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IS FINANCIAL REPRESSION REALLY BAD?

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─Abstract ─

This paper examines the relationship between reserve requirements, interest rate taxes, and long-term growth. I present a model which shows that the government might repress the financial sector as this is the easy way of channelling resources to productive sectors.

In this endogenous model, I employ the government input in the firm production function. The implications of the model are confirmed in that, an increase in reserve requirements and interest rate controls have two different reverse effects on growth - one is the negative effect on the financial sector. The other is a growth enhancing effect from the effective public spending on the real sectors.

Key Words: *Reserve ratio, Interest rate, Growth*
JEL Classification: E40, E51, O42,

1. INTRODUCTION

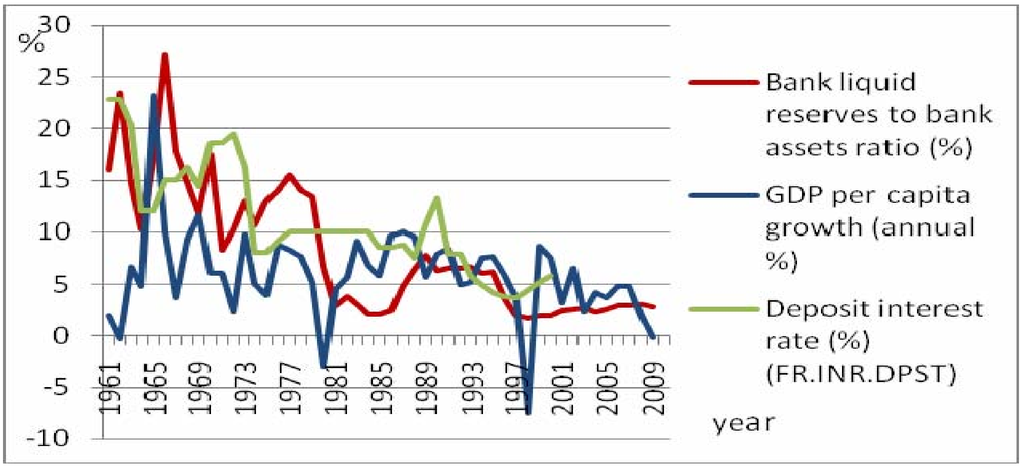
In the field of economic growth, financial repression and liberalization has been one of the most controversial issues in developing countries. Financial repression can be described as the situation, where governments set laws, taxes and restrictions and regulations on the financial sector in order to protect financial solidity, as well as the public from unanticipated losses. (Roubini and Martin, 1995) They pointed out that numerous economists preferred the financial repression policy for several reasons. First, the strict control on the banking sector benefits the monetary authorities by enabling them to better handle their money supply. Second, as (McKinnon,1973) also noted that government intervention such as channeling a credit subsidy and acting as a bank for selected industrial sectors can significantly increase the efficiency of credit allocation. Moreover, directed credit programs could provide resources to high technological spill over areas. Third, under the financial repression policy, interest rates are set below market rates, which lower the cost of government debts. Conversely, numerous scholars argued that financial repression policy has negative effects on economic growth. Several factors such as the required reserve ratios and interest rate ceilings lead to an increase in the cost of financial intermediation, hence deteriorating the financial system's funneling channels to the efficient productive sectors. Moreover, if the cost of financial intermediation is high, small and medium sized corporations will need to self finance their own investment projects. This leads not only to inefficient investment but also to a misallocation of capital.

