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PRESIDENTIAL REGIMES, STOCK MARKET VOLATILITY, AND RETURNS

Abstract

Recent research findings of lower risk and higher stock market returns under Democratic presidencies are reversed once the persistence properties of the presidential regime dummy variable used in presidential regime regression analysis are taken into account. It is generally presumed that dichotomous explanatory variables, including presidential regime dummy variables, are well-behaved in time-series regression analysis, but dummy variables can be highly persistent, and, if they are, spurious regression results can arise. This paper uses a simulation procedure to deal with persistent dichotomous explanatory variables to demonstrate that the coefficient estimates obtained in a recent study by Leblang and Mukherjee (2005) of presidential regime stock market return volatility and return differences are less than would be expected by chance. We also show that the theoretical underpinnings of the Leblang and Mukherjee (2005) rational expectations model of higher inflation expectations under Democrats are counter-factual, and utilize the political science literature to indicate why significant return differences between political parties would not be expected to persist. The conclusion that presidential regime differences are insignificant is further reinforced by extending the data back in time to include all Republican/Democratic administrations.

Key words: Presidential regimes, spurious regression, persistence, dummy variable

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PRESIDENTIAL REGIMES, STOCK MARKET VOLATILITY, AND RETURNS

Recent research documenting lower risk and higher stock market returns under Democratic presidencies is interesting and thought-provoking**,** especially since it is generally presumed that the Republican party is the safe bet for stock market investors (Leblang and Mukherjee 2005; see also Santa-Clara and Valkanov 2003). The importance and the surprise element of these findings have not gone unnoticed in the popular press, either, with a recent headline in Money.com proclaiming "Despite 'market friendly' Republican policies, stocks rise more and volatility dips under Democrats" (Twin 2004).[1]

Leblang and Mukherjee (2005) (hereafter, LM) examine whether political regimes affect the volatility and mean level of daily stock returns using a rational expectation model based on higher inflation expectations under left-wing governments. LM find a statistically significant positive relationship between the volatility of daily Dow Jones Index stock market returns and Republican presidencies during their sample period 1896 to 2001. LM demonstrate that stock market return volatility is more than 2% lower under Democratic versus Republican administrations, even after carefully controlling for potentially confounding factors such as the presence of divided governments, presidential elections, wars, stock market crashes, and interest rates. Santa-Clara and Valkanov (2003) find that the excess return of the CRSP value-weighted market index over the one-month Treasury bill rate is on average nine percent higher under Democratic than Republican

[1] The Money.com article is written under the banner "Surprise: Dems are better for rallies". The Santa-Clara and Valkanov (2003) paper has been cited over 200 times in the popular press, and there is even a link to it on the Democratic National Party website.

administrations during the period January 1927 through December 1998—16 percent higher using the excess return of the CRSP equal-weighted market index. Santa-Clara and Valkanov (2003) control for potential confounding factors such as the business cycle and employ an extensive battery of robustness checks prior to concluding the results are significant.

Obviously, the conclusions of these studies, if correct, have great importance. Consequently, the experimental design deserves close scrutiny. In their empirical work, LM (and, prior to LM, Santa-Clara and Valkanov 2003) regress stock index returns or return volatility on a dichotomous explanatory variable (i.e., a dummy variable) that switches on and off according to whether a Democrat or a Republican is in office on a particular day. If Democratic days are coded as "1" and Republican days are coded as "0", the coefficient on the dummy has the interpretation of being the incremental stock market volatility or performance of Democrats over Republicans. If the coefficient on the dummy is significantly positive (negative), the null hypothesis that stock market volatility or performance is the same under both types of administrations is rejected in favor of the alternative that volatility or performance is higher under Democratic (Republican) administrations. LM base their conclusion of lower return volatility under Democrats upon their finding of a significantly negative Democratic regime dummy variable coefficient.

The use of dummy variables is commonplace in the economics literature. Usually they are used in a regression model to test a significant difference in the intercept and/or slope where the data are observed under different environments (e.g., a time-series regression model that includes war-time and peace-time observations). What is sometimes overlooked, however, is that a dichotomous explanatory variable is like any

other stochastic regressor and may be extremely persistent through time. A recent study by Ferson, Sarkissian and Simin (2003) demonstrates that the spurious regression problem analogous to Yule (1926) and Granger and Newbold (1974) can arise when stock returns are regressed on continuous explanatory variables that are persistent (i.e., highly auto-correlated) through time. Paye (2006) examines the spurious regression problem in predictive regressions for variance, and finds that macroeconomic variables do not predict volatility when spurious regression is taken into account. The spurious regression problem is exacerbated by data mining for explanatory variables, since highly persistent variables are more likely to display apparent significance. If there is high autocorrelation in a regressor, the error term inherits the autocorrelation causing the standard error of the estimate to be downward biased and a significant relation to appear when none actually exists. In retrospect, persistence in the presidential dummy comes hardly as a matter of surprise when daily returns and return volatility are used. Since daily data are used, the run of zeros or ones must be at least four years with each successive administration.

To take account of the potential influence of persistence, we conduct simulations in the spirit of Ferson, Sarkissian and Simin (2003) to assess the extent to which the spurious regression problem interacts with data mining to affect dummy variable regression results. To conduct the simulations, the presidential regime dummy variable is modelled as randomly switching between zero and one according to a transition matrix that represents the probability of remaining in or exiting a particular political regime due to a presidential election. Simulated stock market returns and return volatility estimates are then regressed against an independently simulated presidential dummy variable to obtain a benchmark for the influence of spurious regression on the regression results,

with the benchmark taking into account the number of series that are searched for potentially significant regression relations. The simulation results indicate that the regression adjusted R^2 values and the estimated coefficients obtained in the LM political regime return volatility and return difference study are less than would be expected by chance.[2]

In addition to addressing the spurious regression problem, theoretical considerations as well as sample selection issues are explored to further explain why the LM political regime stock market results are most likely to be due to chance. LM hypothesize that traders will anticipate the results of elections, thus leading to reduced stock market trading and therefore return volatility when Democrats are expected to win presidential elections, as investors anticipate lower dividend growth and returns due to higher inflation. The LM rational expectations model is thus dependent upon higher inflation expectations as well as lower dividend growth, total returns and trading volume under Democrats, and direct connections between returns, volume, and return volatility. Empirical tests reject the LM model's assumption that inflation, dividend growth, and trading volume are significantly different under Democratic versus Republican administrations, and recent research asserts an inverse (not a proportional) relationship between return volatility and liquidity (see, e.g., Deuskar 2006). Two recent political science studies are also used to provide theoretical reasons as to why we would expect that LM's findings are most likely to be due to chance (Schofield, Miller, and Martin 2003; Musto and Yilmaz 2003).

