Public Choice (2008) 137: 43–55
DOI 10.1007/s11127-008-9311-0

Can we insure against political uncertainty? Evidence from the U.S. stock market

Andrea Mattozzi

Received: 16 October 2006 / Accepted: 2 April 2008 / Published online: 22 April 2008
© Springer Science+Business Media, LLC 2008

Abstract I show that shares currently traded on U.S. stock markets can be used to hedge political uncertainty. Focusing on the 2000 U.S. presidential election, I construct two "presidential portfolios" composed of selected stocks anticipated to fare differently under a Bush versus a Gore presidency. To construct these portfolios I use data on campaign contributions by publicly traded corporations and identify the major contributors on each side. Using daily observations for the six months before the election took place, I show that the excess returns of these portfolios with respect to overall market movements are significantly related to changes in electoral polls.

Keywords Political uncertainty · Hedge · Financial markets

JEL Classification D7 · G10

1 Introduction

Political uncertainty is a pervasive phenomenon which is inherent to the political process. It naturally arises because different candidates running for office, if elected, will implement different policies, and election results are uncertain; the last two presidential elections in the United States are prime examples.[1] The object of this paper is to explore empirically whether

[1] For an extensive analysis of voters' information in U.S. presidential elections see Alvarez (1998).

This paper is a chapter of my doctoral dissertation at the University of Pennsylvania. I am grateful to Mike Alvarez, Bob Inman, Rod Kiewiet, Preston McAfee, Andrew Postlewaite, Frank Schorfheide, and in particular to Antonio Merlo for their comments. I am indebted to Celso Brunetti, Alessio Caldarera, Marco Cozzi, Daniela Iorio, and two anonymous referees for helpful suggestions. All usual disclaimers apply.

A. Mattozzi (✉)
Division of the Humanities and Social Sciences, California Institute of Technology,
1200 East California Blvd., Pasadena, CA 91125, USA
e-mail: andrea@hss.caltech.edu

existing financial instruments allow individuals to hedge political uncertainty. I show that shares traded on U.S. stock markets can be used to hedge against political uncertainty.

Many conclusions from recent theoretical work hinge on the existence of a market for insurance against political uncertainty. Musto and Yilmaz (2003) consider a model where all voters can share the "wealth risk" associated with different electoral outcomes by trading election-contingent securities in a frictionless financial market. They show that, since complete financial markets induce full insurance, all voters, regardless of their wealth, are indifferent between alternative redistribution policies. Hence, wealth considerations have no effect on electoral outcomes. Celentani et al. (2004) analyze risk sharing and endogenous fiscal spending in the presence of complete markets. They show that if markets are sequentially complete, fiscal policy can be used to manipulate future security prices leading to inefficient equilibrium allocations. In Mattozzi (2005), I propose an equilibrium model where agents, heterogeneous with respect to their income, can trade policy-contingent securities and then vote on a redistribution policy whose probability of adoption increases with the number of its supporters. I show that as long as poor individuals are constrained in the policy insurance market, the demand for redistribution is always smaller than in the case where no insurance is available. In equilibrium, relatively poor individuals receive private transfers from the rich through the insurance market, and oppose a public redistribution policy that they would otherwise have supported.

The question whether political uncertainty can be hedged or not is also relevant in connection with the existing work on implementability of the Thompson insurance mechanism, see, e.g., Thompson (1966, 1967) and Bailey (1996, 1997). The Thompson insurance mechanism for binary social choices is based on a central independent agency which estimates odds for each outcome and, based on these odds, it offers fair insurance to voters against the adoption of their less preferred alternative. Since risk-averse voters would fully insure, individual demands for insurance will truthfully reveal preferences. By selecting the outcome generating the highest profit to the central agency, the Thompson mechanism can implement the Pareto efficient alternative. A necessary condition for this mechanism to be implementable is that the independent agency must be able to quote correct odds in order to offer insurance which is perceived as fair by the voters.

The are a number of reasons why the 2000 U.S. presidential election offers a natural opportunity to study whether the stock market provides insurance against political uncertainty. First, it was a very close election with no incumbent. Uncertainty about the identity of the winner lasted until December 12th, when the Supreme Court made a final decision about the Florida recount, and George W. Bush's final victory was determined by a handful of votes. Second, the expected policies of the two candidates differed clearly on crucial issues like fiscal policy, social security reform and defense and drug policies. Finally, for the first time the press devoted considerable attention to the issue of election-related investing strategies.[2]

Focusing on the 2000 U.S. presidential election, I construct two "presidential portfolios" composed of selected stocks anticipated to fare differently under a Bush versus a Gore presidency. To construct these portfolios I use data on campaign contributions by publicly traded corporations and identify the major contributors on each side (excluding corporations that made significant contributions to both candidates' campaigns). Using daily observations

[2] "Presidential race spurs the creation of index strategies." *Wall Street Journal* (2000).

