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Corporate Decision-Making in the Presence of Political Uncertainty: The Case of Corporate Cash Holdings*

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Abstract

Using a quarterly panel of U.S. corporations over the period 1985 – 2014 we show that corporate managers respond to political uncertainty and economic policy uncertainty shocks in different ways. We proxy for political uncertainty using the Partisan Conflict Index and employ a prevalent empirical macroeconomic methodology to construct structural shocks that are orthogonal to shocks captured by the Economic Policy Uncertainty Index. Following a political uncertainty shock, corporations increase cash but do not adjust investment. Alternatively, following an economic policy uncertainty shock, firms appear to draw on cash and reduce capital spending to increase R&D spending.

1 Introduction

In June 2016, seventy-nine percent of the chief financial officers (CFOs) responding to the CFO Outlook Survey stated that the U.S. faced "moderate-to-severe" political risk (Graham, 2016). Forty-seven percent of CFOs also indicated that they would limit their business's spending due to heightened political uncertainty. In 2013, half of all chief executive officers (CEOs) responding to the Business Roundtable's CEO Economic Outlook Survey claimed that political disagreement within the federal government over the upcoming budget negotiations and the looming debt ceiling crisis was likely to have an adverse effect on their short-term hiring decisions. Recent public news reports document similar anecdotes about how political uncertainty impacts business decisions. For example, Howard Shultz, the former CEO of Starbucks, sent a well-publicized memo to employees urging better customer service in the face of, amongst other issues, "great political uncertainty both at home and abroad (Harwell, 2015)." Jamie Dimon, the CEO of JPMorgan Chase, has discussed his concern regarding uncertainty over health care, immigration, and infrastructure policy (Dimon, 2015). These issues, particularly the first two, have elicited contentious partisan debate amongst members of Congress in recent years.

Given the anecdotal evidence, this paper directly addresses whether a political uncertainty shock impacts corporate cash holdings. Corporations hold cash for a variety of reasons, one of which is to serve as a buffer against negative shocks that could affect future cash flows.[1] If corporate managers anticipate that heightened partisan conflict would lower the probability that the government could effectively respond to an unanticipated negative economic shock, they might direct their firms to hold more assets as cash in order to guard against potentially harmful events in the future.

We note that the estimation of political uncertainty is complicated by the existence of economic policy uncertainty. In this paper, our measure of political uncertainty is based on the Partisan Conflict Index (hereafter referred to as the PC Index) first introduced in Azzimonti (2018a). Our measure of economic policy uncertainty is based on the news-based Economic Policy Uncertainty Index (hereafter referred to as the EPU Index), developed by Baker, Bloom, and Davis (2016). Although similar in construction, the PC Index is distinct from the EPU Index. In particular, the algorithm from which the PC Index is constructed does not search for words directly related to economic policy, but instead searches for words directly related to political disagreement. The EPU Index will only register episodes of political uncertainty if the source of that conflict is economic uncertainty. Thus, the PC Index is a more complete measure of political uncertainty. This distinction between the PC Index and the EPU Index is important because

[1] See Opler, Pinkowitz, Stulz, and Williamson (1999), Almeida, Campello, and Weisbach (2004) and Han and Qiu (2007).

there can be instances where partisan conflict is low but economic policy uncertainty is high and vice versa. As an example, Azzimonti (2018a) notes that immediately following the September 11$^{\text{th}}$ terrorist attacks, economic policy uncertainty was quite high, yet partisan conflict was low because most politicians had rallied around a common goal. Similarly, following the failure of Lehman Brothers in 2008, the EPU Index exhibited a stark increase while the PC Index was relatively stable. Conversely, instances where economic policy uncertainty is low, but partisan conflict is high, might still lead investors and managers to alter their behavior. For example, Azzimonti (2018a) distinguishes between uncertainty about the types of policies the government might adopt, or whether they will adopt a meaningful policy at all, and uncertainty over the effects of policies that have already been adopted. Uncertainty over which policies will or might be adopted stems from political uncertainty. Conversely, uncertainty regarding the effects of existing policy stems from economic policy uncertainty.[2]

To construct structural political uncertainty shocks that are orthogonal to economic policy uncertainty shocks, we follow the macroeconomic literature by estimating a structural vector autoregression model (SVAR). Since Sims (1980), vector autoregressions have become a common tool to study dynamical relations between variables. Stock and Watson (2001) stress that SVARs require identifying assumptions in order to allow correlations to be interpreted causally. We adopt the recursiveness assumption which is widely used by researchers such as Christiano, Eichenbaum, and Evans (1999), Christiano, Eichenbaum, and Evans (2005), and Bloom (2009), among many others. By constructing shocks that are orthogonal to one another, we have additional confidence that partisan conflict shocks are not contaminated by shocks to economic policy uncertainty (and vice versa) or other macroeconomic variables used in the SVAR model. We then test the relationships between these shocks and corporate cash holdings using data from Compustat Quarterly File for all non-financial and non-utility U.S. firms over the period 1985Q1 – 2014Q4.

We reach several findings of particular note. First, we provide robust empirical evidence that corporate managers shift an economically significant amount of assets into cash holdings during periods of heightened political uncertainty, for four quarters after the shock. More specifically, a partisan conflict shock similar to what the U.S. experienced during 2010, when the Affordable Care Act was signed into law, would result in an increase in the cash ratio of approximately 26 basis points, representing a 1.77% rise in average cash-to-total assets.

Second, we analyze how various subsamples of firms react to a partisan conflict shock. While both financially constrained and unconstrained firms appear to increase cash holdings following a partisan conflict

[2]Previous research such as Pastor and Veronesi (2012) also shows that political uncertainty and impact uncertainty, which could be triggered by economic policy uncertainty, are theoretically and empirically different.

shock, the strongest evidence indicates that financially constrained firms increase cash holdings by significantly more than unconstrained firms. Other tests reveal that all firms, regardless of the political sensitivity of their industry or the degree to which their industry utilizes irreversible investments, increase cash holdings following a partisan conflict shock. Moreover, while a partisan conflict shock is associated with increased cash holdings, we do not find similar evidence showing that capital expenditure or R&D expenditure decline following the shock. Thus, the rise in cash holdings is consistent with the precautionary motive.

In contrast, we find a decrease in cash holdings immediately following an economic policy uncertainty shock. In particular, we find evidence of this behavior for financially constrained firms, but not for financially unconstrained firms, which could indicate that financially constrained firms are forced to use cash holdings to continue with normal business operations following a shock. Interestingly, following an EPU shock, corporate managers, and the managers of financially constrained firms in particular, use cash holdings to maintain or even increase expenditures on R&D, a finding that is consistent with the work of Stein and Stone (2013), Brown and Petersen (2015), and Atanassov, Julio, and Leng (2018). These results are largely robust to the use of an alternative measure of cash holdings and alternative SVAR specifications.

Our findings provide several contributions to the literature. First, we provide robust evidence that corporations respond to partisan conflict and economic uncertainty shocks in different ways. In addition, we show a relatively straightforward way in which researchers can separately quantify and distinguish the impact of economic policy uncertainty from political uncertainty arising from partisan conflict. In doing so, this paper is among the the first to disentangle political uncertainty from economic policy uncertainty within the same framework. In recent years, the EPU Index has been a standard measure of political uncertainty. Using this measure, researchers have studied the effects of political uncertainty on bank loan contracting (Francis, Hasan, and Zhu, 2014), corporate debt financing (Waisman, Ye, and Zhu, 2015), and investment decisions (Gulen and Ion, 2015). However, our methodology of constructing orthogonal structural shocks from a structural VAR enables researchers to reevaluate these relationships by accounting for endogeneity between these two types of uncertainty. Finally, the use of the PC Index also distinguishes this paper from those such as Julio and Yook (2012), who use election dates to proxy for political uncertainty. By using the PC Index, we have the ability to proxy for political uncertainty during non-election years.

These findings extend a growing literature examining the consequences of US partisan conflict (see Azzimonti (2018a), Azzimonti (2018b), Cheng, Hankins, and Chiu (2016), Gupta, Lau, Miller, and Wohar (2017), and Gupta, Pierdzioch, Selmi, and Wohar (2018). Some economists believe that the slow recovery from the Great Recession can be explained, in part, by a higher degree of uncertainty. In fact, recent survey evidence

indicates that greater political uncertainty has "[led] to planned business spending increases of only 1% in the United States"(Graham, 2016). Our empirical results support the hypothesis that shocks to political uncertainty raise the cash holdings of U.S. firms, which may have prolonged the weak recovery from the Great Recession as firms chose to increase cash holdings over other productive uses. These insights reveal the importance of good policy and the broader signaling effects of political dysfunction. Moreover, these results should also indicate to managers and policymakers that the consequences of partisan conflict can be detrimental even when economic policy uncertainty is low.

2 Literature review

This paper makes its largest contribution to the cash holdings literature by investigating the impact of political uncertainty on corporate cash holdings. Julio and Yook (2012) estimated how cash holdings are correlated with election years. Interestingly, they find an increase in cash holdings and a decrease in investment spending during election years, providing evidence that cash holdings should increase around periods typically associated with political uncertainty. However, the *source* of the uncertainty, i.e. political or policy uncertainty, is not known. Moreover, the use of election years to proxy for uncertainty does not allow one to measure important sources of political uncertainty, like the 2013 government shutdown, that occurred in between election years. Also, it is not possible to distinguish between contentious elections that were ultimately won by a large margin, such as the 2008 presidental election, and an election such as the 2000 presidental election that was won by a small margin, but did not display the same level of conflict in the lead up. Our findings complement those of Julio and Yook (2012) by using the PC Index to provide estimates of how cash holdings respond to a political uncertainty shock in all years.

Azzimonti (2018a) introduces the PC Index and shows that a doubling of partisan conflict is associated with a decline in corporate investment. Azzimonti's focus on corporate investment and the novelty of the PC Index sets her apart from earlier work in political science and economics that focused on political polarization and aggregate private investment (see, for example, Azzimonti (2011) and Canes-Wrone and Park (2012)).[3] Azzimonti's model is similar to that of Gulen and Ion (2015), who found strong evidence of an inverse relationship between increases in the EPU Index and firm-level capital investments. An important difference between these papers is that Azzimonti (2018a) includes the PC Index along with the EPU Index. In addition, Gulen and Ion (2015) attempt to capture economic policy uncertainty during election and non-

[3]In a separate paper, Azzimonti (2018b), the relationship between the PC Index and aggregate private investment is explored in a theoretical model.

election years. Azzimonti finds that increases in both the PC Index and the EPU Index are associated with a reduction in corporate investment. Importantly, her finding reveals that partisan conflict can have a first moment impact on corporate decision-making rather than simply through a second order effect.

While our paper also focuses on corporate decision-making, there are several important differences. First, our primary interest is in how partisan conflict impacts corporate cash holdings. Alfaro, Bloom, and Lin (2016) provide a theoretical model showing that firms are incentivized to *both* reduce investment *and* raise cash holdings in the face of uncertainty shocks. In other words, the increase in cash holdings might not simply be the mechanical result of a firm also reducing investment, but could signal a precautionary motive. However, in addition to our study of cash holdings, we try to understand how capital expenditures and R&D respond to these same episodes of uncertainty. More importantly, though, we do not proxy for political and economic policy uncertainty by using the PC and EPU Indexes directly. Instead we will use constructed economic policy uncertainty shocks that are orthogonal to partisan conflict shocks. This is an important difference because, rather than estimating the corporate response to high levels of political or economic policy uncertainty, our focus is on the responses to unanticipated political and economic policy uncertainty shocks that are not contaiminated by one another.