[2] The Santa-Clara and Valkanov (2003) results are examined extensively in Powell, Shi, Smith and Whaley (2007), so this paper focuses on the LM study results.

We also focus on the issue of sample selection. Like so many empirical studies in financial markets, the start point of many studies is dictated by data availability for the return series used in the studies. Unfortunately, this means that fifty or more years of valuable information is discarded since distinct differences in the ideologies of the Republican and Democratic parties date back to 1856. Moreover, some have argued that the distinctions between party ideologies were even greater during the late 1800s than they are today. Using market data dating back to 1856, we greatly increase the LM sample size, and find that stock market volatility and performance under the two presidential regimes is even less distinguishable. The longer sample period also allows us to dispel data mining concerns.

The paper is organized as follows. The first section summarizes the properties of the LM presidential regime data sample and documents the fact that the dichotomous variable is highly persistent. The second section describes the simulation procedure that is used to assess the influences of political regime dummy variable persistence and data mining on presidential return volatility and return difference regression results. The third section analyzes the theoretical and empirical underpinnings of the LM presidential regime return difference model to explain why presidential regime return volatility differences are due to chance, and it also uses out-of-sample testing to check the robustness of the LM results. The final section contains a summary.

PRESIDENTIAL REGIME STOCK MARKET RETURN AND VOLATILITY DIFFERENCES

Popular interest in stock market performance under Democratic and Republican administrations has been around for decades.[3] Herbst and Slinkman (1984) document the existence of a 48-month stock market cycle that is closely associated with U.S. presidential elections. Huang (1985) reports that the mean annual stock market return is 9.2 percent higher under Democratic than Republican administrations during the period 1929 through 1980 and that the difference is significant at the ten percent probability level. Hensel and Ziemba (1995) show that much of the average return differential arises from small stocks, which apparently perform better under Democratic administrations. Santa-Clara and Valkanov (2003) find that stock market excess returns are significantly higher under Democratic presidencies in three of the four excess return series they examine during the sample period January 1927 through December 1998.

Knight (2006) provides an ex-ante identification of stocks that are more likely to do better under Democratic (Republican) policies and finds significance out-performance over time by Democratic (Republican) stocks when Gore (Bush) moved ahead in the polls during the 2000 presidential election. Goldman, Rocholl, and So (2006) find a similar result when tracking stocks with politically connected board members during the 2000 presidential election year.

[3] Hirsch and Hirsch (2005) is the 38th edition of *The Stock Trader's Almanac*. They have documented a wide array of stock market anomalies including market performance (i.e., movement in the DJIA 30) under Republican and Democratic administrations since the late 1960s.

LM conduct careful empirical analyses of differential stock market performance under different presidential regimes. They employ an extensive battery of tests and controls to determine whether a significant difference exists. Center stage in the analysis is a dummy variable regression model designed to test for return differences between Democratic and Republican presidential administrations. The presidential regime dummy variable (π_t) is equal to one if a particular party is in power at the beginning of a particular day and zero otherwise. Daily stock market index return or return volatility, r_t, is regressed on the dummy using the model,

$$r_t = \alpha + \beta \pi_t + u_t . \qquad (1)$$

The presidential party political dummy variable designations in LM are DD_t =1 if a Democratic president is in power during month *t* and DD_t = 0 otherwise. Thus, $\pi_t \equiv DD_t$. The null hypothesis that presidential regimes have no effect on stock market return volatility or return differentials implies $\beta = 0$.

LM estimate the regression model (1) using daily capital returns as well as a 20 day rolling volatility estimate for the Dow Jones Industrial Average during the time period May 26, 1896 through 2001 (see LM, Table 1, 782). They find that volatility is a statistically significant two percentage points lower under Democratic versus Republican presidencies (see LM, 781), and their results also indicate that mean DJIA capital returns are lower under Democratic presidencies. This leads LM (781) to conclude "The coefficients in Table 1 indicate a statistically significant negative relationship between

democratic partisanship and stock market returns as well as democratic partisanship and stock market volatility".[4]

As a first step in our analysis, we gather the same data as LM. The LM Dow Jones Industrial Average (DJIA) Index data are from Global Financial data and cover the time period May 26, 1896 through 2001. Table 1 provides summary statistics for our daily return and return volatility series. The mean daily DJIA Index return for the LM sample is .02% while the average return volatility is .916% (see Table 1). Table I also reveals the extreme persistence in the presidential dummy variable, which is used as the independent variable in the regression model (1). The first-order autocorrelation in *DD* is a whopping .999! In addition, the LM return series also has positive first-order autocorrelation, albeit at a lower level. Autocorrelation of the LM volatility series is extreme (.990), a finding that can be explained by overlapping observations since a twenty day rolling standard deviation is used to estimate volatility. These are the symptoms of a potential spurious regression problem. Ferson, Sarkissian and Simin (2003) point out that, with a high level of persistence in the independent variable and at least partial persistence in the dependent variable, spurious regression results may arise, especially when data sets are mined for potentially significant regression relations.

[Table 1 about here]

[4] It is likely that a transcription error is responsible for the mean return coefficient's reported value in Table 1 of LM.

SIMULATED CUT-OFF SIGNIFICANCE VALUES FOR PRESIDENTIAL REGIME STOCK MARKET RETURN AND VOLATILITY DIFFERENCES

With documented persistence in a regressor, the potential for spurious regression results looms large. The error term inherits the autocorrelation in the regressor, causing the standard error of the estimate to be downward biased and a significant relation to appear when none actually exists. One way of working around this potential problem is to simulate critical cut-off values for the coefficient estimates, the *t*-statistics, and the adjusted R^2 for testing whether the coefficients and significance levels estimated using regression model (1) are less than would be expected by chance. Our simulation procedure, patterned after that used in Ferson, Sarkissian and Simin (2003), is conducted under the assumptions that the dependent and independent variables are uncorrelated, but that the autocorrelation properties of the variables match those present in the actual data. Below we outline the simulation procedure.

The Dependent Variable

From Table 1, we know that the LM daily return and return volatility series are positively auto-correlated. Consequently, the dependent variable stock index return series is generated as

$$r_t = \alpha_r + \rho_r r_{t-1} + e_t \quad \text{for} \quad t = 2, 3, \ldots, n \ , \tag{2}$$

where n is the sample length in days, α_r is the intercept and ρ_r is the first-order autocorrelation coefficient. The unconditional mean and variance of the dependent variable are

$$\mu_r = \frac{\alpha_r}{1-\rho_r}$$

and

$$\sigma_r^2 = \frac{\sigma_e^2}{1-\rho_r^2},$$

where the parameters μ_r, σ_r^2 and ρ_r are estimated using the actual stock index data (see Table 1). The dependent variable simulation is started at the unconditional mean μ_r and the error term for process (2) is generated from a normal distribution with a mean of zero and a variance of $\sigma_r^2(1-\rho_r^2)$.

