

**Mobile Capital, Domestic Institutions, and Electorally-Induced
Monetary and Fiscal Policy**

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Abstract

The literature on global integration and national policy autonomy often ignores a central result from open economy macroeconomics - capital mobility constrains monetary policy when the exchange rate is fixed and fiscal policy when the exchange rate is flexible. Similarly, examinations of the electoral determinants of monetary and fiscal policy typically ignore international pressures altogether. We develop a formal model to analyze the interaction between fiscal and monetary policymakers under various exchange rate regimes and the degrees of central bank independence and test the model's implications using data from 19 OECD countries. We find evidence of pre-electoral monetary expansions only when the exchange rate is flexible and the degree of central bank independence is low; and pre-electoral fiscal expansions when the exchange rate is fixed. We conclude by exploring the implications of our findings for the conduct of fiscal policy after Economic and Monetary Union in Europe.

I. Introduction

Two literatures in political economy investigate the constraints imposed upon policymakers who determine macroeconomic policy. One school argues that domestic institutions influence both the character of the policy process and the outcomes produced. Rules that require more than a simple majority for a measure to pass, such as the unanimity requirement within the European Union's Council of Ministers on many issues, or an increase in the number of institutional veto players, make change in policy difficult (Garrett and Tsebelis 1996; Tsebelis 1995). Particular combinations of labor market institutions and the partisan composition of government have been linked to macroeconomic performance (Alvarez, Garrett, and Lange 1991). Voters are less likely to punish incumbents for poor macroeconomic performance when responsibility over outcomes is blurred by factors such as minority or coalition government (Powell and Whitten 1993). For similar reasons, governments in majoritarian systems find it more difficult to maintain fixed exchange rates (Bernhard and Leblang 1997). Central bank independence has been associated with price stability, higher real interest rates, lower variability in real interest rates, higher growth, higher levels of investment real output per worker (Alesina & Summers 1993; Cukierman, Webb, & Neyapti 1992; Cukierman, Kalaitzidakis, Summers and Webb 1993, De Long and Summers 1992; Cukierman & Webb 1994), and a propensity to put external adjustment before internal adjustment (Simmons 1996.) More recently, studies by a number of political scientists suggest that the effect of central bank independence on macroeconomic outcomes is dependent upon the structure of labor market institutions (Garrett & Way 1995; Hall 1994; Franzese and Hall 1998; Iverson 1998). The common theme in this diverse literature is that institutions, in whatever form, alter the dynamics of the policymaking process and influence the outcomes produced.

A second school explores whether the international environment in which states find themselves limits their freedom of action (Andrews 1994; Cerny 1994; Kurzer 1993; Moses 1994; Notermans 1993; Pauley 1995; Wallerstein and Przeworski 1995; Webb 1995). Some analysts maintain that increased "globalization" means that governments must be more sensitive to the demands of fickle markets. Capital will flee states that levy higher taxes on businesses and provide more generous social benefits to labor in favor of states with lower tax burdens. States compete for mobile capital by lowering their tax burdens and making deep cuts to their welfare states, and over time this competition will lead to the end of the European social democratic model in favor of the Anglo-American liberal model (Sinn 1992; Cerny 1994; Strange 1996). Others, while recognizing greater capital market and trade integration worldwide, disagree with the "globalists" about the consequences of these changes. They argue that states retain considerable room for maneuver in more open economies, and in fact, governments may respond to the risks of international openness by *expanding* the use of compensatory measures (Garrett 1995; Rodrik 1997).

These two literatures are not necessarily mutually exclusive. A third group of authors

examines the interaction between the two schools and considers how institutions refract changes in the international system. Domestic political institutions can insulate policymakers from systemic changes, or they can, conversely, leave policymakers more exposed (Garrett and Lange 1995). Increasing numbers of domestic veto players can also inhibit states from adjusting their policies to changes in their competitors' positions (Hallerberg and Basinger 1998). The general conclusion is that greater internationalization does not translate frictionlessly into policy change.

Following this last group of authors, this paper examines how the interaction of the international environment with domestic political institutions constrains a government's ability to engineer pre-electoral macroeconomic expansions. It has long been argued that incumbent politicians who want to win the next election may manipulate economic tools as their disposal in an attempt to satisfy the electorate enough so that they are re-elected (Nordhaus 1975; MacRae 1977; Tufte 1978; Keech 1995, Chap. 3). Clark and Reichert (1998), in a first attempt to combine institutional and systemic approaches to political business cycles (PBCs), find that such cycles are almost entirely absent in states with independent central banks. They also find that opportunistic cycles are not likely to occur when capital is mobile and the exchange rate is fixed.

One aspect of this finding is curious, however. While there are good reasons to expect the identified constraints to make it difficult to use monetary policy for electoral purposes, there is no *a priori* reason to expect fiscal policy to be constrained under such circumstances. Even when a central bank has complete control over monetary policy, the government can still attempt to affect macroeconomic outcomes through cuts in taxes or increases in expenditures. Similarly, while monetary policy may be constrained when exchange rates are fixed and capital is mobile, incumbents are free to use fiscal policy to create pre-electoral expansions. The temptation to use these instruments before upcoming elections to win over undecided voters may be especially high--discussions of and attempts to reduce taxes in particular often seem to dominate election campaigns.

While open economy models have often privileged monetary policy over fiscal policy, the literature on the domestic determinants of fiscal policy tends to ignore the international environment in which policy is made. This may be one reason why these studies have produced inconclusive results—while Franzese (1996) finds that independent central banks do reduce the size of deficits, several others have not confirmed the relationship (Grilli, Masciandaro, and Tabellini 1991; Pollard 1993; DeHaan and Sturm 1994a [the latter two as quoted in Eijffinger and DeHaan 1996].) The Mundell-Fleming model indicates that governments can, at best, pursue only two of the following three: capital mobility, fixed exchange rates, and independent monetary policy.¹ The absence or

¹ Discussion of the Mundell-Fleming framework can be found in any open-economy macroeconomics text. The foundational works are Fleming (1962) and Mundell (1963). Frieden (1991) and Cohen (1993) are important extensions of the framework into political economy. The Mundell-Fleming model has been criticized for lacking adequate microfoundations, but attempts to construct a model of policy interdependence with better microfoundations (Dornbusch 1976; Obstfeld and Rogoff 1996, and Corsetti and Pesenti 1997) have produced positive conclusions broadly consistent with the standard model. At any rate the standard model has guided policy for the last thirty years.

presence of each of these conditions affects the nature of the game between a government, which we assume wants to use fiscal and monetary instruments to stimulate the economy shortly before elections, and a central banker, who, so long as she is independent from the government, is immune from such electoral pressures. In particular, an independent central bank may be able to prevent opportunistic business cycles when it has autonomy over monetary policy, which will be the case so long as capital is immobile, as it generally was in the industrialized world in the 1960's, or so long as flexible exchange rates are present, as has been the case in several countries after the collapse of the Bretton Woods system. When both capital is mobile and exchange rates are fixed, however, monetary policy is ineffective, and a central bank, independent or not, cannot prevent fiscal expansions. These different expectations based on the Mundell-Fleming conditions may explain why the empirical evidence so far has been mixed.

The paper is organized in the following manner. To sort out the effects of elections, central bank independence, capital mobility, and exchange rate regime on the strategic interaction between fiscal and monetary policymakers, we develop a game theoretic model of the interaction between the government and an independent central bank in section II. We begin our analysis in a "closed" economy where capital is not mobile and exchange rates are fixed and find that central bank independence is important in preventing opportunistic monetary cycles, but that it may even exacerbate the size of fiscal cycles. We then expand the model to consider how different Mundell-Fleming conditions affect the game between the two players. In cases where exchange rates are fixed and capital is mobile, the international environment restrains governments from pursuing opportunistic monetary policies, but states are expected to engineer pre-electoral fiscal expansions. Once again, the independence of the central bank plays no role in the presence or absence of fiscal cycles. Section III examines the predictions of the model with quarterly data from OECD and countries from 1973 to 1989 for the monetary policy and annual data from OECD and European Union sources from 1982 to 1992 for fiscal policy. These results largely confirm the theoretical models—central bank independence is most important in preventing monetary cycles under flexible exchange rate regimes where capital is mobile. Section IV argues that because pre-electoral fiscal expansions are prevalent under fixed exchange rate regimes and mobile capital, political fiscal cycles are likely to become more frequent and more worrisome under the fixed exchange rate regimes as part of Economic and Monetary Union in Europe. Section V concludes.