While the PC Index is relatively new to the corporate finance literature, researchers have made wide use of the EPU Index. Gulen and Ion (2015), Francis, Hasan, and Zhu (2014) and Waisman, Ye, and Zhu (2015) study the effects of policy uncertainty on corporate bank loan contracting and debt financing, respectively, by making use of the EPU Index. Francis, Hasan, and Zhu (2014) show that elevated uncertainty can make banks loans more costly. This finding relates closely to our paper, because it reveals an uncertainty-induced reason why firms might be forced to hold more cash. Similarly, Waisman, Ye, and Zhu (2015) show that higher uncertainty is associated with an increase in corporate bond spreads, which increases the cost of debt financing. Recently, Graham and Leary (2017) have undertaken an exhaustive analysis of corporate cash holdings, using close to a century's worth of data from a variety of sources. They find no statistically significant evidence of a positive correlation between the Economic Policy Uncertainty Index and cash-to-total assets. Unlike Graham and Leary (2017), we are interested in how firm-level cash holdings respond to both economic policy uncertainty and partisan conflict. However, thus far we demonstrate that the EPU Index cannot measure elements of political uncertainty directly related to partisan conflict. Thus, a contribution to this literature is our evidence that the PC Index is an important and fundamentally different proxy for political uncertainty that should be incorporated into the finance literature.

The attempt to understand the differences between how cash holdings respond to PC and EPU shocks

draws on a literature that studies the determinants of corporate cash holdings, which has been an active research area ever since the seminal study on the determinants of corporate cash holdings by Opler, Pinkowitz, Stulz, and Williamson (1999). Since the introduction of this research, corporate cash holdings have experienced astounding growth. Bates, Kahle, and Stulz (2009) show that much of this growth is for precautionary reasons. Keynes (1936) first discusses the possibility of a precautionary motive of firm-level cash holdings. Further evidence for this theory is provided in Opler, Pinkowitz, Stulz, and Williamson (1999), Almeida, Campello, and Weisbach (2004) and Han and Qiu (2007). Simply put, the precautionary motive asserts that firms will hold more cash in order to buffer against adverse shocks, both idiosyncratic and aggregate, particularly when access to external capital is costly (see, for example, Baum, Caglayan, Ozkan, and Talavera (2006); Baum, Caglayan, Stephan, and Talavera (2008); Acharya, Almeida, and Campello (2013); and Gao, Grinstein, and Wang (2017).

In addition to the study of how uncertainty impacts corporate cash holdings, recent work studies if firms attempt to mitigate the impact of uncertainty through establishing political connections.[4] While beyond the scope of this paper, it is beneficial to address how firms use these channels. One obvious reason is that political connections might be established through lobbying, which would likely be paid for through a corporation's stock of cash. For example, Hill, Fuller, Kelly, and Washam (2014) uses lobbying expenses as a measure of political connectedness and finds that firms with greater lobbying expense held less cash. However, under the view that politically connected firms are likely to experience agency problems, Boubakri, El Ghoul, and Saffar (2013) finds that politically connected firms held more cash relative to less-connected peer firms. They argued that cash holdings are likely to be used to exploit these connections via lobbying. Other studies, such as Caprio, Faccio, and McConnell (2011) and Xu, Chen, Xu, and Chan (2016) provide evidence for how firms in other countries use cash and political connections in more corrupt environments.

Through our review of the literature we present in this section we have highlight multiple channels through which partisan conflict can impact corporate cash holdings:

- Firms have a precautionary motive for holding proportionally more cash if they believe that partisan conflict will limit the availability and raise the price of external financing.
- If firms perceive partisan conflict to be long-lasting, then the belief that politicians will be unable to mitigate costly rare events can be exacerbated. This belief might lead them to question the availability of profitable investments in the future. A preference for cash in the face of uncertainty over future investments is consistent with the model discussed in Almeida, Campello, and Weisbach (2011) and

[4]We thank an anonymous referee for highlighting the importance of discussing this literature.

Alfaro, Bloom, and Lin (2016).

These potential channels lead us to believe that, holding other things constant, heightened partisan conflict should lead firms to hold relatively more of their assets as cash.

3 Methodology

As we mention in Section 1, there are reasons to believe that heightened political uncertainty might lead to heightened economic policy uncertainty. Furthermore, the PC Index and the EPU Index, while both representing aggregate uncertainties, are fundamentally different. Thus, it is important to make every attempt to ensure these shocks are identifiable from one another. We will first discuss the procedure we use to estimate exogenous partisan conflict and economic policy uncertainty shocks. We will then discuss the empirical model that we use to estimate the impact of these shocks on corporate cash holdings.

3.1 Estimation of political and economic policy uncertainty shocks

As pointed out by Azzimonti (2018a), the PC and news-based EPU indexes are positively correlated, with an unconditional correlation of approximately 0.4 between 1985 and 2017. Hence, it is problematic to adopt the PC and EPU indexes directly in our panel regression anaylsis in the latter section since it is unclear whether partisan conflict is an exogenous cause for economic policy uncertainty or if it is an endogenous response to economic policy uncertainty or business activities in general. In order to remove any potential endogeneity between the two types of uncertainty and to conduct causal inference, we impose identifying assumptions, as stressed by Stock and Watson (2001). We adopt the popular recursiveness assumption (Cholesky decomposition) as our identification strategy. This assumption is widely used in the macroeconomics literature, as manifested by Christiano, Eichenbaum, and Evans (2005) who study the impact of monetary shocks, and by Bloom (2009) who study the impact of economic policy uncertainty shocks.[5]

We estimate a VAR model which consists of five variables with the following baseline ordering: Partisan Conflict Index (PC_t), news-based Economic Policy Uncertainty Index (EPU_t), U.S. Real Gross Domestic Product (GDP_t), U.S. Private Investment (I_t), and the U.S. Federal Funds Rate (FFR_t). We use quarterly

[5] Azzimonti (2018a) claims that the use of a VAR model with Cholesky decomposition does not address the issue of causality. However, while this might be true about VARs without any identification schemes *per se*, the macroeconomic literature generally recognizes that appropriately ordering the variables in the VAR system and performing Cholesky decomposition allows one to identify the VAR and make causal claims.

U.S. data over the period 1985Q1 to 2014Q4, and estimate our model with four lags.[6] Our chosen ordering implies that structural PC shocks can affect economic policy uncertainty and other real variables but not the other way around. Additionally, the use of quarterly data helps justify the ordering of the PC and EPU Indexes. While it is possible that economic policy uncertainty might generate political uncertainty over a period of a year or more, it is less likely when measuring these variables at a quarterly frequency. To identify policy uncertainty shocks, we follow Bloom (2009) and Baker, Bloom, and Davis (2016) by putting the EPU Index before the macroeconomic variables. They argue that uncertainty shocks should be able to impact quantities and prices instantaneously.

To differentiate EPU shocks from PC shocks, we assume that the former does not affect political disagreement within the same period; in other words, shocks to EPU are assumed not to change PC on impact. This follows directly from the theoretical predictions of Azzimonti (2018b), who shows that partisan conflict tends to increase during election periods and in response to political polarization, which may in turn lead to an increase in policy uncertainty. Our assumption that shocks to EPU do not affect PC on impact is also motivated by two observations. First, Azzimonti (2018a) discusses that EPU shocks generally leave PC unaffected during the current period. The recent financial crisis serves as an example. The underlying causes that triggered an EPU shock had little to do with current period politics. However, when politicians started debating financial regulation meant to prevent another crisis, or when there was significant disagreement between elected officials regarding interest rate policies set by the Federal Reserve, partisan conflict was higher (e.g., the various versions of the Federal Reserve Transparency Act that have been brought before the US Congress or the Dodd-Frank Wall Street Reform and Consumer Protection Act). Second, totally exogenous events like wars or terrorist events can trigger spikes in economic policy uncertainty without causing much change in partisan conflict. The reason is that politicians may be in general agreement about the appropriate policy response. For example, after the Sept. 11th attacks, when EPU spiked, politicians in both parties generally agreed that increased security at airports and military actions in Afghanistan were appropriate policy responses. Afterwards, policy disagreements stemming from these shocks have become more contentious.

All variables in the SVAR system are expressed in log values, except for the federal funds rate. The starting date for our data is based on the availability of the EPU Index, which was developed by Baker,

[6]The AIC criteria lie within a small range of -23.07 and -22.86 for the model estimated with two, three, and four lags, respectively, rendering the choice of lag length difficult. This is reminiscent of Walentin (2014) who points out that the lag length selection for VAR models tends to be difficult. Having considered the high persistence of the PC Index and the need to properly model the dynamical relationships between uncertainties and the economy, we adopt four lags as our baseline model. Our results are robust to the more parsimonious two-lag model, the results of which we discuss in Section 7.3 and report in the appendix.

Bloom, and Davis (2016), and is retrieved from the "Economic Policy Uncertainty" website. The PC Index is available from the Philadelphia Federal Reserve Bank.[7] U.S. Private Investment, which is deflated using the GDP deflator, US Real Gross Domestic Product and the U.S. Federal funds Rate are both taken from the Federal Reserve Bank of St. Louis.

In the appendix, we report results using several alternative specifications. These include: 1) a FA-SVAR with PC_t ordered second and EPU_t ordered third; 2) a SVAR where PC_t and EPU_t are ordered fourth and fifth, respectively; and 3) a SVAR where EPU_t and PC_t are ordered first and second, respectively.

– Insert Figure 1 Here –

Figure 1 shows the PC and EPU shocks that are recovered from the four-lag SVAR model. The shocks are standardized to have a mean of zero and a standard deviation of one. The largest shocks in each series correspond to periods of relatively high political and economic policy uncertainty. For example, the largest EPU shock occurs during the third quarter of 1987, when the U.S. experienced the "Black Friday" stock market crash, which was more than three standard deviations above the mean. In recent years, the largest EPU shock was also approximately three standard deviations above the mean and occurred during the third quarter of 2011, the same quarter in which the U.S. Congress was required to raise the debt ceiling. The largest PC shock occurs during the first quarter of 2010, when President Barack Obama signed the Affordable Care Act into law. This shock is more than two standard deviations above the mean.

3.2 Baseline empirical model

We estimate the impact of political and economic policy uncertainty shocks on corporate cash holdings using the following baseline regression specification:

$$\begin{aligned}\text{Cash-to-Total Assets}_{i,t+q} &= \beta_1 \text{PC Shock}_t + \beta_2 \text{EPU Shock}_t + \beta_3 \text{Presidential Election}_t \\ &+ \beta_4 \text{Cash-to-Total Assets}_{i,t-1} + \boldsymbol{\gamma}\mathbf{X}_{i,t} + \boldsymbol{\mu}\mathbf{W}_t + \mathbf{CQTR}_t + \mathbf{FQTR}_t + \alpha_i + \epsilon_{i,t+q}.\end{aligned} \tag{1}$$

Firms are indexed with the subscript i, calendar quarters are indexed with the subscript t, and $q \in 1, 2, 3, 4$. Similar to Gulen and Ion (2015) and Duong, Nguyen, and Rhee (2017), we estimate how future levels of cash holdings are impacted by a current period shock. Upon the impact of a shock, firms might

[7] The websites are, respectively, `http://www.policyuncertainty.com` and `https://www.philadelphiafed.org/research-and-data/real-time-center/partisan-conflict-index`. The overall EPU Index consists of a component based on newspaper coverage, a component based on provisions of the federal tax code that are set to expire over the ensuing decade, and a component based on the disagreements of economic forecasters. However, to stay consistent with the news-based PC Index, we will employ the news-based EPU Index.

not be able to immediately adjust levels of cash and investment. In all likelihood, the adjustment of these variables can take some time, perhaps even several quarters. Thus, by using leads of cash-to-total assets, we can better estimate the complete reaction to the shock.

– Insert Table 1 –

Cash-to-Total Assets is taken from Compustat Quarterly File. Compustat provides financial information on all publicly-traded corporations in the United States by corporate observation. The common practice in the cash holdings literature is to measure cash holdings using a ratio that divides cash, cash equivalents, and short-term investments by a firm's total assets.[8] However, in Section 6 we examine how capital investment and R&D spending behave in the presence of political and economic policy uncertainty shocks. Thus, following the conventions of those strands of the literature, the level of cash holdings will be scaled by beginning of period assets. We exclude financial firms (SIC 6000-6999) and utilities (SIC 4900-4999) because the former hold cash related to their unique business practices while the latter hold cash primarily for regulatory purposes. In addition, we exclude firms headquartered outside of the United States. Table 1 provides summary statistics describing the cash ratio for the total sample as well as for the subgroups of firms.