The Independent Variable

The presidential regime dummy variable is generated using a transition matrix that represents the conditional probability of remaining in or exiting a particular political regime on a presidential election date. The transition matrix conditional probabilities are estimated from the actual election data.[5] Appendix A contains the history of U.S. presidential election results, and Panel B of Table 1 summarizes the information from which the transition probabilities for the LM sample period 1896 through 2001 are computed. The presidential regime independent variable series π_i (i = 1,…, I) is generated as a first-order Markov chain such that the transition probabilities for potential presidential regime changes at four year intervals are

[5] The diagonal elements of the transition matrix therefore ensure that the persistence of the simulated series matches the persistence of the actual series (see Table 1); the higher are the diagonal element values, the more persistent is the generated series.

$$\Pr(\pi_i = 0 \mid \pi_{i-1} = 0) = q$$

$$\Pr(\pi_i = 1 \mid \pi_{i-1} = 0) = 1 - q$$

$$\Pr(\pi_i = 1 \mid \pi_{i-1} = 1) = p$$

$$\Pr(\pi_i = 0 \mid \pi_{i-1} = 1) = 1 - p\,,$$

where the subscript *i* represents presidential inauguration dates and *I* is the total number of elections in the sample. Once the presidential inauguration has occurred then the presidential regime dummy variable remains the same for the remaining days of the presidential term. The presidential regime series starting value $\pi_{i=0}$ is generated according to the unconditional probability of a Democratic presidency occurring during the sample period. The presidential regime dummy variable series is generated independently of the stock index return series.

Cut-offs for Spurious Regression Bias

A dependent variable series and an uncorrelated independent variable series are simulated for a time period equal to the 1896 through 2001 daily sample period in LM, and a regression is then run on the simulated series using presidential return volatility or return difference regression model (1). The process is repeated 10,000 times. The coefficient estimates and *t*-statistics as well as the adjusted R^2 s are recorded for each simulated regression and are ranked from lowest to highest. The 95^{th} percentile adjusted R^2 as well as the 2.5^{th} and 97.5^{th} percentile coefficient estimates and *t*-statistics are then recorded as the five percent critical cut-off values. The cut-off adjusted R^2 value is compared to the actual adjusted R^2 that is estimated using the original data to assess the

overall significance of the estimated regression relation (see Foster, Smith, and Whaley 1997; Ferson, Sarkissian, and Simin 2003). The critical cut-off coefficient estimates and *t*-statistics are similarly used to evaluate whether the regression estimates obtained using the actual data are less than would be expected by chance.

Cut-offs for Spurious Regression Bias with Data Mining

A second set of modified cut-off statistics are also reported that use Bonferonni correction intervals to take account of the number of series that are examined in the search for potentially significant relations (see Lo and MacKinlay 1990; Foster, Smith, and Whaley 1997; Ferson, Sarkissian, and Simin 2003; Santa-Clara and Valkanov 2003). LM examine the DJIA Index whereas Santa-Clara and Valkanov (2003) examine five dependent variable series (four CRSP return differential series as well as a real Treasury bill return series), while prior studies also examine nominal and real return series for the S&P500, small stocks, long-term corporate bonds, and long- and intermediate-term government bonds, thus implying that a total of **s**ixteen return series have been tested for presidential regime return differences (see Huang 1985; Hensel and Ziemba 1995; Johnson, Chittenden, and Jensen 1999). In addition, there are numerous ways to measure the political dummy variable, including presidential party, congressional party, and first or last two years of the presidential term. In other words, a total of sixty-four (i.e., sixteen times four) potential combinations are examined in political return difference studies. A conservative adjustment factor of five is used to determine the modified cut-off statistics (e.g., it is assumed that at least five dependent or independent series are examined in the search for statistical relations). This modification is equivalent in an operational sense to

requiring a one percent level of significance rather than a five percent level due to the number of series being searched in presidential return difference studies.

Simulated Cut-off Significance Values for the LM Sample

Results for presidential regime regression model (1) for DJIA Index daily returns and return volatility are reported in Table 2 (see LM, Table 1, 782). Various variables that control for interest rates, divided governments between the president and Congress, and major events such as war are included as explanatory variables, along with presidential party affiliation. One problem in reproducing the LM results is daily interest rate data are not available for the full LM sample. The Federal Reserve Bank of New York discount rate is available on a daily basis from November 16, 1914 onwards so we use this interest rate and shorten the sample accordingly; we assume that LM use the same interest rate and sample period, thus explaining why they report 23,327 observations in their sample (see LM, Table 1, 782). There are some minor discrepancies in coefficient values between our Table 2 and the coefficients reported in LM Table 1,[6] but the presidential dummy variable coefficients are of a similar magnitude in both tables. The results indicate that the decrease in return volatility under Democratic presidential regimes is highly significant when evaluated using conventional estimation procedures.

[Table 2 about here]

[6] We are confident our control variable coefficients make sense. For instance, a check of the data shows that the market actually rose after the Truman assassination attempt, and it also shows that the stock market fell sharply following the Twin Towers terrorist attacks.

Table 3 provides our simulation procedure results for presidential regime regression model (1) for DJIA Index daily returns and return volatility. Below the coefficient estimates in Table 3 are the lower and upper confidence bounds for the coefficient estimates and *t*-statistics are given in the second and third lines of each set of results, while the fourth and fifth lines report the modified lower and upper bounds that have been adjusted for the number of series that have been examined in the search for statistical relations. Interestingly, the Democratic presidential regime dummy variable estimates are well inside the corresponding coefficient estimate confidence bounds. The 95 percent confidence bounds for the presidential regime coefficient *t*-statistic reported for the volatility series in Table 3 are very wide (for the full sample they are (-10.162, 10.215) and (-13.201, 13.547) when adjusted for data mining) due to the extreme persistence properties of the daily presidential regime dummy variable (see Table 1). All the presidential regime coefficient *t*-statistic estimates in Table 3 are inside the 95% *t*-statistic confidence bounds, thus demonstrating that correctly accounting for regime dummy variable persistence leads to rejection of the hypotheses that volatility and returns differ across presidential regimes. The modified cut-off adjusted R^2 values reported in Table 3 also support this conclusion. This evidence strongly suggests that the difference in volatility or returns under different political regimes is spurious in that it is less than would be expected by chance. The results of Table 3 therefore indicate that spurious regression can be an important problem for dummy variable regressions, just as it can be in time-series regressions that use continuous explanatory variables that are persistent.

