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Political Uncertainty and Corporate Investment Cycles

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ABSTRACT

We document cycles in corporate investment corresponding with the timing of national elections around the world. During election years, firms reduce investment expenditures by an average of 4.8% relative to nonelection years, controlling for growth opportunities and economic conditions. The magnitude of the investment cycles varies with different country and election characteristics. We investigate several potential explanations and find evidence supporting the hypothesis that political uncertainty leads firms to reduce investment expenditures until the electoral uncertainty is resolved. These findings suggest that political uncertainty is an important channel through which the political process affects real economic outcomes.

THE RELATIONSHIP BETWEEN POLITICS and economic outcomes has a long history in research and public debate. One important way in which politics is hypothesized to influence real decisions is through the channel of uncertainty and instability. In particular, the incentives and uncertainties associated with possible changes in government policy or national leadership have implications for the behavior of both politicians and firms. The effects of policy uncertainty are especially relevant in light of the recent financial crisis and recession. There is a great deal of uncertainty as to how governments will shape policy to stimulate investment in the short run and formulate regulatory and economic policy in the long run. It has been argued that this uncertainty itself may be hindering a recovery by inducing firms to delay investment until the uncertainty related to future financial regulation and macroeconomic policy is resolved.[1]

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[1] The chief economist of the International Monetary Fund, Olivier Blanchard, recently expressed this concern and suggested that policies should be aimed at reducing uncertainty. *The Economist*, (Nearly) nothing to fear but fear itself, January 29, 2009.

In this paper, we examine the effects of political uncertainty on the investment behavior of firms in the context of national elections. Elections in which the national leader is determined provide an interesting setting to study the effects of political uncertainty on investment for two important reasons. First, while standard models of policy typically assume a single welfare-maximizing planner that makes policy choices over the entire life of the economy, the real world is characterized by leaders who face limited terms and may be replaced by other leaders with different policy preferences. Election outcomes are relevant to corporate decisions as they have implications for industry regulation, monetary and trade policy, taxation, and, in more extreme cases, the possible expropriation or nationalization of private firms. Second, investigating the impact of political uncertainty on investment is a challenging task due to the potential endogeneity between uncertainty and economic growth as the economic downturn itself has arguably generated a great deal of political uncertainty. Elections around the world provide a natural experimental framework for studying political influences on corporate investment, allowing us to disentangle some of the endogeneity between economic growth and political uncertainty. If political uncertainty is higher when changes in national leadership are more probable, elections provide a recurring event that helps isolate the impact of policy uncertainty on investment from other confounding factors. The timing of elections is out of the control of any individual firm and indeed fixed in time by constitutional rules for a large proportion of observations in our sample. In addition, elections around the world take place at different points in time, allowing us to net out any global trends in corporate investment. Using national elections in 48 countries between 1980 and 2005, we examine changes in corporate investment as political uncertainty fluctuates by comparing corporate behavior in the year leading up to the national election outcomes with that in nonelection years.

The intuition underlying the relationship between electoral uncertainty and investment is simple: If an election can potentially result in a bad outcome from a firm's perspective, the option value of waiting to invest increases and the firm may rationally delay investment until some or all of the policy uncertainty is resolved. The relationship between uncertainty and real investment has been modeled by Bernanke (1983) and Bloom, Bond, and Van Reenen (2007), among others. In these models, firms become cautious and hold back on investment in the face of uncertainty. Others have modeled the effects of political uncertainty in a macroeconomic context. Rodrik (1991) and Pindyck and Solimano (1993) are prominent examples of this literature in which the uncertainty brought about by political factors leads firms to choose lower levels of investment expenditures. Chen and Funke (2003) model the private investment decision in emerging markets in the face of policy uncertainty. More recently, Bloom, Floetotto, and Jaimovich (2009) model business cycles as a function of variation in levels of macroeconomic uncertainty.

The idea that political instability can deter investment at the aggregate level is supported by empirical evidence. Barro (1991) and Alesina and Perotti (1996)

find that measures of political instability and violence are correlated with cross-country differences in investment rates. Pindyck and Solimano (1993) and Mauro (1995) find evidence that political uncertainty and an index measuring bribery and corruption are negatively related to investment spending at the aggregate level. However, some difficulties arise in interpreting the aggregate evidence. First, it is not clear whether the various measures of political instability are exogenous to economic conditions and aggregate investment. Second, as discussed in Pindyck and Solimano (1993), the models of investment under uncertainty are less clear about how uncertainty affects long-run equilibrium investment rates, defined as the ratio of investment to capital stock, as uncertainty affects both the optimal capital stock and investment in the long run. The predictions of the models are less ambiguous when there are temporary shocks to the level of uncertainty as the uncertainty mainly works through investment rather than capital stock in the short run. Indeed, Bernanke (1983) shows that events whose long-run implications are uncertain can generate investment cycles by increasing the returns to waiting for new information, particularly when the source of uncertainty periodically renews itself over time. A temporary increase in uncertainty surrounding national elections creates incentives that may induce immediate declines in investment expenditures.

Our empirical investigation provides results consistent with the political uncertainty hypothesis. We document novel and robust evidence that political uncertainty around national elections induces cycles in corporate investment. In the period leading up to the election, investment expenditures decline by an average of 4.8%, controlling for growth opportunities, cash flows, and economic conditions. To address the concern that the results may be driven by elections that are not fixed in time by constitution, we repeat the analysis by estimating our investment regressions only for countries with fixed election timing and find similar results. Additionally, we examine the determinants of early elections and find a strong positive correlation between economic growth and the probability of holding an early election. To the extent that a firm's investment expenditures are positively correlated with economic growth, this suggests that the inclusion of endogenously timed elections in the regressions has the net effect of reducing the dampening effect of electoral uncertainty on investment as the elections are generally called during periods of relatively high economic performance.

Across countries, we find that the temporary decline in investment expenditures is larger in countries with civil law origin, fewer checks and balances, a less stable government, and a higher ratio of central government spending to GDP. Within countries, the cycles are more pronounced for firms in industries considered more sensitive to political outcomes. Elections in which the outcome is "close," as measured by voting results, lead to deeper investment cycles than elections in which the victor wins by a large margin. We also find that investment rates drop more in election years in which the incumbent national leader is classified as "market-friendly" by the World Bank. We also

show that the election-year drop in investment is followed by a small temporary increase in investment in the year immediately following the election as the uncertainty over election outcomes subsides. However, the overall magnitude of the post-election increase in investment is smaller than that of the earlier decline. We also measure changes in cash holdings and find temporary increases in cash balances in the year prior to the election in the amount of 4.3% of the average cash to assets ratio, controlling for firm characteristics and economic conditions. The increase in cash holdings is similar in magnitude to the election-year decline in investment, suggesting that the funds that would have been used as investment are temporarily held as cash until the election uncertainty is resolved.

Political uncertainty is not the only mechanism through which real outcomes can be affected around the timing of elections. Two alternative explanations in the literature suggest election-induced cycles in investment. The first is the political business cycles hypothesis. Starting with the Nordhaus (1975) model of political business cycles, there has been much debate over whether incumbents manipulate fiscal and monetary policy instruments to influence the level of economic activity prior to an election in order to maximize the probability of re-election. Thus, one alternative explanation for our results is that corporate investment is reacting to changing macroeconomic fundamentals. While the political business cycles hypothesis predicts that average economic activity should be higher just before the election, the actions used to stimulate the economy could have a crowding-out effect on private investment. The second alternative explanation is related to the value of political connections. Some firms may have incentives to change their investment behavior to help ensure that their political connections remain in office through the election cycle. Bertrand et al. (2006) investigate the behavior of politically connected firms around municipal elections in France, and find that the firms managed by connected CEOs boost their investment during election years, particularly in politically contested areas, likely in an attempt to help their connection get re-elected. We conduct formal tests of these alternative hypotheses and find no evidence that they are operating in our sample of firms. We therefore view the political uncertainty hypothesis to be the explanation among existing theories that best fits the patterns in the data.

The findings in this paper have two important contributions. First, we document a new stylized fact regarding corporate investment around the world, namely, a tendency for firms to reduce investment in election years. This result demonstrates an important link between the political process and real outcomes. Second, we provide evidence suggesting that political uncertainty matters for a firm's real investment and savings decisions. This result is an interesting illustration of how uncertainty in general can influence investment dynamics. As far as we know, we are the first to examine the effects of national elections on firm-level investment behavior around the world.

The remainder of the paper proceeds as follows. Section II develops the empirical predictions and discusses our identification strategy. Section III

summarizes the firm characteristics and election data. Section IV presents our main empirical results related to corporate investment cycles around elections, including various subsample analyses, multiple robustness checks, and an examination of changes in corporate cash holdings around the election period. Section V concludes.

I. Hypothesis Development and Empirical Strategy

When a particular investment project is characterized by some degree of irreversibility and uncertainty over future cash flows or discount rates, the value of the investment project will be affected by the same factors that influence the pricing of financial options, in particular, the volatility or uncertainty of the value of the underlying asset. The application of option pricing to capital budgeting has generated many empirical predictions and insights on how investment dynamics change in the face of uncertainty. Some classic examples include McDonald and Siegel (1986), who examine the valuation of operating options and the value of waiting to invest. They demonstrate that even moderate amounts of uncertainty can more than double the required rate of return for investment projects. Ingersoll and Ross (1992) model the timing decision in the face of interest rate uncertainty. They argue that, under the assumptions of irreversibility and uncertainty, the simple net present value (NPV) rule is not optimal from a value-maximizing perspective.

Uncertainty increases the value of waiting to invest through what Bernanke (1983) terms the "bad news" principle. That is, an increase in uncertainty causes reductions in current investment only if there is some probability of a bad outcome. In the context of national elections, this suggests that firms will delay investment in anticipation of possible negative changes in the country's macroeconomic, taxation, or monetary policies, or in the regulatory environment in general. However, in some cases the outcome of an election could be construed as good news, regardless of who wins in the end. For example, if the current government is corrupt or incompetent, firms could view a likely change in power as good news and hence may not reduce investment prior to the realization of the election outcome since any different outcome may be better than the current state of affairs. The bad news principle is more subtle in this case. For example, suppose a firm is choosing among several mutually exclusive investment projects, each with a positive expected return. Also suppose that the outcome of an upcoming election will increase the expected return of each of the investment projects, regardless of the outcome. The firm still has an incentive to delay investment if the outcome would reorder the rankings of the individual projects in terms of expected returns. Thus, the bad news principle does not require the possibility of extreme policies such as nationalization of private assets to induce changes in investment. Even positive changes in policy may induce an incentive for firms to wait to invest as the outcome will still have implications for how firms allocate investment spending across various investment opportunities.

If political uncertainty matters for firms, then the recurring nature of the political uncertainty around elections can generate cycles in investment spending. This is an application of Bernanke's bad news principal, with the possibility of a bad election outcome inducing firms to hold off on investment projects. This leads to our primary hypothesis that investment expenditures are expected to decline in the year leading up to the election. That is, we expect the average effect of electoral uncertainty to be a temporary decline in the conditional mean investment rate for all firms in the sample.

The bad news principle also suggests that the value of waiting to invest will vary from firm to firm and across countries. Within countries, the magnitude of the investment cycle may vary across elections, depending on the degree of uncertainty regarding election outcomes. The spread between potential outcomes as well as the likelihood of each outcome will generate heterogeneity in the size of observed investment cycles. Across countries, we hypothesize that investment cycles will be more pronounced in countries with a higher probability of policy changes or larger variation in possible policy outcomes after the election. Since we are investigating national elections, we expect the effect of elections to be larger for countries with more centralized governments. Political institutions may matter as well. Countries in which political decisions are more constrained by various checks and balances are less likely to experience large policy swings following a change in power. For example, presidential systems are typically considered to have greater checks and balances but less flexibility in policy making relative to parliamentary systems, suggesting that perhaps large policy swings are more common in parliamentary systems.[2] We also expect that countries with less stable governments in general will experience larger changes in investment around elections.

