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in Pacific Basin Countries

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APPENDIX

The data presented in Table 3 suggest that the authorities have used domestic credit as a mechanism to achieve their external balance, or foreign exchange reserve, targets. Tight domestic credit limits public and private expenditures and reduces the trade deficit. Thus, the mechanism works primarily through the current account of the balance of payments. Tight domestic credit limits public and private expenditures and reduces the trade deficit. An alternative mechanism would be to adjust public foreign borrowing to ensure that the capital account of the balance of payments is always sufficiently positive to maintain adequate reserves. To test which of these two mechanisms prevailed in actual experience, we regress reserves on domestic credit and foreign debt for each of the five countries included in this study. In these regressions, international reserve and foreign public debt are measured as a ratio to total imports; domestic credit is the ratio of the domestic assets of the central bank to nominal GDP. All the variables are measured in terms of deviations from their trend. We use annual data from 1970 to 1985. The sources are IMF *International Financial Statistics* and the *World Bank Debt Tables*.

We find a negative and statistically significant coefficient on the domestic credit variable in all the five cases. It seems that domestic credit has been an important instrument affecting reserve accumulation. On the other hand, foreign borrowing does not appear to be significant in three of the five cases. Holding domestic credit constant, higher foreign borrowing implies higher government expenditure, but significant changes in reserve.

Appendix Table
$$\text{Res} = Q_1 \text{ DC} + Q_2 \text{ FD} + \varepsilon_t$$

	Q_1	Q_2	R^2	$\bar{R}^2$	DW
Indonesia	-3.49 (-4.15)	0.84 (2.25)	0.66	0.60	1.42
Korea	-2.03 (-4.15)	0.0006 (0.605)	0.33	0.23	1.71
Malaysia	-5.19 (-2.41)	0.17 (1.27)	0.33	0.22	1.33
Philippines	-4.92 (-3.68)	-0.17 (-1.88)	0.58	0.51	1.75
Thailand	-4.88 (-4.37)	0.53 (4.61)	0.64	0.59	1.37

Note: All equations were estimated using OLS except for Indonesia where we corrected for autocorrelation of errors. The t-statistics are in parentheses.

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Monetary Regimes and Fiscal Deficits: A Comparative Analysis

Donato Masciandaro and Guido Tabellini

In the 1980s, most industrialized countries have experienced large fiscal deficits and rapidly growing public debt. These events are likely to leave a legacy of tight government budget constraints to future fiscal administrations for many years to come.

At the same time, for many countries the 1980s have been years of financial liberalization and reform. A by-product of these reforms is to shift a larger share of the burden of satisfying the intertemporal budget constraint on fiscal policy, away from monetary and regulatory policies. The reforms have the general effect of abrogating hidden and implicit forms of taxation on financial markets, of raising the real cost of deficit financing, and of shrinking the revenue collected through explicit and implicit forms of money seignorage.

Therefore, a tension might develop in the future between the goal of satisfying the government budget constraint and the survival or completion of the financial reforms. This chapter investigates the nature of this potential tension. In particular, it asks whether in the long run financial deregulation and tight monetary policy make the task of correcting the present fiscal imbalances more difficult. This question is addressed in the chapter from two points of view.

From a theoretical point of view, it is argued that the reforms, if credible and long lived, might facilitate the task of reducing fiscal deficits. The thrust of the argument here is that financial deregulation and tight monetary policy enhance the fiscal authorities' incentive for reducing fiscal deficits. This argument is elaborated in the next section with the aid of a game-theoretic model of monetary and fiscal policy coordination. The central result is that the equilibrium size of fiscal deficits depends on the institutional features of the monetary regime. The less accommodative the monetary regime, the smaller is the equilibrium fiscal deficit.

The remainder of the chapter considers, in the light of these theoretical results, some cross-sectional empirical evidence relating fiscal deficits and monetary institutions of different Pacific Basin countries: Australia, Canada, Japan, New Zealand, and the United States. The focus

is on the relative degree of independence of the central banks from the fiscal authorities, and the extent to which the monetary and financial systems are geared toward facilitating the financing of fiscal deficits. Moreover, the extent of debt monetization and the size of fiscal deficits in these five countries are quantified and compared. The comparison tends to support the results derived in our model: the countries with more accommodating and captive monetary institutions and with largely monetized public debt also tend to have larger fiscal deficits and a larger stock of public debt outstanding.

THEORY

This section considers a model with the following property: In equilibrium, the intertemporal choices of the fiscal authority (and hence the size of fiscal deficits) depend on the institutional features defining the monetary regime. In particular, the size of fiscal deficits is determined by the "degree of fiscal dominance" of the monetary regime; that is, by the extent to which the burden of satisfying the intertemporal budget constraint falls on monetary rather than on fiscal policy. (See Sargent and Wallace, 1981.)

The key idea is as follows. Money seignorage and regulatory constraints on captive financial institutions are hidden sources of fiscal revenue for the government. Deficit financing is the way in which these implicit taxes are imposed on the economy. A monetary regime that cuts the link between fiscal deficits and (direct or indirect) debt monetization deprives the Treasury of these hidden taxes. But because of that, such a monetary regime also reduces the incentive for the government to run a deficit. In such a non-accommodative regime, a deficit today has to be met with higher explicit taxes or smaller expenditures tomorrow. In other words, a monetary regime that does not automatically provide debt monetization forces the government to fully internalize the political and economic costs of running a budget deficit. To the extent that these costs are taken into account in the fiscal policy decision process, a non-accommodative monetary regime tends to limit the size of budget deficits.

This simple idea (that the method of deficit financing influences the size of budget deficits) is elaborated in the remainder of this section by means of a game theoretic model. The model presumes that monetary and fiscal policies are chosen by two partially decentralized agencies with conflicting objectives. This assumption is strictly appropriate for countries like the United States or West Germany, where the central bank and other regulatory agencies are largely politically and administratively indepen-

dent of the Treasury. However, the same general concepts and results should be applicable, though less literally, to countries with a much smaller degree of decentralization between monetary and fiscal policies. The model is analyzed and discussed in more detail in Tabellini (1987).

The Model

The model is the simplest possible to analyze the ideas summarized above. In particular, only direct money seignorage (i.e., creation of fiat money) is considered as a source of fiscal revenue associated with monetary policy. No attempt is made to model regulatory constraints on captive financial institutions, or to analyze other fiscal repercussions of monetary policy through its impact on the cost of issuing public debt. However, the nature of the results should extend to much more general settings, even though the analysis would be more complex.