II. The Model

a. Assumptions

i. Domestic Institutions

“Government” broadly construed can use some combination of monetary and fiscal policy to affect its economy. Monetary policy consists of the aiming of policy instruments (the discount rate, purchase and sale of government securities and foreign currencies) at policy targets (such as interest rates, the money supply, and exchange rates) in an attempt to produce desired macroeconomic outcomes (growth, price and exchange rate stability, and/or stable balance of payments). In all cases it is the central bank (CB), and not elected politicians, that ultimately sets the policy instruments. This is not to say that elected officials are irrelevant to the conduct of monetary policy. The extent to which the central bank is obliged to pursue targets chosen, or goals preferred, by elected officials varies from country to country and across time. Central banks in Germany and the United States, for example, have considerable latitude both in selecting instruments and in choosing targets and goals, while the British and Norwegian banks have traditionally had much less freedom of action. While a high degree of autonomy is supported by statute and tradition, one should not forget that even the Federal Reserve and the Bundesbank are *relatively* autonomous. Central bankers are appointed by elected officials and, to the extent that they enjoy autonomy, it is an autonomy that is granted (and potentially taken away) by elected officials.²

Fiscal policy consists of the manipulation of taxation and expenditures in an attempt to produce desired macroeconomic outcomes. This task is accomplished primarily through the taxing and spending powers of the central government. While elected officials exercise direct influence over the fiscal process, they rely upon the finance ministry for crucial information, analysis, and day-to-day implementation. Nevertheless, we adopt the simplifying assumption that the Minister of Finance is the dutiful agent of the government. In addition to having separate responsibilities and information, there is reason to believe that there are differences between the Central Bank and the Minister of Finance in the way they evaluate alternative macroeconomic outcomes. In this paper we adopt the standard political business cycle assumption that elected officials derive sufficient benefits from electorally timed increases in growth and employment that they heavily discount the negative impact such behavior may have on inflation rates. Much of the literature on central banks argues that decision-makers in these institutions tend to be more inflation averse than their principals and, therefore, are likely to discount the value of such electorally induced expansions.³

²This possibility creates the opportunity for conflicts between governments and even the most independent of central banks. See Berger and Thum (1997) for an analysis of such conflicts and Berger and Schneider (1998) for evidence that such conflicts occur in Germany.

³The same situation may also be true for Ministers of Finance, who generally have greater concern with the general

We represent actor preferences over macroeconomic outcomes with the following quadratic loss function that describes the way actors assess deviations from their ideal values for unemployment and inflation:

$$L_i = (y_t - y_t^{*i})^2 + \alpha_i (\pi_t - \pi_t^{*i})^2 \quad (1)$$

where π and y are inflation and output, π^* and y^* the actor's ideal points, α_i is the weight that the actor attaches to inflation stabilization relative to achieving his or her output goals, and i and t index the actors and periods. Deviations from ideal points are squared to capture the intuition that small deviations from ideal points result in a proportionately smaller utility loss than large ones.

Differences between and among actors in their preferences for macroeconomic outcomes can be captured by varying assumptions about particular parameters in the model. We emphasize differences between the government and the central bank concerning their assessment of the ideal rate of growth, and we therefore assume that actors share an ideal point of zero inflation.⁴ In addition, both central bankers and governments would like to stabilize the economy at the natural rate of growth, that is, the rate of growth that is consistent with price stability. The opportunistic political business cycle argument, however, suggests that incumbents will be tempted to try to push output above the natural rate just prior to elections in an effort to increase electoral support before inflationary consequences are felt. Thus, elections induce a change in preferences such that

$$y^{*gov} = k_t^{gov} y^n \quad (2)$$

where y^n is the natural rate of growth and k is a coefficient that equals 1 during non-electoral periods and is greater than 1 in electoral periods.⁵ In the absence of central bank independence, these inflationary pressures are transmitted to the central bank through rewards and punishments it has at its disposal. The degree of central bank independence can be thought of as insulation from these rewards and punishments, the point of which is to induce a change in the behavior of the central banker so that she acts "as if" she were minimizing the government's electorally induced loss function.⁶ For the sake of simplicity, we will assume that central banks are either independent or they are not. If they are independent, they will pursue their autonomous growth preferences

$$y^{*ICB} = k_t^{ICB} y^n, \quad k = 1, \quad (3)$$

during electoral and non-electoral periods. If the central bank is not independent, it defines the ideal growth rate as the government does in the electoral period:

health of the economy than other ministers (Hallerberg and von Hagen 1998).

⁴Two ways of capturing cross actor differences appearing in the literature can be found in the literature. Actors may differ in their ideal points for inflation and output (π^*_{i1} π^*_{i2} and y^*_{i1} y^*_{i2}), (Svensson 1995) or they may differ in the relative importance they place on inflation stabilization (α_i α_i)(Rogoff 1985; Lohmann 1992).

⁵If one is uncomfortable with deriving explanatory power through arbitrary assumptions about changing preferences (and Stigler and Becker (1977) provide good reasons why one would be) the current set up can be motivated by the assumption that the government is engaged in strategic behavior - it is acting "as if" it were minimizing a loss function where $k > 1$ in pre-electoral periods in order to maximize its utility in the game it is playing with voters.

⁶Note, this is the flip side of the logic employed by Alan Blinder (1997), who recommends that politicians instruct the central bank to act "as if" their ideal point were the natural rate of growth.

$$y_t^{*CB} = y_t^{*gov} = k_t^{CB} y_t^n = k_t^{gov} y_t^n \quad \begin{matrix} k > 1 \text{ if } t = E \\ k = 1 \text{ otherwise} \end{matrix} \quad (4)$$

The government and central bank both effect changes in macroeconomic outcomes through the manipulation of a short-term, expectations enhanced Phillips curve:

$$y_t = y_t^n + \mu(\pi_t - \pi_t^e) + g \quad (5)$$

where π_t is the rate of inflation expected to prevail at time t embodied in sticky contracts signed at time $t-1$, g is net government spending, and μ and α are coefficients that characterize the effectiveness of fiscal and monetary policy transmission. The central bank is assumed to control inflation directly,⁷ while the government controls spending.

ii. The International Environment

Based on the standard Mundell-Fleming model, the effectiveness with which a government or central bank can manipulate these instruments depends upon the level of capital mobility as well as the exchange rate regime. The Mundell-Fleming model indicates that both instruments are somewhat effective when there is no capital mobility. When capital becomes mobile, however, fiscal policy is effective only when exchange rates are fixed, while monetary policy is effective only when exchange rates are flexible (Mundell 1963; Dornbusch 1976; Branson and Buiters 1983).⁸

Our model captures the salient aspects of the international environment in the following ways. If capital is fully mobile and exchange rates are fixed, monetary policy is assumed to be ineffective and fiscal policy is assumed to be hyper-effective (standardized here so that $\mu = 0$ and $\alpha = 1$). When capital is fully mobile and exchange rates are not fixed, fiscal policy is ineffective and monetary policy is hyper-effective ($\mu = 1$ and $\alpha = 0$). When capital is immobile, fiscal and monetary policy are only partially effective ($0 < \mu < 1, 0 < \alpha < 1$).⁹

iii. Order of Play

At the start of the game, the players learn about the structure of the game, that is, they learn if it is an electoral period; if the central bank is independent; if capital is mobile; and if the exchange

⁷This is merely a short-hand way of saying they manipulate the money supply and/or short-term interest rates in an attempt to effect changes in inflation.

⁸ The reasoning goes like this - fiscal expansion (or any other increase in autonomous expenditure) is expected to lead to an increase in both income and interest rates. If capital is mobile the rise in interest rates attracts an inflow of capital which leads to a currency appreciation. If the exchange rate is fixed, the central bank has to expand the money supply to off-set the effects of the capital inflow on the exchange rate. Thus, under fixed exchange rates and mobile capital, a fiscal expansion induces a reinforcing monetary expansion. Dooley (1996), in his review of the literature on controls, advocates their removal in some cases to make fiscal policy a better stabilization instrument.

⁹These stark conclusions are drawn from a version of the Mundell-Fleming model in which prices are fixed, capital is fully mobile and the short-term effects of policy are ignored. More measured and realistic conclusions are produced by relaxing these strong assumptions. The stark conclusions are useful as a starting point for empirical analysis.

rate is fixed. After learning this information, the government chooses the level of net government spending by passing a budget. The central bank observes the budget and then chooses the rate of inflation by deciding whether or not to raise or lower interest rates, or expand or contract the money supply.

b. Equilibria

We will solve the game for electoral and non-electoral periods under alternative assumptions about the independence of the central bank. We first address the closed economy case, then consider the conditional effects of capital flows.

Proposition 1. In general, the government adopts a budget (g) with net spending equal to:

$$g = \frac{1}{\mu + \bar{p}} [y^n(k-1) - \mu(\pi_t - \pi_t^e)] \quad (6)$$

and the central bank responds by setting inflation (π_t), such that

$$\pi_t = \frac{1}{\mu + \bar{p}} [\mu \pi_t^e + y^n(k-1) - g] \quad (7)$$

Proof: See Appendix 1.