Within countries, we hypothesize that the drop in investment expenditures will be larger when the election outcome is more uncertain. In particular, we expect cycles to be more pronounced for elections with close outcomes relative to those with large margins of victory. While the amount of uncertainty regarding the impending election outcome is unobservable, we do observe the election results and vote counts for each candidate. Using the size of the margin of victory as a proxy for the degree of outcome uncertainty in any given election, we examine whether investment cycles vary with the degree of uncertainty across elections within countries. We also investigate the political platform of the incumbent leader during the election year. The political platform of an incumbent with respect to economic policy may have asymmetric effects on investment cycles. Firms are likely to view a possible shift in leadership from a market-friendly leader to a socialist leader as worse news than a possible shift in the other direction.

Our empirical strategy employs the timing of national elections around the world to test the political uncertainty hypothesis. It is important to note that the timing of elections is not a direct measure of political uncertainty. Hence,

[2] See Stepan and Skach (1993) for a general discussion on the trade-off between presidential and parliamentary systems.

an important identification assumption is that political uncertainty is indeed higher on average in the period leading up to an election compared to other time periods. Evidence from financial markets suggests that the uncertainty related to elections and political changes is reflected in asset prices. Bialkowski, Gottschalk, and Wisniewski (2008) and Boutchkova et al. (2011) examine stock market volatility around national elections and find that volatility is significantly higher than normal during the election period. Boutchkova et al. (2011) further find that return volatility is higher around elections for firms operating in politically sensitive industries, suggesting that the increased volatility reflects higher political risk. Bernhard and Leblang (2006) document changes in bond yields, exchange rates, and equity volatility around elections and other political changes and show that these changes are larger during elections with less predictable outcomes. This evidence provides support for our identification assumption that political uncertainty is higher than normal during elections.

Our empirical analysis produces two broad sets of results. In our first set of results, we employ the variation across elections, countries, and firms to help us identify the uncertainty channel to explain the reduction in corporate investment. Our basic approach here is to examine variation in corporate investment around the timing of national elections and to demonstrate that these changes are larger for events in which the uncertainty related to election outcomes is higher. We recognize, however, that other mechanisms may be at play during election periods that can lead to changes in investment behavior. Therefore, in our second set of results we attempt to distinguish the political uncertainty channel from other existing hypotheses, namely, the political business cycles hypothesis and the possible effects of political connections.

II. Data Description

A. Election Data

This study considers 248 national elections in 48 countries held between 1980 and 2005 in which the outcome determined the national leader directly or indirectly. Detailed election information is obtained from a variety of sources. The primary source for election and regime change data is the Polity IV database maintained by the Center for International Development and Conflict Management at the University of Maryland. This database contains annual information on the regime and authority characteristics of all independent states with total populations greater than 500,000. The second major source of data is the World Bank Database of Political Institutions. This source provides information about electoral rules and the classification of political platforms for the elected leaders and candidates. We supplement the election data with various internet sources for cases in which election information is missing from the Polity IV database or the Database of Political Institutions.[3]

[3] The internet sources include http://www.cidcm.umd.edu/polity/data/, http://www.binghamton.edu/cdp/era/searchera.html, and http://www.electionresources.org/.

The first task for the election data collection is to identity the chief executive of each country and the national elections associated with the selection of the chief executive. In a country with a presidential system, the supreme executive power is normally vested in the office of the president. Thus, presidential elections are naturally considered in our analysis for countries with presidential systems. In a parliamentary system, the executive power is normally vested in a cabinet responsible to parliament. In such a country, the prime minister or premier, being the head of the cabinet and leader of the parliament, functions as the actual chief executive of the nation. Thus, legislative elections are used for countries with parliamentary systems as the outcome of such elections has the foremost influence over the appointment of prime minister.[4] Some countries use a hybrid system combining elements of both parliamentary and presidential democracy; a president and a prime minister coexist with both presidential and legislative elections held nationally. In such cases, we examine the constitutional framework and practice in greater detail to understand how executive power is divided between the two leaders, and select for the study the election associated with the leader who exerts more power over executive decisions.[5] As a robustness check, we repeat our analysis excluding the four countries for which the classification requires some discretion (Finland, France, Pakistan, and Poland) and find that the results are unchanged.

The resulting data set comprises 31 countries with legislative elections, 16 countries with presidential elections, and 1 country (Israel) with prime ministerial elections.[6] Table I presents the classification of political systems and the number of elections for each of the 48 countries in our sample. The table also shows the origin of each country's legal system, as reported by La Porta et al. (1998).

Another important characteristic of national elections is whether the timing of elections is exogenously specified by electoral law. Under some electoral systems a government can be dissolved before the expiry of its full term for various reasons, and an election is then normally called to form a new government. This complicates interpretation of our empirical results as the timing of elections may be endogenously connected to the country's economic performance over time. Ito (1990), for example, documents that Japanese general elections have coincided with periods of economic expansion, suggesting that the government opportunistically selected the timing of elections. To deal with the possible endogeneity of election timing, we classify countries as having either exogenous timing or endogenous timing. All countries with a record of early elections are

[4] When a bicameral government holds a separate general election for each of its two parliamentary chambers, the election associated with the more powerful chamber of the two is considered.

[5] The Internet Appendix, available on the *Journal of Finance* website at http://www.afajof.org/supplements.asp, describes in detail the process of classifying political systems and selecting election types.

[6] Israel has a unique parliamentary system in that the prime minister was previously elected directly, separate from the general elections. After three direct elections for the office of prime minister, however, in 2001 Israel went back to the earlier practice whereby the leader of a governing coalition sits as prime minister.

Table I

Political Systems and Election Type

This table presents political system and election characteristics for each of the 48 countries in our sample between 1980 and 2005. The number of observations indicates the total number of firm-year observations included in Thomson Financial's Worldscope database for each country in our sample. A country is classified as presidential (parliamentary) if the president (prime minister) is chief of state and head of government. A country is also considered parliamentary if a hereditary monarch is the chief of state while the prime minister is the head of government. Other rules determining the classification of executive authority are described in the Internet Appendix. A country is classified as having flexible timing if the national leader or legislative body has the option to call an election before the regularly scheduled election date. The last two columns report the type and number of elections utilized in the analysis for each country.

Country	Number of Observations	Legal Origin	Basis of Executive Legitimacy	Election Timing	Type of Elections	Number of Elections
Argentina	887	French	Presidential	Fixed	Presidential	4
Australia	12,226	English	Parliamentary	Flexible	Legislative	9
Austria	1,916	German	Parliamentary	Flexible	Legislative	7
Belgium	2,916	French	Parliamentary	Flexible	Legislative	7
Brazil	3,674	French	Presidential	Fixed	Presidential	2
Canada	15,599	English	Parliamentary	Flexible	Legislative	8
Chile	1,922	French	Presidential	Fixed	Presidential	4
Colombia	430	French	Presidential	Fixed	Presidential	4
Czech Republic	508		Parliamentary	Flexible	Legislative	3
Denmark	3,700	Scandinavian	Parliamentary	Flexible	Legislative	8
Finland	2,553	Scandinavian	Hybrid	Flexible	Legislative	6
France	14,692	French	Hybrid	Fixed	Presidential	4
Germany	14,472	German	Parliamentary	Flexible	Legislative	8
Greece	3,206	French	Parliamentary	Flexible	Legislative	7
Hungary	386		Parliamentary	Fixed	Legislative	4
India	5,080	English	Parliamentary	Flexible	Legislative	6
Indonesia	3,003	French	Presidential	Fixed	Presidential	1
Ireland	1,386	English	Parliamentary	Flexible	Legislative	8
Israel	1,168	English	Parliamentary	Flexible	Prime Ministerial	3
Italy	5,025	French	Parliamentary	Flexible	Legislative	6
Japan	52,495	German	Parliamentary	Flexible	Legislative	9
Luxembourg	499		Parliamentary	Fixed	Legislative	4
Malaysia	8,301	English	Parliamentary	Flexible	Legislative	5
Mexico	1,801	French	Presidential	Fixed	Presidential	4
Netherlands	4,159	French	Parliamentary	Flexible	Legislative	8
New Zealand	1,451	English	Parliamentary	Flexible	Legislative	9
Norway	3,064	Scandinavian	Parliamentary	Fixed	Legislative	7
Pakistan	1,361	English	Parliamentary	Flexible	Legislative	5
Peru	762	French	Presidential	Fixed	Presidential	4
Philippines	2,119	French	Presidential	Fixed	Presidential	3
Poland	856		Hybrid	Flexible	Legislative	4
Portugal	1,373	French	Parliamentary	Flexible	Legislative	3

(continued)

Table I—*Continued*

Country	Number of Observations	Legal Origin	Basis of Executive Legitimacy	Election Timing	Type of Elections	Number of Elections
Russia	388		Hybrid	Fixed	Presidential	3
Singapore	4,952	English	Parliamentary	Flexible	Legislative	6
Slovakia	131		Parliamentary	Flexible	Legislative	2
South Africa	5,742	English	Parliamentary	Flexible	Legislative	5
South Korea	7,652	German	Hybrid	Fixed	Presidential	4
Spain	3,249	French	Parliamentary	Flexible	Legislative	7
Sri Lanka	269	English	Presidential	Flexible	Presidential	3
Sweden	5,097	Scandinavian	Parliamentary	Fixed	Legislative	7
Switzerland	4,504	German	Parliamentary	Fixed	Legislative	5
Taiwan	7,613	German	Hybrid	Fixed	Presidential	3
Thailand	4,595	English		Flexible	Legislative	7
Turkey	1,742	French	Parliamentary	Flexible	Legislative	3
United Kingdom	36,050	English	Parliamentary	Flexible	Legislative	6
United States	50,257	English	Presidential	Fixed	Presidential	7
Venezuela	376	French	Presidential	Fixed	Presidential	4
Zimbabwe	159	English	Presidential	Fixed	Presidential	2

classified as having endogenous timing. All presidential elections, with the exception of Sri Lanka's, are held on a regular basis and are classified as having exogenous timing. This leaves unclassified seven countries with a parliamentary system and one country with a hybrid system. To classify these remaining countries, we refer to electoral laws and practices as well as the classification provided by Alesina, Cohen, and Roubini (1992).[7] Accordingly, three of the remaining countries, Czech Republic, Finland, and New Zealand, are classified as having endogenous timing and the rest are classified as having exogenous timing.[8] Table I reports the election timing classification for every country in our sample.

Panel A of Table II summarizes the election data. Elections are held every 3.8 years on average and the average nominal term of a chief executive is 4.4 years. The next row reports the political platform of incumbent governments in the election years. The classification is based on the World Bank Database of Political Institutions, which refers to various sources including Political Handbook yearbooks to identify party orientation with respect to economic policy.[9] The World Bank classifies a government as being right-leaning

[7] Alesina et al. (1992) classify the timing of elections as exogenous or endogenous for 18 developed countries.

[8] The Czech Republic technically allows early elections, but strict rules make it difficult to call an election early. As an illustration, the major political parties in the Czech Republic attempted to call an election early in 2009, but the Constitutional Court ruled it illegal.

[9] See Keefer (2007) for the full list of sources used for the identification as well as a detailed description of how the political platform variable was constructed.

Table II
Summary Statistics

Panel A reports summary statistics for national elections held between 1980 and 2005 in 48 countries. Panel B reports summary statistics for the firm characteristics used in the analysis. Panel C reports summary statistics for investment rates in both election years and nonelection years, where the investment rate is defined as capital expenditures scaled by beginning-of-year book value of total assets. Panel D reports the annual mean investment rates around the elections. Year 0 indicates the year leading up to an election. See the Appendix for variable descriptions as well as the variable sources.

