

# **Does the Fed Contribute to a Political Business Cycle?\***

**By**

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## **Abstract**

In contrast to findings of other studies, evidence is presented to support the existence of a Federal Reserve–induced political monetary cycle that corresponds to the U.S. presidential election cycle. Using various Taylor rules, we find support for the view that Fed policy turns significantly more expansionary in the seven quarters prior to the election, but only when the Fed chair and incumbent presidential party have partisan affiliations.

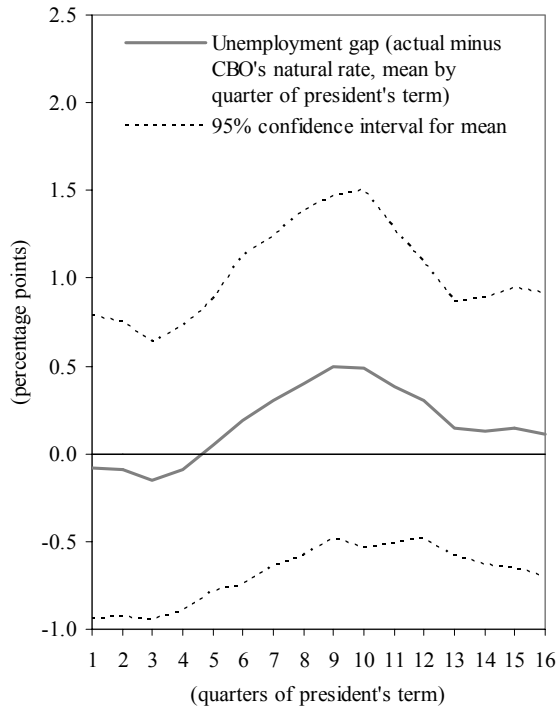
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## **Introduction.**

The “opportunistic” political cycle models, pioneered by Nordhaus (1975), hold that incumbent politicians, regardless of their party affiliation, try to maximize their chances for reelection by creating a favorable macroeconomic environment in the run-up to elections. For the United States, the tests for this version of the PBC have focused on the president and the corresponding four-year election cycle. For the opportunistic version of the political business cycle to be reasonably motivated, incumbent presidents must believe that the electorate rewards the incumbent (or the incumbent’s party) for favorable economic conditions prior to the election. Although the rationality for the electorate to do this has been questioned (see, e.g., Stigler, 1973), empirical evidence suggests that favorable economic conditions (i.e., rising income and/or low unemployment rates) in the run-up to the election do garner more votes for the incumbent president or his party (Abrams, 1980, Abrams and Butkiewitz, 1995; Blomberg and Hess, 2003; Fair, 1978, 1982, 1996; Erikson, 1989; Alesina, Londregan and Rosenthal, 1993). Thus, the empirical evidence provides a clear motive for a president or the incumbent president’s party to nurture an opportunistic political business cycle.

Figure 1 offers some support for the existence of a political business cycle in the United States. The unemployment gap, defined as the difference between the rate of unemployment and the time-varying NAIRU (non-accelerating inflation rate of unemployment), exhibits a four-year cycle consistent with the premise of the existence of a political business cycle. The unemployment gap typically falls in the first three quarters of a president’s term, then rises through the first quarter of the third year, after which it steadily declines in the quarters leading up to the new elections.

Figure 1. U.S. Unemployment Gap, 1957–2004



Source: CBO (2005) and authors' estimates.

In the absence of any control variables, the systematic differences in the average value of the unemployment gap over the sixteen quarters of a president's term are not, however, statistically significant at the 95 percent level of confidence (Figure 1). The findings of the literature testing for the existence of a U.S. political business cycle are also inconclusive (e.g., Alt and Chrystal, 1983, chapter 5).<sup>1</sup> The lack of strong evidence supporting the existence of a political business cycle, however, does not mean that presidents or their parties seeking reelection to the presidency do not manipulate macroeconomic tools to boost the economy in the run-up to the election. Long and variable impact lags for both monetary and fiscal policies may merely be hiding the evidence.

<sup>1</sup> See Grier (2005) for recent evidence supporting the existence of a U.S. political business cycle.