The economy is open to the rest of the world and is a price taker in international capital markets. The only tool of monetary policy is the domestic component of the monetary base. Thus, exchange rates are perfectly flexible. Moreover, purchasing power parity is assumed, so that there is no need to distinguish between the price level and the nominal exchange rate. The time horizon lasts two periods. At the end of the second period, all debt (private or public) has to be repaid.

The private sector consists of a representative consumer who lives two periods and maximizes utility, V:

$$V = Max \left\{ ln\, C_1 + \beta\, ln\, C_2 + ln\, m_1 + \beta\, ln\, m_2 \right\}, \quad 1 > \beta > 0 \qquad (1)$$

where: $C_i \equiv$ consumption in period i; $m_i \equiv M_i / P_i \equiv$ real money balances held at the end of period i, M_i and P_i being, respectively, nominal money balances and the price level in period i. Real money balances enter the utility function because of the liquidity services that they provide. β is a rate of time discount.

The consumer is endowed with a positive quantity E of real income in each period; this endowment is taxed at the rate τ_i in period i. Moreover, at the beginning of the first period, he also owns a positive quantity of nominal money balances, M_0, and of real government debt, B_0.[1] Finally, the consumer faces a given real interest rate in international capital markets, r, that coincides with his subjective rate of intertemporal preference: $1/(1+r) = \beta$. Under all these assumptions, and denoting the inverse of the gross expected inflation rate in period 2 by $\pi_2^* \equiv P_1/P_2^*$, the consumer's intertemporal budget constraint can be written as:

$$W \equiv E(1-\tau_1) + \beta E(1-\tau_2) + B_0 + \frac{M_0}{P_1}$$

$$\geq C_1 + m_1\left(1 - \beta \pi_2^e\right) + \beta C_2 + \beta m_2 \qquad (2)$$

where W denotes his lifetime real wealth.

The first order conditions of this simple optimization problem yield the consumer's demand for private consumption and for real money balances in the two periods:

$$C_1 = C_2 = m_2 = \frac{W}{2(1+\beta)},$$

$$m_1 = \frac{W}{2(1+\beta)(1 - \beta \pi_2^e)} \qquad (3)$$

There are two policymakers: the central bank, which controls the money supply, and the fiscal authority, which sets taxes and public expenditures. These two policymakers are partially decentralized. In some of the countries considered in the following sections, the central bank is really an agency of the Treasury, with little independence to pursue its own goals. This lack of independence is modeled here as an explicit constraint on monetary policy choices in the second period of the game, rather than as affecting the central bank preferences directly. Thus, the two policymakers are assumed to pursue different goals. This diversity is not meant to reflect the independence of the monetary from the fiscal authorities, but rather the fact that the individuals representing these two bodies face different political incentives. For simplicity, this diversity in the final goals of the two policymakers is assumed to be extreme. Specifically, the fiscal authority only cares about public expenditure, G, and maximizes:

$$U = Max\left\{ln\, G_1 + \beta\, ln\, G_2\right\} \qquad (4)$$

The central bank, by contrast, only cares about the private sector and totally disregards public consumption. Making a less extreme hypothesis about the divergence of preferences between the two policymakers would complicate the notation and the algebra but would not alter the nature of the results in any respect.

The action of the two policymakers is constrained by the intertemporal government budget constraint:

$$G_1 + B_0 \leq \tau_1 E + \beta B + \frac{M_1}{P_1} - \frac{M_0}{P_1}$$

$$G_2 + B \leq \tau_2 E + \frac{M_2}{P_2} - \frac{M_1}{P_2} \qquad (5)$$

where B is the (real) public debt issued by the government in period 1 that has to be repaid in full at the end of period 2. Both τ_1 and τ_2 are given and equal to each other.[2]

To simplify the notation, the excess of public expenditure over tax revenue is denoted by $g_i = G_i - \tau_i E$. Thus, g_i is the fiscal deficit net of interest payments in period i. The fiscal authority chooses g_i and the central bank chooses M_i, i = 1,2.

The imposition of the government budget constraint implies the loss of one degree of freedom in setting monetary and fiscal policies. Who is going to bear the residual burden of satisfying this constraint? Obviously, there is no general answer; it depends on the institutional setup.[3] In this model, it is assumed that a fraction $(1-\theta)$ of the burden of satisfying the budget constraint falls on the fiscal authority, and that the remaining fraction θ falls on the central bank. Thus, in the second period of the game, g_2 and M_2 are constrained by:

$$g_2 \leq -(1-\theta)B$$

$$\frac{M_2}{P_2} - \frac{M_1}{P_2} \leq \theta B \qquad (6)$$

If $\theta = 1$, a regime exists where fiscal policy is dominant and the burden of repaying the debt falls entirely on monetary policy. This regime resembles the one analyzed by Bryant and Wallace (1979); it corresponds to a situation in which the fiscal authority acts as the Stackelberg leader and has the first move in each period of the game. If $\theta = 0$, the opposite extreme exists -- a regime where monetary policy is dominant and the burden of repaying the debt falls exclusively on fiscal policy. This regime would arise if the central bank could act as the Stackelberg leader and could precommit to a course of action for the current period before fiscal policy has been

chosen. Intermediate regimes correspond to values of θ between 0 and 1. Throughout the paper, θ is referred to as the "degree of fiscal dominance." Equivalently, θ could be interpreted as an indicator of central bank independence from the fiscal authority. If $\theta = 1$, the central bank is completely subordinated to the fiscal needs of the government. Conversely, if $\theta = 0$, the central bank is free to pursue its own monetary goals. However, the term "central bank independence" is somewhat ambiguous and often means different things to different people. For this reason, throughout this chapter only the more neutral and precise concept of "degree of fiscal dominance" of the monetary regime is used.

In the real world, θ is determined by factors beyond the control of policymakers, or at least by factors that the policymakers can change only indirectly and in the very long run, such as institutions, intellectual climate, and political variables. The next section seeks to assess the relative degree of fiscal dominance in five Pacific Basin industrialized countries by comparing their monetary institutions. First, an investigation of how the equilibrium rate of inflation and the size of fiscal deficits depend on θ in this model is in order.

