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Political Uncertainty and Household Stock Market Participation

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Abstract

Using microlevel panel data and a difference-in-differences identification strategy, we study the effect of political uncertainty on household stock market participation. We find that households significantly reduce their participation and reallocate funds to safer assets during periods of increased political uncertainty prior to gubernatorial elections. The decline in participation is related to households' response to elevated asset risk and their incentive to hedge increased labor income risk. In situations where uncertainty remains high after elections, pre-election reduction in participation is only partially reversed.

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I. Introduction

Political uncertainty is related to the range, likelihood, and impact of future government actions. The magnitude of uncertainty depends on what policy actions will be undertaken, who will make these decisions, and to what extent the policies will be implemented. Despite recent research showing that political uncertainty has adverse real effects on corporate decision making (Julio and Yook (2012), Gulen and Ion (2016), Bonaime, Gulen, and Ion (2017), Çolak, Durnev, and Qian (2017), and Jens (2017)), surprisingly little is known about its influence on households. We seek to fill this gap in the nascent literature by investigating whether and how political uncertainty affects households' participation in the stock market.

The motivation for households' response to political uncertainty is different from that for firms. Unlike corporate investments that are costly and irreversible, households' stock investments are easily reversible. Therefore, the real option value behind the reduction in corporate investments during periods of greater political uncertainty does not apply to households. We show that political uncertainty affects household stock market participation through two channels that are distinct from the real option channel for corporate investments. First, an increase in political uncertainty results in greater asset risk (Pástor and Veronesi (2013), Brogaard and Detzel (2015)) and hence leads households to reduce their stock investment. Second, an increase in political uncertainty raises labor income risk (Baker, Bloom, and Davis (2016)), thereby inducing households to sell stocks to hedge this risk.[1] The simultaneous effect of political uncertainty on asset risk and labor income risk should reduce households' willingness to participate in the stock market during periods of elevated political risk. Consistent with this prediction, we find strong evidence that higher levels of political uncertainty cause households to reduce their participation in the stock market.

To quantify the impact of political uncertainty on household participation in the stock market, we use the microlevel longitudinal Survey of Income and Program Participation (SIPP), a collection of panel data that tracks households for up to 4 years. There are between 30,233 and 44,347 respondents in each panel. An advantage of using panel data is that they allow us to control for household fixed effects, and thereby eliminate compositional problems caused by unobserved household characteristics that are constant over time. Utilizing SIPP data spanning the period from 1996 to 2011, we construct two related measures of stock market participation. The first one, PARTICIPATION, is an indicator variable that equals 1 if a household holds any stocks in a publicly held corporation or a mutual fund at the beginning of the interview month. The second measure, % STOCK_SHARE, reflects the monetary value of the stock investment as a fraction of a household's total liquid wealth (defined as the sum of stockholdings and safe assets, such as bonds, checking accounts, and savings accounts).

[1]Politicians and regulatory institutions frequently make decisions that influence employment, wages, taxation, government spending, business environment, and economic prospects (e.g., Peltzman (1987), Alesina and Roubini (1992), and Besley and Case (1995)), all of which affect households' labor income.

The SIPP data include each household's state of residence. We take advantage of this information and exploit the quasi-natural experiment created by U.S. gubernatorial elections, which provide an exogenous source of political uncertainty (e.g., Bird, Karolyi, and Ruchti (2017), Çolak et al. (2017)). State governments have substantial power in shaping the state's economic environment through policies on taxes, subsidies, state budgets, wages, and labor policies. The economic environment shaped by these policies, in turn, affects businesses and households.[2]

Compared with presidential elections, gubernatorial elections have several advantages. First, while presidential elections create nationwide political uncertainty, gubernatorial elections lead to statewide political uncertainty that has stronger localized effects. Second, unlike presidential elections, which are held every 4 years nationwide, gubernatorial elections in different states are staggered and held in different years. Third, unlike presidents, state governors have various term lengths and term limits. These advantages create important cross-sectional and time-series variations that can help us better identify the effect of political uncertainty on household stock market participation.

Using gubernatorial elections as a laboratory, we take a *difference-in-differences* (DD) approach to isolate the effect of political uncertainty on household stock market participation. Because gubernatorial elections are prescheduled and not controlled or affected by households, they can be viewed as mostly exogenous events. Therefore, using gubernatorial election cycles as a source of political uncertainty alleviates endogeneity concerns; that is, changes in stock market participation could be caused by changes in business cycles or in state economic conditions. In addition, the DD approach helps ease concerns that omitted variables could lead to a spurious association between stock market participation and political uncertainty, because households located in different states share the same national political and business cycles and therefore face similar macroeconomic risk and uncertainty at the national level.

Although the DD setting alleviates the aforementioned endogeneity concerns, it might not fully control for state-level economic conditions affecting the participation decision. Therefore, following Korniotis and Kumar (2013), we control for several state-level business cycle variables (income growth, relative unemployment, and the housing collateral ratio) as well as year and state fixed effects. It is important to note that the year fixed effects control for time-series variations in nationwide stock market participation. Therefore, our DD estimate captures the *marginal* effect of a state's gubernatorial election on households in that state. Since households can be exposed to elections in other states, our estimates are to be interpreted as a lower bound of the negative effects of political uncertainty on the demand for stocks. Finally, when examining the interaction effects between elections and exposures to asset risk and labor income risk, we utilize joint *state-year* fixed effects in a *triple difference* setting. This framework controls for the impact of

[2]In particular, governors serve as the chief executive officers of their states and have powers that generally include appointing officials and judges, drafting budgets, making legislative proposals, and vetoing state legislature bills. These powers result in governors having significant influence over the direction of the state budget and policy environment. It is also important to note that these powers could allow governors to circumvent the state legislature.

latent state-level shocks or trends and helps us understand the mechanisms driving the effect of political uncertainty on household stock market participation.

We find a significant 2.7% decrease in the participation rate and a 3.8% decrease in the percentage of liquid wealth invested in the stock market for households in states with upcoming gubernatorial elections, relative to households in states without upcoming elections. In terms of the economic significance of our findings, these figures are comparable to the results in Giannetti and Wang (2016), which is perhaps the most related paper in that it also investigates the effect of exogenous statewide shocks on households' stock market participation. They show that a 1-standard deviation increase in lifetime exposure to local fraud is associated with a 4% decrease in participation. In addition, the effects that we document are robust to controlling for a rich set of other factors at the household and state levels that can influence stock market participation. We also find that the dampening effect of political uncertainty on household participation becomes stronger for close elections measured by both victory margin and pre-election poll data (i.e., ex post and ex ante measures, respectively), as well as for elections with outgoing incumbent governors due to term limits. Finally, we find that, in the face of increased political uncertainty, households move their capital from the stock market to safer assets, such as savings accounts and bonds.

We hypothesize that aversion to asset risk and the need to hedge labor income risk can cause households to reduce stock investments when they face greater political uncertainty prior to gubernatorial elections. This hypothesis is based on the assumption that elections are associated with elevated asset risk and labor income risk. Indeed, our empirical estimations corroborate that both asset risk (proxied by historical stock return volatility) and labor income risk (proxied by the volatility of labor income and volatility of labor hours) increase before elections. As gubernatorial elections are staggered across states and time, exposures to labor income risk and asset risk will vary exogenously depending on the states where households and firms are located. Because the SIPP data do not contain stock-level investment information, we use data on households' stockholdings from a large discount brokerage firm to determine the locations of portfolio firms. This, in turn, allows us to classify households and their stock investments into in-state and out-of-state categories, depending on whether elections are held in the states where households reside and where portfolio firms are headquartered. Analyzing the different combinations of in-state and out-of-state households and firms enables us to test the effects of asset risk and labor income risk separately, and, thereby, identify the channels through which gubernatorial elections affect stock market participation. We find that both channels are instrumental in explaining the variation in households' participation in the stock market. Although the locations of households and firms capture *indirect* risk exposures, they do not account for within-state variations across different households and different firms located in the same state. To address this limitation, we conduct analysis with more *direct* measures of risk exposures (volatility of labor income and volatility of labor hours for labor income risk; historical return volatility for asset risk). The results corroborate our findings with indirect measures: when labor income risk and asset risk are more sensitive to political uncertainty, reductions in households' stock market participation are more pronounced prior to elections.

If elections are associated with increased levels of political uncertainty, we would expect at least some of the uncertainty to be resolved after the elections and, consequently, a reversal in stock market participation. We find results consistent with this prediction. For the overall sample of elections, the post-election increase in stock market participation is almost the same as the pre-election decrease, suggesting a complete reversal in participation. However, for the subsample of elections in which the elected governor is from a different political party than the party of outgoing governor, we observe a less than complete reversal. This evidence is again consistent with uncertainty affecting participation since, in this subsample, the increased uncertainty is more likely to linger longer after the elections.

By focusing on if and how political uncertainty impacts households' stock market participation, we contribute to a wide range of studies that emphasize how firms respond to political uncertainty (e.g., Julio and Yook (2012), Bonaime et al. (2017), Çolak et al. (2017), and Jens (2017)). Although we do not provide an explanation for the overall low participation of households (e.g., Campbell (2006)), we show that political uncertainty can exacerbate this phenomenon by inducing households to reduce their stock investments prior to elections. We further identify political uncertainty as an important source of asset risk and labor income risk, and exploit variations in households' exposures to these risks to illustrate their effect on household stock investment decisions. To this end, we also contribute to earlier studies documenting the effect of labor income risk on households' portfolio choice (e.g., Guiso, Jappelli, and Terlizzese (1996), Angerer and Lam (2009), Betermier, Jansson, Parlour, and Walden (2012), and Bonaparte, Korniotis, and Kumar (2014)). Our contribution is relevant in that we reveal meaningful time-series variations in households' stock market participation due to the recurring effect of gubernatorial elections.

The remainder of the article proceeds as follows: Section II describes the data and construction of the key variables. Section III presents the effects of political uncertainty on household stock market participation. Section IV investigates whether the resulting effects are through the asset risk and labor income risk channels. Section V examines the post-election dynamics of stock market participation. Section VI provides robustness tests. Section VII discusses the implications and concludes the article.