Proposition 1 can be used to derive predictions about central bank and government behavior under different sets of (ideal typical) structural conditions. Specifically, we consider the effects of elections on government and bank behavior and examine whether this effect is modified in important ways by the existence of central bank independence and the satisfaction of Mundell-Fleming conditions for national policy autonomy. To establish a base line, we first discuss the strategic interaction between the government and the central bank in a hypothetical closed economy. We will then consider the effects of different exchange rate regimes in the context of fully mobile capital.

i. Strategic Interaction under Imperfectly Mobile Capital

Recall that in a closed economy, both fiscal and monetary policy are assumed to have some effect on output ($0 < \mu < 1$, $0 < \bar{p} < 1$). In the absence of central bank independence, both fiscal and monetary actors feel pressure to push output above the natural rate ($k > 1$) during electoral periods. Under these circumstances, both actors' reaction functions are as described in proposition 1. The government anticipates the central bank's response and incorporates it into its budget, setting net government spending so that $g = \frac{1}{\mu + \bar{p}} [y^n(k-1) + \mu \pi_t^e]$. The central bank observes the level of spending chosen by the government and responds so that $\pi_t = 0$. Since $k=1$ for both actors during non-electoral periods, the closed economy non-electoral equilibrium is $g = \mu \pi_t^e$ and $\pi_t = 0$.

When the central bank is independent (7) is reduced to $\pi_t = \frac{1}{\mu + \bar{p}} [\mu \pi_t^e - g]$ during electoral periods. The government anticipates this and adopts a budget with $g = \frac{1}{\mu + \bar{p}} [\mu (\frac{\mu + \bar{p}}{\mu}) y^n(k^G - 1) + \pi_t^e]$ and the central bank responds by setting inflation to $\pi_t = -\frac{1}{\mu + \bar{p}} [\mu (\frac{\mu + \bar{p}}{\mu}) y^n(k^G - 1)]$. Once again, the absence of elections implies that $k=1$, so the non-electoral equilibrium with an independent central bank is $g = \frac{1}{\mu + \bar{p}} \mu \pi_t^e$ and $\pi_t = 0$. Which is the same as the non-electoral period with a dependent

central bank. Table 1 summarizes the model's implications for fiscal and monetary policy under several sets of alternative structural conditions.

A number of interesting implications can be drawn from the closed economy equilibrium. First, note that when the central bank is under the influence of the government it sets inflation equal to zero in both electoral and non-electoral periods and allows the government to pursue its electoral goals unimpeded. This particular solution to the "assignment" problem is fairly arbitrary and is the result of the way our model is constructed. It is also possible to construct models in which the government "gets out of the way" and lets a subservient central banker achieve its electoral goals through interventionist monetary policy or where the government and bank coordinate their actions around whatever policy mix is optimal given the relative effectiveness of fiscal and monetary instruments. What is significant, however, is that when the bank is subservient, the government's goals are pursued *as if* policy were made by one actor with two goals and two instruments.¹⁰

The policy dynamic is starkly different, however, when the central bank is independent. Now the bank initiates a monetary contraction during electoral periods in order to offset the government's electorally induced fiscal expansion. The size of the electorally induced fiscal expansion is increasing in the effectiveness of monetary policy and decreasing in the weight policymakers assign to price stabilization compared to growth targets. To understand why, it is useful to think of the effectiveness of monetary policy (μ) as the "price" (in terms of inflation) that the policymakers pay for an additional increment of output (see (5) above). Consequently, an independent central bank would be more willing to use contractionary measures to discipline the government when monetary policy is effective than when it is not. Since the government anticipates a more aggressive stance by the central bank when monetary policy is effective, it counters with a more expansionary policy than it would otherwise adopt.¹¹ When monetary policy is relatively ineffective, the government can not count on a large off-setting monetary contraction and so, it restrains its expansionary impulse. Since fiscal expansions are decreasing in the weight policymakers place on price stabilization (α), the net effect of central bank independence on the electorally induced fiscal expansion depends on the relationship between these two parameters. Specifically, if (μ^2/α) is greater than 1, pre-electoral fiscal expansions are larger when the central bank is independent than when it is not.

¹⁰To be specific, the particular solution to the assignment problem arrived at here is a result of the fact that inflation is not tied directly to the size of the budget in our Phillips curve set up. While this would have added a bit of realism to the model it would have complicated the model while adding little to the substance of our conclusions.

¹¹Using a similar model, Berger (1997a) argues that the West German government exploited just such a position as a Stackleberg leader during the 1950s. The combination of a closed economy and a conservative central bank left the government with the large budgets that it wanted, while forcing the Bundesbank to fight inflation through monetary policy. The only way for the Bundesbank to escape this trap was to find a credible external commitment device in the return to convertibility in the context of the Bretton Woods pegged exchange rate system (Berger 1997b).

Table 1 Summary of Implications

	Central Bank Election Independence?		No Election	Electoral induced policy change
Closed Economy	No	$g = \frac{1}{t} [y^n (k - 1) + \mu^e]$ $t = 0$	$g = \frac{1}{t} \mu^e$ $t = 0$	$\frac{1}{t} y^n (k - 1)$ 0
	Yes	$g = \frac{1}{t} [(\mu^2 + \mu) y^n (k^G - 1) + \mu^e]$ $t = -\frac{1}{\mu + p} [(\mu^2 + \mu) y^n (k^G - 1)]$	$g = \frac{1}{t} \mu^e$ $t = 0$	$\frac{1}{t} [(\mu^2 + \mu) y^n (k - 1)]$ $-\frac{1}{\mu + p} [(\mu^2 + \mu) y^n (k - 1)]$
Fixed Rates & Mobile Capital	No	$g = y^n (k - 1)$ $t = 0$	$g = 0$ $t = 0$	$y^n (k - 1)$ 0
	Yes	$g = y^n (k - 1)$ $t = 0$	$g = 0$ $t = 0$	$y^n (k - 1)$ 0
Flexible Rates & Mobile Capital	No	$g = 0$ $t = \frac{1}{1+} \left(\frac{e}{t} + y^n (k - 1) \right)$	$g = 0$ $t = \frac{1}{1+} \frac{e}{t}$	0 $\frac{1}{1+} y^n (k - 1)$
	Yes	$g = 0$ $t = \frac{1}{1+} \frac{e}{t}$	$g = 0$ $t = \frac{1}{1+} \frac{e}{t}$	0 0

Equilibrium behavior under imperfectly mobile capital also suggests that the size of the budget is always decreasing in the effectiveness of fiscal policy (). As fiscal policy becomes less effective, the levers of policy have to be moved further in order to hit any given set of targets. This result has profound implications for empirical attempts to gauge the effect of increased capital mobility on the use of fiscal instruments. Garrett (1995) and Garrett and Mitchell (1998), for example, argue that increased global financial integration has not reduced the effectiveness of fiscal interventions aimed at shielding domestic populations from the vagaries of the international economy (Katzenstein 1985). In fact, Garrett argues, there is evidence of increased activism - presumably the result of governments responding to the increased risks posed by globalization (see also Rodrik 1997). Our model suggests that evidence of “increased fiscal activism” may be as much a sign of growing policy ineffectiveness as it is continued support for the “compensatory hypothesis.”

While the results of the model under imperfectly mobile capital are sufficiently provocative to warrant further attention in future research, our concern in this paper is with how the international environment, and more specifically how capital mobility, constrains policy-makers. We will now turn our attention to the sharper conclusions of the model given the assumption that capital is fully mobile.

ii. Fixed Exchange Rates and Fully Mobile Capital

According to the Mundell-Fleming approach to balance of payments, national monetary policy is ineffective when exchange rates are fixed and capital is fully mobile, but fiscal policy increases in effectiveness under these conditions. We have standardized the parameters of monetary and fiscal policy effectiveness so that when these conditions are met, $\mu = 0$ and $\alpha = 1$. To deduce the behavior of the government and the central bank, we need only substitute these values into the reaction functions given in proposition 1 and solve for Stackelberg equilibria as in the case of imperfectly mobile capital above. When exchange rates are fixed, capital is fully mobile and the central bank is dependent, the government’s reaction function during an electoral period is simply $g = y''(k - 1)$ and the central bank’s is $\pi_t = 0$. During non-electoral periods the government’s reaction function reduces to $g = 0$ and the central bank continues to adopt a policy of zero inflation.

This result has an important implication for our consideration of the interaction between the international environment and the given central bank. Since the central bank does not have effective control over domestic monetary policy when the exchange rate is fixed, it no longer conditions its behavior on the behavior of the government. In light of this, it is not surprising that a change to an independent central bank ($k^{CB=0}$) has no effect on the behavior of either actor.

iii. Flexible rates and fully mobile capital.

The situation is markedly different under flexible exchange rates. Here, the Mundell-

Fleming model tells us that fiscal policy is ineffective while monetary policy has increased effectiveness ($\mu = 1$ and $\beta = 0$). If we insert these values into the government's loss function the first-order condition becomes

$$\frac{L^{gov}}{g} = 0 \quad (8)$$

Thus, the ineffectiveness of fiscal policy leads the government to adopt a “neutral” fiscal position.