If monetary policy is used in an attempt to create a political business cycle, it is necessary to demonstrate that the tools of policy have an election-related cycle or political monetary cycle (PMC). The opportunistic version of the PMC suggests that presidents would seek expansionary monetary policies to boost real income and lower the unemployment rate before the election. While the president has a motive for encouraging an opportunistic political monetary cycle, little evidence of the use of monetary policy tools to support such a cycle has been uncovered for either the United States or for OECD countries (Beck, 1987; Allen and McCrickard, 1991; Leertouwer and Maier, 2001, Price, 1997).<sup>2</sup> The conventional wisdom now holds that the independence of the Federal Reserve System and that of many other central banks insulates them from political pressures supporting the cycle.<sup>3</sup> Researchers have concluded that fiscal policy, a macroeconomic tool more directly under the control of the president, is the tool of choice and opportunity (see, e.g., Beck, 1987).

In contrast to previous findings, we present evidence for the existence of an opportunistic political monetary cycle in the United States. Our study's innovative feature is an integration of partisan considerations into the traditional opportunistic model. We recognize the Fed chairman's extraordinary influence in setting monetary policy and his possible partisan bias when orchestrating monetary policy.

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<sup>2</sup> Maloney, Pickering and Hadri (2003) find some evidence of "partisan" (i.e., party-specific) business cycle effects for OECD countries, but that these "left wing" effects are moderated by independent central banks.

<sup>3</sup> Grier (1991) stands in contrast by finding evidence of a partisan PMC. He finds that U.S. Fed policy is sensitive to the ADA scores of the U.S. Senate's Banking Committee leadership. His findings suggest a Congressional influence on Fed policy and are consistent with the view that the major parties (which are strongly correlated with ADA scores) have different objective functions.

### **The Fed's Reaction Function.**

Studies testing for the existence of an opportunistic cycle in U.S. monetary policy typically assume that the Federal Reserve (Fed) sets the value of its main monetary policy instrument (or operating target) according to a monetary policy rule (reaction function) that includes election cycle-related dummy variables (Beck, 1987; Alesina, Roubini, and Cohen, 1997). The Fed's reaction function is then evaluated econometrically and the statistical significance or insignificance of the coefficients of the election cycle-related dummy variables is used to support or reject the existence of a political monetary cycle.

Taylor (1993) has shown that the actual monetary policy stance of the U.S. Federal Reserve, as measured by the level of the federal funds rate (*FFR*, the overnight inter-bank lending rate), is well emulated by a simple rule, based on two macroeconomic variables: the deviations of the rate of inflation from its target (usually assumed to be 2 percent) and the output gap (the percentage deviation of real GDP from its potential value under the assumption of full-employment). This is consistent with the Fed's objectives "to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates" (BGFRS, 1994). Other things equal, a rise in the inflation rate calls for a tightening of the Fed's policy stance (i.e., an increase in *FFR*). A rise in the output gap also calls for a tightening in the Fed's policy stance (i.e., an increase in *FFR*) as the positive output gap is unsustainable without incurring acceleration in the inflation rate.<sup>4</sup>

Accumulated evidence that the Fed reacts to inflation and unemployment considerations is hardly surprising, but the consistency over time of the apparent implicit or explicit adherence to a Taylor rule over a wide range of targeting procedures (e.g.,

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<sup>4</sup> An increase in *FFR* reduces the availability of bank reserves and reduces aggregate demand, while a decrease in the *FFR* has an expansionary effect on both bank reserves and aggregate demand.

monetary aggregates or interest rates) is surprising (Orphanides, 2003). Orphanides (2003, p. 984) notes that this historical consistency makes the Taylor rule a “useful organizing device for interpreting past policy decisions and mistakes...” We estimate a variety of equations representing Taylor-type monetary policy rules and then investigate whether or not an election-cycle effect exists in the behavior of the federal funds rate.

