A Generic Model of Financial Repression

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Abstract

The paper develops a standard neoclassical growth model in an overlapping generations framework of a financially repressed economy, and analyzes the effects of financial liberalization on steady-state capital stock. The repression is assumed to be severe “enough” to generate an unofficial money market. The following observations are made: Deregulation of interest rate reduces the steady-state stock of capital, while reduction in the multiple reserve requirements enhances it. The paper thus advocates financial liberalization policies to be oriented towards reduction of reserve requirements rather than interest rate deregulation.

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1 Introduction

The paper develops a standard neoclassical growth model in an overlapping generations framework of a financially repressed economy, and analyzes the effects of financial liberalization on steady-state capital stock. Specifically, the study attempts to provide an all encompassing structure of a financially repressed economy characterized by curb markets and in turn analyze the effects of relaxation of interest rate ceilings and lowering of multiple reserve requirements on capital accumulation.

The term financial repression was originally coined by economists interested in less developed countries (LDCs). In their seminal but independent contributions, McKinnon (1973) and Shaw (1973) were the first to spell out the notion of financial repression, defining it as the set of government legal restrictions preventing the financial intermediaries in the economy from functioning at their full capacity level. Broadly speaking, financial repression implies the lack of depth of financial intermediation in the financial markets of the developing world.

Generally, financial repression consists of three elements. First, the banking system is forced to hold government bonds and money through the imposition of high reserve and liquidity ratio requirements because it allows the government to finance budget deficits at a low or zero cost. Second, given that government revenue cannot be extracted that easily from private securities the development of private bond and equity markets is discouraged. Finally, the banking system is characterized by interest rate ceilings to prevent competition with public sector fund raising from the private sector and to encourage low-cost investment. Thus, the regulations generally includes interest rate ceilings, compulsory credit allocation, and high reserve requirements.

Since the break-up of the colonial empires, many developing countries were observed to suffer from stagnant economic growth, high and persistent inflation, and external imbalances under the financially repressed regime. To cope with these difficulties economic experts had advocated what
they called “financial liberalization” — mainly a high interest rate policy to accelerate capital accumulation, hence growth with lower rates of inflation (McKinnon (1973), Shaw (1973), Kapur (1976) and Matheison (1980)). Their argument that relaxation of the institutionally determined interest rate ceilings on bank deposit rates would lead to price stabilization and long-run growth through capital accumulation is based on the following chronology of events: (a) The higher deposit rates would cause the households to substitute away from unproductive assets (foreign currency, cash, land, commodity stocks, and so on) in favor of bank deposits; (b) This in turn would raise the availability of deposits into the banking system, and would enhance the supply of bank credit to finance firms’ capital requirements, and; (c) This upsurge in investment would cause a strong supply side effect leading to higher output and lower inflation.

The above set of proposition, however, came into serious criticism from Van Wijnbergen (1983, 1984). He opposes the above argument by arguing that this line of thought has ignored the role of Unorganized Money Market (henceforth UMM). Van Wijnbergen (1983, 1984) stressed that the UMM or popularly the “curb” markets are an integral component of the financial structure of the developing countries, and they in fact provide more rather than less intermediation when compared to the banking system, simply because the “curb” markets are not subjected to interest rate and reserve requirement policies. Van Wijnbergen (1983, 1984) outlines the UMM as a “residual” market absorbing the excess demand for credit from the banking system and in turn clearing the entire market for credit. He argues that in a world with multiple saving options, in the form of, unproductive assets, interest bearing bank deposits, and UMM securities, interest rate deregulation can cause a reallocation in households portfolio in favor of bank deposits at the cost of the unproductive assets and the UMM securities. If this reallocation is mainly at the expense of “curb” market securities, then the total supply of credit would fall since since unlike the banking system
subjected to reserve requirements, the UMM provides one to one intermediation. The credit-squeeze in the financial market would now push up the UMM rate and in turn create a cost-push effect on aggregate supply lowering capital accumulation, output and raising inflation.¹

The study is unique in the sense that it tries to provide a compact analysis of financial liberalization, based on a whole set of disparate studies² that tends to concentrates on one or some of the features characterizing a repressed economy. The paper is organized in the following order: Besides the introduction and conclusion, Section 2 lays out the basic model. Sections 3 and 4 are devoted to defining the equilibrium and analyzing the effects of financial liberalization, in our case implying a higher nominal rate of interest on deposits and lower multiple reserve requirements, on steady-state per-capita capital stock.

