

## The Federal Reserve and the Electoral Cycle

By: [Stuart D. Allen](#)

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### Article:

#### *1. Introduction*

Economic forecasts for a presidential election year always consider the alleged existence of an electoral cycle that is orchestrated by vote-maximizing incumbents to ensure their party's reelection. The assumption of vote-maximizing behavior by politicians has led to the search for empirical evidence of politically induced cycles in key variables such as unemployment, inflation, and real disposable income or in policies such as government purchases, transfer payments, taxes, and monetary growth (reviewed in sec. 2). The purpose of this paper is to develop a model, presented in section 3, from which a Federal Reserve reaction function is employed to test for the significance of an electoral cycle variable modeled to capture politically induced changes in monetary policy. The empirical results are presented in section 4 with concluding remarks in section 5.

#### *2. The Literature*

Gordon (1975) has developed a theoretical model of the economic and political factors that contribute to election year stimulus. Voters are assumed to demand lower taxes, less inflation, increases in government expenditures, and higher real output growth. Elected officials may bow to these pressures rather than risk electoral losses and supply these policies. The demand side of this model has been investigated by testing voting behavior or popularity ratings as a function of economic conditions.<sup>1</sup> The supply side has been investigated by testing for the significance of an electoral cycle variable in a variety of models.

Nordhaus (1975), Tufte (1978), and Weintraub (1978) searched for politically induced cycles in such variables as unemployment, real income, transfer payments, and the money supply. In the case of monetary policy, Weintraub and Tufte argue that politically induced cycles exist because monetary growth accelerates two years prior to a presidential election and decelerates the two years following an election except for the Eisenhower years. Their work, however, suffers from omitted variables and the lack of a model of the linkage between political behavior and policy changes prior to an election. Furthermore, Wooley (1980) reexamines Tufte's work and finds no relationship between changes in the monetary base and the length of time prior to an election.

A politico-economic model of central bank behavior is developed by Frey and Schneider (1981), where the central bank along with the government and voters are assumed to maximize their own utility but are constrained by the economic and political environment.<sup>2</sup> The political constraint is modeled by a variable that measures the deficits in presidential popularity or by an electoral cycle variable that measures the length of time prior to an election. Fiscal and monetary policy reaction functions from such a model have been estimated by Frey and Schneider (1978), Ahmad (1983), and Schneider and Frey (1983). An electoral cycle variable is significant in the money supply equations reported by Ahmad and Schneider and Frey. Golden and Poterba (1980), however, report an insignificant electoral cycle coefficient in a real money supply function, while Beck (1982) employs the federal funds rate as the dependent variable in a reaction function and finds no evidence of a politically induced cycle in monetary policy prior to the 1972 election. Since the effect of an electoral cycle

upon Federal Reserve behavior is still open to debate, this paper tests a reaction function that includes the electoral cycle as a constraint upon Federal Reserve behavior.<sup>3</sup>

### 3. The Model

Assume that politicians wish to maximize a vote function ( $V_t$ ) composed of a vector of economic ( $E_{it}$ ) and political ( $P_{it}$ ) outcome variables:

$$V_t = f(P_{it}, E_{it}) \quad (1)$$

The vector of economic outcome variables could include the inflation rate, the unemployment rate, the growth of real GNP or real disposable personal income, the level of interest rates, and other endogenous variables. The vector of  $E_{it}$  is a function of policy variables such as the growth rate of the money supply ( $M_t$ ), the growth rate of government expenditures or the level of deficit spending ( $G_t$ ), and other variables ( $Z_{it}$ ) such that

$$E_{it} = g(M_t, G_t, Z_{it}) \quad (2)$$

The policy variables in (2) are not exogenous because policy in period  $t$  is dependent upon the current economic outcome variables,  $E_{it}$ . Furthermore, an approaching election may constrain the Federal Reserve from maximizing its own utility function and policy objectives given the incumbent president's attempt to maximize the vote function. Thus, Federal Reserve policy is modeled by the following reaction function:

$$DMB_t = \lambda_0 + \sum_{i=1}^5 \gamma_i DMB_{t-i} + \lambda_1 GAP + \lambda_2 U + \lambda_3 \dot{P}^e + \lambda_4 DEBT + \lambda_5 RS + \lambda_6 EV, \quad (3)$$

where  $DMB_t$  ( $DM_t$ ) is the first difference of the log of the monetary base (MO),  $GAP$  is potential real GNP minus actual real GNP divided by potential real GNP,  $U$  is the unemployment rate,  $\dot{P}^e$  is the expected inflation rate,  $DEBT$  is the change in net federal debt,  $RS$  is the three-month Treasury bill rate, and  $EV$  is the electoral cycle defined below.<sup>4</sup> The variables  $RS$ ,  $DEBT$ ,  $U$ , and  $\dot{P}^e$  are assumed to be endogenous, so that instrumental variables are employed.<sup>5</sup>