[Table 3 about here]

Four-Year Return and Return Volatility Results

The regression results reported for the full sample in Table 3 offer strong statistical support for the hypothesis that there is no significant difference in stock market volatility or performance under the different political regimes. Using daily data made the statistical inference more tedious than was necessary, however. After all, only one value of the presidential dummy variable is observed each four years. Consequently, only the total return and return volatility over the entire four-year presidential term are relevant. A simpler, more intuitive, testing procedure is to run the regression model (1) using one observation every four years. The dependent variable is simply the four-year return or four year daily return volatility. The left-hand side of Table 4 contains the summary statistics for annualized four-year returns and return volatility for the full sample period 1897 to 2001. These, together with the transition information in Appendix B, are used to simulate critical cut-off levels. The right hand side of Table 4 contains the results.

The results reported in Table 4 provide the same inference as those in Table 3—there is no significant difference in market returns and return volatility during Democratic and Republican administrations. All coefficient estimates and *t*-ratios remain within their confidence bands, and the adjusted R^2 is well below its critical level. The coefficient estimates of α and β in Table 4 are virtually the same as the full sample results in Table 3, once adjusted to annualized values, since we are using logarithmic returns.[7]

[Table 4 about here]

[7] The four year sample is very slightly shorter than the daily sample because we lose days just prior to (following) the 1897 (2001) presidential inaugurations.

LM MODEL ASSUMPTIONS AND OUT-OF-SAMPLE TESTS

In the preceding section we show that there are no presidential regime return differential, and we also demonstrate that the LM finding of lower return volatility under Democratic presidencies is almost certainly due to chance as a result of extreme regression variable persistence. In this section we explore theoretical considerations as well as sample selection issues to further explain why the LM political regime stock market results are most likely to be due to chance.

LM hypothesize that traders anticipate the results of elections, and will expect higher inflation and lower dividend growth when Democrats are expected to win office. We test these assumptions in Table 5. Inflation is not significantly different under Democrats or Republicans, and dividend growth is actually higher, not lower, under Democratic presidencies, although once again the difference is not statistically significant. The key building blocks upon which the LM model and the LM presidential regime regression hypotheses are based do not seem to be borne out by the data. LM further assert that share trading volume will be reduced when Democrats are expected to win office due to the anticipation of poor stock market performance. Once again, this assumption cannot be justified empirically since there is no apparent difference in trading volume between Democratic and Republican presidential regimes. The LM rational expectations model is also dependent upon a direct connection between volume and return volatility. Recent research asserts an inverse (not a proportional) relationship between return volatility and liquidity (see, e.g., Deuskar 2006).

[Table 5 about here]

A recent political science study can also indicate why LM's findings are most likely due to chance. Schofield, Miller and Martin's (2003) examination of political

realignments within a game theoretic analysis of disaffected voters implies that if stock market investors were consistently made worse off by a party's policies then a political realignment would be a likely outcome. A brief review of the periodic realignment of political parties in the United States through time can illustrate this point (Sundquist 1983; Schofield, Miller, and Martin 2003). The creation of the Republican party in the early 1850s by anti-slavery activists and proponents of free Western land grants was a crucial realignment. It established the current Republican party, replacing the then-existent Whig party, as the second party (together with the Democrats) within the two-party system. The Republican party burst on to the national scene when Colonel John C. Fremont, a popular hero of the time known as the "Pathfinder of the Pacific," galvanized anti-slavery and free land supporters in the 1856 presidential election. The victory of Abraham Lincoln in the polarizing 1860 presidential election and the ensuing Civil War over southern secession and the abolition of slavery established the Republican party's reputation and political power base in the North.

The Democratic party has also gone through important realignments. Interestingly, a depression in the 1890s during the Democratic administration of Grover Cleveland also led to the most disastrous of the Democratic realignments (from an election point of view) when agrarian elements and proponents of monetary expansion gained control of the Democratic party. The Democrats were led by the firebrand orator William Jennings Bryan who deliberately heightened the polarization of the country along regional lines and rural versus industrial interests in the 1896 presidential election (Sundquist 1983; Burnham 1965). Failure in the 1896 election temporarily pushed the Democrats back to the southern power base they had maintained since the Civil War. The Republican

position in the 1896 election was, contrastingly, pro-business, and in opposition to Bryan's "toiling masses". Eastern business interests, under threat, rallied behind Republican presidential candidate William McKinley. Sundquist (1983, 156) notes that, as a consequence of this support, McKinley's campaign manager was able to raise massive campaign funds for the Republicans by the remarkable method of "…assessing major corporations at the rate of one-fourth of one percent of capital." Theodore Roosevelt, upon becoming president due to the assassination of McKinley in 1901, felt the most pressing issue of the time was ensuring the Republican principle of competition in a free market.

The disastrous Democratic realignment of 1896 led to subsequent electoral failure, and Democratic policies clearly disaffected northern and eastern industrial interests. The Depression, which threatened the interests of workers and wealth-holders alike, gave the Democratic party the impetus to once again realign itself with the economic interests of a large segment of the voting population. The Democratic party setback in 1896 was reversed when Franklin Delano Roosevelt once again seized the economic initiative**,** thus providing the most successful Democratic party realignment, again from a presidential election point of view, with the New Deal economic reforms of the thirties instigated by the Great Depression (Sundquist 1983; Burnham 1965).

A study by Musto and Yilmaz (2003) helps to provide another perspective as to why presidential regime risk and return differences are unlikely to be strong and persistent. They analyze the effects of political party redistribution policy within a perfect market equilibrium framework, and find that investor insurance against wealth losses due to potential redistribution policy ameliorates the effects of redistribution policy. This makes it unlikely that political party redistribution policies would give rise to systematic

and persistent effects on investors. Recent studies have also determined that party policies which favour or work against particular companies create stocks that can be purchased as potential risk hedges against each party's policies (see, e.g., Knight 2006; Goldman, Rocholl, and So 2006). In this situation the net effect of presidential regimes on investors' overall stock market holdings is likely to be close to zero, thus further explaining why political regime differential effects on the aggregate stock market are likely to be due to chance.

A final consideration as to whether political regime stock market effects are due to chance is to address the problem of data mining. For this, out-of-sample tests are often performed. One option is to wait for more data to arrive. Another is to look back in time. LM restrict their sample to 1896 onwards (and in reality 1914 onwards) due to data limitations. Since stock market return data are available dating back to January 1802 (see Schwert 1989 and 1990), the decision to discard many years of potentially valuable information, should not be taken lightly. To include nineteenth century data, we need to check, however, whether the ideologies of the Democratic and Republican parties before WWI were not clearly delineated. The critical issue is at what point in time was there a clear distinction between the ideologies of the two political parties.