II. Data and Variable Construction

A. SIPP Panel Data

Our sample of households is drawn from 1996, 2001, 2004, and 2008 panels of the microlevel longitudinal SIPP.[3] The SIPP panels track between 30,233 and

[3]Each SIPP panel is a multistage stratified sample of U.S. civilian, noninstitutionalized population, and a new set of households is introduced at the start of each panel. The longitudinal design of the SIPP data dictates that all persons 15 years old and above present as household members at the time of the first interview be part of the survey throughout the entire panel period. To meet this goal, the survey collects information on people who move. In addition, field procedures were established that allow for the transfer of sample cases between regional offices. Persons moving within a 100-mile radius of an original sampling area (a county or a group of counties) are followed and continued with the normal personal

44,347 households over a period of up to 4 years. The SIPP surveys are built around a core set of questions on demographic attributes, employment and income, and business ownership. Moreover, each panel includes topical modules that include detailed questions on assets and liabilities (such as the ownership and market value of different types of assets, including real estate, vehicles, and financial assets). We conduct our analysis at the household level. Our final sample of households includes 359,260 household–year observations for 152,095 unique households.

As is common in the literature (e.g., Grinblatt, Keloharju, and Linnainmaa (2011)), we use two proxies for stock market participation. Our first proxy, PARTICIPATION, is an indicator variable that equals 1 if a household holds any stocks in publicly held corporations or mutual funds in a given period, and 0 otherwise (i.e., propensity to participate). It tells us whether a household owns any stocks or mutual funds, regardless of the invested amount. On an aggregated basis, this proxy reflects the percentage of households that own stocks or mutual funds. Our second proxy, % STOCK_SHARE, is a continuous variable defined as the value of stocks and mutual funds as a fraction of the household's total liquid wealth (i.e., intensity of participation). We define LIQUID_WEALTH as the sum of assets held in stocks (including mutual funds), bonds, and checking and savings accounts, exclusive of retirement accounts.

Following prior literature (Hong, Kubik, and Stein (2004)), we exclude stock investments in households' pension accounts or individual retirement accounts (IRAs) for three reasons. First, prior literature shows that households do not actively rebalance or trade in their retirement accounts (Agnew, Balduzzi, and Sunden (2003), Mitchell, Mottola, Utkus, and Yamaguchi (2006), and Benartzi and Thaler (2007)). Second, withdrawals of money from retirement accounts often incur significant penalties. Third, default investment choices have been shown to largely determine investments in retirement accounts (Beshears, Choi, Laibson, and Madrian (2009)).

The structure of the SIPP panels is such that, in each panel, all individuals in a sampled household are interviewed every 4 months. The SIPP divides each panel into four subsamples and each subsample is referred to as a rotation group. These four rotation groups enter the SIPP survey at different points in time (i.e., interviews are staggered across rotation groups). Each rotation group is interviewed in one of the months (called interview months) during the year and reports asset holdings for the months (called reference months) that vary between August and February (see details in Appendix A). It is important to ensure that we capture a household's stock market participation before the gubernatorial elections. Since gubernatorial elections are typically held in November (except for six cases in our sample in which the elections were held in October), our data allow us to measure stock market participation (both propensity and intensity) before and after elections.

interviews. Those moving to a new residence that falls outside the 100-mile radius of any SIPP sampling area are interviewed by telephone. The geographic areas defined by these rules contain more than 95% of the U.S. population. The survey uses three different approaches to deal with missing data to correct for nonresponses (see https://www.census.gov/programs-surveys/sipp/methodology/data-editing-and-imputation.html).

Finally, our empirical specification recognizes additional household characteristics that could impact stock market participation. We consider a wide set of variables that are available in our survey, such as total wealth, total income, age, education, financial literacy, race, gender, and marital status (Haliassos and Bertaut (1995), Campbell (2006)). We compute TOTAL_WEALTH as the sum of financial assets, home equity (including second homes), vehicles, and private business equity. For human capital, we identify various levels of formal education (HIGH_SCHOOL_OR_LESS, SOME_COLLEGE, and COLLEGE_OR_MORE). To measure financial literacy, we use an indicator variable that is equal to 1 if the household head is in a finance-related occupation (FINANCIAL_OCCUPATION) and 0 otherwise. The variables are defined in Appendix B.

Table 1 reports the summary statistics of the household variables. During our sample period, an average of 22.3% of households own stocks or mutual funds and their stock market investment averages 10.4% of their liquid wealth. If we include stocks held in IRA/401K/Keogh accounts, the percentage of households owning stocks or mutual funds rises to 38.7%. The mean total wealth of all respondents is about $139,000 and significantly exceeds the median total wealth (about $66,000), indicating a right skewness in the distribution. The mean liquid wealth is about $32,000 and is also right skewed. Respondents' principal source of nonfinancial wealth is home equity, with nontrivial equity in other real estate assets. As for education, 39% of the respondents did not go beyond high school and about 70% did not complete college. In terms of demographics, 51% are female, 53% are married, and the average age is 46.9 years.

TABLE 1

Summary Statistics: SIPP Data

The sample in Table 1 includes households covered by SIPP from 1996 to 2011. All monetary values are in real 1996 dollars. The variable PARTICIPATION is a binary variable equal to 1 if a household holds any stocks in publicly held corporations or mutual funds in a given period, and 0 otherwise; PARTICIPATION_WITHRET is a binary variable that equals 1 if the household holds any shares in publicly held corporations or mutual funds, including holdings in their retirement accounts, and 0 otherwise; % STOCK_SHARE is the percentage of liquid wealth invested by the household in stocks and mutual funds in a given period; FEMALE is a binary variable that equals 1 if the household head is female, and 0 otherwise; MARRIED is a binary variable that equals 1 if the household head is married, and 0 otherwise; AGE is the age of the household head; HIGH_SCHOOL_OR_LESS is a binary variable that equals 1 if the household head has finished at most high school, and 0 otherwise; SOME_COLLEGE is a binary variable that equals 1 if the household head is a college dropout, and 0 otherwise; COLLEGE_OR_MORE is a binary variable that equals 1 if the household head has at least a college degree, and 0 otherwise; FINANCIAL_OCCUPATION is a binary variable that equals 1 for a household head in a finance-related occupation, and 0 otherwise; RACE is a binary variable that equals 1 if the household head is white, and 0 otherwise. TOTAL_WEALTH includes financial assets as well as all real estate (including second homes), vehicles, and private business equity; LIQUID_WEALTH is defined as the sum of safe assets (e.g., bonds, checking accounts, and savings accounts) and stockholdings.

	No. of Obs.	Mean	Median	Std. Dev.
PARTICIPATION	359,260	0.223	0.000	0.416
PARTICIPATION_WITHRET	359,260	0.387	0.000	0.450
% STOCK_SHARE (% of liquid wealth)	359,260	0.104	0.000	0.271
FEMALE	359,260	0.510	1.000	0.499
MARRIED	359,260	0.531	1.000	0.489
AGE	359,260	46.920	45.000	17.230
EDUCATION				
HIGH_SCHOOL_OR_LESS	359,260	0.394	0.000	0.493
SOME_COLLEGE	359,260	0.312	0.000	0.468
COLLEGE_OR_MORE	359,260	0.283	0.000	0.456
FINANCIAL_OCCUPATION	359,260	0.041	0.000	0.198
RACE	359,260	0.822	1.000	0.382
TOTAL_WEALTH	359,260	139,079	66,197	694,331
LIQUID_WEALTH	359,260	32,173	1,500	824,300

B. Election Data

Gubernatorial elections are prescheduled and thus exogenous to household investment decisions. Unlike presidential elections, gubernatorial elections in different states occur in different years, creating substantial variations across states. Currently, the majority of states hold gubernatorial elections every 4 years, with the exception of Vermont and New Hampshire, which run their gubernatorial elections every 2 years. Five states, including Louisiana, Kentucky, Mississippi, New Jersey, and Virginia, elect their state governors in odd-numbered years, whereas the other states run their gubernatorial elections in even-numbered years. A total of 36 states have term limits for governors, while the remaining 14 states do not. The variations in election times, term lengths, and term limits across different states make gubernatorial elections a better setting than presidential elections to study the effect of political uncertainty on stock market participation.

Our main source of data on gubernatorial elections is from the Correlates of State Policy Project (CSPP) initiated by the Institute for Public Policy and Social Research (IPPSR). The data set includes more than 900 variables, with observations across the 50 U.S. states from 1990 to 2016. These variables cover a broad range of political, social, and economic factors that could influence policy differences across the states (Jordan and Grossmann (2016)). We augment the CSPP data with hand-collected vote margin and political party affiliation data.

The SIPP data mask the identification of four small states to help protect the confidentiality of respondents, leaving us 190 gubernatorial elections in our IPPSR sample between 1996 and 2011. Following the identification method of Julio and Yook (2012), we classify an election as being more uncertain if it is a close election, where the victory margin (defined as the difference between the percentages of votes obtained by the first- and second-place candidates) is in the lowest sample tercile. We also distinguish elections in which incumbents are eligible for re-election from those where incumbents face term limits (LAME_DUCK_LAST_TERM). As expected from our bottom tercile cutoff, Table 2 indicates that 63 of 190 gubernatorial elections are defined as close and, in those elections, the average vote differential between the first- and second-place candidates is 3.84%. In 27.8% of elections, incumbent governors do not seek re-election due to term limits. In these cases, although households do not know who their next governor will be, they know with certainty that it will not be their current governor. Therefore, this situation represents a high level of uncertainty regarding future policy.