The variables PC Shock$_t$ and EPU Shock$_t$ are the standardized orthogonal shocks, with a mean of zero and a standard deviation of one, that are recovered from the SVAR model discussed in Section 3.1. These variables proxy for unanticipated partisan conflict and economic policy uncertainty shocks, respectively. By using these shocks, we are more confident that a given partisan conflict shock is unanticipated and thus not explained by economic policy uncertainty or other events captured by the macroeconomic variables in the SVAR model. Similarly, a given economic policy uncertainty shock should not be contaminated by partisan conflict or variation in the macroeconomic variables.

Along with the recovered political and economic policy uncertainty shocks, we include an indicator variable, Presidential Election, that equals one during the year prior to a presidential election and zero otherwise. For example, for the presidential election that took place in 2012:Q4, the variable Presidential Election equals one in 2011:Q4 and 2012:Q1-2012:Q3. This variable is included in order to absorb any election year political uncertainty that might not be captured by the partisan conflict and economic policy uncertainty shocks, thus alleviating a potential source of bias. However, a partisan conflict shock is intended to capture unanticipated political uncertainty, whereas political uncertainty during election periods might

[8]Cash, cash equivalents, and short-term investments include non-interest earning assets, low-interest earnings assets, and interest-bearing assets as long as they are short-term. In the appendix, we estimate Equation 1 with the natural logarithm of cash-to-net assets instead of scaling by lagged assets.

be anticipated by corporate managers.

The right hand side of Equation 1 also includes cash-to-total assets held one quarter prior to the unanticipated PC and EPU shocks. This variable is intended to control for the "initial" level of cash held by a corporation prior to the realization of a shock, thus allowing us to interpret the coefficients on PC Shock$_t$ and EPU Shock$_t$ as the additional increase in cash as a result of the shock.[9]

X is a vector of firm level control variables that are common to the cash holdings literature and are described below. Market-to-Book ratio is the market value of a firm's equity to its book value and is a proxy for a firm's growth opportunities. Cash Flow measures a firm's earnings after paying out interest, dividends, and taxes divided by total assets. Net Working Capital-to-Assets is a firm's current assets net of cash, cash equivalents, short-term assets, and current liabilities to total assets. Capital Expenditure-to-Assets is a firm's capital expenditure divided by total assets. Leverage measures a firm's long-term and current debt as a percentage of total assets. R&D-to-Assets is a measure of a firm's research and development expenditures as a percentage of total assets.[10] Acquisitions-to-Assets measures a firm's acquisitions for the current quarter as a percentage of total assets. All of the aforementioned variables are scaled by beginning of period assets. Dividend is an indicator variable that equals one if a firm issues a dividend during the current quarter and zero otherwise. Investment Grade is also an indicator variable that equals one if a firm has an investment grade bond or commercial paper rating and zero otherwise. Size is the natural log of a firm's total assets measured in 2009 dollars. CF Volatility measures the standard deviation of industry-level cash flows over the previous five years based on two-digit SIC codes. The value assigned to each firm is the cash flow volatility for the industry in which the firm belongs. This follows the method suggested by Opler, Pinkowitz, Stulz, and Williamson (1999).

The vector **W** includes several variables to control for macroeconomic conditions that could influence corporate cash holdings. GDP Growth is calculated as the log difference in quarterly real GDP, expressed in 2009 dollars. GDP data is collected from the Federal Reserve Bank of St. Louis. Consumer Confidence is measured using the University of Michigan Consumer Sentiment Index, also collected from the Federal Reserve Bank of St. Louis. These two variables help to control for how corporate cash holdings are related to current economic conditions. In addition, we include variables that measure expectations about U.S.

[9]We thank an anonymous referee for this suggestion. As pointed out by Nickell (1981), one cannot include a lag of the dependent variable as a control variable in a fixed effects model without considering the potential introduction of bias. Judson and Owen (1999) provide evidence that in cases involving an unbalanced panel with a large number of time periods, a least squares dummy variable (LSDV) model outperforms other estimation techniques. Each regression equation in this paper is estimated using a panel of firms with an average length of at least 28 quarters. Thus, the bias on the variable measuring initial cash, as well as the other right hand side variables, is likely to be small.

[10]Many observations for R&D are missing in the Compustat Quarterly File. When Equation 1 is estimated, we follow the cash holdings literature and replace any missing observations with zero.

economic performance. Expected Economic Growth is constructed using the Philadelphia Federal Reserve's Livingston Survey of Professional Forecasters. Following Gulen and Ion (2015), we use the percent change between the one-year ahead GDP forecast and the actual level of GDP observed during the survey period as a proxy for for expected GDP growth. Finally, we calculate the log change in quarterly observations of the Conference Board's Leading Economic Index. Again, our choice of this variable follows Gulen and Ion (2015). Other things equal, declining macroeconomic conditions should be associated with a build up of corporate cash as firms build up cash for precautionary reasons. Summary statistics describing the uncertainty shocks and election indicator variables, corporate accounting variables, and macroeconomic control variables are provided in Table 2 and the definitions of these variables are summarized in Table 3.

– Insert Table 2 Here –

– Insert Table 3 Here –

$\mathbf{CQTR}_t$ and $\mathbf{FQTR}_t$, where $t = 2$, 3, or 4, represent vectors of calendar and fiscal quarter dummy variables, respectively. For example, CQTR_4 equals one if an observation occurs during the fourth quarter of the calendar year and zero otherwise, and FQTR_4 equals one if an observation occurs during the fourth quarter of the fiscal year, and zero otherwise. The addition of these indicator variables controls for changes to cash holdings that are specific to certain quarters, i.e., "window dressing" that might occur during the final quarter of the fiscal year or seasonal variation that might occur during the final quarter of the calendar year.

The model includes firm level fixed-effects to control for any unobserved heterogeneity that might be correlated with the variables in the model, indicated by the term α_i. Standard errors are clustered at the firm level. With the exception of the Dividend and Investment Grade indicator variables, all corporate accounting variables are winsorized at the 1% and 99% levels to remove potential outliers. In addition, we exclude firm-quarter observations where total assets and total sales are less than or equal to zero. We require firms in the sample to have observations for all accounting variables for at least twelve consecutive quarters.

4 Primary empirical results

We present the results from our baseline regression specification in Table 4. In each column, we regress a specific lead of cash-to-total assets on the full specification presented in equation 1.

– Insert Table 4 Here –

As we show in Table 4, a PC shock is associated with a statistically significant increase in cash holdings during the following quarter. The shock also causes a significant increase in cash holdings for at least four quarters following the shock. As we report in Table 1, average cash-to-total assets over this period are approximately 14.92%. Thus, four quarters removed from a one standard deviation PC shock, cash holdings increases by 0.121 percentage points, or 0.81% of the average ratio over the entire sample period. However, a PC shock of the size that has been observed over the last several years has a larger impact on cash holdings. For example, a PC shock that is 2.18 standard deviations above the mean, which is the shock estimated during the first quarter of 2010, when the Affordable Care Act was signed into law, is associated with a 26 basis point increase in cash, representing 1.77% of the average ratio.

An EPU shock does not appear to be associated with an increase in cash holdings. In fact, on average, the results indicate that cash holdings decline in the quarters following the shock. However, there are several factors we should keep in mind when analyzing these results. First, whereas the existing literature studies how corporations respond to increases in the level of EPU, we estimate the response to an unanticipated shock. Thus, an increase in the level of EPU when it is already high can potentially impact corporate cash management in different ways. As discussed in Section 2, historically, high levels of economic policy uncertainty have been associated with large financial shocks. To the extent that an unanticipated EPU shock affects financial conditions, firms might be forced to use cash holdings to finance business practices in the near term. Secondly, recall that we are controlling for the cash holdings at the beginning of the shock. Thus, the negative point estimated associated with the EPU shock only implies that cash is lower relative to the amount held just prior to the shock.

A natural question to ask given these results is why we observe an increase in cash holdings following a PC shock, but a decrease in cash following an EPU shock. A potential clue is offered by Gupta, Pierdzioch, Selmi, and Wohar (2018), who find evidence that higher levels of partisan conflict tend to reduce financial market volatility as political gridlocks tend to reduce the likelihood of any policy changes. Thus, even though unanticipated PC and EPU shocks create additional uncertainty, the former is less likely to affect the ability of firms to access external financing. whereas corporate managers would be able to turn to external financing to raise cash following a PC shock, they would have to use cash on hand following an EPU shock.

It is likely that a shock to partisan conflict operates through different channels. Thus, not all firms will respond to these shocks in the same way.

5 Impact of PC and EPU shocks across different firm and industry characteristics

Thus far the analysis has estimated the relation between cash holdings and political and policy uncertainty for all firms in our dataset. However, it is important to recognize that certain categories of firms will have different liquidity needs, varying degrees of access to external funding, different levels of cash on hand, and different exposures to risk. Thus, it seems prudent to examine how different types of firms respond to aggregate political and economic policy uncertainty shocks.

In this section, we separate firms based upon the following criteria: various measures of financial constraint, political sensitivity of the industry, and the degree to which investments can be considered irreversible.

5.1 Financial constraint

Financially constrained firms are those that do not have easy access to outside capital. Conversely, financially unconstrained firms have better access to outside sources of capital and, as a consequence, these firms tend to hold a relatively lower amount of assets as cash, an observation that is confirmed by Table 1. Following a partisan conflict shock, the heightened uncertainty might cause both types of firms to increase the amount of assets held as cash. This type of behavior could indicate that corporate managers are concerned about the government's ability to respond to future crises, a point articulated in Azzimonti (2018b). Conversely, an unanticipated EPU shock could have a different impact on financially constrained firms. Whereas both types of firms might want to hold more cash as a result of the shock, financially constrained firms could be forced to use cash for business purposes, leading to a decline in cash holdings relative to the pre-shock level.

A firm's size is based on its total asset holdings. Firms with less total assets are more likely to face stronger constraints on their ability to raise external funds compared to those firms with a larger amount of total assets. Small firms are defined as those in the bottom 33% of the total assets distribution, while large firms are defined as those in the top 33% of the total assets distribution. The total assets distribution is recalculated in every quarter; thus, the firms that make up each category can vary from quarter to quarter. Younger, less well-known firms are also more likely to face external financing constraints compared to older firms that have a more established public record. Following Brown, Fazzari, and Petersen (2009), we consider firms that have only been publicly listed for fifteen years or less as financially constrained and firms that

have been listed for more than fifteen years as financially unconstrained. Finally, we calculate the Size-Age Index according to the methodology outlined in Hadlock and Pierce (2010). Similar to the construction of the size variable, we calculate the Size-Age Index across firms in each quarter. Those in the top tercile are considered financially constrained, while firms in the bottom tercile are considered financially unconstrained.

– Insert Table 5 Here –

Panel A of Table 5 shows our results based on firm size, Panel B of Table 5 shows the results for firms based on age, and Panel C of Table 5 shows results based on the Size-Age Index. For this table, the sample is split into unconstrained firms, which are reported in the first four columns, and constrained firms, which are reported in the last four columns. While there are differences across these three proxies, a common story emerges across the different measures of financial constraint. In general, both unconstrained and constrained firms respond to a PC shock by increasing cash holdings. However, constrained firms increase cash holdings within one quarter of the shock and continue until at least four quarters following the shock. On the other hand, unconstrained firms are less responsive to a PC shock. While we see evidence that large and mature firms increase cash holdings two and four quarters following the shock, the Size-Age Index shows that unconstrained firms do not increase cash until four quarters following the shock.

Using the subsample averages reported in Table 1, we will assess the economic significance of these estimates by focusing on the behavior or cash holdings four quarters following a one standard deviation shock. Large firms increase cash holdings by 0.87% of the average following a PC shock while small firms increase cash holdings by 0.99%. Based on age alone, older unconstrained firms increase cash holdings by 0.61% while young financially constrained firms see an increase in cash that is 1.02%. Based on the Size-Age Index, financially unconstrained firms increase cash holdings by 0.46% of the average following a PC shock and constrained firms increase cash holdings by 1.15% of the average.