The Macroeconomic Equilibrium

The demand for real money balances in period 1, and hence the price level in that same period, depend on expected future inflation. Under rational expectations, expected future inflation is determined by the equilibrium condition of the money market in period 2. In equilibrium, (6) will hold as equality. Hence, from (6) and (3):

$$m_2 = \theta B + m_1 \pi_2 = \theta B + \frac{m_2 \pi_2}{\left[1 - \beta \pi_2^e\right]} \qquad (7)$$

Equating π_2 and π_2^*, and using (3) again, equation (7) can be solved for the actual and expected inverse of the inflation rate:

$$\pi_2 = \pi_2^e = \frac{W - 2\theta(1+\beta)B}{[W - 2\theta\beta B](1+\beta)} \qquad (8)$$

By taking partial derivatives of (8), it can be shown that π_2 is increasing in W and decreasing in θ and (if $\theta > 0$) in B. Thus a higher debt to be repaid, B, or a higher proportion of debt to be monetized in the second period, θ, tend to raise the inflation rate in that period. However, higher private real

wealth, W, by increasing the demand for real balances in period 2, has the opposite effect of reducing the inflation rate in period 2.

The price level in period 1, P_1, is also determined by the equilibrium condition in the money market:

$$\frac{1}{P_1} = \frac{m_1}{M_1} = \frac{W}{2(1+\beta)(1-\beta\pi_2^e)M_1} \qquad (9)$$

Defining $\mu = M_1/M_0$ as the gross rate of growth of money supply in period 1, recalling from (2) that $W = B_0 + M_0/P_1$, and using (8) to form π_2^*, we can solve (9) for the inverse of the price level:

$$\frac{1}{P_1} = \frac{2B_0 - \theta\beta B}{2(2\mu - 1)M_0} \qquad (10)$$

Equation (10) implies:

> *Proposition 1 P_1 is increasing in μ and B. The effect of B*
> *on P_1 is proportional to θ.*

That is, an expansionary monetary policy (a larger μ) increases prices in the current period. Also, issuing more public debt, B, is inflationary in the current period, since the private sector realizes that issuing debt leads to future inflation and hence reduces real money demand today. Moreover, the larger the degree of fiscal dominance (the larger is θ), the more inflationary are the consequences of issuing public debt. In the limit, if monetary policy is dominant (that is, if $\theta = 0$), issuing debt has no effect on prices, since the debt will not be monetized at all in the future. This result suggests an empirical conjecture, namely, that the association between fiscal deficits and inflation should be more marked in those countries with a higher degree of fiscal dominance. Protopapadakis and Siegel (1986), among others, provide empirical evidence supporting this result.

Fiscal Deficit and Financial Reforms

It is now possible to evaluate the effects of changing θ on the behavior of the fiscal authorities and on the players' welfare in a feedback-Nash equilibrium. In such an equilibrium, the two policymakers move simultaneously in each period and take into account the effect of the state variable on the outcome of the game in the second period (i.e., they take

into account equations (6) and (8)). This is the appropriate solution concept, given that neither player can precommit to a course of action forever.[4]

Using equation (10), the government budget constraint in period 1 -- equation (5) -- can be written as:

$$B = g_1 \phi(\mu, \theta) + \Omega(\mu, \theta) \qquad (11)$$

where

$$\phi(\mu, \theta) = \frac{4\mu - 2}{\beta[(4-\theta)\mu + \theta - 2]}$$

$$\Omega(\mu, \theta) = \frac{2B_0}{\beta[(4-\theta)\mu + \theta - 2]} \qquad (12)$$

The fiscal authority maximizes (4) with respect to g_1 and B, subject to (6), (11), and (12), and taking current monetary policy, μ, as given. Its first order conditions imply:

$$\frac{1}{G_1} \geq \frac{\beta(1-\theta)\phi(\mu, \theta)}{G_2} \qquad (13)$$

with an equal sign in an interior optimum. The left hand side of (13) is the marginal utility of public expenditures in the current period. The right hand side is the marginal cost of financing it by issuing public debt. This cost is given by the marginal disutility of the future reduction in expenditures necessary to repay the debt, under the existing monetary regime, as defined by θ.

Monetary policy is chosen by the central bank in order to maximize the private sector welfare, subject to the private sector first order conditions (equation (3)), the equilibrium condition in the money market (equations (8) and (10)), the government budget constraints (equations (5) and (6)), and for a given value of the fiscal policy variable, g_1. Tabellini (1987) characterizes more precisely the central bank optimization problem and applies the envelope theorem to prove that, under plausible conditions, the central bank welfare (and hence the private sector welfare under the hypothesis of this model) is a monotonically decreasing function of θ. That is, the more dominant monetary policy is, the better off the central bank is. Not surprisingly, given the assumptions of the model, the optimal monetary arrangement for the private sector's welfare has the central bank completely shielded from fiscal pressures (that is, the optimal value of θ is 0).

This result would survive several generalizations of the underlying model, as long as one retains the assumptions that the rate of inflation desired by the central bank is closer to the social optimum than the inflation rate the Treasury would choose.

Finally, applying the implicit function theorem to (13) and to the central bank first order conditions, it is possible to prove that, for large values of B_0 and for θ not too close to 1:

> *Proposition 2   The fiscal deficit net of interest payments in period 1,*
> *g_1, is an increasing function of θ.*

That is, a monetary regime with a low degree of fiscal dominance, θ, forces the fiscal authority to limit the size of the budget deficit in period 1. The intuition is straightforward. The cost of issuing public debt is mitigated by its future monetization. A monetary regime that cuts the link between public debt and subsequent monetization tends to raise the marginal cost of running a fiscal deficit. In the limit, if monetary policy is dominant and money creation is absolutely independent of the stock of public debt in circulation (that is, if $\theta = 0$), equation (13) reduces to $G_1 = G_2$, in which case the fiscal authority finds it optimal to balance the budget in both periods.

Further Remarks

These results seem in strident contrast with two related common sense considerations that recur in many public policy discussions of how to finance fiscal deficits: first, that fiscal deficits are *de facto* determined independently of the stance of monetary policy; and second, that their size is purely the macroscopic consequence of several myopic political decisions, rather than being the deliberate and strategic choice of a rational agency.

The first consideration, however, reflects a confusion between monetary policy actions and monetary regimes. In this model, it is true that fiscal policy is not affected by current monetary policy. The crucial determinant of fiscal policy is the monetary regime, that is, the link between current deficits and future monetization. This link does not depend on the good will (or bad will) of the central bank. It is determined exclusively by factors that the monetary authority controls only indirectly and in the very long run, such as institutions, political constraints, and intellectual climate. The analytical results of this section therefore should not be interpreted as an argument in favor of more restrictive monetary policies within the current institutional setup. Such a policy choice would merely substitute less monetization today for even more monetization in the future, as in the model of Sargent and Wallace (1981). The results may,

however, argue in favor of monetary regimes with a low degree of fiscal dominance. Such monetary regimes credibly constrain future debt monetization, and it is this fact that decreases the incentives of the fiscal authority to run a deficit.