C. State Macro Data

Following Korniotis and Kumar (2013), we capture local business cycles using three state-level economic indicators, including the growth rate of labor income (STATE_INCOME_GROWTH), the relative unemployment rate (STATE_RELATIVE_UNEMPLOYMENT), and the housing collateral ratio (STATE_HOUSING_COLLATERAL_RATIO). We obtain state-level labor income data from the U.S. Bureau of Economic Analysis and state-level unemployment data from the U.S. Bureau of Labor Statistics. The state-level income growth is calculated as the difference between the logarithm of state income in a given year and that

TABLE 2

Summary Statistics: Gubernatorial Elections

Table 2 reports summary statistics for gubernatorial elections held between 1996 and 2011. The variable LAME_DUCK_LAST_TERM is a binary variable that equals 1 if the incumbent governor is in his or her last term due to term limits, and 0 otherwise; PARTY_SWITCH is a binary variable that takes the value of 1 for elections in which the state's ruling party changes, and 0 otherwise; and MID_YEAR_GOVERNOR_CHANGE is a binary variable that equals 1 if there is a nonstandard mid-year change in governors, and 0 otherwise, where nonstandard means due to death, resignation, or impeachment. An election is called close if the victory margin (i.e., the difference between the percentages of votes obtained by the first- and second-place candidates in an election) is in the lowest tercile.

	No. of Obs.	Mean	Median	Std. Dev.
Whole Sample				
GUBERNATORIAL_ELECTIONS (%)	736	25.81	0.00	43.79
MID_YEAR_GOVERNOR_CHANGE (%)	736	2.45	0.00	15.46
GOVERNOR_SWITCH (%)	736	17.11	0.00	37.36
LAME_DUCK_LAST_TERM (%)	736	32.03	0.00	46.69
Election Subsample				
INCUMBENT_REPUBLICAN (%)	190	51.87	1.00	50.06
INCUMBENT_DEMOCRAT (%)	190	46.13	0.00	49.91
INCUMBENT_OTHER (%)	190	2.00	0.00	14.80
VICTORY_MARGIN (%)	190	16.46	12.71	13.68
CLOSE_ELECTION_VICTORY_MARGIN (%)	63	3.84	3.90	2.22
PARTY_SWITCH (%)	190	37.82	0.00	28.33
LAME_DUCK_LAST_TERM (%)	190	27.80	0.00	44.52

in the prior year. The relative state unemployment rate is calculated as the ratio of the current state unemployment rate to the moving average of the state unemployment rates over the previous 4 years. Following Lustig and van Nieuwerburgh (2005), (2010), the state-level housing collateral ratio is calculated as the log ratio of housing equity to labor income.

III. Political Uncertainty and Stock Market Participation

In this section, we examine the relation between household stock market participation and political uncertainty generated by gubernatorial elections. We start with the baseline model in Section III.A, followed by investigations in Section III.B of close elections and elections in which incumbent governors cannot run for re-elections. In Section III.C, we explore households' reallocation of capital during election cycles.

A. Baseline Model and Results

We employ a standard DD approach, using households in states without upcoming elections as the control group and households in states with upcoming elections in the same year as the treatment group. Such a setting allows us to separate out the effect of political uncertainty associated with gubernatorial elections from the effect of nationwide economic influences (which will be the same for the treatment and control states at any given point in time) and to net out any preexisting differences between states and between households. Furthermore, the DD approach helps address the potential omitted variable problem (i.e., some variables that affect both stock market participation and political uncertainty are omitted from the model specification). To the extent that the omitted variables affect the treatment

and control groups similarly, we can still separate out the effect of political uncertainty in a DD estimation. Specifically, we estimate the following empirical model:

$$(1)\quad \text{STOCKMKTPART}_{i,s,t} = \beta_0 + \beta_1 \text{ELECTION}_{s,t} + X'_{i,s,t}\beta_2 + Z'_{s,t}\beta_3 + \alpha_i + \delta_s + \mu_t + \varepsilon_{i,s,t}.$$

Our dependent variable, $\text{STOCKMKTPART}_{i,s,t}$, measures the stock market participation of household i in state s and year t. Since households are interviewed in different months (see Section II.A and Appendix A), when we merge the SIPP data with the IPPSR election data in a given year and state, we verify that the period over which the stock market participation is measured precedes the election month in year t. We use two different dependent variables. The first one, $\text{PARTICIPATION}_{i,s,t}$, is an indicator variable that takes the value of 1 if household i in state s invests in the stock market in year t, and 0 otherwise. This variable captures the propensity of a household to participate in the stock market. The second dependent variable, $\%\text{STOCK\_SHARE}_{i,s,t}$, captures the intensity of investment in the stock market and is defined as the percentage of liquid wealth invested in stocks and mutual funds by household i in state s and year t. Our key variable of interest is $\text{ELECTION}_{s,t}$, which takes the value of 1 for the months prior to the election month for state s in year t, and 0 otherwise.

Following the literature, the vector of control variables, $X_{i,s,t}$, includes a rich set of time-varying household-level variables that have been shown to impact both the propensity and intensity of household stock market participation. The household variables are total wealth, age, education level, marital status, total income, financial occupation, race, and gender.[4] The state-level variables, $Z_{s,t}$, are income growth, the relative unemployment rate, and the housing collateral ratio. The control variables also include state fixed effects (δ_s) to control for time-invariant state characteristics, year fixed effects (μ_t) to control for macroeconomic conditions, and household fixed effects (α_i) to control for time-invariant household traits, such as IQ, which is documented to have an impact on stock market participation (Grinblatt et al. (2011)). We estimate regression (1) using ordinary least squares, even when the dependent variable is an indicator variable, since our specifications include a large number of fixed effects (Giannetti and Wang (2016)). Standard errors are clustered at the household level to account for the time-series correlation in households' decisions to participate in the stock market.

Table 3 presents the results for the DD estimation in equation (1). The first two columns report the results for the regressions with PARTICIPATION as the dependent variable (i.e., whether a household participates at all in the stock market). Column 1 controls for presidential elections using an indicator variable, PRESIDENTIAL, which takes a value of 1 if a presidential election is held in a year, and 0 otherwise. Column 2 replaces the PRESIDENTIAL indicator with year fixed effects. The estimated slope coefficients on ELECTION are all negative and significant at the 5% level (with the coefficients −0.006 and −0.005 in columns 1 and 2, respectively). This suggests that households in a given state are less likely to participate in the stock market in the period leading up to that state's gubernatorial election. These findings are also economically significant. Conditional on an

[4]The last three variables are subsumed by household fixed effects as they do not vary over time in our sample.

TABLE 3

Political Uncertainty, Household Stock Market Participation, and Portfolio Allocation

Table 3 relates gubernatorial elections to household stock market participation (columns 1 and 2) and portfolio allocation (columns 3 and 4). The variable PARTICIPATION is an indicator variable that equals 1 if the household holds any stocks in publicly held corporations or mutual funds in a given period, and 0 otherwise; % STOCK_SHARE is the percentage of liquid wealth invested by the household in stocks and mutual funds in a given period; and ELECTION is an indicator variable that takes the value of 1 for the months prior to the election month for state *s* in year *t*, and 0 otherwise. The omitted category for education is HIGH_SCHOOL_OR_LESS. TOTAL_WEALTH and TOTAL_INCOME are in logarithmic units. Other variables are as defined in Appendix B. AGE^2 is scaled down by a factor of 100 for better exposition of the estimated slope coefficients. PRESIDENTIAL is an indicator variable equal to 1 if a presidential election is held in a certain year, and 0 otherwise. All specifications include fixed effects as indicated in the table. Standard errors are clustered at the household level and presented in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	PARTICIPATION		% STOCK_SHARE	
	1	2	3	4
ELECTION	−0.006**	−0.005**	−0.004*	−0.004**
	(0.002)	(0.002)	(0.002)	(0.002)
TOTAL_WEALTH	0.018***	0.021***	0.007***	0.008***
	(0.000)	(0.000)	(0.000)	(0.000)
COLLEGE_OR_MORE	0.215***	0.233***	0.072***	0.081***
	(0.007)	(0.005)	(0.004)	(0.003)
SOME_COLLEGE	0.119***	0.127***	0.021***	0.026***
	(0.005)	(0.005)	(0.004)	(0.003)
AGE	0.011***	0.012***	0.002**	0.002**
	(0.001)	(0.001)	(0.001)	(0.000)
AGE^2	−0.009***	−0.008***	−0.001*	−0.001*
	(0.002)	(0.002)	(0.000)	(0.000)
MARRIED	0.005	0.005	0.001	0.001
	(0.004)	(0.004)	(0.000)	(0.000)
TOTAL_INCOME	0.015***	0.016***	0.001	0.001
	(0.000)	(0.000)	(0.000)	(0.000)
STATE_INCOME_GROWTH	0.024	0.028	0.085**	0.092***
	(0.031)	(0.032)	(0.029)	(0.021)
STATE_UNEMPLOYMENT_RATE	−1.198***	−1.435***	−0.277***	−0.352***
	(0.027)	(0.033)	(0.072)	(0.060)
STATE_HOUSING_COLLATERAL_RATIO	−0.019	−0.021	0.091***	0.122***
	(0.011)	(0.013)	(0.000)	(0.007)
PRESIDENTIAL	−0.007**		−0.012***	
	(0.002)		(0.001)	
No. of obs.	306,648	306,648	306,648	306,648
R^2	0.788	0.788	0.668	0.668
State fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	No	Yes	No	Yes
Household fixed effects	Yes	Yes	Yes	Yes

election in a state, the percentage of households participating to any degree in the stock market goes down by 50–60 basis points (bps), which implies a decrease of 2.2%–2.7% in the mean unconditional stock market participation rate (22.3%).

We draw similar inferences based on the findings for the intensity of a household's investments in the stock market, as reported in columns 3 and 4 of Table 3. The estimated slope coefficients on ELECTION continue to be negative and significant at the 5% or 10% level (with coefficients equal to −0.004 in both columns 3 and 4). These results imply that the percentage of a household's liquid wealth invested in the stock market (% STOCK_SHARE) also decreases during periods close to gubernatorial elections. Again, these results are economically meaningful. Compared to a nonelection year, there is a decrease of 40 bps in an election year, which corresponds to a 3.8% decrease in the level of investments in stocks and mutual funds, the mean level of such investments being 10.4%.