Interestingly, unconstrained and constrained firms appear to behave differently from one another when confronted with an economic policy uncertainty shock. When financial constraint is determined by a firm's size, we estimate significant increases in cash holdings two and four quarters following the shock for large financially unconstrained firms. When financial constraint is determined by the Size-Age Index, we only observe a significant increase in cash holdings by unconstrained firms four quarters following the shock. However, when financial constraint is proxied by age we never observe a statistically significant increase in cash holdings for unconstrained firms. In fact, we estimate a decrease in cash holdings the first quarter following the shock. Alternatively, our results show that financially constrained firms respond to an EPU

shock by decreasing cash holdings relative to the pre-shock levels during each of the first three quarters following the shock. On average, financially constrained firms experience the largest decrease in cash holdings one quarter following the shock. Two and three quarters following the shock, the decrease in cash holdings still exists, but becomes smaller until four quarters following the shock, where the point estimate is statistically insignificant.

The stark difference in how these firms appear to react to an EPU shock potentially reflects the fact, which was discussed earlier, that EPU shocks are much more likely to impact financial markets and, as a result, erode external financing opportunities for financially constrained firms. Whereas larger and more financially unconstrained firms might be able to continue financing business opportunities, financially constrained firms will have to rely on their stock of cash.[11] Moreover, the results for financially constrained firms suggests that the EPU shock catches these firms by surprise and that it takes several quarters before a financially constrained firm can avoid drawing down its stock of cash.

– Insert Table 6 Here –

The results in Table 6 help confirm what we observe when the unconstrained and constrained firms are separated. We combine the samples and interact each financial constraint indicator variable with the shocks to test if the impact of each shock is statistically different across the constrained and unconstrained samples. Additionally, we focus on the period four quarters removed from when the shock occurs. Across all three measures of financial constraint, both unconstrained and constrained firms increase cash holdings four quarters following the PC shock, while the increase in cash by constrained firms is economically and statistically larger. Meanwhile, for two of the three measures of financial constraint, size and the Size-Age Index, we see evidence that financially unconstrained firms increase cash holdings four quarters following an EPU shock by an amount that is statistically larger than what we observe for constrained firms. In fact, the point estimates from columns 1 and 3 in Table 6 reveal that four quarters following a one standard deviation EPU shock, constrained firms based on both size and the Size-Age Index experience a change in cash holdings that is less than half a percentage point of the average cash ratio for the respective group. Even though financially constrained firms might initially be forced to draw down cash holdings immediately following an EPU shock, these draw downs decline by the fourth quarter following the shock.

[11] We would like to thank an anonymous referee for making this observation.

5.2 Political sensitivity of firms

We examine how the cash holdings of firms in politically sensitive industries react to a partisan conflict shock. Herron, Lavin, Cram, and Silver (1999) provide evidence that fifteen "economic sectors" can be classified as politically sensitive. Using industry classifications from Fama and French (1997), Atanassov, Julio, and Leng (2018) we group these sectors into seven "politically sensitive" industries: defense, health care services, petroleum and natural gas, pharmaceuticals, telecommunications, tobacco, and transportation. Whether these firms will increase or decrease cash holdings following a PC shock is not immediately clear. On the one hand, firms in politically sensitive industries might hold more cash compared to relatively insensitive industries if a partisan conflict shock has a more adverse impact on their cash flows. On the other hand, as Atanassov, Julio, and Leng (2018) point out, if research and development makes up a large proportion of investment spending in these industries, then the shock might lead to more investment spending.

The results in Panel D of Table 5 show evidence that both politically insensitive and sensitive firms increase cash holdings four quarters following a PC shock. On average, a one standard deviation shock leads to an increase in cash equal to 0.78% of the average for firms in the sensitive industries and 0.79% of the average for firms in the politically insensitive industries. In other words, we estimate increases in cash holdings for these two groups that are of a similar magnitude. The results in column 4 of Table 6, which combines the politically sensitive and insensitive samples, confirms these findings.

Following an EPU shock, we observe statistically significant decreases in cash holdings for firms in politically insensitive industries for the first three quarters. However, by the fourth quarter following the shock the response to the EPU shock is statistically insignificant. On the other hand, firms in politically sensitive industries increase cash holdings by the fourth quarter following the shock. But the results in column 4 of Table 6 show that when we combine the political sensitivity samples we do not observe a statistically significant difference between these firms four quarters after the shock.

In sum, we do not find evidence that uncertainty shocks lead to different impact on the cash holdings among politically sensitive and insensitive firms.

5.3 Capital intensity and asset redeployability

Gulen and Ion (2015) find that the degree to which a firm's investments are irreversible can lead to less investment following an increase in economic policy uncertainty. As proxies for irreversibility, they use the ratio of a firm's net expenditures on plant, property, and equipment divided by total assets, referred to as capital intensity, and a measure of how salable assets are across industries, referred to as asset redeployability.

While Gulen and Ion (2015) find that firms with a higher capital intensity ratio and fewer redeployable assets are more likely to reduce investment spending when economic policy uncertainty increases, Duong, Nguyen, and Rhee (2017) find no evidence of a corresponding increase in cash-to-total assets one year removed from an increase in economic policy uncertainty.

– Insert Table 7 Here –

Table 7 provides evidence that firms with more assets devoted to capital goods will increase cash holdings by a larger amount following a PC shock. However, the increase in cash holdings following a PC shock for firms with relatively fewer redeployable assets is no different from a firm with an average level of these assets. The increase in the cash ratio is positive and significantly different from zero for all levels of redeployability, but these point estimates are not statistically different from one another. We also find no evidence that cash holdings respond to an EPU shock four quarters following the shock. While these results provide some evidence that firms with more fixed assets increase cash holdings following a PC shock, the results are mixed.

Overall, the findings in this section indicate that the most important factor driving a firm's response to a partisan conflict shock is its degree of financial constraint. Similarly, a firm's level of financial constraint appears to be an important factor in a firm's response to an EPU shock as well. However, here the strongest evidence points towards financially constrained firms decreasing cash holdings following an EPU shock. Conversely, financially unconstrained firms either maintain their stock of cash or slightly increase it following the shock.

6 Cash holdings, investment, and partisan conflict

Our findings thus far show that across all firms in our sample, a PC shock is correlated with increases in cash holdings from one to four quarters following the shock. Based on several common measures of financial constraint, we find that while both constrained and unconstrained firms increase cash holdings to some degree following a PC shock, the magnitude of this increase is larger for constrained firms. On the other hand, an EPU shock tends to impact the cash holdings of firms very differently, depending upon the level of financial constraint. While we find evidence that unconstrained firms experience an increase in cash holdings following an EPU shock, financially constrained firms actually experience decreases in cash as a proportion of assets. As we explain in Section 5.1, a plausible reason for this finding is that financially constrained firms are forced to rely on cash for financing needs.

In light of these findings, a logical question to ask is *why* are we observing this increase in cash holdings. That is, are firms increasing cash holdings because they are cutting back on various types of investment, or are firms holding more cash because a political uncertainty shock heralds more uncertainty to come?[12] We look into this question by examining how firm-level capital expenditure and R&D spending respond to both types of shocks. The magnitude, direction, and timing of changes in capital expenditure and R&D spending could offer clues as to why we observe adjustments to cash holdings that differ with respect to the type of shock and a firm's financial constraint.

6.1 Model specifications

Both capital expenditure and R&D spending are used as control variables in Equation 1 and are defined in Table 3. However, the analysis of how R&D spending is correlated with political and economic policy uncertainty shocks is complicated by the fact that on a quarterly basis, many firms do not report R&D in every period. In the analysis that follows, we will follow the corporate investment literature and drop observations with missing R&D, in addition to the other requirements from Section 3. These observations are dropped not only for the regression analysis of R&D spending, but for the analysis of capital expenditure and cash holdings as well. This will give us a clearer picture of how firms are adjusting financial and real variables.

New regression specifications are needed to study how capital expenditure and R&D are expected to behave following either a PC or an EPU shock. In each new equation, the firm-level control variables are different and include variables traditional to the analysis of capital expenditure and R&D, respectively. The firm-level control variables in Equation 2 are based on Gulen and Ion (2015). The vector $\mathbf{X}$ now includes a firm's market-to-book ratio, a firm's cash flow, and it's sales growth. Sales growth, which was not described in Section 3.2, is measured as the year-on-year percent change in quarterly sales growth.

$$\begin{aligned}\text{Capital Expend.-to-Total Assets}_{i,t+q} &= \beta_1 \text{PC Shock}_t + \beta_2 \text{EPU Shock}_t + \beta_3 \text{Presidential Election}_t \\ &+ \beta_4 \text{Capital Expend.-to-Total Assets}_{i,t-1} + \boldsymbol{\gamma}\mathbf{X}_{i,t} + \boldsymbol{\mu}\mathbf{W}_t + \mathbf{CQTR}_t + \mathbf{FQTR}_t + \alpha_i + \epsilon_{i,t+q}.\end{aligned} \tag{2}$$

The choice of variables for Equation 3 is outlined by Atanassov, Julio, and Leng (2018). The firm-level controls include a firm's market-to-book ratio, cashflow, profitability-to-assets, capital intensity-to-assets, leverage, the natural log of a firm's age and sales, and a Herfindahl-Hirschman Index. Profitability-to-assets is defined as earnings before interest, taxes, depreciation, and amortization scaled by total assets. Capital

[12] We thank an anonymous reviewer for making this suggestion.

intensity-to-assets is defined as a firm's net property, plant, and equipment scaled by total assets. A firm's age is measured by the number of years a firm appears in the Compustat Quarterly File. A firm's sales is an alternative way to measure a firm's size. Finally, the Herfindahl-Hirschman Index is calculated at the 3-digit SIC level and measures a firm's market share of its industry.

$$\begin{aligned}\text{R\&D-to-Total Assets}_{i,t+q} &= \beta_1 \text{PC Shock}_t + \beta_2 \text{EPU Shock}_t + \beta_3 \text{Presidential Election}_t \\ &+ \beta_4 \text{R\&D-to-Total Assets}_{i,t-1} + \boldsymbol{\gamma}\mathbf{X}_{i,t} + \boldsymbol{\mu}\mathbf{W}_t + \mathbf{CQTR}_t + \mathbf{FQTR}_t + \alpha_i + \epsilon_{i,t+q}.\end{aligned} \tag{3}$$

For all variables in Equations 2 and 3 that are scaled by total assets, we continue to use total assets measured at the beginning of the quarter. Several of the variables used in Equations 2 and 3 were also used in Equation 1. Obviously, we continue to include the PC and EPU shocks as well as the indicator for presidential election periods. We also continue to include the time-varying macroeconomic control variables contained in the vector $\mathbf{W}$.

In Equations 2 and 3, we include capital expenditure-to-assets and R&D-to-assets from one quarter prior to the shock, respectively. Adding these variables will make the comparison between shock-induced changes in cash and investment more comparable. In both equations we account for firm fixed-effects, absorbed by α_i, and cluster standard errors at the firm level. Also included are the fiscal and calendar-quarter indicator variables to control for any seasonality in reporting. Finally, we impose the same requirements on the dataset that were imposed in Section 3.2. That is, we still exclude utility and financial firms as well as firms headquartered outside of the United States. In addition, we continue to winzorize all corporate accounting variables at the 1% and 99% levels, require firms to have at least twelve consecutive quarters of observations for all accounting variables, and exclude from the dataset any firm-quarter observations with sales and or total assets that are less than or equal to zero. Summary statistics for the control variables used in this section are provided in Table 1 of the appendix.

– Insert Table 8 Here –

6.2 Results and discussion

In order to conserve space, we only report the basis point responses of cash holdings (excluding missing R&D observations), capital expenditure, and R&D spending to one standard deviation PC and EPU shocks. We present the full set of regression results for each variable in Tables 4, 5, and 6 of the appendix. The first row of Table 8 shows that in line with Table 4, firms continue to increase cash holdings following a PC shock

and decrease cash holdings following an EPU shock, even when excluding observations with missing R&D.

