POLITICAL UNCERTAINTY AND IPO ACTIVITY: EVIDENCE FROM U.S. GUBERNATORIAL ELECTIONS*

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Abstract

We analyze IPO activity under the political uncertainty surrounding gubernatorial elections in the U.S. We document fewer IPOs originating from a state when it is scheduled to have an election, especially when the election outcome is highly uncertain. To establish identification, we develop a novel neighboring-states method that uses bordering states without elections as a control group. Cross-sectional tests demonstrate that the dampening effect of elections on IPO activity is stronger for firms with operations in a home state, firms that are more dependent on government contracts, and harder-to-value firms. We also find the dampening effect is related to lower IPO offer prices (hence higher costs of capital) during election years, which supports the theoretical arguments of Pástor and Veronesi (2012, 2013) that political uncertainty reduces asset prices and commands a risk premium.

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Key words: political uncertainty; initial public offerings; gubernatorial elections; IPO pricing

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1. Introduction

In recent times, the world has experienced many instances of elevated political uncertainty. Related to this, there has been an increased interest in the effects of political uncertainty on economic activities. In particular, it is important to understand how firms would react when facing such uncertainty. Several recent studies have shown that political uncertainty has a real impact on firms' decisions. For example, using an international sample, Julio and Yook (2012) show that uncertainty triggered by national elections decreases corporate investments at the firm level. Such evidence is consistent with the theoretical argument that due to the irreversibility of investments firms tend to exercise their real option to delay investment when facing higher uncertainty (see, e.g., Bernanke, 1983; Rodrick, 1991; Leahy and Whited, 1996; Bloom et al., 2007; Bloom, 2009).[1]

Prior studies of political uncertainty have focused primarily on its impact on investment activities. In addition, most of them have used international data and documented that results are stronger for (or due to) developing countries. There is little evidence about whether political uncertainty within a developed country, such as the U.S., also matters.

In this paper, we examine the impact of political uncertainty on another important corporate decision – the initial public offering (IPO) – through a sample of U.S. gubernatorial elections. Similar to corporate investments, IPO is also a (partially) irreversible action. Hence, similar arguments apply that the value of the real option to delay the IPO decision increases when facing higher uncertainty. Moreover, Pástor and Veronesi (2012, 2013) argue that political uncertainty dampens asset prices and commands a risk premium. If that is the case, firms' costs of capital will increase when political uncertainty increases, which also discourages firms from conducting IPOs.

To the best of our knowledge, this paper is the first to examine the relation between political uncertainty and firms' financing decisions. We conduct the investigation through a sample of gubernatorial state-level elections. Studying political uncertainty at the time of gubernatorial elections offers several advantages. First, a state government has substantial power in shaping

[1] Other papers examine the impact of political uncertainty on stock prices and risk. Boutchkova et al. (2012) examine how local and global political risks affect industry return volatility. Fisman (2001), Santa-Clara and Valkanov (2003), Leblang and Mukherjee (2005), Bernhard and Leblang (2006), Knight (2006), Snowberg et al. (2007), Claessens et al. (2008), Wolfers and Zitzewitz (2009), Belo et al. (2012) and Kim et al. (2012) relate political outcomes to stock market performance. Gao and Qi (2013) find that municipal bonds yields increase during governor election periods.

the economic environment that firms operate in. State policy changes can directly (e.g., through tax code or subsidy policies) or indirectly (through customer demand or sentiment) affect firms' future profitability (Chhaochharia et al., 2012). Political uncertainty arises from gubernatorial elections because state policies (over taxes, subsidies, state budget, state procurement etc.) depend on the governor's preferences and actions (Peltzman, 1987 and Besley and Case, 1995). For the IPO decision of a young and small private firm, state-level political uncertainty can be of significant importance. Second, gubernatorial elections are pre-scheduled and therefore can be viewed as largely exogenous events where political uncertainty arises. Using such a setting mitigates the potential endogeneity problem between political uncertainty and financial decisions. Moreover, in the U.S., gubernatorial elections in different states occur in different years. This enables us to use a neighboring-state method (i.e., to compare IPO activities in neighboring states with similar economic conditions but with different election timing) to further isolate the effects of political uncertainty from economic conditions. Lastly, using gubernatorial elections also provides us with a large sample to work with. During our sample period of 1988-2011, there are 317 gubernatorial elections. In contrast, there are only six presidential elections, which is not an adequate sample to yield meaningful statistical inferences.

We document strong and robust evidence that political uncertainty due to gubernatorial elections dampens IPO activities. Over the election cycle, the average number of IPOs per state is approximately 25 during the election year, which is significantly lower compared to 29 IPOs in the year before, 31 IPOs in the year after and 36 IPOs in the second year after the election.[2] These elections seem to induce their own IPO cycles: the average IPO in a state decreases in the two years leading to the election and increases in the two years afterwards. The negative effect of elections holds after controlling for state and nationwide economic conditions, and whether or not the year experiences a hot IPO market. The post-election jump in the IPO activity is robust to these controls as well. The jump in IPOs two years after the governor election also indicates that our results are not driven by state legislature elections which, for most states, occur every two years.

[2] If we consider the ten states with most IPO activities (CA, TX, NY, MA, FL, IL, NJ, PA, GA, MN), the difference is even bigger. There are 78 of IPOs per state during the election year, compared to 90 in the year before, 108 in the year after and 120 in the second year after the election.

To address the possibility that there are omitted regional variables from our regressions that can create an endogeneity problem, we use a novel "neighboring states" difference-in-difference method. Specifically, we calculate the difference in the number of IPOs in a state with an election and its neighboring states without elections. To the extent that neighboring states are subject to similar economic conditions, the difference in the number of IPOs should be driven by the difference in political uncertainty due to the election. The results from this estimation procedure strengthen the claim that gubernatorial elections tend to dampen IPO activities.

Cross-sectional tests further demonstrate that the greater the political uncertainty, the larger the drop in IPO activity. Across elections, the decrease in the number of IPOs is larger when the election outcome is more uncertain. Across firms, we find the dampening effect of elections on IPO activity is stronger for firms with operations in a home state, therefore for firms that are more dependent on the home state policies. The dampening effect is also stronger for firms in industries that rely more on government contracts. Furthermore, we also find hard-to-value firms are even less likely to conduct IPOs during election years than other firms. These cross-sectional results provide further evidence for the negative relationship between political uncertainty and IPO activity.

We then explore a possible channel through which election-related uncertainty can affect private firms' decisions to delay their IPOs: the increased cost of capital. Ceteris paribus, a lower IPO offer price means higher cost of capital. We follow Purnanandam and Swaminathan (2004) to measure the level of offer price relative to the fair value (price-to-value ratio), where the fair value is based on industry peers' price multiples and the IPO firm's sales, EBITDA (earnings before interest, tax, depreciation and amortization) and earnings. Consistent with the increased cost of capital explanation, we find that IPO firms' price-to-value ratios are lower during election years than off-election years. Moreover, the result is stronger for geographically-concentrated firms, firms dependent on government contracts, and hard-to-value firms.

Our study contributes to the burgeoning literature on the economic impact of political uncertainty in several ways. First, we document that, other than investments, another important corporate decision, the IPO decision, is adversely affected by political uncertainty. Therefore, when facing increased political uncertainty, firms tend to delay their financing activities. Second, we provide direct evidence that political uncertainty increases firms' cost of capital, which lends support to the theoretical arguments of Pástor and Veronesi (2012, 2013) that political

uncertainty reduces asset prices and commands a risk premium. Third, complementing past studies that use international data, we show that political uncertainty within the U.S. has a significant real impact on firms' corporate decisions. Fourth, uncertainty also plays a role in driving business cycles (Bloom et al., 2013). Our results point to a specific channel for business cycle propagation. To the extent that economic expansions and contractions depend on the creation of new business units and their growth, a reduction in IPO activity during electoral uncertainty is a possible channel through which uncertainty may affect economic growth.

This paper also adds to the discussion on IPO cycles or time-varying IPO volumes. It is well documented that IPO volumes vary with the economy or market conditions (Lowry, 2003; Pástor and Veronesi, 2005; Ivanov and Lewis, 2008; Gao et al., 2013). Several papers argue that information spillover causes IPO clustering (Benveniste et al., 2003; Alti, 2005; Colak and Gunay, 2011). Our study shows that election-related political uncertainty also causes significant variations in local IPO volumes.

The rest of the paper is organized as follows. Section 2 describes the sample. Section 3 examines how election-related political uncertainty affects IPO activities. Section 4 explores the increased cost of capital explanation. Section 5 concludes.

2. Sample and Data

Our sample selection starts with all the initial public offerings (IPOs) between 1988 and 2011 from the U.S. Common Stock Data File of Securities Data Company (SDC).[3] We then eliminate ADRs, closed-end funds, unit offers, and any other non-common stock type of shares. We retrieve from Compustat the location (state) of the firm's headquarter. An IPO with state information missing is eliminated from the sample. In addition, an IPO that originated from territories that are not part of the 50 states of the U.S. are also dropped from the sample. The above screening criteria leave us a sample of 5,727 IPOs during 1988-2011.

We obtain IPO background and issuance information from SDC, including the issue date, the offer price, the total proceeds it raised, the price revision of the IPO, the firm's founding year, whether the firm is backed by venture capital, and whether or not the firm is from a high-tech industry. Accounting data are from Compustat and public trading prices are from CRSP. The

[3] Our sample period starts from 1988 because most of the state-level data from the Bureau of Economic Analysis starts from that year. In addition, the numbers of IPOs for most states are very low prior to 1988.

time-series of macro-economic variables such as long-term interest rate and total capacity utilization are from the Federal Reserve Economic Data (FRED) database (Federal Reserve Bank of St. Louis). State-level data, such as Gross Domestic Product (GDP) per capita, GDP growth rate, and population are extracted from the Regional Economic Accounts Database provided by Bureau of Economic Analysis (BEA).

In addition, we collect gubernatorial election data from the Stateline database and CQ Electronic Library. The data include the election date, the winning candidate/party, whether the incumbent governor participates in the election, whether the incumbent is subject to term limit and the vote margin of the election. A gubernatorial election takes place on the first Tuesday in November (see the Appendix for further explanation about the election date), although elections in different states occur in different years. We define the year before an election as an election year (or year 0 relative to the election), i.e., the year before the political uncertainty related to the election is resolved. For example, a gubernatorial election was held on November 8th, 1994 in Illinois; if an IPO from Illinois was issued on November 20th, 1994, it is considered to be an IPO in year 1 relative to this election, i.e., in an off-election year.[4] In the Appendix, we provide detailed definitions for variables we use in the analysis.

Table I presents descriptive statistics of our IPO sample, by whether or not the IPO is issued in an election year. Specifically, we present the means and medians of IPO characteristic variables for the entire sample, and separately for the IPOs in election years and those in off-election years, respectively.

The firms in the two subsamples appear to be similar in size and age. On the other hand, a much lower proportion of IPOs issued in the election years are high-tech firms (41% vs. 51% for off-election-year IPOs) or firms engaged in R&D activities (31% vs. 37%). (See the appendix for the definition of high-tech firms.) High-tech firms and firms with R&D expenditures tend to have more opaque operations and their equity securities are harder to value. Table I indicates that these firms tend to avoid going IPO during election years. The IPOs issued in elections years are also less likely to be backed by venture capital (34% of election-year IPOs vs. 42% of off-election IPOs are backed by VC). One possibility is that firms without VC backing are in greater

[4] There is a slight mismatch between election event years (from November to November) and calendar years (from December to December) during which state- and country-level variables are measured. Our results remain unchanged if we define election event years based on calendar years.

need for capital and cannot wait till the political uncertainty related to the election is resolved. Another possibility is that venture capitalists, a group of sophisticated investors, advise against their holding companies conducting IPOs during election years.

The two groups of IPOs use underwriters with similar reputation and on average raise similar amounts of proceeds. Nonetheless, the election-year IPOs on average sell larger proportions of their equity, indicating that these IPOs may receive lower prices for their securities. The IPO price revision, defined as the offer price relative to the mid-price of the initial filing range minus one, differ significantly between the two groups. In particular, the offer prices of election-year IPOs tend to get revised downward relative to the initial price range (i.e., with a negative mean price revision), whereas the offer prices of off-election IPOs tend to revise upward. Price revisions are made after the underwriters observe demand from IPO investors. An average negative price revision for election-year IPOs suggests that these IPOs are met with lackluster demand from institutional investors. Further, the first-day return, i.e., the first trading day closing price relative to the offer price minus one, is on average significantly lower for election-year IPOs (11% vs. 23% for off-election-year IPOs), consistent with the notion that investor sentiment is lower for these IPOs.[5] Finally, we also observe that the three-year buy-and-hold abnormal return subsequent to the IPO is on average much higher for election-year IPOs (2% vs. -23% for off-election-year IPOs), again consistent with the notion that these firms receive lower investor sentiment and are not as overpriced as their off-election peers at the time of the IPO.