On the other hand, since the 1980s, there have been many papers published arguing that theoretically, financial liberalization can help to accelerate economic growth through a number of channels. In particular, these can be categorized in 'direct' and 'indirect' ways. (Prasad *et al*.,2003)
In general, there are financial flows from capital–rich countries to capital-scarce countries when it allows for increased investment providing higher expected returns in the latter. Specifically when a country opens its capital account, the capital inflow especially as a form of savings from other countries, enables it to finance high domestic demand on investments in physical capital. In terms of lowering financial intermediation costs, the financial openness deepens and broadens domestic financial markets and help to increase the efficiency of the financial intermediation process. This efficiency brings lower mark-up rates in banking, a lower cost in investment and higher economic growth. Generally capital inflows increase after a country announces the removal of her capital restrictions. In other words, a financial liberalization could be a signal that the capital policy would be more generous for foreign investors. In addition it may show that a country is ready to adopt good and sound macroeconomic policies, such as reducing budget deficits. (Bartolini and Drazen, 1997a)

However, this view had been quite disputed. Some authors question the extent to which unfettered capital flows with regard to the capital opening process should be appreciated. The foundation of such criticism being that financial liberalization could increase financial fragility, which often leads to a currency crisis, moreover the economic growth that followed the liberalization of the financial systems in several developing countries, did not perform as well as in financial repression. More specifically, there were some cases in the 1980s and 1990s showing a remarkable number of problems which impacted developing countries. For example, the Asian financial crisis in 1997 emerged with a series of currency devaluations mainly among South East Asia, South Korea that occurred after financial reform. There have been similar economic policies on the financial system - Until the middle of the 1980s, capital controls were widely used to promote selective industries but in the 1990s, relaxations of capital controls were speedily adopted.

Our interest in these topics was motivated by the observation that the Korean economic growth experience has been different from other countries. For the last four decades, Korea has shown astonishing GDP growth as well as exhibiting the development of its financial system by allowing its government to interfere significantly with the control of the bank reserve ratio, interest rates and the credit allocation. (Cho,1989) believed that government intervention in the financial system, in the initial stage of economic development, contributed to economic growth. However the problems derived from government controls on the financial sector came to the fore during the process of financial liberalization which started in the late 1980s. Furthermore, the weaknesses of this financial system caused Korea to face a financial crisis in 1997 and it had to be supported by the International Monetary Fund (IMF) and the World Bank. In the wake of the crisis, Korea's financial system has been radically changed in the process of financial restructuring with regard to a sound financial system. In comparison with Korea's pre and post financial liberalization, financial reserve ratio and capital inflow show remarkable differences. Figure 1 shows the change.

(Figure 1)



Especially until the late 1980s, the Bank of Korea depended on reserve requirements in order to control its money supply. For instance, the Bank of Korea set the reserve ratio in the banking sector as high as 11.5 percent at the end of 1980s. As the government selected the financial liberalization policy, reserve requirements for demand and time deposits were decreased by 7 percent in 1996 and it dropped by 2 percent of time deposit. Interestingly in the figure 6, the bank liquid reserves to bank assets ratio shows a similar movement with GDP per capita growth. In addition, the deposit interest rate also illustrates a similar path to the reserve requirement ratio and GDP. Under government control; firms, banks and individuals cannot freely access the international market. As domestic borrowing and lending rates were higher than the international rates, the government borrowed capital from international market with lower interest rates, and lent them to the domestic market with higher interest rates. The differences between the domestic interest rates and international rates are considered as a tax.

Within these contexts, this paper addresses the following question: How can we explain this economic phenomenon in Korea theoretically? Do the increase in bank reserve ratio requirement and interest rate control on foreign bonds under the financial repression policy affect the economic growth if the government uses the reserve requirements and interest rate tax?

In this paper the AK model, the endogenous growth model is employed by considering an economy where the government revenue is collected by imposing the tax such as reserve requirements and higher interest rates on foreign bonds on the banking sector. This tax is then spent by the government on the firm production sector.
The rest of this paper is organized as follows. Section 2 describes the model which illustrates how reserve requirements and interest rate tax affects growth. Section 3 offers the concluding remark.