However, we find no evidence of a statistically significant relation between a PC shock and capital expenditure. In other words, on average, an unanticipated PC shock is not expected to impact capital expenditure. On the other hand, an EPU shock exerts a significant impact on capital expenditure through at least the first four quarters following the shock. One quarter following a one standard deviation EPU shock, capital expenditure declines by 1.98 basis points, or 1.53% of the average capital expenditure ratio while four quarters after the shock occurs capital expenditure falls by 3.42 basis points, or 2.65% of the average.

Clearly, one should wonder why it is plausible that a PC shock would not impact capital expenditure, but an EPU shock would. One possibility is related to evidence that higher partisan conflict is associated with reduced financial market volatility (Gupta, Pierdzioch, Selmi, and Wohar, 2018). Corporate managers might be slow to adjust capital expenditure if the PC shock is not followed by heightened financial market volatility. Conversely, EPU shocks are more likely to capture financial shocks and factors that are likely to affect external financing. Thus, heightened uncertainty over economic policy and factors that can impact external financing can lead firms to delay capital spending projects.

Another potential reason for the decline in capital investment following an EPU shock relates to a firm's desire to fund R&D investment. As pointed out by Brown and Petersen (2011), since the 1970s, R&D has become an important source of investment for firms. Investments in R&D, though, can require long time-to-build periods, a point emphasized by Stein and Stone (2013), Bloom (2014), and Atanassov, Julio, and Leng (2018). Consistent with the theoretical predictions from Bar-Ilan and Strange (1996), Stein and Stone (2013) and Atanassov, Julio, and Leng (2018) show that R&D can actually increase during periods of uncertainty because the long time-to-build means that delaying investment not only delays the start-up costs, but also delays the potential cash flows from these investments. Thus, in the presence of an uncertainty shock, firms would not delay, or might even accelerate, R&D spending.

Table 8 reveals interesting evidence with respect to how R&D spending responds to PC and EPU shocks. While we find no evidence that the firms in this sample modify R&D in the presence of a PC shock, we do find evidence of an increase in R&D expenditure two, three, and four quarters following an EPU shock. The largest increase in R&D occurs four quarters following the shock, when a one standard deviation EPU shock is associated with a 2.67 basis point increase, representing 0.95% of the average R&D ratio. The smallest increase in R&D following the shock occurs after two quarters, when we estimate a 1.72 basis point increase, representing 0.61% of the average. Similar to its relationship with capital expenditure, a PC shock might not

lead firms to accelerate R&D if financial market volatility will be lower and external financing opportunities will not be hampered. Conversely, even though the EPU shock can potentially have an adverse impact on external financing the observed increase in R&D indicates that firms do not want to delay the profitability of R&D investments.

How should these findings be reconciled with the way firms are expected to adjust cash holdings in response to these shocks and existing evidence regarding how firms respond to heightened uncertainty more generally? Recent work by Gulen and Ion (2015) and Azzimonti (2018a), estimate the relation between capital expenditure and the level of partisan conflict and economic policy uncertainty, which, as pointed out by Gulen and Ion (2015), is likely more appropriate for estimating how corporate managers respond to high levels of uncertainty. Conversely, our analysis focuses on unanticipated PC and EPU shocks that are orthogonal to one another. The way that cash holdings, capital expenditure, and R&D expenditure respond to heightened partisan conflict and economic policy uncertainty shocks depends upon how likely managers think an uncertainty shock is likely to contribute to additional uncertainty going forward, and the relative ease with which these real and financial decisions can be adjusted.

Taken together, the behaviors following each type of shock that are displayed in Table 8 suggest that the precautionary motive plays a role following a PC shock while a scarcity of external financing and concerns over R&D projects explain the reaction to an EPU shock. This last point corroborates the findings of Brown and Petersen (2015), Stein and Stone (2013), and Atanassov et al. (2018), all of whom show evidence that firms engaged in R&D are likely to use existing resources to either maintain, or even accelerate, R&D during periods of uncertainty.

– Insert Table 9 Here –

– Insert Table 10 Here –

The analysis of how financially constrained and unconstrained firms adjust capital investment and R&D spending is presented in Tables 9 and 10. These results help to show what type of firms are driving the results from Table 8. In the event of a PC shock, we find little evidence that the average financially constrained or unconstrained firm adjusts capital expenditure or R&D spending differently than the average firm overall. However, the analysis points towards financially constrained firms as a source for the overall increase in R&D expenditure following an EPU shock, particularly three and four quarters following the shock. In addition, recall from Table 5 that financially constrained firms reduced cash holdings following an EPU shock. To the extent that an EPU shock captures financial frictions, this result partially confirms the findings of Brown

and Petersen (2015), who show that firms facing financial frictions were most likely to use cash holdings to protect R&D investment. We use the word "partially" because results from this section also show that financially unconstrained firms are most likely to reduce capital expenditure following an EPU shock.

7 Robustness checks

We discuss a series of robustness checks that largely confirm the results presented in Section 4. In order to conserve space, all accompanying tables and figures are provided in the appendix.

7.1 Cash holdings and partisan conflict: accounting for the post-2008 period

Since 2008, the United States has dealt with the after effects of the Great Recession as well as a political environment defined by intense partisanship. It is certainly possible that the PC and EPU shocks felt during this period could be exerting undue influence on the estimated correlation between the PC and EPU shocks and cash holdings. We account for this potential "structural change" in the economy by including a dummy variable in the SVAR system that equals one for observations occurring after 2008Q4. We present these results in Table 9 of the appendix.

We find that an unanticipated PC shock still results in an increase in cash holdings, with the largest increase occurring four quarters after the shock. The largest standardized PC shock estimated in this SVAR system occurs during 1995Q4, when the federal government shut down twice. This shock is associated with a 24 basis point increase in cash holdings, representing 1.58% of the average. Thus, in addition to upholding the primary results, this section reveals that the impact of a PC shock is slightly smaller when we account for the post-2008 period.

In line with the results from Table 4, the estimates reveal a negative correlation between an unanticipated EPU shock and cash holdings during the first three quarters following a shock and an insignificant relationship after four quarters following the shock. Recall that the results from Table 4 pointed to the possibility of firms having to use cash reserves in order to conduct day-to-day business operations in the immediate presence of shocks that could affect sources of external financing. The findings from this section indicate that this behavior is not driven by the uncertainty shocks encountered during the post-2008 period.

7.2 Cash-to-net assets

An alternative way to measure corporate cash holdings is to scale by total assets net of cash and marketable securities. Opler et al. (1999) used cash-to-net assets because they wanted to know how a firm's cash holdings compared to its assets in place. We reestimate Equation 1, replacing cash-to-total assets with the natural logarithm of cash-to-net assets. These results are provided in Tables 10 – 15 of the appendix. The results detailing the response of cash holdings to PC shocks presented in Sections 3.2 and 5.1 are largely robust to the use of cash-to-net assets. In particular, we observe increases in cash holdings two, three, and four quarters following the shock. We also find that increases in cash holdings following a PC shock are larger for constrained firms than unconstrained firms. When the PC shock is replaced with the PC shock generated from an SVAR with a post-2008 dummy variable, the increase in cash-to-net assets is only statistically significant four quarters following the shock. Thus, when using cash-to-net assets we do observe some evidence that the post-2008 partisan conflict shocks are driving some of the increase in cash holdings.

The response of cash holdings to an EPU shock does show some differences when using cash-to-net assets. In particular, cash-to-net assets decline one quarter following the shock and actually increases four quarters following the shock. The point estimates are statistically insignificant two and three quarters following the shock. However, we continue to mostly observe financially unconstrained firms increase cash holdings and financially constrained firms decrease cash holdings following an EPU shock.

7.3 Alternative structural VAR models

We provide evidence that our results are qualitatively robust to different specifications of our structural VAR models. First, we consider a factor-augmented structural VAR. We extract six common factors from a large dataset and add the factor that explains the largest share of the variance of our series to the VAR model, where the factor is ordered first, PC is ordered second and EPU is ordered third. A factor-augmented VAR model allows us to summarize the overall economic conditions through principal component analysis, a methodology which can potentially mitigate the problem of omission of variables in our baseline structural VAR. These results are available in Table 18 in the appendix. The impact of both the PC and EPU shocks on cash holdings remains similar. Second, we reestimate the baseline structural VAR model in Section 3.1 with alternative orderings of variables. In particular, we consider the following two models: (i) EPU ordered as the first variable, and (ii) EPU ordered as the last variable. We report results in Tables 19 and 20 in the appendix respectively, which show that our baseline results remain largely robust. Second, we reestimate our baseline structural VAR model using 2 lags instead of 4 lags while keeping the same baseline variable

ordering. Appendix Tables 21–25 report the corresponding results. It is worth noting that all our conclusions hold.

8 Conclusion

As the U.S. political environment has become more contentious and polarized, many scholars across the economics and finance disciplines have begun to investigate how an uncertain political environment impacts economic decision making. We contribute to this growing literature by analyzing how an unanticipated U.S. partisan conflict shock impacts corporate cash holdings. A contribution of our paper is that we use a structural vector autoregression model to isolate partisan conflict shocks that are orthogonal to economic policy uncertainty shocks, a related but separate type of aggregate uncertainty. Using a sample of firms from the Compustat Quarterly File from 1985Q1 – 2014Q4, the Philadelphia Federal Reserve Bank's U.S. Partisan Conflict Index, and the Economic Policy Uncertainty Index from Baker et al. (2016), we find that a partisan conflict shock is associated with an increase in cash holdings of as much as 26 basis points. In an analysis of a subsample of firms, we find that financially constrained firms are associated with larger increases in cash holdings compared to unconstrained firms. However, we find no evidence that firms in politically sensitive industries increase cash holdings more than those in politically insensitive industries. These findings are largely robust to the use of an alternative measure of cash holdings and alternative SVAR specifications and lag lengths.

In contrast, we find evidence that cash holdings actually decline during the first three quarters following an EPU shock, a finding which appears to be largely driven by financially constrained firms. A likely reason for this decrease includes the need to use cash holdings for other business practices immediately following the shock. However, among firms that engage in R&D, the decrease in cash holdings following an EPU shock signals that firms might also be using cash, as well as capital expenditure, to maintain, or even accelerate, R&D, a result that is consistent with other recent analyses of R&D spending.

Overall, these findings reveal important differences between how corporate managers respond to unanticipated political uncertainty shocks and economic policy uncertainty shocks. Whereas an economic policy uncertainty shock is associated with immediate decreases in cash holdings and increases in R&D, a political uncertainty shock is only associated with a build up of cash holdings. This suggests that the immediate corporate response to political uncertainty is to hold more liquid resources in anticipation of future dysfunction of suboptimal policy down the road.

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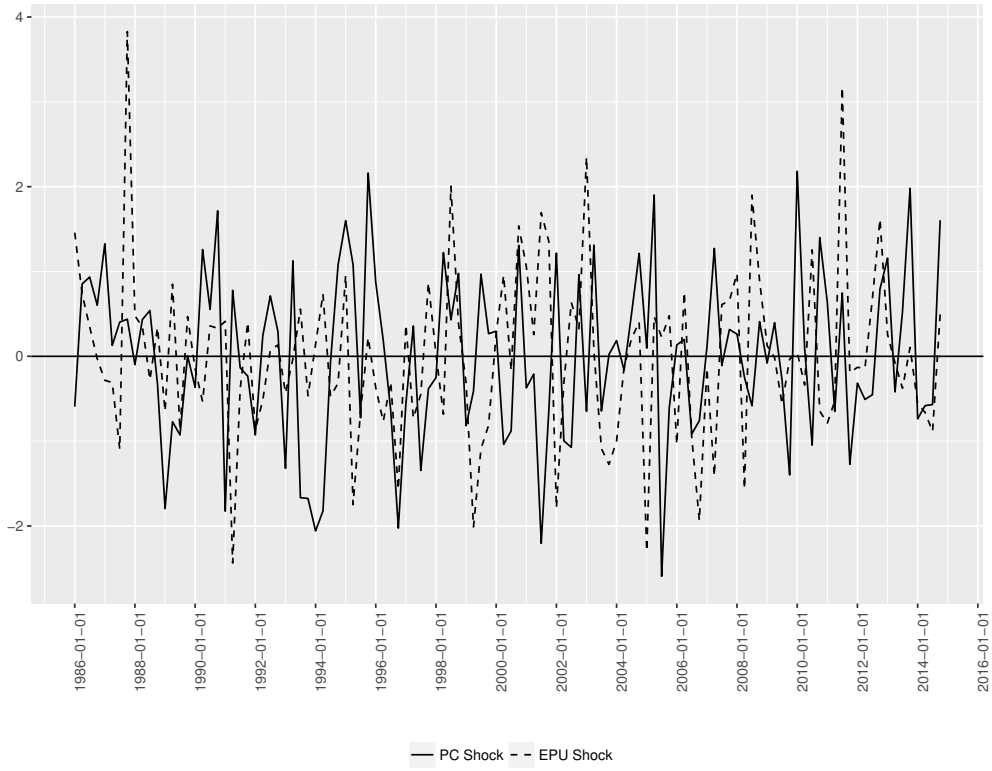

Figure 1

PC and EPU Shocks from 4-Lag SVAR Model for 1986Q1 – 2014Q4

Note: PC and EPU shocks are recovered from a 4-lag SVAR model with the PC Index ordered first and the EPU Index ordered second. The shocks are standardized to have a mean of zero and a standard deviation of one. The y-axis measures standard deviations.

