

GOVERNMENT REVENUE FROM CAPITAL CONTROLS: WITH FOCUS ON INTEREST SEIGNIORAGE*

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One of the practical roles of capital controls is to help governments keep the level of domestic interest rates lower than the world interest rate, which would not be possible at all unless the domestic financial market is separated from the global market. The resulting saving in debt service is regarded as an additional source of government revenue and is accordingly called government revenue from capital controls. Using a finite time horizon model with dynamically optimizing consumers, this paper shows that it is possible for governments to lower domestic interest rates by imposing capital controls alone and thereby to reduce the burden of debt service. It is also demonstrated that the level of domestic interest rate and the amount of savings in debt service depend on the amount of foreign bonds held by the public at the time of controls. The smaller is the amount of foreign bond holdings, the lower is the steady state domestic interest rate and the larger is the reduction in debt service.

I. INTRODUCTION

One of the lessons that the current literature on balance-of-payments crisis teaches us is that exchange rates cannot be managed permanently unless other policies are consistent with the exchange rate policy.¹⁾ For example, a government, which finances its budget deficit by creation of domestic credit and simultaneously pegs its exchange rate loses foreign reserves over time as households convert their excess money holdings to foreign assets. Eventually, the fixed exchange peg will collapse as speculative attacks reduce foreign reserves to a minimum level.

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¹ Most of the studies including Krugman(1979) focus on the incompatibility of persistent budgetary deficit and a fixed exchange peg. See Calvo(1986) and Helpman and Razin(1987) for discussion of exchange rate management.

Since speculative attacks on reserves are not possible unless the domestic residents are allowed to buy foreign assets, countries sometimes impose capital controls to stop loss of reserves and to prevent balance-of-payments crisis. Thus, Edwards(1987), in a study of eighteen devaluation episodes in the Latin America, observes "exchange controls and trade restrictions pile up in the period leading to a devaluation in an effort to stop the imminent crisis."

To analyze this observed behavior, the recent literature on balance-of-payments crisis has attempted to model the use of capital controls and examine their impact upon the process of exchange regime collapse. Such efforts include Auerheimer(1987), Bacchetta(1988), and Park and Sachs(1996), all of which analyze balance-of-payments crises in models with dynamically optimizing consumers.²⁾ These studies find that capital controls are effective in delaying, though not in preventing, balance-of-payments crises, thereby earning some time for the government to take other policy measures.³⁾

Clearly, one reason why capital controls are effective in delaying the timing of balance-of-payments crises is that they preclude the possibility of speculative attacks on foreign exchange reserves. However, these studies fail to capture another important role of capital controls which could contribute to the defense of foreign reserves. Governments can reduce their budget deficits by servicing their domestic debt at domestic interest rates rather than the world interest rate if domestic interest rates can be lowered by capital controls. This saving in debt service through lower domestic interest rates can be regarded as another form of government revenue, that is, revenue from capital controls.

Table 1 shows the amount of government revenue from capital controls as is reported in Giovannini and de Melo(1993). In order to estimate the revenue from financial repression defined as the difference between the foreign cost of borrowing and the domestic cost of borrowing, they first compute the nominal effective interest rates for dollar-denominated debt and for domestic-currency-denominated debt respectively. The estimates of the revenue from repressed domestic interest rates are then attained by multiplying the difference between these two effective interest rates to the net domestic stock of government debt. As the table shows, the revenue from capital controls explains a substantial portion of government revenue for some countries.

The purpose of this paper is to show that capital controls can help govern-

² Abstracting from consideration of social welfare and economic efficiency, these studies focus on the role of capital controls as a practical policy measure to defend foreign reserves. For discussions of welfare improving capital controls, see Aizenman(1986), Gordon and Varian(1986), and Kohn and Marion(1988).

³ As is discussed in Bacchetta(1990), the time delaying effect of capital controls is weakened if controls are anticipated. Dellas and Stockman(1988) shows that anticipated capital controls can even lead to a self-fulfilling balance-of-payments crisis.