Consequently, the central bank pursues its best policy given zero net government spending. During non-electoral periods the bank sets inflation in response to inflationary expectations ($\pi_t = \frac{1}{1+\beta} \pi_t^e$). Inflation is set at a higher level during electoral periods if there is a dependent central bank ($\pi_t = \frac{1}{1+\beta} (\pi_t^e + y^n(k-1))$), but not otherwise ($\pi_t = \frac{1}{1+\beta} \pi_t^e$ for both electoral and non-electoral periods if the bank is independent.)

c. Implications of the model for fiscal and monetary cycles

We can deduce hypotheses about the existence of electorally motivated fiscal or monetary cycles by comparing equilibrium behavior during electoral periods with non-electoral periods under specific structural conditions. The differences in policy between electoral and non-electoral periods under different structural conditions is reported in the right column of Table 1. Clearly, net government spending will be higher in electoral periods than in non-electoral when substantial barriers to capital mobility exist. This is true both when the central bank is independent and when it is not. Similarly net government spending is expected to increase in electoral periods when capital is mobile and exchange rates are fixed (though the increase is likely to be greater than was the case under the closed economy). In contrast, no fiscal expansion is expected to occur when capital is mobile and exchange rates are allowed to float. The implication of the model is that central bank independence is not important in determining the absence or presence of fiscal cycles when capital is fully mobile.

Unlike fiscal policy, the existence of electorally induced monetary cycles is very sensitive to both the degree of central bank independence and nature and degree of integration with the international economy. If the central bank is independent, inflation is expected to be *lower* in electoral periods. Thus, we expect electorally induced monetary contractions if the central bank is independent and monetary expansions if it is not.

When capital is mobile, the effect of elections on monetary policy is conditioned by both the degree of independence and the nature of the exchange rate regime. Elections are expected to induce monetary expansions only when the exchange rate is allowed to fluctuate and the level of central bank independence is low. Otherwise, monetary policy is expected to be free from electoral pressures when capital is fully mobile.

III. A Test of the Model's Implications for Monetary and Fiscal Cycles Under Full Capital Mobility

The standard method for testing opportunistic political business cycle arguments has been to examine the relationship between various macroeconomic outcomes (such as growth, unemployment, and inflation) and the occurrence of elections. Given the focus here on the strategic interaction between fiscal and monetary policy-makers, we examine the instruments that the respective agents are presumed to control. In the theoretical discussion above we maintained the fiction that the central bank controlled the rate of inflation directly, here we will make the more realistic assumption that the central bank controls the money supply. The government is assumed to control the size of the government surplus (or deficit).

The model put forth in the first part of this paper suggests that the relationship between elections and policy instruments depends upon the degree of capital mobility, the exchange rate regime, and the degree of independence enjoyed by the central bank. While we model the strategic interaction of monetary and fiscal actors under the hypothetical case of a closed economy to provide an analytical baseline, we will test propositions derived under the assumption of fully mobile capital. Following Clark and Reichert (1998) we presume that capital was highly mobile at the time of the collapse of Bretton Woods. Consequently, we will concentrate our empirical examination on observations from 1973-1995. This allows us to treat capital mobility as essentially constant and examine the effects of exchange rate regimes and central bank independence on the existence of monetary and fiscal cycles. This coding has limitations, but it does follow a tradition in the measurement of capital mobility that treats the existence of mobility as a system-wide, rather than a country by country, variable (Andrews 1991; Frieden 1991; Kurzer 1993; Webb 1995; Hallerberg and Clark 1997; McNamara 1998). Again following Clark and Reichert (1998), we use a dummy variable interaction model to examine the modifying effects of fixed exchange rates and central banking institutions. We used Clark and Reichert's codings of participation in fixed exchange rate regimes as well as their dummy variable for central bank independence, updating where necessary.¹² The standard test for political business cycles employs a multivariate regression model aimed at isolating the relationship between elections and macroeconomic variables. We will examine two sets of models to evaluate hypotheses related to budgetary and monetary cycles.

a. Monetary Cycles

Our theoretical discussion suggests that the existence of monetary cycles is likely to be sensitive to the environment in which policy makers find themselves. We will test this argument using

¹²Clark and Reichert based their codings of exchange rate restrictions on Coffey 1984; IMF, *International Financial Statistics* various years; and OECD 1985. Their dummy variable for central bank independence equals 1 when the Cukierman, Webb, and Neyapti score for legal independence is above the median. See Cukierman, Webb, and Neyapti 1992 for an extensive discussion of the construction of this measure.

a pooled cross-sectional time series model that extends the empirical work of Alesina and Roubini (1997).¹³ They test for monetary cycles using the following equation:

$$m_{it} = \alpha_0 + \alpha_1 m_{it-1} + \alpha_2 m_{it-2} + \dots + \alpha_n m_{it-n} + \alpha_{n+1} PBCN_{it} + \epsilon_t \quad (9)$$

where m_{it} is the rate of growth of money for country i at time t , and $PBCN$ is an electoral dummy variable which equals 1 during electoral quarters and in either (depending on the specific test) the three or five quarters before the election. Following Clark and Reichert (1998), we will employ a dummy variable interaction version of this same equation to capture the context specific effects of our model:

$$m_t = \alpha_0 + \alpha_1 E_t + \alpha_2 Cbi + \alpha_3 Fixed_t + \alpha_4 E \cdot Cbi_t + \alpha_5 E \cdot Fixed_t + \alpha_6 CBI \cdot Fixed_t + \alpha_7 E \cdot CBI \cdot Fixed_t + (\sum_j \alpha_j m_{t-j}) + e_t \quad (10)$$

This specification allows us to test the specific hypotheses drawn from our model by calculating the conditional coefficients for each relevant institutional combination. For example, the conditional coefficient for the effect of elections on the money supply when exchange rates are fixed and central bank independence is high can be determined by substituting the appropriate values of the institutional variables into equation 10:

$$m_t = \alpha_0 + \alpha_1 E_t + \alpha_2(1) + \alpha_3(1) + \alpha_4(E \cdot (1)) + \alpha_5(E \cdot (1)) + \alpha_6(1) + \alpha_7(E \cdot (1) \cdot (1)) + (\sum_j \alpha_j m_{t-j}) + e_t \quad (11)$$

which simplifies to

$$m_t = \alpha_0 + \alpha_1 E_t + \alpha_2 + \alpha_3 + \alpha_4 E + \alpha_5 E + \alpha_6 + \alpha_7 E + (\sum_j \alpha_j m_{t-j}) + e_t \quad (12)$$

and then comparing the electoral ($E=1$) and non-electoral periods ($E=0$) given the presence of both constraints. Specifically, our model predicts that change in the money supply should be greater during electoral periods (left side (13)) than non-electoral (right side (13)) periods:

$$\alpha_1(1) + \alpha_2 + \alpha_3 + \alpha_4(1) + \alpha_5(1) + \alpha_6 + \alpha_7(1) > \alpha_1(0) + \alpha_2 + \alpha_3 + \alpha_4(0) + \alpha_5(0) + \alpha_6 + \alpha_7(0) \quad (13)$$

which simplifies to $\alpha_1 + \alpha_4 + \alpha_5 + \alpha_7 > 0$. By analogous reasoning, a finding that $\alpha_1 + \alpha_5 > 0$ or $\alpha_1 + \alpha_4 > 0$ would lend support to the existence of electorally induced monetary expansions under dependent central banks with fixed exchange rates and independent central banks with floating exchange rates, respectively. The test for monetary cycles when the exchange rate floats and the central bank is not independent is simply $\alpha_1 > 0$.

Table 2 reports the pooled cross-sectional time series results for two models. Both models include country dummies to control for country specific fixed effects and a single lagged dependent variable to control for autocorrelation. Since the coefficients on the lagged dependent variables are several standard errors away from one, we are confident that unit root and cointegration problems do not exist. Standard errors were calculated using White's (1980) heteroskedasticity-consistent method.

¹³Quarterly and annual data from N OECD countries are used to evaluate the hypotheses summarized above. See data appendix for sources of data and descriptions of indicators.

Table 2 *The conditional effects of elections on the money supply in the post-Bretton Woods Era*

	(1) $m =$ $m1_t / (m1_t - m1_{t-4})$	(2) $m =$ $\text{Log}(MI + \text{Quasi-money})$
Intercept	1.0619 (0.4628)	0.0683*** (0.0082)
<i>Election</i>	1.0704** (0.6363)	0.0041** (0.0020)
<i>Cbi</i>	0.3510 (0.4494)	0.0055 (0.0058)
<i>Fixed</i>	-1.6495* (0.9360)	-0.0082** (0.0034)
<i>Election*Cbi</i>	-1.1886* (0.7655)	-0.0010 (0.0031)
<i>Election*Fixed</i>	-0.2115 (0.7347)	-0.0027 (0.0033)
<i>Cbi*Fixed</i>	2.1879* (1.0710)	0.0226*** (0.0049)
<i>Election*Cbi*Fixed</i>	1.1954 (1.0850)	0.0025 (0.0060)
$m(-1)$	0.7972*** (0.0377)	0.9933*** (0.0012)
$Dnunemp(-1)$		-5.80E-05 (6.60E-05)
$Inflyear(-1)$		-0.0847** (0.0450)
	R2	0.769
	N	928
		0.999
		1148

*** p<.01, ** p<.05, * p<.10; one-tailed test used for coefficients involving test, two-tailed otherwise.

Coefficients and heteroskedasticity-consistent standard errors (in parentheses); *MI* does not pass Breusch-Godfrey Lagrange Multiplier test for serial correlation.