The second objection to the approach taken in this section is more damaging and more difficult to handle. But even if fiscal policy decisions are not taken by a rational player, the fact that monetary regimes with a low degree of fiscal dominance may tend to increase the cost of running a fiscal deficit remains valid. All that is necessary for the validity of the argument then is that, at some stage of the political decision process, these costs be taken into account.

MONETARY REGIMES AND FISCAL DOMINANCE

Having identified the degree of fiscal dominance of the monetary regime as one of the crucial determinants of budget deficits and of the equilibrium rate of inflation, we now seek to assess the actual relative degree of fiscal dominance in five industrialized countries in the Pacific Basin region: Australia, Canada, Japan, New Zealand, and the United States.

We focus on two aspects of the regime that determine the institutional position of the central bank: the "political" aspect, determined by the legislative and administrative rules concerning the appointment and the composition of the members of the central bank governing bodies, and their relationship with the legislature and the government; and the "economic" aspect, determined by the involvement of the monetary authorities in the process of deficit financing, by the tools of monetary policy that are regularly used, and by the nature and fiscal repercussions of the regulatory controls on the financial system. These two aspects jointly determine the degree of fiscal dominance.

Obviously, the degree of fiscal dominance of any regime also depends on much more intangible features of the environment, such as the evolution of the institutions over time, the actual performance record of the policy-makers themselves, the expectations of the private sector and the public opinion created by the policymakers' past performances, the intellectual and political climate, and so on. Even though these intangible factors change only very slowly over time, they are very difficult to capture in any cross-sectional study.

Political Rules

The political aspect of the monetary regime in the five Pacific Basin countries is presented and compared in Table 1 in terms of the appointment

of the Governor and the Members of the Board of the central bank, as well as the reporting relationship of the central bank to the legislature and the government. (See Appendix for details.) These rules define the formal responsibilities of the central bank, and shape the incentives and the constraints of the individuals in charge of the major monetary policy decisions.

Table 1
The Central Bank in the Government Structure

	Australia	Canada	Japan	New Zealand	United States
The Governor					
Appointed by	Gov't	Board	Gov't	Gov't	President
Term (years)	7	7	5	5	4
Reappointability	Yes	Yes	Yes	Yes	Yes
Members of the Board					
Number	9	15	7	9	7
Appointed by	Gov't	Minister of Finance(13)	Gov't	Gov't	President
Term (years)	5	3	4	5	14
Reappointability	Yes	Yes	Yes	Yes	No
Gov't Member	Secretary of Treasury	Deputy Minister of Finance	From two Ministries(a)	Secretary of Treasury	No
Report to Parliament	Annual	On call	On call	Annual	Semi-annual
Relation with Government					
Responsibility	Informing	Consultation	Approval	Approval	Informal Contacts
In Case of Conflict	Gov't directives(b)	Gov't directives(b)	Not possible	Not possible	No provision

(a)   Representatives from the Ministry of Finance and the Ministry of Economic Planning.

(b)   Informing the legislature.

In general, one can conjecture that the degree of fiscal dominance tends to be low if the central bank is isolated from the political pressures originating from the Treasury. This is most likely to happen if:

- The Governor and the Board are appointed by self-representatives of the Bank, with the approval of the legislature.

- The Governor is directly responsible to the legislature (rather than to the government) for the conduct of monetary policy.

- The Governor and the Board can be reappointed, with the approval of the legislature.

Conversely, the political pressures originating from the fiscal authorities tend to be reinforced if:

- The government is represented in central bank bodies.

- Legal directives exist that automatically subordinate the central bank's will to that of the government in cases of explicit conflict between them.

Comparing these rules in the five countries suggests that the U.S. Federal Reserve System enjoys more political autonomy from the government than any of the other central banks. Next in line is probably Canada. New Zealand seems to have the least autonomous central bank. Australia and Japan are presumably situated in between Canada and New Zealand.

Financial Relationships

The central question in this regard is the influence of the Treasury in determining how much it can borrow from the central bank. In the limit, if the Treasury has full discretion in determining the monetary financing of the deficit, then the central bank can control the monetary base only through open-market operations in the foreign exchange market and/or the secondary market for public debt. For technical reasons (imperfections in the secondary market for public debt, exchange rate or balance of payments targets), such a situation weakens the capacity of the central bank to control the monetary aggregates. Moreover, under these circumstances, the central bank would find it difficult to resist political pressures to maintain low levels of interest rates or to impose regulatory controls on captive financial institutions, since the level of interest rates is perceived by the public opinion to be determined by monetary actions rather than by the size of fiscal deficits. Hence, a high degree of fiscal dominance exists in a regime in which the Treasury has easy access to direct monetary financing, for at least two reasons: the Treasury directly controls a major determinant of the revenue collected through money seignorage; and the

Treasury's political influence in directing the general thrust of monetary policy is large.

The central bank can extend credit to the government in two ways: through its direct credit facilities; and by buying public debt in the primary market. The first source of credit, where it is available, is designed to help the government to bridge temporary cash shortfalls. The second source enables the central bank to facilitate the issue of government debt. Table 2 compares the legal rules that constrain Treasury access to these two sources of credit in the five countries under examination. (See Appendix for more details.)

Table 2
Treasury Financing through
Monetary and Regulatory Measures

	Australia	Canada	Japan	New Zealand	United States
Central Bank					
Direct Credit	Direct placement[a]	Advances[b]	Advances	Overdraft[c]	No
Participation in Primary Issue of Securities	Yes	Yes	Yes	Yes	No
Commercial Banks					
Required Holding of Government Securities	Yes	Yes	Prior to 1980	Prior to 1985	No
Interest Rate Ceilings					
Deposit Rate	Prior to 1984	1972-74	Prior to 1987	Prior to 1984	Prior to 1986
Loan Rate	Prior to 1982	Prior to 1967	No	Prior to 1984	No

(a)   *Treasury bills.*
(b)   *Not used since the 1960s.*
(c)   *Limit of NZ$1 billion.*

The U.S. Federal Reserve System is the only central bank among the five Pacific Basin countries not involved in direct financing of the Treasury in any respect. In the other countries, monetary policy is not always clearly separated from debt management policies. In Canada and Japan, the

central bank seems to be less involved in direct deficit financing than in Australia and New Zealand.