Equation (3) is a reduced form equation that assumes the Fed tries to minimize a quadratic loss function of relevant economic variables subject to the constraint that the incumbent president wants to maximize the vote function. The political constraint is modeled by the electoral cycle variable to recognize that the Federal Reserve may have to modify its policies as a result of the approaching election. For example, a president who wishes to exploit a short-run Phillips curve may want the Fed to increase money supply growth in the third and fourth years of the administration and decelerate monetary growth in the two years following the election. To capture this reaction, which is consistent with the evidence presented by Tufte and Weintraub, the  $EV$  variable could begin with a value of one for the first quarter after an election and increase in value to eight during the first two years to signify a monetary tightening. The variable could then decline to zero in the eight quarters up to the election to signify a monetary expansion as shown by  $EV1$  in Table I.

TABLE 1  
THE TEN ELECTORAL VARIABLES

EV1	1	2	3	4	5	6	7	8	7	6	5	4	3	2	1	0
2	1	2	3	4	5	6	7	8	9	10	11	12	9	6	3	0
3	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
4	2	3	4	5	6	7	8	9	10	11	12	13	14	7	0	1
5	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
6	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1
7	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1
8	1	1	1	1	0	0	0	1	1	1	1	1	0	0	0	1
9	1	1	1	1	1	0	0	1	1	1	1	1	1	0	0	1
10	1	2	3	4	3	2	1	0	1	2	3	4	3	2	1	0

The ten separate specifications of  $EV$  that were tested in equation (3) are shown in Table I.<sup>6</sup> A president who wants lower interest rates may prefer extra monetary accommodation in the quarters just prior to an election as shown by  $EV2$ , and 4 through 7.  $EV8$ , 9, and 10 represent both a two-year congressional cycle and a four-year presidential cycle.  $EV3$  assumes the Federal Reserve would increase its stimulus each quarter prior to the election over a four-year period and then immediately contract the money supply in the quarter following the election. The ten  $EV$  specifications obviously do not exhaust the possible constraints upon the Federal Reserve,

but they do test various timing and magnitude responses of the Fed to the political reality of an approaching election. The coefficient on at least one of these *EV* variables should be negative and significant to provide evidence that is consistent with an electoral cycle.

#### 4. Empirical Results

Equation (3) was estimated with both *DMB* and *DM* as the dependent variable for four separate time periods (1961.I-1973.IV, 1961.I-1980.IV, 1954.I-1973.IV, and 1954.I-1980.IV) and for each of the ten electoral variables.<sup>7</sup> The *EV* variable is never negative and significant for both dependent variables for the same time period.<sup>8</sup> Thus, there is no evidence of an electoral cycle when a reaction function is estimated by instrumental variables given the multitude of equations that were estimated.

The lack of consistent evidence of a significant electoral cycle coefficient in both the money supply and monetary base equations led to an investigation of whether the electoral cycle interacts with the debt variable. Equation (3) is respecified to include an electoral cycle/debt interaction term (*EVDEBT*), where *EVDEBT* is equal to *EV* times *DEBT* so that equation (4) is

$$DMB_t = \lambda_0 + \sum_{i=1}^5 \gamma_i DMB_{t-i} + \lambda_1 GAP + \lambda_2 U + \lambda_3 \dot{P}^e + \lambda_4 DEBT + \lambda_5 RS + \lambda_6 EVDEBT \quad (4)$$

where  $\lambda_6 < 0$  if the Federal Reserve's accommodation of the *DEBT* varies with the electoral cycle. The results of estimating equation (4) for the four time periods reveals that the *EVDEBT* coefficient is negative and significant in twenty-one of the eighty estimated equations. The results, however, show that for both dependent variables the *EV9DEBT* and *EVIODEBT* coefficients are negative and significant during 1954.I-1973.IV, the *EV9DEBT* coefficient is negative and significant during 1961.I-1973.IV, and the *EV2DEBT* and *EV4DEBT* coefficients are negative and significant during the 1954.I-1980.IV period. These results are reported in Table 2.