[Table 1] The Size of Revenue From Financial Repression

Country	Sample Period	Percentage of GDP	Percentage of Tax Revenue
Brazil	1983-1987	4.30	11.42
Greece	1974-1985	2.53	12.76
India	1980-1985	2.86	22.38
Korea	1975-1987	0.25	1.36
Mexico	1984-1987	5.77	39.65
Pakistan	1982-1983	3.23	20.50
Portugal	1978-1986	2.22	6.93

Source: A. Giovannini and M. de Melo (1993)

ments alleviate the burden of debt service using a model with dynamically optimizing households. In particular, it is demonstrated that the imposition of capital controls alone can lower domestic interest rates in the absence of any other measures to regulate domestic interest rates. The paper also shows that the effect of capital controls on domestic interest rates depends on the state of the economy at the time the controls are introduced. It turns out that the net amount of foreign bonds held by the private sector of a country determines the size of reduction in domestic interest rates.

The seigniorage gain from imposing capital controls is hardly captured by infinite time horizon models in which, given the small open economy assumption, a stable steady state requires that the rate of time preference equal the world interest rate. In these models, real domestic interest rates under capital controls converge to the world interest rate in the steady state and do not change the amount of debt service required of the government. In order to capture the effect of capital controls on domestic interest rates, we need to use a finite time horizon model which allows the steady state domestic interest rates different from the world interest rate even for a small open economy. For this reason, this paper adopts the finite time horizon model developed by Blanchard(1985).⁴

The paper is organized as follows. Section 2 introduces the base model and section 3 discusses the dynamics of the economy under full international capital mobility and exchange rate pegging. Section 4 describes the steady state of the economy under capital controls and compares the steady state domestic interest rate with the world interest rate. Section 5 presents some concluding remarks.

⁴ This model has also been adopted in Matsuyama(1987) and Park(1994) for a similar reason.

II. THE MODEL

Households

Consider a small open economy in a world with a single homogeneous output. This good is freely tradable and its domestic price is determined by the purchasing power parity condition:

$$(1) \quad P_t = E_t P_t^*$$

where E_t is the nominal exchange rate and P_t^* is the world price of the good, which will be assumed to be fixed at one throughout the paper. Then, the rate of domestic inflation, π_t , equals the rate of exchange rate depreciation.

This economy comprises consumers who possess a constant probability of death p at each moment. At each instant time, a cohort of new consumers of size p is born with zero non-human health. Thus, this economy has a steady population of one. Each consumer supplies labor, earns real wage income of y_t , and pays a lump-sum tax of real value τ_t . Each consumer holds non-human wealth consisting of a real amount d_t of domestic bonds, b_t of foreign bonds, and m_t of domestic currency. The domestic bonds are issued by the government and pay a variable instantaneous nominal interest rate of i_t in domestic currency. The foreign bonds pay a constant interest rate of r^* in foreign currency. The real domestic price of foreign bonds, q_t , is defined as follows.

$$(2) \quad q_t = \frac{1}{P_t} \int_t^\infty r^* E_s e^{-\int_t^s (r_\sigma + \pi_\sigma) d\sigma} ds$$

where r_t is the real domestic interest rate, which is equal to $i_t - \pi_t$. Note that the real price of domestic bonds is one by definition. If we assume that domestic bonds and foreign bonds are perfect substitutes, the following relation should hold between the domestic interest rate, the world interest rate, and the price of foreign bonds:

$$(3) \quad r_t = \frac{r^* + \dot{q}_t}{q_t},$$

where \dot{q}_t denotes the rate of change in q with respect to time (dq_t/dt). Now, the real non-human wealth of a consumer born at time s is defined as:

$$a_t^s = q_t b_t^s + d_t^s + m_t^s$$

This non-human wealth evolves over time according to the following equation.

$$(4) \quad \dot{a}_t^s = (r_t + p)a_t^s + y_t - \tau_t - c_t^s - (r_t + \pi_t)m_t^s \quad (t > s),$$

where c_t^s is the real consumption at time t by a consumer born at time s and p is the instant probability of death. Since each consumer is born without any inheritance, $a_s^s = 0$.