Two features of American political party history are important in answering this question. The first feature is political party realignment, already discussed in relation to whether parties' disadvantageous economic policies would persist indefinitely. The polarizing 1896 election provides, perhaps, the sharpest distinction between Democratic and Republican economic and socio-economic ideology. Key issues were the hardship of farmers as well as inequality in the distribution of wealth and income between regions

and classes (Sundquist 1983). The Democratic candidate, William Jennings Bryan, "…appealed for a coalition of the 'toiling masses' – farmers and urban working men, organized as an avowed class party against the interests that had exploited them." (Sundquist 1986, 155). His "Cross of Gold" Speech at the Democratic Convention, considered to be the most important in American political history, staked out the Democrat 's 20th century position and is still paraphrased today in support of policy:

> "The sympathies of the Democratic Party, as described by the platform, are on the side of the struggling masses, who have ever been the foundation of the Democratic Party.
>
> There are two ideas of government. There are those who believe that if you just legislate to make the well-to-do prosperous, that their prosperity will leak through on those below. The Democratic idea has been that if you legislate to make the masses prosperous their prosperity will find its way up and through every class that rests upon it." (Bryan 1896, 5)

Bryan's appeal to industrial workers fell upon deaf ears in the East because they were not convinced that monetary expansion was the primary solution to their economic problems; they also felt excluded by Bryan's regional, agrarian-based coalition. It was not until Franklin Delano Roosevelt's reforms were aimed directly at workers that the Democrats gained ascendancy with the "toiling masses". Sundquist (1983, 207) states "…the Democrats had at last staked out a position as the party of the masses against the classes…", but this position can clearly be traced back to Bryan's 1896 Cross of Gold speech (as quoted above). Bryan's speech (1896, 2 and 3), in turn, looked to the founding father's of the Democratic party in support of his party's policy positions: "What we need is Andrew Jackson to stand as Jackson stood, against the encroachments of aggregated wealth.", and "Mr. Jefferson, who was once regarded as good Democratic authority, seems to have a different opinion from the gentleman who has addressed us on the part of

the minority. Those who are opposed to this proposition tell us that the issue of paper money is a function of the bank and that the government ought to go out of the banking business. I stand with Jefferson rather than with them, and tell them, as he did, that the issue of money is a function of the government and that the banks should go out of the governing business."

The economic ideology that sharply distinguished Republicans during the polarizing 1896 presidential election also had antecedents in the formative years of the party due to the party's early association with liberal capitalism and the party's "…unmistakable appeal to the economic interest of the business element." (Sundquist 1983, 86-88). Sundquist (1983, 81) also states "…the panic of 1857 closed banks and factories throughout the north and south and sent railroads into bankruptcy. Republicans blamed Democratic low tariff policies and gained a potent new issue." The Republican power base in the north during Civil War reconstruction helped to create an increasingly close affiliation of the party with eastern industrial interests, thus foreshadowing Calvin Coolidge's sentiments by many decades when he famously proclaimed in 1925 that "the chief business of the American people is business".

A second important feature of American political history is the secular decline in party affiliation, as quantitatively defined by split-voting (voting for one party in the presidential vote and another party in the vote for other offices) and roll-off (failure to vote a complete ticket), both of which are used to identify party linkage (Burnham 1965). These measures indicated that party affiliation was intense in the latter half of the nineteenth century. In the words of Burnham (1965, 22): "The late 19th-century voting

universe was marked by a more complete and intensely party-oriented voting participation among the American electorate than ever before or since."

Strong party affiliation and generally high voter turnout during the latter half of the 19th century meant that presidential landslides were only possible when turnout of one party's voters fell for some reason, and were not a result of swing voters. Split-ticket voting and roll-off increased sharply and voter turnout fell precipitously following the 1896 Democratic party realignment, a pattern attributed to the collapse of two-party systems in some states following 1896 and the concurrent rise of direct primaries (Burnham 1965). The trend was only partially reversed by the New Deal realignment elections in 1932 to 1944 and is an important but dynamic feature of the current political landscape.

The sharply distinct ideologies of the Republican and Democratic party during the polarizing 1896 presidential election suggest that it would be difficult to argue against the post-1896 period being included in a sample of presidential regime return differences. In fact, it is probably difficult to exclude any part of the history of Democratic versus Republican presidential elections, since both parties' sharply distinct 1896 ideological positions and the justifications of these positions can be traced back to the early years of each party. Very strong party affiliation during the latter half of the 19th century also supports this view. Notwithstanding these observations, the sharp falloff in party affiliation following the 1896 realignment suggests that the post-1896 time period is an interesting sub-sample to examine in comparison to the full sample.

To test the hypothesis that there exists no difference between Democratic and Republican administrations over a longer sample period, we use data dating back to 1856

when John C. Fremont became the first Republican nominee for President under the slogan: "Free soil, free labor, free speech, free men, Fremont." For the period January 1926 through December 2004, we use value-weighted index returns provided by CRSP. For the period January 1857 through December 1925, our data is downloaded from http://schwert.ssb.rochester.edu/gws.htm. The construction of this stock market return series is described in detail in Schwert (1990). In brief, he compiles a historical single, continuous, stock market price index return series from five historical sources. While the return series dates back to February 1802, we use only the data after the November 1856 presidential election.

The methodology used to test the hypothesis that there exists no difference between annualized four year returns and return volatility under Democratic and Republican administrations is, again, the dummy variable regression model (1). The construction of the dummy is straightforward, given the presidential election result summary provided in Appendix A. To develop the appropriate cut-off values for coefficient estimates, *t*-ratios, and adjusted R^2 's, estimates of unconditional and conditional probabilities are obtained from the frequency distributions reported in Appendix B. Each sample period has a different distribution. Finally, aside from the transition probabilities, each simulation requires estimates of the mean and standard deviation of the return and return volatility series, as well as its first-order autocorrelation. These values are reported in the left hand side of Table 6. The first-order auto-correlation in returns is negative and statistically significant**,** and return volatility is highly persistent.

The right hand side of Table 6 contains the regression results and critical cut-off levels for the extended sample period. Overall the entire history of the Republican party, the null hypothesis that there is no difference in stock market performance during the different presidential regimes cannot be rejected at the five percent level. Both the estimated coefficients and their *t*-ratios are well within their bands, and the adjusted R^2's are below their critical levels. In other words, increasing the sample size by using the entire history of elections in which Republicans were pitted against Democrats has made it increasingly difficult to distinguish between the market return performance under the two presidential regimes, thereby reinforcing the message that data mining combined with explanatory variable persistence plays an important role in presidential regime return difference results.

