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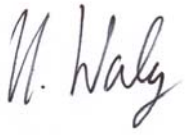

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Washington Meets Wall Street: A Closer Examination of the Presidential Cycle Puzzle*

Roman Kräussl[1], André Lucas[2], David R. Rijsbergen[3], Pieter Jelle van der Sluis[4], and Evert B. Vrugt[5]

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Abstract:
We show that average excess returns during the last two years of the presidential cycle are significantly higher than during the first two years: 9.8 percent over the period 1948 – 2008. This pattern in returns cannot be explained by business-cycle variables capturing time-varying risk premia, differences in risk levels, or by consumer and investor sentiment. In this paper, we formally test the presidential election cycle (PEC) hypothesis as the alternative explanation found in the literature for explaining the presidential cycle anomaly. PEC states that incumbent parties and presidents have an incentive to manipulate the economy (via budget expansions and taxes) to remain in power. We formulate eight empirically testable propositions relating to the fiscal, monetary, tax, unexpected inflation and political implications of the PEC hypothesis. We do not find statistically significant evidence confirming the PEC hypothesis as a plausible explanation for the presidential cycle effect. The existence of the presidential cycle effect in U.S. financial markets thus remains a puzzle that cannot be easily explained by politicians employing their economic influence to remain in power.

JEL Classification: E32; G14; P16

Keywords: Political Economy, Market Efficiency, Anomalies, Calendar Effects

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I. Introduction

The presidential cycle effect in U.S. stock market returns consists of higher stock market returns during the second half of a presidential term compared to the first. This phenomenon first appeared in Hirsch's Stock Trader's Almanac in 1967 and has returned in the yearly *Almanac* ever since. The first academic interest dates from at least the 1980s. Huang (1985) reports that trading strategies based on the presidential cycle produce returns superior to a traditional buy-and-hold strategy. Foerster and Schmitz (1997) examine each year of the presidential cycle individually and conclude that U.S. stock market returns are significantly lower in the second year of the presidential term, compared to the other three years.

The question why there is a relation between the presidential cycle and stock market returns has puzzled academics for years. Several efficient-markets explanations have been put forward. First, the presidential cycle might merely proxy for variations in expected returns due to business cycle fluctuations. Booth and Booth (2003), however, find that this is not the case. Second, the relationship between the presidential cycle and stock market returns could be concentrated around and limited to election dates. However, Santa-Clara and Valkanov (2003) find no significant evidence of stock price changes immediately before, during, or immediately after presidential elections. Third, the difference in returns during the presidential cycle might be a compensation for risk. Market volatility could simply be higher in the second half of the cycle, thereby explaining the higher returns. Campbell and Li (2004), however, indicate that the differences in returns cannot be explained by differences in market volatility. Finally, the presidential cycle effect might be driven by the impact of outliers. Gärtner and Wellershoff (1995) as well as Foerster and Schmitz (1997) find that the effect is not driven by individual outliers in the data, such as the October 1987 stock market crash.

Since most rational explanations fail to provide an adequate answer, we formulate a testable framework of the presidential election cycle theory as an alternative. We label this framework the presidential election cycle (PEC) hypothesis. It is based on the macroeconomic political business cycle (PBC) theory by Nordhaus (1975) and MacRae (1977) and states that political parties that try to win elections often manipulate business conditions. Nordhaus (1975) argues that presidential administrations have an incentive to stimulate the economy prior to the elections and to pursue deflationary policies after the elections, regardless of the political orientation of the incumbent administration. Fair (1982), who develops a model for voting behavior, indicates that voters do not look back more than a year or two in judging the economic performance of an administration. His result might give presidents an incentive to manipulate the economy prior to the elections, since the myopic electorate only judges the administration on its last years. Rogoff (1990) provides rational underpinnings for the PBC hypothesis by introducing the assumption of information asymmetry whereby policy makers are better informed than voters about their

competence. The significant interactions between macroeconomic outcomes and presidential administrations are also confirmed by Chappell and Keech (1986) and Alesina and Sachs (1988), while Tufte (1978), Grier (1987) and Haynes and Stone (1988) find empirical evidence in favour of an American PBC.

According to the PBC theory an incumbent president would impose stimulative fiscal measures and corporate friendly policies to create a favorable voting environment close to elections. In order to create this PBC, some economic policy instruments must be manipulated. For electorally inspired policymaking to have macroeconomic consequences, incumbent presidents must either manipulate fiscal or monetary policy. However, the conventional wisdom holds that the independence of the Federal Reserve System insulates them from political pressures, as little empirical evidence for the existence of a political monetary cycle has been uncovered for the United States (Golden and Poterba, 1980 and Beck, 1987).[2] Researchers have therefore concluded that fiscal policy, a macroeconomic tool more directly under the control of the president, is the tool of choice and opportunity (Abrams and Iossofov, 2006).

Rogoff (1990) argues that political budget cycles developed by incumbent governments tend to increase spending (especially toward projects with high immediate visibility), cut taxes, and raise transfers prior to and during election years. This would result in an increase in federal spending, less regulation, lower taxes and a mounting growth of money supply prior to elections. Investors would become confident and optimistic about the upcoming election. This would lead to a bullish stock market in the second half of a presidential term and should work independently from variation in expected returns due to business cycle variation. After the election, when the sentiment of the anticipation goes down, investors are patiently waiting to see what will happen under the new administration. Usually, the first year of the presidential term is a quiet period where the new administration is facing a steep learning curve. The second year of the presidential term is the 'let-down' year where investors are disappointed with the president for not keeping his election campaign promises or for seeing the promises being brought down by Congress. These sentiments, coupled with the fact that the price for the stimulative policies conducted prior to the elections have to be countered with post-election deflationary measures, would inevitably lead to a bearish stock market in the first half of the cycle. The popular press also routinely points at the presidential election cycle hypothesis as an explanation for the stock market performance:

[2] Although quantitative evidence for a political monetary cycle is scarce, Beck (1987) and Grier (1987) have found evidence for an electoral cycle pattern in the average growth of money supply (M1). We therefore include the average growth of money supply in our analysis.

> *"On average, stocks have risen just 2.6% in the first year of a presidential term, nearly 8 percentage points less than the 10.4% returns enjoyed in the third year of the term, which historically has been the best. That underperformance tends to occur because the incumbent president and party in power tends to prime the pump in the final two years to get the economy running on all cylinders in hopes of getting re-elected."* (USA Today, 16 February 2009).

This study formally tests the presidential cycle effect and examines a broad range of possible explanations for this effect in U.S. stock and bond markets. It thereby is the first study that not only analyzes rationally motivated explanations, such as business cycle fluctuations and time-varying risk, but also investigates the implications of the presidential election cycle (PEC) hypothesis and investors' sentiment. We furthermore subject our results to a range of robustness checks, including robust and bootstrapped standard errors and an analysis of sub-samples. We also examine whether the presidential cycle pattern shows up in expected and unexpected returns. Our up-to-date database includes the 2008 credit crisis events and the election of the Obama administration.

Using data over the sample period 1948 – 2008, this study finds a clear presidential cycle effect in both U.S. stock and credit markets. During this period, excess stock returns are on average -2.02, -3.45, +12.78, and +1.27 percent in year one to four of the cycle, respectively. The pattern in real stock returns is comparable: -0.55, -2.45, +13.59, and +2.01 percent, respectively. We find a similar pattern in the credit spread, especially in the second and the third year, where the average credit spread moves by +34 and –28 basis points, respectively. These findings are statistically significant and the null hypothesis of equal returns (spread changes) across the years is strongly rejected. We show that our findings are not attributable to outlier observations.

We then turn to potential explanations for this statistically strong pattern in returns. First, the political term may coincide with changes in the business cycle which have been shown to track variation in expected returns (see e.g. Fama and French 1989). When we control for the dividend yield, default spread, term spread, and relative interest rate, the results do not change materially. Business cycle variation, therefore, does not explain the presidential cycle in stock and credit markets. As a second potential explanation, we consider time-varying market risk. If the last years of the presidential cycle are more risky than the first, rational investors demand a higher expected return. However, stock market volatility is lower, rather than higher, in the third year compared to the second year of the cycle. Furthermore, we do not find significant differences in stock market risk across the four years of the presidential term.