"It appears that one can assign potential industry winners and losers to each candidate, known therefore as Bush Stocks and Gore Stocks." … "Wall Street consultancy ISI Group and investment firms Lehman Brothers and Prudential Securities have each come up with portfolios of so-called Bush stocks and Gore stocks." *Business Week* (2000).

for the six months before the election took place, I show that the excess returns of these portfolios with respect to overall market movements are significantly correlated to changes in electoral polls measured by the Iowa Political Stock Market. In particular, a change in the probability of a Bush victory from 0.5 to 0.51 increases the annual expected return of the Bush portfolio by 23%, and decreases the annual expected return of the Gore portfolio by 7%. I use these results to show that the presidential portfolios I have constructed can actually be used as an instrument for hedging political uncertainty. Moreover, given my selection strategy, individuals can easily identify politically sensitive stocks well before an election, using readily available information. Since the Iowa Political Stock Market has been shown to be particularly accurate in predicting probabilities of victory for the candidates,[3] the findings of this paper, namely that existing stocks can be used to insure against the victory of the less preferred candidate, can also be interpreted as evidence in favor of the implementability of a Thompson mechanism.[4]

This paper is related to two different strands of empirical literature. The first strand studies the effect of policy reforms on stock market returns using an asset price approach. Cutler (1988) analyzes the stock market's reaction to the Tax Reform Act of 1986. The analysis focuses on two key events that were reasonably unexpected by the financial community: the vote by the House of Representatives for the bill in December 1985, and the vote for a related bill by the Senate Finance Committee five months later. He finds strong evidence that differential taxation of new and old capital was reflected in market values. Sinai and Gyourko (2004) use an asset price approach to analyze market's reaction to the Taxpayer Relief Act of 1997 and report similar evidence.

The second strand of literature studies more broadly the empirical relationship between politics and the stock market. Fisman (2001) develops a strategy to estimate the market value of political connectedness. He analyzes how stock returns of firms' closely connected to President Suharto of Indonesia reacted to news related to Suharto's deteriorating health conditions. He shows that the returns of shares of politically dependent firms were considerably lower than the returns of less-dependent firms. Roberts (1990) analyzes whether expected changes in government policy are manifested in the value of "policy sensitive" securities. He finds a positive relation between stock returns in the defense industry and the probability of a Reagan victory in the 1980 U.S. presidential election. In a similar vein, Herron et al. (1999) study the effects of the 1992 U.S. presidential election on the profitability of different economic sectors, and Ayers et al. (2005) study whether security prices reflect fiscal policy uncertainty, using data from the same election. At a more aggregate level, Pantzalis et al. (2000) investigate the behavior of stock market indices for a cross section of countries in the period around national elections. They find evidence of a positive abnormal return during the two weeks before elections are held. Santa-Clara and Valkanov (2003) analyze the excess market return in 18 presidential terms between 1927 and 1998. They find evidence that the excess return is at least 9% higher under Democratic than Republican presidencies. They also show that this difference seems not to be related to business-cycle variables or to temporal proximity to elections. Notice that none of these papers consider whether political uncertainty is insurable, which is the focus of the present study.

[3] A description of the functioning of the Iowa Political Stock Market can be found in the next section.

[4] See Bailey (1996) for a modified multi-part mechanism that corrects potential errors of the original Thompson insurance mechanism.

Within this literature, the paper which is perhaps mostly related to the present work is Knight (2007).[5] In this paper Knight tests whether policy platforms are capitalized into equity prices, using data from the 2000 U.S. presidential election. He selects a sample of firms favored under the alternative policy platforms, and shows that campaign platforms matter for firms' profitability. An important difference with the present paper is that Knight's sample of favored firms is selected using reports from financial analysts, and the selected firms' campaign contributions are only used *ex-post* to support his baseline estimates. In other words, firms' heterogeneity in campaign giving is not used to select the politically sensitive firms but only as a robustness check on the reliability of financial analysts' reports. Unlike Knight (2007), the focus of the present paper is to investigate whether political uncertainty can be hedged, and therefore it is crucial to make possible the ex-ante selection of favored firms, exploiting the corporation's expectations about the future possible states and using information which is easily available to the general public. For this reason, I construct the "presidential portfolios" *directly* using data on campaign contributions by publicly traded corporations and identifying the major contributors on each side.[6]

The remainder of the paper is organized as follows. Section 2 describes the data used in the empirical analysis. Results and sensitivity analysis are presented in Section 3. Section 4 offers concluding remarks and some avenues for future research.