Panel A: Election Characteristics

	Mean	Median	Std. Dev.
Election Frequency (unit: year)	3.8	4.0	1.2
Length of Term (unit: year)	4.4	4.0	0.8
Political Platform of Government			
Market-Friendly (%)	63.3		
Left-Leaning (%)	36.7		
Percent of Votes Won in an Election			
Winner (%)	41.9	41.3	12.9
Runner-up (%)	28.7	27.9	10.1
Third place (%)	12.2	11.4	5.7
Type of Elections			
Legislative (%)	76.2		
Presidential (%)	22.6		
Proportion of Elections with Exogenous Timing (%)	45.6		
Change of Government Head (%)	54.3		
Change of Ruling Party (%)	43.3		
Checks and Balances	3.95	4.00	1.79
ICRG Government Stability Rating	7.82	8.00	1.91
Central Bank Independence	0.42	0.40	0.19
Government Spending/GDP	0.28	0.26	0.11

Panel B: Firm Characteristics

	N	Mean	Median	Std. Dev.
Investment Rate (I_t/A_{t-1})	101,587	0.078	0.051	0.094
Q	101,587	1.587	1.240	1.140
Cash Flow	101,587	0.098	0.092	0.132

Panel C: Mean Investment Rates in Election Years vs. Nonelection Years

Election Years	0.0727	0.0473	0.0896
Nonelection Years	0.0795	0.0523	0.0955
Difference	−0.0067		
Diff (t-stat)	−9.74		

Panel D: Mean Investment Rates around Election Years

Year	−2	−1	0	1	2
Investment Rate	0.0788	0.0796	0.0727	0.0802	0.0792

if the political party is defined as conservative, Christian democratic, or right-wing by these sources. Left-leaning parties are those defined as communist, socialist, social democratic, or left-wing. Centrist parties are those that advocate strengthening private enterprise in a social–liberal context. We define the incumbent political party as "market-friendly" if the incumbent government in the election year is classified as right-leaning or centrist by the World Bank. Accordingly, 63.3% of the incumbent administrations in the year leading up to an election are classified as market-friendly, and the remaining 36.7% are classified as left-leaning. We also summarize the distribution of historical vote counts to give a sense of the degree of uncertainty surrounding a given election. On average, the winner of an election obtains 41.9% of the total vote, followed by the runner-up at 28.7%, with the third-place candidate receiving 12.2% of the total. The table also shows that 45.6% of the elections are classified as having exogenous timing. Table II also shows that 54% of the elections lead to replacement of the national leader and 43% of the elections result in a change in the ruling party.

B. Country-Level Data

We obtain institutional and macroeconomic data from various sources. The World Development Indicators from the World Bank is our primary source for the macroeconomic variables, including real GDP, central government spending, inflation, and real interest rate. We obtain data on the money supply (M1) from Political Risk Service's International Country Risk Guide (ICRG). ICRG also reports the government stability ratings on a monthly basis for the countries in our sample. The government stability index assigns numbers between 0 and 12, where higher values indicate more stable governments. This time-varying index assesses the government's ability to carry out its declared programs and its ability to stay in office.

The Database of Political Institutions provides a measure of the effectiveness of checks and balances in each political system on an annual basis.[10] The basic idea is to capture the number of decision makers whose agreement is necessary for the approval of policy changes. The measure is a count of the number of veto players in the political system at a given point in time based on the prevailing electoral rules and laws. It also takes into account whether the executive and legislative branches of government are controlled by the same party, which effectively reduces the checks and balances relative to having different parties controlling different branches of government. In presidential systems, the count is increased by one for the president and by one for each additional legislative body. For parliamentary systems, the count is increased by one for the prime minister and by the number of parties included in the governing coalition. The number is reduced if the party of the executive is the same as the largest party in any particular chamber of government. Table II

[10] For further details on the construction of the checks and balances index, see Beck et al. (2004) and Keefer (2007).

shows that the average number of checks in the sample is 3.95 with a standard deviation of 1.95.

The index of central bank independence (CBI) measures the extent to which the central bank is independent of the political power. This annual time-varying index is taken from Cukierman, Webb, and Neypati (1992) for the period between 1980 and 1989, and from Polillo and Guillen (2005) for the period between 1990 and 2000. Cukierman et al. (1992) initially constructed the index for 72 industrial and developing countries for the period between 1950 and 1989.[11] Polillo and Guillen later extended the index to the period between 1990 and 2000 according to the definition of Cukierman et al. (1992). The index is a continuous score ranging between zero and one, where one indicates maximum independence. It is obtained by aggregating the 16 characteristics of central bank charters describing four aspects: procedures concerning the governor of the central bank (appointment, dismissal, and legal term of office); relationship between the government and the bank, and the location of authority over monetary policies; objectives of the central bank; and relationship between the government and the bank in terms of borrowing.

C. Firm-Level Data

We obtain firm characteristics data from Thomson Financial's Worldscope database for the period from 1980 to 2005 for the countries in our sample. Worldscope provides the broadest coverage of international data, covering companies in more than 50 developed and emerging markets and accounting for more than 96% of the market value of publicly traded companies across the globe. Worldscope contains firm characteristics data going back to 1980, but the availability varies by country. For the analysis, we match firm-level data with the election and country data. Table I reports the total number of firm-year observations by country. Observations with missing values for investment, Tobin's Q, or cash flow are excluded from the analysis. Panel B of Table II provides summary statistics for the firms considered in our analysis. The Appendix provides a comprehensive description of variable definitions and data sources. It is important to note that we are unable to comment on the potential effects of electoral uncertainty on privately held firms around the world as our data set consists entirely of publicly traded firms.

III. Empirical Results

This section presents our empirical findings related to changes in corporate investment around election cycles. We begin with the univariate analysis,

[11] While Polillo and Guillen (2005) report the index on an annual basis, Cukierman et al. (1992) report on a 10-year basis since there is little change in the index over their sample period. Polillo and Guillen also note that the bulk of the global spread in CBI occurred after 1989. Given the time-invariant tendency of the index during the 1980s and the lack of more detailed data, in our analysis the index figures provided by Cukierman et al. (1992) are treated as annual values for the period between 1980 and 1989.

followed by a multiple regression framework controlling for economic conditions and firm characteristics. We then exploit variation in the sensitivity of investment to political uncertainty across countries, elections, and firms. We also address alternative explanations and possible concerns related to our empirical analysis. Finally, we examine changes in corporate cash holdings in election years.

A. *Corporate Investment around National Elections*

Panel C of Table II summarizes the mean investment rates around elections. In nonelection years, the unconditional average investment rate, measured by the ratio of capital expenditures to beginning-of-year total assets, is 0.0795. The rate drops by 0.0068 to 0.0727 in election years. The reduction, statistically significant at the 1% level, represents an 8.5% decrease in the unconditional mean investment rate relative to nonelection years in the overall sample of firms. Panel D provides a more detailed examination of corporate investment dynamics across the election cycle. The annual mean investment rates before and after the election year are reported, where year 0 indicates the election year. The nonelection years show no significant pattern in investment, aside from a small increase in year 1, the year immediately following the election. Similar to the results in Panel C, the mean investment rate in election years is significantly lower than that in nonelection years. Later in this section, we investigate the post-election investment patterns in more detail. The univariate analysis, while not controlling for firm and country characteristics, provides preliminary evidence supporting the view that electoral uncertainty leads to a temporary drop in corporate investment.

We next investigate corporate investment policy in a multivariate setting to control for firm characteristics and economic conditions. We use the following augmented version of the standard investment-Q specification to evaluate changes in corporate investment in election years that cannot be explained by the standard explanatory variables:

$$I_{ijt} = \alpha_i + \beta_1 \text{Election Dummy}_{jt} + \beta_2 Q_{i,t-1} + \beta_3 CF_{it} + \beta_4 \%\Delta GDP_{j,t-1} + \gamma_t + \varepsilon_{ijt}, \quad (1)$$

where i indexes firms, j indexes countries, and t indexes years. The dependent variable, investment, is defined as capital expenditures scaled by beginning-of-year book value of total assets. The explanatory variable of interest is the election dummy, which takes a value of one in the year leading up to an election outcome. To best capture the effect of uncertainty on investment, the dummy variable is given a value of one for any firm-year in which an election is held no earlier than 60 days prior to the fiscal year-end in year t and no more than 274 days after the fiscal year-end of year t.[12] The coefficient on the election

[12] The Internet Appendix contains a figure illustrating the procedure we use to classify election years.

dummy, β_1, is thus designed to capture changes in the conditional investment rate in the period leading up to national elections, controlling for firm investment opportunities and country economic conditions.[13]

We attempt to properly benchmark the conditional mean investment rate for a firm by controlling for changing firm characteristics or growth opportunities. We employ a measure of Tobin's Q, the ratio of the market value of assets to the book value of assets, as our proxy for the incentive to invest. Cash flow is defined as earnings before interest and taxes minus taxes and interest expense plus depreciation and amortization. Tobin's Q is measured at the beginning of the year and cash flow is scaled by beginning-of-year total assets for each firm. Finally, to capture the effects of general economic conditions on firm investment, we include annual GDP growth, measured as the percentage change in a nation's real GDP in the year prior to the investment decision.

Firm and year fixed effects are also included in the specification. Standard errors are clustered by country and year throughout the paper (Petersen (2009)). The firm characteristics variables are winsorized at the 1st and 99th percentiles throughout the analysis. We employ the investment-Q framework as the baseline specification as it has a solid theoretical foundation as well as good empirical support relative to other investment regression models. Eberly, Rebelo, and Vincent (2009) find that simple investment-Q regressions perform well relative to other common empirical models. The specification has been employed in various empirical settings, including financial frictions (Hennessy, Levy, and Whited (2007)), corporate divestitures and spin-offs (Colak and Whited (2007)), and internal capital markets (Ozbas and Scharfstein (2010)), for example. As discussed in the robustness section, the main results are robust to various alternative specifications as well as to different measures of corporate investment and proxies for the incentive to invest.

Table III reports the results for our baseline specification. The first column reports the regression of investment on the election dummy alone. The following columns add firm and year fixed effects, Q, cash flow, and GDP growth. Across all specifications in Table III, we find that investment is positively related to Q, cash flow, and economic growth. Consistent with the hypothesis that political uncertainty dampens investment rates in election years, the election-year reduction in the conditional mean investment rate is economically meaningful and statistically significant. Decreases in conditional investment rates range between 0.0036 and 0.0067 depending on the specification. The estimates reported in column (5), which represent the baseline specification throughout the rest of the analysis, show that investment rates decline by 0.0038 on average in the year leading up to the election, after controlling for growth opportunities and economic conditions. In terms of magnitudes, the coefficient translates into an economically significant 4.8% reduction in investment rates relative to the average nonelection year investment rate. The final column includes continent-by-year dummy variables to account for potential regional

[13] The results are robust to various cutoff points for the election dummy definition.

Table III
Baseline Investment Regressions

This table presents estimates from investment regressions of the type

$$I_{ijt} = \alpha_i + \beta_1 \text{Election Dummy}_{jt} + \beta_2 Q_{i,t-1} + \beta_3 CF_{it} + \beta_4 \%\Delta GDP_{j,t-1} + \gamma_t + \varepsilon_{ijt},$$

where i indexes the firm, j indexes the country, and t denotes the year. The left-hand-side variable is capital expenditures scaled by beginning-of-year total assets. $Q_{i,t-1}$ is the proxy for Tobin's Q. CF_{it} is cash flow, and $\Delta GDP_{j,t-1}$ is the percentage change in real gross domestic product for a given country over the previous year. See the Appendix for variable definitions. Standard errors, clustered by country and year, are reported in brackets. *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Election Year Dummy	−0.0067 [0.0016]***	−0.0036 [0.0014]***	−0.0036 [0.0014]***	−0.0037 [0.0012]***	−0.0038 [0.0013]***	−0.0041 [0.0014]***
Q			0.0110 [0.0010]***	0.0056 [0.0012]***	0.0055 [0.0012]***	0.0041 [0.0010]***
Cash Flow				0.1885 [0.0165]***	0.1866 [0.0159]***	0.1737 [0.0117]***
GDP Growth					0.0365 [0.0192]*	0.0402 [0.0181]**
Constant	0.0794 [0.0053]***	0.0285 [0.0023]***	0.0289 [0.0022]***	0.0272 [0.0020]***	0.0263 [0.0021]***	0.0084 [0.0020]***
Observations	101,587	101,587	101,587	101,587	101,587	101,587
R^2	0.00	0.00	0.01	0.07	0.07	0.13
Fixed Effects	None	Firm Year	Firm Year	Firm Year	Firm Year	Firm Continent×Year

shocks to investment. The results are robust to the inclusion of these effects. The results from the baseline specification are consistent with the hypothesis that the uncertainty associated with national elections around the world increases the returns for waiting to invest, leading firms to lower investment rates.