To rule out Ponzi Games, the following constraint is imposed:

$$(5) \quad \lim_{v \rightarrow \infty} a_v^s e^{-\int_t^v (r_\sigma + p) d\sigma} \geq 0.$$

Combining equations (4) and (5), the following budget constraint is obtained as of time t for a consumer born at time s :

$$(6) \quad \int_t^\infty (c_v^s + r_v m_v^s) e^{-\int_t^v (r_\sigma + p) d\sigma} dv \leq a_t^s + h_t^s.$$

where h_t^s is the expected human wealth of the consumer at time t defined as:

$$h_t^s = \int_t^\infty (y_v - \tau_v) e^{-\int_t^v (r_\sigma + p) d\sigma} dv.$$

Each consumer maximizes the following expected utility:

$$E \left[\int_t^\infty u(c_v^s, m_v^s) e^{\theta(t-v)} dv \right] = \int_t^\infty u(c_v^s, m_v^s) e^{(\theta+p)(t-v)} dv,$$

subject to the budget constraint of (6). In the expression shown above, θ denotes the subjective rate of time preference. For the sake of simplicity, the utility function will be specified as

$$u(c_t^s, m_t^s) = \ln(c_t^s) + \alpha \ln(m_t^s),$$

where α is a positive constant.

Solving the consumer's problem, the following relations are obtained.

$$(7) \quad c_t^s = \frac{\theta + p}{1 + \alpha} (a_t^s + h_t^s)$$

$$(8) \quad m_t^s = \frac{\alpha(p + \theta)}{(1 + \alpha)(r_t + \pi_t)} (a_t^s + h_t^s)$$

The aggregate consumption, non-human wealth, human wealth, foreign bond holdings, domestic bond holdings, and real money holdings of the economy, which are denoted by C_t , A_t , H_t , B_t , D_t , and M_t respectively, are obtained by the following aggregation formula.

$$X_t = \int_{-\infty}^t x_t^s p e^{\rho(s-t)} ds$$

As a result, the following equations that describe the dynamics of the economy are derived.

$$(9) \quad C_t = \frac{\theta + \rho}{1 + \alpha} (A_t + H_t)$$

$$(10) \quad M_t = \frac{\alpha(\theta + \rho)}{(1 + \alpha)(r_t + \pi_t)} (A_t + H_t)$$

$$(11) \quad \dot{A}_t = r_t A_t + y_t - \tau_t - C_t - (r_t + \pi_t) M_t$$

$$(12) \quad \dot{H}_t = (r_t + \rho) H_t - y_t + \tau_t$$

The Government

The government holds foreign bonds as reserves, raises revenue from a lump-sum tax and the interest income from foreign bonds held as reserves. Out of this revenue, it spends a real amount of g in each period and services its debt. The budget deficit, if there is any, is financed by issuing government bonds or creating domestic credit. Thus,

$$(13) \quad \dot{F}_t + \dot{D}_t + \pi_t(F_t + D_t) = g + r_t D_t - \tau_t - (r^* + \pi_t) K_t,$$

where F_t is the real domestic credit and K_t is the amount of foreign bonds held as reserves. It will be assumed that the real amount of government bonds is fixed at $\bar{D} > 0$.⁵ The real aggregate money supply is determined by

$$(14) \quad M_t = F_t + K_t$$

From (13) and (14), the following equation can be derived for the central bank reserves:

⁵ One way to justify this assumption is to assume the existence of an upper limit to public willingness to hold domestic bonds. See Liviatan(1984) and Drazen(1985) for discussion of this assumption.

$$(15) \quad \dot{K}_t = r^* K_t + \dot{M}_t + \pi_t M_t + \tau_t - g - r_t \bar{D}.$$

It will be assumed that there is a lower limit of zero for K_t , which means that if the level of reserves falls to zero, the government gives up exchange rate pegging and allows the exchange rate to float freely. As a result, the ability of the government to support a fixed exchange rate depends on the ability to defend the foreign exchange reserves. Equation (15) implies that the ability of the government to defend the foreign exchange reserves can be enhanced by lowering the amount of debt service, $r_t \bar{D}$, which can be achieved by lowering the domestic interest rate.

III. FULL CAPITAL MOBILITY

As a reference point, consider an economy with perfect international capital mobility and a fixed exchange rate. As long as the exchange rate is fixed, π_t must be equal to zero by equation (1). In addition, the assumption of perfect substitutability between foreign and domestic bonds together with full capital mobility requires that the real domestic interest rate equal the world interest rate.