The *EV9* and *EV10* specifications represent a two-year electoral cycle. Extra accommodation occurs in the two quarters prior to (*EV9*) or in the year of (*EVI0*) every congressional election. The *EV2* and *EV4* specifications are similar in that each variable assumes that less accommodation occurs in the first three years after an election and then extra monetary accommodation occurs in the four quarters (*EV2*) or for the second and third quarters (*EV4*) of the election year. Thus, only the *EV4DEBT* results are reported in Table 2.<sup>9</sup>

TABLE 2  
EQUATION (5) (*t*-statistics in parentheses)

	$\alpha$	$\beta_1$	$\beta_2$	$\beta_3$	$\beta_4$	$\beta_5$	<i>GAP</i>	<i>U</i>	$\dot{P}^e$	<i>DEBT</i>	<i>RS</i>	<i>EVDEBT</i>	SEE	D-W
<i>1954. I-1973. IV</i>														
(2.1) <i>DMB EV9</i>	-0.01 (1.16)	0.25 (2.01)	-0.12 (0.92)	0.11 (0.83)	-0.01 (0.08)	0.23 (2.03)	-0.13 (1.53)	0.26 (1.33)	0.16 (0.67)	0.002 (2.81)	0.0002 (0.35)	-0.002 (2.02)	0.00428	1.95
(2.2) <i>DM EV9</i>	-0.02 (2.03)	0.27 (1.92)	-0.18 (1.28)	-0.21 (1.45)	-0.15 (1.10)	0.24 (1.96)	-0.26 (3.06)	0.47 (2.47)	0.55 (1.83)	0.003 (3.49)	-0.0006 (0.87)	-0.002 (2.50)	0.00488	2.11
(2.3) <i>DMB EV10</i>	0.00 (0.02)	0.33 (2.57)	-0.15 (1.06)	0.16 (1.20)	0.09 (0.63)	0.23 (1.96)	-0.04 (0.42)	0.02 (0.07)	-0.12 (0.45)	0.002 (2.58)	0.0003 (0.48)	-0.001 (1.82)	0.00443	1.97
(2.4) <i>DM EV10</i>	-0.01 (0.66)	0.25 (1.55)	-0.19 (1.15)	-0.21 (1.27)	-0.06 (0.41)	0.31 (2.21)	-0.19 (1.95)	0.23 (0.96)	0.14 (0.39)	0.004 (3.18)	-0.0002 (0.25)	-0.001 (2.44)	0.00554	1.87
<i>1961. I-1973. IV</i>														
(2.5) <i>DMB EV9</i>	-0.01 (0.60)	0.35 (2.52)	-0.23 (1.43)	-0.00 (0.01)	-0.11 (0.77)	0.33 (2.51)	-0.13 (1.78)	0.24 (1.34)	0.47 (1.94)	0.002 (3.26)	-0.0010 (1.28)	-0.001 (2.21)	0.00333	2.16
(2.6) <i>DM EV9</i>	0.01 (0.68)	0.39 (2.73)	-0.32 (2.09)	-0.00 (0.03)	-0.24 (1.65)	0.29 (2.21)	-0.11 (1.19)	0.07 (0.32)	1.25 (3.60)	0.002 (2.86)	-0.0035 (3.29)	-0.002 (2.21)	0.00448	2.01
<i>1961. I-1980. IV</i>														
(2.7) <i>DMB EV4</i>	0.01 (0.82)	0.36 (2.74)	-0.03 (0.18)	0.10 (0.69)	-0.09 (0.70)	0.26 (2.21)	-0.01 (0.10)	-0.04 (0.25)	0.15 (0.61)	0.0004 (2.21)	-0.0004 (0.69)	-0.00002 (2.04)	0.00364	1.96
(2.8) <i>DM EV4</i>	0.02 (1.41)	0.11 (0.82)	0.12 (0.80)	-0.01 (0.06)	-0.24 (1.35)	0.45 (2.64)	0.03 (0.24)	-0.26 (0.85)	0.36 (1.02)	0.0010 (2.99)	-0.0017 (1.91)	-0.00005 (2.46)	0.00680	2.10

These electoral cycles are consistent with a Federal Reserve that targets short-term interest rates and chooses to provide extra accommodation two to four quarters prior to the election. A negative coefficient for the *EVDEBT* variables signifies a positive impact upon the growth of the base or the money supply from an increase in the public debt held outstanding prior to an election. Furthermore, the debt coefficients are positive and significant in equations (2.1) through (2.8), which confirms that the growth of the monetary base and the money supply are positively related to the size of the change in the debt regardless of the electoral season. The debt coefficient of