2 Data

I construct presidential portfolios composed of selected stocks anticipated to fare differently under the alternative candidates and investigate to what extent the price movements of these portfolios are correlated with electoral polls in the period prior to the election. If the probability of one candidate's victory is significantly correlated with price movements of stocks and individuals can identify these stocks well before the election, then they can construct portfolios that approximate an "electoral" elementary security, and hedge policy risk by trading these securities.

The strategy I follow to construct these portfolios uses data about campaign contributions and selects stocks of corporations satisfying three conditions: (i) they made significant contributions to candidates' campaigns in the 2000 election cycle, (ii) the contributions were concentrated on one candidate, and (iii) the corporation's stocks were publicly traded in the New York Stock Exchange (NYSE) during the year 2000. Table 1 lists the top ten donors, among publicly traded corporations, that gave more than two-thirds of their total contributions to the Republican party in the 2000 election cycle. Since the top overall donors for the Democratic Party were typically trade unions and professional associations, I considered a slightly lower threshold and included in the Gore portfolio corporations (i) that contributed more than $1 million and (ii) gave more than 60% of their contributions to the Democratic Party. Table 2 lists the top ten donors for the Democratic party. Data are taken from the Center of Responsive Politics and Common Cause.

Using overall campaign contributions (hard and soft money) as a selection criterion has two important features: it exploits the corporation's expectations about the future possible states, and it makes possible the ex-ante selection of favored firms using information easily

[5] As it is also pointed out in Knight (2007), p. 391, the two papers were written simultaneously and neither of us was aware of the other when completing the first draft of the paper.

[6] This selection strategy is much in the spirit of the popular newspapers' tables "who's giving—who's getting".

Table 1 Bush portfolio

Corporation	Contribution
Philip Morris	$3,814,051
MBNA Corp.	$3,565,205
United Parcel Service	$2,918,969
Credit Suisse First Boston	$2,567,726
Enron Corp.	$2,501,058
Pfizer Inc.	$2,472,166
Bristol-Myers Squibb	$2,364,412
Union Pacific Corp.	$1,858,194
GlaxoSmithKline	$1,796,893
WorldCom Inc.	$1,786,370

Table 2 Gore portfolio

Corporation	Contribution
Goldman Sachs	$4,382,527
Time Warner	$2,373,005
Vivendi Universal	$2,119,810
Viacom Inc.	$1,552,325
Loral Space & Communications	$1,528,200
FleetBoston Financial	$1,377,775
Vyyo Inc.	$1,359,000
Bear Stearns	$1,235,629
Slim-Fast Foods/Thompson Medical	$1,194,950
Cablevision Systems	$1,026,104

available to the general public.[7] On the other hand, including soft money contributions has a well-known problem: it is difficult to distinguish between funds used to finance the presidential campaign from funds used for other party expenditures. However, since my main interest is in selecting corporations with a strong preference for one policy platform over the other, I believe that using total party contributions is justifiable.[8] It is worth noting that the stocks selected are a subset of the so called "Bush Stocks" and "Gore Stocks" that Prudential Securities and Lehman Brothers, among others, picked during the 2000 U.S. presidential election campaign. They are also part of the call and put options on Bush and Gore baskets issued by the Swiss firm Vontobel the day after the elections.

As a measure of the probability of each candidate being elected I use daily data from the Iowa Political Stock Market (henceforth IPSM). The IPSM is an experimental market operated by the University of Iowa. In the "winner-take-all market" internet traders can buy or sell candidate shares that pay $1 if the candidate wins and zero otherwise. In equilibrium, a $0.51 price of a Bush contract represents a probability of 51% of a Bush victory. The IPSM

[7] The ranking of top overall campaign contributors to each candidate did not change in the last months before the election. Typically, big donors start contributing early in the campaign.

[8] A possible alternative is to distinguish between soft-money contributions to national party committees and other contributions. This strategy addresses the problem only partially and requires an additional amount of information not readily available to the general public.