B. Subsample Analysis

Having shown that investment is systematically lower in the period leading up to a national election in the overall sample, we now deepen the analysis by using variation in the degree of uncertainty across countries and over time. The impact of electoral uncertainty should depend on the spread across possible outcomes and the probability that a policy shift or bad outcome will occur. Accordingly, we expect to observe variation in the magnitude of changes in investment rates.

B.1. Variation Across Countries

To incorporate differences in political institutions and government stability across countries, we create additional variables to describe each country's legal

origin and political system. We also measure the degree of checks and balances, government stability, and the ratio of central government spending to GDP for each country-year. We first examine the differential effects of elections on investment rates by legal origin. Legal origin affects the way firms operate through a country's legal rules and law enforcement (La Porta et al. (1997, 1998), La Porta, Lopez-de-Silanes, and Shleifer (1999)). In particular, given that common law countries are generally characterized with stronger investor protections, it is reasonable to expect that these protections are likely to remain intact even after a transfer of political power, limiting the range of potential outcomes. Hence, we expect that investment cycles will be more pronounced in civil law countries to the extent that political uncertainty drives investment cycles.

We next compare elections in countries with a presidential system with those with a parliamentary system. These two types of political systems have different costs and benefits that are directly related to the degree of political uncertainty during election years. Presidential systems are thought to be characterized by a high degree of checks and balances, which tends to minimize policy swings and acts as a constraint in passing new laws and regulations. Parliamentary systems, on the other hand, are characterized by simultaneous changes in control in both the executive and legislative branches of government. We therefore expect that parliamentary systems will have a higher propensity for large policy swings, generating more pronounced investment cycles relative to presidential systems. Additionally, we employ a direct measure of checks and balances to capture the impact of varying degrees of political uncertainty on corporate policy. The checks and balances measure, tabulated by the World Bank, counts the number of veto players in a political system at a given point in time, adjusting for whether these veto holders are independent of each other in terms of electoral rules, party affiliation, and electoral competitiveness. Thus, the measure contains some time-series variation within countries, even though electoral rules and legal institutions are largely fixed over time. We expect firms operating in a country with stronger checks and balances to be less sensitive to electoral cycles since a change in power through elections is likely to have less of an impact on actual policy.

Firms in countries with more stable governments are likely to be less vulnerable to election outcomes, resulting in smaller changes in investment rates during election years compared to firms in less stable countries. We obtain government stability measures over our sample period from ICRG. The stability ratings are based on an integer point scale, with larger numbers indicating more stability. An additional feature of the ICRG ratings is that there is some time-series variation in the ratings as they are reported on a monthly basis. To match the ratings with each firm-year observation, we average the monthly ratings over each firm's matching fiscal year.

Finally, we explore the variation in the size of the central government as measured by the ratio of central government spending to GDP each year. Investigation of the relative size of the central government is important for two

Table IV

Elections and Investment: Variation across Countries

This table presents estimation results for the following regression:

$$I_{ijt} = \alpha_i + \beta_1 \text{Election}_{jt} + \beta_2 \text{Election}_{jt} \times X_{jt} + \beta_3 X_{jt} + \beta_4 Q_{i,t-1} + \beta_5 CF_{it} + \beta_6 \%\Delta GDP_{j,t-1} + \gamma_t + \varepsilon_{ijt},$$

where X_{jt} is a country-specific characteristic. The country characteristics variable is interacted with all the other independent variables to allow for differences across countries with regard to different country characteristics. *Common Law* is a dummy variable equal to one if the firm operates in a common law country, and zero if in a civil law country. *Presidential System* is a dummy variable equal to one if the type of election is presidential, and zero if legislative. See the Appendix for additional variable descriptions. Tobin's Q, cash flow, and GDP growth are included as control variables. Standard errors, clustered by country and year, are reported in brackets. *, **, and *** represent statistical significant at the 10%, 5%, and 1% level, respectively.

	Country Characteristic				
	(1)	(2)	(3)	(4)	(5)
	Common Law	Presidential System	Checks	ICRG Govt. Stability	Government/ GDP
Election Year Dummy	−0.0087 [0.0033]***	−0.0068 [0.0016]***	−0.0066 [0.0013]***	−0.0066 [0.0026]**	−0.0042 [0.0022]*
Country Characteristic× Election Dummy	0.0041 [0.0022]*	0.0015 [0.0019]	0.0007 [0.0003]**	0.0004 [0.0002]**	−0.0114 [0.0036]***
Country Characteristic	0.0026 [0.0067]	0.0044 [0.0037]	−0.0001 [0.0004]	−0.0010 [0.0007]	−0.0006 [0.0094]
Constant	0.0523 [0.0101]***	0.0524 [0.0065]***	0.0301 [0.0031]***	0.0075 [0.0054]	−0.0087 [0.0077]
Observations	101,515	101,515	101,459	101,364	97,118
R^2	0.13	0.13	0.07	0.07	0.06
Fixed Effects	Industry Year	Industry Year	Firm Year	Firm Year	Firm Year

reasons. First, our sample includes only national elections, that is, we do not study the effects of local elections on firm investment in this paper. As such, it is important to demonstrate that national elections are indeed more important in countries in which central government policy plays a larger role in the economy. Second, there is likely to be more at stake during elections in countries where the government makes up a large portion of GDP.

Table IV reports the estimation results for the following general specification:

$$\begin{aligned} I_{ijt} = {} & \alpha_i + \beta_1 Elect_{jt} + \beta_2 Elect_{jt} \times X_{jt} + \beta_3 X_{jt} + \beta_4 Q_{i,t-1} \\ & + \beta_5 CF_{it} + \beta_6 \%\Delta GDP_{j,t-1} + \gamma_t + \varepsilon_{ijt}, \end{aligned} \tag{2}$$

where $Elect_{jt}$ is the election year dummy and X_{jt} is the country-specific characteristic of interest. We include both the level of the country characteristic and its interaction with the election dummy variable. The interaction term picks up the differential effect of the country characteristic on the magnitude

of the election-year investment cycle. The country characteristic variable is interacted with all the other independent variables in the baseline specification to allow for differences across countries with regard to the chosen country characteristic. The firm fixed effect is replaced by the industry fixed effect when the country characteristic is time invariant.

Table IV reports the results from the cross-country regressions. Some interesting results emerge. The first column of the table reports the regression with an interaction term for the legal origin of the country. The common law indicator is set to one for countries with English origin and zero for countries with French, German, or Scandinavian origin. The interaction between the common law dummy and the election dummy has a positive and significant coefficient, indicating that firms in countries with common law origin experience less of an electoral effect on corporate investment in election years. The sign of the interaction term is consistent with the prediction that stronger investor protection in common law countries limits the potential impact of election outcomes on corporate decisions. The second column of the table reports results comparing the effects of different political systems. The presidential dummy is set to one for countries with a presidential system and zero for those with a parliamentary system. The coefficient on the interaction term is positive but statistically insignificant, suggesting that, on average, there is no significant difference between presidential and parliamentary systems in terms of election cycle effects on investment.

One critical disadvantage with the common law and presidential indicator variables is that they do not vary over time. In the remaining three specifications, we employ time-varying country characteristics that are hypothesized to be important for corporate decision making during an election year. The third column shows that the interaction between the checks variable and the election dummy has a positive and significant coefficient, indicating that countries with stronger checks and balances exhibit less pronounced investment cycles, as predicted. The coefficients imply that firms in a country with the average amount of checks and balances reduce investment expenditures by 4.7% in election years. A one-standard-deviation increase in checks and balances implies an average reduction of only 3.2% in the election year. Interestingly, the mean number of checks in presidential systems is 4.28 and that in parliamentary systems is 4.06 in our sample. These numbers are statistically indistinguishable and suggest that the number of veto players matters more than the simple classification based on election type.

The fourth column of Table IV presents the estimation results when we interact the ICRG government stability rating with the election dummy. The interaction term is positive and significant, suggesting that elections lead to larger reductions in corporate investment when the government is relatively less stable. A one-standard-deviation increase in the government stability ranking reduces the magnitude of the investment cycle from 4.2% to 3.2%. The final column reports the results of the specification in which the election dummy is interacted with the ratio of central government spending to GDP for each country. Since the elections in our sample are all at the

national level, it is likely that there is more at stake in countries in which the central government plays a larger role in the overall economy. The results in column (5) support this intuition. The reduction in corporate investment around elections is much larger in countries with larger central governments. The economic magnitude is large here. Countries with a ratio of government spending to GDP that is one standard deviation above the average spending-to-GDP ratio experience decreases of 9.8% in investment relative to nonelection years.

B.2. Election Timing

Up to this point, we have not differentiated between countries in which the timing of an election is fixed by electoral laws and those in which the incumbent government has an option to call an election before the scheduled election date. The potential endogeneity of election timing can impose significant bias in our results. The literature is mixed as to whether favorable economic conditions increase the likelihood of an early election. Ito (1990) finds that Japanese elections tend to be called early during periods of economic expansion. In contrast, Alesina et al. (1992) examine 14 OECD (Organisation for Economic Cooperation and Development) countries with flexible election timing and find that such an association between election timing and economic conditions is not present in any of those countries excluding Japan. In our sample, we do find some evidence consistent with the view that governments opportunistically time elections if they have the option to do so. We examine GDP growth around elections to compare economic conditions around regularly scheduled elections against those around early elections.

Table V reports summary statistics for annual GDP growth rates in our sample. We calculate two types of means. First, we assign equal weights to each country-year observation. Since the number of firm-year observations differs across countries, we also calculate a sample-weighted average of GDP growth. The patterns are roughly the same in both cases. We observe that the sample-weighted average GDP growth is 4.70% over our sample period. GDP growth tends to be higher in election years, averaging 5.51% compared to 4.48% in nonelection years. Also note that GDP growth during regularly scheduled elections is 4.19%, while GDP growth during early elections is 6.98%, suggesting that elections coincide with good economic times. Since investment rates and GDP growth are positively correlated, it is likely that the bias resulting from the endogeneity of election timing works against the hypothesis predicting investment reduction in election years. However, in order to ensure that the results are not contaminated in any way by this potential bias, we sort countries into two groups, one consisting of countries with fixed election timing and the other consisting of countries that have an option to call an election early.

Table VI reports the estimation results for the two subsamples of countries. Specification (1) reports the results of the baseline investment regression only for the countries with exogenous election timing. Specification (3) reports the

Table V

Real GDP Growth and Election Timing

The table reports the average percentage growth in real GDP relative to the previous year around various sample periods. Average GDP growth is reported in two ways. First, the equal-weighed average GDP assigns the same weights to each country-year. Second, the sample-weighed average assigns the same weights to each firm-year observation. The first column reports GDP growth over the full sample. The next two columns split the full sample into election years and nonelection years. The final two columns split the election year sample into regular election and early election years. An election is classified as regular if it is held within 6 months before or after the anticipated election date, which is calculated by adding the nominal term of the chief executive to the previous election date. Standard errors are reported in brackets.