Table 1

Summary statistics for cash holdings by subgroup

Cash holdings is defined as cash, cash equivalents, and short-term investments divided by beginning of period total assets. Constrained firms (Size) are defined as those in the bottom 33% of the total assets distribution. Unconstrained firms (Size) are defined as those in the top 33% of the total assets distribution. Following Brown, Fazzari, and Petersen (2009), constrained firms (Age) are those that have been publicly traded for no more than fifteen years while unconstrained firms (Age) are those that have been publicly traded for longer than fifteen years. The Size-Age Index is constructed following Hadlock and Pierce (2010). Firms with index values in the top tercile for each quarter are considered constrained and firms in the bottom tercile for each quarter are considered unconstrained. Political sensitivity is determined according to SIC codes as proposed by Atanassov, Julio, and Leng (2018).

Category	Mean	SD	Min	Max
All Firms	0.1492	0.1989	0.0000	0.9199
Constrained Firms (Size)	0.2069	0.2363	0.0000	0.9199
Unconstrained Firms (Size)	0.0861	0.1201	0.0000	0.9199
Constrained Firms (Age)	0.1655	0.2164	0.0000	0.9199
Unconstrained Firms (Age)	0.1245	0.1660	0.0000	0.9199
Constrained Firms (Size-Age Index)	0.2216	0.2472	0.0000	0.9199
Unconstrained Firms (Size-Age Index)	0.0964	0.1324	0.0000	0.9199
Politically Sensitive Industries	0.1810	0.2403	0.0000	0.9199
Politically Insensitive Industries	0.1399	0.1841	0.0000	0.9199

Table 2
Summary Statistics

PC Shock$_{4,1}$ is the standardized structural Partisan Conflict shock recovered from the four lag SVAR model with the PC Index ordered first. EPU Shock$_{4,2}$ is the standardized structural Economic Policy Uncertainty shock recovered from the four lag SVAR model with the EPU Index ordered second. PC Shock$^d_{4,1}$ the standardized structural Partisan Conflict shock recovered from the four lag SVAR model with the PC Index ordered first and a dummy variable capturing post-2008 quarters. EPU Shock$^d_{4,2}$ is the standardized structural Economic Policy Uncertainty shock recovered from the four lag SVAR model with the EPU Index ordered second and a dummy variable capturing post-2008 quarters. Presidential Election is a dummy variable that quals one for calendar quarters occurring during a presidential election year and zero otherwise. Market-to-Book is the market value of a firm's equity to its book value. Cash Flow measures earnings after paying out interest, dividends, and taxes divided by beginning of period total assets. Net Working Capital-to-Assets is current assets net of cash, cash equivalents, short-term assets, and current liabilities divided by beginning of period total assets. Capital Expenditure-to-Assets measures capital expenditure for the current quarter divided beginning of period total assets. Leverage measures long-term and current debt divided by beginning of period total assets. R&D-to-Assets measures research and development expenditures divided by beginning of period total assets. Acquisitions-to-Assets measures acquisitions for the current quarter divided by beginning of period total assets. Dividend is a dummy variable that equals one if a firm issues a dividend during the current quarter and zero otherwise. Investment Grade is a dummy variable that equals one if a firm has an investment grade bond or commercial paper rating and zero otherwise. Size is measured as the natural log of a firm's total assets measured in 2009 dollars. CF Volatility is measured as the standard deviation of industry-level cash flows over the previous five years based on two-digit SIC codes. GDP Growth is measured as the log difference in quarterly GDP measured in 2009 dollars. Consumer Confidence measures quarterly observations of the University of Michigan Consumer Sentiment Index. Expected GDP Growth measures the percent change between the one-year ahead GDP forecast and the actual level of GDP observed during the Livingston survey period. Leading Economic Index measures the log change in quarterly observations of the Conference Board's Leading Economic Index.

	Mean	SD	Min	Max
Uncertainty Shocks and Election Date Variables				
PC Shock$_{4,1}$	0.0000	1.0000	−2.5779	2.1835
EPU Shock$_{4,2}$	0.0000	1.0000	−2.4382	3.8491
PC Shock$^d_{4,1}$	0.0000	1.0000	−2.4147	2.3818
EPU Shock$^d_{4,2}$	0.0000	1.0000	−2.1947	3.7062
Presidential Election	0.6179	0.4859	0.0000	1.0000
Corporate Control Variables				
Market-to-Book	2.0814	2.2583	0.3803	16.2802
Cash Flow	−0.0003	0.0753	−0.4600	0.1100
Net Working Capital-to-Assets	0.0508	0.3320	−2.0064	0.5962
Capital Expend.-to-Assets	0.0163	0.0218	−0.0035	0.1315
Leverage	0.3088	0.3213	0.0000	1.9868
R&D-to-Assets	0.0104	0.0263	0.0000	0.1649
Acquisitions-to-Assets	0.0051	0.0238	−0.0023	0.1842
Dividend	0.2414	0.4280	0.0000	1.0000
Investment Grade	0.1068	0.3089	0.0000	1.0000
Size	5.2361	2.3575	−6.2755	12.7033
CF Volatility	0.7827	2.7579	0.0038	97.2230
Macroeconomic Control Variables				
GDP Growth	0.0067	0.0060	−0.0214	0.0187
Consumer Confidence	88.3837	11.7226	57.7000	110.1000
Expected GDP Growth	5.8249	2.2509	−0.5256	12.7640
Leading Economic Index	0.0045	0.0170	−0.0832	0.0310

Table 3
Variable Definitions

Variable sources are discussed in Section 3.

Variable	Definition
Cash Holdings	Cash, cash equivalents, and short-term investments divided by beginning of period total assets
PC Shock$_{4,1}$	Standardized structural Partisan Conflict shock recovered from the four lag SVAR model with the PC Index ordered first
EPU Shock$_{4,2}$	Standardized structural Economic Policy Uncertainty shock recovered from the four lag SVAR model with the EPU Index ordered second
PC Shock$^{d}_{4,1}$	Same construction as PC Shock$_{4,1}$ using a post-2008 dummy
EPU Shock$^{d}_{4,2}$	Same constructing as EPU Shock$_{4,2}$ using a post-2008 dummy
Presidential Election	Equals one for calendar quarters occurring during a presidential election year and zero otherwise
Market-to-Book	Market value of a firm's equity to its book value
Cash Flow	Earnings after paying out interest, dividends, and taxes divided by beginning of period total assets
Net Working Capital-to-Assets	Current assets net of cash, cash equivalents, short-term assets, and current liabilities divided by beginning of period total assets
Capital Expenditure-to-Assets	Capital expenditure for the current quarter divided beginning of period total assets
Leverage	Long-term and current debt divided by beginning of period total assets
R&D-to-Assets	Research and development expenditures divided by beginning of period total assets
Acquisitions-to-Assets	Acquisitions for the current quarter divided by beginning of period total assets
Dividend	Equals one if a firm issues a dividend during the current quarter and zero otherwise
Investment Grade	Equals one if a firm has an investment grade bond or commercial paper rating and zero otherwise
Size	The natural log of a firm's total assets measured in 2009 dollars
CF Volatility	The standard deviation of industry-level cash flows over the previous five years based on two-digit SIC codes
GDP Growth	Log difference in quarterly GDP measured in 2009 dollars
Consumer Confidence	Quarterly observations of the University of Michigan Consumer Sentiment Index
Expected GDP Growth	Percent change between the one-year ahead GDP forecast and the actual level of GDP observed during the Livingston survey period
Leading Economic Index	Log change in quarterly observations of the Conference Board's Leading Economic Index

Table 4

Baseline results for how cash holdings respond to PC and EPU shocks

Parentheses contain standard errors that are clustered at the firm level. The dependent variable in all regressions is the ratio of cash holdings to total assets. All regressions include firm fixed-effects and fiscal and calendar-quarter dummy variables. PC Shock$_{4,1}$ and EPU Shock$_{4,2}$ refer to the standardized structural Partisan Conflict and Economic Policy Uncertainty shocks, respectively, recovered from the four lag SVAR model with the PC Index ordered first and the EPU Index ordered second. All variables are defined in Table 3. PC Shock$_{4,1}$ is the standardized structural Partisan Conflict shock recovered from the four lag SVAR model with the PC Index ordered first. EPU Shock$_{4,2}$ is the standardized structural Economic Policy Uncertainty shock recovered from the four lag SVAR model with the EPU Index ordered second. PC Shock$^{d}_{4,1}$ the standardized structural Partisan Conflict shock recovered from the four lag SVAR model with the PC Index ordered first and a dummy variable capturing post-2008 quarters. EPU Shock$^{d}_{4,2}$ is the standardized structural Economic Policy Uncertainty shock recovered from the four lag SVAR model with the EPU Index ordered second and a dummy variable capturing post-2008 quarters. Presidential Election is a dummy variable that quals one for calendar quarters occurring during a presidential election year and zero otherwise. Market-to-Book is the market value of a firm's equity to its book value. Cash Flow measures earnings after paying out interest, dividends, and taxes divided by beginning of period total assets. Net Working Capital-to-Assets is current assets net of cash, cash equivalents, short-term assets, and current liabilities divided by beginning of period total assets. Capital Expenditure-to-Assets measures capital expenditure for the current quarter divided beginning of period total assets. Leverage measures long-term and current debt divided by beginning of period total assets. R&D-to-Assets measures research and development expenditures divided by beginning of period total assets. Acquisitions-to-Assets measures acquisitions for the current quarter divided by beginning of period total assets. Dividend is a dummy variable that equals one if a firm issues a dividend during the current quarter and zero otherwise. Investment Grade is a dummy variable that equals one if a firm has an investment grade bond or commercial paper rating and zero otherwise. Size is measured as the natural log of a firm's total assets measured in 2009 dollars. CF Volatility is measured as the standard deviation of industry-level cash flows over the previous five years based on two-digit SIC codes. GDP Growth is measured as the log difference in quarterly GDP measured in 2009 dollars. Consumer Confidence measures quarterly observations of the University of Michigan Consumer Sentiment Index. Expected GDP Growth measures the percent change between the one-year ahead GDP forecast and the actual level of GDP observed during the Livingston survey period. Leading Economic Index measures the log change in quarterly observations of the Conference Board's Leading Economic Index.