As a third potential explanation we investigate the presidential election cycle (PEC) hypothesis and formulate eight empirically testable implications of the theory. In this way, we significantly extend the existing literature by being the first to empirically examine the presidential cycle pattern through analysis

of the full scale of policy tools available for economic manipulation by an incumbent president. We consider fiscal, macroeconomic and political variables. Our first five propositions have a financial, fiscal or macroeconomic character and focus on any potential economic manipulation by an incumbent president. Accelerating growth of money supply, increasing unexpected inflation, lowering U.S. income tax levels or raising U.S. federal spending are examples of popular presidential manipulations suggested by the PEC hypothesis. We find, however, little evidence for any of these presidential manipulations of the economy. Our final three propositions address the political mechanisms behind the presidential cycle effect. The partisanship of the president appears to have no significant impact on the strength of the presidential cycle effect. This is supportive for the PEC hypothesis, which like Nordhaus' (1975) political business cycle (PBC) theory, states that presidential administrations have the same incentive when manipulating the economy (namely enhancing their chances of re-election), regardless of their political orientation. Analyzing the impact of the partisanship of the majority of Congress on the strength of the presidential cycle effect produces some surprising results. We find no congressional influence on the strength of the presidential cycle effect. This lack of influence is at odds with the PEC hypothesis and diminishes its political credibility. As a final check, we investigate whether the eligible status of an incumbent president has an impact on the presidential cycle effect. One would expect more economic manipulation when there is a re-eligible president in office. Although we find a clear presidential cycle effect in excess returns when there is a re-eligible president in office, it disappears when there is no re-eligible president in office. These findings are supportive for the PEC hypothesis and the notion that the incentive for economic manipulation by an incumbent president is largely dependent on his eligible status.

Fourth, we examine whether the presidential cycle is present in expected and unexpected returns. Interestingly, we find that the presidential cycle effect is prevalent in unexpected returns, but not in expected returns. This suggests that investors are systematically surprised during the second half of the presidential term. Given the absence of a presidential cycle effect in fiscal and monetary policy variables, it is unclear what can be the underlying cause of this persistent bias. As a final exercise, we therefore consider changes in consumer and investor sentiment as a potential explanation. There is no clear pattern over the years of the presidential term in consumer sentiment (measured by surveys from the Conference Board and University of Michigan) and investor sentiment (measured as the first principal component of a range of sentiment indicators from Baker and Wurgler, 2006). When controlling for sentiment, the presidential cycle pattern in stock market returns remains significant.

Thus, we conclude that the existence of a persistent presidential cycle surprise in U.S. financial markets remains a puzzle that cannot be easily explained.

The remainder of this paper is structured as follows. Section II introduces the data and variables used in this study. The empirical findings on the presence of the presidential cycle effect in U.S. stock and

bond markets are presented in Section III. Section IV examines potential explanations related to the business cycle, time-varying risk, the PEC hypothesis, expected versus unexpected returns, and consumer and investor sentiment. Our main conclusions are presented in Section V, which also sets out the agenda for future research.

II. Data

Following Santa-Clara and Valkanov (2003), our data set is categorized into financial variables, political variables, and control variables. All series are at a monthly frequency, except the series on tax levels, federal spending, the budget, federal debt, the Conference Board survey, the University of Michigan survey and the investor sentiment measure of Baker and Wurgler (2006), which are at an annual frequency. The control variables are both at a monthly and an annual frequency. The full sample period, 1948:11 – 2008:10, contains 720 monthly observations or 59 yearly observations, 1949-2007, and consists of 15 full presidential cycles. Table I provides summary statistics for the financial and control variables used in this study.

[Insert Table I here]

A. Financial variables

The log monthly returns of the S&P 500 are obtained from Bloomberg and are used to form excess (*SP500 – TBL*) and real (*SP500 – INF*) returns of the S&P 500. The log interest rate is computed from the three-month Treasury bill, obtained via the website of the Federal Reserve Bank of St. Louis (FRED).[3] The log monthly inflation is computed from the Consumer Price Index (CPI), which is obtained from Robert Shiller's website.[4] To separate expected from unexpected inflation, we use an autoregressive model similar to Fama and Schwert (1977). The volatility of the S&P 500 (*VOL SP500*) is computed from daily return data within the month using the approach of French, Schwert and Stambaugh (1987). The change in credit spread (Δ*Credit spread*) is used to analyze the U.S. bond market and is defined as the difference between the yield on BAA-rated corporate bonds and the yield on long-term government bonds (ten-year Treasury note), which are both obtained from FRED. Δ*M1* indicates the real annualized growth of money supply (*M1*) and is obtained from FRED as well. The U.S. income tax levels (with *Tax low* and *Tax high* representing the average lowest and highest U.S. income tax bracket) and the change in the mean of these tax levels (Δ*Tax*) are obtained from the congressional Joint Committee on Taxation. Δ*Federal spending* indicates the real annual change in U.S. federal spending, where federal spending is defined as

[3] http://research.stlouisfed.org/fred2/.
[4] http://www.econ.yale.edu/~shiller/data.htm

the total of on- and off-budget federal outlays. Both the U.S. budget and the total amount of U.S. federal debt are defined as a percentage of U.S. gross domestic product (*Budget / GDP* and *Federal debt / GDP*). Series on federal spending, the U.S. budget, U.S. GDP and the total amount of U.S. federal debt are obtained from the budget of the United States government 2009.[5]

B. Political variables

The duration of a presidential cycle in the United States is always fixed as presidential elections are held once every four years in the beginning of November. Following Foerster and Schmitz (1997), no presidential changes other than the mandated elections are taken into account, as only these events result in a new election cycle or an administration change. Since the presidential elections are always held around the same date, the first year of the four-year election cycle is defined as the twelve months starting November 1st of an American election year and ending October 31 the next year. The three other years of the election cycle are defined in a similar way. The following dummy variables are defined to test the presidential cycle effect: $YR_{it} = 1$ when it is the *i*th year of a presidential cycle at time *t*, and zero otherwise for i = 1,..,4. In order to test for the difference in the strength of the presidential cycle effect under a Democratic or Republican president, we define $DP_t = 1$ when a Democratic president is in office at time *t*, and zero otherwise.

The United States Congress is the bicameral legislature of the federal government, consisting of two houses, namely the Senate and the House of Representatives. This study focuses on the relationship between the president and the Senate only, since the president acts by and with the advice and consent of the Senate.[6] Furthermore, the Committee on Finance is housed in the Senate. Congressional elections are held once every two years in November. So half of the congressional elections coincide with the presidential elections, while the other half are mid-term elections. Congressional elections are always held for one-third of the Senate, which commonly results in a partisan switch of control. We define the following dummy variables to test for the difference in the strength of the presidential cycle effect under partisan control of both the Senate and the Presidency: $PD_t = 1$ when there is partisan domination by either the Democrats or the Republicans over both the Senate and the Presidency at time *t*, and zero otherwise. The absence of partisan domination is indicated by $PS_t = 1 - PD_t$. Finally, we define two re-eligibility dummies RE_t and $NRE_t = 1 - RE_t$, with $RE_t = 1$ when there is a re-eligible president in office at time t, and zero otherwise.

[5] See the section historical tables, which is downloadable from http://www.gpoaccess.gov/usbudget/.
[6] See the United States Constitution, Article II, Section 2, paragraph 2.

C. Control variables

Since most of the variables examined in the propositions are influenced by business cycle fluctuations, any observed pattern in stock returns over the presidential cycle may simply be coincident with the business cycle. To account for this effect, several well-documented control variables are used: the annualized dividend yield (*DY*), the term spread (*TSP*) between the yield to maturity of a ten-year Treasury note and the three-month Treasury bill, the default spread (*DSP*) between yields of BAA- and AAA-rated bonds, and the relative interest rate (*RR*) computed as the deviation of the three-month Treasury bill rate from its one-year moving average. The dividend yield of the S&P 500 is obtained from Datastream, while the yields of the ten-year Treasury note, the three-month Treasury bill, BAA-rated bonds and AAA-rated bonds used to construct the term spread, the default spread and the relative interest rate are all obtained from FRED.

The dividend yield as a business cycle proxy has been used before to capture time variation in expected stock returns (Booth and Booth, 2003). The intuition for this relation, provided by Fama (1990), is that stock prices are relatively low to dividends when discount rates and expected returns are high and vice versa. Chen, Roll and Ross (1986) argue that the spread of lower-grade and higher-grade bonds is a good proxy for the business cycle fluctuations. They show that if business conditions are poor, spreads are likely to be large, and if business conditions are good, spreads are likely to be small. According to Fama and French (1989), the term spread is a good proxy for the business cycle since it decreases (increases) near peaks (troughs) of economic activity. The relative interest rate as a fourth control is included since many authors have noted that the level of short-time interest rates helps to forecast stock returns (e.g. Campbell, 1991, and Hodrick, 1992). However, since the short-term interest rate itself may be non-stationary over the sample period, it needs to be stochastically de-trended. Campbell (1991) suggests that the subtraction of a one-year moving average is a crude but obvious way to do this.