Panel A: Equal-Weighted across Country-Years					
	Overall	Nonelection Years	Election Years	Regular Elections	Early Elections
Mean	6.11%	6.17%	5.97%	5.38%	7.01%
SE	[0.39%]	[0.47%]	[0.71%]	[0.95%]	[1.02%]
Panel B: Sample-Weighted Averages					
Mean	4.70%	4.48%	5.51%	4.19%	6.98%
SE	[0.03%]	[0.03%]	[0.06%]	[0.09%]	[0.07%]

results for the countries with the option to call early elections. In both cases, the coefficients on the election dummy are significant and of similar magnitude as that in the overall sample. Thus, the results are unlikely to be driven by the endogeneity of election timing.

B.3. Predictability of Election Outcomes

We now examine whether the impact of political uncertainty varies across elections within a country. If the outcome of an election is anticipated well in advance, there should be little uncertainty associated with the election and therefore we expect that investment does not drop significantly during the election year. If the outcome is highly uncertain, however, we expect the effect on investment to be large. While the degree of uncertainty prior to the election outcome is unobservable and good polling data are not available for all of the countries in the sample, we can observe the actual vote counts from the elections and use the results to classify elections as either close or not in doubt. Accordingly, we set a close election dummy to one if the margin of victory is smaller than the first quartile value of the margin of victory distribution over the sample of countries under consideration, where the margin of victory is defined as the difference between the fraction of votes won by the victor and that garnered by the runner-up. We define the close election dummy separately for the subsample of countries with fixed election timing and the subsample with flexible timing.

Table VI
Election Timing and Predictability of Outcomes

This table presents estimation results for the following regression:

$$I_{ijt} = \alpha_i + \beta_1 \text{Election}_{jt} + \beta_2 \text{Election}_{jt} \times Close_{jt} + \beta_3 Q_{i,t-1} + \beta_4 CF_{it} + \beta_5 \%\Delta GDP_{j,t-1} + \gamma_t + \varepsilon_{ijt},$$

where *Close* is a dummy variable set to one if the vote difference between the winner and the runner-up is below the 25th percentile of the victory margin distribution over the sample of countries under consideration. The first two columns present results for the sample of countries for which the timing of elections is fixed in time by electoral law. Columns (3) and (4) report the results for the sample of countries for which the government has the option to call the election early. The last two columns report the results separately for presidential and parliamentary political systems. Tobin's *Q*, cash flow, and GDP growth are included as control variables. Standard errors, clustered by country and year, are reported in brackets.

	Exogenous Election Timing		Endogenous Election Timing		Presidential	Parliamentary
	(1)	(2)	(3)	(4)	(5)	(6)
Election Year Dummy	−0.0041 [0.0018]**	−0.0021 [0.0019]	−0.0035 [0.0015]**	−0.0032 [0.0011]***	−0.0025 [0.0022]	−0.0036 [0.0014]**
Election Year× Close Election		−0.0093 [0.0031]***		−0.0019 [0.0024]	−0.0080 [0.0026]***	−0.0128 [0.0054]**
Constant	0.0249 [0.0014]***	0.0253 [0.0020]***	0.0416 [0.0062]***	0.0415 [0.0066]***	0.0498 [0.0061]***	0.0476 [0.0052]***
Observations	45,897	45,897	55,690	55,690	30,225	71,519
R^2	0.08	0.08	0.06	0.06	0.09	0.08
Fixed Effects	Firm Year	Firm Year	Firm Year	Firm Year	Firm Year	Firm Year

Table VI reports the results of the investment regression with an interaction term between the election dummy and our ex post measure of election closeness. We conduct separate tests for countries with fixed election timing and those with endogenous election timing, and for presidential and parliamentary political systems. Specification (2) reports the results for the sample of countries with exogenous election timing. The interaction term is large, negative, and statistically significant, consistent with the hypothesis that the magnitude of investment cycles is increasing in the degree of uncertainty surrounding the election. The coefficient implies that average investment rates drop by almost 11% in hotly contested elections. This result also suggests that election year reductions in investment are relatively mild when margins of victory are large. Specification (4) reports the results for the countries with endogenous timing of elections. The interaction term is not significant, suggesting there is no difference between close elections and elections with wide margins of victory in these countries. To investigate this rather puzzling finding, we compute the margin of victory at the 25th percentile of the margin distribution for each subsample of countries. For countries with exogenous timing, the 25th percentile value of the margin of victory distribution is 2.5%, compared to 10.66% for countries with

endogenous timing. In other words, in our sample, election contests tend to be much closer in countries in which there is no discretion over election timing, consistent with the view that incumbent governments time elections to maximize their chances of re-election. Columns (5) and (6) report the close election results for both presidential and parliamentary political systems. The results for the presidential system are very similar in magnitude to those reported for the exogenous timing sample. Reductions in investment rates in election years are larger for close elections in presidential systems. We find a similar result for countries with a parliamentary system.

B.4. Post-election Investment Rates

Our primary focus up to this point has been on whether firms reduce investment in the year leading up to an election outcome. A natural question that follows is whether firms increase investment once the election uncertainty is resolved. To address this question, we construct a post-election dummy variable similar to the election dummy, except that it takes a value of one for any firm-year in which an election is held no later than 60 days after the beginning of fiscal year t and no earlier than 274 days before the beginning of fiscal year t. The post-election dummy variable requires that approximately 80% or more of the days in a firm's fiscal year fall after the election date. We then include this dummy variable in our investment specification to provide a more detailed estimation of the dynamics of investment around the full election cycle. We also interact this dummy with the close election indicator defined in the previous subsection.

We report the estimation results in Table VII. We estimate this specification on the full sample, the exogenous timing subsample, and the endogenous timing subsample. The coefficient of the post-election dummy is positive in all specifications, but it is not statistically significant. The one notable exception to this pattern is reported in column (3), in which we interact the post-election dummy with the close election dummy for countries with fixed election timing. The result indicates that both the pre-electoral reduction in investment and post-electoral increase are larger for close elections. The magnitude of investment reduction in election years is similar to that reported in the second column of Table VI. Figure 1 illustrates the cycles for the fixed election sample using the estimates in columns (2) and (3). The solid line shows the changes in investment around the tighter elections, while the dashed line illustrates the changes in investment for all elections. As suggested by the results in Table VII, the cycles are more pronounced for close elections. It is also interesting to note the asymmetry in the coefficient estimates between the pre-election period and the post-election period. The average reduction in investment rates before elections is roughly twice as large in absolute terms as the post-election spike in investment rates. This asymmetry raises the important question of whether the pre-election drop and the subsequent increase in investment around the election cycle reflect a real distortion or a temporal reallocation of investment.

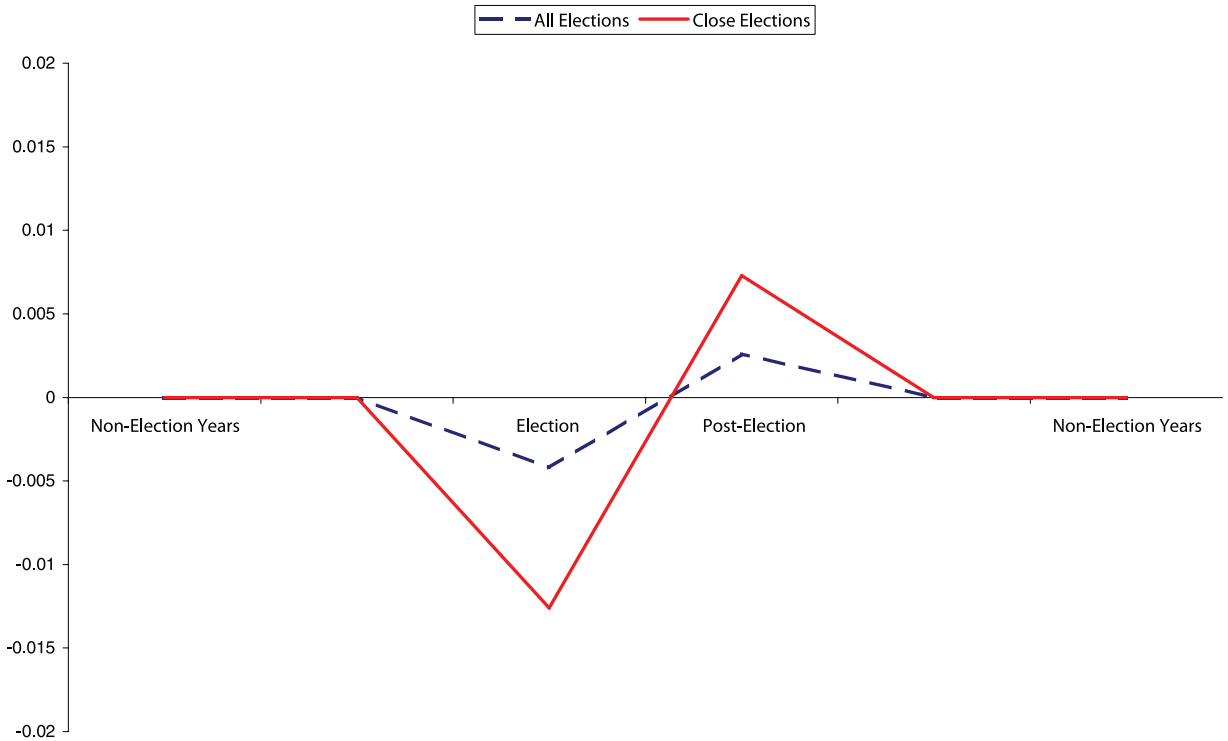

Figure 1. Investment around national elections. This figure displays estimates from the regression results reported in Table VII of the following specification:

$$I_{ijt} = \alpha_i + \beta_1 \text{Election}_{jt} + \beta_2 \text{Election}_{jt} \times Close_{jt} + \beta_3 \text{Post-Election}_{jt} + \beta_4 \text{Post-Election}_{jt} \times Close_{jt} + \beta_5 \boldsymbol{Q}_{i,t-1} + \beta_6 CF_{it} + \beta_7 \%\Delta GDP_{j,t-1} + \gamma_t + \varepsilon_{ijt}.$$

The sample includes only those countries for which the timing of elections is exogenous. The variable *Close* is a dummy variable set equal to one if the margin of victory for a given election is smaller than the 25^{th} percentile of the distribution for all exogenously timed elections. The vertical axis represents the investment rates relative to the average rate of nonelection years, which are the periods neither immediately before nor immediately after an election. The dashed line displays changes in investment for all elections (based on estimates from column (2) of Table VII), and the solid line displays changes in investment for the elections with close outcomes (based on estimates from column (3) of Table VII).

Table VII
Changes in Investment in the Post-election Period

This table presents estimation results for the following regression:

$$I_{ijt} = \alpha_i + \beta_1 \text{Election}_{jt} + \beta_2 \text{Election}_{jt} \times Close_{jt} + \beta_3 \text{Post-Election}_{jt} + \beta_4 \text{Post-Election}_{jt} \times Close_{jt} + \beta_5 Q_{i,t-1} + \beta_6 CF_{it} + \beta_7 \%\Delta GDP_{j,t-1} + \gamma_t + \varepsilon_{ijt},$$

where *Close* is a dummy variable set to one if the victory margin, defined as the vote difference between the winner and the runner-up, is below the 25$^{\text{th}}$ percentile of the victory margin distribution across all elections for the sample considered. Tobin's *Q*, cash flow, and GDP growth are included as control variables. See the Appendix for additional variable definitions. Standard errors, clustered by country and year, are reported in brackets. The final two rows report the sum of the coefficients on the pre- and post-election variables along with the corresponding *t*-statistics for the null hypothesis that the coefficients of pre- and post-election variables sum to zero.

