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Financial Repression, Bank Deposits, Real Assets and Black Money

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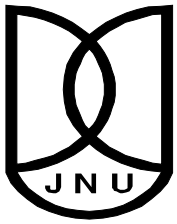

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Financial Repression, Bank Deposits, Real assets, and *Black Money*

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Abstract

Consider real assets and bank deposits. If returns on deposits improve due to reduction in *financial repression*, then investment in real assets can fall. However, if role of *black money* in real asset (secondary) market falls, then investment in the primary market can *rise*. So financial development will occur if the effect of reduction in financial repression is stronger than that of reduction of black money. This is shown in a model, with forced sales (due to liquidity shock), and strategic sales of real assets (under asymmetric information). Under some conditions, price is irrelevant for strategic trades.

Key words: *Financial repression*, *black money*, asymmetric information.

JEL Classification: G00, O17.

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1 Introduction

This paper examines the allocation between real assets (RAs) and financial assets (FAs). For households, important RAs and FAs are real estate and bank deposits respectively. In our model, we focus on the role of *financial repression* and the use of *black money* in determining the allocation between real assets and financial assets. This paper is motivated by reflections on the Indian economy. However, it may be applicable to other emerging economies as well.

Financial repression refers to the excessive or inappropriate controls in the financial sector. This is prevalent to a greater extent in emerging economies than in developed countries (McKinnon, 1973, and Shaw, 1973). This may help explain why the ratio of RAs to FAs in emerging economies is higher than that in developed countries. If, in future, we witness a reduction in financial repression, then, investment in FAs can increase.

The real estate market in some emerging economies has a problem. Trade in the secondary market involves *black money* (income/wealth which is illegal, or where taxes are evaded). This is well documented in the case of India[2], but this may be true for many other emerging economies. Ex-ante, this can discourage investment in real estate in the primary market for many people. However, with increasing globalization, improvements in regulation, enforcement of tax laws, etc., the role of black money may fall over time. If it does, then there is an interesting implication. Investment in real estate in the primary market can *rise* in future.

It follows that there are two opposing effects on investment in FAs. While

[2]More than 50 percent of the value transacted in the secondary market for real estate in Mumbai is made in black money (Jha, 1999).

a reduction in financial repression can increase investment in FAs, a reduction in the use of black money can decrease it. So investment in FAs will increase in emerging economies, if the first effect is stronger than the second. While the effect of a reduction in financial repression is straightforward, the effect of a decrease in the role of black money is not well understood.

In case of real estate, it may seem that an investor can eliminate the *unique risk*. But typically there is a fear of *encroachment*, if enforcement of rights is weak, real estate is located far away, and the market for delegated monitoring of RAs does not exist. Hence, there is risk in investment in real estate, even if there is no *market risk*. The primary market is where an investor buys a 'new' asset from a firm that is engaged in real estate development. The secondary market is where transactions in 'old' assets take place with considerable use of black money. For simplicity, we will assume that only black money is used in the secondary market for RAs. In contrast, transactions in the primary market are far more transparent. For simplicity, we assume that only *white money*[3] is used in the primary market for RAs.

FAs include assets traded in financial markets, and bank deposits. Since the participation of households in financial markets is small in emerging economies, we consider only bank deposits as FAs. Return for depositors is certain[4]. However, it is assumed to be lower than the expected return on real estate. One reason is financial repression. For comparison with the RA market, we will, henceforth, refer to investment in a bank deposit as a purchase of FA in the primary market, and any early redemption of a bank

[3]White money is opposite of black money.

[4]This may be due to a diversified portfolio, capital adequacy, deposit insurance, and so on.

deposit[5] as a sale in the secondary market. In the case of transactions in banks, which are far more transparent than in the case of RAs, both the primary market and the secondary markets involve white money. This leads to *segmented secondary markets*, since RA market involves black money, and FA market involves white money.

After investing in the primary market, some agents may be hit by a liquidity shock, and so they need to sell in the secondary market before the projects 'mature'. Others can wait. However, these others may be able to sell RAs strategically, if there is asymmetric information[6] on RAs. After selling, they may buy any other asset, if secondary markets are integrated. However, if secondary market in RAs involves black money, which cannot be used in FA market, then the markets become segmented. An agent who sells in one market cannot buy in another market. We will show that, under integrated markets, a bad RA is sold to buy a safe FA, whereas, under segmented markets, a bad RA is sold to buy another RA, which may be good or bad. Ex-ante, this leads to greater investment in RAs in the primary market, if secondary markets are integrated than if they are segmented.