The Regulation of Financial Markets

The degree of fiscal dominance of a monetary regime is also determined by the central bank's relationship with the banking system and by the nature of the tools of monetary policy. In particular, several financial regulations have the by-product of facilitating the financing of budget deficits. Thus, other things being equal, the degree of fiscal dominance of the regime tends to be higher the easier it is for the monetary and fiscal authorities to discretionally impose such regulations, and the more frequently they have been imposed. In general, regulatory restrictions on financial institutions, such as credit controls, portfolio constraints, and interest rate ceilings, tend to increase artificially the private sector's demand for government liabilities, and thereby reduce the cost of government borrowing.

Among the five Pacific Basin countries, the United States stands out as the one in which financial market regulation has been both the lightest and the least geared toward the goal of facilitating deficit financing. Among the remaining countries, Canada is the most similar to the United States. Up to 1984, New Zealand had the most heavily regulated markets, but has since undergone drastic deregulation, as has Australia. The same has happened in Japan, though to a much smaller extent.

A Tentative Ranking

It is difficult to quantify the various factors determining the degree of fiscal dominance in a country. Nevertheless, on the basis of the preceding analysis, one can arrive at some tentative ranking of the conditions prevailing in the five Pacific Basin countries during the 1970-1985 period.

Two extremes can be readily identified. The degree of fiscal dominance was clearly the lowest in the United States; the Fed has greater political autonomy than any other country in the group. Its monetary rules prevent any direct financing of the fiscal deficit by the central bank, and its main instruments of monetary control have very limited fiscal repercussions. Even though U.S. financial markets are strictly regulated, the main purpose of this regulation is financial stability, not money seignorage.

At the other extreme, New Zealand was clearly the country with the highest degree of fiscal dominance, at least up to 1984. Its Reserve Bank was the most subordinated to the political will of the government. Moreover, monetary financing of the fiscal deficit was facilitated by both the Treasury's direct access to central bank funds, and, until very recently, by financial regulations.

Between these two extremes lay the remaining monetary regimes. Canada was presumably closer to the low fiscal dominance end, whereas Australia and Japan seem to have leaned more toward the high fiscal dominance end.

According to the theory presented above, therefore, we should expect to find that debt monetization and fiscal deficits tend, on average, to be highest in New Zealand and lowest in the United States.

COMPARISON OF MONETARY AND FISCAL POLICIES

As indicated in Table 3, the fiscal deficits of all countries are larger in the second half of the 1970s than in the first half. For all countries except Australia, the growth of deficits is further accentuated in the 1980s. Table 3 suggests that, at least for some countries, the higher deficits of the 1980s are the result of higher public expenditures. In all countries, public expenditures as a fraction of GDP are larger in the 1980s than in the second half of the 1970s. For the same period, total revenues remain approximately constant as a fraction of GDP, or rise only marginally for some countries.

These common trends however, are associated with some differences across the five countries. Specifically, New Zealand stands out as the country with the largest fiscal deficit and the largest level of public expenditures throughout the time period considered. The total public debt outstanding is also larger in New Zealand than in any country in the sample (Table 3).

These facts are consistent with the results of the monetary regime comparisons presented above: New Zealand also has the monetary regime with the highest degree of fiscal dominance (at least up to 1984). According to these theoretical results, therefore, New Zealand would be expected to have a tendency toward larger deficits and larger public debt outstanding than the other countries in the sample.

Table 3 provides further evidence of this point. The annual average real interest rate on public debt was negative in New Zealand in the three periods 1970-1974, 1975-1979, and 1980-1985. It was also much lower than in all the other countries. This fact presumably reflects the heavy portfolio requirements on New Zealand's financial institutions. New Zealand also had the highest inflation rate. This is consistent with the predictions of the theoretical section. Moreover, the stock of public debt held by New Zealand's monetary sector as a fraction of GDP in 1984 tends to be higher than in most other countries. All these numbers reinforce the result of the preceding institutional comparisons: the degree of fiscal dominance, as

Table 3
Fiscal and Monetary Indicators

	Australia	Canada	Japan	New Zealand	United States
Fiscal Deficit[a]					
Average: 1970-74	0.6	1.4	1.2[b]	2.6	1.3
1975-79	3.8	3.8	4.9[b]	6.7	3.0
1980-85	2.2	5.0	4.9[b]	7.7	4.4
Public Expenditure[c]					
Average: 1975-79	27.0	19.9	15.8	33.8	21.7
1980-85	28.3	22.7	18.2	39.2	24.3
Central Government Debt in 1984[d]					
Total	22.6	38.7	53.8	70.0	36.5
Monetized[e]	--	7.2	24.4	17.2	9.0
Real Interest on Public Debt[f]					
Average: 1970-74	-3.1	-1.4	-4.0	-3.5[g]	-0.4
1975-79	-3.2	-0.1	0.5	-5.1[g]	-1.4
1980-85	3.9	4.4	4.2	-1.2	3.5
Consumer Price Inflation [h]					
Average: 1970-74	8.1	5.9	10.9	8.7	6.1
1975-79	11.6	8.9	7.3	14.3	8.1
1980-85	8.6	7.9	3.6	12.9	8.3

(a) *Percent of GDP, except otherwise noted.*
(b) *Percent of GNP.*
(c) *Percent of GDP.*
(d) *Percent of GDP.*
(e) *Debt held by the central bank and commercial banks.*
(f) *Percent; Treasury bill rate, except otherwise noted.*
(g) *Government bond yield.*
(h) *Percent.*

Sources: *International Monetary Fund, Government Financial Statistics; International Monetary Fund, International Financial Statistics; OECD, Japan: Economic Survey.*

reflected in the actual behavior of the monetary authorities, was higher in New Zealand than in the remaining countries.

The financial reforms implemented in New Zealand are likely to cause a sharp increase in the marginal cost of government borrowing, precisely because government borrowing was facilitated by the financial regulations that have been removed. This fact will tend to inflate the government budget in the short run. However, the reforms, if credible and long lasting, are also going to reduce the degree of fiscal dominance of New Zealand's monetary regime. Theoretical results and empirical comparisons suggest that this fact is likely to change the incentives of New Zealand's fiscal authorities, and thus will likely bring about smaller budget deficits (not including interest payments). The next few years will tell whether this conjecture will prove to be correct.

The rest of the information contained in Table 3 is more ambiguous and harder to interpret. For instance, Japan monetized public debt to a relatively large extent. At the same time, Japan is also the country with the lowest inflation rate and one of the highest real interest rates, at least in the 1980s. Perhaps this ambiguity of its monetary regime explains why Japan has relatively large fiscal deficit and public debt outstanding.

