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The Presidential Puzzle: Political Cycles and the Stock Market

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ABSTRACT

The excess return in the stock market is higher under Democratic than Republican presidencies: 9 percent for the value-weighted and 16 percent for the equal-weighted portfolio. The difference comes from higher real stock returns and lower real interest rates, is statistically significant, and is robust in subsamples. The difference in returns is not explained by business-cycle variables related to expected returns, and is not concentrated around election dates. There is no difference in the riskiness of the stock market across presidencies that could justify a risk premium. The difference in returns through the political cycle is therefore a puzzle.

IN THE RUN-UP TO ALL PRESIDENTIAL ELECTIONS, the popular press is awash with reports about whether Republicans or Democrats are better for the stock market. Unfortunately, the popular interest has not been matched by academic research. This paper fills that gap by conducting a careful empirical analysis of the relation between presidential elections and the stock market.

Using data since 1927, we find that the average excess return of the value-weighted CRSP index over the three-month Treasury bill rate has been about 2 percent under Republican and 11 percent under Democratic presidents—a striking difference of 9 percent per year! This difference is economically and statistically significant. A decomposition of excess returns reveals that the difference is due to real market returns being higher under Democrats by more than 5 percent, as well as to real interest rates being almost 4 percent lower under Democrats. The results are even more impressive for the equal-weighted portfolio, where the difference in excess returns between Republicans and Democrats reaches 16 percent. Moreover, we observe an absolute monotonicity in the difference between size-decile portfolios under the two political regimes: From 7 percent for the largest firms to about 22 percent for the smallest firms.

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When faced with a result such as this, we have to ask ourselves whether the findings are spurious. We conduct several robustness checks, including studying different subsamples, correcting the statistical inference for short-sample problems, and examining the impact of outliers. In subsamples, the relation between excess returns and the political variables remains significant. However, the level of significance drops from 5 to 10 percent, largely because the power of our tests decreases substantially with the number of elections. We run a bootstrap experiment to correct small-sample inference problems. The corrected statistics corroborate the significance of the relation between political cycles and the equity premium. Finally, we use quantile regressions to establish that outliers do not drive our results. Of course, given the limitations of the data, we can never be absolutely sure that the impact of political cycles on the stock market is not just a statistical fluke.

We examine whether the difference in average returns is due to a difference in *expected* returns or a difference in *unexpected* returns. In the first case, the difference in realized returns would be due to a "Democratic risk premium."[1] In the second case, the difference in returns would be driven by *surprises* in the economic policies of the party in the presidency. In other words, a difference in unexpected returns would occur when the policies enacted by Republicans and Democrats deviate systematically from what the market anticipates.

To investigate whether the difference in returns was expected or unexpected, we use three different approaches. First, the presidential-partisan cycle might merely be proxying for variations in expected returns due to business cycle fluctuations. Indeed, previous research has found that GDP growth is slower during Republican presidential mandates, and that Democratic administrations have been associated with significantly higher inflation rates.[2] There is also substantial evidence that macroeconomic variables related to the business cycle can forecast stock market returns.[3] Therefore, the effect of political variables on the stock market might only be proxying for variations in the business cycle. To test this "proxy" hypothesis, we examine the relation between stock market returns and political variables using macro variables known to forecast the stock market as controls for business cycle fluctuations. After controlling for the dividend-price ratio, the default and term spreads, and the relative interest rate, our results become even stronger. The difference between Democratic and Republican presidencies is still around 10 percent for value-weighted returns and 20 percent for equal-weighted returns, statistically significant, and stable over different sample periods. Presidential parties thus capture variations in returns that are largely uncorrelated to what is explained by business cycle fluctuations.

[1] Since we do not observe a difference in volatility between Republican and Democratic mandates (see Section IV.C below), the risk that could justify a premium for Democrats would have to be of the "Peso" type, where there would be a (perceived) higher probability of Democrats enacting economic policies detrimental to the stock market.

[2] See Alesina and Rosenthal (1995), Alesina, Roubini, and Cohen (1997), and references therein.

[3] See, for example, Chen, Roll, and Ross (1986), Keim and Stambaugh (1986), Campbell and Shiller (1988), Fama and French (1988, 1989), Campbell (1991), and Fama (1991).

In a related experiment, we use the same business cycle variables to decompose returns into expected returns and unexpected returns. We simply regress realized returns on the business cycle variables and take the fitted values of the regression to be expected returns and the regression residuals to be unexpected returns. We then analyze differences in each component under Republican and Democratic presidencies. We find that most of the observed difference in returns can be attributed to a difference in *unexpected* returns. For the entire sample, we find that expected returns are actually 1.8 percent *higher* under Republicans, whereas unexpected returns are 10.8 percent higher under Democrats. It thus seems that the difference in realized returns can be attributed to the market being systematically positively surprised by Democratic policies. Of course, the Fama critique applies here. We cannot rule out the possibility that the higher returns under Democrats correspond to compensation for risk since we do not know for sure what drives the variation in the risk premium. Any test of rational expectations like the one we implement is simultaneously a test of rational expectations and of the risk premium.

To further study the difference in returns, we examine whether the relation between returns and the presidential-partisan cycle is concentrated around election dates. If the difference in returns was due to a higher ex ante risk premium, we should observe a large movement in stock prices when the uncertainty about which party wins the presidency is resolved. We find no significant evidence of stock price changes immediately before, during, or immediately after elections.[4] To the contrary, the difference in returns grows gradually over the term of the presidency. This supports the hypothesis that the difference in returns was not anticipated by the market and was due to (systematic) surprises in economic policies.

It can be argued that the timing of the resolution of uncertainty is hard to ascertain. In fact, the results of most elections are largely anticipated so that it is difficult to determine when exactly the winner is known. To get around this problem, we examine the reaction of the stock market to the result of the four most contested (and hence hardest to predict) presidential elections. We find no significant evidence of large returns immediately before or after surprise Republican or Democratic victories.

As a final test of the hypothesis that the higher realized returns under Democratic presidencies might be compensation for risk, we examine whether indeed risk was any higher under Democrats than Republicans. This difference in riskiness might arise from differences in economic policies pursued by each party or from varying levels of uncertainty among investors about these policies. If there was indeed a difference in the riskiness of the stock market, it would be reasonable to argue that it should command a risk premium to compensate investors for the greater risks incurred in those periods. However, we find that market volatility is actually higher under Republican presidents, contrary to the hypothesis.[5]

[4] This finding is consistent with the evidence in Cutler, Poterba, and Summers (1989) that important news is seldom related to large stock market returns, and vice versa.

[5] Although, after controlling for the state of the economy, the difference in risk under the two regimes becomes insignificant.

Of course, we are left with the possibility that "Democratic risk" is of the "Peso" type, and we just happened not to observe any bad realization in our sample. Unfortunately, that possibility cannot be tested.

Given the results above, we are left with a puzzle. How can such a large and persistent difference in returns exist in an efficient market if it is not compensation for risk? We can speculate that the difference in returns is due to differences in economic policies between Republicans and Democrats. However, to be consistent with the findings, these policies must impact the stock market directly and not just through their effect on the state of the economy. It is not immediately clear what kind of policies can have this effect. Second, differences in economic policy may justify our results only if they were *unexpected* by the market. In other words, under this explanation, market participants must have been systematically positively surprised by Democratic policies. The obvious question is then, why have investors not learned about the difference in party policies and adjusted stock prices when the result of the election becomes known? We cannot provide a conclusive answer to this question. We can only conjecture that investors perceive the party in the presidency to be a noisy signal of economic policy. Moreover, given the small number of presidencies, it may have been difficult for investors to learn about systematic differences in policies. Until we find answers to these questions, the relation between the political cycle and the stock market remains a puzzle.

A clear possibility is that our findings might be the product of data mining. Taking into account that, over the years, researchers (and investors) have tried countless variables to forecast stock market returns, it might just be the case that we have stumbled upon a variable that tests significantly even when there is actually no underlying relation between the presidency and the stock market. As pointed out by many authors, and illustrated by Sullivan, Timmermann, and White (2001), if one correlates enough variables with market returns, some spurious relations are likely to be found. The possibility of data mining is certainly a concern in the case of the presidential party variable. Indeed, we have tried other political variables, related to the party in control of Congress, without success. Additionally, our empirical investigation is not preceeded by a clear theoretical model; it is only motivated by a conjecture. One way to address data mining is to use the Bonferroni approach and adjust the confidence level of the tests by the number of hypotheses tested. In our case, taking into account that we also looked at another political institution besides the presidency, we should double the p-values of the tests. If we do that, some of the hypotheses we test are no longer significant. Unfortunately, using the Bonferroni approach severely reduces the power of the tests. The reduction in power is of particular hindrance in our study since, as we show below, our tests already have modest power. Finally, in defense of the robustness of our findings, we should point out that politics, unlike "butter production in Bangladesh,"[6] is known to have a pervasive impact on the economy.[7]

[6] Leinweber (1997) searched through a United Nations database and discovered that, historically, the single best predictor of the Standard & Poor's 500 stock index was butter production in Bangladesh.

[7] See Alesina and Rosenthal (1995), Alesina et al. (1997), and references therein.

Other authors have documented the difference in stock returns under Republican and Democratic presidents, notably Herbst and Slinkman (1984), Huang (1985), Hensel and Ziemba (1995), Siegel (1998), and Chittenden, Jensen, and Johnson (1999). Our paper is the first to formally test the relation between political cycles and the stock market, examine the robustness of this relationship, investigate cross-sectional returns, and use macroeconomic control variables. There is also a rich empirical and theoretical literature about the effects of political cycles on the macroeconomy. For surveys in this area, see Alesina et al. (1997) and Drazen (2000). These books offer convincing evidence that political variables have an impact on the state of the macroeconomy. Some of our tests are loosely motivated by hypotheses formulated in that literature.

The rest of the paper is structured as follows. Section I introduces the data and the notation used in the paper. Section II discusses the empirical methods and presents the main results: the significant and robust correlation between excess market returns and presidential-partisan variables. Section III investigates whether the results are spurious with a battery of robustness tests and discusses the possibility of data mining. In Section IV, we test three hypotheses concerning the differences in returns across political cycles and establish that the difference in returns across political regimes was not expected by investors. Section V sets out the research agenda for future work and concludes.

I. Data

In this section, we describe the variables used in the study. For clarity of exposition, the data are categorized into financial variables, political variables, and control variables. Table I provides summary statistics for quick reference. All series are at monthly frequency. The entire sample period, 1927:01–1998:12, contains 864 monthly observations, 18 elections, 10 Democratic and 8 Republican presidents.[8] As a check of robustness, we perform the statistical analysis on the full sample and two equal subsamples. The first subsample, 1927:01–1962:12, includes the Great Depression, the subsequent recovery, and World War II. It contains 432 observations and spans three Republican and six Democratic presidencies. The second subsample, from 1963:01 to 1998:12, covers the most recent period and includes 432 months under five Republican and six Democratic presidents.

A. Financial Variables

We use the log monthly returns of the value-weighted (VWR_t) and equal-weighted (EWR_t) portfolios from CRSP. The log interest rate (TBL_t) is computed from the three-month Treasury bill, obtained from Ibbotson Associates. INF_t is the log monthly inflation, also from Ibbotson Associates. Additionally, we use

[8] The sample starts in 1927 whereas CRSP offers return data since 1926. We lose one year of data to be able to run regressions with control variables that involve lagged data.

Table I

Summary Statistics of Financial and Control Variables

The table reports the sample average (Mean), standard deviation (Std.Dev.), and the autoregressive coefficient (A.R.) of all financial series and control variables used in this study. All returns are computed in logarithmic form and expressed in annualized percentage points.