The signs for the estimated coefficients on the control variables are broadly consistent with the prior studies. Household heads who are better educated, wealthier, and with higher earnings tend to have higher stock market participation (Grinblatt et al. (2011), Giannetti and Wang (2016)). The relation between stock market participation and age is nonlinear, indicating that participation increases with age initially, peaks at a certain age, and declines afterward.

Among state-level economic variables, income growth and housing collateral ratio are positively related to stock market participation and the sign of relative unemployment rate is negative. This finding is intuitive, since better economic conditions should enhance participation in equity markets. Furthermore, as expected, the presidential election, a nationwide source of political uncertainty, has a negative relation with stock market participation.

A separate potential concern with our results is that stock market participation is correlated with general economic uncertainty. For identification purposes, it is therefore important to explicitly control for any other sources of uncertainty that could affect households' stock investment decisions at the same time as political uncertainty. To mitigate this concern, we control for several macroeconomic measures of uncertainty as proposed by Bloom (2014) and Gulen and Ion (2016). These macroeconomic factors include the Volatility Index (VIX) provided by the Chicago Board Options Exchange, the macroeconomic uncertainty index of Jurado, Ludvigson, and Ng (2015), investor sentiment using the index of Baker and Wurgler (2007), and equity market performance using the Standard & Poor's 500 index return. We include all these proxies in our baseline specification from equation (1). In untabulated results, we continue to find a significantly negative relation between stock market participation and political uncertainty.

Overall, our baseline results show that increased political uncertainty associated with gubernatorial elections leads to reduced participation in the stock market, reflected by both a lower participation rate and a smaller percentage of liquid wealth invested in stocks and mutual funds.

B. Further Evidence From Close Elections and Term Limits

Following Bird et al. (2017), Falk and Shelton (2018), and Atanassov, Julio, and Leng (2019), we identify two scenarios that are likely to be associated with greater political uncertainty. These include close elections and elections in which incumbents are not standing for re-election due to term limits. In such cases, there is likely to be greater uncertainty as to which candidate will win the election and which policies will be affected than in the cases of nonclose elections or elections in which the incumbent, presumably well known at this point to both the voters and the state legislature (which the governor has to work with), is on the ballot. Therefore, we should expect greater uncertainty and a stronger reduction in household stock market participation in both cases.

Close elections are less predictable and indicate a greater dispersion of opinions among households. They, therefore, represent a higher level of political uncertainty ex ante. We define a close election as one in which the vote difference between the first- and second-place candidates is in the lowest tercile. Our variable CLOSE_ELECTION takes a value of 1 in such cases, and 0 otherwise. For brevity,

TABLE 4

Close Elections, Term Limits, and Household Stock Market Participation

Table 4 examines whether the degree of electoral uncertainty impacts the effect of political uncertainty on household stock market participation (columns 1 and 3) and portfolio allocation (columns 2 and 4). Columns 1 and 2 report the results for close elections and columns 3 and 4 report the results for elections in which term limits prevent incumbent governors from seeking re-election. The variable PARTICIPATION is an indicator variable that equals 1 if the household holds any stocks in publicly held corporations or mutual funds in a given period, and 0 otherwise; % STOCK_SHARE is the percentage of liquid wealth invested by the household in stocks and mutual funds in a given period; CLOSE_ELECTION is a binary variable that equals 1 if the vote differential (i.e., difference between the percentages of votes obtained by the first- and second-place candidates) in an election is in the lowest tercile, and 0 otherwise; and LAME_DUCK_LAST_TERM is a binary variable that equals 1 if the incumbent governor is in his/her last term due to term limits, and 0 otherwise. All specifications include fixed effects as indicated in the table. Standard errors are clustered at the household level and presented in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Close Elections		Term Limits	
	PARTICIPATION	% STOCK_SHARE	PARTICIPATION	% STOCK_SHARE
	1	2	3	4
ELECTION	−0.004*	−0.004*	−0.004*	−0.003*
	(0.002)	(0.002)	(0.002)	(0.002)
CLOSE_ELECTION	−0.007**	−0.005**		
	(0.003)	(0.002)		
LAME_DUCK_LAST_TERM			−0.001	0.001
			(0.002)	(0.000)
ELECTION × LAME_DUCK_LAST_TERM			−0.005**	−0.003**
			(0.002)	(0.001)
No. of obs.	306,648	306,648	306,648	306,648
R^2	0.797	0.668	0.797	0.668
State fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Household fixed effects	Yes	Yes	Yes	Yes
Other controls	As in Table 3, column 2	As in Table 3, column 4	As in Table 3, column 2	As in Table 3, column 4

we present only the estimated coefficients on ELECTION and CLOSE_ELECTION from the DD estimation in columns 1 and 2 of Table 4.[5] As in Table 3, the estimated coefficients on ELECTION remain negative and significant. The coefficient on CLOSE_ELECTION should capture the incremental effect of a close election over and above the effect of a nonclose election on stock market participation. The negative and significant coefficient of −0.007 in column 1 of Table 4 indicates an additional decrease of 70 bps (over and above the 40 bps for nonclose elections) in the percentage of households with any investment in stocks. Therefore, the total effect of a close election is a decrease of 110 bps in the propensity for household stock market participation. These figures correspond to a 5% relative decrease in the mean unconditional stock market participation rate (22.3%). We observe a similar negative relation between CLOSE_ELECTION and the percentage of households' liquid wealth invested in the stock market in column 2, % STOCK_SHARE. The total effect adds up to a decrease of 90 bps (after adding the 40-bp effect for nonclose elections), which represents an 8.7% relative decrease in the mean percentage of liquid wealth invested in the stock market (10.4%).

Moving on to our second case associated with greater political uncertainty, we investigate term limits that prevent incumbent governors from seeking re-election.

[5]Note that the variable CLOSE_ELECTION is conditional on having an election. Therefore, we do not need to interact it with the variable ELECTION.

With the well-documented incumbency advantage (Erikson (1971), Gelman and King (1990)), incumbents overwhelmingly win re-elections. Consistent with this prior research, we find that, in our sample, incumbent governors win re-elections 83% of the time. Hence, political uncertainty can increase when the incumbent governor is in his or her final term and soon to be replaced by a new governor. Term limits are also plausibly exogenous because they are specified in state constitutions and are therefore not amendable by individual households to further their own interests.

We define LAME_DUCK_LAST_TERM as an indicator variable that is equal to 1 if the incumbent governor is in his or her last term due to term limits, and 0 otherwise. Columns 3 and 4 of Table 4 present the results. As in earlier specifications, the coefficient on ELECTION continues to be negative. The interaction term between ELECTION and LAME_DUCK_LAST_TERM has negative coefficients of −0.005 in column 3 and −0.003 in column 4, both of which are significant at the 5% level. This shows the incremental effect of political uncertainty on stock market participation in election years in which incumbent governors are serving their last terms. Moreover, the variable LAME_DUCK_LAST_TERM, by itself, does not have a significant relation with household stock market participation. This suggests that a governor being in his or her lame duck term does not affect stock market participation, except during gubernatorial election years when the uncertainty of change is looming. Overall, prior to an election that determines a lame duck's successor, a household's stock market participation decreases by 90 bps and the percentage of liquid wealth invested in the stock market decreases by 60 bps (adding the coefficients on ELECTION and on the interaction of ELECTION and LAME_DUCK_LAST_TERM). These results imply a 4% relative decrease in the unconditional participation rate and a 5.8% relative decrease in the unconditional percentage of liquid wealth invested in the stock market.

Taken together, the results in this section show that it is not the elections themselves but rather the uncertainty about election outcomes that drives household stock market participation, further strengthening the causal interpretation of our findings.

C. How Do Households Reallocate Their Assets?

The key insight from our empirical analysis so far is that households reduce their stock investments during times of elevated political uncertainty. A natural follow-up question is how households facing such uncertainty reallocate their assets. Does political uncertainty trigger flight-to-safety behavior? Does political uncertainty instigate households to switch their stock investments into nonfinancial assets such as real estate and vehicles?

To address these questions, we define three new variables: i) % SAFE_ASSET^{W}, the percentage of total wealth invested by households in safer assets, such as government securities, municipal bonds, corporate bonds, money market deposit accounts, checking accounts, and savings accounts; ii) % STOCK_SHARE^{W}, the percentage of total wealth invested by households in stocks and mutual funds; and iii) % ILLIQUID^{W}, the percentage of total wealth invested by households in illiquid assets, such as real estate, vehicles, and private businesses. Note that, in defining these variables, we use the household's total wealth in the denominator

TABLE 5

Household Asset Reallocation

Table 5 reports the results on how political uncertainty relates to the investment decisions of households on risky assets (stocks and mutual funds), safe assets, and illiquid assets; % STOCK_SHARE^W is the percentage of total wealth invested by the household in stocks and mutual funds; % SAFE_SHARE^W is the percentage of total wealth invested in safe assets, such as government securities, municipal bonds, money market deposit accounts, checking accounts, and savings accounts; % ILLIQUID^W is the percentage of total wealth invested in illiquid assets, such as real estate, vehicles, and private businesses; and ELECTION is an indicator variable that takes the value of 1 for the months prior to the election month for state *s* in year *t*, and 0 otherwise. All specifications include fixed effects as indicated in the table. Standard errors are clustered at the household level and presented in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	% STOCK_SHARE^W		% SAFE_SHARE^W		% ILLIQUID^W	
	1	2	3	4	5	6
ELECTION	−0.001**	−0.002**	0.010**	0.009**	−0.008	−0.006
	(0.000)	(0.001)	(0.005)	(0.004)	(0.006)	(0.004)
No. of obs.	306,648	306,648	306,648	306,648	306,648	306,648
R^2	0.633	0.633	0.701	0.701	0.497	0.497
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	No	Yes	No	Yes	No	Yes
Household fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	As in Table 3, column 3	As in Table 3, column 4	As in Table 3, column 3	As in Table 3, column 4	As in Table 3, column 3	As in Table 3, column 4

rather than its liquid wealth (e.g., Giannetti and Wang (2016)) to control for any shocks to other parts of the household's portfolio that could be correlated with state-level political uncertainty. Furthermore, normalizing by total wealth rather than liquid wealth avoids the mechanical relation that a decrease in the percentage of liquid wealth invested in stocks always coincides with an increase in the percentage of liquid wealth invested in safer assets, because these two fractions no longer add up to 1 in the presence of illiquid assets.