To examine the impact of investor sentiment on the presidential cycle effect, several leading sentiment indicators are used. Lemmon and Portniaguina (2006) present evidence that consumer confidence forecasts stock returns and macroeconomic activity. We follow their choice of confidence indicators and include the Conference Board survey of consumer confidence and the University of Michigan survey of consumer confidence. The conference board data is from Bloomberg. The University of Michigan data is from the FRED. Annual data for the Conference Board measure are available from 1967 onwards, while data for the University of Michigan survey begin in 1952. Both surveys are household surveys where consumers are asked about past, present and future expectations. For investor sentiment, we use the composite index of Baker and Wurgler (2006), which is the first principal component of six sentiment measures: the closed-end fund discount, turnover, number of IPOs, average first-day IPO return, equity share in new issues, and the dividend premium. Annual data are available from

1962 onwards[7]. Baker and Wurgler (2006) show that investor sentiment has power to describe the cross-section of expected stock returns, incremental to previously examined predictors. Lemmon and Portniaguina (2006) conclude that the sentiment in consumer confidence is not strongly related to the composite investor sentiment.

III. Main Findings

A. Presidential cycle effect in the U.S. stock market

We measure the effect of the presidential cycle on U.S. stock market returns by running the following regression:

$$r_t = \beta_1 YR_{1t} + \beta_2 YR_{2t} + \beta_3 YR_{3t} + \beta_4 YR_{4t} + \varepsilon_t, \qquad (1)$$

where the stock returns are denoted by r_t and the years in the presidential cycle by the dummy variables YR_{it} for i = 1,..,4. Under the null hypothesis, the presidential cycle has no effect on stock market returns, which results in four similar beta coefficients. We test for equality of coefficients with the Likelihood Ratio (LR) test: $H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4$. We also test whether the return during the first two years is the same as the return during the last two years: $H_0 : \beta_1 + \beta_2 = \beta_3 + \beta_4$.

Table II presents our main findings. Panel A reports the results for the excess and real returns of the S&P 500. We use Newey-West (1987) *t*-values as well as bootstrapped *p*-values to test for significance of parameters and equality of returns across years. If the residuals are conditionally heteroskedastic (which cannot be rejected for our sample using a White test), the finite-sample distributions of the *t*-statistics are better approximated by the bootstrap.[8] With two different *p*-values, a decision has to be made regarding which *p*-value to believe. Following Santa-Clara and Valkanov (2003), we use the maximum *p*-value in order to establish the significance of each test, which is the most conservative.

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[7] Data are available from the website of Jeffrey Wurgler: http://pages.stern.nyu.edu/~jwurgler/.

[8] To obtain bootstrapped *p*-values, we estimate the model under the null-hypothesis of no variation across years (i.e. $\beta_1 = \beta_2 = \beta_3 = \beta_4$). Residuals $\{\varepsilon_t\}_{t=1}^{T}$ are drawn with replacement from the time-series and combined with the estimated parameter to create a series of pseudo-returns: $\{r_t^i\}_{t=1}^{T}$ for $i = 1,...,10{,}000$. The pseudo-returns are regressed on the four presidential cycle dummies, as in equation (1) and the Newey-West *t*-values are collected in each run $t(\beta_j^i)$ for $i = 1,...,10{,}000$ and $j = 1,...,4$.The two-sided bootstrapped *p*-values are computed as $p_{btstr}^i = \left(\#\{t(\beta_j^i) \geq t(\beta_j)\} + \#\{t(\beta_j^i) \leq -t(\beta_j)\}/10{,}000\right)$, where $\#\{t(\beta_j^i) \geq t(\beta_j)\}$ is the number of bootstrapped Newey-West *t*-values equal to or higher than the estimated *t*-values. The LR tests are calculated as $LR^i = -2 \times \left(LL_{restr}^i - LL_{unrestr}^i\right)$ for $i = 1,...,10{,}000$, where LL_{restr}^i ($LL_{unrestr}^i$) is the log likelihood of the restricted (unrestricted) model; *p*-values are calculated as: $p_{btstr}^{LR} = \left(\#\{LR^i \geq LR\}/10{,}000\right)$.

[Insert Table II here]

The results in Panel A of Table II reveal a clear presidential cycle pattern in U.S. stock market returns during the full sample period. On average, both excess and real returns in the first two years of the presidential cycle are lower than returns in the last two years of the cycle. Moreover, the LR test statistics reported in the "Differences" columns indicate that there is a statistically significant difference in excess and real returns between the four years of the cycle (at the 5 percent level), as well as between the first and second half of the cycle (at the 5 percent level for excess returns and at the 10 percent level for real returns). Furthermore, Panel A presents strong evidence in favour of the existence of a third-year effect, which refers to the positive stock market performance observed during the third year of a presidential cycle (Beyer, Jensen and Johnson, 2008). The third year effect is statistically significant at the 1 percent level for both excess and real returns.

As a robustness check, we delete outlier observations from the S&P return series. More specifically, we calculate *z*-scores and delete observations that are statistically significant at the 1% level. Re-estimating the model without outliers leads to the same general pattern. Overall, the presidential cycle effect is present in the dataset with and without outliers.[9]

B. Presidential cycle effect in the U.S. corporate bond market

The contingent-claims approach implies that the debt claim (of a bondholder) has features similar to a short position in a put option (Merton, 1974). Credit spreads should therefore increase if either asset values decline or asset volatilities increase (Collin-Drufesne, Goldstein and Martin, 2001). Moreover, credit spreads change in expected recovery rates. Altman and Kishore (1996) find that expected recovery rates are time-varying and a function of the overall business climate. Panel B of Table II displays the annualized monthly change in the credit spread during the four years of the presidential cycle for the full sample period.

Although there appears to be a presidential cycle pattern in credit spread changes, its presence is less clear than in stock market returns. On average, the credit spread widens during the first two years of the cycle, while it shrinks during the third year of the cycle. During the second year, the annualized monthly increase in the credit spreads approximates 34 basis points. In the third year, by contrast, the results indicate an average monthly decline in the credit spread of more than 28 basis points. Both findings are statistically significant at the 10 percent level. We note that this is the first study on the presidential

[9] In three unreported robustness exercises, we include data prior to WW II, split the sample in two sub-samples and analyze the value-weighted CRSP market from the website of Kenneth French. The presidential cycle effect appears to be very robust: it is present when we start the sample in 1932:11, in both sub samples, and also shows up in value-weighted CRSP returns.

cycle that includes the last 2004-2008 cycle. The 2008 events have a diminishing impact on the estimates of the fourth year effect in both the stock and credit market. Yet the presidential cycle pattern remains statistically significant in the data.

IV. Possible Explanations

In this section we test whether any of the theories mentioned in the introduction provide a solid empirical explanation for the presidential cycle pattern. Section A discusses the various business cycle explanations. Section B examines whether the higher average returns are just due to time-varying risk. Section C focuses on the Presidential Election Cycle Hypothesis. Section D examines whether the presidential cycle is present in expected and unexpected returns, while Section E discusses changes in consumer and investor sentiment as a potential explanation.

A. Business cycle explanation

The most natural explanation for the correlation between the presidential cycle effect and U.S. stock market returns is based on a 'proxy' effect (Booth and Booth, 2003). The presidential cycle might merely reflect variations in expected returns due to business cycle fluctuations. To test this 'proxy' hypothesis, we run the regression

$$r_t = \beta_1 YR_{1t} + \beta_2 YR_{2t} + \beta_3 YR_{3t} + \beta_4 YR_{4t} + \gamma' X_t + \varepsilon_t, \qquad (2)$$

where X_t is a vector containing macroeconomic variables, associated with the business cycle and known to forecast stock market returns. We include the dividend yield (DY), the term spread (TSP), the default spread (DSP), and the relative interest rate (RR). If political variables such as YR_{it} only contain return information that can be explained by business cycle fluctuations, then the coefficients $(\beta_1, \beta_2, \beta_3, \beta_4)$ should equal zero.

Table III presents the results for excess and real returns of the S&P 500 and changes in the credit spread after controlling for business cycle fluctuations. All control variables are demeaned, such that the coefficients of the political variables can be directly compared with those from Table II.

[Insert Table III here]

The presidential cycle pattern in stock market returns and credit spreads prevails even after controlling for business cycle fluctuations. Panel A reports the findings for the excess and real returns of the S&P 500. A clear presidential cycle pattern persists, consisting of lower returns during the first two

years of the cycle compared to the latter half of the cycle. The findings are confirmed by the LR test statistics reported in the "Differences" columns. Average returns are statistically significantly different (at the 5 percent level) in excess and real terms between the four years of the cycle, as well as between the first and second half of the cycle (at the 5 percent level). Furthermore, the existence of a third year effect also prevails after controlling for business cycle variables. Table III, Panel B reports the findings for the changes in the credit spread and indicates that the presidential cycle effect also prevails in credit markets, even after controlling for business cycle fluctuations.

B. Time-varying risk explanation

It could be the case that the third and the fourth years of the presidential cycle coincide with periods of high volatility. If more risky political policies are pursued in the final two years, this will be reflected in increased stock market risk, for which rational investors demand a higher expected return. In Table III we report the outcome of a formal test of constant volatility over the presidential cycle. We run a monthly regression of within-month (realized) volatility on the four presidential cycle dummies, while controlling for business cycle fluctuations. Analogously to our results for stock and credit markets, we test whether coefficients are equal across years and across the first and second half of the presidential cycle. We find that stock market volatility is 13.41 percent in year 2 and 12.48 percent in year 3. Stock market risk thus appears to be lower, rather than higher, in the third year. The two formal tests of equality of volatility cannot be rejected. Our empirical findings show that there is no indication that the presidential cycle pattern found in returns is a compensation for higher risk.