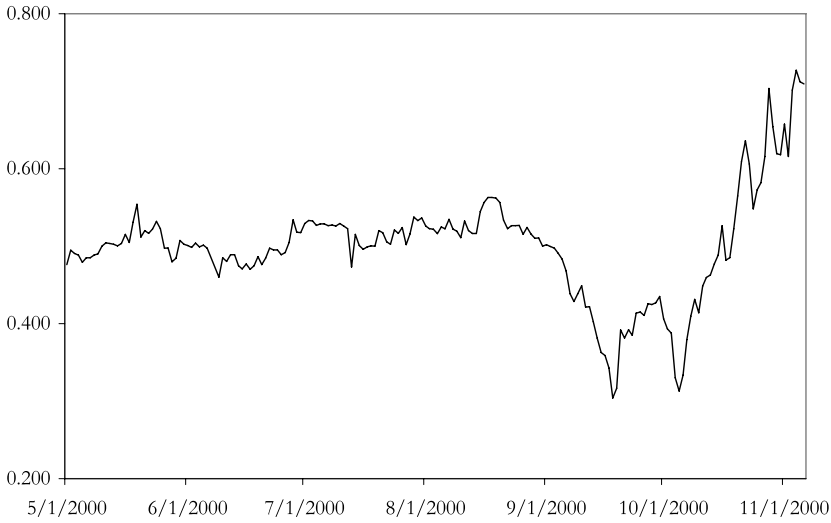


Fig. 1 IPSM closing price of a Bush contract

is used in several empirical studies as a poll proxy, and has been shown to be particularly accurate in predicting election outcomes.[9] I use the daily closing price of the Bush contract, normalized to eliminate the effect of third candidates running. It should be noticed here that the IPSM is not a political insurance market *per-se* since there is a $500 upper limit on how much people can invest in the market.[10] Figure 1 plots the IPSM closing price of a Bush contract from the first day the "winner-take-all market" was open for trading (5/1/2000) to Election Day 2000 (11/6/2000).

I construct two weighted portfolios composed of the stocks listed in Table 1 and Table 2.[11] Each index is an average of the daily closing price of ten stocks traded on the NYSE. Weights are constructed using the value of outstanding shares. In particular, if we let p_{ijt} and v_{ijt} respectively the day t closing price and the number of outstanding shares of stock j in portfolio $i = \{\text{Bush}, \text{Gore}\}$, then the portfolio index I_{it} can be computed as:

$$I_{it} = \sum_{j=1}^{10} p_{ijt} w_{ijt},$$

where

$$w_{ijt} = \frac{p_{ijt} v_{ijt}}{\sum_{j=1}^{10} p_{ijt} v_{ijt}}.$$

[9] See Forsythe et al. (1992).

[10] Betting on presidential elections is illegal in the United States. The Irish-based company Tradesports is the only company that in 2004 started offering a winner-take-all contract on the U.S. Presidential election.

[11] Credit Suisse First Boston was excluded form the Bush portfolio because of several missing price observations in the six months period considered in the empirical analysis, and replaced with UST Inc., which donated $1.605,652 to the Republicans, accounting for 90% of its total contributions. Nonetheless, my results are qualitatively the same if I interpolate missing observations and include Credit Suisse First Boston in the Bush portfolio.