To investigate asset reallocation, we modify the regression specified in equation (1) by keeping the same independent variables but replacing the dependent variables with % SAFE_ASSET^W, % STOCK_SHARE^W, or % ILLIQUID^W. Table 5 shows that households facing upcoming elections reduce their stock investments and reallocate their capital to safer assets. For example, columns 1 and 2 show that the estimated coefficients on the ELECTION indicator are −0.001 and −0.002, respectively. These amount to a reduction in stock investments by 4.1% and 8.2% relative to the average of 2.4% of total wealth invested in stocks. Columns 3 and 4 report the estimated coefficients on the ELECTION indicator as 0.010 and 0.009, respectively, suggesting an increase in safer assets by 5.2% of the average investments in safer assets (19.1% of total wealth). Columns 5 and 6 show that political uncertainty also causes a decrease in households' investments in illiquid assets, but the coefficient estimates are statistically insignificant. These results suggest that households in states with upcoming gubernatorial elections are more likely to shift from stocks to safer liquid assets during the period leading up to an election.

IV. Political Uncertainty, Labor Income Risk, and Asset Risk

Our results so far show that political uncertainty dampens household stock market participation. In this section, we test the hypothesis that households alter participation to hedge their exposures to greater asset risk and labor income risk due

to heightened political uncertainty. We first examine whether there is an increase in both labor income risk and asset risk prior to gubernatorial elections and report the results in Section IV.A. We then conduct a battery of tests to isolate the effects of labor income risk and asset risk on household stock market participation. In Section IV.B, we use the locations of households and firms as *indirect* measures of risk exposures and, thereby, test the channels through which gubernatorial elections affect stock market participation. However, the indirect measures do not account for variations in risk exposures across different households and different firms located in the same state. Therefore, in Section IV.C, we also use more *direct* measures of asset risk and labor income risk to further investigate how the *within-state* variations in these risk exposures affect households' responses to elections.

A. Effect of Gubernatorial Elections on Labor Income Risk and Asset Risk

The SIPP provides information on employment activity and labor earnings, which allows us to estimate households' labor income risk. We use monthly wages to measure labor income. For individuals who are not paid monthly, we calculate the wage in a particular month by multiplying the hourly wage rate by the weekly hours worked and by the number of weeks in that month. In addition to labor earnings, we also use labor hours worked to capture changes in households' employment activity. Specifically, we construct two different proxies for labor income risk: i) volatility of labor income; and ii) volatility of labor hours worked, where volatility is the standard deviation in respondents' monthly labor income or hours worked between January and October in both election and nonelection years. Table 6 reports the descriptive statistics for these two measures of labor income risk.

We estimate the following regression to test if labor income risk varies prior to elections:

$$(2)\quad \text{LABORINCOMERISK}_{i,s,t} = \phi_0 + \phi_1 \text{ELECTION}_{s,t} + Z'_{s,t}\phi_2 + \alpha_i + \delta_s + \mu_t + \xi_{i,s,t}.$$

$\text{LABORINCOMERISK}_{i,s,t}$ is either the volatility in labor income or the volatility in labor hours worked for household i in state s and year t. ELECTION indicator, time-varying state-level macro-control variables, $Z_{s,t}$, and fixed effects, $(\alpha_i, \delta_s, \mu_t)$, are same as those in equation (1). Our coefficient of interest is ϕ_1, which captures the effect of upcoming gubernatorial elections on labor income risk.

TABLE 6

Summary Statistics for the Measures of Labor Income Risk and Asset Risk

In Table 6, we use two different proxies for labor income risk: i) volatility in monthly labor income; and ii) volatility in monthly labor hours worked, where each proxy is calculated between January and October each year as the standard deviation in workers' monthly labor income or labor hours worked, respectively. RETVOL is the average monthly standard deviation of stock returns (computed from daily stock returns) between January and October each year. All variables are measured over 1996–2011 period, coinciding with the SIPP data coverage. The last row reports the statistics for RETVOL between 1991 and 2011, combining the sample periods of the SIPP and brokerage data.

	No. of Obs.	Mean	Median	Std. Dev.
LABOR_INCOME_VOLATILITY	246,383	708.160	512.000	1,224.600
LABOR_HOURS_VOLATILITY	353,206	11.721	9.225	14.845
RETVOL	88,680	0.038	0.031	0.026
RETVOL (1991–2011)	120,046	0.038	0.031	0.027

TABLE 7

Labor Income Risk and Asset Risk and Political Uncertainty

Table 7 explores the response of labor income risk and asset risk to political uncertainty. ELECTION is an indicator variable that takes the value of 1 for the months prior to the election month for state *s* in year *t*, and 0 otherwise. In Panel A, the sample period is from 1996 to 2011. We use two different proxies for labor income risk: i) volatility in monthly labor income (column 1A); and ii) volatility in monthly labor hours worked (column 1B), where each proxy is calculated between January and October each year as the standard deviation in workers' monthly labor income or labor hours worked, respectively. In Panel B, column 1B reports the results for 1996–2011 coinciding with the coverage of the SIPP data; column 2B reports the results for 1991–2011, combining the sample periods of the SIPP and brokerage data. To proxy for asset risk, we use the average monthly standard deviations of stock returns (computed from daily stock returns) between January and October each year, RETVOL. Household-state control variables include income growth, unemployment rate, and housing collateral ratio, as defined in Appendix B. All specifications include fixed effects as indicated in the table. Standard errors are clustered at the household level and presented in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Labor Income Risk

	LABOR_INCOME_VOLATILITY	LABOR_HOURS_VOLATILITY
	1A	2A
ELECTION	49.281***	1.912***
	(7.264)	(0.128)
No. of obs.	243,471	349,820
R^2	0.363	0.445
Household-state controls	Yes	Yes
State fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Household fixed effects	Yes	Yes

Panel B. Asset Risk

	RETVOL (1996–2001)	RETVOL (1991–2001)
	1B	2B
ELECTION	0.040***	0.031***
	(0.017)	(0.015)
No. of obs.	87,819	119,233
R^2	0.592	0.565
Firm-state controls	Yes	Yes
State fixed effects	Yes	Yes
Firm fixed effects	Yes	Yes
Year fixed effects	Yes	Yes

Panel A of Table 7 reports the findings, where standard errors are clustered at the household level. Column 1A shows that the OLS estimate for ϕ_1 is 49.281, significant at the 1 percent level. This indicates that labor income risk increases by about 6.8% (the mean labor income volatility is 708.16; see Table 6) prior to gubernatorial elections. Column 2A is analogous to column 1A but uses the volatility in labor hours worked as our dependent variable. The estimate of ϕ_1 is 1.912, which implies that the volatility in labor hours increases by 16.4% (the mean volatility is 11.72) before elections.

We next examine whether and how political uncertainty affects asset risk by using historical stock return volatility. We estimate monthly stock return volatility using daily stock returns from the CRSP stock database. Similar to the test of labor income risk, we estimate the following regression to test if asset risk changes for firms located in a state where there is an upcoming election:

$$(3) \quad \text{ASSETRISK}_{f,s,t} = \varsigma_o + \varsigma_1 \text{ELECTION}_{s,t} + Z'_{s,t}\varsigma_2 + \delta_s + \vartheta_f + \mu_t + \omega_{f,s,t}.$$

$\text{ASSETRISK}_{f,s,t}$ is the average of the monthly historical volatility over the January–October period for firm *f* headquartered in state *s* and in year *t*. Compustat provides information about the current location of firms' headquarters. However,

firms' headquarters can change over time. Therefore, we follow Heider and Ljungqvist (2015) and Ljungqvist, Zhang, and Zuo (2017) to supplement the Compustat data with firms' historical headquarters information listed in their regulatory filings.[6] As before, we control for time-varying state-level macro-control variables, $Z'_{s,t}$, as well as state, firm, and year fixed effects $(\delta_s, \vartheta_f, \mu_t)$.

Panel B of Table 7 reports the coefficient estimates, where standard errors are clustered at the firm level. Column 1B reports the results for historical return volatility using the 1996–2011 period to coincide with the SIPP data coverage. The estimated coefficient is positive and significant (0.040), indicating that asset risk amplifies prior to gubernatorial elections.[7] Column 2B presents the findings for return volatility for the 1991–2011 period, which corresponds to the combined sample periods for the SIPP (1996–2011) and brokerage data (1991–1996). We continue to observe a positive and significant estimate for ς_1 (coefficient = 0.031) for this period.

B. In-State and Out-of-State Households and Firms

As shown in the previous section, gubernatorial elections increase the asset risk of in-state firms (i.e., firms headquartered in election states) and the labor income risk of in-state households (i.e., households residing in election states). These findings allow us to study the channels through which political uncertainty affects household stock market participation. First, the increase in asset risk reduces the demand for in-state stocks relative to out-of-state stocks. Second, the increase in labor income risk provides in-state households with greater incentives to hedge the elevated risk by reducing their stock investments more than out-of-state households.

For the empirical analysis of the channels, we isolate asset risk and labor income risk by exploiting the variations in locations of households and firms, and classifying them as in-state or out-of-state depending on whether they are located in election states. Table 8 divides the overall sample of household-firm observations

TABLE 8

Labor Income Risk and Asset Risk Channels

Table 8 illustrates how labor income risk (Channel #1) and asset risk (Channel #2) independently and together influence household stock market participation. For this purpose, the table groups the overall sample of household-firm observations into six different subsamples S1 through S6.