	Full Sample	Exogenous Timing Sample		Endogenous Timing Sample	
	(1)	(2)	(3)	(4)	(5)
Election Year Dummy	−0.0049	−0.0040	−0.0035	−0.0034	−0.0032
	[0.0014]***	[0.0020]**	[0.0021]	[0.0013]***	[0.0014]**
Post-election Dummy	0.0030	0.0028	0.0029	0.0045	0.0049
	[0.0019]	[0.0022]	[0.0023]	[0.0029]	[0.0030]
Election Year×Close Election			−0.0087		−0.0029
			[0.0018]***		[0.0019]
Post-election×Close Election			0.0039		0.0025
			[0.0019]**		[0.0017]
Observations	101,515	45,846	45,897	55,669	55,690
R^2	0.13	0.14	0.16	0.13	0.14
Fixed Effects	Firm Year	Firm Year	Firm Year	Firm Year	Firm Year
Tests for Linear Combinations of Coefficients					
Election + Post-election	−0.0019	−0.0012	−0.0054	0.0011	0.0013
t-statistic	−1.522	−1.071	−3.850	0.043	0.927

To evaluate the net change in investment around the election cycle, we perform a test of a linear combination of the regression coefficients on pre- and post-election variables reported in Table VII. We test the null hypothesis that the coefficients on the pre- and post-election variables sum to zero, which would suggest a temporal reallocation of investment. The final two rows of Table VII report the sum of those coefficients along with the corresponding *t*-statistics for the null hypothesis that they sum to zero. Except for column (3), we cannot reject the null hypothesis that the election year reduction in investment is offset in magnitude by the post-election increase. However, when we condition on close elections for the exogenous election timing sample (column (3)), we observe that the post-election increase in investment is much smaller in size than the pre-election reduction, suggesting a net reduction in investment due to electoral uncertainty.

C. Robustness

In this section, we perform several robustness checks. We start by examining variation across firms within each country. Firms are likely to differ from each other with respect to their sensitivity to election outcomes. While it is difficult to classify industries as being politically sensitive or not, we take some guidance from the political economy literature to classify industries according to whether they have high or low sensitivity to election outcomes. On the basis of the findings and references of Herron et al. (1999), we classify firms in tobacco products, pharmaceuticals, health care services, defense, petroleum and natural gas, telecommunications, and transportation industries as politically sensitive. We set a sensitive industry dummy to one if a firm belongs to one of these politically sensitive industries. The first column of Table VIII reports the estimates from the inclusion of the interaction term between the sensitive industry dummy and the election dummy. The coefficient on the interaction term is negative as predicted, but only marginally significant.

Next, we investigate whether the political platform of the incumbent government affects investment sensitivity to electoral uncertainty. If the incumbent government is market-friendly, then the election outcome might be viewed from the firm's perspective as either neutral (the incumbent wins) or negative (the incumbent loses). On the other hand, if a more socialist government is already in place, then from the perspective of the private sector the outcome will be either neutral (the incumbent wins) or positive (the incumbent loses). In such a setting, the bad news principle works more strongly in the former case than in the latter. To test this hypothesis, we adopt the classification of political platform with respect to economic policy provided by the World Bank Database of Political Institutions. The market-friendly incumbent dummy equals one if the incumbent government in the election year is classified as right-leaning or centrist by the World Bank, and zero otherwise.[14] To the extent that right-leaning or centrist incumbents are more market-friendly, we expect deeper investment cycles when right-leaning or centrist governments are in power. The second column of the table indicates that the interaction between the market-friendly dummy and the election dummy is negative and significant, consistent with our prediction that investment cycles are likely to be deeper when a market-friendly government is in power in the election year. It appears that firms view a transition from right-to-left as having more potentially bad news than a left-to-right transition of power. However, we interpret this result with caution as it relies on the classification of political platform being highly correlated with the actual market friendliness of economic policies.

In the third column of Table VIII, we estimate the regressions omitting the nine Asian and Latin American countries involved in the financial crises in the 1990s. Mei and Guo (2004) note that eight out of these nine countries held

[14] The Internet Appendix contains a detailed description of the World Bank classification of political platform.

Table VIII

Additional Tests and Robustness

This table presents estimation results from various robustness tests. Tobin's Q, cash flow, and GDP growth are included as control variables. The random election dummy variable is a randomly generated election date for each country, calculated such that the number and periodicity of elections within each country is equal to that of the sample data. See the Appendix for additional variable definitions. The final column reports the average coefficients from country-by-country regressions of the investment specification. The standard error of the mean is included in brackets. For the remaining regressions, standard errors are clustered by country and year and reported in brackets. *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Sensitive Industries	Incumbent Ideology	Crisis Countries Omitted	Lagged Investment	Random Election	U.S., U.K., Japan Omitted	Equal-Weighting by Country
Election Year Dummy	−0.0036	−0.0042	−0.0051	−0.0041	0.0001	−0.0031	−0.0095
	[0.0014]**	[0.0018]**	[0.0016]***	[0.0013]***	[0.0004]	[0.0009]***	[0.0049]*
Sensitive Industry	0.0006						
	[0.0007]						
Election×Sensitive Industry	−0.0026						
	[0.0014]*						
Election×Market-Friendly Incumbent		−0.0053					
		[0.0023]**					
Observations	101,587	101,587	87,988	98,352	101,587	54,859	48
R^2	0.07	0.07	0.07	0.07	0.07	0.07	
Fixed Effects	Firm Year	Firm Year	Firm Year	Firm Year	Firm Year	Firm Year	Firm

elections during the financial crises.[15] As such, there is some concern that the financial crises themselves could be generating the results. After eliminating these crisis countries, the results remain intact. The fourth column reports the results when we include the lagged dependent variable on the right-hand side of the regression equation. Eberly et al. (2009) note that lagged investment has been found to be correlated with contemporary investment in many data samples. There may be some concern that the autocorrelation in capital expenditures may contribute to the political cycles documented in this paper. We find that the main finding is robust to the inclusion of lagged investment rates.

In column (5) of Table VIII, we perform a random placebo test to address the concern that there may be some regional time trend in our data that is not captured by the year dummy variables or that there is nothing unusual about the election dates in our sample. For each country, we randomly select a starting date within the first 5 years of the sample that is not already an election year. The randomly selected date becomes the new election date, and we construct the remaining election dates based on the average periodicity of elections within each country. The election dummy is constructed as before, but with reference to this randomly selected date. The coefficient on this random dummy variable is close to zero and insignificant, suggesting that the variation in investment rates is specific to the actual election years and not due to some underlying regional time trends in the data.

Finally, we address the concern that the results may be driven by those countries with disproportionate representation in our sample, namely, the United States, United Kingdom, and Japan together make up about 45% of the total sample. We deal with this concern in two ways. First, we reestimate the investment specification after omitting these three countries from the sample. Column (6) of Table VIII reports that the results remain unchanged. Second, we place an equal weight on each country in our sample by estimating the investment regression on a country-by-country basis and then averaging the coefficients across all 48 countries. Column (7) reports the results. The coefficient obtained from the equal-weighting procedure is actually larger in magnitude than that of the baseline results.

For additional robustness,[16] we estimate the regression equation using alternative proxies for growth opportunities,[17] alternative measures of corporate investment,[18] as well as the inclusion of additional control variables. We also consider the possibility that mismeasurement in our proxy for Tobin's Q biases the sign of the coefficient on the election dummy. We employ the proxy-quality threshold test of Erickson and Whited (2005) to determine if measurement error is affecting the sign of our coefficients. The results indicate that there

[15] The nine countries are Argentina, Indonesia, Malaysia, Mexico, Philippines, South Korea, Thailand, Turkey, and Venezuela.

[16] See the Internet Appendix for the results of the robustness tests listed in this section.

[17] Proxies for investment opportunities include the market-to-book ratio, the industry mean Tobin's Q, the industry median Tobin's Q, and sales growth.

[18] The alternative measures include capital expenditures scaled by beginning-of-year capital stock, growth in capital expenditures, and growth in capital stock.

is no likely bias induced by our proxy for Tobin's Q in our election dummy coefficients.

D. Alternative Explanations

In this section, we investigate other potential channels through which an election may lead to measurable changes in economic activity. First, elections may create incentives for incumbent politicians to change their behavior during election years. Starting with the Nordhaus (1975) model of political business cycles, there has been debate over whether incumbents successfully manipulate fiscal and monetary policy instruments to influence the level of economic activity prior to an election in order to maximize the probability of re-election. The basic idea of these opportunistic models is that voters make their decisions based on the state of the economy at the time of the election and that the incumbent chooses policies to manipulate the short-run trade-off between unemployment and inflation to induce higher growth prior to an election. The limitations of these models in the presence of rational expectations are spelled out by Alesina (1987).

Empirically, there is little support for these political business cycle theories. While aggregate economic conditions prior to elections do have a significant effect on election outcomes,[19] there is no significant pre-electoral increase in aggregate economic activity in the United States or any of the OECD countries (Drazen (2000)).[20] There is also little evidence that policy makers manipulate fiscal and monetary instruments to affect economic outcomes in election years. However, there is some evidence suggesting that governments take actions in other ways to improve their chances of staying in power. Dinc (2005) and Cole (2009) investigate the lending patterns of government-owned banks in several emerging markets and India in election years. Interestingly, they both find that lending by government-owned banks increases significantly in election years relative to that by private banks, particularly in hotly contested regions. We note that the political business cycles hypothesis predicts a positive relationship between investment and election timing, while political uncertainty and instability is hypothesized to have a negative effect on firm investment during election periods. Thus, political business cycles should have the net effect, if any, of reducing the negative effects of uncertainty on investment. However, it is possible that the actions of incumbents could lead to a crowding-out of private investment in election years. To test for the presence of such effects, we conduct various tests on political business cycles below.

A second channel addresses how elections may affect the incentives of politically connected firms. In particular, firms may change their behavior in

[19] Fair (1996) shows that economic conditions are good predictors of election outcomes in the United States.

[20] Drazen (2000) provides comprehensive reviews on the empirical evidence related to political business cycles.

election years to assist policy makers in their re-election hopes. Some firms may have established relationships with incumbent policy makers, which may lead to various benefits such as preferable tax treatment, government contracts, and bailouts in the case of financial distress. Faccio (2006) finds that approximately 3% of firms representing about 8% of the world's market capitalization have political connections that may be value enhancing.[21] Indeed, Faccio, Masulis, and McConnell (2006) find that politically connected firms are much more likely to be bailed out in times of distress than nonconnected firms. As such, connected firms have an incentive to aid incumbents to ensure that their connection remains in power after the election. Bertrand et al. (2006) investigate the behavior of politically connected CEOs around municipal elections in France and find that firms managed by connected CEOs boost their investment during election years, particularly in politically contested areas, likely in an attempt to help their connection get re-elected.

While the political connections hypothesis predicts increased investment for connected firms in election years, its impact on average investment over all firms is unlikely to be substantial as politically connected firms represent a fairly small fraction of the population of firms. Nonetheless, we re-run the investment regressions excluding the connected firms identified by Faccio (2006) to test whether the effects are driven by the politically connected firms.[22] The first column of Table IX reports the results. The coefficient on the election dummy is still negative and of similar magnitude after dropping these firms. Thus, to the extent that we have properly identified the connected firms in our sample, the results suggest that the investment dynamics around the election dates are not likely due to political connections.

Next, we investigate the channel of political business cycles in various ways. First, we sort our sample according to the degree of CBI to investigate whether possible manipulation of monetary policy instruments is crowding out private investment. The measures of CBI are based on Cukierman et al. (1992). Political incumbents in countries with independent central banks are unlikely to be able to manipulate monetary instruments before an election to spur economic activity. The second column of Table IX considers only those countries with a high degree of CBI, where we define a country as having a high degree of CBI if its measure of independence is greater than or equal to the 75^{th} percentile of the independence distribution. We find that our main results are present among the countries with high CBI. In the next column, we investigate whether opportunistic behavior of the incumbent before an election is driving our results by considering only those elections in which the incumbent is not running for re-election. In such cases, the incumbent leader does not have a strong incentive to manipulate economic policy. We redefine the election

[21] Faccio (2006) classifies a firm as politically connected if one of its officers or large shareholders is a member of parliament, a minister, or closely related to a top politician or party in that country.