Following Alesina and Roubini (1997), model 1 uses the annual rate of change in *MI* as an indicator of change in the money supply. Unfortunately, after experimenting with various lag structures we were unable to reject the hypothesis of serial correlation.¹⁴ Model 2 uses the natural log of a monetary aggregate that includes *MI* and quasi-money as the dependent variable.¹⁵ Unlike Alesina

¹⁴The Breusch-Godfrey Lagrange Multiplier test was used for this purpose.

¹⁵Use of the broader monetary aggregate allowed us to include a wider set of countries in our analysis than would have been possible for *MI* alone. Results for the smaller sample using *MI* were qualitatively similar.

and Roubini, we control for macroeconomic conditions that are expected to influence monetary policy. Specifically, monetary policy is expected to respond in a counter-cyclical manner to increased unemployment and inflation with a one period lag.¹⁶

Note first, that the results between the two models are qualitatively similar. Since model 2 allowed us to reject the hypothesis that serial autocorrelation exists, we will focus our discussion of results on it. Recall that our model suggested that electorally induced monetary expansions should occur if and only if the central bank is not independent and the exchange rate is not fixed. The statistically significant positive coefficient for *Election* is evidence that monetary expansions do occur, as expected, when these conditions prevail. To determine whether expansions occur under other conditions, we must calculate conditional coefficients as described above. These are reported in Table 3, along with conditional standard errors.¹⁷ As our model predicts, when capital is mobile there is evidence of electorally induced monetary expansions if, and only if, central bank independence is low and the exchange rate is allowed to fluctuate.

In sum, the main implications of our model for monetary policy are supported by the evidence presented here. Broadly speaking, the existence of opportunistic monetary cycles is conditioned by the level of central bank independence and the choice of exchange rate regimes. Furthermore, there is evidence of monetary expansions only when the government retains national monetary policy and influence over the central bank.

Table 3 Conditional Effects of Elections on Monetary Policy

<i>Central Bank Independence</i>	<i>Exchange Rates</i>	
	<i>Flexible</i>	<i>Fixed</i>
<i>High</i>	0.0031 (0.0023)	0.0029 (0.0045)
<i>Low</i>	0.0042* (0.0020)	0.001432 (0.0025)

Conditional Coefficients with conditional standard-errors in parentheses.

*p<0.025 One-tailed test

¹⁶Unemployment is measured as the quarterly rate of change in the number of persons unemployed. Inflation as the year to year rate of change in the consumer price index. Source: see appendix 2.

¹⁷See Friedrich 1982 and Jaccard, Turrisi and Wan 1990 for a useful introduction to the conditional interpretation of multiplicative interaction models.

b. Fiscal Cycles

In contrast to our results for monetary policy, our theoretical discussion indicates that electorally-induced fiscal cycles are likely when exchange rates are fixed, and that the effectiveness of fiscal policy on output increases under fixed exchange rates when capital is mobile. Fiscal policy is expected to be ineffective when exchange rates are flexible and capital is mobile.

Previous research generally asks whether deficits are likely to increase in electoral years, and, unlike the empirical work on monetary cycles, the data is coded on a yearly, instead of quarterly, basis.¹⁸ The evidence has been decidedly mixed, with some authors indicating support for opportunistic fiscal cycles in some subset of industrialized countries (Alesina and Roubini 1997; Hallerberg and von Hagen 1998b; Franzese 1996 finds such cycles when the replacement risk to a sitting government is high) while others find no support for such cycles (DeHaan and Sturm 1994b). One reason for these differences in findings may be that the studies do not differentiate between the effects of fixed and flexible exchange rates or of capital mobility or immobility. So that the value added of this study is clear we rely on datasets from two recent articles, DeHaan and Sturm (1997) and Hallerberg and von Hagen (1998b). Our rationale for relying on two datasets is as follows. Each covers a somewhat different group of countries—DeHaan and Sturm (1997) examine 19 OECD countries, while Hallerberg and von Hagen’s (1998a and b) dataset examines the 15 current members of the European Union.¹⁹ Much of the economic data also come from different international organizations.²⁰ If we find evidence of politically induced fiscal cycles in both datasets we will have more confidence in the robustness of the results. We also restrict the data to the period 1981-1992 for the Hallerberg and von Hagen dataset and 1982-1992 for the DeHaan and Sturm dataset. We limit the time period for two reasons that both concern policy in Europe—in the fall 1992 the Exchange Rate Mechanism suffered a severe crisis in the markets, which put in doubt the credibility of fixed exchange rates; and after 1992 European states that wished to join Economic and Monetary Union faced restrictions on their debt levels, and these restrictions presumably affected decisions on fiscal policy in a direct way. While the beginning date of the respective datasets is the same as what appears in the published articles, we want to emphasize that this period is also theoretically interesting. Several European Community countries reestablished credible fixed exchange rates with the Exchange Rate Mechanism in 1979, and the periods in both datasets represent strong tests of the effects of a given country’s exchange rate regime on the likelihood of fiscal expansions before an

¹⁸ Quarterly data on expenditures and tax collections can have a seasonal element both within and across countries that is difficult to control for even with sophisticated econometric techniques.

¹⁹ The original dataset covers the years 1981-1994. We thank to Rolf Strauch for providing us with the data for the additional years. See Appendix 2 for original sources.

²⁰ DeHaan and Sturm rely on *OECD Economic Outlook* for most of their data, while Hallerberg and von Hagen collect their data mostly from *Statistical Annex of European Economy* (See the data Appendix). There is a difference in particular in the debt coding rules. The European Commission uses Maastricht definitions for debts and for inflation, which have minor accounting differences with the OECD data.

election.

The model these articles build upon, and which has become a standard in the field, comes from Roubini and Sachs (1989). Roubini and Sachs' regression equation is

$$db_{it} = \alpha + \beta_1 db_{it-1} + \beta_2 dU_{it} + \beta_3 dy_{it} + \beta_4 b_{it-1} d(r-y) + \beta_5 pv_{it} \quad (14)$$

where the dependent variable, db_{it} , is the change in the gross debt-to-GDP ratio. Authors break down the equation into a set of economic variables and a set of political variables (represented as pv_{it}). The set of economic variables included in all regressions is as follows: db_{it-1} represents the lagged debt ratio, dU_{it} the change in the unemployment rate, and $b_{it-1}d(r-y)$ the change in debt servicing costs, which is computed as the change in the real interest rate minus the change in the growth rate times the gross deficit in the previous year. In addition, some authors include the change in real GDP, dy_{it} . To be consistent with previous work, we include the change in GDP in our regression using Hallerberg and von Hagen's data as they do, and we follow DeHaan and Sturm's lead in not including it in the regression with their data.²¹ These economic variables are expected to impact the budget in a given year, with higher levels of unemployment and debt servicing costs increasing government debt levels and higher levels of economic growth decreasing debt levels.²²

The standard political variables generally include codings for institutional differences or the partisanship orientation of the government. Roubini and Sachs 1989 received much attention when it was first published because the authors find that the type of government affected the size of budget deficits. One-party majority governments maintained the tightest fiscal discipline, two-three party majority governments less so, four-five party governments were even more problematic, and minority governments regardless of the number of parties in the coalition were the worst of all. Many others have followed in their examination of government type and other political variables. So that the value-added in this paper is clear, we include the political variables one finds in DeHaan and Sturm as well as Hallerberg and von Hagen (1998b) as control variables. DeHaan and Sturm find that Roubini and Sachs made several coding errors, and, based on Roubini and Sachs' original coding procedures, they argue that the type of government does not affect deficit levels. Hallerberg and von Hagen, following Edin and Ohlsson 1991, break the government type variable into three separate dummy variables, and they include a variable for the percentage of cabinet portfolios that "left" parties occupy to control for partisan effects and for election years. They also add a variable for two fiscal institutions, a strong finance minister and negotiated targets. They find that there is a connection between government type and a fiscal institution meant to reduce the size of deficits, but that

²¹ There is some controversy on whether or not to include growth in GDP as an independent variable because real GDP appears in the denominator on the left-hand side of the equation (see also Boyed and Borelli 1996). We are interested in the value added to pre-existing work and not in this controversy *per se*, and we follow the suggestions of the authors in their respective works on whether or not to include change in GDP as an independent variable.

²² These expectations are only valid for industrialized countries. Talvi and Végh 1997 find that the sign on economic growth is reversed in Latin American countries. They hypothesize that governments can only justify painful cuts in expenditures or increases in taxes to their constituencies when economic conditions worsen.

government type *per se* has no effect on the size of deficits. In particular, a strong finance minister who can monitor spending ministers and punish those who "defect" is feasible in states with one-party majority governments. In multi-party and minority governments, the coalition members are not willing to delegate to one actor the ability to monitor and punish the others. Numerical targets negotiated among the coalition partners for each ministry provide an alternative in multi-party governments.²³ They also find that negotiated targets alone are effective in preventing pre-electoral fiscal expansions—even strong finance ministers in one-party governments are tempted to manipulate fiscal policy in order to increase the chances of her own survival.