Assuming that the wage income and the lump-sum tax are constant at y and τ respectively, equations (9)-(12) can be rewritten as follows:

$$(16) \quad C_t = \frac{\theta + p}{1 + \alpha} (A_t + H_t)$$

$$(17) \quad M_t = \frac{\alpha(\theta + p)}{(1 + \alpha)r^*} (A_t + H_t)$$

$$(18) \quad \dot{A}_t = r^* A_t + y - \tau - (1 + \alpha)C_t$$

$$(19) \quad \dot{H}_t = (r^* + p)H_t - y + \tau$$

Setting $\dot{A}_t = \dot{H}_t = 0$ and substituting 0 for π_t and r^* for r_t , the steady state of the economy can be obtained from (16)-(19) as follows:

$$(20) \quad \bar{C} = \frac{p(p + \theta)(y - \tau)}{(1 + \alpha)(r^* + p)(r^* - p - \theta)}$$

$$(21) \quad \bar{M} = \frac{\alpha}{r^*} \bar{C}$$

$$(22) \quad \bar{A} = \frac{-(r^* - \theta)(y - \tau)}{(r^* + p)(r^* - p - \theta)}$$

As was discussed in Blanchard(1985), we need to assume $r^* < p + \theta$ to guarantee that the steady state is a stable one. Then, the sign of the non-human wealth depends on r^* and θ . If the world interest rate is larger than the rate of time preference, the economy has a positive steady state non-human wealth.

The steady state amount of interest bearing assets, which is the sum of foreign bonds and domestic government bonds held by the public can be obtained from (21) and (22) as follows.

$$\bar{W} = \frac{-(y - \tau)}{(1 + \alpha)r^*(r^* + p)(r^* - p - \theta)} [(1 + \alpha)r^*(r^* - \theta) - \alpha p(p + \theta)]$$

where $\bar{W} = \bar{B} + \bar{D} = \bar{A} - \bar{M}$.

This paper investigates the impact of introducing unexpected capital controls. In particular, tight capital controls restricting both capital inflows and outflows will be considered. These controls do not have any effect when the economy is in the steady state, because neither capital inflows nor outflows happen once the economy is in the steady state. Therefore, the analysis will be confined to the case where the controls are imposed when the economy is not in the steady state. In order to characterize the economy outside the steady state, the dynamics of the economy before the capital controls are imposed will be investigated first.

The dynamics of the economy under full capital mobility can be represented by the following system of linear equations for C_t and W_t :

$$(23) \quad \begin{bmatrix} \dot{C}_t \\ \dot{W}_t \end{bmatrix} = \underbrace{\begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}}_A \begin{bmatrix} C_t \\ W_t \end{bmatrix} + \begin{bmatrix} 0 \\ y - r \end{bmatrix}$$

where

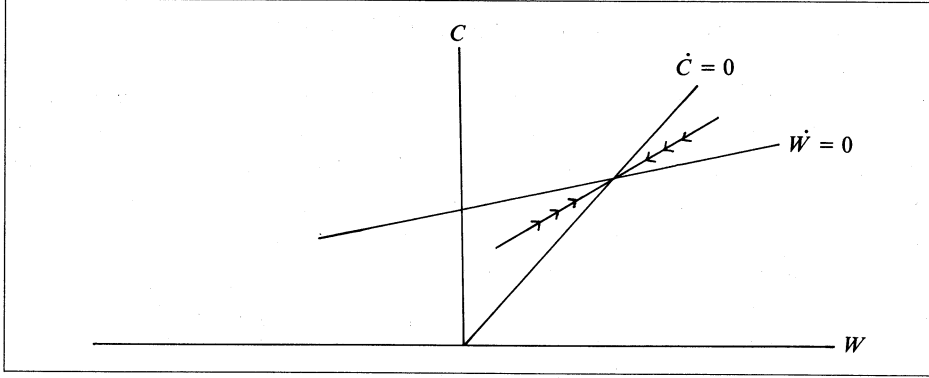
$$a_{11} = r^* - \theta - \frac{\alpha(p + \theta)}{(1 + \alpha)p(p + \theta)}$$

$$a_{12} = \frac{-p(p + \theta)}{1 + \alpha}$$

$$a_{21} = -1 - \frac{\alpha(1 + \alpha)r^*(r^* - \theta) - \alpha^2 p(p + \theta)}{(1 + \alpha)r^{*2}}$$

$$a_{22} = r^* + \frac{\alpha p(p + \theta)}{(1 + \alpha)r^*}$$

[Figure 1] Phase Diagram under Full Capital Mobility
When $r^* > \alpha(p + \theta)/(1 + \alpha)$