### **Preliminary Evidence from OLS Estimates.**

As an initial step in searching for a PMC, we estimate a number of Taylor-type equations for the period 1957-2004 using OLS and White correction for heteroskedasticity.<sup>5</sup> Our dependent variable is the quarterly average for the Federal Funds Rate,  $FFR_t$ .<sup>6</sup> Explanatory variables initially include the quarter’s inflation rate ( $Inflation_t$ ) and the output gap ( $RgdpGap_t$ ).<sup>7</sup> The FFR lagged one quarter,  $FFR(-1)$ , enters the models as a RHS variable to allow interest-rate smoothing behavior by the Fed. It is expected that the signs on  $Inflation$  and  $RgdpGap$  are positive as both higher inflation rates and higher output gaps (i.e., real output above potential real GDP) are

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<sup>5</sup> The first complete election cycle for which data is available on the monetary policy target that we use in this analysis, the federal funds rate, begins with the presidential election in 1956. The first quarter of 1957 is, therefore, a natural starting point for our sample.

<sup>6</sup> Federal funds rate ( $FFR$ ) – Quarterly averages of the published monthly data (annualized, in percent). Source: Fred II database (FRBSL, 2005).

<sup>7</sup> The inflation rate is calculated as the growth rate of quarterly averages of published monthly data on CPI (annualized, in percent):  $Infl_t = 4 * 100 * (\ln CPI_t - \ln CPI_{t-1})$ , where CPI is the Consumer Price Index for all urban consumers (all items, seasonally adjusted, Fred II database). We use the inflation rate in lieu of some measure of an undesired inflation gap. If the desired inflation rate has remained constant over the period, subtracting it from the actual inflation rate would not affect the coefficient on any election-cycle dummy variable. The output gap (real GDP gap,  $RgdpGap$ ) is calculated as the percentage deviation of quarterly real GDP from the CBO’s quarterly estimate of potential real GDP (CBO, 2005). The data on real GDP (annualized, seasonally adjusted) is taken from the Fred II database.

expected to encourage monetary tightening by the Fed (i.e., the setting of higher rates for *FFR*). The findings for this equation specification appear in model 1, table 1. The Durbin h-test indicates the presence of serial correlation, so model 2 adds a first-order autoregressive term,  $AR(1)$ , to correct for this. We use model 2 as the baseline OLS model for the preliminary testing of propositions concerning the existence of a PMC. We make no claims that this simple OLS model provides an accurate description of the Fed's reaction function. Later, a GMM model is introduced that provides a more sophisticated modeling of the Fed's reaction function and provides for further tests for a PMC.

Despite its simplicity, model 2, table 1, explains 93 percent of the variation in *FFR*. The coefficients on both economic variables are positive, as expected, and statistically significant.  $FFR(-1)$  proves to be highly significant, consistent with the widely acknowledged interest-rate smoothing behavior by the Fed.

If the Fed is “captured” by executive-branch pressure to improve economic conditions in the run-up to elections, we should be able to find evidence that the federal funds rate deviates from the Taylor rule during some period prior to the presidential election. Since a reduction in the *FFR* would stimulate the economy, we seek to test whether or not the *FFR* is lower in some period prior to the election. To this end, we construct a dummy variable (*Dummy7*) that takes on a value of one in the seven quarters prior to the quarter in which the election occurs, zero otherwise. A negative and significant coefficient on *Dummy7* would support the PMC hypothesis. The timing of the dummy variable reflects the consensus in the literature that political cycle effects are likely to occur only in the second half of a presidential term (Nordhaus, 1975, p. 185; Alesina et al., 1997, Chapter 4), and the assumption, commonly made in the literature (Faust and Irons, 1999, p. 73), that voters decide on whether to vote for the candidate of the party of the incumbent president, based on the state of the economy in the last quarter

prior to the election quarter. Model 3, Table 1 adds *Dummy7* to the baseline monetary policy rule. The coefficient for *Dummy7* is statistically insignificant at conventional confidence levels, rejecting the PMC hypothesis. This is consistent with the inability of the received literature to establish the existence of political monetary cycle.

The variable *Dummy7* seeks to determine if the Federal Reserve engages in monetary policies that enhance the reelection chances for the incumbent president or his party. It identifies a time-period when the sitting president (or the party of the incumbent president) might demand the expansionary policy, but it neglects an important second factor, namely supply. Simply put, the chair of the Fed may not have partisan loyalty to the incumbent party and, hence, may resist supplying the expansionary policy being demanded.