In Table II, we present the number of IPOs during election years and off-election years by state, as well as the state population by the end of 2011 and the GDP per capita for 2011. For most of the states, there are more IPOs during off-election years than during election years. This statement holds if we divide the off-election numbers by three so that the comparison is on fair footing (roughly there are three off-elections years for each election year). Thus, these simple statistics overall support the hypothesis that elections tend to dampen IPO activities. Further, the statistics are supportive of the hypothesis for states with the heaviest IPO activities. The ten most active states are (in order of IPO volume): CA, TX, NY, MA, FL, IL, NJ, PA, GA, and MN. The

[5] Lower first-day returns associated with election-year IPOs can be due to lower first-day prices or higher offer prices, or both. Our subsequent analysis shows that it is not due to higher offer prices, but likely driven by lower first-day prices.

number of IPOs in each of these ten states during election years is fewer than that during off-election years divided by three (the number of off-election years in a given election cycle).

3. Gubernatorial Elections and IPO Activity

3.1 IPO Activity over Election Cycle

We first graphically display how the number of IPOs changes around the time of a gubernatorial election. We calculate the average number of IPOs issued in each of the event years over the four-year gubernatorial election cycle that is typical for most states. We exclude three special elections and states with two-year election cycles[6]. This leaves us with 282 elections conducted in 47 states during the sample period. We split the years around an election into four event years, years –1, 0, 1 and 2, where year 0 is what we call the election year, i.e., the year before the actual election date. For each state, we sum up the number of IPOs for each event year T (T = –1, 0, 1 and 2) across different elections during our sample period. We then average the total number of IPOs for each event year T across different states.

Figure 1A depicts the average numbers of IPOs (averaged across states) in the four event years around the elections. Figure 1B illustrates the percentage change in the average number of IPOs in each event year. The figures indicate that the IPO volume depends on the election cycle and the associated level of political uncertainty. IPO activity declines in the two years before the election when the political uncertainty about the future governor and therefore future policies increases, and IPO activity rises in the two years after the election when the political uncertainty is resolved. The IPO volume is the lowest during the election year (T = 0) when the political uncertainty is likely to be the highest. The average number of IPOs in year 0 is 25, which is 16% less than the number of IPOs for T = –1, which in turn is already 19% less than the number in the year before (T = 2). On the other hand, the year after the election (T = 1) experiences a substantial jump in the IPO activity – about 24% more IPOs are issued during that year compared to the election year. The number continues to increase in the second year after the election, which sees the highest volume over the election cycle. The average number of IPOs in year T = 2 is 36, which is about a 45% increase from the number in the election year. This is the

[6] The three special elections are: CA in 2003, UT in 2010, and WV in 2011. Vermont and New Hampshire hold elections every two years. Rhode Island switched to 4-year election cycle after 1994. These elections are added back in the regression analyses below.

year when election-related uncertainty is at its minimum. The new policies by the elected governor are fully understood and some of them may have already been implemented. Furthermore, the next election is years away. Hence, year T = 2 is the safest year to undertake a risky and irreversible action such as IPO. If we calculate the average numbers of IPOs for each event year across elections (instead of summing up the number for each state first), we see similar patterns. The numbers are 4.7, 4.3, 5.2, and 5.9 for event year T= –1, 0, 1 and 2, respectively.

The pattern shown in Figure 1 indicates that election-driven political uncertainty leads to fewer IPOs. Next, we examine whether the influence of election on IPO activity holds after controlling for other economic factors.

3.2 Multivariate Analysis

In this section, we examine the impact of election on IPO activities by estimating the following regression,

$$NIPO_{s,t} = \beta_0 + \beta_1 Election\ \ Year_{s,t} + \boldsymbol{\beta_2} \mathbf{X}_{s,\mathbf{t}} + \boldsymbol{\beta_3} Z_{\mathbf{t}} + \sum_{S} \gamma_s StateDummy_s + \varepsilon_{s,t}, \qquad (1)$$

where $NIPO_{s,t}$ is the number of IPOs in state *s* and year *t*, the main variable of interest *Election* $Year_{s,t}$ equals to 1 if year *t* is the election year for state *s* (the year before the actual election date) and 0 otherwise, $X_{s,t}$ is a set of state-level control variables, Z_t is a set of economy-level control variables. The state-level control variables include one-year lagged state GDP growth rate (to control for state economic conditions) and a previous-year number of IPOs.[7] The economy-level control variables include one-year lagged market (S&P500) index return, which measures the stock market condition, one-year lagged long-term interest rate of Treasury bonds, which measures the debt market condition, and one-year lagged total capacity utilization rate compiled by the Federal Reserve Bank, which measures the extent to which the economy uses its installed productive capacity and therefore is a measure of the business cycle condition (see the appendix for more detailed definition of the variable). The control variables are lagged by one year to reduce potential endogeneity issues between IPO activities and other economic variables. We also include a hot-IPO market dummy variable based on Yung et al.'s (2008) method. Because

[7] The results below survive a long list of alternative control variables to account for economy-wide policy uncertainty and for state economic conditions, e.g., the time-series of the policy uncertainty index from Baker et al. (2012), the level of state GDP per capita, state population, and state income per capita.

the nationwide IPO volume changes rapidly, we use the contemporaneous value for this variable. Using a lagged hot IPO market dummy does not change our results.[8]

We also include state fixed-effects to control for the differences in IPO volumes across states. A regression with state fixed effects is equivalent to subtracting state average values from every variable, including the number of IPOs.[9] Moreover, the state fixed effects account for the remaining unobserved heterogeneity in state economic and political conditions. Year fixed effects are not used because nation-wide variables do not vary across firms during the same year.[10] In estimating Eq. [1], we use both the OLS and Tobit methods. Tobit regressions are used because the number of IPOs is zero for many state-year observations (i.e., the lower limit is 0). In every regression, we use a two-dimensional clustering of regression standard errors (by states and years) to account for arbitrary heteroskedasticity, error correlation through time and within states. We note that there is no noticeable change in reported regression *p*-values if clustering is performed by governor or election cycle.

Table III presents the regression results, with OLS results in Columns 1 – 3 and Tobit results in Columns 4 – 6. Under each method, we estimate three regressions with different sets of control variables.

The results show that regardless the regression specification, the coefficient on our variable of interest, *Election Year* dummy, is always significantly negative with *p*-values ranging from 0.00 to 0.02 for OLS regressions and from 0.00 to 0.03 for Tobit regressions. This suggests that after controlling for nation-wide and state-level economic factors, gubernatorial elections tend to dampen IPO activities. The results are also significant economically. Based on the OLS specification 3, after controlling for other factors, the number of IPOs during an election year is reduced by 0.72 (the coefficient on *Election Year*) which is a significant drop (15%) relative to the sample average (4.86) number of IPOs. Similarly, for Tobit regressions, the reduction in the

[8] As a robustness check, we also include a dummy that equals one if there is a presidential election in the year. The coefficient on this dummy variable turns insignificant, and it does not change our main result regarding the gubernatorial election-year dummy (*Election Year*). Even if we include only the presidential-election-year dummy without governor election dummy, the coefficient on the presidential election dummy remains insignificant. Therefore, our results are not driven by presidential elections. One possible reason we do not observe a significant impact of presidential elections is because of the small number of these elections in our sample (only six).

[9] The results do not change if, instead of controlling for the previous year IPO, we scale the dependent variable (number of IPOs) by the number of publicly listed companies form that state.

[10] The results remain robust if we exclude nation-wide variables and replace them with year fixed effects.

number of IPOs is 18% (= –0.86 / 4.86, where –0.86 is the regression coefficient in specification 6).

For control variables, we find positive and significant coefficients on the S&P500 index return, hot-IPO market dummy and the lagged number of IPOs in the state, suggesting that state IPO volume tends to increase after better stock market performance when the nationwide IPO market is hot and the state was previously active in the IPO market.[11]

For robustness checks, we remove observations during the bubble period (i.e., during the 1999-2000 period) and the results remain similar to those reported. We also remove each of the 10 states with the heaviest IPO activity (one at a time) from the sample and observe very similar results. Thus, our results are not driven by one dominant state. Overall, the multivariate analysis suggests that the dampening effect of elections on IPO activities holds after controlling for factors known to influence the IPO volume.

3.3 Neighboring States Method

By using gubernatorial elections as the setting of studying the impact of political uncertainty, we have largely mitigated the potential endogeneity between political uncertainty and economic activities such as IPO decisions, because these elections are pre-scheduled and therefore can be viewed as exogenous events. Nonetheless, there can be further concerns that our state and nation-wide control variables do not adequately capture variations in economic conditions that can influence both firms' IPO decisions and the level of political uncertainty. For example, negative sentiment in a state can deteriorate IPO prospects and can increase political uncertainty.[12] To address this concern, we create and employ a novel "neighboring states" difference-in-difference method.

Specifically, for every state-year where there is an election, we identify its bordering states without elections and compare their numbers of IPOs. Assuming that firms in neighboring states are subject to similar unobserved economic shocks, taking differences in the dependent variables

[11] Growth in GDP per capita switches signs from positive and significant in specifications 1 and 4 to negative and significant in specifications 3 and 6 because in the latter specifications, we control for the lagged number of IPOs, which is highly positively correlated with the growth rate.

[12] See Chhaochharia et al., (2012) for an example of how various non-economic factors can affect a state business cycle. They show that optimism driven by weather, sports results, and political outcomes explain a substantial portion of state business cycles.

should cancel out the unobserved shocks. The remaining difference in the number of IPOs should be caused by the election.

To illustrate the nature of the possible bias and how the method resolves it, consider an example for the state of Indiana. Indiana has four neighboring states, i.e., shares border with four other states: Michigan, Ohio, Kentucky, and Illinois. The four neighboring states' gubernatorial election years do not coincide with Indiana's election years (elections in Indiana are held during the same years as the presidential elections, while elections in the other four states happen in other years of the four-year cycle). We assume that the number of IPOs in Indiana in year *t*, $NIPO_{IN,t}$, is a function of its gubernatorial election ($Election\ Year_{IN,t}$), observed state variables $X_{IN,t}$, observed country-level variables Z_t, and in addition, unobserved state variables $S_{IN,t}$ and unobserved time variables μ_t, as in the equation below,

$$NIPO_{IN,t} = \beta_0 + \beta_1 Election\ \ Year_{IN,t} + \boldsymbol{\beta_2} \mathbf{X}_{IN,\mathbf{t}} + \boldsymbol{\beta_3} Z_{\mathbf{t}} + \beta_4 S_{IN,t} + \beta_5 \mu_t + \varepsilon_{IN,t.} \quad (2)$$

If the election uncertainty depends on the unobserved state variables S_{IN} and time variables μ_t, then dropping S_{IN} and μ_t from the regression will lead to a non-zero covariance between the election uncertainty (measured by *Election Year*) and the observed error term (i.e., $\beta_4 S_{IN,t} + \beta_5 \mu_t + \varepsilon_{IN,t}$), hence there will be a bias in the estimation.

Next, consider its neighboring state without an election, Ohio, during the same year *t*. For Ohio, the equation is,

$$NIPO_{OH,t} = \beta_0 + \beta_1 Election\ \ Year_{OH,t} + \boldsymbol{\beta_2} \mathbf{X}_{OH,\mathbf{t}} + \boldsymbol{\beta_3} Z_{\mathbf{t}} + \beta_4 S_{OH,t} + \beta_5 \mu_t + \varepsilon_{OH,t.} \quad (3)$$

Since $Election\ Year_{OH,t} = 0$, taking the difference of (3) and (4) results in

$$(NIPO_{IN,t} - NIPO_{OH,t}) = \beta_1 Election\ \ Year_{IN,t} + \beta_2 (X_{IN,t} - X_{OH,t}) + \beta_4 (S_{IN,t} - S_{OH,t}) + (\varepsilon_{IN,t} - \varepsilon_{OH,t}) \quad (4)$$

We assume that the number of IPOs in the neighboring states are subject to similar unobserved state shocks at the same time, that is $S_{IN,t} - S_{OH,t} = 0$ resulting in $\beta_4(S_{IN,t} - S_{OH,t}) = 0$. The state-invariant time factors, $\beta_5(\mu_t - \mu_t)$ cancel out as well. Thus, the impact of state election can be estimated using the following specification expressed in differences,

$$\Delta NIPO_{IN,OH,t} = \beta_1 Election\ \ Year_{IN,t} + \beta_2 \Delta X_{IN,OH,t} + \Delta \varepsilon_{IN,OH,t}. \quad (5)$$

Thus, the coefficient of interest β_1 indicates the incremental impact of a gubernatorial election on the difference between Indiana's $NIPO_{IN}$ and Ohio's $NIPO_{OH}$. In this treatment, only those state-year observations with an election are included in the estimation sample. Thus, in effect *Election*

Year becomes the constant (i.e., *Election Year* is 1 for all observations). Since Indiana has four neighboring states without elections, for each of its elections, there will be four observations included in the estimation sample in estimating Eq. [5].