C. PEC hypothesis explanation

The presidential cycle effect in U.S. stock and bond markets is intriguing not only because of its economic significance, but also because there is no rational explanation for its existence. A tentative explanation is provided by the PEC hypothesis. In the following, we empirically examine the PEC hypothesis by testing eight propositions. The first five propositions have a financial, inflation, fiscal or macroeconomic character. Any economic manipulation by an incumbent president will be directly visible in these propositions. The final three propositions have a political nature and aim at uncovering the possible political mechanism behind the presidential cycle effect.

Proposition 1: The PEC hypothesis suggests that an incumbent president could manipulate the economy by accelerating the growth of money supply prior to elections, thereby creating a presidential cycle pattern in the growth of money supply. One way for the incumbent president to manipulate the economy is by applying an expansionary economic policy during the second half of the presidential

cycle.[10] After the elections, the growth of money supply would need to slow down, in order to counter the inflationary pressure caused by the expansionary policy. Thus, the growth of money supply (M1) would be higher during the second half of the presidential term compared to the first half of the cycle. Chappell and Keech (1986) investigate the link between electoral politics and macroeconomic outcomes, thereby focusing on the average growth of money supply (using M1). They find that electoral politics have a significant effect as the average growth of money supply is higher under Democratic than under Republican administrations. Moreover, Beck (1987) and Grier (1987) examine the quarterly money growth for an electorally induced cycle and find strong evidence that elections have a substantial influence on the behavior of M1. Grier (1987) also reports a significant pattern of deceleration in the year following an election with accelerating growth the next three years. However, these findings rest on somewhat outdated and limited datasets.[11] Our current sample period, 1948:11-2008:10, consisting of 720 monthly observations. This allows for a more robust analysis of the relation between the presidential cycle and the growth of money supply.

Panel A in Table IV shows that there is no presidential cycle pattern in the growth of money supply, as the growth is actually the highest during the first year of the cycle. This is inconsistent with the PEC hypothesis. Furthermore, none of the findings are statistically significant. The first proposition is therefore rejected and the results are not supportive for the PEC proposition.

[Insert Table IV here]

Proposition 2: According to the PEC hypothesis, there will be a presidential cycle pattern in unexpected inflation, consisting of higher unexpected inflation during the second half of the cycle compared to the first half. Related to the first proposition, the government might stimulate the economy in the short-run by creating unexpected inflation (demand-pull), as a result of increased spending. Although the signs of our findings in Panel A of Table IV are somewhat supportive for the presence of a presidential cycle pattern (negative unexpected inflation in the first year, and somewhat higher unexpected inflation in the fourth year of the cycle), none of the findings are statistically significant. We therefore also reject the second PEC proposition.

Proposition 3: According to the PEC hypothesis, there will be a presidential cycle pattern visible in the U.S. income tax levels. The PBC theory argues that stimulative fiscal policies will enhance the

[10] Although the Federal Reserve has considerable formal autonomy under American institutional arrangements, previous studies have concluded that the administration's macroeconomic goals have some impact on the Federal Reserve policy behaviour (see Hibbs 1986). Furthermore, Beck (1982) argues that the Federal Reserve does not appear to influence presidential elections, but does appear to respond to the desires of the incumbent president.

[11] The quarterly dataset used by Beck (1987) starts in 1961:I and ends in 1984:III, the quarterly dataset of Chappell and Keech starts in 1953:1 and ends in 1984:IV, while the quarterly dataset of Grier (1987) starts in 1961:I and ends in 1980:IV.

public's sense of well-being prior to the presidential elections. A politically popular manipulation of the economy by an incumbent president is to lower the income tax levels prior to the elections, as the level of disposable personal income has an effect on presidential popularity (Golden and Poterba, 1980).[12] Therefore, if incumbent presidents manipulate the economy through tax levels, we expect that average income tax levels will be lower during the second half of the presidential cycle compared to the first. The results in Panel B of Table IV indicate no presidential cycle effect in U.S. income tax levels. When comparing the four years of the presidential cycle, there are no statistically significant differences in either the lowest income tax level, the highest income tax level or the change in the mean tax levels. Therefore, our empirical results are not supportive for the PEC hypothesis.

Proposition 4: According to the PEC hypothesis, U.S. real federal spending will increase during the second half of the presidential cycle and decrease during the first half of the cycle. The economic manipulations by an incumbent president, consisting of stimulative fiscal measures and corporate friendly policies, should have a direct impact on U.S. federal spending. Although the president shares authority for federal spending with Congress, federal spending can still be considered as an important measure of stimulation. Kiewiet and McCubbins (1985) find a two-year cycle in federal spending during the congressional election cycle. This would also work to the advantage of an incumbent president as federal spending significantly accelerates in the year prior to congressional elections. Since half of the congressional elections coincide with presidential elections, this would also contribute to the incumbent president's chance of re-election. We therefore expect to find higher federal spending during the second and fourth year of the presidential cycle. Panel B in Table IV indicates that with the exception of the fourth year (which indicates the highest acceleration of real federal spending, a finding that is supportive for the PEC hypothesis), most of our empirical findings indicate no presence of a presidential cycle pattern in real federal spending. As none of the differences are statistically significant, the empirical results reject this proposition.

Proposition 5: If the PEC hypothesis holds, there will be a presidential cycle pattern in the U.S. budget and the total amount of U.S. federal debt, consisting of higher levels during the second half of the cycle compared to the first half. The economic manipulations by the incumbent president during the second half of the presidential term will lead to higher federal outlays (increased spending) and lower federal income (cutting of taxes), thereby increasing the U.S. budget deficit (or decreasing a budget surplus) and the total amount of U.S. federal debt. The growth in budget deficit will decrease (or even disappear) during the first half of the cycle, when federal outlays are reduced and federal income is increased. This is confirmed by Alesina (1989), who presents evidence that federal government budget

[12] We only analyze income tax levels, as Quinn and Shapiro (1991) find no significant relation between presidential elections and corporate tax levels.

deficits tend to rise in the election year. However, Wong and McAleer (2007) argue that an incumbent president enhances his chances of re-election by lowering the budget deficit prior to the presidential elections, instead of raising it. They state that the fourth year of the cycle will therefore display a decreasing budget deficit (or increasing surplus). Our empirical findings in Table IV, Panel B, indicate no evidence for the presence of a presidential cycle pattern in either the U.S. budget or the total amount of U.S. federal debt. The empirical findings reject our fifth proposition and are therefore not supportive for the PEC hypothesis.

Proposition 6: According to the PEC hypothesis, the partisanship of the presidency will have no impact on the strength of the presidential cycle effect. The PEC hypothesis states that the impact of the presidential cycle effect on U.S. stock market returns is similar under Democratic and Republican administrations, since both have the same objective of enhancing their chances of re-election. This claim is based on the political business cycle theory developed by Nordhaus (1975). Nordhaus argues that presidential administrations have an incentive to manipulate the economy prior to elections, regardless of the political orientation of the incumbent administration. However, Hibbs (1977) and Alesina and Sachs (1988) reject this pure political business cycle theory and find evidence for the existence of a partisan business cycle theory. Alesina and Sachs (1988) state that in American national politics, the core constituency of the Democratic Party consists of the down-scale classes, who primarily hold human capital and bear a disproportionate share of the economic and broader social costs of extra unemployment. Up-scale groups form the core constituency of the Republican Party. They hold financial capital and absorb the greatest losses from extra inflation. For this reason Democratic voters generally express greater aversion to unemployment and less aversion to inflation than Republican voters. The partisanship of the administration therefore determines the policy pursued to manipulate the economy. According to Hibbs (1977) and Alesina and Sachs (1988), this results in different returns under Democratic or Republican administrations. A study by Santa-Clara and Valkanov (2003) confirms the existence of such a partisan business cycle in U.S. stock markets. However, it is unclear if this partisan business cycle has any influence on the presidential cycle effect.

Table V, Panel A, presents the excess returns of the S&P 500 under Democratic and Republican administrations. Our findings indicate an overall outperformance under Democratic presidencies, as in every year of the cycle, returns are higher under Democratic administrations than under Republican administrations. This corroborates earlier findings by Santa-Clara and Valkanov (2003). Panel A also shows that the presidential cycle pattern that we document operates on top of the difference between Democrats and Republicans. The presidential cycle effect is present under both Democratic and Republican administrations. More notably, we find a statistically significant positive 'third year effect'

under both partisan administrations. Therefore, our findings indicate no clear impact of the partisanship of the president on the strength of the presidential cycle, which is supportive for the PEC hypothesis.