While the Fed chair is only one of twelve voting members of the Federal Open Market Committee (FOMC, the committee that determines U.S. monetary policy), the chair's dominance in influencing the committee's decision-making is widely acknowledged (Beck, 1987; Maisel, 1973). The chair has agenda setting powers, close contact with the president, often near-celebrity status and shoulders responsibilities for the Fed's performance much as a CEO. All of these factors make the chair the first among equals on the FOMC.

While many features of the organization of the Fed, such as 14-year terms for its Board of Governors and having five voting members on the FOMC whom are not appointed by the president, work to insulate its decision-makers from political pressures, the chair is most exposed to political pressures. The chair is appointed by the president and serves a 4-year renewable term. Although the chair, as a member of the Board of Governors, is entitled to remain on the Board for a full 14-year term, tradition has it that the chair resigns from the Board if a reappointment as chair does not occur. Interestingly, over the past half century, no Republican president has failed to reappoint a Republican-

appointed chair nor has any Democratic president ever failed to reappoint a Democratic-appointed chair. When Fed chairs are released, Republicans fire Democrats and Democrats fire Republicans. These historical facts point to the partisan nature of the appointments.

To determine if partisan loyalties of Fed chairs affect monetary policy, we modify the political dummy variable. We hypothesize that the likelihood of the Fed engaging in pre-election “pump priming” depends crucially on whether the political views of the Fed chair, as measured by the party affiliation of the president that first put him in office, coincide with those of the administration in power. We presume that Fed chairs that are reappointed by the opposition party at a later date have little or no loyalty to the reappointing president, as opposition-party reappointments occur out of certain political necessities (e.g., fear that failure to reappoint might adversely affect financial markets, etc.) rather than as a result of political horse-trading.

Our new political dummy variable (*PolDummy7*) tests for the “partisan” supply of expansionary monetary policies in the run-up to elections. It accepts the value of one in the seven quarters prior to an election quarter, but only if the sitting president is from the same political party as the president that first appointed the Fed chair, zero otherwise.<sup>8</sup>

The coefficient for *PolDummy7* proves to be negative and statistically significant at the 95 percent level of confidence (table 1, model 4), supporting the hypothesis of a partisan-based opportunistic PMC. The coefficient estimate for *PolDummy7* suggests that, when the president and the Fed chair have a partisan connection, the Fed lowers the

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<sup>8</sup> Appendix table 1 presents the chronology of U.S. presidential elections and Fed chair appointments in the period 1950–2004. Bolded row entries represent election cycles, in which the sitting president was from the same political party as the president that first appointed the Fed chair. Appendix table 1 also shows the average values of the federal funds rate and other economic variables in the seven quarters prior to elections, by Fed chair and within the chair’s term-in-office, by party affiliation of sitting presidents.

federal funds rate, on average, approximately 38 basis points below the Taylor-rule prediction during the seven quarters in the run-up to the presidential election.<sup>9</sup>

As a further test for the existence of a PMC, a “forward-looking” Taylor rule is also estimated. Instead of using the contemporaneous inflation rate, we substitute a variable to proxy the *expected* inflation rate. The nominal yield to maturity on the 10-year U.S. Treasury bond measures a real interest rate plus the expected annual inflation rate over the maturity of the bond. Since most of the fluctuations in yields-to-maturity on Treasury bonds are dominated by changes in inflationary expectations, changes in the 10-year Treasury bond yield (*GS10*) provide a proxy, albeit imperfect, for changes in expected inflation rates.<sup>10</sup> We expect a positive coefficient on *GS10* as increases in *GS10* suggest higher expected inflation rates that the Fed would likely seek to extinguish with tighter monetary policy. Model 5, table 1, reestimates model 4, but substitutes *GS10* for *Inflation*. The coefficient on *GS10* is positive, as expected, and statistically significant. Importantly, the coefficient on *PolDummy7* remains statistically significant and indicates, in this model, that the Fed lowers *FFR* by approximately 60 basis points from this Taylor-rule prediction, on average, in the seven quarters in the run-up to the presidential election when the president and Fed chair have a partisan connection. Both variations of simple OLS Taylor-type models presented in this section point to the existence of a partisan-based opportunistic political monetary cycle.

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<sup>9</sup> Of course, the estimated reduction in the *FFR* prior to the election relative to the level suggested by the reaction function may be the result of merely delaying the implementation of warranted contractionary policies rather than an explicit lowering of *FFR*.