More generally, we estimate the following equation:

$$\Delta NIPO_{i,j,t} = \beta_1 Election \quad Year_{i,t} + \beta_2 \Delta X_{i,j,t} + \Delta \varepsilon_{i,j,t}, \tag{6}$$

where $\Delta NIPO_{i,j,t}$ is the difference in the number of IPOs between states *i* and *j* in year *t,* state *i* is the state with an election and state *j* is a neighboring state without an election. $Election\ Year_{i,t}$ is a dummy equal to 1 if year *t* is an election year for state *i*. Since we only include state-years where the state has an election, the variable is a constant of 1 in this estimation. Vector *X* is a set of observable state-level variables, including the lagged growth of state GDP per capita and the lagged number of IPOs for the state. Variable $\Delta X_{i,j,t}$ is the difference in these variables between states *i* and *j.*

Table IV lists, as an example, gubernatorial elections in the US between 2005 and 2008, as well as for each state with an election their neighboring states that are with and without elections in the same year. Out of the 50 states, 48 states have at least one neighboring state. Two states, Alaska and Hawaii, share no borders with other states and therefore are dropped from the sample. On average, a state has 4.3 neighboring states, with Tennessee and Missouri having the largest number of neighboring states, eight each. Thirty-nine states with elections share borders with at least one state without elections. The average number of neighboring states without elections is 2.6. For the sample years, there are in total 569 pairs of states with an election and its neighboring state without an election. This becomes the number of observations for the regression in Eq. [6]

Table V reports the results of OLS regression in Eq. [6] by using the neighboring-states method, where the dependent variable is the difference in the number of IPOs of a state with its neighboring state. (We do not run Tobit regressions because the dependent variable in this case, the change in the number of IPOs, is not limited.) Our main results become stronger (β_1 are larger and *p*-values are lower) than previously reported in Table III. To illustrate the economic significance, consider Specification 3 in the table. The coefficient on the election dummy is −1.46. Therefore, there are 1.46 fewer IPOs (a 46% drop relative to the sample mean of the difference in IPOs, which is 3.18) in a state that holds a gubernatorial election compared to a

neighboring state without an election. Hence, it is unlikely that unobserved common factors are driving the results in the previous sections.

To assess the validity of the neighboring-states estimation method, we run two types of placebo (falsification) tests. In the first test, we keep the election dates unchanged but falsify neighboring states by randomly matching every state with four (sample average) other states in the sample. In the second test, we keep the map of the U.S. unchanged but falsify election dates by randomly assigning the election year within a four-year cycle. We then estimate regressions similar to Eq. [5]. As expected, we do not obtain significant results for β_1 using these tests.

3.4 IPO Activity Jumping Back during Post-Election Years

As illustrated in Figure 1, IPO volume decreases in the two years prior to an election and jumps back in the two years afterwards. This is consistent with our conjecture that firms delay IPO decisions facing political uncertainty due to elections, hence we observe a substantial increase of IPOs once the uncertainty is resolved. In this section, we formally test whether the increase in IPO volume during the post-IPO years still holds after controlling for other state- and nation-level economic factors.

Specifically, we estimate regressions similar to Eq. [1], but replace the election-year dummy with a dummy variable for year T = 1; or with three dummy variables for each of the off-election years, i.e., T = 1, 2 and –1. We use the full set of control variables as in columns 3 and 6 in Table III.

Table VI reports the OLS and Tobit regression results. In columns 1 and 2, the main variable of interest is the dummy for year T = 1. In both the OLS and Tobit estimations, the coefficient on the dummy is significantly positive, indicating that relative to the other three years of an election cycle, the post-election year experiences a significant increase in statewide IPO volume. In columns 3 and 4, we include three dummy variables for each of the off-election years, T = 1, 2 and –1. We again find that the coefficient on the T = 1 dummy is significantly positive. In terms of the economic significance, the number of IPOs one year after election increases by 0.92 (19% of the sample mean) based on the OLS regression and 1.54 (32% of the sample mean) based on the Tobit regression. The coefficient on the T = 2 dummy is also positive in both types of regression methods and significant for OLS, which is consistent with the previous observation that IPO activities continue to increase in the second year after an election.

The increase in the number of IPOs two years after governor elections also indicates that lower IPO volume during governor elections is not driven by elections for state legislature (upper and lower houses).[13] This is because lower house legislature elections occur every two years, half of them coinciding with governor elections and another half happening two years after gubernatorial elections, exactly when we observe a jump in IPO activity. At the same time, the upper house elections coincide with governor elections only for half of its candidate.

The coefficient on the T = −1 dummy is insignificant, suggesting the number of IPO in year T = −1 is insignificantly different from the election year. This suggests that political uncertainty starts to rise in the year before the election year and IPO volume is low in both years before the election. The multivariate regressions therefore confirm what we observe in Figure 1 – IPO volume decreases in the two years leading to the elections and increases again afterwards.

3.5 Cross-Sectional Analyses

Previously, we documented that the number of IPOs decreases before a gubernatorial election and increases afterwards, which supports the hypothesis that firms tend to delay IPOs when facing election-related political uncertainty. If the hypothesis is true, we also expect that the negative effect of elections on IPO activity varies for elections with more uncertain outcomes and for firms whose business is more sensitive to the political risk. We now examine these predictions.

3.5.1 High-uncertainty versus low-uncertainty elections. We first analyze how the degree of election uncertainty affects our main results. We classify elections into high-election-uncertainty (HEU) and low-election-uncertainty (LEU) subsamples based on three measures. The first measure, *Election Closeness,* is the difference in the percentage of votes received by the winning candidate and by her opponent, i.e., the winning margin. It is an ex post measure of how close the election was, but should reflect the ex-ante uncertainty level of the election outcome well. Previous studies of election-related uncertainty also use this measure, e.g., see Julio and Yook (2012) and Boutchkova et al. (2012). We sort elections into terciles based on the winning margin, and classify those in the top tercile as HEU elections and those in the bottom tercile as

[13] Every state, except for Nebraska, has state legislature consisting of two separate houses (upper and lower).

LEU elections. The average winning margin is 16% for the 317 election in our sample, the average margin for HEU elections is 3%, and that for LEU is 33%.

The second measure is a dummy variable, which we call *Governor Change*. We define the dummy as one if the election leads to a change in the governor and her winning margin is less than 5%, or if the election is one of the three special elections in our sample. We believe that regardless of the reason for the governor change, a new governor (or the prospect of a new governor) likely brings additional uncertainty because the new governor's policies are less understood and untested. We further require that the winning margin be less than 5%, which is narrower compared to the average margin of 16%. We also include the three special elections in this group because all three of them are surrounded by controversies and there was significant uncertainty about the election outcomes. Based on these criteria, there are 64 elections with the Governor *Change* dummy equal to one. We classify them as HEU elections and the rest as LEU elections.

The third measure is an indicator variable, *Absence of Incumbent*, which equals one if the incumbent governor is not a candidate on the election ballot for reasons other than the expiration of her term-limit. Previous studies show that the incumbent governors win the majority of elections if they run as a candidate (e.g., Cover, 1977). In our sample, incumbent governors win 83% of the time when they run for re-elections. Thus, if an incumbent governor is not a candidate on the ballot for reasons other than term-limit expiration (i.e., for reasons such as defeated in the primary, retired, etc.), the political uncertainty around the election is likely to be higher. We identify 65 elections with *Absence of Incumbent* equal to one. We classify them as HEU elections and the rest as LEU elections.

We then estimate Eq. [1] for the HEU and LEU election subsamples separately to examine whether the impact of elections on IPO activities differs across the subsamples. Table VII presents the Tobit regression results with the full set of control variables. Under each classification of HEU vs. LEU, we find that the coefficient of *Election Year* is more negative for the HEU subsample than that for the LEU subsamples. For all three HEU subsamples, the coefficient is negative and significant at the 1% level, whereas for the LEU subsamples, it is

insignificant for the first two classifications.[14] We also conduct the Wald test of the difference in the coefficient between each pair of HEU and LEU regressions. The difference is significant for the first two classifications of HEU vs. LEU (Election Closeness and Governor Change) but insignificant for the third one (Absence of Incumbent). The results are similar with OLS regressions (not reported for the sake of space).[15]

The results therefore show the negative effect on IPO volume is mainly a result of high-uncertainty elections. The higher the political uncertainty surrounding an election, the more decline in the IPO activities during the year of the election.

3.5.2. Geographically-concentrated firms. Across firms, we expect the impact of political uncertainty to be stronger for firms that are more sensitive to the political risk associated with gubernatorial elections. We identify two types of such firms – firms that are geographically concentrated and firms that are dependent on government contracts.

Geographically-concentrated firms are more sensitive to state policy changes since their businesses are more concentrated in their home states. To gauge a firm's geographical focus, we follow the method developed by Garcia and Norli (2012), which overcomes the difficulty that firms do not report accounting numbers by state. Under the method, we count the number of times a firm mentions various states in several sections of its first electronically available 10-K annual report. The sections considered are: "Item 1, Business," "Item 2: Properties," "Item 6: Consolidated Financial Data," and "Item 7: Management's Discussion and Analysis."

We define a firm's geographical focus based on the fractions of the times different states are mentioned in these sections. Specifically, a firm is geographically concentrated in its home state if it mentions the home state more than 50% of the time in the four sections of the 10-K document. It turns out that 52% of our sample firms are geographically concentrated; that is, they mention their home state more than 50% of times. Similar statistics are reported in Garcia and Norli (2012) for the sample of all publicly listed firms. For example, a California company, Franklin Wireless (a producer of wireless equipment) mentions only two states (California and Texas) in its 1998 10-K statement, with California being mentioned twice as frequently as Texas.

[14] For the Election Closeness category, the coefficient on *Election Year* is only slightly lower in the HEU sample (equals to –0.998) than in the LEU sample (equals to –0.984). It is, however, statistically significantly lower because the coefficient standard error is much smaller in the HEU sample than in the LEU sample.
[15] We report only Tobit regression results for Tables VIII and IX. OLS regression results show a similar pattern.

Therefore, this company is assigned to the geographically-focused group (California is mentioned 66% of the time). On the other hand, another Californian company, Google, Inc. mentions 6 states in its 1999 10-K annual reports (California, Texas, Florida, Maryland, Michigan, and New York). Its home state, California, appears 31% of the time, therefore, it enters the geographically-diversified group.

To confirm the validity of this measure, we manually collect information on stores and plant locations from companies' websites for 100 randomly-picked companies and calculate their sales fractions by state. The measure based on actual sales has a correlation of 78% (p-value = 0.00) with our measure based on word search in 10-K reports.

We observe that 49% of election-year IPOs and 56% of off-election-year IPOs are geographically-concentrated firms, which is consistent with the notion that geographically-concentrated firms are less likely to conduct IPOs during election years. We then run multivariate regressions to see whether this holds after controlling other economic factors.

We estimate Eq. [1] for geographically-concentrated firms and geographically-diversified firms separately, with the dependent variable being the number of IPOs of each group, respectively. Tobit regression results are reported in the first two columns of Table VIII. We find that the coefficient on *Election Year* is significantly negative for both subsamples of firms, suggesting gubernatorial elections have a negative impact on both types of firms' IPO decisions. However, the coefficient for a geographically-concentrated firm is more negative than that for geographically-diversified firms, and the difference is significant. This is consistent with the hypothesis that geographically-concentrated firms are more sensitive to election-related political uncertainty and hence the negative impact of elections on IPO volume is stronger for these firms.

3.5.3. Firms dependent on government contracts. Next, we examine firms dependent on government contracts. Such firms may be more sensitive to the election uncertainty because whether (and how much) a firm can receive business from a state government is likely to depend on the governor's preferences/decisions. We follow Belo et al. (2012) to construct the *dependence on government contracts* for each industry. The data source is Benchmark Input-Output accounts from the Bureau of Economic Analysis, which is organized by IO industry codes. We assign every company in our sample to an IO industry, and calculate the average (across the sample years) proportion of each industry's total output that is purchased by the

government sector both directly and indirectly through the chain of economic links across industries. Five industries with the largest government contract dependence are: missiles and space equipment manufacturing (87%), oil and gas extraction (57%), electric parts manufacturing (55%), ship building (48%), and radio and TV broadcasting (46%). Five industries with the lowest dependence on government contracts are: frozen food manufacturing (1.8%), soft drink and ice manufacturing (1.1%), tobacco products (1.5%), entertainment centers (1%), and household equipment manufacturing (0.3%). We classify firms in the above top 5 industries as firms with high dependence on government contracts. This group of firms constitutes 17% of our sample. We observe that 34% of election-year IPOs and 59% of off-election-year IPOs are firms dependent on government contracts.

We note that this measure does not distinguish between the contracts assigned by the federal government from the contracts assigned by state governments. We found one data source that contains firm-level data on state contracts, the State Procurement Database (www.nigp.org), for one year (2011) in our sample. We manually calculated the volume (as a proportion of firm sales) of state contracts for every company and confirmed that the dependence of government contracts is highly correlated with state contracts variable with the correlation coefficient of 0.63 (p-value = 0.00). Therefore, while our measure does not differentiate between contracts from the federal governments and state governments, it tracks state contracts relatively closely.

We then estimate Eq. [1] for these firms and the rest of the sample separately. The results are reported in the last two Columns of Table VIII. We find the coefficient on *Election Year* is significantly negative for both subsamples, and that it is significantly more negative for firms with high dependence on government contract than the rest of the firms. This is consistent with our conjecture that firms dependent on government contract are more sensitive to election-related political uncertainty, hence the negative impact of elections on IPO volume is stronger for these firms.