	(1) Cash Holdings$_{t+1}$	(2) Cash Holdings$_{t+2}$	(3) Cash Holdings$_{t+3}$	(4) Cash Holdings$_{t+4}$
PC Shock$_{4,1}$	0.000537***	0.00109***	0.000799***	0.00121***
	(0.000162)	(0.000173)	(0.000187)	(0.000189)
EPU Shock$_{4,2}$	−0.00101***	−0.000395**	−0.000499**	0.000153
	(0.000170)	(0.000187)	(0.000198)	(0.000211)
Presidential Election	−0.000631	−0.00152**	−0.00308***	−0.00389***
	(0.000650)	(0.000713)	(0.000734)	(0.000775)
Cash Holdings$_{t-1}$	0.542***	0.461***	0.410***	0.335***
	(0.00619)	(0.00678)	(0.00727)	(0.00760)
Market-to-Book	0.0103***	0.00881***	0.00716***	0.00597***
	(0.000349)	(0.000387)	(0.000412)	(0.000447)
Cash Flow	0.0287***	0.0262**	0.0180	0.0353***
	(0.00947)	(0.0109)	(0.0116)	(0.0130)
Net Working Capital-to-Assets	−0.0205***	−0.0235***	−0.0247***	−0.0340***
	(0.00244)	(0.00281)	(0.00316)	(0.00354)
Capital Expend.-to-Assets	−0.386***	−0.414***	−0.441***	−0.429***
	(0.0168)	(0.0185)	(0.0193)	(0.0207)
Leverage	−0.0388***	−0.0405***	−0.0366***	−0.0384***
	(0.00222)	(0.00251)	(0.00274)	(0.00295)
R&D-to-Assets	0.0925***	0.139***	0.120***	0.134***
	(0.0324)	(0.0350)	(0.0370)	(0.0408)
Acquisitions-to-Assets	−0.319***	−0.268***	−0.235***	−0.203***
	(0.0100)	(0.00971)	(0.00949)	(0.00960)
Dividend	−0.000208	−0.00125	−0.000968	−0.00289**
	(0.00101)	(0.00118)	(0.00129)	(0.00144)
Investment Grade	−0.00318**	−0.00268	−0.00203	−0.00243
	(0.00153)	(0.00178)	(0.00197)	(0.00221)
Size	−0.00833***	−0.0110***	−0.0130***	−0.0139***
	(0.000760)	(0.000874)	(0.000969)	(0.00108)
CF Volatility	0.000132	0.0000392	0.0000458	0.0000912
	(0.000118)	(0.000137)	(0.000150)	(0.000167)
GDP Growth	0.183***	0.245***	0.0482	−0.123***
	(0.0348)	(0.0375)	(0.0384)	(0.0391)
Consumer Confidence	−0.000260***	−0.000292***	−0.000301***	−0.000326***
	(0.0000293)	(0.0000349)	(0.0000390)	(0.0000438)
Expected GDP Growth	−0.000827***	−0.00153***	−0.00175***	−0.00179***
	(0.000202)	(0.000229)	(0.000253)	(0.000284)
Leading Economic Index	0.103***	0.0739***	0.0506***	0.0567***
	(0.0151)	(0.0175)	(0.0194)	(0.0210)
Constant	0.130***	0.166***	0.197***	0.215***
	(0.00511)	(0.00590)	(0.00660)	(0.00737)
Observations	307708	294728	282672	271723
Adjusted R^2	0.802	0.780	0.768	0.753

***, **, * indicated statistical significance at the 0.01, 0.05, and 0.10 level, respectively.

Table 5

Response of cash holdings to PC and EPU shocks based on financial constraint and political sensitivity

Parentheses contain standard errors that are clustered at the firm level. The dependent variable in all regressions is the ratio of cash holdings to total assets. All regressions include firm fixed-effects, the presidential election dummy variable, all of the corporate accounting controls, the macroeconomic controls, fiscal and calendar quarter dummy variables, and the amount of cash held prior to the shock. PC $\text{Shock}_{4,1}$ and EPU $\text{Shock}_{4,2}$ refer to the standardized structural PC and EPU shocks, respectively, recovered from the 4 lag SVAR model with the PC Index ordered first and the EPU Index ordered second. Constrained firms based on Size are defined as those in the bottom 33% of the total assets distribution. Unconstrained firms based on Size are defined as those in the top 33% of the total assets distribution. Following Brown, Fazzari, and Petersen (2009), constrained firms based on Age are those that have been publicly traded for no more than fifteen years while unconstrained firms based on Age are those that have been publicly traded for longer than fifteen years. The Size-Age Index is constructed following Hadlock and Pierce (2010). Firms with index values in the top tercile for each quarter are considered constrained and firms in the bottom tercile for each quarter are considered unconstrained. Political sensitivity is determined according to SIC codes as proposed by Atanassov, Julio, and Leng (2018). All variables are defined in Table 3. Each regression includes the presidential election dummy variable, all of the corporate accounting controls, the macroeconomic controls, fiscal and calendar quarter dummy variables, and the amount of cash held prior to the shock. Full regression results are available upon request.

		(1) Cash Holdings$_{t+1}$	(2) Cash Holdings$_{t+2}$	(3) Cash Holdings$_{t+3}$	(4) Cash Holdings$_{t+4}$	(5) Cash Holdings$_{t+1}$	(6) Cash Holdings$_{t+2}$	(7) Cash Holdings$_{t+3}$	(8) Cash Holdings$_{t+4}$
		Unconstrained				**Constrained**			
Panel A: Size	PC $\text{Shock}_{4,1}$	0.000208	0.000537***	0.000316*	0.000752***	0.000953**	0.00204***	0.00160***	0.00204***
		(0.000157)	(0.000173)	(0.000188)	(0.000194)	(0.000447)	(0.000476)	(0.000513)	(0.000512)
	EPU $\text{Shock}_{4,2}$	−0.000122	0.000426**	0.000184	0.000703***	−0.00269***	−0.00182***	−0.00175***	−0.000679
		(0.000193)	(0.000199)	(0.000206)	(0.000216)	(0.000456)	(0.000501)	(0.000527)	(0.000573)
	Observations	95047	92152	89452	86964	89316	84447	79974	75956
	Adjusted R^2	0.830	0.804	0.791	0.769	0.725	0.703	0.692	0.678
Panel B: Age	PC $\text{Shock}_{4,1}$	0.000419**	0.000722***	0.000307	0.000756***	0.000601**	0.00132***	0.00115***	0.00168***
		(0.000206)	(0.000209)	(0.000222)	(0.000232)	(0.000234)	(0.000249)	(0.000263)	(0.000271)
	EPU $\text{Shock}_{4,2}$	−0.000778***	0.0000289	−0.000149	0.000180	−0.00106***	−0.000551**	−0.000755***	0.0000470
		(0.000216)	(0.000232)	(0.000257)	(0.000269)	(0.000243)	(0.000263)	(0.000284)	(0.000296)
	Observations	126405	120927	115858	111276	181303	173801	166814	160447
	Adjusted R^2	0.824	0.804	0.793	0.776	0.802	0.785	0.776	0.767
Panel C: Size-Age Index	PC $\text{Shock}_{4,1}$	0.00000607	0.000196	0.000144	0.000446**	0.00122***	0.00212***	0.00194***	0.00255***
		(0.000151)	(0.000165)	(0.000176)	(0.000193)	(0.000469)	(0.000502)	(0.000542)	(0.000534)
	EPU $\text{Shock}_{4,2}$	−0.000200	0.000324*	0.000155	0.000499**	−0.00284***	−0.00219***	−0.00207***	−0.000650
		(0.000174)	(0.000189)	(0.000198)	(0.000210)	(0.000479)	(0.000530)	(0.000554)	(0.000606)
	Observations	121353	117137	113220	109673	84763	80264	76125	72361
	Adjusted R^2	0.842	0.814	0.800	0.777	0.736	0.716	0.706	0.694
		Insensitive				**Sensitive**			
Panel D: Political Sensitivity	PC $\text{Shock}_{4,1}$	0.000456***	0.000853***	0.000772***	0.00110***	0.000666*	0.00173***	0.000776*	0.00142***
		(0.000176)	(0.000189)	(0.000204)	(0.000208)	(0.000386)	(0.000413)	(0.000439)	(0.000440)
	EPU $\text{Shock}_{4,2}$	−0.00109***	−0.000592***	−0.000413*	−0.000166	−0.000657	0.000324	−0.000773*	0.00126**
		(0.000186)	(0.000205)	(0.000216)	(0.000231)	(0.000404)	(0.000445)	(0.000468)	(0.000499)
	Observations	238200	228022	218589	210024	69508	66706	64083	61699
	Adjusted R^2	0.788	0.762	0.749	0.730	0.828	0.812	0.803	0.794

***, **, * indicated statistical significance at the 0.01, 0.05, and 0.10 level, respectively.

Table 6

Response of cash holdings when PC and EPU shocks are interacted with financial constraint and political sensitivity

The dependent variable in all regressions is the ratio of cash holdings to total assets. The columns represent the different measures of financial constraint and political sensitivity that were used in Table 5. Parentheses contain standard errors that are clustered at the firm level. All accounting variables have been scaled by total assets. All regressions include firm fixed-effects, the presidential election dummy variable, all of the corporate accounting controls, the macroeconomic controls, fiscal and calendar quarter dummy variables, and the amount of cash held prior to the shock. PC $\text{Shock}_{4,1}$ and EPU $\text{Shock}_{4,2}$ refer to the standardized structural Partisan Conflict and Economic Policy Uncertainty shocks, respectively, recovered from the four lag VAR model with the PC Index ordered first and the EPU Index ordered second. Full results are available upon request.

	(1) Size	(2) Age	(3) Size-Age Index	(4) Political Sensitivity
PC $\text{Shock}_{4,1}$	0.000857***	0.000721***	0.000623***	0.00115***
	(0.000197)	(0.000231)	(0.000196)	(0.000206)
PC $\text{Shock}_{4,1}$ × Constrained	0.00134**	0.000782**	0.00205***	
	(0.000526)	(0.000346)	(0.000544)	
PC $\text{Shock}_{4,1}$ × Politically Sensitive				0.000265
				(0.000468)
EPU $\text{Shock}_{4,2}$	0.00103***	0.000262	0.000920***	0.000102
	(0.000239)	(0.000266)	(0.000229)	(0.000227)
EPU $\text{Shock}_{4,2}$ × Constrained	−0.00176***	−0.000360	−0.00183***	
	(0.000548)	(0.000363)	(0.000571)	
EPU $\text{Shock}_{4,2}$ × Politically Sensitive				0.000222
				(0.000481)
Constrained	0.00508	−0.00658***	−0.00492	
	(0.0213)	(0.00173)	(0.0121)	
Observations	162920	271723	182034	271723
Adjusted R^2	0.728	0.753	0.742	0.753

***, **, * indicated statistical significance at the 0.01, 0.05, and 0.10 level, respectively.

Table 7

Response of cash holdings to PC and EPU shocks conditioned on capital intensity and redeployability

Parentheses contain standard errors that are clustered at the firm level. The dependent variable in all regressions is the ratio of cash holdings to total assets. All regressions include firm fixed-effects, the presidential election dummy variable, all of the corporate accounting controls, the macroeconomic controls, fiscal and calendar quarter dummy variables, and the amount of cash held prior to the shock. PC $\text{Shock}_{4,1}$ and EPU $\text{Shock}_{4,2}$ refer to the standardized structural PC and EPU shocks, respectively, recovered from the 4 lag SVAR model with the PC Index ordered first and the EPU Index ordered second. Capital Intensity is the ratio of a firm's net expenditures on plant, property, and equipment divided by total assets. Following Gulen and Ion (2015), Redeployability is an industry-level measure of the proportion of assets used in each industry that are used by other industries. Full regression results are available upon request.

	(1) Cash Holdings_{t+4}	(2) Cash Holdings_{t+4}
PC $\text{Shock}_{4,1}$	0.000663^{*}	0.00110^{***}
	(0.000338)	(0.000385)
PC $\text{Shock}_{4,1} \times$ Capital Intensity	0.00152^{**}	
	(0.000732)	
PC $\text{Shock}_{4,1} \times$ Redeployability		0.000127
		(0.000184)
EPU $\text{Shock}_{4,2}$	0.000236	0.000297
	(0.000354)	(0.000406)
EPU $\text{Shock}_{4,2} \times$ Capital Intensity	−0.000249	
	(0.000705)	
EPU $\text{Shock}_{4,2} \times$ Redeployability		−0.000118
		(0.000179)
Capital Intensity	−0.00324	
	(0.00668)	
Observations	271576	207753
Adjusted R^2	0.753	0.760

***, **, * indicated statistical significance at the 0.01, 0.05, and 0.10 level, respectively.

Table 8

PC and EPU shocks and the responses of cash, capital investment, and R&D

Values in Columns 1 – 4 represent how cash holdings, capital expenditure, and R&D respond to a one standard deviation shock to partisan conflict and Columns 5 – 8 represent how these variables respond to an EPU shock, respectively. All values are given in basis points and are based on point estimates from Tables 4, 5, and 6 from the appendix. All regressions include firm fixed-effects, the presidential election dummy variable, all of the corporate accounting controls, the macroeconomic controls, fiscal and calendar quarter dummy variables, and the amount of cash held prior to the shock.