In order to test our contention that fiscal cycles are most likely to occur when exchange rates are fixed, we structure the regression equations to include the economic and political variables the original authors found important, but we add variables to consider the effects of the exchange rate regime and, in DeHaan and Sturm 1997, the effects of elections. Our equations are as follows:

$$db_{it} = \beta_1 Election + \beta_2 Flexible + \beta_3 Election * Flexible + \beta_4 db_{it-1} + \beta_5 dU_{it} + \beta_6 bit-1d(rit-yit) + \beta_7 Government Type \quad (15)$$

when employing the DeHaan and Sturm data and

$$db_{it} = \beta_1 Election + \beta_2 Flexible + \beta_3 Election * Flexible + \beta_4 db_{it-1} + \beta_5 dU_{it} + \beta_6 bit-1d(rit-yit) + \beta_7 dy_{it} + \beta_8 Two-Three Party Govt. + \beta_9 Four-Five Party Govt. + \beta_{10} Minority Govt. + \beta_{11} Strong Finance Minister + \beta_{12} Negotiated Targets + \beta_{13} Strong Finance Minister * Election + \beta_{14} Negotiated Targets * Election + \beta_{15} Left \quad (16)$$

when the Hallerberg and von Hagen data are used. In both specifications, β_1 captures the relationship between elections and debt when the exchange rate is fixed, β_2 captures the effect of a switch to flexible exchange rates in non-electoral periods, and β_3 the effect of a change to a flexible exchange rate on the relationship between the debt and elections. This specification follows closely the model provided in the previous section on monetary policy. Our expectations about the effects of these variables, however, differ. We expect *fiscal* expansions to occur only when exchange rates are fixed (i.e. when *Flexible* is equal to zero.) When exchange rates are flexible, we expect that governments will not initiate a pre-electoral fiscal expansions since fiscal policy is ineffective,

Based on our interest in the effects of elections under different exchange rate regimes, we consider two alternative methods to code elections. Hallerberg and von Hagen (1998b) calculate their election variable as a dummy variable for years in which an election is held. This coding, while it follows standard practice in the literature, is at best inexact and at worst inaccurate. Some countries hold elections in early spring while others wait until late autumn. The same country may even hold

²³ The authors refer to a strong finance minister as a "delegation" approach and negotiated targets as a "contract" approach respectively.

elections in different times of the year over different electoral cycles—witness the United Kingdom, which held two elections in 1974, one in February and one in October, while just five years later it conducted elections in May. A variable that makes no differentiation among these three elections will presumably understate the effects of elections as well increase the standard error of the variable.

We therefore supplement the standard measurement of elections with Franzese's (1996) more exact definition. He calculates *Election* as the proportion of a pre-electoral year that falls in a given year, so that, for example, a July 1 election would be coded as .5 in that year and .5 in the previous year.²⁴ We apply this coding to the two datasets to check whether the different coding rules affect the results. Our model predicts that fiscal cycles should exist when exchange rates are fixed, which, in our regressions, is the case when *Flexible* equals "0." *Election* should, therefore, be positive and significant. The model also predicts that the coefficient for the interaction term *Election*Flexible* should be negative, and indeed one would expect that, since governments have no incentive to use fiscal cycles when exchange rates are flexible, that the coefficients for *Election* and *Election*Flexible* sum to zero. To test directly for the effect of flexible exchange rates on fiscal cycles, we report the conditional coefficient for elections when flexible exchange rates are present and when they are absent at the bottom of table 4.

Table 4 provides strong evidence both that countries with fixed exchange rates experience fiscal cycles and that flexible exchange rates eliminate these fiscal cycles. In four out of the five equations estimated, there is evidence (in terms of a positive and significant conditional co-efficient) of pre-electoral fiscal expansions when the exchange rate is fixed, but not when it is flexible (*Election* | *Flexible*=1 is never significant). Equation B, for example, indicates that there is an increase in gross-debt level of about one and a half percentage points during electoral periods when the exchange rate is fixed, compared to essentially no increase (0.17) during electoral periods when the exchange rate is flexible. The effect of exchange rate regime on the relationship between budgets and elections is most dramatic with the Hallerberg and von Hagen data—the coefficient indicates that states with fixed exchange rates will increase their gross debt level-GDP ratios over 3 percentage points in the year before an election. This, however, may be the result of the different specification used by Hallerberg and von Hagen. Most importantly, because models *D* and *E*, employ an interaction between *Elections* and *Strong Finance Minister* and *Negotiated Targets* the interpretation of the conditional coefficient changes substantially. The coefficient for *Election* now summarizes the relationship between elections and gross debt when the exchange rate is flexible *in the absence of a strong finance minister or the use of negotiated targets*. Table 5 reports conditional coefficients for each combination of exchange rate regime and domestic fiscal institution identified by Hallerberg

²⁴ In particular, Franzese codes elections for economic policy-relevant elections, which can include presidential elections in Finland, France, and the United States, as well as for policy-relevant upper house elections. He then codes the variable as divided among those separate elections, so that, for example, a French presidential election is a .5 and a French parliamentary election another .5.

Table 4: *The conditional effects of elections on changes in gross debt in the 1980'a and early 1990's*

<i>Dataset Name</i>	<i>DeHaan and Sturm</i>			<i>Hallerberg and von Hagen</i>	
<i>Column</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
<i>Years</i>	<i>(1982-1992)</i>	<i>(1982-92)</i>	<i>(1982-92)</i>	<i>(1981-1992)</i>	<i>(1981-1992)</i>
<i>Coding of Elections</i>	<i>Standard</i>	<i>Franzese</i>	<i>Franzese</i>	<i>Standard</i>	<i>Franzese</i>
<i>Countries in Dataset</i>	<i>19 OECD</i>	<i>19 OECD</i>	<i>13 EU</i>	<i>15 EU</i>	<i>15 EU</i>
<i>Control Variables</i>					
<i>Intercept</i>	0.69 (0.57)	0.37 (0.53)	.33 (.58)	1.79 (1.61)	1.45 (1.77)
<i>d Debt_{t-1}</i>	0.47*** (.07)	0.48*** (0.07)	0.51*** (.07)	0.52*** (.10)	.59*** (.10)
<i>d Unemployment</i>	1.28*** (.21)	1.27*** (0.22)	1.45*** (0.26)	0.82** (.32)	0.04 (0.06)
<i>d Gdp</i>				-0.62*** (.18)	-.85*** (.15)
<i>d Debt Costs</i>	0.37** (.14)	0.47** (0.06)	0.35** (0.15)	0.16 (.14)	0.19 (0.15)
<i>Government Type</i>	-0.17 (0.30)	-0.17 (0.30)	-0.16 (0.32)		
<i>2-3 Party Govt</i>				0.85 (0.88)	0.90 (0.85)
<i>4-5 Party Govt</i>				1.00 (1.12)	0.91 (1.10)
<i>Minority Govt</i>				0.22 (1.10)	0.10 (1.07)
<i>Strong Finance Minister</i>				-1.66** (0.89)	-0.90 (1.09)
<i>Negotiated Targets</i>				-0.20 (0.79)	0.47 (0.89)
<i>Strong Finance Minister * Election</i>				1.11 (1.17)	-0.57 (2.11)
<i>Negotiated Targets * Election</i>				-0.20 (0.79)	-2.51** (1.39)
<i>Left</i>				0.02 (0.69)	0.07 (0.69)
<i>Variables of Interest</i>					
<i>Election</i>	0.49 (.62)	1.52** (.87)	1.61** (0.82)	1.25* (.85)	2.97*** (1.05)
<i>Flexible</i>	-0.42 (1.00)	0.07 (.055)	-0.49 (0.68)	0.74 (0.91)	0.78 (1.08)
<i>Election*Flexible</i>	-0.22 (1.16)	-1.35 (1.26)	-0.07 (1.34)	-1.32 (1.33)	-1.12 (2.37)
<i>Conditional Coefficients</i>					
<i>Election Flexible=0</i>	0.49 (.62)	1.52** (.87)	1.61** (0.82)	1.25* (.85)	2.97*** (1.05)
<i>Election Flexible=1</i>	0.27 (1.02)	0.17 (.99)	1.54 (1.15)	-0.07 (1.23)	1.84 (2.39)
<i>R-SQUARED</i>	.43	.43	.59	.60	.59
<i>N</i>	207	207	148	175	175

***<.01, **<.05, *<.10. The dependent variable is the change in the gross debt to GDP ratio. White heteroskedastic consistent standard errors are represented in parentheses. Following the authors we do not include country dummy variables, although their inclusion does not affect the qualitative results (these results are available upon request). Note that the political variables are evaluated according to a one-tailed test.

Table 5: The Effect of Elections on Government Debt under Alternative Structural Conditions

	Weak Finance Minister		Strong Finance Minister	
	<i>Flexible Rate</i>	<i>Fixed Rate</i>	<i>Flexible Rate</i>	<i>Fixed Rate</i>
Negotiated Targets	-0.66 (2.36)	0.46 (0.99)	-1.23 (2.92)	-0.11 (1.97)
No Negotiated Targets	1.85 (2.39)	2.97*** (1.05)	1.28 (2.94)	2.40 (2.01)

Conditional coefficients and conditional standard errors (in parentheses) calculated from equation in column E of table 4.

and von Hagen as important in shaping the effects of elections on budgets.