Finally, the tables reported above indicate that the U.S. monetary and fiscal policies (and particularly its budget deficit) do not differ significantly from those of the other countries in the sample. This is somewhat surprising, given the important differences between the U.S. monetary regime and those of the remaining countries. Alesina and Tabellini (1987) and Persson and Svensson (1987) offer some tentative explanations of why the United States may have chosen a policy of larger fiscal deficits in the 1980s than in previous periods. These explanations stress political institutions (as opposed to monetary institutions) as determinants of budget deficits.

CONCLUDING REMARKS

It has been argued here that the intertemporal choices of the fiscal authorities are influenced by the institutional features of the monetary regime. In particular, they are influenced by the degree of fiscal dominance of the regime; that is, by the extent to which the burden of satisfying the intertemporal government budget constraint falls on monetary rather than on fiscal policy. The higher the degree of fiscal dominance of the regime, the larger the tendency for the government to run a fiscal deficit.

This argument was developed here both from a theoretical point of view and by comparing the fiscal policies pursued in five industrialized

countries with different monetary institutions. The empirical evidence lends support to the theoretical results. The country with the highest degree of fiscal dominance in its monetary institutions, New Zealand, is also the country that on average had the largest deficits and largest debts.[5] The obvious future next step in this line of research is to extend the analysis to a larger number of countries. Parkin (1986) examines 12 industrial countries from the same point of view taken in this chapter. His institutional comparisons, however, focus exclusively on what here has been called the "political" aspect of the regime, neglecting the "economic" aspect. His conclusions support the results of our chapter.

NOTES

We wish to thank, without implicating, Hang-Sheng Cheng, Alberto Alesina, Thomas Cargill, and several conference participants for helpful comments on a previous version.

1. The assumption that public debt is indexed to the price level simplifies the analysis but does not affect the results in any respect.

2. Given the government's objective function as in equation (4), if the tax rates were endogenous, then they would be set at 100 percent.

3. Note that this issue is not an artifact of having a finite horizon. It would also arise in an infinite horizon model, as long as the time path of public debt is bounded from above. Specifically, the question that would arise in an infinite horizon version of this same model is: Who will bear the burden of satisfying the budget constraint when the upper bound of public debt is reached? The answer to this question will determine the strategic interaction among the monetary and fiscal authorities throughout the rest of the game, just as in the two-period model analyzed in the text.

4. Because of the feedback nature of the strategies chosen by both players, the equilibrium is subgame perfect and hence *a fortiori* time consistent.

5. It could be argued that New Zealand had more accommodating monetary institutions, and hence a regime with higher fiscal dominance, because it had a larger deficit to be financed, rather than the other way around. However, the accommodating feature of its regime dates back to the 1960s, when fiscal deficits were not such a big problem. Moreover, the financial reforms of 1985 and 1986 which reduced the degree of fiscal dominance have been taken at a time when the problem of deficit financing seemed most pressing.

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APPENDIX: MONETARY REGIMES IN FIVE PACIFIC BASIN COUNTRIES

Political[a]

Australia. The presence of the government in the central bank's organizational structure is notable. The governor and the deputy governor are appointed by the government for seven years. The remaining seven board members are similarly appointed, for five years. No more than two of the seven members may be officers of the Reserve Bank or public service employees. All members are eligible for reappointment. Board members are usually selected for their eminence in academic, agricultural, or general business activity. The Secretary of the Treasury is an ex-officio member of the Board. Six members, including the governor or deputy governor, are required for a quorum.

In the conduct of monetary policy, the Reserve Bank is under a legal obligation to keep the government informed of monetary and banking policies. If differences of opinion exist, the government has statutory

power, after due process of consultation, to direct the Reserve Bank to carry out a given policy; the Parliament must be informed within 15 days. By law, if a matter cannot be resolved by negotiation between the two authorities, the board would furnish to the Treasury a statement in relation to the matter. The statements of the government and the board are required to be tabled in Parliament. The minister would make a recommendation to the governor-general, who on this basis would decide the matter. In this way, the government assumes responsibility for the decision. Finally, an annual report and a financial statement are presented to both Houses of Parliament. Overall, the monetary action of the Reserve Bank seems to be strongly influenced by the government, directly and indirectly. The relationship of the Bank with Parliament is limited to an informational role.

Canada. The governor of the Bank of Canada is appointed by the directors, with the approval of the government. The term of office is seven years, but is subject to a "good behavior" condition; the governor is eligible for reappointment. The Board of Directors has 15 members: the governor, a senior deputy governor, 12 directors, and the deputy minister of finance (the latter without voting rights). The 12 directors are appointed by the minister of finance with the government's approval, for terms of three years; they may be reappointed. There is a general requirement that the directors be selected from "diversified occupations." The Executive Committee consists of five members of the Board of Directors: the governor, his deputy governor, two directors, and the deputy minister of finance without voting rights.

In its relationships with the government, the board is under a legal obligation to consult regularly with the Department of Finance, and vice versa. Following the forced resignation of the governor of the Bank of Canada in 1961, the result of his pursuing a tight monetary policy in opposition to the government's wishes, the power to issue directives to the Bank in case of conflict was conferred on the minister of finance by the addition of a clause (S14) to the Bank of Canada Act in 1967. Specifically, the minister of finance, with the agreement of the government, may issue directives in matters of monetary policy valid for a limited period of time. Such directives must be published in the Canada Gazette and laid before Parliament within 15 days. This procedure has never been invoked, probably because it would be too costly for the government (from a political point of view) to enter into an explicit conflict with the central bank. Finally, the governor is frequently directly asked to appear before committees of both the House of Commons and the Senate to explain and defend his policies. Other witnesses may be summoned to verify his evidence. This procedure can clarify the respective positions of the

government and the central bank in case of conflict, and eventually reinforce the monetary priorities.

Japan. The governing bodies of the Bank of Japan are the Executive Board and the Policy Board. Even though the latter is the formal policymaking entity of the Bank, in practice it is the Executive Board that has the major responsibility for the formulation of monetary policy. The Executive Board consists of the governor, the vice governor, and several executive directors. The governor is appointed by the cabinet for a term of five years and may be reappointed. The vice governor and the executive directors are selected by the governor, but are subject to the approval of the minister of finance. The Policy Board consists of seven members; two are representatives of the Ministries of Economic Planning and Finance. The remaining members must consist of two with financial experience, one with industrial experience, and one with agricultural experience. They are appointed by the cabinet with the consent of both houses of the Diet for four-year terms. They may be reappointed. The two government representatives on the Board have no voting rights, and Board decisions are taken by a simple majority.