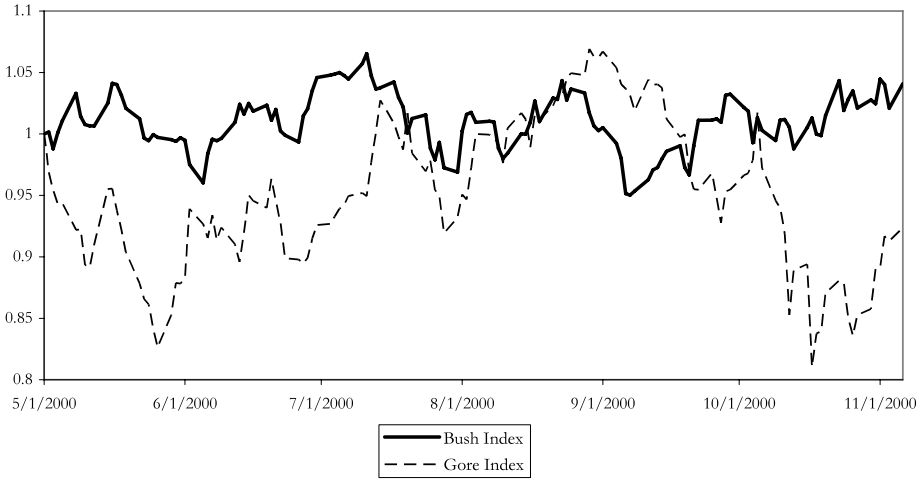


Fig. 2 Presidential indexes

The total capitalization of all corporations included in the Bush portfolio is more than \$600 billion, approximately 3.5% of the capitalization of all companies listed on the NYSE. The total capitalization of all corporations included in the Gore portfolio is about \$300 billion. The difference between the capitalizations of the companies included in the two portfolios is due to the fact that the "Gore's companies" are on average much smaller since the top overall donors for the Democratic Party were typically trade unions and professional associations. Figure 2 plots the series of the two presidential indexes for the period 5/1/2000 to 11/6/2000. Both series are normalized to unity as of 5/1/2000.

Simple inspection of Figs. 1 and 2 reveals that the two presidential portfolios are negatively correlated, in particular from September 2000 to Election Day, and there is evidence of a positive correlation between the price of the Bush portfolio and the price of the Bush contract traded on the IPSM. The annualized average rates of return of the Bush and Gore indexes in the sample period were, respectively, 9.5% and −8.6%. In the same period the Standard and Poor's 500 index fell by 2.5%. On August 18th, one day after Al Gore's speech at the Democratic National Convention in which he accused the major pharmaceutical firms of overcharging the public, the Bush index fell by 1.6%, and Pfizer alone fell by 2.9%. On December 12th, when all uncertainty was finally resolved, the Bush index rose by 0.8% with an increase in traded volume of 12%, while the Gore index fell by 0.7%.

3 Results

To test whether the daily returns of the presidential portfolios are correlated with changes in the expected probability of a Bush victory, I estimate a Capital Asset Pricing Model (CAPM) of the form:

$$R_{it} - R_{Ft} = \beta_{i1}\,(R_{Mt} - R_{Ft}) + \beta_{i2} R_{\mathrm{IPSM}t-1} + \varepsilon_{it},$$

where all variables are annualized rates of return, and: R_{it} = return of presidential portfolio; $i = \{\text{Bush, Gore}\}$; R_{Mt} = return of value-weighted NYSE index; R_{Ft} = return of risk-free asset; $R_{\mathrm{IPSM}t}$ = return of a Bush contract in the winner-takes-all market (IPSM).

Table 3 OLS regressions

Dependent variable	$R_{\text{Bush}} - R_F$	$R_{\text{Gore}} - R_F$
$R_M - R_F$	0.3250*	1.6932**
	(0.1357)	(0.1792)
$R_{\text{IPSM}(t-1)}$	0.0526**	−0.0704*
	(0.0189)	(0.0330)
No. Obs.	134	134
F-statistics (2,132)	5.9348	44.8876
Jarque-Bera	0.4232	0.5914
Arch LM Test Prob (1 lag)	0.4833	0.0076

Newey-West HAC consistent standard errors are in parentheses

** (*) indicates that the coefficient is statistically different from zero at the 1%(5%) level

As a measure for the risk-free rate of return I used the three-month Treasury bill traded on the secondary market. In order to control for factors that affected overall returns, I included the rate of return of a value-weighted index of all stocks traded on the NYSE. Moreover, since, unlike the NYSE, the IPSM is open for trading 24 hours a day and I used the midnight price as the closing price, I considered one-period-lagged daily changes of the Bush contract closing price.

Table 3 reports the results of a OLS regressions of the CAPM in terms of excess returns for both portfolios. The estimate of β_{i2}, the coefficient that captures the effect of changes in the probability of a Bush victory on the excess returns of the presidential portfolios, is significant in both regressions, has the expected sign, and the estimates do not change if I consider a different specification where the independent variable is the simple return and I include a constant term as in Table 4. Note that the amount of variance explained by the model for the Bush portfolio is in line with the results of the existing CAPM literature. On the other hand, the R^2 of the Gore regression is much higher. One possible explanation is the fact that the Gore portfolio is composed of smaller corporations than those included in the Bush portfolio. Indeed, the Gore portfolio index is much more sensitive to overall market movements.