[Insert Table V here]

Proposition 7: If the PEC hypothesis holds, the impact of the presidential cycle effect on U.S. stock market returns will be stronger when the president and the majority of Congress share the same party affiliation. Since the president shares authority for fiscal policy with Congress, and because the president frequently has little or no control over congressional action, it is difficult to see the president manipulating the economy without some support from Congress. Yantek (1986) argues that the degree of manipulation by the incumbent president is therefore largely dependent on whether the president and the majority of Congress share the same party affiliation. If they do, it should be easier for the president to manipulate the economy thereby increasing the strength of the presidential cycle effect on U.S. stock market returns. No academic study has tested yet the congressional influence on the presidential cycle effect. By empirically examining this influence on the presidential cycle effect, our empirical findings in Table V enlighten the political mechanism behind the presidential cycle effect. Whether or not the president and the majority of Congress share the same party affiliation appears to have little impact on the strength of the presidential cycle effect, as we find higher returns during the latter half of the cycle compared to the first half under both instances. This finding is unsupportive for the political credibility of this PEC proposition.

Proposition 8: If the PEC hypothesis holds, the impact of the presidential cycle effect on U.S. stock market returns will be stronger when there is a re-eligible president in office. The PBC theory suggests that incumbent politicians manipulate the economy in order to create a favorable macroeconomic environment in the run-up to elections as to maximize their chances for re-election. The incentive for economic manipulation by an incumbent politician, however, is largely dependent on his eligible status. Since the U.S. constitution limits a president to a maximum of two terms in office, he will automatically loose his re-eligible status when he is in his second term. It is therefore plausible that a non re-eligible president has far less incentive to manipulate the economy compared to a re-eligible president. Hence, prior to the elections there will be less economic manipulations when a non re-eligible president is in office. Simultaneously, the post-election effect (bearish stock markets in the first two year of the cycle) will also be smaller compared to elections with a re-eligible president. Table V, Panel C, reports a clear presidential cycle effect, with a statistically significant 'third year effect', in excess returns when there is a re-eligible president in office. Interestingly, we find no statistically significant presidential cycle pattern

when there is no re-eligible president in office. More specifically, excess returns during the first half of the cycle appear to be positive when there is no re-eligible president in office, which largely leads to the disappearance of the presidential cycle effect.[13] These findings seem to confirm the hypothesis, that the incentive for economic manipulation depends on the re-eligibility of the incumbent president. The results are therefore supportive for this PEC proposition.

Summarizing we find very limited empirical support for the PEC hypothesis, except for some of the politically inspired propositions. The actual mechanisms to affect the cycle, however, whether they be fiscal or monetary, show little sign of a presidential cycle. As a final remark, we note all analyses in this section were performed controlling for business cycle effects. The results are robust, however, if we omit these controls. These results are available from the authors upon request.

D. Expected versus unexpected returns explanation

We have shown that there is a statistically strong and economically large difference in returns over the years of the presidential cycle. These differences can be explained neither by business cycle proxies and time-varying risk levels, nor by the PEC hypothesis. It might be the case that variation in returns over the cycle shows up in expected and unexpected returns. Variation in expected returns suggest that investors demand a higher return for the final years compared to the first, whereas variation in unexpected returns signal that market participants are systematically surprised in the last period of the cycle. Therefore, we decompose excess returns into expected and unexpected returns by regressing the returns on a constant and lagged business cycle variables (dividend yield, term spread, default spread, and relative interest rate). These variables have been shown to forecast expected returns and are related to the business cycle (see Chen, Roll and Ross, 1986; Fama, 1990; and Fama and French, 1989). The residuals from this regression are taken as a proxy for unexpected returns, while the fitted returns are taken as the expected returns. We subsequently regress expected and unexpected returns on the presidential cycle dummies as in equation (1). Table VI displays our empirical findings.

[Insert Table VI here]

[13] The PBC theory argues that an incumbent president will manipulate the economy during the second half of the cycle, in order to create a favorable voting environment. According to the PBC theory, this manipulation will result in a post-election fiscal hangover which will result in lower (or negative) returns during the first half of the cycle. Therefore, the existence of such a fiscal hangover should be clearly visible during the first half of cycles when there is a non re-eligible president (NRE) in office, since NRE years always follow a cycle in which the economy was manipulated by a re-eligible president. Our results, however, show no negative (or significantly lower) returns during the first half of cycles when there was a non re-eligible president in office, and are unsupportive for the 'fiscal hangover' explanation. Moreover, we find no evidence for the presence of such a fiscal hangover in our fiscal or macroeconomic variables.

Interestingly, there is no apparent presidential cycle pattern in expected returns. The null hypothesis of equality across all years cannot be rejected, and equality of the first two and the latter two years can also not be rejected. However, Table VI shows that the results for unexpected returns are very different. The third-year return is statistically significant at the 1% level, while equality across the four years can be rejected at the 5% level. Equality across the first and second half of the cycle can also be rejected at the 5% level. This indicates that investors are systematically surprised by the good performance of the stock market in the second half, and especially during the third year of the cycle. Having looked at various rational explanations, it is unclear which variables should explain this pattern.

E. Sentiment explanation

Since the strong presidential cycle pattern in stock returns cannot be explained by time-varying risk, the business cycle or the PEC hypothesis, there may be a role for sentiment. Lemmon and Portniaguina (2006) and Baker and Wurgler (2006) show that consumer and investor sentiment are important in asset pricing. To examine whether sentiment also follows the presidential cycle pattern, we regress the consumer sentiment surveys of the Conference Board and the University of Michigan and the Baker and Wurgler (2006) investor index on the presidential cycle dummies. Panel A in Table VII shows variation in sentiment during the presidential cycle and Panel B shows the returns, correcting for the business cycle and each sentiment variable. Including sentiment and business cycle variables jointly follows Lemmon and Portniaguina (2006), who separate fundamental and sentiment components of confidence.

[Insert Table VII here]

The consumer confidence measures from the Conference Board and the University of Michigan show a somewhat similar pattern over the four years of the presidential cycle. The first two years appear to be lower than the last two years. The hypothesis of equality across years or the first versus the second half of the cycle, however, cannot be rejected for any of the variables. Panel B of Table VII corrects excess stock market returns for business cycle variables and a single sentiment variable. By including the sentiment variables individually, we can use the maximum available sample period for each of the variables (1967-2008 for the Conference Board survey, 1952-2008 for the University of Michigan survey and 1962-2005 for the Baker and Wurgler (2006) investor sentiment index). Correcting for consumer or investor sentiment does not change the presidential cycle pattern in excess stock returns in a meaningful way. The third year effect remains significant in each case and equality across years can be rejected at the 10% level or less for each variable. Furthermore, equality across the first and second half of the cycle can

also be rejected at the 10% level or higher. These results show that sentiment is not sufficient as an explanation for the presidential cycle effect.

V. Conclusions

This paper documents the existence of the presidential cycle effect in U.S. stock and bond markets. Average excess returns of the S&P 500 in the second half of the presidential cycle are significantly higher compared to those in the first half: 9.8 percent over the period 1948 – 2008. More notably, the average excess returns in the second year is -3.45 percent, while the third year return is a substantial positive 12.78 percent. We show that the presidential cycle effect in stock markets is mirrored in U.S. corporate bond markets. Changes in the credit spread indicate a pattern influenced by the presidential cycle. On average, the credit spread widens by 34 basis points in the second year, while it shrinks by 28 basis points in the third year of the cycle. The results are statistically and economically significant, stable over sub-samples, and robust to controlling for business cycle effects and time-varying risk. We conclude that the presidential cycle effect in U.S. stock and bond markets is a robust phenomenon.

As a potential explanation for this phenomenon, we investigate the presidential election cycle hypothesis (PEC hypothesis) by designing eight empirically testable propositions. The popular press routinely points at the PEC hypothesis as an explanation for the presidential cycle effect. However, after a thorough empirical analysis, there is little to no financial, inflation, fiscal or macroeconomic evidence for any economic manipulation by an incumbent president. Neither the growth of money supply, U.S. income tax levels, U.S. federal spending, nor the U.S. budget indicate a statistically significant presidential cycle pattern. Furthermore, the political propositions we test fail as well in uncovering any significant evidence for the political background behind the presidential cycle effect. We argue that the credibility of the PEC hypothesis as an explanation for the presidential cycle is therefore limited.

We finally turn to consumer and investor sentiment as explanations for the pattern. Although consumer sentiment shows a somewhat similar pattern, correcting for the business cycle and sentiment jointly does not eliminate the pattern observed in stock returns.

We conclude that the existence of the presidential cycle effect in U.S. financial markets remains a puzzle and certainly deserves further academic attention. However, since most rational explanations as well as the PEC hypothesis fail to solve the puzzle, alternative explanations become scarce. The conventional wisdom that the presidential cycle effect is caused by politicians misusing their economic influence to remain in power is not supported empirically.