The Bank of Japan is subject to the general directions of the government. Any change in banks' reserve ratios requires approval of the minister of finance. The discount rate policy and the open market operations are independently determined. In practice, the minister of finance is likely to exercise a strong influence on all policy aspects. No conflict between the two authorities is likely to arise, because the government has complete authority over the central bank. The central bank law has no explicit provisions to prevent or solve such conflicts. This tends to increase the degree of fiscal dominance.

The government can be called directly to explain the conduct of monetary policy to the Diet. The Board must also submit an annual report on the state of financial markets and on the policies implemented by the Bank.

New Zealand. The governor of the Reserve Bank of New Zealand is appointed by the governor general upon recommendation of the minister of finance, for a term of five years. He is eligible for reappointment. The deputy governor and seven directors are similarly appointed. Appointments are intended to reflect a diversity of interests, including industrial or commercial experience. The Secretary of the Treasury is a member of the Board with voting right. Since decisions are taken by consensus, the Treasury has a vote. Moreover, the monetary actions may be subject to directions of the minister of finance; the Bank has no independence in the policy area and is required by its statute to support the monetary policy of the government. The conflict between the two authorities is unlikely to

arise because the government has complete authority over the central bank. There are no provisions in case of conflict. An annual report is submitted to Parliament, but the governor is not examined by Parliament. He is, however, subject to questioning by Treasury officials in private sessions of government committees.

United States. The seven members of the Federal Reserve Board in the United States are appointed by the president, with the approval of the Senate, for staggered fixed terms of 14 years, nonrenewable. The president designates two members of the Board to be chairman and vice chairman for four-year terms, renewable. By tradition, the members of the Board are selected in order to maintain a geographical balance, and both bankers and nonbankers are included. Major monetary policy decisions are made by the Federal Reserve Open Market Committee (FOMC), which consists of the members of the Board, plus the presidents of five regional Reserve Banks who serve one year terms on a rotating basis, except the president of the Federal Reserve Bank of New York who is always present and by tradition is the vice chairman of the FOMC. The chairman of the Board is also the chairman of the FOMC. The decisions of the Board are reached by a simple majority vote.

The government has no formal authority over the Fed. This reinforces the Fed's capacity to pursue its monetary goals in case of conflict with the government. The Congress can issue directives to the Fed Board, and the Fed chairman is required to report twice a year to both houses of Congress on the goals and conduct of monetary policy. This exclusive power of Congress to direct the Fed represents a guarantee for the chairman, and presumably contributes to limiting the overall degree of fiscal dominance.

Economic Aspects: The Central Bank and the Treasury[b]

Australia. In Australia government borrowing from the central bank is guaranteed by the issue of "public" Treasury bills, not available for public subscription. No formal ceiling on such borrowing is imposed; however, periodic approval in advance by the executive council is required The central bank may also hold substantial amounts of Treasury notes and bonds.

The Treasury, subject to the approval of the Australian Loan Council (consisting of the prime minister and the six state premieres), is responsible for financing the Commonwealth government's budget. The terms of borrowing by the Commonwealth government are fixed by the Council in the light of market conditions, with advice received from both the Treasury and the Reserve Bank.

Canada. In Canada, government borrowing from the central bank is guaranteed by advances from the Bank of Canada at the bank rate. However, this has not been done since the early 1960s.

The Department of Finance, in collaboration with the Bank of Canada, has responsibility for the Canadian government debt management. The Bank advises the government and administers marketable bond issues, which are allocated to a network of commissioned dealers about seven times a year. The Bank is also prepared to purchase government securities from authorized dealers who agree to repurchase them at a later date.

Japan. The Bank of Japan may acquire substantial amounts of Treasury bills, which are only issued by the minister of finance for cash management purposes. The minister of finance has responsibility for funding the deficit of the central government. The term of issue of public debt instruments, mainly long-term bonds, are negotiated with an underwriting syndicate which normally consists of the commercial banks and securities companies. Short-term Treasury bills provide a residual source of finance for temporary shortfalls of cash within a given fiscal year.

It is specifically mentioned in the central bank law that the monetary authorities may make advances to the government without collateral and may participate in government bond issues. However, the fiscal law prevents the Bank from participating in such issues; in practice the bank's financing of the Treasury is carried out through purchases in the secondary market.

New Zealand. In New Zealand, government borrowing from the central bank is guaranteed by overdraft facilities with current limit of NZ$1 billion. The balance in the overdraft account must be reduced to zero at the end of each financial year. Moreover, the Reserve Bank takes up Treasury bills and government bonds.

United States. In the United States, there is no institutional mechanism for the government to borrow from the Fed. Until June 1981, with a vote of five out of seven governors and under "unusual and exigent" circumstances, the Fed could buy newly issued government securities (up to a ceiling of US$5 billion) for a renewable 30-day period.

The United States Treasury has responsibility for meeting the Federal Government's borrowing needs. Except to the extent that the Fed makes purchases of Treasury debt in the open market, it does not play a direct role in financing the budget deficit. Since 1951, there has been no presumption that the Fed conducts open-market operations with the aim of supporting Treasury debt issues.

Economic Aspects: The Central Bank and Financial Markets[c]

Australia. Banks used to be controlled in their lending, deposit collection, asset holding activities, and in their charges. Many of these controls have been recently abolished. Specifically:

• All deposit banks were subject to lending restrictions, aimed at affecting domestic activity without inducing large swings in interest rates. The restrictions were withdrawn in 1982.

• The major trading banks were subject to the "Liquidity Assets and Government Securities Convention" (LGS). This agreement states that, in return for the trading banks' investing a percentage in specific liquid assets (cash, Treasury bills and notes, and other Commonwealth securities), the Reserve Bank will make a less stringent use of the statutory reserve-deposit system (SRD). This agreement limits the extent to which banks can sell LGS assets to offset tensions on their liquidity. The constraints implicit in this agreement have been substantially relaxed in most recent years.

• The banking law gives the central bank authority, with the approval of the Treasury, to fix the maximum interest rates. In recent times, the central bank has not formally promulgated regulations, but has informed the banks of its goals concerning the rates of interest, following discussions between the central bank and the banks concerned. Prior to 1984, there was a limit on the size and term of wholesale deposits accepted by trading and savings banks. Prior to 1980, retail deposit rates were subject to ceilings set by the authorities. The government still retains controls of interest rates on specific loans.

The SRD system traditionally was the most important instrument of monetary policy implementation. It remains important today, given that the secondary market for public debt is still relatively shallow.

Canada. The central bank has no direct powers through selective credit controls; administrative ceilings or discriminatory controls on certain types of lending have rarely been used in Canada. The portfolio requirements amount to a secondary reserve requirement (excess cash reserves, Treasury bills, and other liquid assets), varying between 0 and 12 percent. In the period 1972-1974, wholesale deposit rates were subject to ceilings set by the authorities. Lending rates were subject to restrictions by the authorities until 1967.