	1927:01–1998:12 (864 obs)			1927:01–1962:12 (432 obs)			1963:01–1998:12 (432 obs)		
Series	Mean	Std.Dev.	A.R.	Mean	Std.Dev.	A.R.	Mean	Std.Dev.	A.R.
VWR-TBL	6.46	19.20	0.20	7.49	22.44	0.30	5.42	15.32	−0.01
VWR-INF	7.08	19.20	0.17	7.29	22.38	0.24	6.88	15.41	0.07
EWR-TBL	8.76	25.32	0.25	10.51	29.99	0.29	7.02	19.58	0.22
EWR-INF	9.39	25.25	0.22	10.31	29.89	0.25	8.47	19.58	0.22
TBL-INF	0.60	1.94	0.82	−0.26	2.53	0.80	1.46	1.01	0.88
VOL	15.59	0.56	0.87	17.63	0.68	0.90	13.56	0.38	0.72
DEC1-TBL	8.43	3.29	0.27	11.25	4.13	0.27	5.61	2.16	0.30
DEC2-TBL	7.24	2.96	0.29	8.99	3.65	0.33	5.49	2.07	0.21
DEC3-TBL	7.77	2.75	0.22	9.18	3.32	0.29	6.37	2.02	0.07
DEC4-TBL	7.77	2.56	0.22	9.07	3.06	0.29	6.48	1.95	0.07
DEC5-TBL	7.52	2.51	0.16	8.58	3.02	0.23	6.45	1.87	0.03
DEC6-TBL	7.75	2.41	0.22	9.55	2.89	0.30	5.95	1.81	−0.02
DEC7-TBL	6.95	2.31	0.17	8.38	2.74	0.25	5.52	1.78	−0.03
DEC8-TBL	7.11	2.16	0.16	8.17	2.54	0.28	6.04	1.70	−0.15
DEC9-TBL	6.95	2.06	0.20	8.59	2.44	0.31	5.31	1.60	−0.10
DEC10-TBL	6.38	1.81	0.22	7.16	2.12	0.29	5.60	1.43	0.06
DP	−3.07	0.33	0.98	−2.90	0.27	0.95	−3.24	0.29	0.99
DSP	1.14	0.02	0.97	1.27	0.03	0.97	1.01	0.01	0.97
TSP	1.64	0.04	0.91	1.61	0.03	0.94	1.67	0.04	0.90
INF	3.08	0.19	0.83	1.50	0.24	0.76	4.67	0.11	0.91
RR	0.01	0.03	0.74	−0.01	0.02	0.61	0.03	0.04	0.77

cross-sectional returns from 10 size decile portfolios ($DECj_t$, for $j=1, 2,\ldots,10$), obtained from Kenneth French. We conduct the statistical analysis in this paper with excess and real returns; for example, when studying the value-weighted portfolio, we compute $VWR_t - TBL_t$ (log value-weighted return minus log interest rate) and $VWR_t - INF_t$ (log value-weighted return minus log inflation).[9] We compute the monthly volatility of the value-weighted portfolio return (VOL_t) from within-month daily return data, using the approach of French, Schwert, and Stambaugh (1987). The daily return data is from Schwert (1990).

Although there are (limited) return and interest rate series going further back in time (Schwert (1990)), two main reasons lead us to restrict the analysis to the post-1927 period. First, there is evidence that the ideologies of the Democratic

[9] This is the most convenient way to abstract from the effects of inflation and monetary policy. Political macroeconomists have widely agreed that inflation is higher during Democratic terms. Fama (1981), Geske and Roll (1983), Kaul (1987), and Goto and Valkanov (2000) provide evidence of the effect of monetary policy on returns and inflation.

and Republican parties before WWI were not clearly delineated. Second, the data for most of the control variables are not available prior to 1927.

B. Political Variables

We define the following presidential cycle dummy variables:

- $RD_t = 1$ if a Republican is in office at time t; $RD_t = 0$ otherwise.
- $DD_t = 1$ if a Democrat is in office at time t; $DD_t = 0$ otherwise.

The political index variable that we use is motivated by previous political macroeconomic studies. It can be motivated by a "partisan" view of political cycles discussed in Hibbs (1977) and Alesina (1987), which emphasizes the differing motivations and political platforms of the political parties.[10] For instance, this school argues that policies related to corporate, personal income, and consumption taxes, government spending, insurance coverage, and social benefits are different under Republicans and Democrats.

We also studied the impact of Congressional variables on the stock market. Since we found no significant relation, we do not present these results in the paper. They are, however, available upon request.

C. Control Variables

The conditioning variables we use are the annualized log dividend-price ratio (DP_t), the term spread (TSP_t) between the yield to maturity of a 10-year Treasury note and the three-month Treasury bill, the default spread (DSP_t) between yields of BAA- and AAA-rated bonds, and the relative interest rate (RR_t) computed as the deviation of the three-month Treasury bill rate from its one-year moving average. The dividend price ratio is from CRSP, whereas the other conditioning variables are from the DRI database.

We have tried to be as exhaustive in our list of conditioning variables as possible. Some of these variables may be correlated. However, if we had to err, we wanted to err on the side of including redundant information, rather than forgetting relevant information which would lead to inconsistent estimates. The use of these control variables is uncontroversial, as they all have been used more than once in previous studies. Some of the most widely cited papers that take the dividend-price ratio, the term spread, or the default spread as predictors are Keim and Stambaugh (1986), Campbell and Shiller (1988), Fama and French (1988, 1989), and Fama (1991). The power of the relative interest rate to forecast expected returns was argued by Campbell (1991) and Hodrick (1992).

[10] We have also experimented with index variables that allow us to test for abnormal returns before or at any time during the election period, irrespective of the political party in power. Such variables can be motivated by "opportunistic" models of political behavior, where policymakers choose policies that maximize their chances of staying in office regardless of their own party's political platform. See Nordhaus (1975), Lindbeck (1976), Rogoff (1990), and Persson and Tabellini (1990). It will become clear in the subsequent analysis that such "opportunistic" models are not supported by the data, as we do not observe large price movements around elections.

II. Main Finding

In this section, we establish the empirical fact that presidential-partisan cycles have been associated with returns in the stock market as well as with the real risk-free interest rate. Furthermore, we document that the difference in stock market returns under Republican and Democratic presidencies is robust in different subsamples.

Figure 1 plots the average excess value-weighted annual return during each presidency in the 1927 to 1998 period. Republican periods are shaded in a darker color and the dash-dotted line denotes the unconditional mean of the series. Excess returns under Republican presidents have been historically lower than under Democratic presidents. Only 1 (out of 10) Democratic presidency (Roosevelt, 1937 to 1941) has known significantly lower than average excess returns, and only

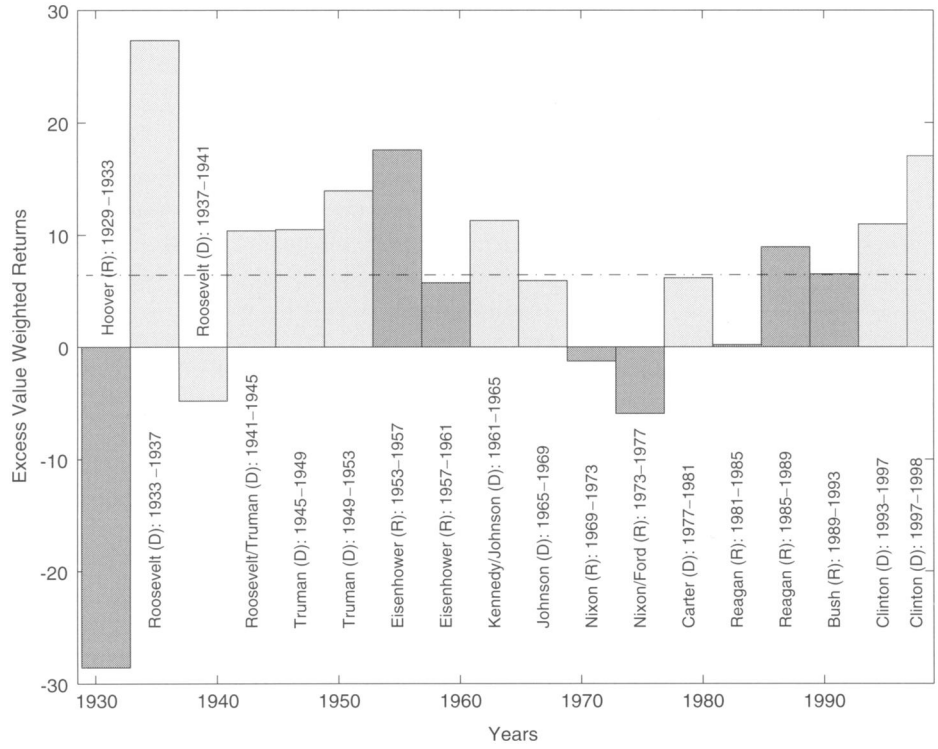

Figure 1. Average annual excess returns by presidential term, 1927 to 1998. Figure 1 displays the average annualized excess value-weighted returns during each presidential term for the 1927 to 1998 period. Republican administrations are denoted with a darker shade. The average excess return through the entire sample is marked as a dash-dotted line. Most Democratic presidencies have been associated with higher than average excess returns, with Roosevelt's (1937–1941) tenure being the only significant exception. Similarly, most Republican presidencies have been associated with significantly lower than average returns, with the only exception Eisenhower (1953–1957).

1 (out of 8) Republican presidency (Eisenhower, 1953 to 1957) has been associated with significantly higher than average returns.

To measure the correlation between (excess and real) returns and political variables, we run the following regressions:

$$r_{t+1} = \alpha + \beta\pi_t + u_{t+1} \tag{1}$$

where returns are denoted by r_{t+1} and the political variable by π_t. The timing of the variables emphasizes that the political variables are known at the start of the return period. Under the null hypothesis of political cycles having no effect on returns, we should have $\beta = 0$ in the regression. Table II, Panel A, presents the results from regressing the excess and real returns of the value-weighted and equal-weighted portfolios and for the Treasury bill on index variables for Republican and Democratic presidential mandates.[11] The coefficients are simply the means of returns during the Republican and Democratic presidencies. The probabilities of accepting the null hypothesis (p-values) reported below the estimates are computed using asymptotic standard errors using the Newey–West (1987) approach to correct for heteroskedasticity and serial-correlation, as well as using bootstrapped standard errors obtained by resampling the residuals of the regressions. If the residuals are conditionally heteroskedastic, the finite-sample distribution of the t-statistics is better approximated by the bootstrap. However, the bootstrap is not appropriate if the residuals are serially correlated, nor does it correct for spurious correlation between the returns and the political variables. For that, we need to bootstrap the regressor π_t itself, as we do in the next section. All results are presented for the entire sample and for the two subsamples.

During the 1927 to 1998 period, the value-weighted excess return under a Democratic White House was 10.69 percent per year, whereas it was only 1.69 percent per year under a Republican president, amounting to a difference of 9.01 percentage points, which is economically and statistically significant. It is interesting to notice that the difference in excess returns is due to both the real stock market return being higher and the real Treasury bill rate being lower under Democrats than Republicans.[12] For the full sample, the 9.01 percent difference in excess return of the value-weighted index can be decomposed into a higher average stock market return of 5.31 percent under Democrats and the real T-bill rate being 3.70 percent lower under Democrats.

It is remarkable that the difference in returns is found robustly in the two subsamples.[13] In the 1963 to 1998 period, which is the most favorable for Republicans,

[11] We actually run a regression of market returns on Republican (*RD*) and Democratic (*DD*) presidential dummies, or $r_{t+1} = \alpha_1 RD_t + \alpha_2 DD_t + u_{t+1}$. The hypothesis of no difference between the coefficients, or $\alpha_1 - \alpha_2 = 0$, is equivalent to $\beta = 0$ in regression (1).

[12] This shows the importance of using excess returns to test the correlation with political variables. In contrast, previous studies have concentrated on stock *returns* rather than *excess returns*, and find smaller differences between Republican and Democratic administrations, generally on the order of five percent (Hensel and Ziemba (1995), Chittenden et al. (1999), and Siegel (1998)). All those studies used the S&P 500 Index as a proxy for the stock market.