2 The Economic Environment: Consumers, Banks, Firms and the Government

In this section, the overlapping generations model of Diamond (1965) is modified to depict a financially repressed structure. The economy is characterized by an infinite sequence of two period lived overlapping generations. Time is discrete and is indexed by \( t = 1, 2, \ldots \). At each date \( t \), there are two coexisting generations – young and old, with them being in the first and second period of

¹Recently Nag and Mukhopadhay (1998) indicated that the claims of stagflation following financial liberalization as made by Van Wijnbergen (1983, 1984) is in fact highly sensitive to the choice of the exchange rate regime and nature of trade orientation of a LDC. They indicated that stagflation is no longer the inevitable outcome once one allows for exchange rate flexibility in the current account and import penetration in the production structure. In fact financial liberalization is observed to be successful in bringing down the inflation rate and improving the performance of the real sector.

²For a detailed survey of the literature on financial repression, see Karapatakis (1992) and Gupta (2004a, 2004b)
their life respectively. \( N \) people are born at each time point \( t \geq 1 \). At \( t = 1 \), there exist \( N \) people in the economy, called the initial old, who live for only one period. Hereafter \( N \) is normalized to 1.

Each agent is endowed with one unit of working time when young and is retired when old. The agent supplies this one unit of labor inelastically and receives a competitively determined real wage of \( w_t \). We assume that the agents consume only when old\(^3\) and hence the wage earnings is allocated between deposits and loans in the curb market. The proceeds from the bank deposits and the curb market loans are used to obtain second period consumption. But to allow for simultaneous holding of curb market loans and deposits in the consumer portfolio, given that the interest rate in the UMM is much higher compared to the controlled deposit rate, we assume the curb market loans to be subjected to transactions and information costs. This cost is assumed to be increasing and convex function of the amount of UMM loans.

Formally, the agents problem born in period \( t \) is as follows:

\[
d_t + l_t^c \leq w_t
\]

\[
c_{t+1} \leq \frac{(1 + \hat{\gamma}_{dt+1})d_t + (1 + \hat{\gamma}_{t+1}^c)l_t^c}{1 + \pi_{t+1}} - \frac{1}{2} \frac{(l_t^c)^2}{1 + \pi_{t+1}}\]

where \( d_t \) and \( l_t^c \) are the real deposits and curb market loans respectively; \( c_{t+1} \) is the old age consumption; \( \hat{\gamma}_{dt+1} \) and \( \hat{\gamma}_{t+1}^c \) is the controlled nominal interest rate on bank deposits and the nominal interest rate prevailing in the UMM, with \( \hat{\gamma}_{t+1}^c > \hat{\gamma}_{dt+1}; \frac{\pi_{t+1}}{\pi_t} = (1 + \pi_{t+1}) \) is the rate of inflation at period \( t + 1 \), given that \( p_t \), is the price of the consumption good at period \( i \) and; \( \frac{1}{2} l_t^c \), captures the information and transaction cost involved when making loans in the curb market. The quadratic form satisfies the assumptions of increasing and convexity of the cost in the amount of curb market

\(^3\)This assumption has no bearing on the results of our model. It makes computations easier and also seems to be a good approximation of the reality. For details see Hall (1988). Moreover, assuming old-age consumption only, makes our analysis independent of the choice of the utility function.
loans.\footnote{Note utility maximization is equivalent to maximizing old-age consumption with respect to $l_t$.} The maximization problem of the consumer yields the following optimal choices:

\begin{align*}
l_t^* &= v_{t+1} / i_{t+1} - i_{t+1} \\
d_t^* &= w_t - i_{t+1} + i_{t+1} + i_{t+1} \\
c_{t+1}^* &= (1 + i_{t+1})w_t + \left[ (1 + i_{t+1})^2 + (1 + i_{t+1})^2 \right] / (1 + \pi_{t+1})
\end{align*}

The financial intermediaries, in this economy, behave competitively but are subjected controlled interest rates and multiple reserve requirements. The banks provide a simple pooling function, along the lines described in Bryant and Wallace (1980), by accumulating deposits of small savers and loaning it out to firms after meeting the cash reserve and government bond reserve requirements. For simplicity bank deposits are assumed to be one period contracts, guaranteeing a controlled nominal return of $i_{dt}$ with a corresponding controlled nominal loan rate of $i_{lt}$. Generally, in a repressed regime both the deposit and loan rates are set well below the market clearing level.