3.5.4 Hard-to-value firms. We also consider IPOs of firms that are harder to value. Some firms are harder to value than others as a result of the type of assets (e.g., intangibles are harder to value than tangible assets), or the lack of track records, or the lack of disclosure. Hard-to-value firms may not be necessarily more sensitive to political risk. Instead, the impact of political risk on these firms' future cash flows is unknown or less clear. According to the notion of ambiguity

aversion (Epstein, 1999), when the probabilities of outcomes are unknown, in our setting when it is not clear how a firm will be affected by state policy changes, investors may fear the worst. We hypothesize that when facing political uncertainty, hard-to-value firms may be more adversely affected. That is, if they conduct IPOs during election years, the increase in their costs of capital may be even higher. Hence, hard-to-value firms have weaker incentives to go public during election years. We examine whether hard-to-value firms are less likely to conduct IPOs during election years, and we examine the valuation impact in the next section.

We identify hard-to-value firms using three different measures. With the first measure, *HTV1*, a firm is considered hard to value if it belongs to a high-tech industry, including biotech, computing, computer equipment, electronics, medical equipment, pharmaceuticals and software (see the Appendix for a more specific definition of high-tech industries). High-tech firms tend to have lower tangible assets in place and more intangible assets (e.g., patents, R&D, new business model, licensing potential), which are harder to value. The second measure, *HTV2*, classifies a firm as hard to value if it is in a high-tech industry and it is a young firm i.e., it is in the bottom *Firm Age* tercile in our sample. Young high-tech firms are even harder to value as a result of the lack of track records. The third measure, *HTV3,* considers a firm as hard to value if the firm has an active research and development program, i.e., its R&D spending is positive in the fiscal year prior to the IPO. R&D-intensive firms are hard to value because it takes a long time to resolve the value uncertainty of R&D projects (Polk and Sapienza, 2009).[16]

Using the *HTV1* measure, 41% of election-year IPOs are hard-to-value firms while 51% of off-election-year IPOs are hard to value. The numbers are 12% vs. 15% under *HTV2* and 31% vs. 37% under *HTV3*. These numbers are consistent with the notion that hard-to-value firms are less likely to go public during election years.

We then estimate Eq. [1] for the hard-to-value firms and the rest of the firms separately. The Tobit regression results are reported in Table IX. Regardless of the hard-to-value measure used, the coefficient on *Election Year* is significantly negative for the *HTV* subsample and insignificant for the *non-HTV* subsample. Under each *HTV* measure, the coefficient is significantly more negative for the *HTV* subsample than the *non-HTV* subsample. The reported Wald tests indicate

[16] We also tried to measure HTV firms based on whether an IPO firm has positive earnings (firms with negative earnings are harder to value) or on its annual sales (firms with small sales are harder to value) prior to the IPO. The results using these alternative measures also support the hypothesis that HTV firms avoid IPOs during election years even more vigorously. They are not reported for brevity but are available upon request.

that the regression coefficients are significantly different between the subsamples for every HTV measure. The results thus support the hypothesis that the dampening effect of election-driven political uncertainty is particularly strong for hard-to-value firms.

In summary, the results in this section indicate that across elections, elections with higher uncertainty have a more negative impact on firms' IPO decisions; across firms, the dampening effect of elections is stronger for firms more sensitive to election-related political risk, and for firms that are hard to value.

4. Political Uncertainty and Cost of Capital

We now explore one possible channel through which political uncertainty may dampen IPO activities: higher cost of financing (see Pástor and Veronesi, 2012, 2013; Brogaard and Detzel, 2012). In the IPO setting, a higher cost of financing means a lower offer price, *ceteris paribus*. We examine whether IPO offer prices are lower during election years than in off-election years.

We measure the level of the offer price relative to its intrinsic value following Purnanandam and Swaminathan (2004), where the intrinsic value is valuation based on industry peers' price multiples. For each IPO firm, we find a matching firm in the same industry with similar sales and EBITDA profit margin (defined as EBITDA/sales). Specifically, we use the following criteria to select the matching firm. We start with all firms covered by both CRSP and Compustat. We then eliminate firms that are do not have ordinary common shares, REITs, close-end funds or ADRs. We also eliminate firms that went public within the three years before the sample firm IPO date. We then focus on firms in the same industry (based on Fama-French 49 industries) as the sample firm at the IPO date. Next, we group these firms into three portfolios based on past sales (in the fiscal year prior to the IPO), and then divide each sales portfolio into another three portfolios based on past EBITDA profit margin. We select one out of the 3×3 portfolios to which the IPO firm belongs to. Within this portfolio, we find a matching firm that has closest past sales to the IPO firm. As a robustness check, we impose additional requirements to create a more restricted matching sample: (1) the matching firm must have a stock price of at least five dollars at the end of the fiscal year prior to the IPO, and (2) there must be at least 3 matching candidates in the same sales-EBITDA profit margin portfolio as the sample firm.

For every IPO firm, we compute three price-to-value (P/V) ratios where P is the IPO offer price and V is the "fair/intrinsic value" based on the matching firm's market price multiples and the IPO firm's sales, EBITDA or earnings. We use three price multiples: price-to-sales (P/S), price-to-EBITDA (P/EBITDA), and price-to-earnings (P/E).[17] These multiples are defined as follows: P/S = (price × shares outstanding / prior fiscal year sales), P/EBITDA = (price × shares outstanding / prior fiscal year EBITDA), and P/E = (price × shares outstanding) / prior fiscal year earnings. For the IPO firm, we use offer price and shares outstanding prior to the IPO.[18] For the matching firm, we use the closing price and shares outstanding on the IPO date. The value of P/EBITDA (P/E) is set to missing if EBITDA (earnings) is negative.

A P/V ratio is calculated as the IPO offer-price multiple relative to the matching firm's market price multiple. That is,

$$(P/V)_{Sales} = \frac{(P/S)_{IPO}}{(P/S)_{Match-Firm}},$$

$$(P/V)_{EBITDA} = \frac{(P/EBITDA)_{IPO}}{(P/EBITDA)_{Match-Firm}},$$

$$(P/V)_{Earnings} = \frac{(P/E)_{IPO}}{(P/E)_{Match-Firm}}.$$

We winsorize these ratios at the 1% and 99% levels. We observe that the values of these ratios are highly skewed. For example, when imposing no additional constraints for the matching firm (on minimum price and minimum number of matching candidates in the same sales-EBITDA profit margin portfolio as the sample firm), $(P/V)_{Sales}$ has the mean of 5.7 and the median of 1.5, with the skewness of 4.6; $(P/V)_{EBITDA}$ has the mean of 3.7 and the median of 1.2, with the skewness of 5.3; and $(P/V)_{Earnings}$ also has the mean of 3.7 and the median of 1.2, with the skewness of 5.7. Due to the positive skewness, tests using medians are more reliable than those using means.

We examine whether these *P/V* ratios are lower during election years. Table X compares the means and medians of these ratios between election years and off-election years. We show the

[17] Following Purnanandam and Swaminathan (2004), we do not use book value multiples because book values are rather low for IPO firms and also because Liu et al. (2002) argue book value multiples tend to do poorly in terms of valuation.

[18] We use shares outstanding prior to the IPO because sales, EBITDA and earnings are from the fiscal year prior to IPO. If we use shares outstanding after IPO, P/V ratios are higher, but the results are robust in that P/V ratios tend to be lower in election years.

results with both types of matching firms, with and without the additional constraints on minimum price and minimum number of matching candidates in the same sales-EBITDA profit margin portfolio as the sample firm. For all three P/V ratios and for each type of matching firms, the P/V ratio is lower during election years than in off-election years. The differences are all significant for medians. For example, using matching firms without additional constraints, the median $(P/V)_{sales}$, $(P/V)_{EBITDA,}$ and $(P/V)_{Earnings}$ are 1.26, 1.08, and 1.06 for election years, compared to those of 1.63, 1.23 and 1.24 for off-election years. The results using means point to the same conclusion. The results thus support the hypothesis that controlling for firm characteristics, the offer price is set lower during election year, which translates into higher costs of capital for IPO firms.

4.1 Cross-sectional Tests

Previously, we found evidence that firms sensitive to political risk and hard-to-value firms are even less likely to conduct IPOs during election years than other firms. Now, we investigate whether the decline in offer price (in terms of P/V ratios) is stronger for these firms when they go public during election years.

Table XI reports the cross-sectional tests for P/V ratios. We present only results using medians. The results using means are similar. In Panel A, we stratify the sample into geographically-concentrated vs. diversified firms, and then compare the medians of the P/V ratios between election years and off-election years, for each subsample. We find that for geographically-concentrated firms, the medians of all three P/V ratios are significantly lower in election years. For example, using matching firms without additional constraints, the median $(P/V)_{sales}$, $(P/V)_{EBITDA,}$ and $(P/V)_{Earnings}$ are 1.25 vs. 1.91, 1.04 vs. 1.33, and 1.01 vs. 1.33 between election years and off-election years, respectively. For geographically-diversified firms, the median P/V ratios are also all lower during election years than in off-election years. However, the differences are insignificant with just one exception. Hence, the result is stronger for geographically-concentrated firms that the P/V ratios are lower during election years.

In Panel B, we stratify the sample into the firms dependent on government contracts vs. the rest of firms. For firms dependent on government contracts, the medians of all three P/V ratios are all lower in election years and the differences are significant for $(P/V)_{sales}$ and $(P/V)_{Earnings}$. On the other hand, for the rest of the firms, the differences in the median P/V ratios between

election years and off-election years are all insignificant with one exception. Hence, the result is stronger for firms dependent on government contracts that the P/V ratios are lower during election years.

In Panel C, we stratify the sample into hard-to-value firms and the rest based on *HTV1* measure (i.e., whether the firm is in high-tech industry). For hard-to-value firms, the medians of all three P/V ratios are all lower in election years and the differences are significant for $(P/V)_{sales}$ and $(P/V)_{Earnings}$. For the rest of firms, on the other hand, the differences in the median P/V ratios between election years and off-election years are all insignificant. Results using *HTV2* or *HTV3* are qualitatively the same. Hence, the result is stronger for hard-to-value firms that the P/V ratios are lower during election years.

We also try to stratify the sample according to election uncertainty (HEU vs. LEU subsamples). We find mixed results (not tabulated). Overall, except for the measures of election uncertainty, we find evidence consistent with the notion that the increase in cost of capital due to political uncertainty is a more severe problem for firms sensitive to political risk and for hard-to-value firms.

4.2 Discussion of After-Market Prices

Firms receive lower offer prices if they conduct IPOs during election years, suggesting that their asset prices are discounted by IPO investors because of election-related political uncertainty. For completeness of the investigation, we examine IPO after-market prices, in terms of their first-day return, i.e., the closing price on the first trading day relative to the offer price minus one. As shown in Table I, the first-day return is significantly lower during election years: the mean (median) is 11% (5%) vs. 23% (9%) in off-election years. We also run multivariate regressions of *first-day return* on *Election Year* with control variables similar as those in Loughran and Ritter (2004) (results are not tabulated). The conclusion holds that first-day returns are lower during election years.

Lower first-day returns can be a result of either higher offer prices, or lower first trading day prices, or both. The aforementioned analysis demonstrates that election-year IPOs tend to have lower rather than higher offer prices. Hence, lower first-day returns are driven by lower first-day prices. That is, the election-related uncertainty negatively affects both the IPO offer price and the first trading-day price, and the impact is even stronger for the first trading-day price. One

possible explanation is the different investor clienteles in the IPO process and on the open market. IPO investors are mostly institutional investors, whereas retail investors also participate in the after-market trading. It is possible that retail investors become more risk-averse and hence, react more strongly to political uncertainty in valuing the IPO shares.

The long-run abnormal returns corroborate the notion that political uncertainty negatively impacts the after-market prices immediately after IPO. From Table I, we observe that the mean (median) 3-year abnormal return (relative to the first-trading day price) following election-year IPOs is 2% (–41%), is insignificantly different from zero (significant at the 1% level). The mean (median) 3-year abnormal returns following off-election-year IPOs is –23% (–63%), significant at the 1% level. The differences in the means and medians between the two groups are both statistically and economically significant. It suggests that the first trading-day prices for election-year IPOs are not as overpriced as those for off-election year IPOs.

5. Conclusion

We demonstrate that political uncertainty due to U.S. gubernatorial (state-level) elections substantially depresses the IPO activity of firms originating from the election state. Firms tend to delay their IPO decisions until the uncertainty is resolved. The number of IPOs decreases in the two years leading to the election and increases in the two years after. Thus gubernatorial elections seem to create their own IPO cycles. Additionally, cross-sectional tests demonstrate that political uncertainty affects IPO activity more severely for geographically-concentrated firms, firms that are more dependent on government contracts, and harder-to-value firms. Our study adds to the literature on the economic impact of political uncertainty by showing that not only investment but also firms' financing decisions are also significantly affected by political uncertainty and that even in a developed country such as the U.S., political uncertainty has a real impact on corporate decisions.

We also find evidence of the cost-of-capital explanation for the negative impact of political uncertainty on IPO activity. We document that IPO offer prices are set lower relative to their fair values during election years, hence the firms' costs of capital are higher. This result therefore supports the theoretical arguments of Pástor and Veronesi (2012, 2013), which state that political uncertainty dampens asset prices and commands a risk premium.