Subsample No.	Channel #1	Channel #2	Election in Household-State?	Election in Firm-State?	Household-State Same as Firm-State?
(S1)	Labor Income Risk	Asset Risk	Yes	Yes	Yes
(S2)	Labor Income Risk	Asset Risk	Yes	Yes	No
(S3)	Labor Income Risk	No Asset Risk	Yes	No	No
(S4)	No Labor Income Risk	Asset Risk	No	Yes	No
(S5)	No Labor Income Risk	No Asset Risk	No	No	Yes
(S6)	No Labor Income Risk	No Asset Risk	No	No	No

[6]We thank Alexander Ljungqvist for sharing firms' historical headquarters information.

[7]We also repeat this analysis using implied volatility data from the standardized option tables in OptionMetrics database, which is available from 1996 onward, and therefore only overlaps with the brokerage data in 1996. We find positive estimated coefficient, but not statistically significant (p-value = 0.11).

into six different subsamples (S1–S6). As we can observe from this table, to filter out the asset risk channel, we need to compare household stock market participation in S3 with that in S5 and S6. Because firms in these three subsamples are not headquartered in election states, the only differentiating factor is whether households reside in election states (S3) or not (S5 and S6); that is, whether they face different exposures to labor income risk due to elections. Therefore, the analysis using these three subsamples allows us to isolate the effect of political uncertainty on participation through the labor income risk channel. Similarly, comparing S4 with S5 and S6 enables us to suppress the labor income risk channel, and thus identify the effect of political uncertainty on participation through the asset risk channel. Finally, to capture the combined effect of both labor income risk and asset risk channels, we compare participation in S1 with that in S5 as well as participation in (S1 + S2) with that in (S5 + S6).[8]

Because the SIPP data do not include information on investment at the firm level, we rely on data from a large discount brokerage firm to identify both in-state and out-of-state stockholdings of households. The brokerage data provide monthly information on common stockholdings between 1991 and 1996 for a large panel of households residing in different states. A series of papers use these data to study household investments (Barber and Odean (2000), Barber and Odean (2001), Barber and Odean (2002), Kumar (2009), and Giannetti and Wang (2016)). While the brokerage data have the advantage of stock-specific information, there are three limitations. First, the data are not as recent as the SIPP data. Second, the brokerage data span a shorter period of time and do not cover as large a cross section of households as the SIPP data. Finally, the data do not have information about household labor income to allow us to explore the heterogeneity in labor income for households living in the same state. In the next section, we address this limitation by using the SIPP data which facilitates analysis with micro-level information on household labor income both within and across states. Offsetting the aforementioned limitations, however, the brokerage data include the detailed information on households' investments at the firm level, which enables us to investigate how asset risk affects households' response to political uncertainty.

To examine how asset risk and labor income risk affect households' stock market participation prior to gubernatorial elections, we estimate the following regression:

$$(4) \qquad \%\Delta\text{HOLDING}_{i,f,t} = \kappa_0 + \kappa_1 \text{ELECTION} + Z'_{s,t}\kappa_2 + \alpha_i + \vartheta_f + \mu_t + \eta_{i,f,t},$$

where $\%\Delta\text{HOLDING}_{i,f,t}$ is the percentage change in household i's stock investment in firm f from January to October in year t. Following our earlier discussion in this section, the definition of ELECTION varies with the subsamples and risk channels that we analyze in our empirical tests. For ease of exposition, we defer a detailed

[8]Note that unlike S1 and S5, the household-state and firm-state are different in S2 and S6. Therefore, in the comparison of stock market participation in S1 + S2 versus S5 + S6, we would need two election indicator variables: one for the household-state and one for the firm-state. However, we cannot estimate such a regression due to perfect correlation between these two indicators. Consequently, we can include only one indicator variable, but then the results need to be interpreted cautiously because the household-state and firm-state are different in S2 and S6.

TABLE 9

Labor Income Risk and Asset Risk Analysis Using the Brokerage Data

The dependent variable in Table 9 is the percentage change in a household's stockholding in a firm from January to October, which is winsorized at the 99% level on the upper tail of the distribution. Subsamples S1–S6 are defined in Table 8. Column 1 reports the results using subsamples S1 and S5, where ELECTION is an indicator variable that takes a value of 1 when a gubernatorial election is in the household-state (same as the firm-state) to capture the *combined effects of asset risk and labor income risk*. Column 2 reports the results using subsamples S3, S5, and S6, where ELECTION is an indicator variable that takes a value of 1 when the election is held in the household-state to capture *only the effect of labor income risk*. Column 3 reports the results using subsamples S4, S5, and S6, where ELECTION is an indicator variable that takes a value of 1 when the election is held in the firm-state to capture *only the effect of asset risk*. Household-state and firm-state control variables include income growth, unemployment rate, and housing collateral ratio, as defined in Appendix B. The sample period is from 1991 to 1996. All specifications include fixed effects as indicated in the table. Standard errors are clustered at the household level and reported in parentheses, where ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Asset Risk + Labor Income Risk	Labor Income Risk	Asset Risk
	S1 + S5	S3 + S5 + S6	S4 + S5 + S6
	1	2	3
ELECTION	−0.032**	−0.026***	−0.034***
	(0.013)	(0.007)	(0.008)
No. of obs.	17,910	66,489	66,096
R^2	0.035	0.118	0.110
Household-state controls	Yes	Yes	Yes
Firm-state controls	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Household fixed effects	Yes	Yes	Yes

description of ELECTION to the next paragraph, where we summarize the estimation results. $Z_{s,t}$ represents time-varying state-level macro-control variables in a household's state s, and $(\alpha_i, \vartheta_f, \mu_t)$ denote household, firm, and year fixed effects.[9] As before, the standard errors are clustered at the household level. Since we observe large outliers in the upper tail of the distribution, we winsorize our dependent variable at the 99% level to mitigate the effect of extreme values. In contrast, there is a natural lower bound for $\%\Delta\text{HOLDING}_{i,f,t}$ as it cannot be less than −100%, which happens when a household completely liquidates its position in a specific stock. We exclude 14 observations that breach this lower bound.

For brevity, in Table 9, we only report the results for the coefficient of interest, κ_1, along with clustered standard errors (in parentheses). Column 1 utilizes the subsamples S1 and S5 and reports the OLS estimate of κ_1 when *both* asset risk *and* labor income risk are in place. Note that in these subsamples, the household-state is the same as the firm-state and the ELECTION indicator takes a value of 1 when the gubernatorial election is held in that state, and 0 otherwise. The coefficient estimate in column 1 on the ELECTION indicator is negative, −0.032, with a standard error of 0.013, statistically significant at the 5% level. This implies that, on average, an upcoming gubernatorial election in a state induces the resident households to reduce their stockholdings by 3.2% due to higher exposure to both asset risk and labor income risk.[10] Column 2 reports regression results using the subsamples S3, S5, and S6, where firms are not headquartered in election states, and hence asset risk is

[9]Note that a household's residence state does not change in the brokerage data. Therefore, household fixed effects subsume state fixed effects.

[10]Despite the reservations expressed in footnote 8, we also estimate regression to compare participation in subsamples S1 + S2 with that in S5 + S6. We continue to observe a negative and statistically significant coefficient estimate (−0.017) on the ELECTION indicator (results not tabulated).

filtered out. In this case, the ELECTION indicator takes a value of 1 when the election is held in a household state and serves as a proxy for the exposure to elevated labor income risk *only*. Results indicate a significant decline of 2.6% in households' stock investments prior to elections. Finally, column 3 reports regression results using the subsamples S4, S5, and S6, where households do not reside in election states. This allows us to net out labor income risk associated with the upcoming elections and capture only the effect of asset risk prior to elections. In this case, the ELECTION indicator takes a value of 1 when the election is held in a firm-state and serves as a proxy *only* for exposure to greater asset risk. We observe that asset risk alone contributes to a significant decrease of 3.4% in participation in response to upcoming elections.

C. Evidence From Asset and Labor Income Risk Sensitivities

In the previous section, we rely on the locations of households and firms as indirect measures of exposures to labor income risk and asset risk, which does not allow us to capture the variations in risk exposures across different households and different firms located in the same state. Therefore, in this section, we use more direct risk measures estimated in Section IV.A at the individual household and firm level to investigate the *within-state* heterogeneity in labor income risk and asset risk sensitivities.

For each household in each election cycle, we first regress labor income risk measures (labor income volatility and labor hours volatility) on the ELECTION indicator. The coefficient estimates on the indicator variable capture the household's labor income risk sensitivities to state-level political uncertainty. We then modify equation (1) to include the interaction term between the sensitivity estimates and the ELECTION indicator. This helps us investigate whether households with different sensitivities of labor income risk to political uncertainty react differently to upcoming elections. Although our primary interest is in the interaction terms between the ELECTION indicator and sensitivity measures of labor income risk, the cross-sectional tests also include controls for other demographic characteristics of households and their interactions with ELECTION, along with household and time-varying state fixed effects. Using time-varying state fixed effects enables us to obtain more stringent cross-sectional estimates since identification comes from the differences in stock market participation between households with higher and lower labor income risk exposures within same states. Note that these fixed effects absorb all unobserved time-variant variables within a state where sample households live and share exposures to any other potentially confounding local shocks.