The literature on financial development is extensively surveyed in Levine (2003). Financial repression and tax evasion (or, black money in our paper) are discussed in Roubini and Sala-i-Martin (1995). However, their model links these with growth and inflation. The model here builds on

[5]Usually an early redemption of a bank deposit is associated with bank runs. This paper, however, abstracts from this aspect completely.

[6]One rationale for asymmetric information is that a clear legal title to a real asset is often a problem in an emerging economy. The seller may know the weaknesses in the legal documents and de-facto *possession* of property, which the buyer does not know. Interestingly, in some extreme cases, the seller is not the owner at all!

Singh (2005), which has some similarities with Diamond and Dybvig (1983)[7]. Singh (2005) compared portfolio choice under symmetric information (SI) with that under asymmetric information (AI). In our model, we compare the case of integrated markets with that of segmented markets, given AI on quality of RA and AI on type of agent.

Plan of the paper is as follows. In section 2, we describe the model. Section 3 compares the case of integrated markets with that of segmented markets. Section 4 includes a discussion. We conclude in section 5.

2 The Model

There is a continuum of agents in $[0, 1]$. Each agent has an endowment of one unit at date 0, and a portfolio choice between RA and FA in the primary market. Both assets give returns at date 1 only.

RA yields a risky return, R, where $R = \overline{R}$ if the RA is good, and $R = \underline{R}$ if the RA is bad, and $0 < \underline{R} < \overline{R} < \infty$. Assume that RA is good with probability β, and it is bad with probability $(1-\beta)$, where $0 < \beta < 1$. Here β is also the proportion of projects that will give a return $\overline{R}$. If R^e and R^v denote mean and variance of R respectively, then clearly

$$R^e = \beta\overline{R} + (1-\beta)\underline{R}, \text{ and} \tag{1}$$

$$R^v = \beta[\overline{R} - R^e]^2 + (1-\beta)[\underline{R} - R^e]^2 = \beta(1-\beta)(\triangle R)^2, \tag{2}$$

where the last equality follows after using (1) and $\triangle R \equiv \overline{R} - \underline{R}$. FA gives certain return of $(R^e - m)$, where $0 < m < R^e$. In section 4, we discuss at length why m is positive.

[7]Diamond and Dybvig (1983) deals with bank runs. However, Singh (2005) does not deal with bank runs at all. The similarity between the two papers lies in using liquidity shock and asymmetric information.

Agents are identical at date 0. At date Z, there are two types of agents - type 1 and type 2. They need to consume at date Z and at date 1 respectively. Date Z lies between date 0 and date 1. For simplicity, it is fixed close to date 1. This enables us to assume zero discount rate. Agents can sell their assets at date Z in the secondary market. We now introduce another group of agents who buy at date Z. These buyers are all identical, have 'deep pockets' at date Z, are risk neutral, and have zero discount rate. They use their endowment to buy assets at date Z, or use storage technology. Some of these agents (who have black money) operate in the RA market, whereas others (who have white money) operate in the FA market. The only role of risk neutral agents is that they buy assets at date Z. Henceforth, our focus will be on risk-averse agents, and unless otherwise specified, an agent will mean a risk-averse agent.

At date 0, agents do not know their type. However, they know that t proportion of agents will be type 1 agents. At date Z, each agent gets private information on her own type and on the quality of her RA. At date Z, there can be four types of agents viz. $1G$, $1B$, $2G$ and $2B$. Agent ij is a type i agent ($i = 1, 2$), who has an RA that has quality j, where $j = G, B$. G (B) denotes an agent with a good (bad) project. Assume that the type of an agent is independent of the quality of RA. It follows that the probability of states $1G$, $1B$, $2G$ and $2B$ are $t\beta$, $t(1-\beta)$, $(1-t)\beta$, and $(1-t)(1-\beta)$ respectively. This is regardless of whether markets are integrated or segmented. An RA can be sold under AI. In case of FAs, investments are diversified, and both sellers and buyers know the average quality of projects. So we have SI on FAs.

At date Z, risk neutral agents are potential *buyers* of assets and type 1 agents are the *sellers* of assets. We will see that another group of *traders*

can be type $2B$ agents. Assume that agents settle their net position.