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Table I
Summary Statistics of Financial and Control Variables

Table I reports the averages (Mean), standard deviations (Std. Dev.), and autoregressive coefficients (A.R.) of the financial and control variables used in this study. Stock returns are in log form, while all means are displayed in annualized percentage points. For the excess return of the S&P 500 (*SP500 – TBL*), the real return of the S&P 500 (*SP500 – INF*), the average change in the credit spread (Δ*Credit spread*), the average yearly growth in money supply (Δ*M1*) and the average unexpected inflation, the full sample period consists of 720 monthly observations (1948:11 - 2008:10). The sample period is the same for the business cycle control variables used in this study (the dividend yield (DY), the default spread (DSP), the term spread (TSP) and the relative interest rate (RR)). For tax levels (*Tax low*, *Tax high* and Δ*Tax*), federal spending (Δ*Federal spending*), the budget (*Budget / GDP*) and federal debt (*Federal debt / GDP),* the full sample period consists of 59 yearly observations (1949-2007). Sentiment variables are annual: the Conference board survey (*Conference board*) is available for 1967-2008, the University of Michigan survey (*University of Michigan*) for 1952-2008 and the sentiment index (*Investor sentiment*) constructed by Baker and Wurgler (2006) for 1962-2005.

	Full Sample		
Series	Mean	Std.Dev.	A.R.
SP500 - TBL	2.14	14.47	0.04
SP500 - INF	3.15	14.57	0.05
Vol SP500	12.39	7.22	0.91
Δ*Credit spread*	0.01	0.17	0.22
Δ*M1*	0.77	17.27	0.05
Unexpected inflation	0.00	0.01	0.01
Tax low	14.99	3.41	0.99
Tax high	61.57	22.31	0.99
Δ*Tax*	-0.46	2.35	0.25
Δ*Federal spending*	4.34	8.11	0.27
Budget / GDP	-0.02	0.02	0.87
Federal debt / GDP	0.54	0.15	0.98
DY	3.49	0.04	0.99
DSP	0.93	0.02	0.98
TSP	1.34	0.01	0.96
RR	0.01	0.01	0.91
Conference board	96.65	25.26	0.98
University of Michigan	86.52	11.84	0.99
Baker and Wurgler sentiment index	0.01	0.99	0.71

Table II
Average Returns, Volatility and Changes in Credit Spread during the Presidential Cycle

Table II presents the average excess and real returns of the S&P 500, the volatility of the S&P 500 and the average changes in the credit spread over the presidential cycle. All rates are represented in annualized percentage points, based on the full sample period and without controlling for business cycle variables. The "Returns" columns under Panel A report the mean excess returns of the S&P 500 (*SP500 – TBL*), the mean real returns of the S&P 500 (*SP500 – INF*) and the mean volatility of the S&P 500 (*Vol SP500*), for all four years of the presidential cycle. The volatility of the S&P 500 is computed from within-month daily return data, using the approach of French, Schwert, and Stambaugh (1987). The coefficients under the "Returns" columns represent the average annualized return (or volatility) in a specific year of the presidential cycle. The first number under the coefficient represents the p-value under the null hypothesis that the coefficient estimate is not significantly different from zero. These p-values are obtained by using Newey-West (1987) t-statistics. The numbers in square brackets are the p-values of the test conducted using a conditional bootstrap t-statistic. The coefficients under the "Differences" columns report the LR test statistic under the null that there is no difference in returns (or volatility) between the four years of the presidential cycle ($H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4$) and under the null that there is no difference in returns (or volatility) between the first half and the second half of the presidential cycle ($H_0 : \beta_1 + \beta_2 = \beta_3 + \beta_4$). The column "$\overline{R}^2$" displays the adjusted R-squared of the regression. Panel B shows the changes in the credit spread (Δ*Credit spread*) during the four years of the presidential cycle. The coefficients under the "Change in Spread" columns represent the average annualized monthly change in the credit spread in a specific year of the presidential cycle. All other numbers in Panel B are obtained in a similar manner as the numbers in Panel A.

Full Sample (1948:11 - 2008:10, 720 observations)							
Panel A: Stock Market Returns and Volatility							
	Returns				Differences		$\overline{R}^2$
	Year 1	Year 2	Year 3	Year 4	$H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4$	$H_0 : \beta_1 + \beta_2 = \beta_3 + \beta_4$	
SP500 - TBL	-2.02	-3.45	12.78	1.27	13.85	7.20	
	0.55	0.47	0.00	0.69	0.00	0.01	
	[0.62]	[0.55]	[0.00]	[0.74]	[0.01]	[0.03]	0.01
SP500 - INF	-0.55	-2.45	13.59	2.01	12.45	6.22	
	0.87	0.62	0.00	0.53	0.01	0.01	
	[0.90]	[0.73]	[0.00]	[0.67]	[0.01]	[0.09]	0.01
Vol SP500	11.10	13.19	12.79	12.46	4.35	0.29	
	0.00	0.00	0.00	0.00	0.23	0.59	
	[0.98]	[0.99]	[0.98]	[0.99]	[0.13]	[0.52]	0.01
Panel B: Changes in Credit Spread							
	Change in Spread				Differences		$\overline{R}^2$
	Year 1	Year 2	Year 3	Year 4	$H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4$	$H_0 : \beta_1 + \beta_2 = \beta_3 + \beta_4$	
Δ*Credit spread*	0.002	0.339	-0.282	0.202	8.47	1.82	
	0.98	0.05	0.06	0.31	0.04	0.18	
	[0.98]	[0.07]	[0.08]	[0.36]	[0.02]	[0.24]	0.01

Table III
Average Returns, Volatility and Changes in Credit Spread during the Presidential Cycle, Controlling for Business Cycle Variables

Table III presents the average excess and real returns of the S&P 500, the volatility of the S&P 500 and the average changes in the credit spread during the presidential cycle, controlling for business cycle variables. All rates are represented in annualized percentage points and based on the full sample period. The impact of business cycle fluctuations is tested by running the following regression: $Y_t = \beta_1 YR_{1t} + \beta_2 YR_{2t} + \beta_3 YR_{3t} + \beta_4 YR_{4t} + \gamma' X_t + \varepsilon_t$, where X_t is a vector containing the following control variables (dividend yield (DY), default spread (DSP), term spread (TSP) and the relative interest rate (RR)). The estimates of γ are not displayed in the interest of brevity. The "Returns" columns under Panel A report the mean excess returns of the S&P 500 (*SP500 – TBL*), the mean real returns of the S&P 500 (*SP500 – INF*) and the mean volatility of the S&P 500 (*Vol SP500*), for all four years of the presidential cycle. The volatility of the S&P 500 is computed from within-month daily return data, using the approach of French, Schwert, and Stambaugh (1987). The coefficients under the "Returns" columns represent the average annualized return (or volatility) in a specific year of the presidential cycle. The first number under the coefficient represents the p-value under the null hypothesis that the coefficient estimates are not significantly different from zero. These p-values are obtained by using Newey-West (1987) t-statistics. The numbers in square brackets are the p-values of the test conducted using a conditional bootstrap t-statistic. The coefficients under the "Differences" columns report the LR test statistic under the null that there is no difference in returns (or volatility) between the four years of the presidential cycle ($H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4$) and under the null that there is no difference in returns (or volatility) between the first half and the second half of the presidential cycle ($H_0 : \beta_1 + \beta_2 = \beta_3 + \beta_4$). The column "$\overline{R}^2$" displays the adjusted R-squared of the regression. Panel B displays the changes in the credit spread (Δ*Credit spread*) during the four years of the presidential cycle. The coefficients under the "Change in Spread" columns represent the average annualized monthly change in the credit spread in a specific year of the presidential cycle. All other numbers in Panel B are obtained in a similar manner as the numbers in Panel A.