<sup>10</sup> 10-year Treasury constant maturity rate (*GS10*) – Quarterly averages of the published monthly data (annualized, in percent). Source: Fred II database (FRBSL, 2005).

### **Evidence from GMM Estimates.**

As a more rigorous test of the PMC, we estimate a monetary policy rule equation fashioned on the well-known Clarida et al. (2000) specification. In addition to inflation (*Inflation*) and the output gap (*RgdpGap*), it includes two lags of the dependent and explanatory variables.<sup>11</sup> The latter allow for different short-run and long-run responses of *FFR* to changes in economic conditions, which is consistent with the observed preference of the Fed to smooth changes in interest rates. The endogeneity of inflation and the output gap requires the use of instruments in estimating the regression. Following Clarida et al. (2000), we estimate our baseline monetary policy rule by GMM, using four lags of the dependent and explanatory variables as instruments. We perform the calculations using the heteroskedastic and autocorrelation-consistent (HAC) variance estimates, in which case the GMM “generates efficient estimates of the coefficients as well as consistent estimates of the standard errors.” (Baum, Schaffer, and Stillman, 2005).<sup>12</sup> In all GMM models presented in table 2, the Hansen J-test statistics are statistically insignificant at conventional confidence levels, signaling the validity of the models’ underlying assumptions—the appropriateness of regression specifications and the exogeneity of the used instruments.

Model 1, table 2, presents the coefficient estimates for the baseline GMM-estimated monetary policy rule. The positive sign of both the contemporaneous and long-run responses of *FFR* to the two measures of economic conditions (*Inflation* and

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<sup>11</sup> Clarida et al. (2000) report that the inclusion of two lags of the dependent variable is sufficient to clean the errors from any serial correlation. The addition of lags of explanatory variables allows for richer short-run dynamics of the estimated policy rule.

<sup>12</sup> The estimations were performed in STATA (StataCorp, 2005), using the IVREG2 Stata module (Baum, Schaffer, and Stillman, 2005).

*RgdpGap*) are consistent with economic theory and the Fed's stated objectives.<sup>13</sup> Model 2, table 2, adds *Dummy7* into the regression equation. The coefficient on *Dummy7* proves to be insignificant, once again supporting the conventional wisdom that no general PMC exists.

Model 3, table 2, adds *PolDummy7* to the baseline monetary policy rule. The coefficient of *PolDummy7* is statistically significant at the 99 percent level of confidence and its value indicates that the Fed lowers the federal funds rate approximately 45 basis points on average in the seven quarters in the run-up to the presidential election, if a partisan connection between the Fed chair and the incumbent party is present. This finding is consistent with the findings obtained with the simple OLS models and provides further support for the existence of a partisan-based opportunistic political monetary cycle.

In the next section, we use the GMM regression specification in model 3 to test for differences in party administrations and for PMC effects under the Greenspan chairmanship.

### **Tests for Greenspan and Party-specific Effects.**

Are Democrats and Republicans equally responsible for creating a PMC? To test for party differences, model 4, table 2 substitutes for *PolDummy7* separate partisan-dummy variables for Democrat and Republican presidents. Both dummies (*PolDummy7\_Dem* and *PolDummy7\_Rep*, for Democrat and Republican periods, respectively) are statistically significant at the 99 percent level of confidence, implying

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<sup>13</sup> The estimates of the coefficients of the long-run monetary policy rule are obtained by first summing up the coefficients of the contemporaneous and lagged inflations and those of the contemporaneous and lagged output gaps and then dividing the resultant sums, as well as the constant term, by one minus the sum of coefficients of the lags of the dependent variable.

that both parties, on average, use the PMC in presidential elections, if there is a partisan connection between the sitting party and the Fed chair. The coefficient estimates suggest that, on average, Republican chairs have lowered *FFR* by 51 basis points and Democrats by 38 basis points in the run-up to the election. The difference between these coefficient estimates is not, however, statistically significant at conventional confidence levels.