[22] We note that Faccio's sample of connected firms may not account for all connected firms in the Worldscope data. The proportion of connected firms in our sample (3.4%) is similar to that documented by Faccio (2006).

Table IX

Political Connections and Incumbent Opportunism

This table presents the estimation results of the baseline specification for various subsamples. The first column reports the estimation results of the investment specification omitting the politically connected firms from Faccio (2006). Column (2) reports estimation results for the subsample with a high degree of central bank independence (CBI). Specifically, the sample includes any observation in which the CBI measure is greater than the 75th percentile of the CBI distribution. The CBI index is defined according to Cukierman et al. (1992). The election year dummy in the final column is modified such that it is set to one only if the incumbent leader is not running for re-election in any given election, and zero otherwise. Tobin's *Q*, cash flow, and GDP growth are included as control variables. Standard errors, clustered by country and year, are reported in brackets.

	(1)	(2)	(3)
	Politically Connected Firms Omitted	High Central Bank Independence	Incumbent Not Running
Election Year Dummy	−0.0036	−0.0040	−0.0052
	[0.0013]***	[0.0018]**	[0.0013]***
Constant	0.0262	0.0066	0.0247
	[0.0020]***	[0.0025]***	[0.0021]***
Observations	98,137	43,322	101,587
R^2	0.07	0.06	0.07

year dummy such that it is set to one only if the incumbent leader is not running for re-election. Column (3) shows that the main results still hold for these elections, suggesting that the manipulation of fiscal or monetary policy is not driving the result.

As mentioned above, a substantial literature investigates whether incumbent politicians try to stimulate economic growth in the period leading up to the election to improve their chances of re-election. Although such behavior would tend to stimulate economic growth in the aggregate, it is possible that the government actions may crowd out private investment. An immediate crowding-out effect could explain the reduction in corporate investment rates leading up to the election that we document in this paper. Given this possibility, we next examine various policy instruments around the world and test whether there are systematic changes in these macroeconomic variables around elections.

To test for political business cycles in our sample of countries, we adopt the approach of Alesina, Cohen, and Roubini (1999) and estimate the following specification for the panel of countries in our sample:

$$Y_{jt} = \alpha_j + \beta_1 Y_{j,t-1} + \beta_2 Y_{j,t-2} + \beta_3 W_t + \beta_4 \mathit{ELECTION}_{jt} + \varepsilon_{jt},$$

where Y_{jt} is the macroeconomic policy variable of interest, W_t is a proxy for world GDP growth in year t, and $\mathit{ELECTION}_{jt}$ is a dummy variable set equal to one in the period just before the election. We investigate four different macroeconomic variables in this context: growth in government spending, growth in

money supply (M1), real interest rates, and inflation rates. We obtain a proxy for world GDP growth from the World Bank.

The results of the political business cycle regressions are presented in Table X. We estimate the regressions both for the full sample and for the subsample of countries with exogenous election timing. Consistent with the findings of Alesina et al. (1999), we find no evidence of pre-electoral manipulation in either the full sample or the exogenous timing sample. Specifically, we do not find significant differences in growth in government spending, growth in money supply, interest rates, or inflation rates in the pre-election period. The lack of a systematic relationship between these variables and the election dates suggests that election cycles in corporate investment are not due to the opportunistic behavior of political incumbents.[23]

E. Investment Rates and Cash Holdings

Our final empirical analysis considers the cash holdings behavior of firms around national elections. Firms may hold cash on their balance sheet for various reasons, including a precautionary motive and a transactions motive. Opler et al. (1999) find evidence among U.S. firms that the precautionary motive for holding cash is very strong. In this section, we ask what happens to the cash that would have been invested in the absence of an election. Since investment declines during election years given cash flows and growth opportunities, we expect that firms have more cash than usual on a precautionary basis until the election is resolved. Estimating changes in cash holdings in light of our previous results is complicated by the fact that investment decisions and cash holding choices are made jointly. To understand the joint investment and cash holdings decisions around elections, we estimate the following system of equations:[24]

$$\begin{aligned} I_{ijkt} &= \beta_0 + \beta_1 \text{Election Dummy}_{jt} + \beta_2 Q_{ik,t-1} + \beta_3 CF_{ijk,t-1} \\ &\quad + \beta_4 \%\Delta GDP_{j,t-1} + \varepsilon_{ijkt} \\ \text{Cash}_{ijkt} &= \beta_0 + \beta_1 \text{Election Dummy}_{jt} + \beta_2 Q_{ik,t-1} + \beta_3 CF_{ijk,t-1} + \beta_4 Size_{ijk,t-1} \\ &\quad + \beta_5 LEV_{ijk,t-1} + \beta_6 I_{ijkt} + \beta_7 \sigma(CF)_{kt} + \beta_8 DIV_{ijkt} + \alpha_j + \eta_{ijkt}, \end{aligned}$$

where the right-hand-side variables in the investment equation are defined previously. The cash regression incorporates control variables common in the cash holdings literature, including firm size (log of real total assets), leverage (book value of debt scaled by total assets), cash flow volatility, and dividend policy. Cash flow volatility ($\sigma(CF)_{kt}$) is calculated as the time-series standard deviation of three-digit SIC cash flows over the previous 4 years, DIV_{ijkt} is a dummy variable set equal to one if the firm pays a dividend in year t and zero

[23] We also include the macroeconomic variables as explanatory variables in the investment regression as an alternative test. The Internet Appendix reports the results of these regressions. The main results remain unchanged.

[24] We also estimate equation-by-equation OLS estimation of both the investment and cash regressions and obtain similar results.

Table X

Political Business Cycle Regressions

This table reports the estimation results of political business cycle models based on panel regressions of time-series cross-section data for macroeconomic variables that take the general form

$$Y_{jt} = \alpha_j + \beta_1 Y_{j,t-1} + \beta_2 Y_{j,t-2} + \beta_3 \text{World GDP Growth}_t + \beta_4 \text{Election}jt + \varepsilon_{jt},$$

where Y_{jt} is the macroeconomic variable of interest and α_j is the country fixed-effect term. We report the regression results for annual growth in government spending (%ΔG), annual growth in the money supply (%ΔM1), the real interest rate (r), and the inflation rate (i). The first four columns report the results for the entire sample of countries. The final four columns report the regression results for only those countries with exogenous timing of elections. Macroeconomic data are obtained from the IMF Government Financial Statistics database and World Bank WDI data. Standard errors are clustered by country and are reported in brackets. *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively.

	Full Sample				Exogenous Timing Sample			
	(1) %ΔG	(2) %ΔM1	(3) r	(4) i	(5) %ΔG	(6) %ΔM1	(7) r	(8) i
Election Year	0.0013	−0.0164	0.0072	0.042	0.0012	−0.0357	0.0055	0.0609
	[0.0042]	[0.0148]	[0.0045]	[0.1867]	[0.0059]	[0.0284]	[0.0035]	[0.1222]
Y_{t-1}	−0.1367	0.0463	0.5385	0.956	0.0458	0.0225	0.4679	0.618
	[0.0824]	[0.0191]**	[0.0830]***	[0.3082]***	[0.1087]	[0.1005]	[0.0575]***	[0.0582]***
Y_{t-2}	−0.1321	−0.0198	−0.0806	−0.2816	−0.179	0.0596	0.0378	−0.1913
	[0.0747]*	[0.0359]	[0.0526]	[0.0689]***	[0.1173]	[0.0683]	[0.0359]	[0.1178]
World GDP Growth	−0.3033	3.0635	−0.364	25.5446	−0.3197	1.4437	−0.5148	8.0223
	[0.3591]	[1.3757]**	[0.3266]	[17.0890]	[0.6001]	[2.0377]	[0.3093]	[5.9885]
Observations	189	777	1,010	1,242	95	294	376	518
R^2	0.04	0.01	0.29	0.11	0.06	0.02	0.28	0.3

Table XI

Investment and Cash Holdings: System of Equations Estimates

This table reports estimates from the joint estimation of the following system of equations:

$$I_{ijkt} = \beta_0 + \beta_1 \text{Election Dummy}_{jt} + \beta_2 Q_{ik,t-1} + \beta_3 CF_{ijkt} + \beta_4 \%\Delta GDP_{j,t-1} + \varepsilon_{ijkt}$$

$$\text{Cash}_{ijkt} = \beta_0 + \beta_1 \text{Election Dummy}_{jt} + \beta_2 Q_{ik,t-1} + \beta_3 CF_{ijkt} + \beta_4 Size_{ijk,t-1} + \beta_5 LEV_{ijk,t-1} + \beta_6 I_{ijkt} + \beta_7 \sigma(CF)_{kt} + \beta_8 DIV_{ijkt} + \alpha_j + \eta_{ijkt},$$

where the right-hand-side variables in the investment equation are defined as previously, and the cash regression includes firm size (log of real total assets), leverage (book value of debt scaled by total assets), investment rates, cash flow volatility, dividend, and country fixed effects. $\sigma(CF)_{kt}$ is the time-series standard deviation of three-digit SIC cash flows calculated over the previous 4 years, DIV_{ijkt} is a dummy variable set equal to one if the firm pays a dividend in year t and zero otherwise, and α_j captures country fixed effects. The estimation procedure is performed by three-stage least-squares full-information maximum likelihood estimation.

LHS Variable	Election Dummy	Q	Cash Flow	GDP Growth	Size	Leverage	Investment	CF Volatility	Dividend
Investment	−0.0065	0.0038	0.1895	0.0491					
	[0.0007]***	[0.0003]***	[0.0022]***	[0.0028]***					
Cash Holdings	0.0053	0.0286	−0.0489		−0.0009	−0.2235	−0.0498	1.0169	−0.0227
	[0.0009]***	[0.0004]***	[0.0034]***		[0.0004]***	[0.0073]***	[0.0044]***	[0.0451]***	[0.0011]***
$H_0 : \beta_{elect}^{Inv} + \beta_{elect}^{Cash} = 0$									
$\chi^2(1)$	1.3600								
p-Value	0.2431								

otherwise, and α_j captures country fixed effects. The cash regression depends directly on investment, but the investment regression can be estimated independently as it does not explicitly depend on cash holdings. Once the estimates are obtained, we compare the magnitudes of the coefficients on the election dummy across the two equations.

Table XI presents the results from the system of equations estimation. The estimates from the investment regression are consistent with the earlier single-equation results. The cash holdings regression yields some very interesting results. First, firms appear to save cash during election years. Controlling for other factors, cash holdings increase by 0.0053 in election years. In economic terms, the coefficient represents a 4.3% increase in cash holdings relative to the nonelection year average across all firms. Second, the increase in cash holdings almost offsets the reduction in investment rates in the election year. The reduction in investment is 0.0065 compared to the increase in cash holdings of 0.0053 in the year leading up to the election. Table XI confirms that this difference is not statistically significant. These results suggest that political uncertainty leads firms to cut back on investment and temporarily increase cash holdings until the election uncertainty is resolved.

IV. Conclusion

This paper documents that corporate investment tends to be lower just before national elections for a large sample of countries around the world. Specifically, we find that, controlling for investment opportunities and the economic environment, corporate investment rates drop by an average of 4.8% in the period leading up to elections relative to investment rates in nonelection years. We investigate several possible explanations for this election-year effect and find that, among existing theories, the political uncertainty hypothesis best fits the data. That is, firms tend to become more cautious around elections and hold back on investment expenditures until the uncertainty surrounding the election outcome is resolved.