Full Sample (1948:11 - 2008:10, 720 observations)							
Panel A: Stock Market Returns and Volatility							
	Returns				Differences		$\overline{R}^2$
	Year 1	Year 2	Year 3	Year 4	$H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4$	$H_0 : \beta_1 + \beta_2 = \beta_3 + \beta_4$	
SP500 - TBL	-0.95	-4.68	12.61	1.53	13.34	7.99	
	0.79	0.30	0.00	0.65	0.00	0.00	
	[0.83]	[0.39]	[0.00]	[0.71]	[0.01]	[0.01]	0.03
SP500 - INF	0.68	-3.61	13.31	2.17	11.63	6.48	
	0.85	0.44	0.00	0.52	0.01	0.01	
	[0.90]	[0.60]	[0.00]	[0.66]	[0.01]	[0.02]	0.02
Vol SP500	11.48	13.41	12.48	12.23	3.47	0.02	
	0.00	0.00	0.00	0.00	0.33	0.90	
	[0.97]	[0.96]	[0.98]	[0.99]	[0.16]	[0.86]	0.10
Panel B: Changes in Credit Spread							
	Change in Spread				Differences		$\overline{R}^2$
	Year 1	Year 2	Year 3	Year 4	$H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4$	$H_0 : \beta_1 + \beta_2 = \beta_3 + \beta_4$	
Δ*Credit spread*	-0.068	0.349	-0.266	0.247	9.54	0.91	
	0.61	0.05	0.05	0.20	0.02	0.34	
	[0.65]	[0.07]	[0.07]	[0.25]	[0.01]	[0.34]	0.02

Table IV
Financial Variables during the Presidential Cycle, Controlling for Business Cycle Variables

Table IV displays the financial variables of the tested propositions during the four years of the presidential cycle, after controlling for business cycle fluctuations by running the following regression: $Y_t = \beta_1 YR_{1t} + \beta_2 YR_{2t} + \beta_3 YR_{3t} + \beta_4 YR_{4t} + \gamma' X_t + \varepsilon_t$, where X_t is a vector containing the control variables (dividend yield (DY), default spread (DSP), term spread (TSP) and relative interest rate (RR)). Panel A presents the results for monthly variables based on the full sample period (1948:11 – 2008:10), while Panel B reports the results for annual variables based on the full sample period (1949-2007). The "Changes" columns report monthly or annual observations of the financial variables for all four years of the presidential cycle. '*ΔM1*' represents the average annualized real growth in money supply. '*Unexpected inflation*' is the residual from a time-series model of inflation in the spirit of Fama and Schwert (1977), 'Tax low' is the average income tax level for the lowest tax bracket, '*Tax high*' displays the highest bracket, while '*ΔTax'* represents the average change in mean tax level of the highest and lowest brackets. '*ΔFederal spending*' reports the average real change in federal spending. '*Budget / GDP*' represents the budget deficit or surplus as a percentage of GDP, while '*Federal debt / GDP*' displays federal debt as a percentage of GDP. The first number under the coefficient shows the p-value under the null hypothesis that the coefficient estimates are not significantly different from zero. These p-value are obtained by using Newey-West (1987) t-statistics. The numbers in square brackets are the p-values of the test conducted using a conditional bootstrap t-statistic. The coefficients under the "Differences" columns report the LR test statistic under the null that there is no difference in outcome between the four years of the presidential cycle ($H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4$) and under the null that there is no difference in outcome between the first half and the second half of the presidential cycle ($H_0 : \beta_1 + \beta_2 = \beta_3 + \beta_4$). The column "$\overline{R}^2$" displays the adjusted R-squared of the regression. All numbers in Panel B are obtained in a similar manner as the numbers in Panel A.

Panel A: Full Sample based on Monthly Observations (1948:11 - 2008:10, 720 observations)							
	Changes				Differences		$\overline{R}^2$
	Year 1	Year 2	Year 3	Year 4	$H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4$	$H_0 : \beta_1 + \beta_2 = \beta_3 + \beta_4$	
ΔM1	1.32	0.58	0.84	0.38	0.77	0.16	
	0.10	0.52	0.28	0.69	0.86	0.69	
	[0.18]	[0.60]	[0.39]	[0.74]	[0.92]	[0.77]	0.03
Unexpected inflation	-0.24	0.09	0.01	0.09	1.51	0.31	
	0.25	0.74	0.97	0.69	0.68	0.58	
	[0.27]	[0.75]	[0.97]	[0.71]	[0.80]	[0.64]	0.02
Panel B: Full Sample based on Yearly Observations (1949 - 2007, 59 observations)							
	Changes				Differences		$\overline{R}^2$
	Year 1	Year 2	Year 3	Year 4	$H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4$	$H_0 : \beta_1 + \beta_2 = \beta_3 + \beta_4$	
Tax low	14.61	14.89	15.25	15.52	2.31	1.28	
	0.00	0.00	0.00	0.00	0.51	0.26	
	[0.84]	[0.94]	[0.35]	[0.20]	[0.62]	[0.33]	0.41
Tax high	60.88	60.58	63.91	62.92	1.09	0.81	
	0.00	0.00	0.00	0.00	0.78	0.37	
	[0.66]	[0.86]	[0.48]	[0.40]	[0.85]	[0.46]	0.42
ΔTax	-0.03	-0.73	-0.19	-0.86	1.90	0.07	
	0.96	0.16	0.72	0.26	0.59	0.80	
	[0.98]	[0.21]	[0.81]	[0.36]	[0.65]	[0.83]	0.01
ΔFederal spending	4.54	2.94	3.70	6.72	0.76	0.41	
	0.01	0.08	0.03	0.05	0.86	0.53	
	[0.28]	[0.62]	[0.40]	[0.49]	[0.76]	[0.52]	0.03
Budget / GDP	-0.02	-0.02	-0.02	-0.02	0.48	0.27	
	0.00	0.00	0.00	0.00	0.92	0.60	
	[0.76]	[0.41]	[0.58]	[0.26]	[0.95]	[0.64]	0.36
Federal debt / GDP	0.54	0.57	0.54	0.52	3.32	1.07	
	0.00	0.00	0.00	0.00	0.34	0.31	
	[0.88]	[0.65]	[0.37]	[0.67]	[0.56]	[0.40]	0.32

Table V

Average Returns under Political Propositions during the Presidential Cycle, Controlling for Business Cycle Variables

Table V presents the average excess returns of the S&P 500 during the presidential cycle under the political propositions. All rates are represented in annualized percentage points, based on the full sample period and after controlling for business cycle fluctuations. Panel A reports the results of the regression: $SP500_t - TBL_t = \beta_1 DP_t YR_{1t} + \beta_2 RP_t YR_{1t} + \beta_3 DP_t YR_{2t} + \beta_4 RP_t YR_{2t} + \beta_5 DP_t YR_{3t} + \beta_6 RP_t YR_{3t} + \beta_7 DP_t YR_{4t} + \beta_8 RP_t YR_{4t} + \gamma' X_t + \varepsilon_t$, where X_t is a vector containing the control variables (dividend yield, default spread, term spread and relative interest rate). The "Returns" columns under Panel A report the mean excess returns of the S&P 500 under Democratic presidents (*DP*) and Republican presidents (*RP*). The coefficients under the "Returns" columns represent the average annualized return in a specific year of the presidential cycle. The first number under the coefficient represents the p-value under the null hypothesis that the coefficient estimates are not significantly different from zero. These p-values are obtained by using Newey-West (1987) t-statistics. The numbers in square brackets are the p-values of the test conducted using a conditional bootstrap t-statistic. The coefficients under the "Differences" columns report the LR test statistic under the null that there is no difference in returns between the four years of the presidential cycle ($H_0 : \beta_{1/2} = \beta_{3/4} = \beta_{5/6} = \beta_{7/8}$) and under the null that there is no difference in returns between the first half and the second half of the presidential cycle ($H_0 : \beta_{1/2} + \beta_{3/4} = \beta_{5/6} + \beta_{7/8}$). The column "$\bar{R}^2$" displays the adjusted R-squared of the regression. The row "*T / Democrats*" displays the number of observations and the number of months of Democratic administrations during the estimation period. Panel B reports the returns and differences in returns during the presidential cycle under partisan domination (*PD*) and partisan split (*PS*) of control over the presidency and the Senate, after controlling for business cycle variables by running the following regression: $SP500_t - TBL_t = \beta_1 PD_t YR_{1t} + \beta_2 PS_t YR_{1t} + \beta_3 PD_t YR_{2t} + \beta_4 PS_t YR_{2t} + \beta_5 PD_t YR_{3t} + \beta_6 PS_t YR_{3t} + \beta_7 PD_t YR_{4t} + \beta_8 PS_t YR_{4t} + \gamma' X_t + \varepsilon_t$, where X_t is a vector containing the control variables. Panel C displays the returns and differences in returns during the presidential cycle when a re-eligible president is in office (*RE*) and when no re-eligible president in office (*NRE*), after controlling for the business cycle, by running the following regression: $SP500_t - TBL_t = \beta_1 RE_t YR_{1t} + \beta_2 NRE_t YR_{1t} + \beta_3 RE_t YR_{2t} + \beta_4 NRE_t YR_{2t} + \beta_5 RE_t YR_{3t} + \beta_6 NRE_t YR_{3t} + \beta_7 RE_t YR_{4t} + \beta_8 NRE_t YR_{4t} + \gamma' X_t + \varepsilon_t$, where X_t is a vector containing the control variables. All numbers in Panel B and Panel C are obtained in a similar manner as the numbers in Panel A.

