monthly number of casualties in the Afghanistan war	http://icasualties.org/
Divided government	A dummy variable assigned the value of 1 if the party that does not control the White House controls one or both houses of Congress, and 0 otherwise [Non-Divided]	Author's calculations
Lewinski	A dummy variable assigned the value of 1 for the month of the breakout of the Monica Lewinski affair and the subsequent months reported in Appendix C, and 0 otherwise	Author's calculations
PD	Positive Domestic News	Event months coded as PD in Appendix C
ND	Negative Domestic News	Event months coded as ND in Appendix C
PI	Positive International News	Event months coded as PI in Appendix C
NI	Negative International News	Event months coded as NI in Appendix C