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Appendix: Variable Definitions and Data Sources

A. Gubernatorial Election Data

Election data cover gubernatorial elections in 50 U.S. states between 1988 and 2011. Gubernatorial elections are obtained from the Stateline database (http://www.stateline.org) and CQ Electronic Library (http://library.cqpress.com).

Gubernatorial Election Dates: U.S. states hold gubernatorial elections on the first Tuesday in November. The earliest possible date for the election is therefore November 2, and the latest possible date is November 8. Louisiana is an exception to this rule: its election dates can be different because of the open primary system applied to gubernatorial elections. Most states hold gubernatorial elections once every four years. The following states hold their gubernatorial elections on every even numbered year: New Hampshire and Vermont. Rhode Island switched to a four-year election cycle in 1994. Before that it held gubernatorial elections every two years. Therefore, currently 48 states hold gubernatorial elections every four years. The following states hold their gubernatorial elections in even numbered years which are not divisible by four: Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Florida, Georgia, Hawaii, Idaho, Illinois, Iowa, Kansas, Maine, Maryland, Massachusetts, Michigan, Minnesota, Nebraska, Nevada, New Mexico, New York, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Wisconsin and Wyoming. The following states hold their gubernatorial elections in years divisible by four (i.e., concurrent with presidential elections): Delaware, Indiana, Missouri, Montana, North Carolina, North Dakota, Utah, Washington, and West Virginia. The following states hold their gubernatorial elections in the year before a year divisible by four: Kentucky, Louisiana, and Mississippi. The following states hold their gubernatorial elections in the year following a year divisible by four: New Jersey and Virginia. There are total of 314 regular gubernatorial elections conducted between 1988 and 2011.

Special Elections: There are three special gubernatorial elections in our sample period. The 2003 California gubernatorial recall election was a special election permitted under California state law. It resulted in voters replacing the incumbent Democratic Governor Gray Davis with Republican Arnold Schwarzenegger. The 2010 Utah special election was conducted to fill the remainder of Jon Huntsman's term, who resigned in 2009 to become the United States Ambassador to China. The 2011 West Virginia special gubernatorial election was conducted after Governor Joe Manchin resigned in 2010 to run for the US Senate. The US Senate seat became vacant following Senator Robert Byrd's death in 2010.

Election Year (for a state) is a dummy variable that takes the value of one if it is within one year before an election of the state in question, and zero otherwise.

High-election-uncertainty (HEU) and *Low-election-uncertainty (LEU)* elections are identified based on three measures.

Election Closeness is the difference in the percentage of votes received by the winning candidate from the percentage of votes by her opponent, i.e., the winning margin. We sort elections into terciles based on this measure, and classify those in the top tercile as HEU elections and those in the bottom tercile as LEU elections.

Governor Change is a dummy variable that takes the value of one if the election leads to a change in the governor and her winning margin is less than 5%, or if the election is one of the three special elections in our sample and 0 otherwise. We classify the elections with *governor change* equal to one as HEU elections and the rest as LEU elections.

Absence of Incumbent is a dummy variable that takes the value of one if the incumbent governor is not a candidate on the election ballot for reasons other than term-limit expiration and 0 otherwise. We identify the elections with *absence of incumbent* equal to one as HEU elections and the rest as LEU elections.

B. Economy-wide Variables

Macroeconomic data are retrieved from the Federal Reserve Economic Data (FRED) tables, which is available from the Federal Reserve Bank of St. Louis' website.

Long-Term Interest Rates is defined as interest rates on U.S. government bonds (variable INTGSBUSM193N from FRED).

S&P500 Index Return is the annual return for the S&P 500 stock price index.

Total Capacity Utilization is also called Total Industry Capacity Utilization Rate. The Federal Reserve Board constructs estimates of capacity and capacity utilization for industries in manufacturing, mining, and electric and gas utilities. For a given industry, the capacity utilization rate is equal to an output index divided by a capacity index. The total capacity utilization is capacity-weighted aggregates of individual utilization rates.

Bubble Period is a dummy variable that takes the value of one for the time period from January 1999 through December 2000 and zero otherwise. Loughran and Ritter (2004) consider this time period as the bubble period based on the IPO activity and the first-day return levels.

Hot IPO Market is a dummy variable constructed following Yung et al. (2008). If (Number of IPOs in year t / Historic average of annual number of IPOs up to year t) ≥ 1.5 then *hot IPO market* = 1; otherwise it equals zero. Annual IPO data going back to 1960 are retrieved from the Jay Ritter's website. In constructing the historic average (which is a moving average starting from 1960), we rely on Jay Ritter's data on aggregate monthly, quarterly, and annual IPO activity between 1960 and 2011. The 60s and 70s are not part of our sample period but we include those periods to obtain a more reliable historic average.

C. State Variables

State-level data are retrieved from the Bureau of Economic Analysis (BEA) Regional Economic Accounts Database. Most of the state-level data are not provided by BEA prior to 1988. The state-level variables are:

State GDP Growth is state real (in 2005 dollars) GDP per capita growth in % per annum.

State GDP per Capita is state real (in 2005 dollars) GDP per capita, annual frequency.

State Population: Mid-year population estimated by the Census Bureau.

D. Firm and IPO Variables

Accounting data are obtained from Compustat, public trading prices and return data are from CRSP, and IPO related data are from Securities Data Company (SDC).

Assets is firm assets for the fiscal year prior to the IPO or, if missing, for the fiscal year of the IPO date.

Sales is sales for the fiscal year prior to the IPO or, if missing, for the fiscal year of the IPO date.

Firm age is the number of years since founding year to the IPO year. The founding year of the firm is obtained from SDC. When data are not available from SDC, we use the Field-Ritter database of company founding dates, as used in Field and Karpoff (2002) and Loughran and Ritter (2004).

High Tech is a dummy variable that takes the value of one for firms that belong to a high-tech industry and 0 otherwise. Following SDC description, industries with the following three-digit SIC codes are considered high-tech industries: 283, 357, 366, 367, 381, 382, 383, 384, 737, 873, and 874. These SIC codes are assigned to such

industries as biotech, computing, computer equipment, electronics, medical equipment, pharmaceuticals, and software.

R&D Active is a dummy that takes the value of one for firms with positive R&D expenditure in the year prior to the IPO and 0 otherwise.

VC Backing is a dummy that takes the value of one if the firm is backed by venture capital and 0 otherwise.

Underwriter reputation is the lead underwriter reputation ranking at the time of the IPO, a value between 9 (best) and 0 (worst). It is based on the updated Carter and Manaster (1990) classification, obtained from Jay Ritter's website.

Waiting Days is the number of days passed between the filing date and the issuance date of the IPO.

Proceeds are total IPO proceeds (net of all fees) raised in all markets in millions of U.S. dollars.

Equity Offer Size is the number of shares offered in the IPO, relative to shares outstanding after the IPO.

Price revision is offer price over the mid-point of the original filing price range, minus one.

First-day return is the first trading day closing price over the offer price, minus one.

Long-run return is the three-year buy-and-hold abnormal return (BHAR) after the IPO, i.e., $BHAR_{j,T} = \prod_{t=1}^{T}(1+R_{j,t}) - \prod_{t=1}^{T}(1+R_{m,t})$, where R_j is stock return of stock j and R_m is CRSP equally-weighted market index return. Both returns include dividends.

Price-to-value variables:

(P/V)$_{Sales}$: $(P/V)_{Sales} = \dfrac{(P/S)_{IPO}}{(P/S)_{Match-Firm}}$, where *P/S* = (price×shares outstanding/prior fiscal year sales). For the IPO firm, we use offer price and shares outstanding prior to the IPO. For the matching firm, we use the closing price and shares outstanding on the IPO date. The matching firm is based on industry peers' price multiples as in Purnanandam and Swaminathan (2004).

(P/V)$_{EBITDA}$: $(P/V)_{EBITDA} = \dfrac{(P/EBITDA)_{IPO}}{(P/EBITDA)_{Match-Firm}}$, where *P/EBITDA* = (price×shares outstanding /prior fiscal year EBITDA). For the IPO firm, we use offer price and shares outstanding prior to the IPO. For the matching firm, we use the closing price and shares outstanding on the IPO date. The value of P/EBITDA is set to missing if EBITDA is negative. The matching firm is based on industry peers' price multiples as in Purnanandam and Swaminathan (2004).

(P/V)$_{Earnings}$: $(P/V)_{Earnings} = \dfrac{(P/E)_{IPO}}{(P/E)_{Match-Firm}}$, where *P/E* = (price×shares outstanding /prior fiscal year earnings). For the IPO firm, we use offer price and shares outstanding prior to the IPO. For the matching firm, we use the closing price and shares outstanding on the IPO date. The value of P/E is set to missing if earnings are negative. The matching firm is based on industry peers' price multiples as in Purnanandam and Swaminathan (2004).

Geographically-concentrated firms: Following the method developed by Garcia and Norli (2012), we define a firm as geographically concentrated in its home state if it mentions the home state more than 50% of the time (out of the total times states are mentioned) in the following sections of its first electronically available 10-K report: "Item 1,

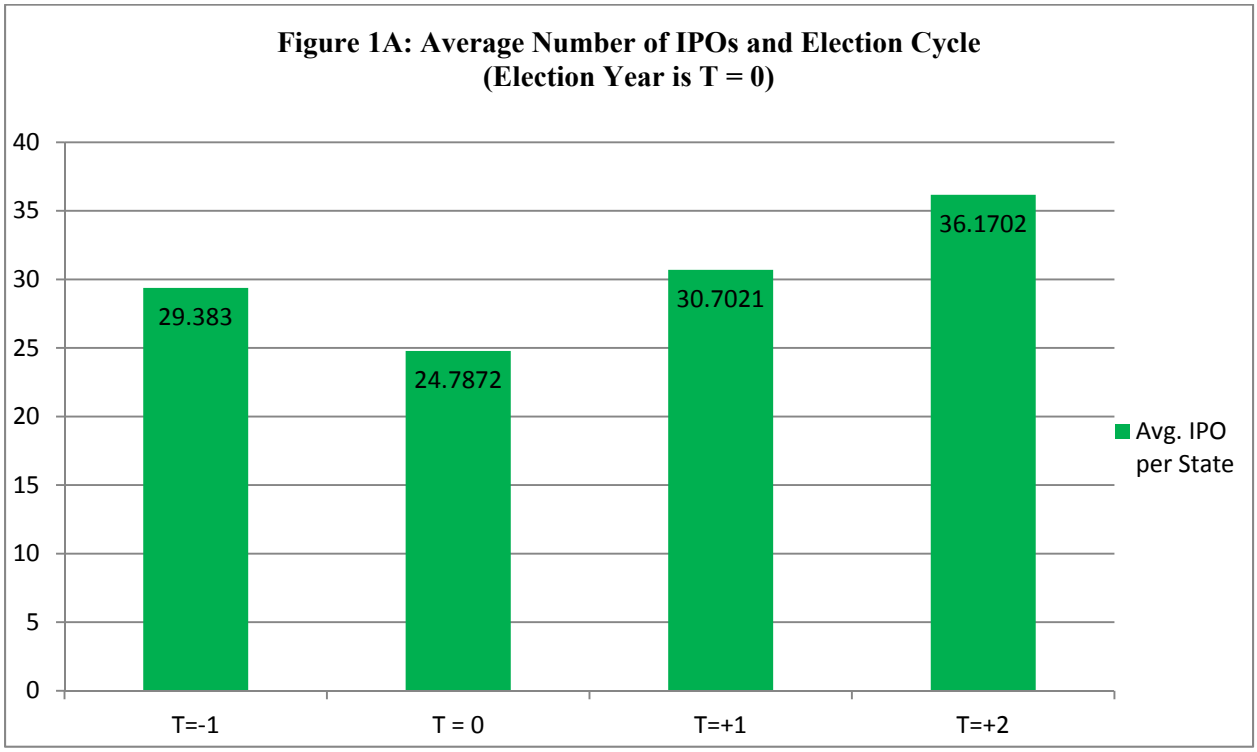
Business," "Item 2: Properties," "Item 6: Consolidated Financial Data," and "Item 7: Management's Discussion and Analysis."

Government contract dependence: Following Belo et al. (2012), industry dependence on government contracts is based on the proportion of its total output (at IO industry level) that is purchased by the government sector both directly and indirectly through the chain of economic links across industries. Five industries with the largest government contract dependence are: missiles and space equipment manufacturing (87%), oil and gas extraction (57%), electric parts manufacturing (55%), ship building (48%), and radio and TV broadcasting (46%). Five industries with the lowest dependence on government contracts are: frozen food manufacturing (1.8%), soft drink and ice manufacturing (1.1%), tobacco products (1.5%), entertainment centers (1%), and household equipment manufacturing (0.3%). We classify firms in the above top five industries as firms with high dependence on government contracts.

Hard-to-value firms: We identify hard-to-value firms using three different measures. For the first measure, *HTV1*, a firm is considered hard to value if it is in a high-tech industry. Our second measure, *HTV2*, classifies a firm as hard to value if it is in a high-tech industry and it is in the bottom *Firm Age* tercile in our sample. The third measure, *HTV3,* defines a firm as hard to value if the firm has active research and development program, i.e., its R&D spending is positive in the fiscal year prior to the IPO.