We also examine variation in the election effect both within and across countries. Within countries, the reduction in capital expenditures is larger when the election outcome is more difficult to predict. We also find that, for very tight elections in countries with exogenous election timing, investment increases to a level higher than normal once the election uncertainty is resolved. Across countries, we find that the effect is larger for countries with fewer checks and balances on executive authority, a less stable government, and a higher ratio of central government spending to GDP. We also find that changes in investment around national elections are larger for firms in more politically sensitive industries. These results are robust to various empirical specifications for corporate investment, various measures of growth opportunities, mismeasurement in Tobin's Q, and various subsamples.

Our results support two important ideas. First, politics do appear to matter for firms' real investment decisions. The normal political process and the possibility of policy changes around elections influence the way firms make investment decisions. Second, the results highlight the importance of

uncertainty in corporate investment dynamics. Changes in the degree of uncertainty lead to cycles in investment expenditures, as suggested by Bernanke (1983) and others.

Appendix: Variable Descriptions

Variable	Description
Worldscope: Firm Characteristics	
Investment	Capital expenditures divided by beginning-of-year book value of total assets.
Q	Book value of total assets minus the book value of equity plus the market value of equity scaled by the book value of total assets.
Industry median Q	World-industry median Tobin's Q, calculated over three-digit SIC code industries each year.
Cash Flow	EBIT plus depreciation and amortization minus interest expense and taxes scaled by beginning-of-year book value of total assets.
Leverage	Total debt (long-term and short-term) scaled by beginning-of-year book value of total assets.
Cash	Cash holdings divided by beginning-of-year book value of total assets.
Size	Natural logarithm of the book value of total assets denominated in U.S. dollars.
Dividend	Dummy variable set equal to one if the firm pays a regular dividend, and zero otherwise.
CF Volatility	Time-series standard deviation of three-digit industry cash flows calculated over the previous 4 years.
Sensitive Industry	Dummy variable set to one if the firm belongs to a politically sensitive industry, and zero otherwise. Our classification of sensitive industries is based on the findings and references of Herron et al. (1999) and includes tobacco products, pharmaceuticals, health care services, defense, petroleum and natural gas, telecommunications, and transportation.
Election / Country Variables	
Election Year	Dummy variable takes a value of one if the date of the election lies between 60 days prior to the end of fiscal year t and 274 days after the end of fiscal year t, and zero otherwise.
Legal Origin	Origin of a country's legal system taken from La Porta et al. (1998).
Election type	Type of national elections that determine the head of government directly or indirectly: Presidential, Legislative, or Prime Ministerial.
Checks	The number of veto players in a political system taken from the World Bank Database of Political Institutions.
Close	Dummy variable set to one if the vote difference is less than the first quartile value of the sample distribution, and zero otherwise. Vote difference is defined as the difference between the proportion of the votes garnered by the winner and that received by the runner-up.

(continued)

Appendix—*Continued*

Regular Election	An election is classified as regular if it is held within 6 months before or after the anticipated election date, which is calculated by adding the nominal term of the chief executive to the previous election date. Otherwise, an election is classified as irregular. An election is also classified as irregular if it is held for the first time.
Exogenous Election	An election is classified as exogenous if its timing is fixed by constitution or electoral law. To be specific, all countries with a record of early elections are classified as having endogenous timing. All presidential elections, with the exception of Sri Lanka's, are held on a regular basis and are classified as having exogenous timing. This leaves unclassified seven countries with parliamentary systems and one country with a hybrid system. In order to classify these remaining countries, we refer to electoral laws and practices as well as the classification provided by Alesina et al. (1992). Accordingly, three of the remaining countries, Czech Republic, Finland, and New Zealand, are classified as having endogenous timing and the rest are classified as having exogenous timing.
Market-Friendly	Dummy variable set to one if the incumbent government in the year leading up to an election is right-leaning or centrist, and zero if left-leaning. The World Bank refers to various sources including Political Handbook yearbooks to identify party orientation with respect to economic policy. The World Bank classifies a government as right-leaning if the political party is defined as conservative, Christian democratic, or right-wing by the sources. Left-leaning parties are those that are defined as communist, socialist, social democratic, or left-wing. Centrist parties are those that advocate strengthening private enterprise in a social–liberal context. See Keefer (2007) for more details on the classification of political platforms.
ICRG Govt. Stability	The government stability index assigns numbers between 1 and 12, where higher values indicate more stable governments. The index is updated on a monthly basis and assesses the government's ability to carry out its declared programs and to stay in office. The data come from International Country Risk Guide (ICRG), produced by Political Risk Services.
Government/GDP	Central government expenses as a percentage of GDP, taken from World Development Indicators provided by the World Bank.
Post Election Dummy	Dummy set to one for any firm-year in which an election is held no later than 60 days after the beginning of fiscal year t and no earlier than 274 days before the beginning of fiscal year t.
CBI Index	An index that measures the extent to which the central bank is independent from the political power. This annual time-varying index is taken from Cukierman et al. (1992) for the period between 1980 and 1989, and from Polillo and Guillen (2005) for the period between 1990 and 2000.
M1 Growth	Percentage change in the M1 money supply, obtained from ICRG.
Real Interest Rate	Obtained from World Development Indicators provided by World Bank.
Inflation	Inflation rate based on the CPI obtained from the World Bank.
GDP	Real GDP obtained from the World Bank.

REFERENCES

Alesina, Alberto, 1987, Macroeconomic policy in a two-party system as a repeated game, *Quarterly Journal of Economics* 102, 651–678.

Alesina, Alberto, Gerald D. Cohen, and Nouriel Roubini, 1992, Macroeconomic policy and elections in OECD democracies, *Economics and Politics* 5, 1–30.

Alesina, Alberto, Gerald D. Cohen, and Nouriel Roubini, 1999, *Political Cycles and the Macroeconomy* (MIT Press, Cambridge, Massachusetts).

Alesina, Alberto, and Roberto Perotti, 1996, Income distribution, political instability, and investment, *European Economic Review* 40, 1203–1228.

Barro, Robert J.,1991, Economic growth in a cross section of countries, *Quarterly Journal of Economics* 106, 407–443.

Beck, Thorsten, George Clarke, Alberto Groff, and Philip Keefer, 2004, New tools and new tests in comparative political economy: The Database of Political Institutions, World Bank Policy Research Paper No. 2283.

Bernanke, Ben S.,1983, Irreversibility, uncertainty, and cyclical investment, *Quarterly Journal of Economics* 98, 85–106.

Bernhard, William, and David Leblang, 2006, *Democratic Processes and Financial Markets: Pricing Politics* (Cambridge University Press, Cambridge United Kingdom.

Bertrand, Marianne, Francis Kramarz, Antoinette Schoar and David Thesmar, 2006, Politicians, firms and the political business cycle: Evidence from France, Working Paper, University of Chicago.

Bialkowski, Jedrzej, Katrin Gottschalk, and Tomasz Piotr Wisniewski, 2008, Stock market volatility around national elections, *Journal of Banking and Finance* 32, 1941–1953.

Bloom, Nicholas, Stephen Bond, and John Van Reenen, 2007, Uncertainty and investment dynamics, *Review of Economic Studies* 74, 391–415.

Bloom, Nicholas, Max Floetotto, and Nir Jaimovich, 2009, Really uncertain business cycles, Working paper, Stanford University.

Boutchkova, Maria, Hitesh Doshi, Art Durnev, and Alexander Molchanov, 2011, Precarious politics and return volatility, *Review of Financial Studies*, forthcoming.

Chen, Yu-Fu, and Michael Funke, 2003, Option value, policy uncertainty, and the foreign direct investment decision, Hamburg Institute of International Economics discussion paper.

Colak, Gonul, and Toni M. Whited, 2007, Spin-offs, divestitures, and conglomerate investment, *Review of Financial Studies* 20, 557–595.

Cole, Shawn, 2009, Fixing market failures or fixing elections? Elections, banks, and agricultural lending in India, *American Economic Journal: Applied Economics* 1, 219–250.

Cukierman, Alex, Steven B. Webb, and Bilin Neypati, 1992, Measuring the independence of central banks and its effect on policy outcomes, *The World Bank Economic Review* 6, 353–398.

Dinc, Serdar, 2005, Politicians and banks: Political influences on government-owned banks in emerging countries, *Journal of Financial Economics* 77, 453–479.

Drazen, Allan, 2000, The political business cycle after 25 years, *NBER Macroeconomics Annual* 15, 75–117.

Eberly, Janice, Sergio Rebelo, and Nicolas Vincent, 2009, Investment and value: A neoclassical benchmark, NBER working paper #13866.

Erickson, Timothy, and Toni M. Whited, 2005, Proxy-quality thresholds: Theory and applications, *Financial Research Letters* 2, 131–151.

Faccio, Mara, 2006, Politically connected firms, *American Economic Review* 96, 369–386.

Faccio, Mara, Ronald Masulis, and John McConnell, 2006, Political connections and corporate bailouts, *Journal of Finance* 61, 2597–2635.

Fair, Ray C. 1996, Econometrics and presidential elections, *Journal of Economic Perspectives* 10, 89–102.

Hennessy, Christopher, Amnon Levy, and Toni M. Whited, 2007, Testing Q theory with financing frictions, *Journal of Financial Economics* 83, 691–717.

Herron, Michael C., James Lavin, Donald Cram, and Jay Silver, 1999, Measurement of political effects in the United States economy: A study of the 1992 presidential election, *Economics and Politics* 11, 51–81.

Ingersoll, Jonathan E., and Stephen A. Ross, 1992, Waiting to invest: Investment and uncertainty, *Journal of Business* 65, 1–29.

Ito, Takatoshi, 1990, The timing of elections and political business cycles in Japan, *Journal of Asian Economics* 1, 135–156.

Keefer, Philip, 2007, Database of political institutions: Changes and variable definitions, Development Research Group, The World Bank.

La Porta, Rafael, Florencio Lopez-de Silanes, and Andrei Shleifer, 1999, Corporate ownership around the world, *Journal of Finance* 54, 471–517.

La Porta, Rafael, Florencio Lopez-de Silanes, Andrei Shleifer, and Robert W. Vishny, 1997, Legal determinants of external finance, *Journal of Finance* 52, 1131–1150.

La Porta, Rafael, Florencio Lopez-de Silanes, Andrei Shleifer, and Robert W. Vishny, 1998, Law and finance, *Journal of Political Economy* 106, 1113–1155.

Mauro, Paolo, 1995, Corruption and growth, *Quarterly Journal of Economics* 110, 681–712.

McDonald, Robert, and Daniel Siegel, 1986, The value of waiting to invest, *Quarterly Journal of Economics* 101, 707–728.

Mei, Jianping, and Limin Guo, 2004, Political uncertainty, financial crisis and market volatility, *European Financial Management* 10, 639–657.

Nordhaus, W. 1975, The political business cycle, *Review of Economic Studies* 42, 169–190.

Opler, Tim, Lee Pinkowitz, René Stulz, and Rohan Williamson, 1999, The determinants and implications of corporate cash holdings, *Journal of Financial Economics* 52, 3–46.

Ozbas, Oguzhan, and David S. Scharfstein, 2010, Evidence on the dark side of internal capital markets, *Review of Financial Studies* 23, 581–599.

Petersen, Mitchell A., 2009, Estimating standard errors in finance panel data sets: Comparing approaches, *Review of Financial Studies* 22, 435–480.

Pindyck, Robert, and Andres Solimano, 1993, Economic instability and aggregate investment, *NBER Macroeconomics Annual* 8, 259–303.

Polillo, Simone, and Mauro F. Guillen, 2005, Globalization pressures and the state: The worldwide spread of central bank independence, *American Journal of Sociology* 110, 1764–1802.

Rodrik, Dani, 1991, Policy uncertainty and private investment in developing countries, *Journal of Development Economics* 36, 229–242.

Stepan, Alfred, and Cindy Skach, 1993, Constitutional frameworks and democratic consolidation: Parliamentarianism versus presidentialism, *World Politics* 46, 1–22.