[Table 6 about here]

CONCLUSION

Dichotomous explanatory variables representing political regimes can be highly persistent in a time-series regression context. If they are, spurious regression results can arise. This is especially the case when data sets are mined for significant explanatory variables, since highly persistent variables are more likely to display apparent significance. This paper uses a simulation procedure to correct potentially misleading inference in such regressions. The simulation is based on a procedure outlined by Ferson, Sarkissian and Simin, (2003) for highly persistent continuous explanatory variables. Specifically, we regress simulated stock market returns and return volatility against an

independently generated presidential regime dummy variable series. This provides an assessment of the extent to which dummy variable persistence combined with data mining affects the significance of the Leblang and Mukherjee (2005) presidential regime regression analysis.

The simulation procedure results indicate that the adjusted R^2 s and the coefficient estimates obtained in presidential regime return volatility and return difference studies are less than would be expected by chance. To explain this result, we demonstrate that the assumptions upon which the LM rational expectations model of higher inflation expectations under Democratic presidencies are counter-factual. Specifically, we show that investors do not trade less and would not rationally expect higher inflation and lower dividend growth under Democratic presidencies since inflation, dividend growth, and share trading volume do not differ significantly across presidential regimes. Political science studies indicate why LM's findings are most likely due to chance, since if stock market investors were consistently made worse off by one party's policies then a political realignment would be a likely outcome for that party. Investors' insurance activities can also protect against political parties' policies, especially when party policies favour or work against particular companies, thus ameliorating the net effect of presidential regimes on investors and further explaining why significant presidential regime differences are unlikely. The conclusion that presidential regime differences are insignificant is further reinforced by extending the data sample back to the mid-1800s when the Republican and Democratic ideologies became distinguishable from one another.

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Table 1
Summary Statistics of Dependent and Independent Variables and Transition Probabilities of Dummy Variables

Panel A reports summary statistics of the variables for the period May 26, 1896 to December 31, 2001. *Return* is the daily return of the Dow Jones Industrial Average index, expressed in percentage. Following Leblang and Mukherjee (2005), *Volatility* is the daily 20-day moving standard deviation of return on the Dow Jones Industrial Average index, expressed in percentage. *Dummy* is 1 if a Democratic president is in power and 0 otherwise. Data for the Dow Jones Industrial Average index are obtained from Global Financial Data. Also note that, because *Volatility* is measured as the 20-day moving standard deviation of return on the Dow Jones Industrial Average index, the number of observations for *Volatility* is different from that of *Return* and *Dummy*. Panel B presents daily frequencies and transition probabilities for *Dummy*.

Panel A: Summary Statistics

	Return	*Volatility*	*Dummy*
Mean (%)	0.020	0.916	0.459
Standard deviation (%)	1.080	0.565	0.498
n	29,006	28,987	29,006
Autocorrelation			
1	0.041	0.990	0.999
2	-0.031	0.978	0.998
3	0.009	0.964	0.998
4	0.037	0.949	0.997
5	0.024	0.933	0.996
6	-0.020	0.916	0.995

Panel B: Daily Frequency and Transition Probability of Dummy Variable

	Frequency	Transition Probability	Frequency	Transition Probability	Frequency
	Republican		Democrat		Total
Republican	15,663	99.96%	5	0.04%	15,668
Democrat	6	0.04%	13,313	99.96%	13,319
Total	15,669	54.05%	13,318	45.95%	28,987

Table 2
Results for Table 1 of Leblang and Mukherjee (2005)

Panel A contains results reported in Table 1 of Leblang and Mukherjee (2005) that correspond to an OLS regression of *Return* and *Volatility* on a presidential dummy variable (*Dummy*) as well as other control variables. *Return* is the daily return of the Dow Jones Industrial Average index, expressed in percentage. *Volatility* is the daily 20-day moving standard deviation of return on the Dow Jones Industrial Average index, expressed in percentage. *Dummy* is 1 if a Democratic president is in power and 0 otherwise. Data for the Dow Jones Industrial Average index are obtained from Global Financial data. Regressions are estimated by OLS and *t*-statistics are adjusted for autocorrelation and heteroskedasticity using Newey-West (1987). Panel B is our regression results on *Return* and *Volatility.* ***, **, and * denote significance at 1%, 5%, and 10% level, respectively.

	Panel A: Results of Leblang and Mukherjee (2005)				*Panel B: Our Results*			
	Return		*Volatility*		*Return*		*Volatility*	
Variable	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Constant	0.032	1.25	1.102***	19.54	0.016	0.649	1.116***	23.793
Dummy	0.008	0.44	-0.182**	-4.71	0.014	0.787	-0.141***	-4.047
Divided Govt (1=divided)	-0.007	-0.49	0.133***	4.08	0.008	0.481	-0.155***	-4.734
Election day	0.438	1.61	0.137	1.04	0.263***	1.032	-0.052	-0.341
Kennedy Assassination	-2.913***	-182.78	0.375***	13.05	-2.961***	-240.316	-0.126***	-5.740
Reagan Assassination	-0.298***	-11.44	0.104**	2.51	-0.289***	-11.198	0.108***	3.113
Ford Assassination	-0.308***	-23.33	0.063**	2.19	-0.304***	-26.600	0.215***	10.507
Truman Assassination	-0.646***	-26.15	0.082**	2.33	0.278***	11.393	0.142***	4.439
FDR Assassination	0.213***	14.73	0.579***	17.8	0.231***	11.482	0.485***	11.629
Nixon resign	-1.619***	-112.62	0.429***	16.06	-0.997***	-72.077	0.314***	14.304
FDR death	0.229***	11.1	0.059*	2.07	0.234***	11.351	0.062***	2.743
Harding Death	0.237***	14.41	0.104***	2.64	0.256***	13.667	0.004	0.108
World war 1	-0.007	-0.16	-0.095	-1.35	-0.054	-0.962	0.189***	2.797
World war 2	0.004	0.14	-0.482***	-10.04	0.001	0.051	-0.417***	-11.744
Korean war	-0.011	-0.39	-0.405***	-8.76	-0.007	-0.242	-0.414***	-10.240
Vietnam Conflict	-0.017	-1.12	-0.382***	-13.35	-0.018	-0.901	-0.352***	-14.892
Twin Towers	0.126***	9.56	-0.006	-0.22	-7.420***	-520.061	0.957***	38.691
1929 Crash 1	-5.557***	-6.18	2.008***	12.93	-4.015***	-3.590	1.722***	14.991
1987 crash	-22.64***	-1,712.74	4.175***	145.87	-25.657***	-2,243.722	4.964***	243.035
Interest	0.001	0.21	-0.02***	-3.27	0.000	0.039	0.001	0.165
Adjusted R^2	NA		NA		2.742%		8.319%	
Time Period	1896-2001		1896-2001		Dec 12, 1914 – Dec 31, 2001		Dec 12, 1914 – Dec 31, 2001	
# of Observation	23,327		23,327		23,568		23,568	