The open-market policy is the most important instrument of the Bank of Canada, in addition to manipulation of the location of government deposits. The Bank is authorized to adjust the proportion of government funds held with the 11 chartered banks rather than with itself. By transferring government deposits to or from the Bank, cash may be withdrawn from or injected into the system in the same way as with open-market operations, but without the same direct impact on securities prices.

In Canada, the central bank determines reserve requirements; they are stable and the law limits how quickly they can be changed. In practice, cash requirements are fixed by law, rather than administratively, and are very rarely changed. Cash reserves and secondary reserves are statutory requirements laid down by the central bank. In monetary policy, the discount policy is of little significance because banks have a traditional inclination not to borrow from the central bank.

Japan. In Japan, there are no explicit or formal investment requirements on financial institutions. There used to be an informal obligation to hold government debt, but this was phased out in the late 1970s and early 1980s.

All institutions used to be subject to interest rates controls, either formally or *de facto*. Now, maximum deposit rates and lending rates of banks and other financial institutions are set by the Temporary Interest Rates Adjustment Law. Within the range stipulated by the law, each bank freely determines the lending rates actually applied. As for deposit rates, guidelines were provided by the central bank. Up to 1978, the wholesale deposit rates were subject to direct nonmarket influence by the authorities. Since 1979, rates on three- to six-month certificates have not been regulated, but controls are imposed on minimum CD size. Rates on large denomination deposits and restrictions on size and maturity of CDs have been liberalized in 1985-1987. The existence of a high degree of regulation of bank interest rates is not conducive to applications of a cash base system of monetary control. Furthermore, the absence of a developed secondary market for public debt has reduced the effectiveness of open-market operations. Under these conditions, the Bank of Japan has continued to resort to the extensive use of direct quantitative ceilings on commercial bank lending. At the same time, steps are being taken toward a more efficient system of monetary control. This is intended to counter disinter-mediation through financial institutions not covered by the ceilings and other market distortions caused by such controls.

Finally, the Bank of Japan has traditionally set a relatively low cash reserve requirement. Formal approval from the Minister of Finance is required whenever the reserve ratio is changed.

New Zealand. Direct administrative intervention in the operation of financial institutions has traditionally been a feature of monetary policy in New Zealand. Since 1973, trading banks were required to hold a minimum percentage of their deposits in specified public sector assets. The ratios were varied by the bank, with the approval of the minister of finance. Government security investment ratios, under which financial institutions have a statutory obligation to invest specified proportions of their total assets or deposits in public sector securities, were also applied by law to all

saving banks, building societies, finance companies, official market dealers, stock and station agents, private pension funds, and life insurance offices. Most of these constraints were removed in 1985.

Credit restrictions on nonpriority overdrafts were imposed on trading banks to influence domestic activity and, prior to 1963, credit allocation. Sectoral guidelines were also applied to bank lending. These guidelines have not been subject to formal enforcements. The Bank exercised influence over nonbank credit, too.

Up to 1969, wholesale deposit rates were set by the authorities, as were retail deposit rates in the periods 1972-1976. Some of these controls were reintroduced in 1981-1984. Since 1984, active and passive interest rates have been completely liberalized.

In the most recent years, an important shift has occurred toward indirect forms of monetary control. Together with the dismantling of compulsory ratio requirements and credit guidelines, there has been a move toward more active use of open-market operations and discount policy. If this change is lasting, it implies a significant reduction in the degree of fiscal dominance of the monetary regime.

United States. The primary instrument for implementing monetary policy is open-market operations, predominantly in Treasury bills. Given the characteristics of the U.S. financial system, this instrument is highly flexible as to both timing and size of operations. As a consequence, supplementary instruments of control have played a secondary role. The Fed has generally avoided using direct administrative measures to ration credit.

The Federal Reserve Board used to fix reserve requirements only for the banks that were members of the Federal Reserve System. Since 1980, all banks are required to hold minimum cash reserves. If the reserves are not provided by the federal funds market, they must be borrowed at the Fed discount window.

Up to 1986, retail deposit rates were subject to ceilings set by the authorities. Credit restrictions were used briefly in 1980 to reduce inflation.

NOTES TO APPENDIX

(a)   The bibliographical sources for this subsection are: Fair (1980), Skanland (1984), Cargill (1987).

(b)   The bibliographical sources here are: Deane (1972), Mitra (1978), OECD (1982-1983).

(c)   The main references for this subsection are: Banker Research Unit (1980), Cargill et al. (1986), Cargill (1986), Carron (1986), Cheng (1983), Dean (1986), Hutchison (1986), Nicholl (1977), OECD (1985), Phillips (1986), Pigott (1983), Skully (1985), and various OECD economic surveys.

7

Monetary Policy in Pacific Basin Developing Countries

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In its most extreme form, the monetary approach to the balance of payments assumes that central banks in open economies with fixed exchange rates have no ability to affect the nominal money stock. Among others, Aghevli and others (1979, p. 776) and Smaghi (1982) have used this proposition in more moderate form to assert that Pacific Basin developing countries have only limited monetary policy independence. Even if these developing countries were able to pursue independent monetary policies, Connolly and Taylor (1979) find that developing countries generally do not appear to pursue any systematic monetary policy.

This chapter, therefore, will attempt to answer three questions: Can developing countries pursue independent monetary policies? If so, do developing countries pursue systematic discretionary monetary policies? Are the Pacific Basin developing countries different from other developing countries with respect to the first two questions?

The developing countries in the Pacific Basin have posted significantly higher rates of economic growth than developing countries in other parts of the world. For the sample of 19 developing countries analyzed here, the continuously compounded rate of growth in real GNP averaged 5.0 percent annually over the period 1968-1985 for the 14 countries in the control group and 6.3 percent for the five Pacific Basin countries (Indonesia, Korea, Malaysia, the Philippines, and Thailand). The question arises as to whether behavior or policies in the Pacific Basin countries are substantially different. This examination will include one behavioral equation determining net capital inflows and two policy equations explaining the behavior of the monetary authorities with respect to domestic credit expansion and exchange rate depreciation.

The conclusion is that the implementation of monetary policy in the Pacific Basin developing countries has been significantly different from monetary policy implementation in the other sample countries. This conclusion supports Harberger's (1985, p. 15) finding that economic policy was indeed quite different in the Latin American countries from what it was in East Asia. On the other hand, it is also shown that despite the