To determine if the partisan-dummy variable during the Greenspan era (1987-2004) conforms to the PMC pattern estimated for the entire period, we estimate the model with a new variable that interacts the partisan dummy variable (*PolDummy7*) with a Greenspan-era dummy variable (unity during the quarters from Q3, 1987 through 2004, zero otherwise). If the coefficient on this variable (*PolDummy7\_Green*) is statistically significant, it would suggest a different partisan effect on the fed funds rate in the run-up to the election during the Greenspan chairmanship than observed for other chairs. Model 5, Table 1, adds *PolDummy7\_Green* to the regression specification of the monetary policy rule with PMC effects. The coefficient on *PolDummy7\_Green* is statistically significant at the 95 percent level of confidence and its value is of opposite sign and of similar magnitude to the partisan-dummy variable (*PolDummy7*). This suggests that the PMC has been significantly moderated during the Greenspan era and that Arthur Burns, the only other “Republican” chair in the analysis, was a particularly egregious implementer of a PMC during his chairmanship.<sup>14</sup>

### **Concluding remarks.**

Our empirical findings suggest that the political monetary cycle is not quite as dead as previous researchers have concluded. Contrary to the conventional wisdom, evidence indicates that the Fed establishes an abnormally expansionary monetary policy

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<sup>14</sup> This finding is confirmed by the unreported results from a GMM-estimated regression model, in which *PolDummy7* is interacted with dummy variables for each of the five Fed chairs in the period 1957-2004.

in the run-up to the presidential election, but only if the incumbent president or party is from the party that initially appointed the Fed chair. The finding of a partisan-based opportunistic political monetary cycle appears to be robust with respect to model specification as consistent results are obtained for both OLS and GMM estimations. The finding of a politicization of Fed policy should help to encourage a re-opening of the “rules versus discretion” debate. If a seemingly “independent” Fed has difficulty operating apolitically, perhaps additional constraints on discretionary monetary policies are socially desirable.

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**Table 1. Determinants of the Federal Funds Rate, *FFR*, 1957-2004 (OLS).**

Explanatory variables / Model	(1)	(2)	(3)	(4)	(5)
Intercept	0.159 (0.151)	0.244 (0.224)	0.280 (0.212)	0.378 (0.207)	-1.586 * (0.641)
<i>FFR</i> (-1)	0.897 ** (0.037)	0.878 ** (0.046)	0.876 ** (0.046)	0.863 ** (0.046)	0.249 (0.132)
<i>Inflation</i>	0.126 ** (0.047)	0.133 * (0.056)	0.133 * (0.057)	0.147 * (0.060)	
<i>RgdpGap</i>	0.107 ** (0.301)	0.108 ** (0.033)	0.106 ** (0.034)	0.101 ** (0.034)	0.228 ** (0.067)
AR(1)		0.158 (0.157)	0.161 (0.155)	0.160 (0.146)	0.754 ** (0.082)
<i>Dummy7</i>			-0.062 (0.151)		
<i>PolDummy7</i>				-0.376 * (0.185)	-0.597 * (0.293)
<i>GS10</i>					0.921 ** (0.206)
Adjusted R <sup>2</sup>	0.93	0.93	0.93	0.93	0.95
Durbin-Watson statistic	1.72	1.93	1.93	1.93	2.07

Note: Heteroskedasticity-consistent standard errors in parentheses. Significance levels: \* : 5% \*\* : 1%