In order to interpret the magnitude of the estimated coefficients, consider the following exercise: Fix the return of the market index $R_{Mt} - R_{Ft}$ at its mean value over the six-months period, and consider the effect of a change in the probability of a Bush victory from 0.5 to 0.51. In this case, the annual expected return of the Bush portfolio $R_{\text{Bush}t} - R_{Ft}$ increases by

$$\ln\left\{\frac{\hat{\beta}_{\text{Bush1}} E\left[R_{Mt} - R_{Ft}\right] + \hat{\beta}_{\text{Bush2}} \ln\left(\frac{0.51}{0.5}\right)}{\hat{\beta}_{\text{Bush1}} E\left[R_{Mt} - R_{Ft}\right]}\right\} \approx 23\%.$$

The opposite happens if I consider the Gore portfolio. The annual expected return of the Gore portfolio $R_{\text{Gore}t} - R_{Ft}$ decreases by

$$\ln\left\{\frac{\hat{\beta}_{\text{Gore1}} E\left[R_{Mt} - R_{Ft}\right] + \hat{\beta}_{\text{Gore2}} \ln\left(\frac{0.51}{0.5}\right)}{\hat{\beta}_{\text{Gore1}} E\left[R_{Mt} - R_{Ft}\right]}\right\} \approx 7\%.$$

Therefore, even if my portfolios are not elementary securities, they have significantly different values in different states of the world, and can actually be used as an instrument to

Table 4 OLS regressions

Dependent variable	R_{Bush}	R_{Gore}
Constant	0.0311	−0.0981
	(0.2409)	(0.2674)
R_M	0.3250*	1.6933**
	(0.1361)	(0.1796)
$R_{\text{IPSM}(t-1)}$	0.0526**	−0.0701*
	(0.0191)	(0.0331)
No. Obs.	134	134
R^2	0.097	0.485
F-statistics	7.0268	61.6169
Jarque-Bera	0.4221	0.5947
Arch LM Test Prob (1 lag)	0.4804	0.0076

Newey-West HAC consistent standard errors are in parentheses

hedge political uncertainty. Indeed, I can compare the expected return of two different hedging portfolios: the first hedges only with respect to overall market movements; the second hedges with respect to both overall market movements and electoral uncertainty. The objective is to construct a neutral portfolio.[12] The average return of the first portfolio in the period 5/1/2000 to 11/6/2000 is −0.15 with a standard deviation of 5.62, whereas the average return of the second portfolio is −0.09, with a standard deviation of 5.33. An investor with \$100,000 in the first portfolio would have lost \$5,800, as compared to a loss of only \$56 for the second portfolio.

Finally, consider that based on the proposed income tax policies of the two presidential candidates, Deloitte and Touche calculated that a married couple earning \$80,000 with two children, one under 17, was expected to get approximately \$1500 less in case of a Gore victory with respect to a Bush victory. By investing less than \$15,000 in a hedging portfolio (short on Bush and long on Gore), the couple would have been able to completely hedge the income tax policy uncertainty. Moreover, note that in 2001 the proportion of U.S. households owning stocks directly or indirectly (through mutual funds or retirement accounts) was almost 52%, and the median value of stock holdings for families holding asset and income in the 80th to 89.9th percentiles was approximately \$20,000.[13]

[12] The two portfolios are:

$$-\frac{\hat{\beta}'_{\text{Gore}}}{\hat{\beta}'_{\text{Bush}}}\left(R_{\text{Bush}\,t}-R_{Ft}\right)+\left(R_{\text{Gore}\,t}-R_{Ft}\right), \tag{1}$$

$$-\frac{\hat{\beta}_{\text{Gore2}}}{\hat{\beta}_{\text{Bush2}}}\Big(\left(R_{\text{Bush}\,t}-R_{Ft}\right)-\hat{\beta}_{\text{Bush1}}\left(R_{Mt}-R_{Ft}\right)\Big)+\Big(\left(R_{\text{Gore}\,t}-R_{Ft}\right)-\hat{\beta}_{\text{Gore1}}\left(R_{Mt}-R_{Ft}\right)\Big), \tag{2}$$

where, $\hat{\beta}_{i1}$, and $\hat{\beta}_{i2}$ are the OLS coefficient estimates of the two-factor model (overall market and electoral probabilities), and $\hat{\beta}'_i$ are the OLS coefficient estimates of a one-factor model (overall market only).

[13] See Bertaut and Starr-McCluer (2002), and Aizcorbe et al. (2003).