Since the matrix A has a positive characteristic root, $r^* + p$, and a negative characteristic root, $r^* - p - \theta$, there is a unique dynamic path leading to the steady state of (20)-(22). Solving (23), the following equations can be derived for C_t and W_t .

$$(24) \quad C_t = \bar{C} + e^{(r^* - p - \theta)t} (C_0 - \bar{C})$$

$$W_t = \bar{W} + e^{(r^* - p - \theta)t} (W_0 - \bar{W})$$

For the economy to stay on the dynamic path that leads to the steady state, C_0 and W_0 should satisfy the following condition.

$$(25) \quad C_0 = \frac{r^*(p + \theta)}{(1 + \alpha)r^* - \alpha(p + \theta)} \left(W_0 + \frac{y - \tau}{r^* + p} \right)$$

Equation (25) means that there is a one-to-one correspondence between the state of the economy at time zero and the amount of net private holdings of foreign bonds.⁶⁾ As a result, the state of the economy right before the introduction of the capital controls can be uniquely identified by the amount of net private holdings of foreign bonds, B_0 .

Figure 1 shows the phase diagram for C_t and W_t when $r^* > \alpha(p + \theta)/(1 + \alpha)$. The net private holdings of interest bearing assets and the level of consumption move in the same direction along the saddle path. On the other hand, they move in the opposite directions when $r^* < \alpha(p + \theta)/(1 + \alpha)$. In order to reduce the number of cases to be investigated, it will be assumed that $r^* > \alpha(p + \theta)/(1 +$

⁶⁾ W_0 consists of holdings of foreign and domestic bonds, but the holdings of domestic bonds are fixed at \bar{D} by assumption.

α).⁷⁾ This assumption seems to have economic sense because studies on consumption behavior find that age profiles of consumption are upward-sloped.

IV. CAPITAL CONTROLS AND INTEREST RATES

Suppose that at time zero the government imposes capital controls unexpectedly. Suppose also that at the instant before the controls are imposed, the private sector of the economy holds an amount B_0 of foreign bonds. Since the capital controls isolate the domestic financial market from the world market, the domestic interest rate needs not be equal to the world interest rate. Instead, the domestic interest rate is determined endogenously to equalize domestic savings and investment. As a result, the dynamics of the economy under the capital controls can be represented by the equations (9)-(12) with π_t set to zero.

Although the capital controls prohibit trading of foreign bonds across the border, the domestic residents may still trade among themselves foreign bonds obtained before the imposition of the controls. Thus, the real domestic price of foreign bonds, q_t , is determined endogenously to equalize the domestic demand for foreign bonds and the supply of foreign bonds fixed at B_0 . Moreover, since domestic and foreign bonds are perfect substitutes, the real domestic interest rate and the real domestic price of foreign bonds should satisfy the relation given in equation (2).

Using equations (2), (9), (10), (11), and (12), the following equations can be derived as the relation between the aggregate consumption and the domestic interest rate in the steady state.

$$(26) \quad C_0 = -\frac{p(p + \theta)(y - \tau)}{(1 + \alpha)(r + p)(r - p - \theta)}$$