We report the regression results in Table 10. In columns 1 and 3, we find that the coefficients on the interaction terms are significantly negative. These results indicate that households whose labor income is more sensitive to political uncertainty reduce stock market participation more than their counterparts in election years. For a better exposition of estimated slope coefficients, we scale down the labor income sensitivity by a factor of 100. Economically, the coefficient estimates of -0.006 in column 1 and -0.004 in column 3 imply that, in response to elections, a 1-standard deviation (2.161) increase in labor income risk sensitivity lowers the stock market participation rate by an additional 5.9% ($0.006 \times 2.161/0.223$), and

TABLE 10

Political Uncertainty, Stock Market Participation, and Labor Income Risk of Households

Table 10 explores the cross-sectional differences in the effect of political uncertainty on stock market participation and the portfolio decisions of households. The variable PARTICIPATION is an indicator variable that equals 1 if the household holds any stocks in publicly held corporations or mutual funds in a given period, and 0 otherwise; % STOCK_SHARE is the percentage of liquid wealth invested by the household in stocks and mutual funds in a given period; ELECTION is an indicator variable that takes the value of 1 for the months prior to the election month for state *s* in year *t*, and 0 otherwise. The omitted category for education is HIGH_SCHOOL_OR_LESS. TOTAL_WEALTH and TOTAL_INCOME are in logarithmic units. LABOR_INCOME_RISK_SENSITIVITY and LABOR_HOURS_RISK_SENSITIVITY are the sensitivity of labor income risk and labor hours risk to gubernatorial elections, respectively. Other variables are as defined in Appendix B. All regressions include the standalone household regressors of the interaction terms and fixed effects as indicated in the table. The coefficients on STATE_INCOME_GROWTH, STATE_RELATIVE_UNEMPLOYMENT, and STATE_HOUSING_COLLATERAL_RATIO are subsumed by the state × year fixed effects. LABOR_INCOME_RISK_SENSITIVITY and AGE^2 are scaled down by a factor of 100; and LABOR_HOURS_RISK_SENSITIVITY is scaled down by a factor of 10, for better exposition of estimated slope coefficients. Standard errors are clustered at the household level and presented in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	PARTICIPATION		% STOCK_SHARE	
	1	2	3	4
Labor income risk				
LABOR_INCOME_RISK_SENSITIVITY × ELECTION	−0.006**		−0.004**	
	(0.003)		(0.002)	
LABOR_HOURS_RISK_SENSITIVITY × ELECTION		−0.014		−0.011*
		(0.009)		(0.006)
Other demographic characteristics				
FEMALE × ELECTION	−0.002	−0.002*	−0.002*	−0.001
	(0.002)	(0.001)	(0.001)	(0.000)
RACE × ELECTION	−0.001	−0.000	−0.001	−0.001
	(0.000)	(0.000)	(0.000)	(0.000)
FINANCIAL_OCCUPATION × ELECTION	0.002*	0.003*	0.002*	0.001
	(0.001)	(0.001)	(0.001)	(0.000)
MARRIED × ELECTION	0.002	0.002	0.001	0.003*
	(0.001)	(0.001)	(0.000)	(0.001)
COLLEGE_OR_MORE × ELECTION	0.003**	0.004**	0.002*	0.003**
	(0.001)	(0.002)	(0.001)	(0.001)
SOME_COLLEGE × ELECTION	0.001	0.001	0.001	0.002
	(0.000)	(0.000)	(0.000)	(0.002)
AGE × ELECTION	0.001	0.001	0.001	0.001
	(0.000)	(0.000)	(0.000)	(0.000)
AGE^2 × ELECTION	−0.002*	−0.002*	−0.001	−0.002*
	(0.001)	(0.001)	(0.000)	(0.001)
TOTAL_WEALTH × ELECTION	0.010***	0.009***	0.008***	0.007***
	(0.002)	(0.002)	(0.001)	(0.000)
TOTAL_INCOME × ELECTION	0.003*	0.002	0.001	0.001
	(0.001)	(0.001)	(0.000)	(0.000)
No. of obs.	188,354	265,385	188,354	265,385
R^2	0.627	0.698	0.586	0.663
Household fixed effects	Yes	Yes	Yes	Yes
State × year fixed effects	Yes	Yes	Yes	Yes
Other controls	Yes	Yes	Yes	Yes

the percentage of liquid wealth invested in the stock market by an additional 8.2% ($0.004 \times 2.161/0.104$), respectively (relative to their respective averages). Along the same lines, columns 2 and 4 indicate that the coefficient estimates on labor hours sensitivity (scaled down by a factor of 10 for a better exposition) are also negative: −0.014 and −0.011, respectively, where the latter is statistically significant at the 10% level. In economic terms, a 1-standard-deviation (0.615) increase in the volatility of labor hours decreases the likelihood of stock market participation by an additional 3.6% and the percentage of liquid wealth invested in risky assets by an additional 6.3%.

TABLE 11

Political Uncertainty, Stock Market Participation, and Asset Risk Using Brokerage Data

Table 11 explores the cross-sectional differences in the effect of political uncertainty on stock market participation and the portfolio decisions of households. The dependent variable is the percentage change in a household's stockholding in a firm from January to October, which is winsorized at the 99% level on the upper tail of the distribution. ELECTION is an indicator variable that takes the value of 1 for the months prior to the election month for state *s* in year *t*, and 0 otherwise. ASSET_RISK_SENSITIVITY is the sensitivity of asset risk to gubernatorial elections. Column 1 reports the results with state × year fixed effects where state corresponds to firm-state. Household-state fixed effects are not included because they are subsumed by household fixed effects as households do not change their residence states in our sample. Column 2 shows the results with both firm-state and household-state control variables after replacing state × year fixed effects with firm-state and year fixed effects. Household-state and firm-state control variables include income growth, unemployment rate, and housing collateral ratio, as defined in Appendix B. The sample period is from 1991 to 1996. All specifications include fixed effects as indicated in the table. Standard errors are clustered at the household level and presented in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	1	2
ASSET_RISK_SENSITIVITY × ELECTION	−5.709***	−5.642***
	(1.383)	(1.306)
ELECTION		−0.015***
		(0.006)
No. of obs.	74,085	74,095
R^2	0.165	0.094
Firm-state controls	No	Yes
Household-state controls	No	Yes
Firm fixed effects	Yes	Yes
Household fixed effects	Yes	Yes
State × year fixed effects	Yes	No
Firm-state fixed effects	No	Yes
Year fixed effects	No	Yes

Similar to the procedure above, we estimate the asset risk sensitivity to political uncertainty by regressing each firm's monthly stock return volatility on the ELECTION indicator. For this purpose, we resort to the brokerage data for information on firm-level investments. Since the brokerage data starts in 1991, to avoid look-ahead bias in the estimation of asset risk sensitivity, we use stock return data from 1985 to 1990.[11] Then, we estimate a regression similar to equation (4) by including the interaction of ELECTION with asset risk sensitivity. Table 11 reports the findings. Column 1 controls for household, firm, and time-varying state fixed effects. The ELECTION indicator is subsumed by time-varying state fixed effects. We find that the estimate for the interaction term is significantly negative (coefficient = −5.709), indicating that, prior to elections, households reduce their holdings more for firms with higher asset risk sensitivity to gubernatorial elections. A 1-standard deviation (0.004) increase in asset risk sensitivity reduces their stockholdings by an additional 2.3%. Column 2 repeats the analysis by replacing time-varying state fixed effects with state and year fixed effects, and controlling for time-varying state macroeconomic variables. The coefficient on the ELECTION indicator is negative and significant. More importantly, we continue to find a negative and significant coefficient (−5.642) on the interaction between the ELECTION indicator and asset risk sensitivity.

Overall, the findings in this section provide support for the prediction that households reduce their stock market participation in response to changes in labor income risk and asset risk during periods of elevated political uncertainty.

[11] Our results are not sensitive to this choice of estimation window. We obtain similar results when we use longer windows starting from 1970 or 1980.

V. Dynamics of Stock Market Participation During an Election Cycle

Our primary focus so far has been on whether households reduce stock market participation in the period before a gubernatorial election when political uncertainty is high. If uncertainty is resolved after the election, we expect the decline in stock market participation to be temporary. In this section, we test this conjecture and examine the extent and duration of any post-election reversal in participation. A complete reversal would suggest that the election effect is only temporary and resolves quickly. In contrast, a partial reversal would indicate that elections have a prolonged effect on participation.

The magnitude of the reversal should depend on the speed and degree of resolution of political uncertainty after the election. One factor that affects the resolution is the change in the state's governing party. Different parties are likely to have different political ideologies and pander to different constituents, which can lead to differences in their stances on policy positions and political actions (Hibbs (1977), Alesina (1987), and Alesina and Sachs (1988)). When a new governor from the opposition party wins the election, it takes a longer time for the new governor's policies to pass the legislature and take effect. Therefore, for elections that result in a party switch, we expect political uncertainty to remain high for a longer period than in the cases where there is no party switch (e.g., when the incumbent wins re-election).

Following the methodology of Julio and Yook (2012), we modify the baseline model in equation (1) to examine the dynamics of stock market participation during an election cycle. Specifically, we add the binary variable POST_ELECTION, which takes the value of 1 for periods after a gubernatorial election until the year before the next election, and 0 otherwise. We do so to avoid contaminating post-election effects with pre-election impact for the next cycle.[12] To gauge whether a party switch has an incremental effect on post-election participation, we also interact both ELECTION and POST_ELECTION with the binary variable PARTY_SWITCH, which takes the value of 1 for elections in which the state's ruling party changes, and 0 otherwise.

We report the results in Table 12. As in previous analyses, columns 1 and 2 show the findings for the propensity to invest in the stock market and columns 3 and 4 report the results for the intensity of investments in the stock market. First, the estimated coefficients on the indicator variable ELECTION are significantly negative in all specifications, confirming our previous finding that participation decreases in the election year. Second, the coefficient estimates on the indicator variable POST_ELECTION are significantly positive in all specifications, indicating a post-election increase in stock market participation.

Columns 1 and 3 of Table 12 estimate the average pre-election drop and post-election reversal in household stock market participation across all elections.

[12]For instance, if the election year is 2002, then ELECTION is equal to 1 from Jan. 2002 through Oct. 2002; and POST_ELECTION is equal to 1 until the year before the next election in 2006 (i.e., for Nov. 2002 and Dec. 2002, and for years 2003 and 2004). In 2005, both ELECTION and POST_ELECTION are equal to 0.