[13] We tried a variety of other subsample schemes, being only constrained by the need to ensure that each subsample contains a sufficiently large number of months when each party was in the presidency. The results were always similar to the numbers we report.

the difference is 6.85 percent. The magnitude of this difference is still highly significant in economic terms. The *p*-values of the difference in mean returns for this subsample are 0.07 and 0.09. For the first subsample, going from 1927 to 1962, the difference in returns is 9.45 percent, which is highly significant in both economic and statistical terms.

Obtaining statistical significance in subsamples is surprising given the low power of our test, especially in periods during which only a few presidential elections were held. In a Monte Carlo exercise, we simulated the power of our test, for the given number of Republican and Democratic presidents and number of observations in each sample. The simulation experiment assumes that: (1) there is a difference of nine percent between the two parties, (2) the distribution of the residuals is the same as the sample data, and (3) the proportion of Republican presidencies is the same as in each subsample. Each simulated sample (of the same length as each subsample) is generated from the following process:

$$r_{t+1} = \alpha_1 RD_t + \alpha_2 DD_t + u_{t+1} \tag{2}$$

where $\alpha_1 = 2$, $\alpha_2 = 11$. The presidential dummy variables are simulated according to their frequency in the subsample and u_{t+1} is bootstrapped from the data. Under the null of our tests, there is no difference in returns, so $\alpha_1 = \alpha_2$. Here, we are interested in the power of the test for $\alpha_1 = \alpha_2$ versus the particular alternative, $\alpha_2 - \alpha_1 = 9$. For the entire sample, the power to reject the null hypothesis (of zero difference) at the five percent significance level, when the difference between the means in returns is in fact nine percent, is only 0.51. The low power of the test is mostly due to the high volatility of returns. The power decreases to 0.23 in the first subsample and to 0.28 in the second subsample. The lower power in the subsamples is due to the smaller number of observations and the fact that the two parties are not evenly distributed in the subsamples. In particular, the first subsample only includes three Republican administrations, corresponding to 179 out of 431 months, or roughly 40 percent of the sample. Moreover, the lower power of the test in the first subperiod (1927 to 1962) is due to the higher variance in returns compared to the variance of returns in the second subsample during that period (see Table I).

The difference in excess returns of the equal-weighted portfolio in Table II, Panel A, is even more dramatic, 16.52 percent in the full sample and 14.93 and 17.19 percent in the subsamples. This difference is mostly due to the much higher average real return on this portfolio under Democratic administrations. This result implies a differential effect of the political cycle on small and large firms. We investigate this size effect more closely by examining the returns to 10 size-decile portfolios. When we regress the excess returns of the 10 size-decile portfolios on the presidential index variables, we observe that the difference between returns is perfectly inversely related to the market capitalization of the companies. The smallest companies (decile 1) display the largest disparity in returns during the Republican and Democratic presidencies, 21 percent per year, during the entire sample period. The difference in returns of the biggest companies (decile 10) remains economically and statistically significant, 7.71 percent,

Table II

Average Returns under Republican and Democratic Presidents

Panel A reports mean excess and real returns of value-weighted and equal-weighted portfolios, *VWR-TBL*, *VWR-INF*, *EWR-TBL*, *EWR-INF*, and the real interest rate, *TBL-INF*, during Republican (*RD*) and Democratic (*DD*) presidential terms. All rates are represented in annualized percentage points. The numbers below the coefficients in the *RD* and *DD* columns represent *p*-values under the null hypothesis that the estimates are not significantly different from zero. The first number is the *p*-value of the test conducted using Newey–West (1987) heteroskedasticity and serial-correlation robust *t*-statistics. The second number is the *p*-value of the test conducted using a conditional bootstrap *t*-statistic. The *p*-values below the coefficients in the "Diff" column are obtained from the Newey–West and conditional bootstrap *t*-statistics under the null that there is no difference in returns during Republican and Democratic regimes. The row "*T*/Republicans" displays the number of observations and the number of months of Republican administrations during the estimation period. The row "$\bar{R}^2$" displays the average adjusted R^2 obtained in the regressions. Panel B reports the results from a robustness exercise, designed to test whether the results obtained in Panel A might be due to small sample biases. The maintained null hypothesis is of no relation between returns and political variables. To find the small sample distribution of the *t*-statistic under the null, we draw 10,000 samples of *T* observations of the political variables series independently of the return series. For each sample, we obtain the bootstrapped *t*-statistics of interest and use their distribution across samples to compute *p*-values of the estimates. The numbers in square brackets are the estimates obtained from this randomization-bootstrap. The next line contains the *p*-values from the randomization-bootstrap.

	1927:01–1998:12			1927:01–1962:12			1963:01–1998:12		
	RD	*DD*	*Diff*	*RD*	*DD*	*Diff*	*RD*	*DD*	*Diff*
				Panel A: Significance Tests					
VWR-TBL	1.69	10.69	−9.01	1.68	11.13	−0.45	2.60	9.45	−6.85
	0.33	0.00	0.03	0.40	0.01	0.06	0.23	0.00	0.07
	0.31	0.01	0.02	0.39	0.02	0.04	0.20	0.03	0.09
VWR-INF	4.25	9.56	−5.31	5.22	8.54	−3.32	4.50	10.21	−5.71
	0.12	0.00	0.13	0.22	0.03	0.17	0.10	0.00	0.12
	0.13	0.00	0.13	0.17	0.06	0.16	0.10	0.01	0.13
EWR-TBL	−0.01	16.52	−16.52	1.30	16.23	−14.93	0.02	17.21	−17.19
	0.50	0.00	0.01	0.44	0.00	0.04	0.50	0.00	0.01
	0.46	0.00	0.01	0.45	0.00	0.03	0.48	0.00	0.01
EWR-INF	2.58	15.38	−12.80	4.84	13.63	−8.79	1.94	17.95	−16.00
	0.29	0.00	0.02	0.28	0.02	0.10	0.33	0.00	0.01
	0.29	0.00	0.03	0.32	0.02	0.08	0.31	0.00	0.01
TBL-INF	2.54	−1.16	3.70	3.50	−2.66	6.16	1.89	0.79	1.10
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
T/*Republicans*		863/407			431/179			431/239	
$\bar{R}^2$		0.01			0.01			0.01	

Table II
(Continued)

	1927:01–1998:12			1927:01–1962:12			1963:01–1998:12		
	RD	*DD*	*Diff*	*RD*	*DD*	*Diff*	*RD*	*DD*	*Diff*
				Panel B: Robustness Tests					
VWR-TBL	1.69	10.69	−9.01	1.68	11.13	−9.45	2.60	9.45	−6.85
	[6.46]	[6.46]	[0.00]	[7.49]	[7.49]	[0.00]	[5.42]	[5.42]	[0.00]
	0.04	0.03	0.04	0.10	0.16	0.09	0.09	0.05	0.05
VWR-INF	4.25	9.56	−5.31	5.22	8.54	−3.32	4.50	10.21	−5.71
	[7.08]	[7.08]	[0.00]	[7.29]	[7.29]	[0.00]	[6.88]	[6.88]	[0.00]
	0.11	0.17	0.20	0.28	0.36	0.20	0.22	0.17	0.15
EWR-TBL	−0.01	16.52	−16.52	1.30	16.23	−14.93	0.02	17.21	−17.19
	[8.76]	[8.76]	[0.00]	[10.51]	[10.51]	[0.00]	[7.02]	[7.02]	[0.00]
	0.02	0.01	0.01	0.07	0.13	0.08	0.04	0.01	0.01
EWR-INF	2.58	15.38	−12.80	4.84	13.63	−8.79	1.94	17.95	−16.00
	[9.39]	[9.39]	[0.00]	[10.31]	[10.31]	[0.00]	[8.47]	[8.47]	[0.00]
	0.03	0.03	0.04	0.13	0.15	0.09	0.04	0.02	0.01
TBL-INF	2.54	−1.16	3.70	3.50	−2.66	6.16	1.89	0.79	1.10
	[0.60]	[0.60]	[0.00]	[−0.26]	[−0.26]	[0.00]	[1.46]	[1.46]	[0.00]
	0.01	0.04	0.01	0.01	0.05	0.01	0.24	0.22	0.05

but is three times smaller. The results from the subsamples are very similar. This finding explains the difference between the results in the value-weighted and equally weighted regressions. The former put (relatively) more weight on large companies, whereas the latter put more weight on small companies.

It could be argued that the differences in the effect of political variables on the excess returns of the size-decile portfolios is simply due to the fact that small stocks tend to have higher betas on the market than big stocks. In that case, political variables would only affect the overall level of the market and the large effect on small stocks is due to their high sensitivity to market moves. To investigate this possibility, we run regressions of the excess returns of the size-decile portfolios on the political variables together with the excess return on the value-weighted portfolio. Table III shows the estimates of the coefficients on *RD* and *DD*. The betas of the size deciles portfolios (not displayed in the table for brevity) vary from 1.39 for the smallest companies to 0.93 for the largest ones. We see that, after controlling for the differences in market beta, the political variables retain considerable explanatory power for the difference in expected returns of portfolios formed according to size. The difference for the smallest decile is still on the order of 10 to 15 percent. For the overall sample, the difference in "beta-adjusted" mean returns is significant for all size-decile portfolios. In the more recent subsamples, the statistical significance disappears for the biggest firms but remains high for smaller stocks. It thus seems that the "size effect" is associated with the political cycle.

Table III

Average Returns of Size-Decile Returns under Republican and Democratic Presidents, Controlling for Market Returns and Differences in Market Betas

Table III reports the results from the regression: $DEC(j)_{t+1} - TBL_{t+1} = \alpha_{1,j}RD_t + \alpha_{2,j}DD_t + \beta_j(VWR_{t+1} - TBL_t) + \varepsilon_{t+1}$, estimated for three sample periods and $j = 1,\ldots,10$. The estimates of β are omitted, for clarity of exposition. They range from 1.39 for the Decile 1 to 0.93 for Decile 10 and are relatively stable across samples. The numbers below the coefficients in the *RD* and *DD* columns represent *p*-values of a *t*-test under the null hypothesis that the estimates are not significantly different from zero. The first number is the *p*-value of the test conducted using Newey–West (1987) heteroskedasticity and serial-correlation robust *t*-statistics. The second number is the *p*-value of the test conducted using a conditional bootstrap *t*-statistic. The *p*-values below the coefficients in the "Diff" column are obtained from the Newey–West and conditional bootstrap *t*-statistics under the null that there is no difference in returns during Republican and Democratic regimes, or $\alpha_1 = \alpha_2$.