2. Model

I employ the simple AK model to analyze how the reserve ratio and interest rate control can affect economic growth. The model used in this analysis is similar to (Basu, 2001). The model forms a production function, in which the marginal product of capital is constant. Final output is produced by two inputs: Capital (K_t), and Government input (G_t). Here I ignore population growth. For simplicity, there are zero depreciation rates for all capital stocks. I assume a Cobb-Douglas aggregate production function, which is written as follows:

$$Y_t = AK_t^{\alpha} G_t^{1-\alpha} \quad (1)$$

Where $0<\alpha<1$and A is a fixed technology parameter. I follow the approach of

(Basu, 2001) in which the government spends all the reserve-augmented seigniorage in the provision of the input (G_t). Profit maximizing behavior dictates that the firm rents capital from a bank up to a point where the real rental rate (r_t^L) equals the marginal productivity of domestic capital (MPK_t). In other words,

$$MPK_t - r_t^L - \pi_t \quad (2)$$

$$MPK_t = A\alpha(K_t)^{\alpha-1} G_t^{1-\alpha} = r_t^L - \pi_t = \alpha Y/K \quad (3)$$

$$Y_t = \frac{(r_t^L - \pi_t)}{\alpha} K = AK \quad (4)$$

This shows the 'AK' structure. When there is capital accumulation through learning by doing, the result it technological development and an increase in the marginal product of capital, this cancels the tendency for the marginal product of capital to diminish when technology is unchanged.

There are competitive banks in this model which deposit from households and international markets. Only banks can access foreign bonds. A government sets the reserve requirement which the bank should keep at a fraction of nominal deposit and the interest rate for foreign bonds at the same level as the domestic deposit rate which is higher than the international interest rate.

$$r^* < r^D \quad (5)$$

$$r^D = r^* + \varepsilon \quad (6)$$

Where the wedge ε can be appropriated by the government by taxing banks.

I follow (Diaz *et al*.,1992)'s argument that banks solve the following static problem.

$$\text{Max}\,(1+r_t^L)L_t + R_t - (1+r_t^D)(D_t+F_t) \quad (7)$$
$$\text{s.t.}\; R_t + L_t \leq D_t + F_t \quad (8)$$
$$R_t \geq \tau(D_t+F_t) \quad (9)$$

where L_t= (nominal) loan at date t , D_t= (nominal) deposit at date t, F_t =foreign bond at date t, R_t=nominal reserve at date t, and τ = statutory reserve ratio. The banks hold the reserve as the form of fiat money and in this paper I focus on the situation when the constraint (9) is binding.

$$R_t = \tau_t(d_t P_t + F_t) \quad (10)$$

where d_t= (real) deposit at date t. A zero profit condition holds when banks are competitive.

$$\text{Profit} = (1+r_t^L)L_t - (1+r_t^D)(D_t+F_t) = 0$$
$$r_t^L - r_t^D/(1-\tau_t) \quad (11)$$

The reserve requirement ratio (τ_t) determines the wedge between the nominal lending rate and the nominal borrowing rate.
In this model, all the reserve-augmented seigniorage revenue and the wedge (ε), the differences between the domestic and the foreign rate on foreign bonds are spent by the government on the firm production function. Hence, the government budget constraint is

$$G_t = \mu_t\left(\frac{R_t}{P_t}\right) + \varepsilon_t F_t \quad (12)$$

Assume that all the loans can be changed into the capital without any cost. Equation (12) can be rewritten as

$$G_t = \left[\mu_t\left(\frac{\tau_t}{1-\tau_t}\right) + \varepsilon_t\right] k_t \quad (13)$$

Consider the representative household is assumed to live for an infinite number of periods, and share the standard intertemporal utility function of the form.

$$U - \int_0^\infty \frac{c_t^{1-\theta} - 1}{1-\theta} e^{-\rho t} dt$$

where C_t is consumption at time t, ρ is the subjective rate of time preference, and θ is the inverse of the intertemporal elasticity of substitution. $1/\theta$ is equal to the intertemporal elasticity of substitution. Households select a consumption path which can maximize the present value of their utility over the infinite period. As the present is more valued than the future, this present value corresponds to households' rate of time preference which is calculated by a discount rate ρ. The maximization of intertemporal utility is subject to capital accumulation.