0.002 in equations (2.1), (2.3), (2.5), and (2.6) suggests that for every one-billion-dollar increase in the debt the quarterly growth of the dependent variable will increase by 0.2 percent. Furthermore, the  $-0.002$  coefficient on *EV9DEBT* is interpreted to mean that every one-billion-dollar increase in the debt for the two quarters prior to an election is accommodated by an extra 0.2 percent increase in the dependent variable.<sup>10</sup> Therefore, the results provide evidence that is consistent with the observation that the Federal Reserve accommodates a portion of the change in total public debt outstanding quarterly and provides extra accommodation of the debt prior to each congressional election according to EV9 and EV10 and prior to the presidential election according to EV2 and EV4.

## 5. Summary

The purpose of this paper has been to test for the presence of an electoral cycle upon Federal Reserve behavior in a reaction function equation estimated by instrumental variables. Both the growth of the monetary base (*DMB*) and the growth of MI (*DM*) are tested as dependent variables for the 1954.I-1980.IV period and for three separate subperiods. When ten different specifications of an electoral cycle variable (*EV*) are included in these equations, there is not a single electoral cycle coefficient that is negative and significant for both dependent variables. Therefore, a second specification of the electoral cycle effect upon Federal Reserve behavior is tested via ten electoral cycle/debt interaction variables (*EVDEBT*). This specification tests the hypothesis that the Federal Reserve's willingness to accommodate the change in the outstanding public debt changes with the electoral cycle. The results provide evidence that the Federal Reserve not only accommodates Treasury borrowing regardless of the electoral season, but also provides extra accommodation prior to presidential and congressional elections.

## Notes:

<sup>1</sup> Frey and Schneider (1978) show that presidential popularity may be significantly related to inflation and the growth of nominal or real consumption and is significantly related to the unemployment rate. See Paldam (1981a) for a literature survey.

<sup>2</sup> See Frey (1978) for a survey of politico-economic models and Frey and Schneider (1978) for an application to fiscal policy. Cowart (1978) has shown that there is a political party influence upon Central Bank policy in several European countries.

<sup>3</sup> The reaction function developed in section 3 contains more economic variables (such as the change in the net federal debt) than are found in either Ahmad or Frey and Schneider, but does not contain such political variables as the popularity deficit, defined to be the popularity rating of a president below 58 percent. This variable is insignificant in the money supply reaction function presented by Schneider and Frey (1983) and is significant in Ahmad's model only if dummy variables for presidential terms are included.

<sup>4</sup> The reaction function is modified from Levy (1981).

<sup>5</sup> The instruments are the right-hand side variable, time, a four-period lag of the GAP and RS, a five-period lag of DEBT, the inflation rate, and U.

<sup>6</sup> EV1—EV6 were originally employed by McCallum (1978), who found the coefficients to be consistently insignificant in autoregressive and ARMA models of the seasonally adjusted and unadjusted unemployment rate over 1949-72. Additional studies that employ an electoral cycle variable are briefly discussed by Paldam (1981b, p. 297).

<sup>7</sup> No *EVDEBT* coefficients were negative and significant for both dependent variables when the 1981.1-1984.111 period is included. This is not surprising because the acceleration in monetary growth to 12.9 percent during 1982.111-1983.111 and the reduction of monetary growth to 7.1 percent during 1983.111-1984.11 and to 3.2 percent during 1984.11-1984.IV does not fit the pattern of *EV 1 to EV 10*. This is not to say that the monetary policy was not politically constrained or politically beneficial.

<sup>8</sup> No *EV* coefficients are negative and significant in the *DMB* equations except EV3 during 1961.1-1973.IV. For the *DM* equations, the *EV* coefficients are negative and significant during 1961.1-1973.IV for EV1 and EV4—EV6, during 1954.1-1973.IV and for EV4, and during 1961.1-1980.IV for *EV 1*.

<sup>9</sup> The size and significance of the *GAP*, *U*,  $\dot{P}^e$ , and *RS* coefficients are dependent upon the estimated period.

<sup>10</sup> The quarterly rate of growth of the base is 1.3 percent, 1.6 percent, 1.0 percent, and 1.4 percent and of the money supply is 1.1 percent, 1.3 percent, 0.9 percent, and 1.2 percent for 1954.1-1980.IV, 1961.1-1980.IV,

1954.1-1973.IV, and 1961.1-1973.IV, respectively. The quarterly change in the net federal debt in billions is \$4.6, \$6.2, \$1.4, and \$2.0, respectively.

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