Note the rate of return on the government bonds is generally very low and hence the reserve requirement on them serves to generate a forced demand. For the sake of simplicity we will assume them to yield a zero rate of return.\footnote{This assumption allows us to avoid incorporating government bonds in the household portfolio and helps us to negate plausible multiplicity of optimal allocations of deposits and government bonds that would have cropped up, given that households would not hold government bonds unless they promised a return at least as large as the bank deposits. However, assuming that the government bonds yields a positive nominal rate of return but lower than the interest rate on deposits would have no bearing on our results and would merely change the profit function of the banks.} Given such a structure, the real profit of the intermediary can
be defined as follows:

\[
\Pi_{Bt} = \tilde{r}_{lt}l_t - \tilde{r}_{dt}d_t
\]  

(6)

with

\[
m_t + b_t + l_t \leq d_t
\]

(7)

\[
m_t \geq \gamma_1 d_t
\]

(8)

\[
b_t \geq \gamma_2 d_t
\]

(9)

where \(\Pi_{Bt}\) is the profit of the bank in real terms at period \(t\); \(l_t\) is the loans in real terms at period \(t\). Note (7) ensures the feasibility condition and \(b_t\) and \(m_t\), respectively are banks holding of government bonds and fiat money in real terms. The banks are also subject to the multiple reserve requirements on cash and government bonds, given by (8) and (9) respectively.

The solution to the bank’s profit maximization problem results from free entry, driving profits to zero and is given by

\[
\tilde{r}_{lt}(1 - \gamma_1 t - \gamma_2 t) - \tilde{r}_{dt} = 0
\]

(10)

Simplifying, in equilibrium, the following condition must hold

\[
\tilde{r}_{lt} = \frac{\tilde{r}_{dt}}{1 - \gamma_1 t - \gamma_2 t}
\]

(11)

As is observed, from (11) the solution to the bank’s problem yields a loan rate higher than the interest rate on the deposits, since reserve requirements tend to induce a wedge between borrowing and lending rates. Given the multiple reserve requirements and the controlled interest rate on deposits, the nominal interest rate on the loans is also controlled and determined from (11).

All firms are identical and produces a single final good using a standard constant returns to scale neoclassical production function, \(F(k_t, n_t)\) where \(k_t\) and \(n_t\) denotes the capital and labor input
respectively at time point $t$. The production technology is assumed to take the Cobb-Douglas form:

$$Y = F(k, n) = Ak^\alpha n^{(1-\alpha)}$$

where $A$ is a positive scalar, $0 < \alpha ((1-\alpha)) < 1$, is the elasticity of output with respect to capital (labor). At time point $t$ the final good can either be consumed or stored. Capital is rendered useless after the production process is over. Firms operate in a competitive environment and maximizes profit taking the wage rate, the rental rate on capital and the price of the consumption good as given. Note given that both interest rates on deposits and loans are controlled and subject to a ceiling, there exists an excess demand for loans in the official loan market. However, the UMM serves as the “residual” market and absorbs the excess demand for loans from the banking system and in turn clears the entire market for credit. Hence, the interest cost in the unofficial market defines the true marginal cost (rental rate) of production for the firms, with loan rate in the official market having no disciplinary effect on the behavior of the firms given the existence of credit rationing. Thus the producers convert available bank loans, $l_t$, and curb market loans, $l^c_t$, into fixed capital formation such that $p_t i_{kt} = p_t [l_t + l^c_t]$, where $i_t$ denotes the investment in physical capital.

Notice that the production transformation schedule is linear so that the same technology applies to both capital formation and the production of consumption good and hence both investment and consumption good sell for the same price $p$.

We follow Diamond and Yellin (1990) and Chen, Chiang and Wang (2000) in assuming that the goods producer is a residual claimer, i.e., the producer ingests the unsold consumption good in a way consistent with lifetime maximization of value of the firms. This ownership assumption avoids unnecessary Arrow-Debreu redistribution from firms to households and simultaneously maintains the general equilibrium nature.