Figure 1: IPO Activity over the Election Cycle

The figure plots the number of IPOs (averaged across states) issued (Figure 1A) and the percentage change in the number of IPOs (Figure 1B) in each event year around the election cycle during the sample period of 1988-2011. The special elections and the elections conducted in states with 2-year election cycle (NH, RI, and VT) are excluded from the analysis. There were a total of 282 elections conducted in 47 states with a four-year election cycles



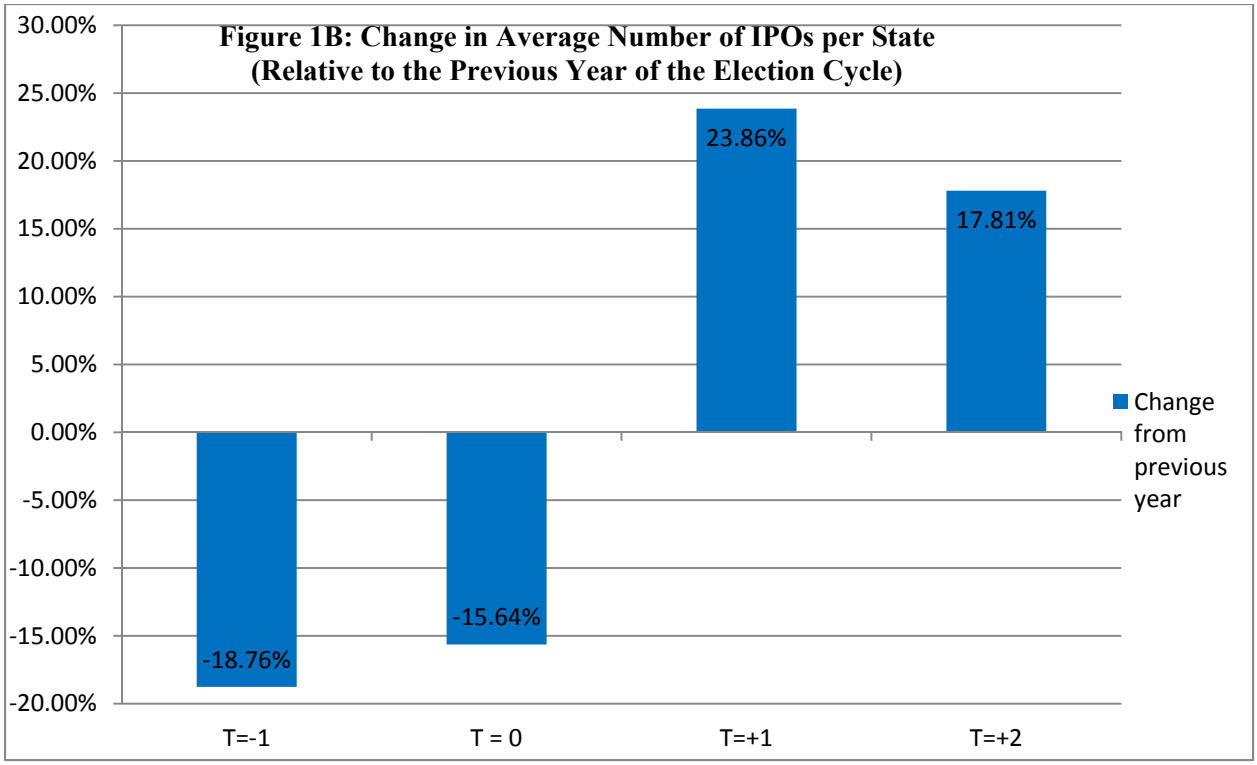


Figure 1B: Change in Average Number of IPOs per State
(Relative to the Previous Year of the Election Cycle)
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
-5.00%
-10.00%
-15.00%
-20.00%
-18.76%
-15.64%
23.86%
17.81%
T=-1
T = 0
T=+1
T=+2
Change from previous year

Table I: Election-Year vs. Off-Election-Year IPOs

The table describes various firm and IPO characteristics for election-year vs. off-Election-year IPO samples. An election-year IPO is defined as an IPO that was issued during the election year of the state it is located in (within the year before the actual election date). There were total of 317 gubernatorial elections (regular and special) conducted in 50 states between 1988 and 2011. *Assets* and *Sales* are for the fiscal year prior to the IPO. *Firm age* is the number of years since founding year to the IPO year. *High tech* is a dummy variable that takes the value of one for firms that belong to a high-tech industry and 0 otherwise. *R&D Active* is a dummy that takes the value of one for firms with positive R&D expenditure in the year prior to the IPO and 0 otherwise. *VC Backing* is a dummy that takes the value of one if the firm is backed by venture capital and 0 otherwise. *Underwriter reputation* is the lead underwriter reputation ranking, with a value between 0 (worst) and 9 (best). *Waiting Days* is the number of days passed between the filing date and the issuance date of the IPO. *Equity Offer Size* is the number of shares offered in the IPO, relative to shares outstanding after the IPO. *Price revision* is offer price over the mid-point of the original filing price range, minus one. *First-day return* is the first trading day closing price over the offer price, minus one. *Long-run return* is the three-year buy-and-hold abnormal return (BHAR) after the IPO. If the mean (median) of the off-election-year sample is significantly different from that of the election-year sample at the 1%, 5%, or 10% significance level, they are indicated by ***, **, or *, respectively. For the differences in means we use the *t*-test; for differences in medians we use the Wilcoxon nonparametric signed-rank test.

IPO Characteristic	Entire IPO Sample			Election Year IPOs			Off-Election Year IPOs		
	Mean	Median	Obs.	Mean	Median	Obs.	Mean	Median	Obs.
Assets (in million dollars)	624.2198	52.7000	5,061	489.1251	60.3000	1,173	664.9776	51.0475**	3,888
Sales (in million dollars)	303.9548	49.9470	4,339	283.9278	59.2300	1,018	310.0938	47.2620	3,321
Firm age (in years)	15.4127	8	5,210	15.6483	9	1,200	15.3421	8	4,010
High-Tech	48.9436%	0	5,727	40.8408%	0	1,332	51.3993%***	1***	4,395
R&D Active	35.6207%	0	5,727	31.1562%	0	1,332	36.9738%***	0***	4,395
VC Backing	40.0035%	0	5,727	33.5586%	0	1,332	41.9568%***	0***	4,395
Underwriter reputation	6.9287	8	3,841	6.8832	8	859	6.9419	8	2,982
Waiting Days (in days)	96.0851	69	5,210	100.2879	71	1,320	94.8075*	69**	4,342
Proceeds (in million dollars)	87.5048	37.5000	5,727	91.3040	35.0500	1,332	86.3534	38.2900	4,395
Equity Offer Size	34.6232%	30.4100%	4,431	35.6091%	31.7600%	996	34.3373%*	30.0300%**	3,435
Price Revision	0.0070	0	5,257	-0.0240	0	1,196	0.0161***	0***	4,061
First-day return	20.1210%	8.3300%	5,603	11.0995%	5.0000%	1,300	22.8466%***	9.0900%***	4,303
Long-Run Returns (3-years)	-17.3011%	-57.1146%	5,105	2.0827%	-41.3040%	1,189	-23.1865%***	-62.5241%***	3,916

Table II. IPO Activity by State

This table provides a breakdown of IPOs by state. We further break down the IPOs in each state into election-year IPOs and off-election-year IPOs. An election-year IPO is defined as an IPO that was issued during the election year of the state it is located in (within the year before the actual election date). There were total of 317 elections (regular and special) conducted in 50 states between 1988 and 2011. The table also indicates the state population by the end of 2011 and the state GDP per capita for 2011.

State	Total IPOs	Election -year IPOs	Off-Elect -year IPOs	Population	GDP per Capita	State	Total IPOs	Election -year IPOs	Off-Elect -year IPOs	Population	GDP per Capita
Alaska (AK)	4	2	2	722,718	61,853	Montana (MT)	6	2	4	998,199	32,041
Alabama (AL)	30	12	18	4,802,740	31,301	North Carolina (NC)	104	30	74	9,656,401	39,879
Arkansas (AR)	10	2	8	2,937,979	31,142	North Dakota (ND)	4	1	3	683,932	50,096
Arizona (AZ)	80	14	66	6,482,505	35,032	Nebraska (NE)	17	3	14	1,842,641	43,356
California (CA)	1,379	292	1,087	37,691,912	46,041	New Hampshire (NH)	20	8	12	1,318,194	42,916
Colorado (CO)	138	34	104	5,116,796	45,792	New Jersey (NJ)	221	52	169	8,821,155	48,380
Connecticut (CT)	129	34	95	3,580,709	56,242	New Mexico (NM)	10	1	9	2,082,224	33,857
Delaware (DE)	13	4	9	907,135	63,159	Nevada (NV)	55	15	40	2,723,322	41,311
Florida (FL)	303	66	237	19,057,542	34,689	New York (NY)	440	91	349	19,465,197	52,214
Georgia (GA)	166	40	126	9,815,210	37,270	Ohio (OH)	109	32	77	11,544,951	36,283
Hawaii (HI)	7	0	7	1,374,810	42,171	Oklahoma (OK)	37	11	26	3,791,508	35,381
Iowa (IA)	20	4	16	3,062,309	41,993	Oregon (OR)	56	10	46	3,871,859	48,098
Idaho (ID)	10	3	7	1,584,985	32,469	Pennsylvania (PA)	198	42	156	12,742,886	39,272
Illinois (IL)	228	42	186	12,869,257	45,231	Rhode Island (RI)	12	5	7	1,051,302	41,532
Indiana (IN)	63	16	47	6,516,922	36,970	South Carolina (SC)	38	11	27	4,679,230	30,620
Kansas (KS)	31	7	24	2,871,238	39,484	South Dakota (SD)	7	4	3	824,082	41,795
Kentucky (KY)	18	6	12	4,369,356	32,331	Tennessee (TN)	99	32	67	6,403,353	36,543
Louisiana (LA)	27	3	24	4,574,836	45,002	Texas (TX)	483	113	370	25,674,681	44,788
Massachusetts (MA)	374	65	309	6,587,536	52,915	Utah (UT)	40	11	29	2,817,222	38,452
Maryland (MD)	111	32	79	5,828,289	45,360	Virginia (VA)	135	35	100	8,096,604	46,408
Maine (ME)	5	1	4	1,328,188	33,746	Vermont (VT)	6	2	4	624,431	36,665
Michigan (MI)	80	21	59	9,876,187	34,166	Washington (WA)	125	38	87	6,830,038	45,520
Minnesota (MN)	151	34	117	5,344,861	45,822	Wisconsin (WI)	48	17	31	5,711,767	38,822
Missouri (MO)	56	20	36	6,010,688	35,952	West Virginia (WV)	5	2	3	1,855,364	30,056
Mississippi (MS)	15	4	11	2,978,512	28,293	Wyoming (WY)	4	2	2	568,158	55,516

Table III. IPO Activity and Gubernatorial Elections: Multivariate Analysis

The table presents the results from multivariate OLS and Tobit regressions of Eq. [1]. The sample period is 1988-2011.The dependent variable is the number of IPOs in the state for a given year. The lower limit for Tobit regression is zero. *Election Year* is a dummy variable that takes the value of one for the time periods within one year before the actual election date and 0 otherwise. Other variables are defined in the appendix. The numbers in parentheses below the coefficients are the *p*-values calculated using clustered (by state and year) standard errors that are robust to heteroskedasticity and error correlation across states and through time. Statistics that are significant at the 1%, 5%, and 10% levels are marked with ***, **, and *, respectively.

	OLS			**Tobit**		
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Election Year	**-1.3759**	**-1.1156**	**-0.7223**	**-1.8699**	**-1.5179**	**-0.8638**
	(0.0042)* **	**(0.0235)** **	**(0.0188)** **	**(0.0030)*** **	**(0.0162)** **	**(0.0323)** **
State GDP Growth (Lag)	0.2499	0.0372	-0.1372	0.5411	0.1331	-0.0515
	(0.0085)***	(0.6517)	(0.0120)**	(0.0001)***	(0.3519)	(0.5217)
SP500 Index Return (Lag)	0.1025	0.0878	0.0621	0.1968	0.1713	0.1241
	(0.0001)***	(0.0001)***	(0.0001)***	(0.0001)***	(0.0001)***	(0.0001)***
Tot. Capacity Utilization (Lag)	--	0.3301	-0.0184	--	0.5091	0.0569
		(0.0001)***	(0.2521)		(0.0001)***	(0.5639)
Long-Term Inter. Rates (Lag)	--	0.0199	0.0505	--	0.3412	0.1058
		(0.8282)	(0.6088)		(0.1724)	(0.6210)
Numb. of IPOs in State (Lag)	--	--	0.5645	--	--	0.5080
			(0.0001)***			(0.0001)***
Hot IPO Market	--	--	2.8495	--	--	5.4259
			(0.0010)***			(0.0001)***
R^2 or Pseudo-R^2	0.5882	0.5951	0.7495	0.1488	0.1551	0.2100
State-Year Obs.	1,150	1,150	1,150	1,150	1,150	1,150
Clustering by states and years	Yes	Yes	Yes	Yes	Yes	Yes
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Table IV. Neighboring States

This table lists, as an example, gubernatorial elections in the US between 2005 and 2008, and for each elections state, their neighboring states with and without elections in the same year. "State" is the state that holds a gubernatorial election in the indicated year. "Number of NS" is the number of neighboring states, "Without elections" is the number of neighboring states without elections in that year, "With elections" is the number of neighboring states with elections, "NS1-NS8" are the neighboring states. The neighboring states with elections are boldfaced.