	Significance Tests								
	1927:01–1998:12			1927:01–1962:12			1963:01–1998:12		
	RD	*DD*	*Diff*	*RD*	*DD*	*Diff*	*RD*	*DD*	*Diff*
*DEC*1-*TBL*	1.91	14.18	−12.27	7.81	13.39	−5.58	−1.25	15.47	−16.72
(small)	0.25	0.00	0.00	0.08	0.00	0.23	0.31	0.00	0.00
	0.27	0.00	0.00	0.12	0.00	0.24	0.36	0.00	0.00
*DEC*2-*TBL*	2.13	11.71	−9.57	4.86	11.47	−6.61	0.82	11.99	−11.16
	0.16	0.00	0.00	0.13	0.00	0.12	0.34	0.00	0.00
	0.20	0.00	0.00	0.18	0.00	0.13	0.33	0.00	0.00
*DEC*3-*TBL*	3.26	11.75	−8.49	5.01	11.73	−6.72	2.74	11.37	−8.63
	0.03	0.00	0.00	0.07	0.00	0.06	0.04	0.00	0.00
	0.03	0.00	0.00	0.09	0.00	0.05	0.08	0.00	0.00
*DEC*4-*TBL*	4.12	10.98	−6.85	5.73	11.11	−5.38	3.36	10.76	−7.40
	0.00	0.00	0.00	0.03	0.00	0.08	0.01	0.00	0.01
	0.01	0.00	0.00	0.02	0.00	0.08	0.02	0.00	0.01
*DEC*5-*TBL*	4.09	10.57	−6.48	5.21	10.71	−5.50	3.86	9.93	−6.06
	0.00	0.00	0.00	0.03	0.00	0.05	0.00	0.00	0.01
	0.00	0.00	0.00	0.02	0.00	0.03	0.00	0.00	0.00
DEC6-TBL	5.37	9.84	−4.47	7.31	10.91	−3.60	4.31	8.10	−3.78
	0.00	0.00	0.01	0.00	0.00	0.09	0.00	0.00	0.07
	0.00	0.00	0.01	0.00	0.00	0.08	0.00	0.00	0.03
*DEC*7-*TBL*	4.97	8.68	−3.71	6.30	9.63	−3.33	4.54	6.64	−2.09
	0.00	0.00	0.01	0.00	0.00	0.08	0.00	0.00	0.16
	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.12
*DEC*8-*TBL*	5.51	8.51	−3.00	6.63	9.13	−2.50	5.27	6.88	−1.61
	0.00	0.00	0.01	0.00	0.00	0.13	0.00	0.00	0.16
	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.11
*DEC*9-*TBL*	5.49	8.25	−2.76	7.02	9.58	−2.57	4.99	5.49	−0.49
	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.34
	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.33
*DEC*10-*TBL*	5.49	7.20	−1.71	6.62	7.55	−0.93	5.32	5.76	−0.43
(big)	0.00	0.00	0.02	0.00	0.00	0.12	0.00	0.00	0.37
	0.00	0.00	0.01	0.00	0.00	0.12	0.00	0.00	0.40

III. Are the Results Spurious?

The difference in returns is intriguing not only because of its economic significance, but also because it is so stable across subperiods. However, there is a possibility that the findings are driven by a few outliers or that our statisical inference is plagued by small-sample biases. We have to acknowledge the possibility that the correlation between returns and the political variables is spurious, especially since our tests are not motivated by a theoretical model. In the following subsections, we use a randomization-bootstrap procedure and quantile regressions to demonstrate that the observed difference in returns during Republican and Democratic administrations is a robust feature of the data.

A. A Randomization-Bootstrap Experiment

The standard errors in Table II, Panel A are robust to serial correlation and heteroskedasticity in the residuals. However, the results may still be driven by a "lucky draw" from the political variables. After all, there are only 18 presidencies in our sample and even fewer switches of the White House between parties. To address this concern, we turn to a randomization-bootstrap procedure,[14] which is formally developed in Davison and Hinkley (1977) and Efron and Tibshirani (1998).[15] We address the following question: How likely would it be to observe such a difference in returns across political regimes if the regimes were truly independent of returns?

To find the small-sample distribution of the t-statistic, t, under the null, we conduct the following resampling experiment. We draw samples of T observations each by keeping the series of returns as is and drawing the political variables independently from the returns. This resampling is done in such a way as to be consistent with the dates of presidential changes. We produce 10,000 time series of $\{r_{t+1}, \pi_t\}_{t=1}^{T}$ for which there is no relation between returns and the party in the presidency. Denote the jth sample by $\{r_{t+1}^{j}, \pi_t^{j}\}_{t=1}^{T}$, for $j = 1,\ldots,10{,}000$. We can compute $\hat{\beta}^j$ and the corresponding t^j as in regression (1). The bootstrapped distribution of t under the null hypothesis is simply the distribution of the 10,000 draws of t^j. The mean of the bootstrapped distribution of $\hat{\beta}$ is denoted by $\bar{\hat{\beta}}$. Under the null, returns during Democratic and Republican presidencies must be equal to each other and to the unconditional mean, which implies that $\bar{\hat{\beta}} = 0$. The two-sided bootstrapped p-value is computed as $p_{boot} = (\#\{t^j \geq t\} + \#\{t^j \leq -t\}/10{,}000)$ where $\#\{t^j \geq t\}$ denotes the number of bootstrapped t^j's that are higher than the computed t statistic.[16]

Table II, Panel B, presents the results from the randomization-bootstrap tests. The first number (in square brackets) below the estimates is the mean of the

[14] We thank the referee for this excellent suggestion.

[15] There are several equivalent ways of setting up this bootstrap. We chose a setup that lends itself to a multivariate generalization, which allows us to extend the analysis with control variables in the regressions.

[16] The bootstrap experiment can be carried out by bootstrapping either the distribution of $\hat{\beta}$ or the distribution of $t = \hat{\beta}/se(\hat{\beta})$. In our application, both methods yield almost identical results. Bootstrapping the t-statistic is advocated in the bootstrap literature (see Efron and Tibshirani (1998, pp. 161 and 321) and Davison and Hinkley (1997, p. 268)) since its distribution is pivotal, that is, it does not depend on (nuisance) parameters.

corresponding parameter from the randomized samples. As noted above, under the assumption that returns are independent of the political variables, the mean returns under the two regimes should be equal to each other and to the unconditional mean (in Table I). We present this number as a check of the bootstrap procedure and to show that there is little simulation noise in the distribution. The second number below the estimates is the p-value, p_{boot}, under the null that the estimated value of the parameter is equal to the bootstrapped value in square brackets. We focus our attention on the column "Diff," which can be compared directly with column "Diff" in Panel A, since both columns test the hypothesis of no difference in returns between the two regimes. We find that the difference between political regimes is still mostly significant at the five percent level for both the value-weighted and the equal-weighted returns across periods. For the overall sample, the p-value of the difference is 0.04, which is only marginally higher than the asymptotic p-value of 0.03. The results strongly support the finding that market returns are higher under Democratic than Republican presidencies. In the subsamples, the randomization-bootstrapped p-values differ more from the p-values presented in Panel A. For the first subsample, the p-value is now higher (0.09 vs. 0.04), whereas for the second subsample it is actually lower (0.05 vs. 0.09), which indicates that the previous corrections for serial correlation and heteroskedasticity may be sometimes too conservative.

With three different p-values, we are faced with the question of which numbers to believe. Rather than choosing arbitrarily one statistical method over another, it is more prudent (and conservative) to consider all results and to take the maximum p-value in each test. In the entire sample, the difference is statistically significant at the 5 percent level using any of the testing procedures. In the subsamples, the difference is significant at the 10 percent level in all tests.

We want to emphasize that, while the above resampling procedures are as exhaustive as we could design them, they are still mere statistical procedures. There is always the possibility that the difference between political parties is spurious. After all, we only have a small number of presidencies, so, no matter how astute the tests are, the limitations of the data are severely binding.

B. Quantile Regressions

A related concern is whether the results are driven by a few outliers, such as the extremely negative returns during the Hoover administration and/or the unusually high returns during the Roosevelt years. To address this concern, we run quantile regressions. We ask whether a particular quantile of the distribution of returns accounts for the difference between Republican and Democratic administrations. Conditional quantiles can be thought of as the inverse of the conditional distribution, and therefore contain the same information. By analyzing the entire distribution of returns under the two regimes, we can precisely find what quantiles of the distribution account for the difference in means.

Before discussing our results, we present a brief introduction to quantile regressions. Let the *unconditional* distribution of r_{t+1} be $F_{r_{t+1}}(r) = \Pr(r_{t+1} \leq r)$. Then, for any quantile τ, $0<\tau<1$, we can define the inverse of $F_{r_{t+1}}(\cdot)$ as

$Q_{r_{t+1}}(\tau) = \inf\{r : F_{r_{t+1}}(r) \geq \tau\}$. The function $Q_{r_{t+1}}(.)$ is called the *unconditional* quantile function of r_{t+1}. $Q_{r_{t+1}}(0.5)$ is the 50th quantile, or the median, of r_{t+1}. The introduction of *conditional* quantiles is easily understood by making an analogy to the familiar least squares estimation. The conditional mean function $E(r_{t+1}|z = z_t) = z_t'\eta$, for some explanatory variables z, is estimated by solving $\hat{\eta} = \arg\min_\eta \Sigma_t (r_{t+1} - z_t'\eta)^2$. Similarly, the conditional quantile function $Q_{r_{t+1}|z}(\tau|Z = z_t) = z_t'\eta(\tau)$ can be estimated by solving

$$\hat{\eta}(\tau) = \arg\min_{\eta} \sum_t \rho_\tau(r_{t+1} - z_t'\eta) \tag{3}$$

where $\rho_\tau(\cdot)$ is a piecewise linear "check function," defined as $\rho_\tau(u) = u(\tau - I(u<0))$ and $I(\cdot)$ is the indicator function. The function $\rho_\tau(.)$ selects the quantile τ to be estimated (see Koenker and Hallock (2000)). As above, for the case $\tau = 0.5$, $\rho_{0.5}(u) = |u|$ and the solution of the above problem, $\hat{\eta}(0.5)$, is equivalent to minimizing the sum of absolute values of the residuals. From the definition, $\hat{Q}_{r_{t+1}|z_t}(0.5|z = z_t) = z_t'\hat{\eta}(0.5)$ represents the estimate of the conditional median of r_{t+1}. For different values of τ, the estimate $\hat{\eta}(t)$ is the effect of z_t on the τth quantile of r_{t+1}. An estimate of the entire function $\hat{Q}_{r_{t+1}|z_t}(\tau|z = z_t)$ can be computed from the above relation. For a more detailed introduction to quantile regressions, please refer to Koenker and Hallock (2000) and Koenker (2000).

We run the quantile regression

$$[\hat{\alpha}(\tau), \hat{\beta}(\tau)] = \arg\min_{\alpha,\beta} \sum_t \rho_\tau(r_{t+1} - \alpha - \beta RD_t) \tag{4}$$

where the coefficient $\beta(\tau)$ captures the quantiles of the difference in returns between Republicans and Democrats. The estimation is conducted for $\tau = 0.02, 0.04, \ldots, 0.98$. The results of this quantile regression are plotted in Figure 2, where the difference $\hat{\beta}(\tau)$ is plotted as a solid line, the 95 percent bootstrapped confidence intervals are plotted in light dashed lines, and the overall unconditional mean of the difference is plotted for reference. We can clearly see that the difference in returns between Republicans and Democrats is significant (outside the confidence interval) for quantiles 30 to 60 for value-weighted excess returns and for quantiles 20 to 75 for equal-weighted excess returns. To summarize, extreme realizations at the tails of the distribution do *not* account for the observed difference in returns between Republicans and Democrats.

After the extensive battery of tests applied, we are convinced that the relation between returns and the political cycle is robust.

C. Data Mining

The robustness checks discussed above do not account for the possibility that our results may be attributed to data mining. Our study is largely motivated by the political cycles literature in macroeconomics,[17] which prompted us to test the hypothesis that political cycles have an impact on stock market returns. Inspired

[17] See Alesina and Rosenthal (1995), Alesina et al. (1997), and references therein.