Note, first, that there is evidence of pre-electoral fiscal expansions when the exchange rate is fixed and the constraints on the “political” use of budgets identified by Hallerberg and von Hagen (the use of negotiated targets or the presence of a “strong” finance minister) are absent. The conditional coefficient for elections in such a case is positive and highly significant. In comparison, holding these domestic institutions constant and moving to a flexible exchange rate leads to reduction in the size of the conditional electoral coefficient (of about 1/3) to 1.85, which is no longer significantly different from zero. This result holds for all combinations of domestic fiscal institutions—all else equal, the conditional co-efficient for elections is always greater under a fixed exchange rate than a flexible exchange rate.

There are additional nuances in the results. As Columns’ A and D indicate, the standard *Election* variable has the correct sign in both the DeHaan and Sturm and Hallerberg and von Hagen regressions, but it is significant, and then just at the $p < .1$ level, only in the latter. A likely explanation for the relatively weak relationships we find is measurement error in the coding of elections. Indeed, once one replaces the standard *Election* variable with Franzese’s more exact measure in Columns’ B and E, the *Election* variable becomes statistically significant in both datasets. Fiscal electoral cycles are completely absent when exchange rates are flexible.

Another peculiarity concerns region-specific factors. The DeHaan and Sturm dataset includes a set of 19 OECD countries, while the Hallerberg and von Hagen dataset includes only the current European Union countries. The European Union states are more tightly integrated than OECD countries at large, and indeed this may explain why the evidence in favor of the model is stronger in the Hallerberg and von Hagen case. Column C therefore restricts the DeHaan and Sturm dataset just to the dataset’s current European Union states. As expected, the results strengthen somewhat—the r-squared in particular increases to the level in the Hallerberg and von Hagen dataset with fewer data points, indicating that the regression equation does a better job explaining the

variance in the dataset restricted just to European Union countries.

IV. Implications for European Economic and Monetary Union

Our evidence from Europe in the 1980's and early 1990's indicates that opportunistic fiscal cycles are especially prevalent when capital is mobile and exchange rates are fixed. This result has an important implication for the likely conduct of fiscal policy under Economic and Monetary Union in Europe. Fixed exchange rates and mobile capital will be the norm in all European Union countries that adopt the common currency either in the first wave on January 1, 1999, or in future waves.

Although preparations for EMU may have reduced fiscal electoral cycles in the 1990's, it is by no means clear that EMU will restrict fiscal cycles once it comes into being. More generally, there has been some concern that governments, once they have been accepted into EMU, will have an incentive to renege on their commitment to low deficits. Excessively high deficits can cause both increased inflation and a depreciation of the euro and states can hope to gain the political benefits from high deficits under a common currency without suffering the ill effects as long as the others maintain their budget discipline. Another concern is that the deficits can become so large that a state cannot hope to pay back its debt without a bailout from the European Union. Since the bailout would be paid for by all European Union citizens but would reduce directly just the deficit of the country threatening default, states in this moral hazard situation may have an incentive to run larger deficits than if the European Union did not exist.²⁵

The member governments have not been ignorant of this situation. The Treaty of Maastricht explicitly bans any European Union bailout of its member states, and the states have established a procedure both to monitor the participants and to punish any defectors under the "Stability and Growth Pact" that the European Council agreed to in Amsterdam in June 1997. The European Commission will monitor the fiscal health of the member states and will report to the Council of Ministers whether or not, in its opinion, a deficit over 3% is "excessive." The Council of Ministers will then decide whether to accept the Commission's assessment, and, if it decides that a given country's deficits are indeed excessive, it will begin a procedure to sanction the transgressor. The country in question must make a non-interest bearing deposit with the Commission equal to .2% of GDP plus an additional .1% per 1% over the 3% limit. The entire process should take ten months, and if the country has not reformed its budget to the Council's satisfaction its deposit becomes a fine.²⁶

Whether this Pact will deter states from running chronic deficits is debatable. What is clear is that the Pact will have no effect on the incentives for governments to promote opportunistic political

²⁵ Eichengreen and Wyplosz 1997 provide a good discussion of the different rationales for the Stability and Growth Pact.

²⁶ The text of the agreement appears in Committee on Economic and Monetary Affairs and Industrial Policy 1997.

business cycles because of the timing of the Pact's different procedures. Consider a country like Germany, which has elections traditionally in the fall. A government could promote a large fiscal expansion in the spring and summer that leads to large deficits. In principle the European Commission could then immediately inform the Council and begin proceedings against the government, but in practice it is most likely that the Commission will wait until the final yearly budget figures are published in March the following year before making any recommendation for fear that it will lose credibility if it turns out that the preliminary figures are incorrect.²⁷ It then takes an additional ten months before fines can be imposed, and even then the fines will not be imposed if the government is taking corrective measures. The implication is that any government can push up the deficit shortly before elections so long as it cuts it back again after the elections are over.²⁸

An alternative is for the states themselves to provide additional institutional constraints at the domestic level on their spending behavior. Consistent with Hallerberg and von Hagen (1998b), our empirical results reported in Table 5 indicate that a contracting-based approach to budgeting where coalition partners set spending targets for each ministry and monitor each other's behavior throughout the life of the coalition reduces pre-electoral fiscal cycles. A move to more negotiated fiscal targets may be in order. More generally, given that the temptation to use fiscal policy for short-turn electoral gain will be greater under EMU while the domestic institutional structures will remain the same, states may have the incentive to develop such institutions only if they are sure that the European Union will not bail them out. Indeed, based on an analysis of federal systems, Von Hagen and Eichengreen (1996a) argue that a formal bailout rule from the European Union is not even needed as long as states maintain their ability to raise revenues. The European Union can simply say "no," much like the state of California did to Orange County in the mid-1990's when Orange County's creditworthiness plummeted. States may then learn through a process of trial and error to introduce greater restrictions on fiscal policy management at the national level. A possible precedence again comes from the United States, where fiscal mismanagement eventually led 47 of 50 American states to pass some form of fiscal policy restriction (Eichengreen and von Hagen 1996b). It should be noted that these changes were not driven by a fear of what the states' budgets could do to the value of the dollar, but rather more "domestic" concerns about the effects of the excessive budgets on home populations. These institutional rules also seem have some effect--states with tighter anti-deficit rules as well as more restrictive rules on the authority of the legislature pay lower

²⁷ Personal Interviews with two members of Directorate General II, June and July 1997.

²⁸ One additional tool that could be used to restrict governmental abuses will also be absent under EMU. In this paper we have assumed that the decisions to pursue capital mobility or fixed exchange rates are exogenous to the model. One could argue, of course, that when banks are independent and governments are especially fiscally irresponsible the bank may decide to stop defending the currency and simply let it float, putting the country in the flexible exchange rate-capital mobility scenario that is advantageous to the bank. Under EMU, however, this is extremely unlikely. Although the European Central Bank is to be independent, any decision to float the common currency would punish not just the offender but all states.

interest rates on their bonds (Poterba and Ruben 1998).²⁹

V. Conclusions

Our game theoretic model makes fairly weak assumptions about the preferences of monetary and fiscal agents, but very strong assumptions about the institutional constraints in which they operate. The strong assumptions about the Mundell-Fleming conditions are made in part to make the analysis tractable, but they have the added benefit of stacking the cards in favor of falsification—if the predictions based on such a stark model withstand provisional tests there are good reasons to believe further refinement will be fruitful. Indeed, the empirical results support the insights of the model developed in Section II. Pre-electoral monetary expansions are likely in states with mobile capital, a flexible exchange rate, and a dependent bank and they are absent otherwise, while pre-electoral fiscal expansions are likely under mobile capital and fixed exchange rates.

These results have several interesting implications for the relationship between institutions and the international environment. In the presence of mobile capital, the exchange rate regime constrains the ability of policymakers to use one of the two macroeconomic instruments before elections. As states change their exchange rate regime, one should also expect a change in the incumbents' behavior before an election. If an open capital state fixes its currency to the dollar, for example, one would expect a shift from monetary to fiscal policy instruments. One could argue that such a shift is already under way in Britain. Once Stage III of EMU begins the European Union members anticipate the creation of an Exchange Rate Mechanism II for countries that do not join the common currency initially. The expectation is that the band around the Euro for these currencies will progressively narrow so that these countries will also experience more or less fixed exchange rates. Pre-election monetary expansions will become less effective in favor of fiscal expansions.

This change also has an important effect on the selection of institutions by governments. When considering the tradeoffs involved in enhancing central bank independence, a government may consider what it gives up in terms of survival in the next election if it relinquishes monetary policy autonomy in exchange for greater general price stability with a more independent central bank. A government in a flexible exchange rate economy will lose its ability to influence outcomes with macroeconomic policy before an election if it makes the bank more independent. If the government moves the country to a fixed exchange rate regime, however, it can gain some price stability while still maintaining the ability to manipulate the economy before an election. Our work suggests, for example, that Chancellor of the Exchequer Brown would have given up little in terms of the maneuverability of Labour before the next election by granting the Bank of England greater

²⁹ The ultimate form these institutions should take is still open to discussion. Strauch 1998 finds that numerical restrictions on the size of the deficit do restrict the size of the deficit. Von Hagen 1998 notes, however, that such numerical restrictions can merely encourage politicians to be more creative with their accounting, and he suggests more centralized procedures to ensure that someone monitors the actors.

independence in May 1997. The Labour Party can presumably initiate a fiscal expansion before the next elections so long as Britain has joined the Exchange Rate Mechanism II by then.