The representative firm at any point of time $t$ maximizes the discounted stream of profit flows
subject to the capital evolution and loan constraints. Formally, the problem of the firm can be outlined as follows

$$\max_{k_{t+1}, n_t} \sum_{i=0}^{\infty} \rho^i [p_t A k_t^{\alpha} n_t^{(1-\alpha)} - p_t w_t n_t - p_t (1 + \bar{i}_t) l_t - p_t (1 + \bar{l}_t) l_t]$$ (13)

$$k_{t+1} \leq (1 - \delta_k) k_t + i_{kt}$$ (14)

$$p_t i_{kt} \leq p_t [l^c_t + l_t]$$ (15)

$$l_t \leq (1 - \gamma_1 t - \gamma_2 t) d_t$$ (16)

where $\rho$ is the firm owners (constant) discount factor, and $\delta_k = 1$, is the (constant) rate of capital depreciation. The firm solves the above problem to determine the demand for labor and investment in period $t$, or the gross amount of capital to be carried over to period $t + 1$. Note given regulated interest rates in the official loan market and hence credit rationing, $(1 + \bar{l}_t) l_t$ captures the fixed cost of the firm.

The firm’s problem can be written in the following recursive formulation:

$$V(k_t) = \max_{n_t, k_t^*} [p_t A k_t^{\alpha} n_t^{(1-\alpha)} - p_t w_t n_t - p_t (1 + \bar{i}_t) (k_{t+1} - l_t) - p_t (1 + \bar{l}_t) l_t] + \rho V(k_{t+1})$$ (17)

The upshot of the above dynamic programming problem are the following first order conditions.

$$k_{t+1} : (1 + \bar{i}_t) p_t = \rho V'(k_{t+1})$$ (18)

$$(n_t) : (1 - \alpha) A \left( \frac{k_t}{n_t} \right)^\alpha = w_t$$ (19)

And the following envelope condition.

$$V'(k_t) = p_t [\alpha A \left( \frac{n_t}{k_t} \right)^{(1-\alpha)}]$$ (20)
Optimization, leads to the following efficiency condition, besides (16), for the production firm.

\[
(1 + i_t) = \rho(1 + \pi_{t+1}) \left[ \alpha A \left( \frac{n_{t+1}}{k_{t+1}} \right)^{(1-\alpha)} \right] \tag{21}
\]

Equation (21) provides the condition for the optimal investment decision of the firm. The firm compares the cost of increasing investment in the current period with the future stream of benefit generated from the extra capital invested in the current period. And equation (19) simply states that the firm hires labor up to the point where the marginal product of labor equates the real wage.

In order to complete the description of the environment, we now describe the activities of an infinitely-lived government. The government purchases \(g_t\) units of the consumption good and are assumed to costlessly transform these one-for-one into what are called “government good”. The government good is assumed to be useless to the agents. The government finances these purchases by issuing government bonds and printing of fiat money. Note following Bacchetta and Caminal (1992), we implicitly assume that the government has exhausted its ability to raise revenue through alternative taxes. Therefore, \(g\) can be interpreted as the level of government expenditures not financed by standard means of taxation.\(^6\) We will assume that money evolves according to the policy rule \(M_t = (1 + \mu_t)M_{t-1}\), where \(M\) and \(\mu\) are respectively, the nominal stock of money and its corresponding growth rate. Formally, the government’s budget constraint at date \(t\) can be defined as follows:

\[
g_t = \frac{\mu_t}{1 + \mu_t} m_t + b_t - \frac{b_{t-1}}{1 + \pi_t} \tag{22}
\]

\(^6\)Note that there is ample evidence (see Gupta (2004c, 2004d, 2004e)) that developing countries have high degrees of tax evasion rendering the tax base to be small and enhancing costs of tax collection. In fact it is this “high” degrees of tax evasion that often causes the government to resort to repressing the financial sector as an “easy source of revenue” (see Roubini and Sala-i-Martin (1995), Cukierman, Edwards and Tabellini (1992), McKinnon (1973, 1991), Fry (1988)). In the experiments conducted below, we assumed that wage income is taxed with a part of the tax burden being evaded. All of our results hold
3 Equilibrium

A valid perfect-foresight, competitive equilibrium for this economy is a sequence of prices \( \{ p_t, \tilde{i}_{dt}, \tilde{i}_{lt}, \tilde{i}_t^c \}_{t=0}^\infty \), allocations \( \{ c_t, n_t, i_{kt} \}_{t=0}^\infty \), stocks of financial assets \( \{ m_t, d_t \}_{t=0}^\infty \), and policy variables \( \{ \tilde{i}_{dt}, \tilde{i}_{lt}, \tau_t, \gamma_{1t}, \gamma_{2t}, \mu_t, g_t \}_{t=0}^\infty \) such that:

- Taking \( \tilde{i}_{dt}, \tilde{i}_{lt}, \tilde{i}_t^c, w_t, \tau_t \) and \( p_t \), the consumer optimally chooses \( l_t^c \) such that (1) and (2) holds;
- The stock of financial assets solve the bank’s date–t profit maximization problem, (16), given prices and policy variables.
- The real allocations solve the firm’s date–t profit maximization problem, (13), given prices and policy variables.
- The money market equilibrium conditions: \( m_t = \gamma_{1t} d_t \) is satisfied for all \( t \geq 0 \).
- The loanable funds market equilibrium condition: \( p_t i_{kt} = (1 - \gamma_{1t} - \gamma_{2t}) p_t d_t + p_t l_t^c \) is satisfied for all \( t \geq 0 \).
- The goods market equilibrium condition require: \( c_t + i_{kt} + g_t = k_t^\alpha n_t^{(1-\alpha)} \) is satisfied for all \( t \geq 0 \).
- The labor market equilibrium condition: \( (n_t)^d = 1 \) for all \( t \geq 0 \).
- The government budget is balanced on a period-by-period basis.
- \( d_t, l_t^c, (1 + \tilde{i}_{dt}), (1 + \tilde{i}_t^c) \) and \( p_t \) must be positive at all dates with \( (1 + \tilde{i}_{lt}) > 1 \).
4 Financial Liberalization and Steady-State Capital Stock

We will assume the government to follow time invariant policy rules, which means, the institutionally determined nominal interest rate on deposits and loans, $\tilde{i}_{dt}$ and $\tilde{i}_{lt}$ respectively, the cash reserve–ratio, $\gamma_{1t}$, the bond reserve–ratio, $\gamma_{2t}$, the money supply growth–rate, $\mu_{t}$, and the tax–rate, $\tau_{t}$ are constant over time. Using equations (3), (4), (19), (21) evaluated at the steady-state, the loan, money and the labor market equilibrium conditions and realizing the $k_{t+2} = k_{t+1} = k_{t} = k^{ss}$, we obtain the following non-linear equation, which needs to be solved to derive the optimal value of $k^{ss}$.

$$\left( \frac{k^{ss} - (\gamma_{1} + \gamma_{2})(1 + \mu)A_\alpha \rho k^{ss\alpha - 1} + (1 + \tilde{i}_{d})(\gamma_{1} + \gamma_{2})}{(1 - \gamma_{1} - \gamma_{2})A(1 - \alpha)} \right)^{\frac{1}{\alpha}} = k^{ss} \quad (23)$$

To solve for the optimal steady-state value we plot the right hand and the left hand side of the above equation as a function of $k^{ss}$. The right-hand side of the equation would imply a straight line through the origin with a slope of 1, while it is easy to show that the left hand side of the equation is an upward sloping function with a slope greater than 1, given that $0 < \alpha < 1$, which intersects the 45 degree line from below. To see this clearly we impart values to the production and policy parameters of our model. We set $A = 1.05$, $\alpha = 0.40$, $\rho = 0.98$, $\mu = 0.10$, $\tilde{i}_{d} = 0.15$. Since the effect of reducing the reserve requirement on cash and bond would be identical we define, $\gamma_{1} + \gamma_{2} = \gamma$, and set $\gamma = 0.15$. The resulting equations are plotted in Figure-1 in the $(k^{ss}, X)$ plane, where $X = (L, R)$. The right hand side of the equation is denoted by the $R$ curve and the left hand side by the $L$ curve. The steady-state value of the economy is obtained at point $E$.

The effects of an increase in the interest rate on deposits on steady-state capital stock is stud-