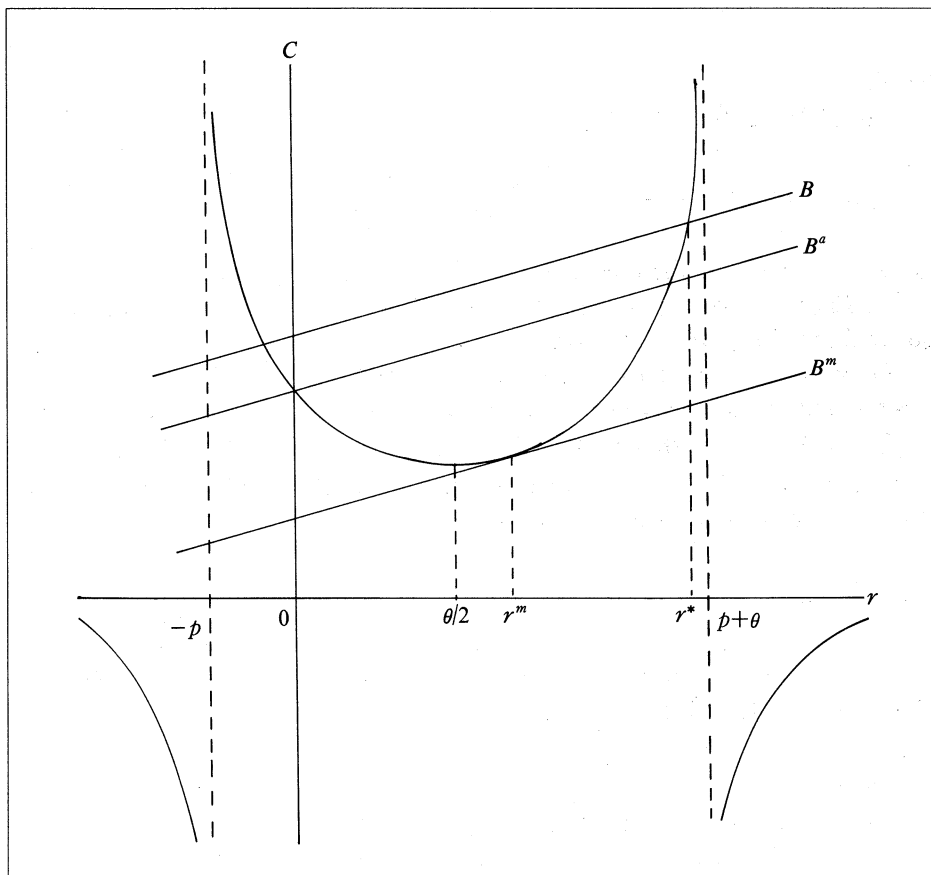
$$(27) \quad C = y - \tau + r^* B_0 + r \bar{D}$$

Figure 2 shows these two equations on the (r, C) plane. The steady state of the economy is obtained at the points where the linear line representing equation (27) intersects the curves representing equation (26). The amount of domestic bond holdings (\bar{D}) determines the slope of the linear line and the amount of foreign bond holdings at the moment before the controls are imposed (B_0) determines its intercept with the C axis. As B_0 decreases, the straight line shifts down.

There are three straight lines in the figure. Each straight line corresponds to different amounts of foreign bond holdings, \bar{B} , B^a , and B^m . It is obvious from

⁷ If the world interest is given, this assumption requires that the rate of time preference be relatively small.

[Figure 2] Steady State under Capital Controls



the figure that in order to guarantee the existence of a steady state with a positive level of domestic interest rate, B_0 , which is the amount of foreign bond holdings at the moment before the controls are imposed, must be larger than or equal to B'' . When $B'' \leq B_0 < B'$, the economy has two steady states, one with a higher r and the other with a lower r . Since the steady state with a lower r is an unstable one, only the steady state with a higher r will be investigated. On the other hand, the economy has a unique steady state with a positive domestic interest rate when B_0 is larger than or equal to B' .

According to Figure 2, the steady-state domestic interest rate under the capital controls is lower than the world interest rate. In addition, the figure also shows that a lower level of foreign bond holdings at the moment before the imposition of the controls leads to a lower level of steady-state domestic interest rate. The following propositions state and prove these observations formally.

Proposition 1. The steady state domestic interest rate under the capital controls is lower than the world interest rate if the controls are imposed when $B_m \leq B_0 < \bar{B}$.

Proof.

Let us define $f(r, B)$ as follows:

$$(28) \quad f(r, B) = -\frac{p(p + \theta)(y - \tau)}{(1 + \alpha)(r + p)(r - p - \theta)} - (y - \tau + r^*B + r\bar{D})$$

Let r^m be defined as the level satisfying $\partial f(r^m, B)/\partial r = 0$, $0 < r^m < p + \theta$. Since $\partial^2 f(r, B)/\partial r^2$ is strictly positive for $-p < r < p + \theta$, it is obvious that r^m is unique and that $\partial f(r, B)/\partial r > 0$ for $r > r^m$.