These results also suggest why previous empirical results for fiscal cycles have been so ambiguous. Few studies consider the effects of different exchange rate regimes on the likelihood of fiscal cycles. States engineered fiscal expansions when exchange rates were fixed but not when they were flexible, and studies that do not include the exchange rate regime are missing this critical variable. One of the articles that does consider the importance of exchange rate regimes, Clark and Reichert (1998), appears to contradict the results here. The authors find that states with either fixed exchange rates or independent central banks are less likely to experience opportunistic political business cycles. Yet these authors concentrate their attention on outcomes, such as on the unemployment rate and economic output, rather than on policy instruments, such as the money supply or budget balances. Our research produces an interesting puzzle—why, if fiscal cycles exist when monetary policy is constrained by fixed exchange rates or a highly independent central bank, do Clark and Reichert find no evidence of cycles in unemployment or growth under precisely these conditions? One possible explanation is that politicians use monetary policy before elections to affect the general economy while they manipulate fiscal policy to sway specific constituencies. Indeed, while an increase in the money supply may help certain groups like homebuyers more than others, it is a blunt instrument to cultivate specific clienteles. Fiscal policy, on the other hand, is more suited to targeted use either through greater spending or tax cuts or both. The implication is these different strategies have markedly different macroeconomic consequences.

Finally, it is clear that the choice of exchange rate regime and the degree of capital mobility has complex effects on the ability of politicians to influence the economy for electoral purposes. While the current study does not necessarily contradict the growing literature on the effects of increased capital mobility on national policy autonomy cited in the introduction, the effects of capital mobility vary a great deal across cases, both because they are refracted by the institutions through which they are transmitted, such as central banks, and because exchange rate regimes interact with capital mobility in important ways. A full consideration of both institutional and international constraints on government behavior in subject areas besides political business cycles is needed.

Appendix 1. Proof of Proposition 1.

The reaction functions in proposition 1 follow directly from the actors' loss functions and the Phillips curve mechanism. The government's problem is to choose g so as to minimize its loss function, which, if we substitute in the Phillips curve process (5) that determines y_t , the right hand side of (2) for the government's ideal point for output, and assume (without loss of generality) that $\pi_t = 0$, becomes :

$$L_{gov} = (y^n + \mu(\pi_t - \pi_t^e) + g - ky^{gov})^2 + \pi_t^2 \quad (A1)$$

To find the minimum, we find the partial derivative with respect to g :

$$\frac{\partial L}{\partial g} = 2(y^n + \mu(\pi_t - \pi_t^e) + g - ky^n) \quad (A2)$$

which, when set equal to zero and solved for g becomes:

$$g = \frac{1}{2} [y^n(k-1) - \mu(\pi_t - \pi_t^e)] \quad (A3)$$

as proposed.

An analogous process can be used to determine the central banks' optimal response. Here the problem is to find the level of inflation that minimizes its loss function. Once again, substituting in the Phillips curve process (5), the right hand side of (3) for the bank's ideal point for output, and assuming (without loss of generality) that $\pi_t = 0$, the bank's loss function is :

$$L_t = (y^n + \mu(\pi_t - \pi_t^e) + g - ky^n)^2 + \pi_t^2 \quad (A4)$$

Differentiating with respect to π_t yields:

$$\frac{\partial L}{\partial \pi_t} = 2\mu(y^n + \mu(\pi_t - \pi_t^e) + g - ky^n) + 2\pi_t \quad (A5)$$

which, when set to zero and solved for π_t becomes

$$\pi_t = \frac{1}{\mu + \pi} [\mu(\pi_t^e + y^n(k^C - 1)) - g] \quad (A6)$$

as proposed.

Appendix 2

In this appendix, we briefly describe indicators used in the empirical section of our paper. These fall into two categories - institutional/political and macroeconomic.

Institutional/Political Variables

Given the qualitative nature of our theoretical discussion, we have elected to classify our observations according to categorical distinctions. Central banks are viewed as independent or not; exchange rates are fixed or flexible. We do not have strong theoretical arguments about such operational choices but neither do we have reason to believe that the strategic calculations of policy makers are influenced in a linear fashion by changing degrees of capital mobility or central bank independence. Tables A1-A3 report the classifications used in this paper.

Central bank independence - Cukierman, Webb, and Neyapti's (1992) measure of legal independence is used to construct a categorical variable that equals one if the country's score is above the sample median and zero otherwise.

Elections - For monetary tests - Quarters in which a general election is held, and the three quarters preceding it, are coded as electoral periods. Dates for elections taken from Mackie and Rose 1982 and *Europa World Year book*, various years. **For fiscal tests** – either the year in which an election was held, with the data provided in Hallerberg and von Hagen (1998b) and based on the yearly data appendix in *European Journal of Political Research* (Various Years), or the percentage of time in a given year before an election for a body important for macroeconomic policy as coded by Franzese 1996 and updated by the author May 1998 (full explanation of this data source is provided in footnote 25).

Fixed exchange rates - A categorical variable that equals one when a country either belongs to a fixed exchange rate regime or pegs their currency to another national currency. Codings based on *International Financial Statistics Yearbook*, Coffey 1984, and OECD 1985.

Fiscal Institutions: Strong Finance Minister and Negotiated Targets: these variables are coded as “one” when the institution is present. Data appears in Hallerberg and von Hagen (1998b).

Left: this variable is percent of seats held by “left” parties. It is found in Hallerberg and von Hagen (1998b).

Government Type: Roubini and Sachs (1989) code this variable as follows: 0=one-party majority government, 1=2-3 party majority government, 2=4-5 party majority government, 3=minority government. Our data for this variable come from DeHaan and Sturm (1997), who update Roubini and Sachs’ original dataset. Edin and Ohlsson (1991) break this variable into three separate dummy variables. Hallerberg and von Hagen (1998b) use this formulation, and we received the data from them, which is based on the yearly data appendix in *European Journal of Political Research* (Various Years).

Macroeconomic Variables

Change in Gross Debt- Change in percentage of gross debt as expressed in terms of gross government debt over GDP. The data for the DeHaan and Sturm regressions came from *OECD Economic Outlook*, various years, while the data for the Hallerberg and von Hagen regressions came from *Statistical Annex of European Economy* .

Growth - For monetary tests Growth in output was measured by seasonally adjusted total industrial production *OECDMEI*, except for Canada (where data were not seasonally adjusted) and Australia (where seasonally adjusted real gross product volume was used). Other studies have used change in real GDP, but seasonally adjusted quarterly data were unavailable for several countries. **For fiscal tests--** figures for the DeHaan and Sturm regressions came from *OECD Economic Outlook*, various years, while the data for the Hallerberg and von Hagen regressions came from *Statistical Annex of European Economy* , various years.

Inflation - Based on consumer price index for all goods, except for Japan, all goods less food. Calculated as (Cpi_t / Cpi_{t-4}) Source: International Monetary Fund, *International Financial Statistics*. CD-ROM version.

Long-term Interest Rates: data for the DeHaan and Sturm regressions came from *OECD Economic Outlook*, various years, while the data for the Hallerberg and von Hagen regressions came from *Statistical Annex of European Economy* , various years

Money supply - M1 and M1+quasi-Money. OECD, *OECD Main Economic Indicators*.

Unemployment For monetary tests--Quarterly Percentage change in the seasonally adjusted number of

unemployed, from OECD, *OECD Main Economic Indicators*. For **fiscal tests**--Unemployment figures for the DeHaan and Sturm regressions came from *OECD Economic Outlook*, various years, while the data for the Hallerberg and von Hagen regressions came from *Statistical Annex of European Economy*, various years.

Table A1

Country	Independent Central Bank	Mobile Capital and Fixed Exchange Rates	Mobile Capital and Flexible Exchange Rates
Australia	Yes		1973-92
Austria	Yes	1973-92	
Belgium	No	1973-92	
Canada	No		1973-92
Denmark	Yes	1973-92	
Finland	No	1977-92	1973-1976
France	No	1979-92	1973-1978
Great Britain	No	1991-92	1973-90
Greece	Yes		1973-95
Iceland	n/a	1981-92	
Ireland	Yes	1973-92	
Italy	No	1979-92	1993-95
Japan	No		1973-92
Luxembourg	n/a	1973-92	
Netherlands	Yes	1973-92	
Norway	No	1973-92	
New Zealand	No		1981-92
Portugal	No		1973-92
Spain	No	1989-92	1973-87
Switzerland		1981-92	
Sweden	No	1973-92	
USA	Yes		1973-92
W. Germany	Yes		1973-92

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