\footnote{Though the choice of the parameters seem somewhat arbitrary, they are encountered in the literature. Moreover, the results obtained below are robust to choice of alternative parameter values. These values, however, ensures that $\tilde{i}_{c} > \tilde{i}_{l} > \tilde{i}_{d}$}
ied in Figure-2. Note the higher deposit rates would also result in higher interest rate on bank loans. However, in this model, changes in the lending rate cannot affect the volume of outstanding loans. Moreover, following Van Wijnbergen (1983), Buffie (1984), Kohsaka (1984), and Karapatakis (1992), we assume that interest rates are not raised to the extent that the excess demand for credit in the official market is completely eliminated. Note an increase in $i_d$ from 15 percent to 20 percent, causes the $L$ curve to move upward and hence the new steady-state per-capita capital stock obtained from point $E^1$ is lower than that corresponding to $E$. Such an effect is intuitive since an increase in the deposit rate in the official market would cause the loan supply in the unofficial market to go down, as is evident from equation (3). However, the corresponding increase in deposits fail to increase the aggregate loan supply since the official market is subjected to reserve requirements. The fall in the loan supply reduces the availability of investible funds and hence the capital stock and output at steady state. The model thus corroborates, the idea conveyed by Van Wijnbergen (1983, 1984), that deregulation of the interest rate on deposits affects output adversely.\footnote{We also considered a model where money served as the third asset. Following Bacchetta and Caminal (1992) money was introduced by assuming that a fraction of the consumption was needed to be financed through cash held by the households. This is as if to say are two kinds of goods in the economy – cash and credit goods. The results from the model suggested multiple equilibria but indicated that an increase in the interest rate on deposits would lead to lower steady-state levels of capital stock at both equilibria.}

We also study the effects of lowering the reserve requirements\footnote{Note in this model the sole reason the reserve requirements exist, is to enhance the seigniorage base. However, it must be realized that in a stochastic world reserve requirements may be imposed to prevent bank-runs. Countries with higher probabilities of banking-crisis might resort to imposition of higher reserve requirements to finance not only the bailout costs but also to prevent indiscriminate lending by banks. See Gupta (2004c, 2004d) for detailed analysis along this line of thought.} on the steady state capital stock. Intuitively, one would believe that lowering the multiple reserve requirements would increase the availability of loans from the official market and hence increase the steady-state level of capital.
stock. We reduce reserve requirements to 10 percent, given an initial value of 15 percent. The results support our intuition. As is seen from Figure-3, starting from an initial equilibrium at \( E \), the reduction of the reserve requirement shifts the \( L \)-curve downwards to \( L^1 \) causing the steady-state capital stock to increase, corresponding to the new equilibrium at \( E^1 \).

In summary, we observe that a mere interest rate deregulation will reduce steady-state capital stock and output and hence corroborate the apprehensions of Van Wijnbergen (1983, 1984) regarding financial liberalization. However, a reduction in reserve requirements enhances the steady-state capital stock and output. The model thus suggests that in the presence of “competitive and agile” curb markets, a reduction in reserve requirement is comparatively a better policy than an increase in the nominal interest rate on deposits. Hence financial liberalization in such a world should mainly be in the form of reduced reserve requirements.

5 Conclusion and Areas of Further Research

In the words of Roubini and Sala-i-Martin (1992):

“Before the 1970’s many economists favored policies of financial repression on several grounds. First, it was argued that the government needed to impose anti-usury laws thereby intervening in the free determination of interest rates. Second, strict control and regulation of the banking system was said to give the monetary authorities a better control over the money supply. Third, it was thought that governments knew better than markets and private banks that optimal allocation of savings was or what kinds of investments were more or less desirable from the social perspective. Fourth, financial repression was identified with interest rates below markets rates, which reduced the cost of servicing debts.”
But since the break-up of the colonial empires, many developing countries were observed to suffer from stagnant economic growth, high and persistent inflation, and external imbalances under the financially repressed regime. To cope with these difficulties economic experts had advocated what they called “financial liberalization” — mainly a high interest rate policy to accelerate capital accumulation, hence growth with lower rates of inflation. The current paper develops a standard neoclassical growth model in an overlapping generations framework of a financially repressed economy, and analyzes the effects of financial liberalization on steady-state capital stock. The repression is assumed to be severe “enough” to generate an unofficial money market.

In such a world, we study the effects of interest rate deregulation and reserve requirements reduction on steady state capital stock. We make the following observations: (i) Deregulation of interest rate reduces the steady-state stock of capital, and; (ii) Reduction in the multiple reserve requirements enhances the steady-state capital stock. The paper thus advocates financial liberalization policies to be oriented towards reduction of reserve requirements rather than interest rate deregulation, given the existence of a “competitive” curb market clearing the credit market.

An immediate extension of the current paper would be to endogenize the growth process and in turn analyze the effects of financial liberalization on growth and inflation in the presence of curb markets. Moreover, an open economy extension of the existing model, allowing for currency substitution and capital or intermediate goods import might be an interesting area to delve into.
Selected References


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