	PC Shock				EPU Shock			
	(1) $t+1$	(2) $t+2$	(3) $t+3$	(4) $t+4$	(5) $t+1$	(6) $t+2$	(7) $t+3$	(8) $t+4$
Cash Holdings	2.77	18.40***	10.30**	16.00***	−24.30***	−19.90***	−21.60***	−2.22
	(3.80)	(4.03)	(4.23)	(4.21)	(4.31)	(4.69)	(4.96)	(5.28)
Capital Expenditure	−0.29	−0.46	−0.45	0.038	−1.98***	−1.68***	−1.43***	−3.42***
	(0.39)	(0.40)	(0.43)	(0.44)	(0.42)	(0.42)	(0.42)	(0.44)
R&D	0.61	1.01	−1.18*	−4.35	0.13	1.71**	2.48***	2.67***
	(0.62)	(0.62)	(0.63)	(0.67)	(0.74)	(0.77)	(0.77)	(0.83)
Observations	112987	107699	102748	98447	112987	107699	102748	98447

***, **, * indicated statistical significance at the 0.01, 0.05, and 0.10 level, respectively.

Table 9

Response of capital expenditure to PC and EPU shocks based on financial constraint and political sensitivity

Parentheses contain standard errors that are clustered at the firm level. The dependent variable in all regressions is the ratio of capital expenditure to total assets. All regressions include firm fixed-effects and fiscal and calendar-quarter dummy variables. PC $\text{Shock}_{4,1}$ and EPU $\text{Shock}_{4,2}$ refer to the standardized structural PC and EPU shocks, respectively, recovered from the 4 lag SVAR model with the PC Index ordered first and the EPU Index ordered second. Constrained firms based on Size are defined as those in the bottom 33% of the total assets distribution. Unconstrained firms based on Size are defined as those in the top 33% of the total assets distribution. Following Brown, Fazzari, and Petersen (2009), constrained firms based on Age are those that have been publicly traded for no more than fifteen years while unconstrained firms based on Age are those that have been publicly traded for longer than fifteen years. The Size-Age Index is constructed following Hadlock and Pierce (2010). Firms with index values in the top tercile for each quarter are considered constrained and firms in the bottom tercile for each quarter are considered unconstrained. Political sensitivity is determined according to SIC codes as proposed by Atanassov, Julio, and Leng (2018). All variables are defined in Table 3 in the main text.

		(1) Capital Expend.$_{t+1}$	(2) Capital Expend.$_{t+2}$	(3) Capital Expend.$_{t+3}$	(4) Capital Expend.$_{t+4}$	(5) Capital Expend.$_{t+1}$	(6) Capital Expend.$_{t+2}$	(7) Capital Expend.$_{t+3}$	(8) Capital Expend.$_{t+4}$
		Unconstrained				**Constrained**			
Panel A: Size	PC $\text{Shock}_{4,1}$	0.000108**	−0.0000399	−0.000123**	−0.0000354	0.0000377	0.0000480	0.000148	0.000132
		(0.0000526)	(0.0000538)	(0.0000574)	(0.0000598)	(0.0000853)	(0.0000860)	(0.0000903)	(0.0000970)
	EPU $\text{Shock}_{4,2}$	−0.000243***	−0.000146**	−0.000163***	−0.000382***	−0.000109	−0.000105	−0.0000755	−0.000224**
		(0.0000535)	(0.0000569)	(0.0000592)	(0.0000621)	(0.0000989)	(0.0000960)	(0.0000924)	(0.0000938)
	Observations	34618	33385	32231	31224	33103	31211	29447	27960
	Adjusted R^2	0.597	0.555	0.550	0.511	0.308	0.299	0.305	0.306
Panel B: Age	PC $\text{Shock}_{4,1}$	−0.0000220	−0.000106**	−0.000160***	−0.0000751	−0.0000193	−0.00000960	0.0000270	0.0000732
		(0.0000495)	(0.0000488)	(0.0000538)	(0.0000546)	(0.0000542)	(0.0000558)	(0.0000594)	(0.0000605)
	EPU $\text{Shock}_{4,2}$	−0.000167***	−0.0000122	−0.00000772	−0.000283***	−0.0000678	−0.0000828	−0.0000371	−0.000198***
		(0.0000561)	(0.0000563)	(0.0000579)	(0.0000598)	(0.0000600)	(0.0000599)	(0.0000600)	(0.0000603)
	Observations	44221	41912	39762	37903	68766	65787	62986	60544
	Adjusted R^2	0.471	0.455	0.459	0.440	0.448	0.427	0.426	0.420
Panel C: Size-Age Index	PC $\text{Shock}_{4,1}$	0.0000319	−0.0000591	−0.000121**	−0.0000428	−0.0000590	0.0000209	0.000125	0.000163*
		(0.0000503)	(0.0000514)	(0.0000559)	(0.0000550)	(0.0000791)	(0.0000800)	(0.0000833)	(0.0000858)
	EPU $\text{Shock}_{4,2}$	−0.000164***	−0.000113**	−0.0000666	−0.000321***	−0.0000384	−0.0000465	−0.0000560	−0.000211**
		(0.0000529)	(0.0000522)	(0.0000541)	(0.0000581)	(0.0000891)	(0.0000861)	(0.0000841)	(0.0000853)
	Observations	36918	35435	34062	32895	39354	37220	35239	33517
	Adjusted R^2	0.569	0.538	0.540	0.501	0.342	0.331	0.330	0.334
		Insensitive				**Sensitive**			
Panel D: Political Sensitivity	PC $\text{Shock}_{4,1}$	−0.0000180	−0.0000234	0.00000156	0.00000478	−0.0000790	−0.000151*	−0.000239**	0.0000263
		(0.0000428)	(0.0000440)	(0.0000482)	(0.0000476)	(0.0000909)	(0.0000868)	(0.0000950)	(0.000104)
	EPU $\text{Shock}_{4,2}$	−0.000179***	−0.000150***	−0.000128***	−0.000361***	−0.000244***	−0.000209**	−0.000173**	−0.000210*
		(0.0000467)	(0.0000471)	(0.0000474)	(0.0000480)	(0.0000940)	(0.0000872)	(0.0000877)	(0.000107)
	Observations	93690	89317	85245	81722	19297	18382	17503	16725
	Adjusted R^2	0.452	0.427	0.424	0.407	0.341	0.320	0.313	0.310

***, **, * indicated statistical significance at the 0.01, 0.05, and 0.10 level, respectively.

Table 10

Response of R&D to PC and EPU shocks based on financial constraint and political sensitivity

* $p < .10$, ** $p < .05$, *** $p < .01$. Parentheses contain standard errors that are clustered at the firm level. The dependent variable in all regressions is the ratio of R&D expenditure to total assets. All regressions include firm fixed-effects and fiscal and calendar-quarter dummy variables. PC Shock$_{4,1}$ and EPU Shock$_{4,2}$ refer to the standardized structural PC and EPU shocks, respectively, recovered from the 4 lag SVAR model with the PC Index ordered first and the EPU Index ordered second. Constrained firms based on Size are defined as those in the bottom 33% of the total assets distribution. Unconstrained firms based on Size are defined as those in the top 33% of the total assets distribution. Following Brown, Fazzari, and Petersen (2009), constrained firms based on Age are those that have been publicly traded for no more than fifteen years while unconstrained firms based on Age are those that have been publicly traded for longer than fifteen years. The Size-Age Index is constructed following Hadlock and Pierce (2010). Firms with index values in the top tercile for each quarter are considered constrained and firms in the bottom tercile for each quarter are considered unconstrained. Political sensitivity is determined according to SIC codes as proposed by Atanassov, Julio, and Leng (2018). All variables are defined in Table 3 in the main text.

		(1) R&D-to-Assets$_{t+1}$	(2) R&D-to-Assets$_{t+2}$	(3) R&D-to-Assets$_{t+3}$	(4) R&D-to-Assets$_{t+4}$	(5) R&D-to-Assets$_{t+1}$	(6) R&D-to-Assets$_{t+2}$	(7) R&D-to-Assets$_{t+3}$	(8) R&D-to-Assets$_{t+4}$
		Unconstrained				**Constrained**			
Panel A: Size	PC Shock$_{4,1}$	−0.0000523	0.0000485	−0.0000666	−0.00000915	0.000183	0.000365**	0.0000735	0.0000679
		(0.0000457)	(0.0000479)	(0.0000449)	(0.0000497)	(0.000172)	(0.000178)	(0.000188)	(0.000197)
	EPU Shock$_{4,2}$	-4.87×10^{-8}	0.000000880	0.0000599	−0.0000105	−0.0000863	0.000284	0.000312	0.000429*
		(0.0000552)	(0.0000553)	(0.0000510)	(0.0000584)	(0.000210)	(0.000224)	(0.000225)	(0.000237)
		(0.0000570)	(0.0000564)	(0.0000670)	(0.0000719)	(0.000219)	(0.000252)	(0.000262)	(0.000277)
	Observations	34618	33385	32231	31224	33103	31211	29447	27960
	Adjusted R^2	0.720	0.725	0.733	0.734	0.786	0.747	0.735	0.721
Panel B: Age	PC Shock$_{4,1}$	−0.000170**	0.0000735	0.00000258	0.0000824	0.000164*	0.0000988	−0.000207**	−0.000134
		(0.0000802)	(0.0000803)	(0.0000715)	(0.0000748)	(0.0000871)	(0.0000866)	(0.0000906)	(0.0000957)
	EPU Shock$_{4,2}$	0.000182**	0.000108	−0.00000355	−0.00000624	−0.0000920	0.000142	0.000322***	0.000366***
		(0.0000861)	(0.0000952)	(0.0000968)	(0.0000987)	(0.000107)	(0.000108)	(0.000104)	(0.000116)
	Observations	44221	41912	39762	37903	68766	65787	62986	60544
	Adjusted R^2	0.832	0.817	0.814	0.809	0.789	0.768	0.765	0.757
Panel C: Size-Age Index	PC Shock$_{4,1}$	−0.0000397	0.0000685	−0.0000485	0.0000257	0.000116	0.000215	−0.000118	−0.000128
		(0.0000439)	(0.0000493)	(0.0000414)	(0.0000479)	(0.000156)	(0.000160)	(0.000166)	(0.000177)
	EPU Shock$_{4,2}$	0.0000361	0.0000389	0.0000501	−0.00000948	−0.0000223	0.000305	0.000459**	0.000529**
		(0.0000483)	(0.0000531)	(0.0000501)	(0.0000562)	(0.000186)	(0.000196)	(0.000197)	(0.000213)
	Observations	36918	35435	34062	32895	39354	37220	35239	33517
	Adjusted R^2	0.753	0.747	0.754	0.757	0.779	0.745	0.735	0.723
		Insensitive				**Sensitive**			
Panel D: Political Sensitivity	PC Shock$_{4,1}$	0.0000717	0.000132**	−0.0000381	0.00000670	−0.0000356	−0.000114	−0.000618**	−0.000324
		(0.0000573)	(0.0000575)	(0.0000563)	(0.0000614)	(0.000241)	(0.000238)	(0.000258)	(0.000268)
	EPU Shock$_{4,2}$	−0.0000135	0.000119	0.000124*	0.000133*	0.000162	0.000504*	0.000929***	0.000953***
		(0.0000673)	(0.0000733)	(0.0000690)	(0.0000775)	(0.000274)	(0.000275)	(0.000275)	(0.000303)
	Observations	93690	89317	85245	81722	19297	18382	17503	16725
	Adjusted R^2	0.791	0.770	0.766	0.755	0.767	0.735	0.726	0.714

***, **, * indicated statistical significance at the 0.01, 0.05, and 0.10 level, respectively.