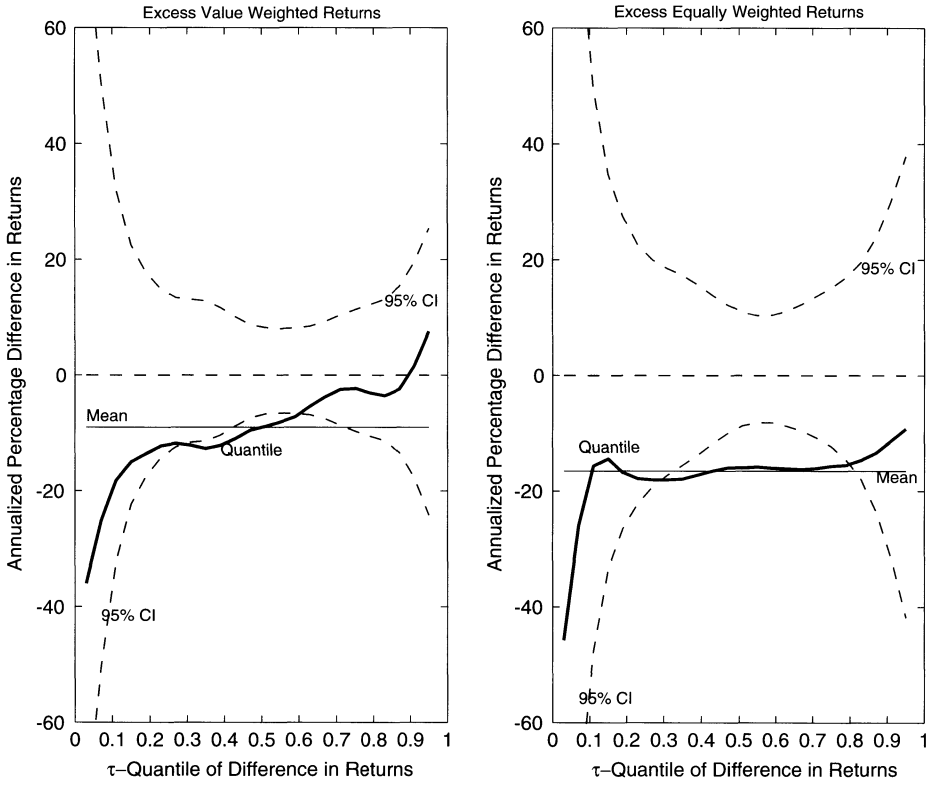

Figure 2. Quantiles of difference in returns under Republican and Democratic presidencies, 1927 to 1998. Figure 2 displays the difference in quantiles of value-weighted and equal-weighted returns between Republican and Democratic presidents. The quantile of the difference is computed as

$$[\hat{\alpha}(\tau), \hat{\beta}(\tau)] = \arg\min_{\alpha,\beta} \sum_{t} \rho_{\tau}(r_t - \alpha - \beta RD_t)$$

as discussed in the text (equation (4)). The difference in quantiles $\hat{\beta}(\tau)$ is displayed as a solid line, for $\tau = 0.02, \ldots, 0.98$, whereas the dashed pattern denotes the 2.5 percent, mean, and 97.5 percent of the estimates, computed by bootstrap. The mean of the difference is shown for reference as a light straight line. The significance of the difference comes from the middle quantiles, which supports our robustness claims.

by that literature, rather than by a clearly formulated theoretical model, we tried to correlate political variables with stock market returns. In addition to the presidential cycle variable studied in the paper, we also tried other variables related to the party in control of Congress. Since those results were largely insignificant, in the interest of brevity we do not report them in the paper. However, we need to acknowledge that the results that we do present were preceded by this modest search for a statistically significant variable. We should therefore adjust the distribution of test statistics to take this search into account.

Based on the work of Bonferroni, several authors[18] propose to adjust the p-values of statistical tests by multiplying them by the number of hypothesis tested.[19] Considering that we also looked at Congress besides the presidency, we should at least double the p-values of our tests. Making this adjustment in Table II, Panel B, for example, the difference in value-weighted excess returns between parties would have p-values of 0.08, 0.18, and 0.10 in the full sample and the two subsamples, respectively. We therefore conclude that data mining is indeed a concern in this study.

Unfortunately, there is a serious drawback to the Bonferroni approach. Although the chance of incorrectly finding an effect (or making a type I error) on an individual test is reduced, the chance that no effect is found, while in fact there is an effect (or making a type II error) is increased. Thus, the size correction comes at the cost of power loss. As we point out in Section II, power is already low in our tests due to the low number of presidencies. If we add the Bonferroni correction, the ability to find any variable (political or other) that forecasts the stock market is virtually eliminated. We therefore choose to present the test statistics without any adjustment for potential data mining problems and let the forewarned reader decide on the significance of our reported p-values. Ultimately, the concern of data mining can only be dispelled after we accumulate enough out-of-sample data.

IV. Expected or Unexpected Returns?

Having established that there is indeed a difference in returns between Republican and Democratic presidencies, we proceed in this section to investigate whether this difference in realized returns can be attributed to a difference in (ex ante) expected returns or to a difference in unexpected returns. A difference in expected returns would be consistent with a higher risk premium charged by the market for Democratic presidencies. In contrast, if the difference is due to unexpected returns being higher under Democrats, that would signal that the market is systematically positively surprised by the policies of Democratic presidencies.

A. A "Proxy" Explanation

The most natural explanation for the correlation between presidential-partisan variables and excess returns is based on a "proxy" effect. The presidential cycle might merely be proxying for variations in expected returns due to business cycle fluctuations. Since variations in returns have been associated with business cycle fluctuations,[20] and business cycle fluctuations have been associated with

[18] See Leamer (1978) and references therein.

[19] A bootstrap-based procedure for dealing with data mining was recently proposed by Sullivan et al. (2001). This approach is difficult to implement in our case, since it requires that we first specify all possible political variables and investigate whether they correlate with the stock market. Unfortunately, the universe of variables related to politics is impossible to enumerate.

[20] See Campbell (1991), Fama (1991), and Campbell, Lo, and MacKinlay (1997) for a textbook treatment.

political variables,[21] it is only natural to suspect that the correlation between excess returns and political variables is only the reflection of the correlation between the business cycle and political variables. If political variables were indeed proxying for such business cycle factors, then the strong correlation between presidential mandates and excess returns would come as no surprise. However, this correlation should evaporate once we take those factors into account.

To test the "proxy" hypothesis, we augment equation (1) in the following manner:

$$r_{t+1} = \alpha + \beta\pi_t + \gamma' X_t + u_{t+1} \tag{5}$$

where X_t is a vector containing predetermined macroeconomic variables, associated with the business cycle and known to forecast the stock market: the log dividend yield (DP_t), the term spread (TSP_t), the default spread (DSP_t), and the relative real risk-free interest rate (RR_t). If political variables contain only information about returns that can be explained by business cycle fluctuations, then the coefficient β should equal zero.

Surprisingly, after conditioning on X_t, the presidential partisan variables become even more significant. Moreover, the magnitude of the coefficients is very similar to the case without conditioning variables, indicating that the political variables have explanatory power for expected returns that is largely orthogonal to the business cycle variables. Table IV presents the results from those regressions. In the regressions, all control variables are demeaned, so that the coefficients of the political index variables can be directly compared with those from Table II. The coefficients of *RD* and *DD* are displayed in Table IV, Panel A, for the value-weighted returns, equal-weighted returns, and the real interest rate, for each of the subsamples. The parameters γ are suppressed to save space. The difference between the Republican and Democratic value-weighted returns remains between 9.82 and 14.85 percent in the different subsamples, and is even more statistically significant than in Table II. As observed before, it is the combination of higher real market returns and lower real interest rates during Democratic presidential terms that accounts for the difference in excess returns. The difference in equal-weighted returns remains high, at around 20 percent, and statistically significant. In other words, given similar economic conditions, the excess and real returns of the stock market under Republican presidents have been between 10 and 20 percent lower than the returns under Democratic presidents. In fact, under Republican presidents, the excess return is not significantly different from zero for any of the portfolios. To conclude, the results in Table IV indicate that the correlation between returns and political variables is not due to an indirect relation between business cycle factors and presidential mandates.

To verify the robustness of the conclusions, we run the randomization-bootstrap tests and quantile regressions once again. The results from the randomization test are displayed in Table IV, Panel B, where the first number (in square brackets) below the estimates is the parameter from the bootstrap and the

[21] There is an extensive list of theoretical and empirical papers in this area. Some of the most recent empirical papers are Faust and Irons (1999), and Gonzalez (2000). For excellent reviews, see Alesina and Rosenthal (1995), Alesina et al. (1997), and Drazen (2000).

Table IV

Average Returns under Republican and Democratic Presidents, Controlling for Business-Cycle Variables

The table displays the results from regressing returns on political variables *and* control variables. The controls, denoted by X_t in the text are the log dividend-price ratio (*DP*), the default spread (*DSP*), the term spread (*TSP*), the inflation rate (*INF*), and the relative rate (*RR*). Panel A reports mean excess and real returns of value-weighted and equal-weighted portfolios, *VWR-TBL*, *VWR-INF*, *EWR-TBL*, *EWR-INF*, and the real interest rate, *TBL-INF*, during Republican (*RD*) and Democratic (*DD*) presidential terms, while controlling for X_t. All rates are represented in annualized percentage points. To make the means directly comparable with those in the previous table, all conditioning variables in X_t are demeaned. The numbers below the coefficients in the *RD* and *DD* columns are the *p*-values of a *t*-test under the null hypothesis that the estimates are not significantly different from zero. The first number is the *p*-value of the test conducted using Newey–West (1987) heteroskedasticity and serial-correlation robust *t*-statistics. The second number is the *p*-value of the test conducted using a conditional bootstrap *t*-statistic. The *p*-values below the coefficients in the "Diff" column are obtained from the Newey–West and conditional bootstrap *t*-statistics under the null that there is no difference in returns during Republican and Democratic regimes. The row "*T*/Republicans" displays the number of observations and the number of months of Republican administrations during the estimation period. The row "$\bar{R}^2$" displays the average adjusted R^2 obtained in the regressions. Panel B reports the results from a robustness exercise, designed to test whether the results obtained in Panel A might be due to small-sample biases. The maintained null hypothesis is of no relation between returns and political variables. To find the small-sample distribution of the *t*-statistic under the null, we draw 10,000 samples of *T* observations by simulating the political variables series independently of the returns and the control variables. For each sample, we compute the bootstrapped *t*-statistics of interest and use their distribution across samples to compute the *p*-values. In Panel B, the numbers in square brackets are the estimates obtained from this randomization-bootstrap. The second numbers represent the *p*-values from the randomization-bootstrap.

	1927:01–1998:12			1927:01–1962:12			1963:01–1998:12		
	RD	*DD*	*Diff*	*RD*	*DD*	*Diff*	*RD*	*DD*	*Diff*
				Panel A: Significance Tests					
VWR-TBL	0.26	11.96	−11.70	1.45	11.27	−9.82	−0.56	14.30	−14.85
	0.47	0.00	0.00	0.44	0.02	0.07	0.44	0.00	0.00
	0.00	0.45	0.01	0.01	0.45	0.07	0.00	0.44	0.01
VWR-INF	2.51	11.11	−8.60	4.21	9.16	−4.96	1.16	15.33	−14.16
	0.23	0.00	0.03	0.32	0.05	0.11	0.37	0.00	0.00
	0.00	0.23	0.03	0.04	0.26	0.12	0.00	0.37	0.01
EWR-TBL	−2.32	18.56	−20.88	3.31	14.98	−11.67	−5.89	26.29	−32.18
	0.30	0.00	0.00	0.39	0.03	0.08	0.10	0.00	0.00
	0.00	0.31	0.00	0.02	0.38	0.09	0.00	0.07	0.00
EWR-INF	−0.05	17.70	−17.75	6.06	12.88	−6.81	−4.13	27.27	−31.40
	0.50	0.00	0.00	0.30	0.05	0.11	0.19	0.00	0.00
	0.00	0.49	0.00	0.03	0.28	0.12	0.00	0.14	0.00
TBL-INF	2.22	−0.87	3.09	2.73	−2.19	4.92	1.69	1.09	0.61
	0.00	0.05	0.00	0.00	0.01	0.00	0.00	0.00	0.15
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
T/Republicans		863/407			431/179			431/239	
$\bar{R}^2$		0.03			0.02			0.08	

Table IV
(Continued)