Full Sample (1948:11 - 2008:10, 720 observations)

Panel A: Excess S&P 500 Returns under Democratic and Republican Presidents

	Returns				Differences		$\bar{R}^2$
	Year 1	Year 2	Year 3	Year 4	$H_0 : \beta_{1/2} = \beta_{3/4} = \beta_{5/6} = \beta_{7/8}$	$H_0 : \beta_{1/2} + \beta_{3/4} = \beta_{5/6} + \beta_{7/8}$	
DP	3.80	-3.15	14.82	10.09	7.06	5.74	
	0.52	0.60	0.00	0.00	0.07	0.02	
	[0.52]	[0.61]	[0.05]	[0.01]	[0.12]	[0.05]	
RP	-3.64	-5.30	10.92	-4.77	7.23	2.19	
	0.40	0.43	0.03	0.36	0.07	0.14	
	[0.40]	[0.43]	[0.08]	[0.45]	[0.04]	[0.09]	0.04
T / Democrats	720 / 288						

Panel B: Excess S&P 500 Returns under Partisan Domination and Partisan Split

	Returns				Differences		$\bar{R}^2$
	Year 1	Year 2	Year 3	Year 4	$H_0 : \beta_{1/2} = \beta_{3/4} = \beta_{5/6} = \beta_{7/8}$	$H_0 : \beta_{1/2} + \beta_{3/4} = \beta_{5/6} + \beta_{7/8}$	
PD	0.48	-0.37	12.35	8.15	5.04	4.90	
	0.92	0.95	0.01	0.01	0.17	0.03	
	[0.97]	[0.97]	[0.04]	[0.05]	[0.18]	[0.03]	
PS	-1.68	-8.40	12.45	-1.92	9.67	3.75	
	0.75	0.27	0.01	0.68	0.02	0.05	
	[0.77]	[0.28]	[0.04]	[0.74]	[0.02]	[0.08]	0.04
T / Partisan domination	720 / 288						

Panel C: Excess S&P 500 Returns under Re-eligible President in Office and No Re-eligible President in Office

	Returns				Differences		$\bar{R}^2$
	Year 1	Year 2	Year 3	Year 4	$H_0 : \beta_{1/2} = \beta_{3/4} = \beta_{5/6} = \beta_{7/8}$	$H_0 : \beta_{1/2} + \beta_{3/4} = \beta_{5/6} + \beta_{7/8}$	
RE	-1.52	-10.98	14.11	1.29	17.82	10.47	
	0.73	0.05	0.00	0.78	0.00	0.00	
	[0.80]	[0.07]	[0.04]	[0.84]	[0.00]	[0.00]	
NRE	0.11	8.46	9.66	1.53	2.02	0.05	
	0.99	0.19	0.16	0.68	0.57	0.82	
	[0.99]	[0.23]	[0.29]	[0.71]	[0.62]	[0.84]	0.04
T / Re-eligible president	720 / 420						

Table VI
Average Expected and Unexpected Returns during the Presidential Cycle

Table VI reports the results of a decomposition of returns into expected and unexpected returns during the four years of the presidential cycle. The decomposition of returns is performed by running regressions in two steps. In the first step, returns are regressed on the lagged values of the control variables X_t (dividend yield (DY), default spread (DSP), term spread (TSP) and the relative interest rate (RR)), and this regression is used to construct expected excess returns (*SP500tbl exp*). Unexpected returns (*SP500tbl unexp*) are the difference between realized and expected returns. As a second step, the expected and unexpected returns are regressed on the presidential cycle dummy variables. All rates are in annualized percentage points. The coefficients under the "Returns" columns show the results for the mean excess returns and represent the average annualized return in a specific year of the presidential cycle. The first number under the coefficient represents the p-value under the null hypothesis that the coefficient estimates are not significantly different from zero. These p-values are obtained by using Newey-West (1987) t-statistics. The numbers in square brackets are the p-values of the test conducted using a conditional bootstrap t-statistic. The coefficients under the "Differences" columns report the LR test statistic under the null that there is no difference in returns between the four years of the presidential cycle ($H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4$) and under the null that there is no difference in returns between the first half and the second half of the presidential cycle ($H_0 : \beta_1 + \beta_2 = \beta_3 + \beta_4$). The column " $\overline{R}^2$ " displays the adjusted R-squared of the regression.

Full Sample (1948:11 - 2008:10, 720 observations)							
	Returns				Differences		$\overline{R}^2$
	Year 1	Year 2	Year 3	Year 4	$H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4$	$H_0 : \beta_1 + \beta_2 = \beta_3 + \beta_4$	
SP500tbl exp	-1.22	1.04	0.28	-0.06	2.02	0.04	
	0.35	0.31	0.77	0.95	0.57	0.85	
	[0.35]	[0.33]	[0.78]	[0.95]	[0.61]	[0.92]	0.01
SP500tbl unexp	-0.80	-4.49	12.50	1.33	13.73	7.19	
	0.81	0.32	0.00	0.69	0.00	0.01	
	[0.84]	[0.41]	[0.00]	[0.75]	[0.01]	[0.05]	0.01

Table VII
Sentiment Indicators during the Presidential Cycle

Table VII reports the pattern in sentiment indicators over the presidential cycle, based on annual data. Panel A displays consumer sentiment, for which we use the surveys collected by the Conference Board and by the University of Michigan Survey Research Center, as well as the investor sentiment index from Baker and Wurgler (2006). All results in Panel A are based on the maximum available sample period, which is 1967-2008 for the Conference Board survey, 1952-2008 for the University of Michigan survey, and 1962-2005 for the Baker and Wurgler (2006) sentiment index. The coefficients under the "Change in Indicator" columns represent the value of a sentiment indicator in a specific year of the presidential cycle. The first number under the coefficient is the p-value under the null hypothesis that the coefficient estimates are not significantly different from zero. These p-values are obtained by using Newey-West (1987) t-statistics. The numbers in square brackets are the p-values of the test conducted using a conditional bootstrap t-statistic. The coefficients under the "Differences" columns report the LR test statistic under the null that there is no difference in a sentiment indicator between the four years of the presidential cycle ($H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4$) and under the null that there is no difference in a sentiment indicator between the first half and the second half of the presidential cycle ($H_0 : \beta_1 + \beta_2 = \beta_3 + \beta_4$). The column " $\overline{R}^2$ " displays the adjusted R-squared of the regression. Panel B presents the average excess returns of the S&P 500 during the presidential cycle, after controlling for business cycle variables and the relevant sentiment indicator. All rates are represented in annualized percentage points and based on the maximum available sample period, which is 1967-2008 for the Conference Board survey, 1952-2008 for the University of Michigan survey and 1962-2005 for the Baker and Wurgler sentiment index. The impact of sentiment is tested by running the following regression: $SP500_t - TBL_t = \beta_1 YR_{1t} + \beta_2 YR_{2t} + \beta_3 YR_{3t} + \beta_4 YR_{4t} + \gamma' X_t + \varphi S_t + \varepsilon_t$, where X_t is a vector containing the business cycle variables (dividend yield, default spread, term spread and relative interest rate) and S_t is the relevant sentiment indicator which either is the Conference Board survey, the University of Michigan survey or the Baker and Wurgler (2006) sentiment index. The estimates of γ and φ are not displayed in the interest of conciseness. All other numbers in Panel B are obtained in a similar manner as the numbers in Panel A.

Panel A: Sentiment Indicators

	Change in Indicator				Differences		$\overline{R}^2$
	Year 1	Year 2	Year 3	Year 4	$H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4$	$H_0 : \beta_1 + \beta_2 = \beta_3 + \beta_4$	
Conference board	99.85	85.58	99.60	100.86	3.69	0.90	
	0.00	0.00	0.00	0.00	0.30	0.34	
	[0.36]	[0.78]	[0.43]	[0.64]	[0.49]	[0.46]	0.06
University of Michigan	87.16	82.83	86.65	89.24	3.26	1.25	
	0.00	0.00	0.00	0.00	0.35	0.26	
	[0.26]	[0.78]	[0.63]	[0.46]	[0.44]	[0.39]	0.04
Baker and Wurgler sentiment index	0.24	-0.18	-0.26	0.26	3.61	0.03	
	0.55	0.46	0.38	0.42	0.31	0.91	
	[0.61]	[0.46]	[0.38]	[0.44]	[0.35]	[0.95]	0.06

Panel B: Excess S&P 500 Returns Controlling for Business Cycle Variables and Relevant Sentiment Indicator

	Returns				Differences		$\overline{R}^2$
	Year 1	Year 2	Year 3	Year 4	$H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4$	$H_0 : \beta_1 + \beta_2 = \beta_3 + \beta_4$	
Conference board	-5.38	-4.22	9.53	0.31	10.63	3.57	
	0.29	0.40	0.00	0.93	0.01	0.06	
	[0.31]	[0.41]	[0.01]	[0.93]	[0.08]	[0.05]	0.44
University of Michigan	-2.41	-2.28	12.72	-0.88	23.73	4.07	
	0.51	0.64	0.00	0.76	0.00	0.04	
	[0.56]	[0.67]	[0.00]	[0.79]	[0.01]	[0.03]	0.45
Baker and Wurgler sentiment index	-2.92	-9.39	11.90	4.47	14.31	9.89	
	0.53	0.08	0.00	0.04	0.00	0.00	
	[0.55]	[0.12]	[0.00]	[0.08]	[0.01]	[0.00]	0.43

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