Table 5 GARCH (1,1) model

Dependent variable	$R_{\text{Gore}} - R_F$
$R_M - R_F$	1.7674**
	(0.1645)
$R_{\text{IPSM}}(t-1)$	−0.0703*
	(0.0325)
Variance equation	
Constant	1.8059
	(1.7068)
ARCH(l)	0.0838
	(0.0699)
GARCH(l)	0.7973**
	(0.1542)
No. Obs.	134
R^2	0.484
Arch LM Test Prob (1 lag)	0.4539

HAC consistent standard errors are in parentheses

3.1 Sensitivity analysis

The Lagrange multiplier tests reported in Tables 3 and 4 suggest that I cannot reject the hypothesis of first-order autoregressive conditional heteroscedasticity in the residuals of the Gore portfolio regressions. In order to deal with this problem, I estimate a GARCH(1,1) model under the assumption of conditionally normally distributed errors. As Table 5 shows the point estimate of β_{i2} does not change, and it is still significant at the 5% level. More important, as one should expect if the variance equation is correctly specified, there is no more autoregressive conditional heteroscedasticity left in the standardized residuals of the Gore portfolio equation.

Figures 3 and 4 show respectively a scatter plot of the residuals of a regression of $R_{\text{IPSM}t-1}$ on a constant c_1 and R_{Mt}, and the residuals of a regression of R_{it} on a constant c_2 and R_{Mt}.

$$\text{Iowa Residuals} = R_{\text{IPSM}t-1} - \left(\hat{c}_1 + \hat{\gamma}_{1\text{OLS}} R_{Mt}\right),$$
$$i\text{Portfolio Residuals} = R_{it} - \left(\hat{c}_2 + \hat{\gamma}_{2\text{OLS}} R_{Mt}\right).$$

As is apparent from Figs. 3 and 4, there are few outlier observations that might affect the correlation result. Therefore, as a way of reducing the weight of these observations given the small sample, I estimate the model by a median regression (least absolute value). The results reported in Table 6 provide evidence that the estimated effect of changes in the return of a IPSM Bush contract are robust to the presence of outliers. In particular, changes in the probability of a Bush victory have a positive effect on Bush portfolio returns, and are still significant at the 5% level. For the Gore portfolio I get the expected sign, and the estimate is significant at the 10% level.

Fig. 3 Bush portfolio residuals

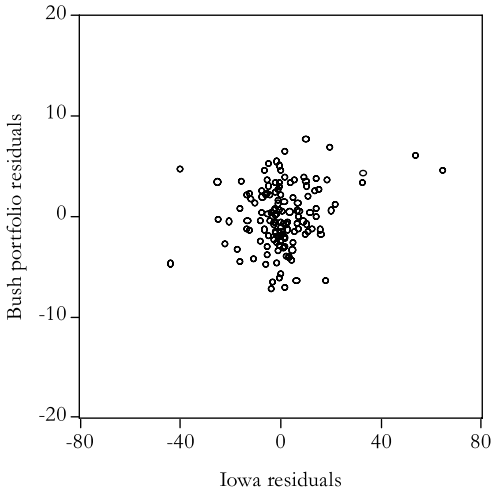
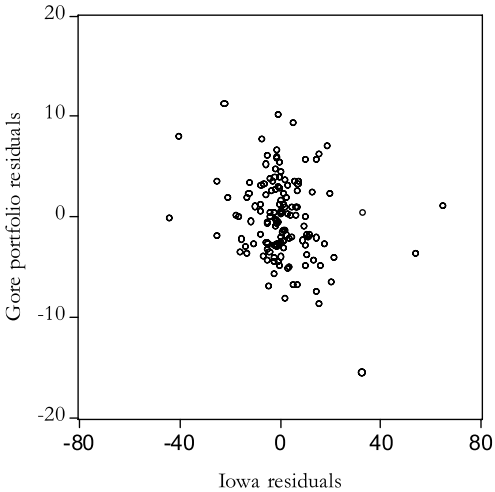


Fig. 4 Gore portfolio residuals



4 Conclusion

I provide empirical evidence that shares currently traded on U.S. stock markets can be used to insure against political uncertainty. Individuals can identify stocks whose returns are significantly correlated with the probability of one presidential candidate's victory. Moreover, they can do it well before the election, without resorting to particularly sophisticated financial instruments, and the selection strategy suggested is a particularly intuitive and simple one.

The natural next step in this research agenda is to explore whether people systematically hedge policy risk. Measuring the extent to which people insure against political uncertainty is quite difficult. The lack of data on stock holdings at the individual level makes it very hard to explore this issue from an empirical point of view. However, given that in the United States the majority of stock owners participate in the market through their mutual fund holdings, a promising avenue for addressing this question is to explore the CDA/Spectrum database.