Year	State	Abbr.	Number of NS	Without elections	With elections	NS1	NS2	NS3	NS4	NS5	NS6	NS7	NS8
2006	ALABAMA	AL	4	1	3	**TN**	**GA**	**FL**	MS				
2006	ALASKA	AK	0	0	0								
2006	ARIZONA	AZ	5	1	4	UT	**CO**	**NM**	**CA**	**NV**			
2006	ARKANSAS	AR	6	3	3	MO	**TN**	MS	LA	**TX**	**OK**		
2006	CALIFORNIA	CA	3	0	3	**OR**	**NV**	**AZ**					
2006	COLORADO	CO	7	1	6	WY	**NE**	KS	**OK**	**NM**	**AZ**	UT	
2006	CONNECTICUT	CT	3	0	3	**MA**	**RI**	**NY**					
2008	DELAWARE	DE	3	3	0	**PA**	NJ	**MD**					
2006	FLORIDA	FL	2	0	2	**GA**	**AL**						
2006	GEORGIA	GA	5	1	4	NC	**SC**	**FL**	**AL**	**TN**			
2006	HAWAI	HI	0	0	0								
2006	IDAHO	ID	6	3	3	MT	WY	UT	**NV**	**OR**	WA		
2006	ILLINOIS	IL	5	3	2	**WI**	IN	KY	MO	**IA**			
2008	INDIANA	IN	4	4	0	MI	OH	KY	IL				
2006	IOWA	IA	6	1	5	**MN**	**WI**	**IL**	MO	**NE**	**SD**		
2006	KANSAS	KS	4	1	3	**NE**	MO	**OK**	**CO**				
2007	KENTUCKY	KY	7	7	0	OH	WV	VA	TN	MO	IL	IN	
2007	LOUISIANA	LA	3	2	1	AR	**MS**	TX					
2006	MAINE	ME	1	0	1	**NH**							
2006	MARYLAND	MD	4	3	1	**PA**	DE	VA	WV				
2006	MASSACHUSETTS	MA	5	0	5	**NH**	**RI**	**CT**	**NY**	**VT**			
2006	MICHIGAN	MI	3	1	2	**OH**	IN	**WI**					
2006	MINNESOTA	MN	4	1	3	**WI**	**IA**	**SD**	ND				
2007	MISSISSIPPI	MS	4	3	1	TN	AL	**LA**	AR				
2008	MISSOURI	MO	8	8	0	IA	IL	KY	TN	AR	OK	KS	NE
2008	MONTANA	MT	4	3	1	ND	SD	WY	ID				
2006	NEBRASKA	NE	6	1	5	**SD**	**IA**	MO	KS	**CO**	**WY**		
2006	NEVADA	NV	5	1	4	**ID**	UT	**AZ**	**CA**	**OR**			
2006&2008	NEW HAMPSHIRE	NH	3	0	3	**ME**	**MA**	**VT**					
2005	NEW JERSEY	NJ	4	4	0	NY	CT	DE	PA				
2006	NEW MEXICO	NM	5	1	4	**CO**	**OK**	**TX**	**AZ**	UT			
2006	NEW YORK	NY	5	1	4	**VT**	**MA**	**CT**	NJ	**PA**			
2008	N. CAROLINA	NC	4	4	0	VA	SC	GA	TN				
2008	NORTH DAKOTA	ND	3	2	1	MN	SD	**MT**					
2006	OHIO	OH	5	3	2	**PA**	WV	KY	IN	**MI**			
2006	OKLAHOMA	OK	6	1	5	**KS**	MO	**AR**	**TX**	**NM**	**CO**		
2006	OREGON	OR	4	1	3	WA	**ID**	**NV**	**CA**				

2006	PENNSYLVANIA	PA	6	3	3	**NY**	NJ	DE	**MD**	WV	**OH**		
2006	RHODE ISLAND	RI	2	0	2	**MA**	**CT**						
2006	S. CAROLINA	SC	2	1	1	NC	**GA**						
2006	SOUTH DAKOTA	SD	6	2	4	ND	**MN**	IA	**NE**	**WY**	MT		
2006	TENNESSEE	TN	8	5	3	KY	VA	NC	**GA**	**AL**	MS	**AR**	MO
2006	TEXAS	TX	4	1	3	**OK**	**AR**	LA	**NM**				
2008	UTAH	UT	6	6	0	ID	WY	CO	NM	AZ	NV		
2006&2008	VERMONT	VT	3	0	3	**NH**	**MA**	**NY**					
2005	VIRGINIA	VA	5	5	0	MD	NC	TN	KY	WV			
2008	WASHINGTON	WA	2	2	0	ID	OR						
2008	WEST VIRGINIA	WV	5	5	0	PA	MD	VA	KY	OH			
2006	WISCONSIN	WI	4	0	4	**MI**	**IL**	**IA**	**MN**				
2006	WYOMING	WY	6	2	4	MT	**SD**	**NE**	**CO**	UT	**ID**		

Table V. IPO Activity and Gubernatorial Elections: Difference-in-Difference Neighboring States Method

This table presents the results of OLS regressions using the neighboring states method. For each state-year for which the state has an election, we identify all its neighboring states without elections, and estimate Eq. [6]. The dependent variable is the number of IPOs between the state with an election and a neighboring state without an election. *Election Year* is a dummy equal to 1 if the year is an election year. Since we only include state-years where the state has an election, the variable is a constant of 1 in this estimation. *ΔState's GDP Growth (Lag)* and *ΔNumb. of IPOs in State (Lag)* are the difference in the lagged growth of state GDP per capita and the lagged number of IPOs between the two states. The numbers in parentheses below the coefficients are the *p*-values calculated using clustered (by state and year) standard errors that are robust to heteroskedasticity and error correlation across states and through time. Coefficients that are significant at the 1%, 5%, and 10% levels are marked with ***, **, and *, respectively.

	OLS		
Variables	**(1)**	**(2)**	**(3)**
Election Year	**-2.0077**	**-2.4230**	**-1.4627**
	(0.0007)* **	**(0.0010)*** **	**(0.0042)*** **
ΔState's GDP Growth (Lag)	--	0.0163	-0.0317
		(0.0004)***	(0.208)
ΔNumb. of IPOs in State (Lag)	--	--	0.1637
			(0.0001)***
R^2	0.4013	0.4762	0.4812
State-Year Obs.	569	569	569
Clustering by states and years	Yes	Yes	Yes

Table VI. Post-Election Jump in IPO Activity

This table presents the results from multivariate OLS and Tobit regressions for testing the post-election increase in the number of IPOs in each state. The sample period is 1988-2011. The dependent variable is the number of IPOs in the state for a given year. The lower limit for Tobit regression is zero. Post-Election Year (T = +1), Mid-Election Year (T = +2), Pre-Election Year (T = –1) are defined relative to the election year (T=0), which is the year before an election. Other variables are defined in the appendix. The numbers in parentheses below the coefficients are the *p*-values calculated using clustered (by state and year) standard errors that are robust to heteroskedasticity and error correlation across states and through time. Statistics that are significant at the 1%, 5%, and 10% levels are marked with ***, **, and *, respectively.

	T = +1 Year Only		**All Off-Election Years**	
Variables	**OLS**	**Tobit**	**OLS**	**Tobit**
Post-Election Year (T = +1)	**0.6853** **(0.0519)***	**1.3426** **(0.0155)****	**0.9199** **(0.0152)****	**1.5361** **(0.0067)*****
Mid-Election Year (T = +2)	**--**	**--**	**1.2553** **(0.0325)****	**0.9472** **(0.1349)**
Pre-Election Year (T = –1)	**--**	**--**	**-0.2325** **(0.5348)**	**-0.1413** **(0.7212)**
State GDP Growth (Lag)	-0.1310 (0.0246)**	-0.0470 (0.6848)	-0.1087 (0.0648)*	-0.0248 (0.8766)
SP500 Index Return (Lag)	0.0614 (0.0001)***	0.1264 (0.0001)***	0.0534 (0.0001)***	0.1199 (0.0001)***
Tot. Capacity Utilization (Lag)	-0.0108 (0.8470)	0.0595 (0.6507)	-0.0207 (0.8348)	0.0517 (0.695)
Long-Term Inter. Rates (Lag)	0.0390 (0.8220)	0.0992 (0.6412)	0.0765 (0.6640)	0.1214 (0.5839)
Numb. of IPOs in State (Lag)	0.5657 (0.0001)***	0.5100 (0.0001)***	0.5686 (0.0001)***	0.5120 (0.0001)***
Hot IPO Market	2.9285 (0.0012)***	5.5629 (0.0001)***	2.8649 (0.0010)***	5.5080 (0.0001)***
R^2 or Pseudo-R^2	0.7500	0.2104	0.7518	0.2108
State-Year Obs.	1,150	1,150	1,150	1,150
Clustering by states and years	Yes	Yes	Yes	Yes
State Fixed Effects	Yes	Yes	Yes	Yes

Table VII. IPO Activity and Gubernatorial Elections: Subsamples by Degree of Election Uncertainty

The table presents the results from multivariate Tobit regressions for the high-election-uncertainty (HEU) and low-election-uncertainty (LEU) subsamples, separately. The subsamples are identified based on three measures. *Election Closeness* is the difference in the percentage of votes received by the winning candidate from the percentage of votes by her opponent, i.e., the winning margin. We sort elections into terciles based on this measure, and classify those in the top tercile as HEU elections and those in the bottom tercile as LEU elections. *Governor Change* is a dummy variable that takes the value of one if the election leads to a change in the governor and her winning margin is less than 5%, or if the election is one of the three special elections in our sample and 0 otherwise. We classify the elections with *governor change* equal to one as HEU elections and the rest as LEU elections. *Absence of Incumbent* is a dummy variable that takes the value of one if the incumbent governor is not a candidate on the election ballot for reasons other than term-limit expiration and 0 otherwise. We identify the elections with *absence of incumbent* equal to one as HEU elections and the rest as LEU elections. The dependent variable is the number of IPOs in the state for a given year. The lower limit for Tobit regression is zero. The regressors are defined in the appendix. The numbers in parentheses below the coefficients are the *p*-values calculated using clustered (by state and year) standard errors that are robust to arbitrary heteroskedasticity and error correlation across states and through time. We also report the Wald test *F*-statistics that coefficients are the same between the subsamples. Statistics that are significant at the 1%, 5%, and 10% levels are marked with ***, **, and *, respectively.

	Election Closeness		***Governor Change***		***Absence of incumbent***	
Variables	**(HEU)**	**(LEU)**	**(HEU)**	**(LEU)**	**(HEU)**	**(LEU)**
Election Year	**-0.9978**	**-0.9837**	**-1.7274**	**-0.8396**	**-1.1413**	**-0.9761**
	(0.0001)***	**(0.2360)**	**(0.0001)*****	**(0.1300)**	**(0.0001)*****	**(0.0780)***
State's GDP Growth (Lag)	-0.4070	0.0981	-0.6872	0.0777	-0.3316	0.0457
	(0.0001)***	(0.4840)	(0.0001)***	(0.5040)	(0.0001)***	(0.7000)
SP500 Index Return (Lag)	0.1230	0.0629	0.1319	0.1253	0.1244	0.1255
	(0.0001)***	(0.0060)***	(0.0001)***	(0.0001)***	(0.0001)***	(0.0001)***
Tot. Capacity Utilization (Lag)	0.3806	0.1632	0.3085	0.0245	0.1884	0.0497
	(0.0001)***	(0.2940)	(0.0001)***	(0.8730)	(0.0001)***	(0.7440)
Long-Term Inter. Rates (Lag)	-0.1254	-0.1820	-0.0896	0.0843	0.0211	0.0573
	(0.0001)***	(0.6200)	(0.0490)**	(0.7520)	(0.6560)	(0.8350)
Numb. of IPOs in Sate (Lag)	0.0500	0.1401	0.2284	0.5093	0.2227	0.5029
	(0.0040)***	(0.4570)	(0.0001)***	(0.0030)***	(0.0001)***	(0.0030)***
Hot IPO Market	6.8858	4.4455	4.7975	5.7410	4.8859	5.5025
	(0.0001)***	(0.0001)***	(0.0001)***	(0.0001)***	(0.0001)***	(0.0001)***
Pseudo-R^2	0.2581	0.2745	0.2634	0.2076	0.2280	0.2116
State-Year Obs.	380	367	234	916	228	922
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Wald test *F*-statistics (*p*-value)	2.36 (0.0167)**		1.91 (0.0548)*		0.96 (0.4689)	

Table VIII. IPO Activity and Gubernatorial Elections: Subsamples by Geographical Concentration and Government Contract Dependence

The table presents the results from multivariate Tobit regressions for subsamples based on whether the firm is geographically concentrated, and subsamples based on the firm's government contract dependence (the last two columns). Geographically-concentrated firms and firms with high dependence on government contract are defined in the appendix. The dependent variable is the number of IPOs in the corresponding subsample for a state-year. The lower limit for Tobit regression is zero. The regressors are defined in the appendix. The numbers in parentheses below the coefficients are the *p*-values calculated using clustered (by state and year) standard errors that are robust to arbitrary heteroskedasticity and error correlation across states and through time. We also report the Wald test *F*-statistics that coefficients are the same between the subsamples. Statistics that are significant at the 1%, 5%, and 10% levels are marked with ***, **, and *, respectively.