So that the households' utility maximization behavior is,

$$MAX \int_0^\infty \frac{c_t^{1-\theta} - 1}{1-\theta} e^{-\rho t} dt \quad (14)$$

$$s.t.\ c_t + \dot{d} = (r_t^D - \pi_t) d_t + w_t \quad (15)$$

where c_t = consumption, d_t = deposit from domestic, f_t = foreign bonds, π = inflation rate and w_t = real wage.
Substituting (11), the household's budget constraint can be written as follows.

$$c_t + \dot{d} = r_t^L (1 - \tau_t) - \pi_t + w_t \quad (16)$$

The Hamiltonian takes the following form,

$$H = \frac{c_t^{1-\theta} - 1}{1-\theta} e^{-\rho t} + \lambda\{(r_t^D - \pi_t) d_t + w_t - c_t\}$$

The first order conditions associated with the problem are,

$$\frac{\partial H}{\partial c} = \frac{c_t^{1-\theta} - 1}{1-\theta} e^{-\rho t} - \lambda = 0$$

$$\frac{\partial H}{\partial d} = \lambda\{(r_t^D - \pi_t) + \dot{\lambda}\} = \lambda\{(r_t^L(1 - \tau_t) - \pi_t) + \dot{\lambda}\} = 0$$

Take log transform of the equation and the time derivative, and I get a rate of consumption growth equal to

$$r_c = \frac{\dot{c}}{c} = \frac{r_t^L(1 - \tau_t) - \pi_t - \rho}{\theta} = \frac{MPK_t(1 - \tau_t) - \pi_t\tau_t - \rho}{\theta} \quad (17)$$

Using (3), (13), (17) and the production function (1), it can be written: [1]

$$r = \frac{\alpha\Lambda\mu^{1-\alpha}\tau^{1-\alpha}(1-\tau)^{\alpha} + \varepsilon^{1-\alpha} - \pi_t\tau_t - \rho}{\theta} \quad (18)$$

The growth equation (18) demonstrates how reserve augmented seigniorage and the imposition of tax on the interest rate impacts growth. There are two aspects of (18) that need to be highlighted. First, the optimal growth rate is related to the money growth rate (μ), Reserve ratio (τ), the wedge (ε), the differences between the domestic rate and the foreign rate on foreign bonds, the subjective rate of time preference (ρ), and the relative risk aversion (θ). As long as these five are constant, consumption grows always at the same constant rate in that period. Second, the effects in reserve ratio and the interest rate differences between the domestic rate and the foreign rate on foreign bonds is non linear because they have two different effects, promoting the growth as well as distorting it. When

1 Employ time invariant as they are monetary policy parameters. Inflation rate is given in this model.

there is no reserve requirement and difference between the domestic interest rate and international rate, the model appears to be a standard Ramsey-Cass-Koopmans. [2]

3. Conclusion

In this paper, I develop a model of reserve requirements, interest rate tax and growth that allows us to examine the effects of financial repression policy on long-term growth. It can provide some evidence as to why some emerging economies, such as South Korea, have shown the remarkable economic growth under the financial repression policy. Our view is that the higher economic growth in emerging countries is a result of government intervention such as channeling resources in selected industrial sectors which can significantly increase the efficiency of credit allocation.

The following is the main results of the paper. The endogenous growth model is developed here and I assume that the government spends its revenue from reserve requirements and interest rate tax on foreign bonds into the real sectors. I discover that the reserve requirement ratio and the interest rate tax on foreign bonds have two different effects on economic growth. One is the positive effect that government uses these two sources as inputs for the productive sectors. Hence it helps to allocate capital in higher profitable investment increasing the average return to capital. On the other hand, the negative effects are from the financial sector, that higher reserve requirement and higher interest rates on foreign bonds reduce aggregate investment for given levels of savings so that it leads to adverse effects on growth. In this paper, there is the presence of a nonlinear effect in the relationship between these two financial repression policies and economic growth, suggesting that an increase in reserve the requirement ratio and interest rate tax on foreign bonds may have a positive impact on the growth up to a threshold level. Further empirical research should be undertaken in order to clear out this theoretical relationship between the reserve ratio, interest rate tax and growth.

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2 A balanced growth rate in a standard Ramesy-Cass-Koompans model is ($MPK_t - \rho/\theta$).

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