Wherever required, we will use the subscript k, where $k = I, S$, and I and S stand for for the cases of integrated markets and segmented markets respectively. Assume that markets are competitive and transactions costs are zero. Let P^r denote the price of an RA at date Z (there is no trade at date 1). Let Y^r denote the return on RA. Given the need to consume at date Z, type 1 agents sell their assets. Hence, $Y^r = P^r$, if agent is type 1. We will later see how P^r is determined. In the case of FA,

$$P_k^f = R^e - m, \quad k = I, S. \tag{3}$$

This is because in each case, at date 1, there is a certain return of $(R^e - m)$, and, at date Z, FA is traded under SI in a competitive market, the buyers of assets have 'adequate endowment', zero discount rate, and access to storage technology. In each case, type 2 agents retain their FAs till date 1. Let a and Y denote the investment in RA, and the return on portfolio respectively. So

$$Y = aY^r + (1 - a)(R^e - m). \tag{4}$$

Let ρ denote absolute risk aversion. Let W denote expected utility. Further, let $E[Y]$ and $V[Y]$ denote the mean of Y, and the variance of Y respectively. For convenience, assume that $W = E[Y] - \frac{1}{2}\rho V[Y]$. From the discussion so far,

$$W = aE[Y^r] + (1 - a)(R^e - m) - \frac{1}{2}\rho a^2 V[Y^r]. \tag{5}$$

Assume that $0 \leq a \leq 1$. We now turn to a comparison of integrated markets and segmented markets.

3 Integrated Markets and Segmented Markets

First, we study the behavior of agents and pricing of assets in the secondary markets, for a given portfolio choice (subsection 3.1). Thereafter, we will consider the portfolio choice in the primary market (subsection 3.2).

3.1 Secondary Markets

At date Z, agents realize whether they are type 1 or type 2. The former need to consume at date Z, and so participate in *forced sales* of all their assets. Type 2 agents do not need to consume at date Z. Indeed, type $2G$ agents will retain their assets till date 1. Action of type 1 and type $2G$ agents does not depend on whether or not markets are integrated. However, type $2B$ agents can participate in *strategic sales* of their RAs under AI, and buy other assets in the secondary market. If RA and FA markets are integrated, then a type $2B$ agent can choose to buy RA or FA. However, if markets are segmented, then a type $2B$ agent can buy RA only.

The following analysis applies whether markets are integrated or segmented. The supply of bad RAs comes from both type 1 and type $2B$ agents. Therefore, the total supply of bad RAs at date Z is $a(1-\beta)t+a(1-\beta)(1-t) = a(1-\beta)$, given an investment of a in RA at date 0. The supply of good RAs comes from type 1 agents only. Therefore, total supply of good RAs is $a\beta t$. Note that the total supply of RAs is $a[1-\beta+\beta t]$. Thus,

$$\beta' = \frac{\beta t}{1-\beta+\beta t},$$

where β' denotes the conditional probability that an RA is of good quality, conditional on the event that it is put up for sale in the market. Let R' denote the conditional expected return on an RA. Given the characteristics

of the risk neutral buyers and the market, we have

$$P^r = R' = \beta' \overline{R} + (1 - \beta')\underline{R}. \tag{6}$$

Observe that price in the two cases is the same. Intuition is that quality is same.

Let us now see where the two cases of integrated markets and segmented markets differ. It follows from concavity that a type $2B$ agent will buy FA under integrated markets at date Z. Under segmented markets, this is not possible but an agent can buy another RA. The expected utility of a type $2B$ agent, who sells her RA at price P_S^{rs}, and buys another RA at price P_S^{rb}, is

$$\begin{aligned} & \beta' u\left(a\frac{P_S^{rs}}{P_S^{rb}}\overline{R} + (1-a)(R^e - m)\right) + \\ & (1-\beta')u\left(a\frac{P_S^{rs}}{P_S^{rb}}\underline{R} + (1-a)(R^e - m)\right) \\ = \;& \beta' u(a\overline{R} + (1-a)(R^e - m)) + (1-\beta')u(a\underline{R} + (1-a)(R^e - m)) \quad (7) \\ > \;& u(a\underline{R} + (1-a)(R^e - m)), \quad (8) \end{aligned}$$

where the last expression is the utility of a type $2B$ agent who retains her RA, the equality follows from $P_S^{rs} = P_S^{rb}$, and the inequality follows from the assumption $\underline{R} < \overline{R}$, and from the condition $0 < \beta' < 1$ (this is easy to check).

Given the behavior of agents at date Z, it follows that Y_I^r for type 1 agents is $P_I^r = R'$, Y_I^r for type $2G$ is $\overline{R}$, and Y_I^r for type $2B$ agents is $\frac{P_I^r}{P_I^f}(R^e - m) = R'$, after using (3) and (6).