	1927:01–1998:12			1927:01–1962:12			1963:01–1998:12		
	RD	*DD*	*Diff*	*RD*	*DD*	*Diff*	*RD*	*DD*	*Diff*
				Panel B: Robustness Tests					
VWR-TBL	0.26	11.96	−11.70	1.45	11.27	−9.82	−0.56	14.30	−14.85
	[6.46]	[6.46]	[0.00]	[7.49]	[7.49]	[0.00]	[5.42]	[5.42]	[0.00]
	0.03	0.04	0.04	0.26	0.14	0.12	0.00	0.04	0.01
VWR-INF	2.51	11.11	−8.60	4.21	9.16	−4.96	1.16	15.33	−14.16
	[7.08]	[7.08]	[0.00]	[7.29]	[7.29]	[0.00]	[6.88]	[6.88]	[0.00]
	0.08	0.08	0.09	0.38	0.24	0.19	0.01	0.05	0.03
EWR-TBL	−2.32	18.56	−20.88	3.31	14.98	−11.67	−5.89	26.29	−32.18
	[8.76]	[8.76]	[0.00]	[10.51]	[10.51]	[0.00]	[7.02]	[7.02]	[0.00]
	0.01	0.02	0.01	0.29	0.17	0.17	0.00	0.00	0.00
EWR-INF	−0.05	17.70	−17.75	6.06	12.88	−6.81	−4.13	27.27	−31.40
	[9.39]	[9.39]	[0.00]	[10.31]	[10.31]	[0.00]	[8.47]	[8.47]	[0.00]
	0.01	0.03	0.02	0.40	0.23	0.20	0.00	0.01	0.00
TBL-INF	2.22	−0.87	3.09	2.73	−2.19	4.92	1.69	1.09	0.61
	[0.60]	[0.60]	[0.00]	[−0.26]	[−0.26]	[0.00]	[1.46]	[1.46]	[0.00]
	0.02	0.02	0.03	0.00	0.00	0.02	0.16	0.30	0.18

second number is the empirical probability of rejecting the null of no relationship between returns and political index variables. The difference in returns is significant at the five percent level for the entire sample for both the equal-weighted and value-weighted excess returns. The increase in p-values, from 0.01 percent in Panel A to 0.04 percent in Panel B, suggests that the possibility of small sample biases and spurious correlation must be taken seriously. In the first subsample, the p-value of the difference is only 0.12, which is marginally insignificant despite the economically large point estimate. However, we should point out that the power of our test is only 0.12 in this subsample when we include the control variables. With such low power, it is not surprising that the level of significance decreases. For the second subsample, the results are highly statistically significant. Once again, these results are surprisingly significant, given the modest power of our tests with the randomization procedures. We should also not lose from sight the economic significance of the difference, which is never lower than 9.8 percent.

Figure 3 displays the results from the quantile regression

$$[\hat{\alpha}(\tau), \hat{\beta}(\tau), \hat{\gamma}(\tau)] = \arg\min_{\alpha,\beta,\gamma} \sum_{t} \rho_{\tau}(r_{t+1} - \alpha - \beta RD_t - \gamma' X_t) \tag{6}$$

where $\hat{\beta}(\tau)$ captures the quantiles of the difference in returns between Republicans and Democrats. The solid curve plots the estimates of the difference in quantiles. Confidence intervals and the null of no difference between political parties, shown in lighter dashed and solid lines, respectively, were computed using the randomization-bootstrap procedure described above, where r_{t+1} and X_t are held

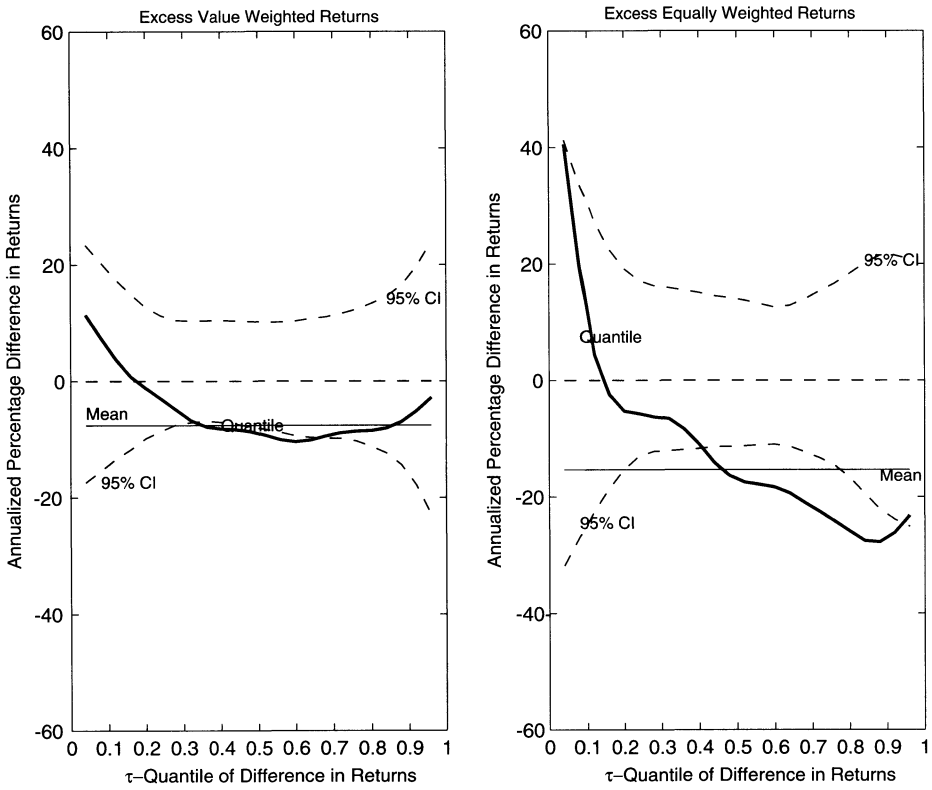

Figure 3. Quantiles of difference in returns under Republican and Democratic presidencies, controlling for business-cycle variables, 1927 to 1998. Figure 3 displays the results from the quantile regression

$$[\hat{\alpha}(\tau), \hat{\beta}(\tau), \hat{\gamma}(\tau)] = \arg\min_{\alpha,\beta,\gamma} \sum_t \rho_\tau(r_t - \alpha - \beta RD_t - \gamma' X_t),$$

where $\hat{\beta}(\tau)$ captures the quantiles of the difference in returns between Republicans and Democrats, after controlling for other covariates. The results are not very different from the unconditional case, Figure 2. The difference in returns remains significant in the middle of the distribution (quantiles 30 to 70).

fixed and the political dummy variables are randomized in such a way as to be consistent with the dates of presidential changes. Controlling for business cycle fluctuations has very little effect on the results. The difference in the distribution of returns between regimes still comes mainly from the middle 40 percent quantiles and not from outliers at the tails of the distribution.

In a related experiment, we use the business cycle variables to decompose returns into expected returns and unexpected returns. We simply regress realized returns on the forecasting variables and take the fitted values of the regression to be expected returns and the regression residuals to be unexpected returns. We then analyze differences in each component under Republican and Democratic

presidencies. While this approach is subject to the criticism that true expected returns might not be accurately captured by the variables X_t, it nevertheless gives us a gauge of whether the changes could be anticipated by market participants using publicly available information.

Table V shows the results from this decomposition. We find that most of the observed difference in returns can be attributed to a difference in *unexpected* returns. For the entire sample, we find that expected returns were actually 1.84 percent *higher* under Republicans, whereas unexpected returns were 10.84 percent higher under Democrats. Therefore, our previous results were mostly driven by a difference in unexpected returns. We should note that the sign of the difference in expected returns actually changes in subsamples, which makes us doubt its importance in explaining the difference in realized returns. To conclude, we attribute the difference in realized returns to the stock market being systematically positively surprised by Democratic policies.

B. Election Shocks

Another approach to study whether the difference in realized returns comes from a difference in expected or in unexpected returns consists in studying the periods around election dates. If there is a significant difference in expected returns between Republicans and Democrats, we would expect to see a large return around the time the results of the election become known.[22] Consider the case where the difference in the realized returns is due to a higher risk premium for Democratic administrations. In this case, we should observe a drop in the level of the stock market when news about a Democratic victory is announced. This drop would then be followed by higher returns, on average, throughout the Democratic mandate. In contrast, if the measured difference is due to higher unexpected returns during Democratic administrations, we should observe no price shock at the time of the election and a difference in average returns that builds up during the presidential mandate. Therefore, we can distinguish between a difference in expected (risk premium) and unexpected returns by carefully looking for large changes in the stock market level around the time when uncertainty about the election is likely to be resolved, which should be on or before the election date.

Note that if the observed difference in returns is due to a difference in expected returns, the change in the level of the market at the time that the information is revealed should be quite large. Suppose that prior to the election date there is equal probability that either party will win the election. Suppose further that if Democrats win, the expected return on the stock market over the next four years is 10 percent, whereas the expected return under Republicans is 1 percent. Then we should expect to see a positive return of about 17 percent if Republicans win or

[22] Of course, this assumes that expected cash flows remain constant. If, for example, the election of a Democratic president meant that there would be both lower expected returns and lower cash flows, there might be no price reaction at all. We thank the referee for making this point.

Table V
Expected and Unexpected Returns under Republican and Democratic Presidents

The table offers a decomposition of the difference in ex-post returns into differences due to expected and unexpected returns. The regressions are run in two steps. In the first step, we regress returns on the lagged values of the conditioning variables X_t, and use this regression to construct expected (forecasted) returns. Unexpected returns are taken to be the difference between realized and forecasted returns. As a second step, we regress the expected and unexpected returns onto the political variables. The differences in unexpected and expected returns add up, by construction, to the difference in ex post returns (Table II). We report the results for mean excess and real returns of value-weighted and equal-weighted portfolios, *VWR-TBL*, *VWR-INF*, *EWR-TBL*, *EWR-INF*, and the real interest rate, *TBL-INF*. All rates are represented in annualized percentage points. The numbers below the coefficients in the *RD* and *DD* columms represent *p*-values under the null hypothesis that the estimates are not significantly different from zero. The first number is the *p*-value of the test conducted using Newey–West (1987) heteroskedasticity and serial-correlation robust *t*-statistics. The second number is the *p*-value of the test conducted using a conditional bootstrap *t*-statistic. The *p*-values below the coefficients in the "Diff" column are obtained from the Newey–West and conditional bootstrap *t*-statistics under the null that there is no difference in returns during Republican and Democratic regimes.

	1927:01–1998:12						1927:01–1962:12						1963:01–1998:12					
	Expected Returns			*Unexpected Returns*			*Expected Returns*			*Unexpected Returns*			*Expected Returns*			*Unexpected Returns*		
	RD	*DD*	*Diff*	*RD*	*DD*	*Diff*	*RD*	*DD*	*Diff*	*RD*	*DD*	*Diff*	*RD*	*DD*	*Diff*	*RD*	*DD*	*Diff*
VWR-TBL	7.44	5.61	1.84	−5.75	5.09	−10.84	4.28	9.52	−5.24	−2.60	1.61	−4.21	7.87	1.36	6.50	−5.27	8.09	−13.36
	0.00	0.00	0.00	0.33	0.05	0.01	0.00	0.00	0.00	0.41	0.37	0.29	0.00	0.12	0.00	0.24	0.02	0.00
	0.00	0.00	0.00	0.05	0.04	0.01	0.00	0.00	0.00	0.37	0.34	0.32	0.12	0.00	0.00	0.02	0.05	0.01
VWR-INF	8.69	5.64	3.05	−4.44	3.92	−8.36	7.60	7.06	0.54	−2.38	1.48	−3.86	9.76	2.13	7.63	−5.26	8.08	−13.34
	0.00	0.00	0.00	0.12	0.10	0.03	0.00	0.00	0.17	0.22	0.38	0.31	0.00	0.05	0.00	0.12	0.02	0.00
	0.00	0.00	0.00	0.11	0.08	0.03	0.00	0.00	0.17	0.37	0.33	0.30	0.06	0.00	0.00	0.02	0.05	0.00
EWR-TBL	10.20	7.49	2.71	−10.21	9.02	−19.23	3.81	14.67	−10.86	−2.51	1.56	−4.07	10.63	0.94	9.69	−10.60	16.28	−26.88
	0.00	0.00	0.00	0.50	0.01	0.00	0.00	0.00	0.00	0.44	0.40	0.35	0.00	0.26	0.00	0.50	0.00	0.00
	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.41	0.36	0.36	0.25	0.00	0.00	0.00	0.00	0.00
EWR-INF	11.45	7.53	3.92	−8.87	7.85	−16.72	7.14	12.21	−5.07	−2.30	1.43	−3.73	12.51	1.72	10.79	−10.57	16.22	−26.79
	0.00	0.00	0.00	0.29	0.03	0.00	0.00	0.00	0.00	0.27	0.41	0.36	0.00	0.14	0.00	0.36	0.00	0.00
	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.41	0.39	0.37	0.15	0.00	0.00	0.00	0.00	0.00
TBL-INF	1.23	0.00	1.23	1.31	−1.16	2.46	3.29	−2.53	5.82	0.21	−0.13	0.34	1.91	0.75	1.16	−0.02	0.04	−0.06
	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.31
	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.37	0.28

a negative 17 percent return if Democrats win.[23] Even though it is hard to pin down the exact date at which the uncertainty about the election is resolved, we do know that it will happen in the few months up to the election date. Given the magnitude of the price changes implied by the difference in expected returns across Democrats and Republicans, we should be able to spot it from observing the price path of the stock market around election dates.