Table 3
Political Regime Return and Volatility Differential Regression Results

The table reports OLS regression of daily differential returns ands volatility of the Dow Jones Industrial average index on the presidential dummy variable,

$$y_t = \alpha + \beta(Dummy)_t + u_t ,$$

where y_t denotes daily *Return* and *Volatility* at day *t*; *Return* is the daily return of the Dow Jones Industrial Average index, expressed in percentage; Following Leblang and Mukherjee (2005), *Volatility* is the daily 20-day moving standard deviation of return on the Dow Jones Industrial Average index, expressed in percentage; and $Dummy_t$ is 1 if a Democratic president is in power and 0 otherwise. The sample period is between May 26, 1896 and December 31, 2001 for Panel A and is between December 12, 1914 and December 31, 2001 for Panel B. The data are obtained from Global Financial Data. Regressions are estimated by OLS and *t*-statistics are adjusted for autocorrelation and heteroskedasticity using Newey-West (1987). Also note that, because *Volatility* is measured as the 20-day moving standard deviation of return on the Dow Jones Industrial Average index, the number of observations for regression on *Volatility* is different from that of *Return*. *** denotes significance at 1% level.

		Parameter estimates and lower/upper cut-off levels				
Variable	Sample Size	α	$t(\alpha)$	β	$t(\beta)$	$\overline{R}^2$
Panel A: May 26, 1896 - Dec 31, 2001						
Return	29,006	0.015	1.512	0.012	0.878	-0.00%
Spurious regression bias		0.003/0.036	0.357/4.376	-0.027/0.027	-1.916/1.961	0.01%
Spurious regression bias and data mining		-0.002/0.042	-0.254/4.912	-0.035/0.036	-2.524/2.521	0.02%
Volatility	28,987	0.967***	52.683	-0.111***	-4.588	0.96%
Spurious regression bias		0.799/1.030	62.632/102.404	-0.185/0.187	-10.162/10.215	2.35%
Spurious regression bias and data mining		0.763/1.065	55.155/108.151	-0.241/0.249	-13.201/13.547	4.09%
Panel B: Dec 12, 1914 - Dec 31, 2001						
Return	23,568	0.015	1.251	0.013	0.885	-0.00%
Spurious regression bias		0.004/0.041	0.350/4.314	-0.031/0.031	-1.978/1.951	0.01%
Spurious regression bias and data mining		-0.003/0.047	-0.345/4.883	-0.042/0.041	-2.569/2.547	0.03%
Volatility	23,568	0.986***	41.544	-0.134***	-4.713	1.27%
Spurious regression bias		0.774/1.054	51.873/91.024	-0.233/0.227	-10.972/10.664	3.21%
Spurious regression bias and data mining		0.721/1.107	44.728/96.903	-0.301/0.299	-14.133/14.186	5.36%

Table 4
Political Regime Return and Volatility Differential Regression Results over Four-year Intervals

OLS regression of annualized four-year differential returns and Volatility on presidential dummy variable,

$$y_t = \alpha + \beta(Dummy)_t + u_t$$

where y_t denotes annualized four-year *Return* and *Volatility* of the Dow Jones Industrial Average index over the four-year interval t, expressed in percent;and $Dummy_t$ is 1 if a Democratic president is in power and 0 otherwise. The return and volatility are estimated using the daily Dow Jones Industrial Average index return over the period March 4, 1897 (the inauguration date of William McKinley) to January 19, 2001 (the date before the inauguration of George Bush). The data are obtained from Global Financial Data. Regressions are estimated by OLS and *t*-statistics are adjusted for autocorrelation and heteroskedasticity using Newey-West (1987). $\overline{R}^2$ denotes adjusted R^2. *** denotes significance at 1% level.

	Sample		Standard	Auto-	Parameter estimates and lower/upper cut-off levels				
Variable	size (*n*)	Mean	deviation	correlation	α	$t(\alpha)$	β	$t(\beta)$	$\overline{R}^2$
Return (%)	26	5.613	13.378	-0.506	4.205	1.266	3.051	0.657	-2.77%
	Spurious regression bias				0.669/10.604	0.277/6.604	-10.271/10.200	-2.851/2.843	10.04%
	Spurious regression bias and data mining				-1.019/12.293	-0.405/8.262	-13.718/13.971	-4.103/4.090	19.06%
Volatility (%)	26	15.965	6.372	0.316	16.653***	8.805	-1.490	-0.893	-2.69%
	Spurious regression bias				12.168/19.805	5.468/24.898	-5.258/5.157	-2.999/2.974	12.59%
	Spurious regression bias and data mining				10.887/21.323	4.546/31.196	-7.264/6.712	-4.279/4.198	22.74%

Table 5
Inflation, Dividend Growth rates and NYSE Trading Volume under Political regimes over four-year Interval

The table reports OLS regression of *inflation*, *dividend growth rates* of the Dow Jones Industrial average index, and *NYSE trading volume* on the presidential dummy variable,

$$y_t = \alpha + \beta(Dummy)_t + u_t ,$$

where y_t denotes annualized four-year *inflation*, *dividend yield growth rate* and *dividend growth rate* on the Dow Jones Industrial Average index, and *NYSE trading volume* and relative *changes in NYSE trading volume* over a four year interval t; $Dummy_t$ is 1 if a Democratic president is in power and 0 otherwise. While *NYSE trading volume* is expressed in billions, all other variables are expressed in percentage. The sample period is between March 4, 1897 and January 20, 2001 for *inflation* and *NYSE trading volume* and is between March 1920 and January 2001 for *dividend yield rate* and *dividend growth rate*. While *NYSE trading volume* is estimated based on daily data obtained from NYSE, inflation and dividend data are estimated using monthly data obtained from Global Financial Data. The four-year interval is used in the analysis to minimize the effect of autocorrelation. Regressions are estimated by OLS and *t*-statistics are adjusted for autocorrelation and heteroskedasticity using Newey-West (1987). $\overline{R}^2$ denotes adjusted R^2. We also extend the data to 2005 and our conclusion remains unchanged. *** and * denote significance at 1% and 10% level, respectively.