	Geographical Concentration		**Government Contract Dependence**	
Variables	**Concentrated Firms**	**Rest of Sample**	**High Government Contract Dependence**	**Rest of Sample**
Election Year	**-1.2018** **(0.0082)*** **	**-0.5394** **(0.0617)** **	**-1.0933** **(0.0001)*** **	**-0.7816** **(0.0890)***
State's GDP Growth (Lag)	-0.1296 (0.0176)**	-0.1789 (0.1014)	-0.0489 (0.3918)	-0.0480 (0.1717)
SP500 Index Return (Lag)	0.0518 (0.0001)***	0.0490 (0.01796)**	0.1317 (0.0001)***	0.1789 (0.0002)***
Tot. Capacity Utilization (Lag)	-0.0156 (0.6221)	-0.0130 (0.2390)	0.0480 (0.4590)	0.0344 (0.2138)
Long-Term Inter. Rates (Lag)	0.0487 (0.3418)	0.0375 (0.3208)	0.1020 (0.2148)	0.1039 (0.3847)
Numb. of IPOs in State (Lag)	0.4890 (0.0001)***	0.4923 (0.0001)***	0.2029 (0.0034)***	0.3081 (0.0042)***
Hot IPO Market	3.1480 (0.0011)***	2.1290 (0.0011)***	4.7821 (0.0005)***	45.9920 (0.0017)***
R^2 or Pseudo-R^2	0.3117	0.3090	0.2100	0.1888
State-Year Obs. Used	1,150	1,150	1,150	1,150
Clustering by states and years	Yes	Yes	Yes	Yes
State Fixed Effects	Yes	Yes	Yes	Yes
Wald test *F*-statistics (*p*-value)	27.10 (0.0001)***		8.12 (0.0005)***	

Table IX. IPO Activity and Gubernatorial Elections: Analysis of Hard-to-Value IPOs

This table presents the results from multivariate Tobit regressions for the hard-to-value (*HTV*) and *non-HTV* subsamples. We identify hard-to-value firms using three different measures. For the first measure, *HTV1*, a firm is considered hard to value if it is in a high-tech industry. Our second measure, *HTV2*, classifies a firm as hard to value if it is in a high-tech industry and it is in the bottom *Firm Age* tercile in our sample. The third measure, *HTV3,* defines a firm as hard to value if the firm has active research and development program, i.e., its R&D spending is positive in the fiscal year prior to the IPO. The dependent variable is the number of IPOs in the corresponding subsample for a state-year. The lower limit for Tobit regression is zero. The regressors are defined in the appendix. The numbers in parentheses below the coefficients are the *p*-values calculated using clustered (by state and year) standard errors that are robust to arbitrary heteroskedasticity and error correlation across states and through time. We also report the Wald test *F*-statistics that coefficients are the same between the subsamples. Statistics that are significant at the 1%, 5%, and 10% levels are marked with ***, **, and *, respectively.

Variables	***HTV1 Measure***		***HTV2 Measure***		***HTV3 Measure***	
	***HTV* IPOs** (N=2,803)	***Non-HTV* IPOs** (N=2,924)	***HTV* IPOs** (N=833)	***Non-HTV* IPOs** (N=4,894)	***HTV* IPOs** (N=2,040)	***Non-HTV* IPOs** (N=3,687)
Election Year	**-1.6118 (0.0001)*** **	**0.4125 (0.1210)**	**-1.1074 (0.0001)*** **	**-0.5146 (0.1620)**	**-1.2807 (0.0001)*** **	**-0.1002 (0.6530)**
State's GDP Growth (Lag)	0.1317 (0.0007)***	-0.0483 (0.3949)	0.2610 (0.0001)***	-0.0973 (0.2117)	-0.0200 (0.5312)	0.0148 (0.7272)
SP500 Index Return (Lag)	0.1163 (0.0001)***	0.0539 (0.0001)***	0.0919 (0.0001)***	0.0933 (0.0001)***	0.0892 (0.0001)***	0.0833 (0.0001)***
Tot. Capacity Utilization (Lag)	0.2654 (0.0001)***	-0.0651 (0.2830)	0.6715 (0.0001)***	-0.0165 (0.8789)	0.1784 (0.0001)***	-0.0223 (0.7417)
Long-Term Inter. Rates (Lag)	-0.3022 (0.0001)***	0.3099 (0.0126)**	-0.5377 (0.0001)***	0.2499 (0.1766)	-0.2860 (0.0001)***	0.2921 (0.0312)**
Numb. of IPOs in Sate (Lag)	0.3360 (0.0001)***	0.1329 (0.0014)***	0.1369 (0.0001)***	0.3441 (0.0001)***	0.2384 (0.0001)***	0.2432 (0.0001)***
Hot IPO Market	2.6791 (0.0001)***	4.7419 (0.0001)***	1.8085 (0.0001)***	5.4282 (0.0001)***	2.6851 (0.0001)***	4.5969 (0.0001)***
R^2 or Pseudo-R^2	0.2119	0.2413	0.2588	0.2352	0.2308	0.2421
State-Year Obs. Used	1,150	1,150	1,150	1,150	1,150	1,150
Clustering by states and years	Yes	Yes	Yes	Yes	Yes	Yes
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Wald-test *F*-statistics (*p*-value)	23.36 (0.0001)***		49.49 (0.0001)***		28.16 (0.0001)***	

Table X. Political Uncertainty and Cost of Capital: Price-to-Value Ratio Analysis

The table presents the mean and median of price-to-value ratios for election-year IPOs and off-election-year IPOs respectively. Following Purnanandam and Swaminathan (2004), the three price-to-value ratios are $(P/V)_{Sales}$, $(P/V)_{EBITDA}$, and $(P/V)_{Earnings}$. See the Appendix for the details. The matching-firm selection procedures are detailed in Section 4. *P/V* ratios are winsorized at the 1% and 99% levels. The results under two sets of matching-sample selection criteria are presented: "No Restriction" – no additional requirement on minimum price and on minimum number of matching candidates in the same sales-EBITDA profit margin portfolio as the sample, and "P>$5; min 3 firms" – in addition to the common selection procedure, the matching firm's price has to be greater than $5 and there has to be at least 3 matching candidates in the same sales and EBITDA portfolio as the IPO firm. The *p*-values from the tests for equality of the means (*t*-test) and the medians (Wilcoxon rank sum test) between the election-year and off-election-year subsamples are also presented. Significance at the 1%, 5%, and 10% levels is marked with ***, **, and *, respectively.

Selection Criteria of Matching Sample	**Sales Multiple: $(P/V)_{Sales}$**			**EBITDA Multiple: $(P/V)_{EBITDA}$**			**Earnings Multiple: $(P/V)_{Earnings}$**		
	Election-Year	**Off-Election-Year**	**Test (*p*-val)**	**Election-Year**	**Off-Election-Year**	**Test (*p*-val)**	**Election-Year**	**Off-Election-Year**	**Test (*p*-val)**
No Restriction									
Median	1.2586	1.6321	0.0004***	1.0872	1.2295	0.0167**	1.0597	1.2363	0.0462**
Mean	4.9197	5.9700	0.0179**	2.9977	3.9108	0.0069***	3.4837	3.7589	0.5814
N	989	3,457		732	2,222		508	1,599	
P>$5; min 3 firms									
Median	1.0298	1.1882	0.0005***	0.9659	1.0471	0.0991*	1.0165	1.1799	0.0859*
Mean	2.8921	3.7742	0.0031***	1.9363	2.3516	0.0092***	2.9714	3.3445	0.3433
N	956	3,361		689	2,096		530	1,604	

Table XI. Price-to-Value Ratios: Cross-Sectional Tests

The table reports the median of price-to-value ratios for various IPO subsamples. In Panel A, firms are classified into geographically concentrated firms vs. the rest of the sample. In Panel B, firms are classified as those with high dependence on government contracts and the rest of the sample. In Panel C, firms are classified as hard-to-value firms and the rest of the sample. See the appendix for the definition of geographically concentrated firms, firms with high dependence on government contract, and hard-to-value firms. There are three measures for hard-to-value (HTV) firms. For brevity, we only present results based on HTV1. For each IPO subsample, we again look at those issued in election years and those in off-election years separately. Following Purnanandam and Swaminathan (2004), the three price-to-value ratios are $(P/V)_{Sales}$, $(P/V)_{EBITDA}$, and $(P/V)_{Earnings}$. See the Appendix for the details. The matching-firm selection procedures are detailed in Section 4. *P/V* ratios are winsorized at the 1% and 99% levels. The results under two sets of matching-sample selection criteria are presented: "No Restriction" – no additional requirement on minimum price and on minimum number of matching candidates in the same sales-EBITDA profit margin portfolio as the sample, and "P>$5; min 3 firms" – in addition to the common selection procedure, the matching firm's price has to be greater than $5 and there has to be at least 3 matching candidates in the same sales and EBITDA portfolio as the IPO firm. The *p*-values from the tests for equality of the medians (Wilcoxon rank sum test) between the election-year and off-election-year subsamples are also presented. Significance at the 1%, 5%, and 10% levels is marked with ***, **, and *, respectively.

Panel A: Stratified by geographical concentration

Selection Criteria of Matching Sample	Sales Multiple: $(P/V)_{Sales}$			EBITDA Multiple: $(P/V)_{EBITDA}$			Earnings Multiple: $(P/V)_{Earnings}$		
	Election-Year	Off-Election-Year	Test (*p*-val)	Election-Year	Off-Election-Year	Test (*p*-val)	Election-Year	Off-Election-Year	Test (*p*-val)
No Restriction									
Concentrated	1.2535	1.9062	0.0008***	1.0419	1.3349	0.0128**	1.0073	1.3278	0.0555*
Non-Concentrated	1.1725	1.4989	0.0424**	1.1012	1.1826	0.3911	1.1271	1.1539	0.6491
N (Conc. / Non-Conc.)	316 / 321	1307 / 1008		226 / 260	754 / 725		168 / 172	552 / 515	
P>$5; min 3 firms									
Concentrated	0.9695	1.2587	0.0004***	0.9552	1.1397	0.0253**	0.9973	1.1385	0.0358**
Non-Concentrated	1.0814	1.1250	0.1952	0.9421	1.0235	0.4561	1.0343	1.2044	0.5217
N (Conc. / Non-Conc.)	304 / 367	1282 / 967		211 / 245	721 / 674		171 / 182	570 / 496	

Panel B: Stratified by government contract dependence

No Restriction									
Govern. dependent	1.2369	1.9673	0.0203**	0.8643	1.1106	0.2214	0.9019	1.7779	0.0102**
Govern. independent	1.2073	1.5703	0.1004	1.3006	1.2541	0.3200	1.1424	1.0357	0.8371
N (Depen. / Indepen.)	611 / 320	2040 / 1409		460/264	1411 / 813		321 / 185	1010 / 584	
P>$5; min 3 firms									
Govern. dependent	0.6925	1.5516	0.0320**	1.1254	1.3261	0.1890	0.9653	1.4129	0.0310**
Govern. independent	1.0470	1.1137	0.1710	1.0402	1.1573	0.1419	0.8297	1.0548	0.0502*
N (Depen. / Indepen.)	515 / 369	1972 / 1382		434 / 251	1345 / 749		335 / 185	1022 / 577	

Panel C: Stratified by *HTV* vs. *non-HTV IPOs*

Selection Criteria of Matching Sample	Sales Multiple: $(P/V)_{Sales}$			EBITDA Multiple: $(P/V)_{EBITDA}$			Earnings Multiple: $(P/V)_{Earnings}$		
	Election	**Off-Election**	**Test (*p*-val)**	**Election**	**Off-Election**	**Test (*p*-val)**	**Election**	**Off-Election**	**Test (*p*-val)**
No Restriction									
HTV IPOs	1.7513	2.1534	0.0309**	1.5411	1.6164	0.2111	1.2001	1.5009	0.0487**
Non-HTV IPOs	1.0914	1.1173	0.4212	0.9591	1.0490	0.2888	1.0073	1.0405	0.5010
N (HTV / Non-HTV)	453 / 548	1935 / 1510		264 / 473	944 / 1273		186 / 325	656 / 940	
P>$5; min 3 firms									
HTV IPOs	1.1412	1.4788	0.0007***	1.1347	1.2677	0.0950*	1.2103	1.3651	0.0869*
Non-HTV IPOs	0.9663	0.8903	0.9366	0.8682	0.9320	0.5870	0.9622	1.0362	0.4823
N (HTV / Non-HTV)	446 / 510	1927 / 1394		251 / 441	926 / 1167		184 / 319	651 / 930	