In the spirit of an event study, Figure 4 displays the price (cumulative return) of the value-weighted portfolio around elections that were won by Republicans or by Democrats. Panels A through D depict different windows around the election dates. The first two panels show that prices do not differ significantly during the period immediately before or after the election. The difference in the performance of the value-weighted portfolio widens during the first year of the new president, as shown in Panel C. The difference grows gradually and almost homogeneously throughout the entire presidential cycle, as shown in Panel D.

As a formal test of the hypothesis that there might be a significant difference in returns in the period prior to the election, we have conducted a variety of regressions. These regressions confirm that there are no statistically significant abnormal returns in the period immediately before or immediately after elections.[24] The market does not respond significantly to election news, irrespective of the party that wins the election. Therefore we conclude that the difference in realized returns in Democratic and Republican presidencies is not concentrated in the period preceding the election.

The lack of market reaction to election news is quite puzzling, given the magnitude of the observed difference in returns for the entire mandate. The market is systematically ignoring differences between Republicans and Democrats. However, our results parallel those of Cutler et al. (1989), who find that major news announcements that we would expect a priori to strongly impact the stock market are typically not translated into large price movements.

One potential criticism of trying to spot a large price reaction around the election date is that the outcomes of most elections are predictable (Fair (1982, 1996)). Forecasts of election outcomes are widely available from Gallup and are closely followed by the media. Therefore, it is reasonable to assume that market participants incorporate information about the new presidency in market prices gradually during the run-up to the election. In this way, if there is any political uncertainty left for the day of the election itself, it should be minimal. This would make it harder to test the "election shocks" hypothesis. We try to get around this problem by studying the few presidential elections that were closely contested, two of which were even wrongly forecasted by Gallup and the media. Unfortunately, such true political shocks are rare, and therefore clearly insufficient for rigorous

[23] For the same stock market level at the end of the four-year period, the level conditional on a Democratic victory is $1.10^{-4} = 0.68$, whereas it should be $1.10^{-4} = 0.96$ if a Republican wins. Before the election result is known, the market level is the arithmetic average of these two prices $0.5 \times 0.68 + 0.5 \times 0.96 = 0.82$. When the election result is announced, the price either jumps up by 17 percent to 0.96 or down by 17 percent to 0.68.

[24] The corresponding tables are available from the authors upon request.

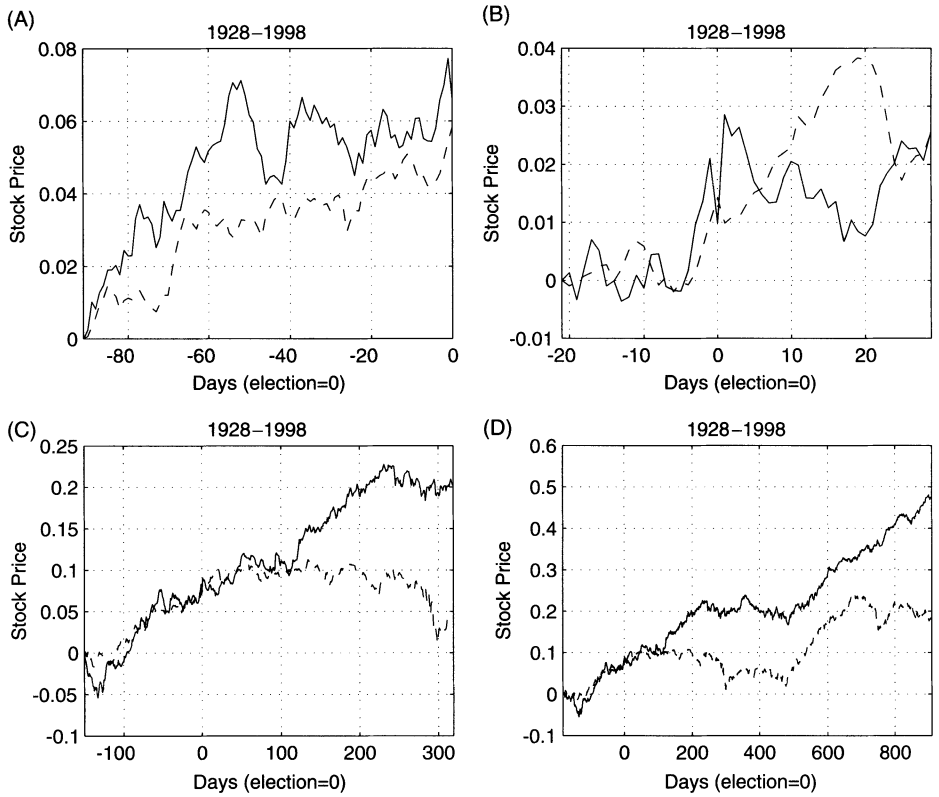

Figure 4. Prices around election dates. Figure 4 displays the price of the value-weighted portfolio during different periods of the election cycle for elections won by Democrats (solid line) and Republicans (dashed line). The daily data is from 1928 to 1998, encompassing 18 presidential elections, 10 Democratic, and 8 Republican. Panels A and B show the average movement of prices during the period of the election. Panels C and D trace the movement of prices one year and three and a half years after the election. The difference in returns (prices) during Republican and Democratic presidents is neither due to the period before the election, nor to any particular period during the presidential cycle.

statistical testing. We thus conduct an informal study of those cases and provide evidence of very limited to nonexistent price movements around the elections.

Figure 5 shows the daily movement in price of the value-weighted portfolio around the dates of the four elections that have either been wrongly forecasted by Gallup or whose outcomes were very close ex post. From the four pictures, only the Truman/Dewey outcome seems to have had a large effect on prices right after the election. In the other three elections, prices did not respond much to the election results, thus confirming our findings that returns around elections cannot account for the observed difference in average realized returns during Republican and Democratic presidencies.

In sum, the market seems to react very little, if at all, to presidential election news. Given that election shocks fail to explain the difference in returns, and that

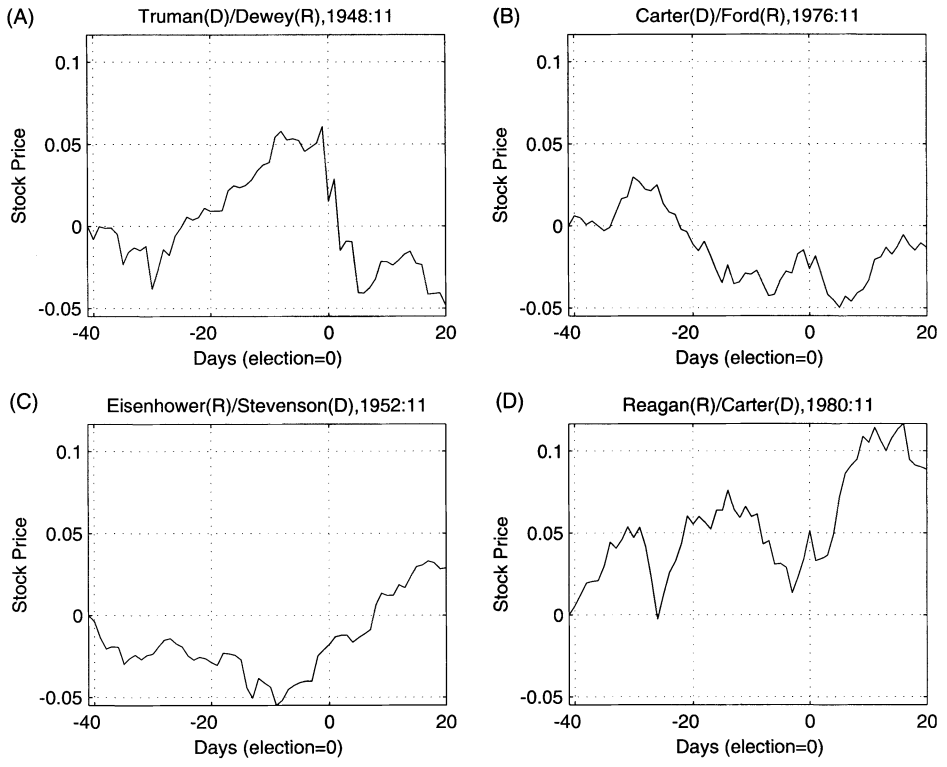

Figure 5. Stock market prices around most contested elections. Figure 5 displays the price of the value-weighted portfolio during the four elections that were either incorrectly forecasted by Gallup and political scientists or were very close in their outcome. The elections in Panels A and B were won by Democrats, whereas those in Panels C and D were won by Republicans.

the difference builds gradually over the course of the presidency, differences in *expected* returns are unlikely to account for the findings.

C. Varying Risk

As a final test of the hypothesis that the higher realized returns under Democratic presidencies might be compensation for risk, we examine whether risk was indeed any higher under Democrats than Republicans. Such a difference in riskiness might arise from differences in economic policies pursued by each party or from varying levels of uncertainty among investors about these policies. If there was a difference in the riskiness of the stock market across presidential parties, it would be reasonable to argue that it should command a risk premium to compensate investors for the greater risks incurred in those periods. We investigate this hypothesis by measuring the volatility of returns during Democratic and Republican presidencies.

Table VI

Volatility during Republican and Democratic Presidential Terms

Panel A in Table VI displays the results from the regression $VOL_t = \alpha_1 RD_t + \alpha_2 DD_t + \varepsilon_t$. Panel B displays the results from the regression $VOL_t = \alpha_1 RD_t + \alpha_2 DD_t + \gamma' X_t + \varepsilon_t$, where X_t represents the control variables *DP*, *DSP*, *TSP*, and *RR*. The estimates of γ are not displayed in the interest of conciseness. The test results of the null hypothesis that volatility is constant during the tenure of Democrats and Republicans, or $\alpha_1 = \alpha_2$, are displayed in column "Diff." The first number below the estimates is the *p*-value of the test conducted using Newey–West (1987) heteroskedasticity and serial-correlation robust *t*-statistics. The second number is the *p*-value of the test conducted using a conditional bootstrap *t*-statistic. The *p*-values below the coefficient in the "Diff" column are obtained from the Newey–West and conditional bootstrap *t*-statistics under the null that there is no difference in volatility during Republican and Democratic regimes. Market volatility seems to be lower under Democratic regimes, although the result is not significant and changes sign after controlling for other covariates. The discrepancy between the bootstrapped and the Newey–West *p*-values is due to the conditional heteroskedasticity of the volatility series.