Let r^s denote the steady-state domestic interest rate under the capital controls. Since $f(r, B)$ is strictly increasing in $r > r^m$, it suffices to show that $f(r^*, B_0) > f(r^s, B_0)$ to prove that $r^* > r^s$. In addition, $f(r^s, B_0) = 0$ by virtue of equations (26) and (27). Thus, it suffices to show that $f(r^*, B_0) = 0$. Using equation (28), $f(r^*, B_0)$ can be written as follows:

$$f(r^*, B_0) = f(r^*, \bar{B}) - r^*(B_0 - \bar{B}).$$

Using equations (20)-(22), it can be shown that $f(r^*, B_0) = 0$. In addition, $B_0 < \bar{B}$ by assumption. Hence, $f(r^*, B_0) > 0$. ■

Proposition 2. Let r^a and r^b be the levels of the domestic interest rate attained in the steady state when the levels of foreign bond holdings are B^a and B^b respectively at the moment the capital controls are imposed. If $B^m < B^a < B^b < \bar{B}$, then, $r^a < r^b$.

Proof. Let the function $f(r, B)$ and r^m be defined as in the proof of Proposition 1. Since $f(r, B)$ is strictly increasing in r for $r > r^m$, it suffices to show that $f(r^b, B^a) > f(r^a, B^a)$. In addition, $f(r^a, B^a) = f(r^b, B^b) = 0$ by the definition of r^a and r^b . Thus, it suffices to show that $f(r^b, B^a) > 0$. But, $f(r^b, B^a)$ can be rewritten as follows:

$$f(r^b, B^a) = f(r^b, B^b) - r^*(B^a - B^b).$$

Since $B^a < B^b$ by assumption and $f(r^b, B^b) = 0$, it is obvious that $f(r^b, B^a) > 0$. ■

Proposition 1 means that in the steady state the government can decrease the amount of debt service by introducing capital controls at an earlier stage of weal-

th accumulation. Proposition 2 implies that the amount of savings in debt service through the reduction in domestic interest rate is larger when the amount of foreign bond holdings by the public at the time of controls is smaller. Because of these savings in debt service and the resulting decrease in budget deficits, it may be possible for the government to avoid balance-of-payments crises by imposing capital controls.

V. CONCLUSION

The previous section demonstrates that imposition of capital controls enables governments to keep the level of domestic interest rates below that of the world interest rate, which would not be possible at all if the domestic financial market is fully integrated with the global financial market. The resulting saving in debt service is regarded as an additional source of government revenue and is accordingly called as government revenue from capital controls.

The infinite time horizon models used in previous studies of capital controls could hardly capture such a role of capital controls, because in these models the rate of time preference has to be set equal to the world interest rate to ensure a stable steady state. Instead, this paper adopts a finite time horizon model and is able to get a steady-state domestic interest rate that differs from the world interest rate and therefore is able to demonstrate savings in the cost of government debt service.

It is also found that the amount of savings in debt service and the subsequent reduction in budget deficits depend on the amount of foreign bonds held by the public at the time of controls. The smaller is the amount of foreign bond holdings, the smaller is the steady state domestic interest rate and the larger is the reduction in debt service. Thus, if the private sector of a country has a large amount of foreign debt, the country has a better chance of surviving a balance-of-payments crisis by imposing capital controls than countries with a smaller amount of foreign debt.

One should note that it is the net foreign position of the private sector, not the country as a whole, that determines the size of the savings in debt service. It is possible that the private sector of a country is a net foreign creditor while the country as a whole is an official net foreign debtor. This is the case when the amount of foreign debt owed by the government is large enough or when the country has a large amount of unofficial foreign assets accumulated as a result of capital flights. In such a case, capital controls will prove less effective as a means of dealing with balance-of-payments problems. The loss of effectiveness of capital controls as a means of defending reserves generates higher expectation of exchange regime collapse or devaluation, which in turn causes even more capital outflows or capital flights out of this country.

On the other hand, if a country's exchange outflows have been tightly con-

trolled in the past, the private sector is likely to possess smaller holdings of foreign bonds and therefore the country as a whole should be better able to survive balance-of-payments crises. If the country, however, removes its controls, there may be an immediate capital outflow and as a result capital controls become less effective than before. This could be one reason why some countries experiencing current account surplus or balance are reluctant to remove controls on exchange outflows.

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