Consider the probability density function (pdf) of Y_S^r. There are 4 states of the world - $1G$, $1B$, $2G$ and $2B$. Within the fourth state, now there are two sub-states - $2BG$ and $2BB$. A type $2BG$ ($2BB$) is a type $2B$ agent

State	Probability	Y_S^r
$1G$	$t\beta$	$P_S^r = R'$
$1B)$	$t(1-\beta)$	$P_S^r = R'$
$2G$	$(1-t)\beta$	$\overline{R}$
$2BG$	$(1-t)(1-\beta)\beta'$	$\frac{P_S^{rs}}{P_S^{rb}}\overline{R} = \overline{R}$
$2BB$	$(1-t)(1-\beta)(1-\beta')$	$\frac{P_S^{rs}}{P_S^{rb}}\underline{R} = \underline{R}$

Table 1: Probability density function (pdf) of Y_S^r

who sells her bad RA and buys another RA, which turns out to be good (bad). Given independence, the probabilities of these two sub-states are $(1-t)(1-\beta)\beta'$ and $(1-t)(1-\beta)(1-\beta')$ respectively. Given the behavior of agents at date Z, it follows that the pdf of Y_S^r is as given in Table 1.

Proposition 1 *If $k = S$, it pays to switch from one RA to another $\forall\ P^r$.*

Proof: The result follows from (7) and (8). ||

Under segmented markets, price does not matter because a type $2B$ agent is both a seller *and* a buyer of RA. This is different from the case of integrated markets in our model (where switch from RA to FA occurs if $\frac{P_I^r}{P_I^f} > \frac{\underline{R}}{R^e - m}$), and from the usual models of AI (e.g. Akerlof (1970)).

3.2 Primary Markets

An agent can choose any portfolio at date 0. However, an agent needs to keep in mind whether or not the secondary markets will be integrated. So

there are 2 cases - $k = I, S$. Given the pdf of Y_I^r, it is easy to check that[8]

$$\begin{aligned} E[Y_I^r] &= tR' + (1-t)\beta\overline{R} + (1-t)(1-\beta)R' = R^e, \quad (9) \\ V[Y_I^r] &= t(R'-R^e)^2 + (1-t)\beta(\overline{R}-R^e)^2 + \\ &\quad (1-t)(1-\beta)(R'-R^e)^2 = R^v(1-t)(1-\beta'). \quad (10) \end{aligned}$$

Given the pdf of Y_S^r, it follows that

$$\begin{aligned} E[Y_S^r] &= tR' + (1-t)\beta\overline{R} + (1-t)(1-\beta)[\beta'\overline{R} + (1-\beta')\underline{R}] \\ &= tR' + (1-t)\beta\overline{R} + (1-t)(1-\beta)R' = R^e, \quad (11) \end{aligned}$$

where second and third equalities follow from (6) and (9) respectively, and

$$\begin{aligned} V[Y_S^r] &= t(R'-R^e)^2 + (1-t)\beta(\overline{R}-R^e)^2 + \\ &\quad (1-t)(1-\beta)\Big[\beta'(\overline{R}-R^e)^2 + (1-\beta')(\underline{R}-R^e)^2\Big] \\ &= t(R'-R^e)^2 + (1-t)\beta(\overline{R}-R^e)^2 + \\ &\quad (1-t)(1-\beta)\Big[\beta'(\overline{R}-R')^2 + (1-\beta')(\underline{R}-R')^2 + (R'-R^e)^2\Big] \\ &= R^v(1-t)(1-\beta') + \\ &\quad (1-t)(1-\beta)\Big[\beta'(\overline{R}-R')^2 + (1-\beta')(\underline{R}-R')^2\Big] \\ &= R^v(1-t)(1-\beta') + (1-t)(1-\beta)\beta'(1-\beta')(\triangle R)^2 \\ &= R^v(1-t)(1-\beta') + (1-t)(1-\beta)\beta'(1-\beta')\frac{R^v}{\beta(1-\beta)} \\ &= R^v(1-t)(1-\beta')\Big[1+\frac{\beta'}{\beta}\Big], \quad (12) \end{aligned}$$

where the second equality follows from simple algebra and (6), the third equality follows from (10), the fourth equality follows from (the second part of) (6) and $\triangle R \equiv \overline{R} - \underline{R}$, the fifth equality from (2), and the last equality follows with simple algebra.

[8] For more details, see case (3) in Singh (2005).