Table 6 Least absolute value regressions

Dependent variable	R_{Bush}	R_{Gore}
Constant	−0.2646	−0.3701
	(0.4311)	(0.4899)
R_M	0.2909	1.7929**
	(0.1918)	(0.2219)
$R_{\text{IPSM}(t-1)}$	0.0748*	−0.0624
	(0.0328)	(0.0351)
No. Obs.	134	134
Pseudo R^2	0.044	0.229
F-statistics	3.78	34.21

This database provides information on each stock owned by mutual funds for each calendar quarter.[14] For example, it is possible to see that before the 2000 U.S. presidential election the Vanguard Health Care fund, a five-star rating fund from Morningstar.com, decreased by more than $6 million its stock holdings of Pfizer but then after the election bought back almost $2 million of stocks. It is interesting to note that Pfizer was a "Bush stock", and the performance of pharmaceuticals-oriented funds would presumably have been harmed by a Gore presidency. I plan to explore this issue further in future research.

References

Aizcorbe, A. M., Kennickell, A. B., & Moore, K. B. (2003). Recent changes in U.S. family finances: evidence from the 1998 and 2001 survey of consumer finances. *Federal Reserve Bulletin*, *1*.

Alvarez, R. M. (1998). *Information and elections*. Ann Arbor: University of Michigan Press.

Ayers, B., Cloyd, C. B., & Robinson, J. R. (2005). Read my lips ...: does the tax rhetoric of presidential candidates affect security prices? *The Journal of Law and Economics*, *48*, 125–148.

Bailey, M. J. (1996). Implementation of the Thompson mechanism. *Public Choice*, *89*, 231–243.

Bailey, M. J. (1997). Toward a new constitution for a future country. *Public Choice*, *90*, 73–115.

Bertaut, C. C., & Starr-McCluer, M. (2002). Household portfolios in the United States. In L. Guiso, M. Haliassos, & T. Jappelli (Eds.), *Household portfolios*. Cumberland: MIT Press.

Celentani, M., Conde-Ruiz, J. I., & Desmet, K. (2004). Endogenous policy leads to inefficient risk sharing. *Review of Economic Dynamics*, *7*, 758–787.

Cutler, D. (1988). Tax reform and the stock market: an asset price approach. *American Economic Review*, *78*, 1107–1117.

Fisman, R. (2001). Estimating the value of political connections. *American Economic Review*, *91*, 1095–1102.

Forsythe, R., Nelson, F., & Wright, J. (1992). Anatomy of an experimental political stock market. *American Economic Review*, *82*, 1142–1161.

Herron, M. C., Lavin, J., Silver, J., & Cram, D. (1999). Measurement of political effects in the United States economy: a study of the 1992 presidential election. *Economics & Politics*, *31*, 51–81.

Knight, B. G. (2007). Are policy platforms capitalized into equity prices? Evidence from the Bush/Gore 2000 presidential election. *Journal of Public Economics*, *91*, 389–409.

Mattozzi, A. (2005). Policy uncertainty, electoral securities and redistribution. Working Paper, Caltech.

Musto, D. K., & Yilmaz, B. (2003). Trading and voting. *Journal of Political Economy*, *111*, 990–1003.

Pantzalis, C., Stangeland, D. A., & Turtle, H. J. (2000). Political elections and the resolution of uncertainty: the international evidence. *Journal of Banking and Finance*, *24*, 1575–1603.

[14] One problem with using the CDA/Spectrum database is the so called "window-dressing" practice. Since the only information available is a snapshot every quarter, fund managers might choose to readjust their portfolio holdings just before data are released.

Roberts, B. E. (1990). Political institutions, policy expectations, and the 1980 election: a financial market perspective. *American Journal of Political Science*, *34*, 289–310.
Santa-Clara, P., & Valkanov, R. (2003). The presidential puzzle: political cycles and the stock market. *Journal of Finance*, *58*, 1841–1872.
Sinai, T., & Gyourko, J. (2004). The asset price incidence of capital gains taxes: evidence from the taxpayer relief act of 1997 and publicly-traded real estate firms. *Journal of Public Economics*, *88*, 1543–1565.
Thompson, E. A. (1966). A Pareto optimal group decision process. In G. Tullock (Ed.), *Papers on non-market decision making*. Charlottesville: University of Virginia.
Thompson, E. A. (1967). A reply. *Public Choice*, *1*, 109–112.