TABLE 12

Dynamics of Stock Market Participation During an Election Cycle

Table 12 provides evidence of the evolution of stock market participation and portfolio allocation over the full gubernatorial election cycle. The dependent variables are PARTICIPATION (columns 1 and 2) and % STOCK_SHARE (columns 3 and 4); ELECTION is an indicator variable that takes the value of one for the months prior to the election month for state *s* in year *t*, and 0 otherwise. PARTY_SWITCH is a binary variable that equals 1 for gubernatorial elections in which the elected governor is from a different political party than the party of the outgoing governor, and 0 otherwise. POST_ELECTION is a binary variable that takes a value of 1 for years after the current election and until the year before the next gubernatorial election in a state, and 0 otherwise. For instance, if the election year is 2002, then ELECTION is equal to 1 from Jan. 2002 through Oct. 2002; and POST_ELECTION is equal to 1 until the year before the next election in 2006 (i.e., for Nov. 2002 and Dec. 2002, and for years 2003 and 2004). In 2005, both ELECTION and POST_ELECTION are equal to 0. The sample period is from 1996 to 2011. All specifications include fixed effects as indicated in the table. The bottom panel provides the results of tests for the null hypothesis where the coefficients of election and post-election variables sum to 0. Standard errors are clustered at the household level and presented in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	PARTICIPATION		% STOCK_SHARE	
	1	2	3	4
ELECTION	−0.006***	−0.005**	−0.004**	−0.004**
	(0.002)	(0.002)	(0.001)	(0.002)
POST_ELECTION	0.004**	0.003**	0.003**	0.003**
	(0.002)	(0.001)	(0.002)	(0.001)
ELECTION × PARTY_SWITCH		−0.002*		−0.002*
		(0.001)		(0.001)
POST_ELECTION × PARTY_SWITCH		−0.001		−0.001
		(0.000)		(0.000)
Test for linear combinations of coefficients				
ELECTION + POST_ELECTION	−0.002	−0.005**	−0.001	−0.004**
No. of obs.	306,648	306,648	306,648	306,648
R^2	0.797	0.797	0.668	0.668
State fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Household fixed effects	Yes	Yes	Yes	Yes
Other controls	As in Table 3, column 2	As in Table 3, column 2	As in Table 3, column 4	As in Table 3, column 4

We observe a decrease in participation during the election year (with the coefficients of −0.006 and −0.004) followed by an increase until the next election (with the coefficients of 0.004 and 0.003). In columns 2 and 4, we separately estimate the pre-election drop and post-election reversal for elections with and without a party switch. For this purpose, we interact the ELECTION and POST_ELECTION indicator variables with the PARTY_SWITCH variable. When there is a party switch, we observe a larger decline in participation during the election year but the increase after the election is smaller. For example, based on the estimates in column 2, there is a decline of 0.007 (i.e., (−0.005) + (−0.002)) followed by an increase of 0.002 (i.e., 0.003 + (−0.001)).

To evaluate the net effect on stock market participation during the election cycle, we conduct a test on the estimated coefficients on the election and post-election variables. The null hypothesis is that the coefficients on the election and post-election variables sum to 0, which would suggest a complete reversal in participation after the election. We fail to reject this null hypothesis for the estimates in columns 1 and 3 of Table 12, which suggests that the decline in stock market participation completely reverses for the overall sample. In contrast, we reject the null in columns 2 and 4, which indicates that, for elections that result in a party switch, the pre-election decline in participation is greater than the post-election increase in participation. In other words, reduction in stock market participation is

only partially reversed due to the slower resolution of political uncertainty after a party switch.

Taken together, these results show a reversal in household stock market participation after the election. Moreover, the magnitude of the reversal depends on the speed and degree of resolution in uncertainty after the election.

VI. Robustness Tests

In our tests so far, we have focused on stock investments outside of retirement accounts, because investments in these accounts are often affected by default choices (Beshears et al. (2009)). To ensure that our results are robust to the inclusion of retirement accounts, we redefine our measure of stock market participation. The SIPP questionnaires ask only about the type of assets held in the IRA, 401K, and Keogh but not about the dollar amount invested in risky assets in these retirement accounts. Accordingly, we modify the indicator variable PARTICIPATION (propensity for participation) as taking the value of 1 if the household holds any shares in publicly held corporations or mutual funds, including holdings in their retirement accounts, and 0 otherwise. In untabulated analyses, our re-estimated models deliver very similar results, both qualitatively and quantitatively, to those of earlier findings on the propensity for participation.

In a different set of tests, we refine our definition of close elections. In Table 4, we measured a close election as having a vote difference between the first- and second-place candidates in the lowest tercile of the sample. One drawback of this approach is that vote differences are captured ex post and do not capture the closeness of the race *prior* to the election. Although there is a generally high correlation between pre-election polls and actual election outcomes, for robustness, we construct an alternative ex ante measure of closeness by utilizing pre-election poll data from RealClearPolitics.com. We were able to hand-collect data on 1,859 polls for 104 elections conducted between 2002 and 2011. To measure closeness using poll data, we first compute the difference in the percentages of votes received by the first- and second-place candidates in each poll and then average the poll differentials for each gubernatorial election. As before, we define an election as being close if the election's average poll differential is in the lowest tercile. This leaves 34 close elections out of 104 total elections, with an average poll differential of 3.75% between the top two candidates. The correlation between the average poll margin and election results is 0.93, which, unsurprisingly, suggests that the ex post closeness measure obtained from election results is a good proxy for the ex ante election closeness obtained from polls. We re-estimate our model as in Table 4 and find the (untabulated) results to be essentially identical.

VII. Conclusions and Implications

In this article, we show that political uncertainty, proxied by gubernatorial elections, leads to a reduction in households' stock market participation. We identify two channels through which political uncertainty reduces household participation. First, an increase in political uncertainty elevates asset risk and makes stocks less appealing to households. Second, it increases households' labor income risk,

which creates a hedging motive for households to sell stocks. We document three major findings. First, in the face of heightened political uncertainty, households reduce their participation in the stock market and reallocate their capital to safer assets, such as savings accounts and bonds. Second, both asset risk and labor income risk increase prior to gubernatorial elections. Moreover, variations in exposures to these risks help explain the heterogeneity in households' responses to political uncertainty. Third, we find that the decline in stock market participation reverses as political uncertainty resolves after elections. For the subsample of elections in which there is a change in the ruling party, reduction in participation is only partially reversed.

Our findings have implications for households, firms, and the economy in general. There are welfare implications for households if they choose to stay out of the stock market after periods of high political uncertainty. A lack of participation in the stock market can significantly reduce wealth accumulation and can contribute to income inequality. In addition, our findings have implications for firms' ability to raise capital through equity markets. If the demand for stocks is lower during periods of high uncertainty, then it is costlier for firms to raise capital. This, in turn, can worsen or slow down recovery from economic recessions, since periods of high political uncertainty and economic downturns tend to coincide. These implications are beyond the scope of this study but offer interesting avenues for future research.

Appendix A. Interview and Reference Months in the SIPP Panels

The structure of the SIPP panels is such that, in each panel, all the sampled individuals included in a household are interviewed every 4 months. The SIPP divides each panel into four subsamples and each subsample is referred to as a "rotation group." These four rotation groups enter the SIPP survey at different points in time (i.e., interviews are staggered across rotation groups). For asset holdings, each rotation group is interviewed in one of the months (called interview months) during a year and reports asset holdings for months immediately before interview months (called reference months). The table below displays the SIPP panels, interview months, and reference months associated with each of the four SIPP panels included in our sample period.

Panels	Asset Interview Months	Reference Month For Which Asset Holdings Are Reported
1996	December	November
	January	December
	February	January
	March	February
2001	October	September
	November	October
	December	November
	January	December
2004	October	September
	November	October
	December	November
	January	December
2008	September	August
	October	September
	November	October
	December	November

Appendix B. Variable Definitions

Household Variables

% STOCK_SHARE: Percentage of liquid wealth invested by the household in stocks and mutual funds in a given period.

% STOCK_SHARE^{W}: Percentage of total wealth invested by the household in stocks and mutual funds.

% SAFE_SHARE^{W}: Percentage of total wealth invested in safe assets, such as government securities, municipal bonds, money market deposit accounts, checking accounts, and savings accounts.

% ILLIQUID^{W}: Percentage of total wealth invested in illiquid assets, such as real estate, vehicles, and private businesses.

%ΔHOLDING: Percentage change in household's stock investment in a firm, calculated from the brokerage data.

AGE: Age of household head.

COLLEGE_OR_MORE: A binary variable equal to 1 if the household head has at least a college degree, and 0 otherwise.

FEMALE: A binary variable equal to 1 if the household head is a female, and 0 otherwise.

FINANCIAL_OCCUPATION: A binary variable equal to 1 if the household head has a finance-related occupation, and 0 otherwise.

HIGH_SCHOOL_OR_LESS: A binary variable equal to 1 if the household head finished at most high school, and 0 otherwise.

LIQUID_WEALTH: Sum of safe assets, such as government securities, municipal bonds, corporate bonds, money market deposit accounts, checking accounts, savings accounts, and stockholdings.

MARRIED: A binary variable equal to 1 if the household head is married, and 0 otherwise.

PARTICIPATION: A binary variable equal to 1 if the household holds any stocks in publicly held corporations or mutual funds, and 0 otherwise.

PARTICIPATION_WITHRET: A binary variable that equals 1 if the household holds any shares in publicly held corporations or mutual funds, including holdings in their retirement accounts, and 0 otherwise.

RACE: A binary variable equal to 1 if the household head is white, and 0 otherwise.

SOME_COLLEGE: A binary variable equal to 1 if the household head is a college dropout, and 0 otherwise.

TOTAL_INCOME: Total household earned income.

TOTAL_WEALTH: Sum of financial assets, real estates, vehicles, and private business equity.

State Variables

STATE_HOUSING_COLLATERAL_RATIO: Log ratio of housing equity to labor income, using the methodology of Lustig and van Nieuwerburgh (2005), (2010).

STATE_INCOME_GROWTH: Difference between the logarithm of state income in a given year and that in the prior year.

STATE_RELATIVE_UNEMPLOYMENT: Ratio of the current unemployment rate to the moving average of the state unemployment rates over the previous 4 years.

Labor Income Risk and Asset Risk Variables

LABOR_EARNINGS_VOLATILITY: Standard deviation of monthly labor earnings from January to October each year.

LABOR_HOURS_VOLATILITY: Standard deviation of monthly labor hours worked from January to October each year.

RETVOL: Average monthly standard deviation of stock returns (computed from daily stock returns) between January and October each year.

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