Variable	Sample size (n)	Mean	Standard deviation	Auto-correlation	Parameter estimates and lower/upper cut-off levels				
					α	$t(\alpha)$	β	$t(\beta)$	$\overline{R}^2$
Inflation (%)	26	14.361	16.546	0.290	8.967*	1.771	11.688*	1.834	9.27%
	Spurious regression bias				4.716/24.156	1.128/9.906	-13.649/13.394	-2.997/2.984	12.47%
	Spurious regression bias and data mining				1.484/28.042	0.334/12.854	-18.735/17.434	-4.231/4.176	22.61%
Dividend Yield Growth Rate (%)	21	-0.956	8.162	-0.407	-0.608	-0.265	-0.732	-0.219	-5.04%
	Spurious regression bias				-4.637/2.581	-3.854/1.940	-7.010/7.185	-3.213/3.182	13.26%
	Spurious regression bias and data mining				-5.975/4.049	-5.463/3.022	-9.381/9.652	-5.032/4.861	24.46%
Dividend Growth Rate (%)	21	4.926	8.961	-0.490	3.142	1.262	3.745	1.212	-0.45%
	Spurious regression bias				1.046/8.615	0.571/8.092	-7.576/7.842	-3.151/3.116	12.90%
	Spurious regression bias and data mining				-0.377/10.209	-0.210/9.999	-10.328/10.716	-4.961/4.758	23.95%
NYSE Trading Volume (in billion)	26	15.590	41.368	0.450	8.045	1.439	16.348	0.822	0.04%
	Spurious regression bias				-11.767/43.647	-1.319/6.014	-33.974/33.653	-3.015/2.949	13.08%
	Spurious regression bias and data mining				-21.426/53.906	-2.537/8.613	-47.138/44.295	-4.329/4.161	23.42%
Changes in NYSE Trading Volume(%)	25	45.021	53.336	0.302	49.178***	3.852	-8.661	-0.373	-3.63%
	Spurious regression bias				12.065/76.844	0.909/9.909	-43.856/44.007	-2.995/3.057	12.64%
	Spurious regression bias and data mining				2.730/88.308	0.202/13.237	-58.742/59.166	-4.515/4.395	23.98%

Table 6
Political Regime Return and volatility Differential Regression Results over the period 1857 and 2005

OLS regression of annualized four-year differential returns and volatility on presidential dummy variable over the period 1857 and 2005,

$$y_t = \alpha + \beta Dummy_t + u_t$$

where y_{t+1} denotes annualized four-year return and volatility over the four-year interval *t*, expressed in percentage; and $Dummy_t$ is 1 if a Democrat is in office at time *t* (i.e., the beginning of the term), and 0 otherwise. *Return*, is based on the monthly returns compiled by Schwert (1990) for the period March 1857 through December 1925 and the CRSP value-weighted index for the period January 1926 through January 2005. Regressions are estimated by OLS and *t*-statistics are adjusted for autocorrelation and heteroskedasticity using Newey-West (1987). $\overline{R}^2$ denotes adjusted R^2. *** denotes significance at 1% level.

	Sample		Standard	Auto-	Parameter estimates and lower/upper cut-off levels				
Variable	size (*n*)	Mean	deviation	Correlation	α	$t(\alpha)$	β	$t(\beta)$	$\overline{R}^2$
Return (%)	37	8.670	11.155	-0.509	7.780***	4.067	2.197	0.767	-1.87%
	Spurious regression bias				5.267/12.086	2.614/10.655	-7.038/7.152	-2.545/2.469	6.73%
	Spurious regression bias and data mining				3.946/13.361	1.807/12.622	-9.452/9.505	-3.544/3.526	12.44%
Volatility (%)	37	16.091	6.521	0.330	15.512***	11.568	1.428	0.933	-1.64%
	Spurious regression bias				12.687/19.435	6.515/23.508	-4.512/4.553	-2.642/2.640	8.83%
	Spurious regression bias and data mining				11.681/20.466	5.530/29.498	-5.895/5.904	-3.762/3.704	16.16%

Appendix A:
History of U.S. Presidential Election/Inauguration Dates Since 1856

President	Republican/ Democrat	Election date	Inauguration date
James Buchanan	D	18561104	18570304
Abraham Lincoln	R	18601106	18610304
Abraham Lincoln/Andrew Johnson	R	18641108	18650304
Ulysses S. Grant	R	18681103	18690304
Ulysses S. Grant	R	18721105	18730304
Rutherford B. Hayes	R	18761107	18770305
James A. Garfield/Chester A. Arthur	R	18801102	18810304
Grover Cleveland	D	18841104	18850304
Benjamin Harrison	R	18881106	18890304
Grover Cleveland	D	18921108	18930304
William McKinley	R	18961103	18970304
William McKinley/Theodore Roosevelt	R	19001106	19010304
Theodore Roosevelt	R	19041108	19050304
William H. Taft	R	19081103	19090304
Woodrow Wilson	D	19121105	19130304
Woodrow Wilson	D	19161107	19170304
Warren G. Harding/Calvin Coolidge	R	19201102	19210304
Calvin Coolidge	R	19241104	19250304
Herbert Hoover	R	19281106	19290304
Franklin D. Roosevelt	D	19321108	19330304
Franklin D. Roosevelt	D	19361103	19370120
Franklin D. Roosevelt	D	19401105	19410120
Franklin D. Roosevelt /Harry S. Truman	D	19441107	19450110
Harry S. Truman	D	19481102	19490120
Dwight D. Eisenhower	R	19521104	19530120
Dwight D. Eisenhower	R	19561106	19570120
John F. Kennedy/Lyndon B. Johnson	D	19601108	19610120
Lyndon B. Johnson	D	19641103	19650120
Richard M. Nixon	R	19681105	19690129
Richard M. Nixon/Gerald R. Ford	R	19721107	19730120
Jimmy Carter	D	19761102	19770120
Ronald Reagan	R	19801104	19810120
Ronald Reagan	R	19841106	19850120
George H. Bush	R	19881108	19890120
William J. Clinton	D	19921103	19930120
William J. Clinton	D	19961105	19970120
George W. Bush	R	20001107	20010120
George W. Bush	R	20041102	20050120

Appendix B:
Frequency of Presidential Transitions During Different Sample Periods

Frequency of Presidential Transitions over Four-year interval during Different Sample Periods

	1857-2005	1897-2005
No. of presidential elections	37	27
No. of Republican administrations	22	15
No. of Democratic administrations	15	12
Republican to Republican	14	9
Republican to Democrat	7	5
Democrat to Democrat	7	7
Democrat to Republican	8	5