Period	*RD*	*DD*	*Diff*	*T*	R^2
			Panel A: No Controls		
1927:01–1998:12	16.35	14.94	1.41	863	0.003
	0.00	0.00	0.14		
	0.02	0.00	0.07		
1927:01–1962:12	18.02	17.42	0.61	431	0.002
	0.00	0.00	0.40		
	0.23	0.00	0.19		
1963:01–1998:12	14.50	12.12	2.38	431	0.025
	0.00	0.00	0.01		
	0.00	0.00	0.15		
			Panel B: With Controls		
1927:01–1998:12	15.26	15.90	−0.64	863	0.382
	0.00	0.00	0.03		
	0.01	0.00	0.08		
1927:01–1962:12	17.35	17.84	−0.49	431	0.452
	0.00	0.00	0.26		
	0.19	0.02	0.08		
1963:01–1998:12	13.89	13.08	0.81	431	0.171
	0.00	0.00	0.10		
	0.00	0.00	0.00		

We first run a regression of monthly volatility (computed from within-month daily returns), *VOL*, on the political dummies *RD* and *DD*. Table VI, Panel A reports the results. For the overall sample, we find that volatility tends to be higher by 1.41 percent per year under Republican presidents than under Democrat presidents in the entire sample. When considering the subsample starting in 1963, the difference in volatility increases to 2.38 percent. The differences in volatility are, however, not statistically significant. Thus, we find that Republican mandates have witnessed marginally higher volatility than Democratic mandates. This difference goes in the opposite direction of what would be required to justify the difference in returns compensation for risk.

Table VI, Panel B, investigates further the difference in volatilities by adding the business cycle control variables to the regression. We find that these variables, and the default spread in particular, significantly help to explain the behavior of volatility through time. After controlling for the macroeconomic variables, the difference in volatility across the political cycle is attenuated. For the entire sample, the difference actually changes sign.[25] However, in the more recent subsample, the volatility continues to be higher under Republican presidents, even after controlling for the state of the economy. Taken as a whole, the evidence in Table VI suggests that, if anything, volatility is somewhat higher during Republican presidencies. This finding goes against the conjecture that the difference in returns could be attributed to compensation for risk.

To summarize the findings, there is no indication that the ex post difference in returns observed during Republican versus Democratic regimes is due to a difference in ex ante expected returns, and could therefore be compensation for risk. In contrast, the difference in unexpected returns suggests that investors have been consistently surprised (positively) by Democratic presidents. This explanation can only hold if investors do not learn from the past, which could be justifiable since learning would be particularly difficult given the small number of presidencies in modern times. However, while such an explanation might be part of the story, it is unlikely to account for the observed nine percent difference in returns. The uncovered relation between the political cycle and the stock market remains largely unexplained.

V. Conclusion

This paper documents that excess returns correlate with presidential-partisan cycles and tests some obvious hypotheses as to the provenance of this correlation. The major stylized facts that we document are:

1. The excess return of the value-weighted CRSP portfolio over the one-month Treasury bill is on average nine percent higher under Democrat than Republican administrations. The excess return on the equal-weighted CRSP portfolio is 16 percent higher during Democratic presidential terms.
2. The difference in returns decreases monotonically with the market capitalization of firms. The difference varies from 7 percent for the largest firms to about 22 percent for the smallest firms.
3. The presidential cycle variables capture information about returns that is not correlated with business cycle variables.
4. There is no evidence of large excess returns around the election dates. The difference in excess returns builds up homogeneously throughout the presidential term.
5. Volatility is somewhat higher in Republican presidencies.

[25] This is driven by the Great Depression, where the extreme volatility of the period is "explained" with a large coefficient on the default spread.

We find that the difference in returns across presidential parties consists largely of a difference in unexpected returns rather than a difference in expected returns. Assuming that expected returns are driven by macroeconomic variables associated with the business cycle, we can decompose the realized returns difference into its expected and unexpected components. We find that it is the unexpected component that accounts for most of the variation in returns throughout presidential mandates. We confirm this finding by examining the behavior of the stock market around election dates. If the difference in returns was expected by the market, we should see a large price adjustment around the time when it becomes known which party wins the election. We observe no such move in prices. This corroborates our finding that the difference in realized returns was largely unanticipated by the market. Of course, this raises an interesting question: How can investors ignore such a predictable variable as presidential elections? The small market reaction to election news is difficult to reconcile (in a rational expectations framework) with the observed long-term differences in returns.

The mechanism through which political variables impact stock returns remains an open question. We conjecture that the presidency affects the stock market through its fiscal and regulatory policies. There is an extensive literature that analyzes the impact of monetary policy on financial markets. However, the effect of fiscal and regulatory policies on the stock market has largely been ignored.[26] Tracing the unambiguous effect of economic policies on stock returns would necessitate data on government taxation, spending, deficit, and regulations, which we leave for future work. Furthermore, there is an important caveat to this explanation. Given our evidence that the difference in returns was unexpected, the only way through which economic policies can impact returns is to the extent that differences in policies between the parties were unexpected and kept surprising investors throughout the presidential mandates.

A fundamental question that we leave open is: Do political variables cause fluctuations in stock returns or is it the other way around? In this paper, we have implicitly assumed that political variables, and the election of the president in particular, are exogenous events. This assumption was given some support when we established that political variables do not proxy for fluctuations in the business cycle. However, there are a variety of models that successfully predict the outcome of presidential elections using economic data. Endogenizing the political cycles and their explicit modeling is a complicated problem that certainly deserves further attention.

References

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

[26] Fiscal policy has largely been ignored in economics in general. It is only recently that researchers have started to look at the effect of fiscal policy on the economy. See Blanchard and Perotti (2000), and Tavares and Valkanov (2001).

Alesina, Alberto, and Howard Rosenthal, 1995, *Partisan Politics, Divided Government, and the Economy* (Cambridge University Press, Cambridge, UK.).

Alesina, Alberto, Nouriel Roubini, and Gerald D. Cohen, 1997, *Political Cycles and the Macroeconomy* (MIT Press, Cambridge, MA).

Blanchard, Olivier, and Roberto Perotti, 2000, An empirical characterization of the dynamic effects of changes in government spending and taxes on output, NBER Working Paper No. 7269.

Campbell, John Y., 1991, A variance decomposition for stock returns, *The Economic Journal* 101, 157–179.

Campbell, John Y., Andrew Lo, and Craig MacKinlay, 1997, *The Econometrics of Financial Markets* (Princeton University Press, Princeton, NJ).

Campbell, John Y., and Robert J. Shiller, 1988, Stock prices, earnings, and expected dividends, *Journal of Finance* 43, 661–676.

Chen, Nai-Fu, Richard Roll, and Stephen A. Ross, 1986, Economic forces and the stock market, *Journal of Business* 59, 383–403.

Chittenden, William, Gerald R. Jensen, and Robert R. Johnson, 1999, Presidential politics, stocks, bonds, bills, and inflation,, *Journal of Portfolio Management* Fall, 63–79.

Cutler, David, James M. Poterba, and Lawrence H. Summers, 1989, What moves stock prices, *Journal of Portfolio Management* 59, 4–12.

Davison, Anthony C., and David V. Hinkley, 1997, *Bootstrap Methods and Their Application* Cambridge Series in Statistical and Probabilistic Mathematics (Cambridge University Press, Cambridge, U.K.).

Drazen, Allan, 2000, *Political Economy in Macroeconomics* (Princeton University Press, Princeton, NJ).

Efron, Bradley, and Robert J. Tibshirani, 1998, *An Introduction to the Bootstrap* Monographs of Statistics and Applied Probability #57 (Chapman & Hall, New York).

Fama, Eugene F., 1981, Stock returns, real activity, inflation, and money, *American Economic Review* 71, 545–565.

Fama, Eugene F., 1991, Efficient capital markets: II, *Journal of Finance* 46, 1575–1648.

Fama, Eugene F., and Kenneth R. French, 1988, Dividend yields and expected stock returns, *Journal of Financial Economics* 22, 3–25.

Fama, Eugene F., and Kenneth R. French, 1989, Business conditions and expected returns on stocks and bonds, *Journal of Financial Economics* 25, 23–49.

Fair, Ray, 1982, The effect of economic events on votes for president: 1980 results, *Review of Economics and Statistics* 60, 159–173.

Fair, Ray, 1996, The effect of economic events on votes for president: 1992 update, *Political Behavior* 5, 119–139.

Faust, Jon, and John S. Irons, 1999, Money, politics and the post-war business cycle, *Journal of Monetary Economics* 43, 61–89.

French, Kenneth R., William Schwert, and Robert F. Stambaugh, 1987, Expected stock returns and volatility, *Journal of Financial Economics* 19, 3–29.

Geske, Robert, and Richard Roll, 1983, The fiscal and monetary linkage between stock returns and inflation, *Journal of Finance* 38, 1–33.

Gonzalez, Maria, 2000, Do changes in democracy affect the political budget cycle? Evidence from Mexico, Working paper, Princeton University.

Goto, Shingo, and Rossen Valkanov, 2000, The Fed's effect on excess returns and inflation is bigger than you think, Working paper, Anderson School of Management, University of California, Los Angeles.

Hensel, Chris R., and William T. Ziemba, 1995, United States investment returns during Democratic and Republican administrations, 1928–1993, *Financial Analysts Journal*, March-April, 61–69.

Herbst, Anthony, and Craig W. Slinkman, 1984, Political-economic cycles in the U.S. stock market, *Financial Analysts Journal*, March-April 35–59.

Hibbs, Douglas, 1977, Political parties and macroeconomic policy, *American Political Science Review* 71, 1467–1487.

Hodrick, Robert, 1992, Dividend yields and expected stock returns: Alternative procedures for inference and measurement, *Review of Financial Studies* 5, 357–386.

Huang, Roger, 1985, Common stock returns and presidential elections, *Financial Analysts Journal*, March-April, 24–39.

Kaul, Gautam, 1987, Stock returns and inflation: The role of the monetary sector, *Journal of Financial Economics* 18, 253–276.

Keim, Donald B., and Robert F. Stambaugh, 1986, Predicting returns in stock and bond markets, *Journal of Financial Economics* 17, 357–390.

Koenker, Roger, 2000, Quantile regression, in S. Fienberg, J. Kadane, eds. *International Encyclopedia of the Social Sciences* forthcoming.

Koenker, Roger, and Kevin Hallock, 2000, Quantile regression: An introduction, *Journal of Economic Perspectives*, forthcoming.

Leamer, Edward, 1978, *Specification Searches* (John Wiley and Sons, New York).

Leinweber, David J., 1997, Stupid data mining tricks: Over-fitting the S&P 500, Working paper, First Quadrant.

Lindbeck, Assar, 1976, Stabilization policies in open economies with endogenous politicians, *American Economic Review Papers and Proceedings* 69, 1–19.

Newey, Whitney K., and Kenneth D. West, 1987, A simple positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix, *Econometrica* 55, 703–708.

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

Persson, Torsten, and Guido Tabellini, 1990, *Macroeconomic Policy, Credibility, and Politics* (Harwood Academic Publishers, Churk, Switzerland).

Rogoff, Kenneth, 1990, Equilibrium political budget cycles, *American Economic Review* 80, 21–36.

Schwert, William G., 1990, Indexes of United States stock prices from 1802 to 1987, *Journal of Business* 63, 399–431.

Siegel, Jeremy, 1998, *Stocks for the Long Run* (Norton, New York).

Sullivan, Ryan, Allan Timmermann, and Halbert White, 2001, Dangers of data-driven inference: The case of calendar effects in stock returns, *Journal of Econometrics* 105, 249–286.

Tavares, Jose, and Rossen Valkanov, 2001, The neglected effect of fiscal policy on stock and bond returns, Working paper, Anderson School of Management, University of California, Los Angeles.