**Table 2. Determinants of the Federal Funds Rate, *FFR*, 1957-2004 (GMM).**

Explanatory variables / Model	(1)	(2)	(3)	(4)	(5)
Intercept	-0.304 (0.198)	-0.228 (0.191)	-0.180 (0.167)	-0.189 (0.176)	-0.205 (0.172)
<i>FFR</i> (-1)	0.915 ** (0.09)	0.909 ** (0.086)	0.846 ** (0.081)	0.836 ** (0.079)	0.835 ** (0.083)
<i>FFR</i> (-2)	0.032 (0.086)	0.035 (0.085)	0.071 (0.08)	0.08 (0.079)	0.083 (0.083)
<i>Inflation</i>	0.102 (0.099)	0.097 (0.096)	0.173 * (0.083)	0.180 * (0.081)	0.198 * (0.078)
<i>Inflation</i> (-1)	-0.061 (0.084)	-0.053 (0.087)	-0.077 (0.079)	-0.078 (0.080)	-0.09 (0.075)
<i>Inflation</i> (-2)	0.135 ** (0.046)	0.139 ** (0.045)	0.124 ** (0.04)	0.122 ** (0.039)	0.119 ** (0.04)
<i>RgdpGap</i>	1.274 ** (0.234)	1.329 ** (0.263)	1.331 ** (0.282)	1.374 ** (0.305)	1.326 ** (0.312)
<i>RgdpGap</i> (-1)	-1.135 ** (0.3)	-1.181 ** (0.325)	-1.201 ** (0.338)	-1.249 ** (0.359)	-1.196 ** (0.363)
<i>RgdpGap</i> (-2)	0.022 (0.118)	0.015 (0.121)	0.033 (0.115)	0.039 (0.118)	0.04 (0.114)
<i>Dummy7</i>		-0.190 (0.133)			
<i>PolDummy7</i>			-0.448 ** (0.138)		-0.595 ** (0.199)
<i>PolDummy7_Dem</i>				-0.378 ** (0.139)	
<i>PolDummy7_Rep</i>				-0.510 ** (0.188)	
<i>PolDummy7_Green</i>					0.437 * (0.202)
Adjusted R <sup>2</sup>	0.89	0.89	0.89	0.89	0.89
Hansen J statistic	0.42	0.40	0.29	0.32	0.38

Note: Heteroskedasticity and autocorrelation-consistent standard errors in parentheses.

Significance levels: \* : 5% \*\* : 1%

**Appendix table 1. Chronology of U.S. Presidents, Fed Chairs, and the Political Monetary Cycle, 1950–2004**

Chairman of the Federal Reserve Board		Presidential Election Cycle					Means of variables that enter Fed's reaction function in the seven quarters prior to each election (by Fed Chair and party affiliation of sitting president)				
Name	Term in office	President that first appointed Fed Chair		Election year	Sitting President		Federal Funds Rate <sup>1/</sup>	10-year U.S. Treasury bond yield <sup>1/</sup>	Inflation <sup>1/</sup>	Unemployment gap <sup>2/</sup>	Oil shock <sup>3/</sup>
		Name	Party affil.		Name	Party affil.					
Wm McC Martin, Jr	Apr 2, 1951– Jan 31, 1970	Harry Truman	<b>D</b>	1956	Dwight Eisenhower	R	3.4	4.27	1.24	-0.02	No
				1960	Dwight Eisenhower	R					
				1964	Lyndon Johnson	<b>D</b>					
				1968	Lyndon Johnson	<b>D</b>					
Arthur F Burns	Feb 1, 1970– Jan 31, 1978	Richard Nixon	<b>R</b>	1972	Richard Nixon	<b>R</b>	4.99	7.02	4.7	0.37	No
				1976	Gerald Ford	<b>R</b>					
G William Miller	Mar 8, 1978– Aug 6, 1979	Jimmy Carter	<b>D</b>	1980	Jimmy Carter	<b>D</b>	10.4	9.11	11.72	-1.55	No
Paul A Volcker	Aug 6, 1979– Aug 11, 1987	Jimmy Carter	<b>D</b>	1980	Jimmy Carter	<b>D</b>	12.79	10.97	12.16	0.12	Yes
				1984	Ronald Reagan	R	8.77	10.68	3.91	1.31	No
Alan Greenspan	Aug 11, 1987– present	Ronald Reagan	<b>R</b>	1988	Ronald Reagan	<b>R</b>	3.92	6.51	3	0.01	No
				1992	George H.W. Bush	<b>R</b>					
				2004	George W. Bush	<b>R</b>					
				1996	William J. Clinton	D					
				2000	William J. Clinton	D	5.54	6.2	2.91	-0.12	No
<i>Memorandum item</i>											
Full-sample means (1957 -2004)							5.96	6.87	4.03	-0.02	

Source: [www.federalreserve.gov/bios/1199member.pdf](http://www.federalreserve.gov/bios/1199member.pdf); <http://uselectionatlas.org/INFORMATION/INFORMATION/presidents.php>; FRED II database, and author estimates.

Notes:

<sup>1/</sup> Percent.

<sup>2/</sup> Percentage points difference.

<sup>3/</sup> Occurrence in the seven quarters prior to election.