Optimization of (5) with respect to a yields

$$a_k^* = \min\left[\frac{m}{\rho V[Y_k^r]}, 1\right],\ k = I, S. \tag{13}$$

after using $E[Y_I^r] = E[Y_S^r] = R^e$ (see (9) and (11)), and $m > 0$. Note that $W_k^* = W_k(a_k^*)$, $k = I, S$, and $m > 0$. Using (9), (11) and (13) in (5), we get

$$W_k^* = \begin{cases} R^e - m + \frac{m^2}{2\rho V[Y_k^r]}, & \text{if } \ 0 < m < \rho V[Y_k^r], \ \ k = I, S, \\ R^e - \frac{\rho V[Y_k^r]}{2}, & \text{if } \ \rho V[Y_k^r] \leq m, \ \ k = I, S. \end{cases} \tag{14}$$

We can now state our next formal result.

Proposition 2 *(a) Assume that* $0 < m < \rho V[Y_I^r]$. *Then* $0 < a_S^* < a_I^* < 1$, *and* $\frac{\partial a_k^*}{\partial m} > 0$ *and* $\frac{\partial W_k^*}{\partial m} < 0$, $k = I, S$, *and (b)* $W_S^* < W_I^*$.

Proof: (a) It follows from (10) and (12) that $V[Y_I^r] < V[Y_S^r]$, after using $0 < \beta' < \beta$ (this is easy to check). Now it follows from (13) that

$$0 < a_S^*(m) = \frac{m}{\rho V[Y_S^r]} < \frac{m}{\rho V[Y_I^r]} = a_I^*(m) < 1, \ \text{ if } \ 0 < m < \rho V[Y_I^r]. \tag{15}$$

It is easy to check that the comparative statics results hold. (b) It is very easy to check that if $0 < m < \rho V[Y_I^r]$, or if $\rho V[Y_S^r] \leq m$, then $W_S^* < W_I^*$. If $\rho V[Y_I^r] \leq m < \rho V[Y_S^r]$, then it follows from (14) that

$$W_I^* = R^e - \frac{1}{2}\rho V[Y_I^r] \geq R^e - \frac{m}{2} > R^e - m + \frac{m^2}{2\rho V[Y_S^r]} = W_S^*. \ ||$$

The first part of Proposition 2(a) states that investment in RA in the primary market depends on whether secondary markets are integrated or segmented. Formally, $a_S^* < a_I^*$, given an interior solution in each case. The intuition is as follows. At date Z, RAs can be sold strategically. Under integrated (segmented) markets, there is a possibility for a switch to a safe FA

(risky RA). Given risk aversion, the result follows. Rest of the proposition is intuitively straightforward.

Consider an emerging economy with segmented markets and financial repression. Proposition 2(a) implies that if this economy shifts to integrated markets, then a^* *increases* (since $a_S^* < a_I^*$). However, if m is reduced, then a^* decreases ($\frac{\partial a_S^*}{\partial m} > 0$). So there are opposing effects on investment in RAs.

Proposition 3 *Assume that* $0 < m < \rho V[Y_I^r]$. *If an economy shifts from segmented markets to integrated markets, and financial repression is reduced by* $\triangle m$, *then investment in financial assets increases, provided* $\frac{\triangle m}{m} \geq 1 - \frac{V[Y_I^r]}{V[Y_S^r]}$.

Proof: Given $\frac{\partial a_I^*}{\partial m} > 0$ (Proposition 2(a)), there exists $\triangle m$, such that $0 < \triangle m < m$, and $a_I^*(m - \triangle m) \leq a_S^*(m)$, after using (15), and $0 < m < \rho V[Y_I^r]$. After substituting for a_I^* and a_S^* (see (15)), the result follows with ease. ||

Suppose that there is a shift from segmented markets to integrated markets, and there is also a reduction in financial repression. Then investment in financial assets in the primary market will rise if the reduction in financial repression is *adequate*.

4 Discussion

In India, financial repression in banks[9] takes several forms. *First*, there are excessive statutory liquidity ratio (SLR) and cash reserve ratio (CRR) requirements, which reduce the interest income of banks. *Second*, there is

[9] Financial repression in financial markets has reduced considerably after the substantial policy changes in the last ten to fifteen years.

weak lender protection. Recovery of business loans by banks is difficult, despite the Recovery of Debts due to Banks and Financial Institutions Act, 1993, and the Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002. Weak lender protection leads to non-performing assets, encourages banks at times to invest in government securities or in cash beyond the amount stipulated by regulation, and encourages relatively safe housing loans beyond what is optimum. *Third*, there are barriers to entry for new banks, and barriers to opening new bank branches for existing banks. These barriers restrict competition.

Fourth, income on bank deposits beyond a point is taxed as interest income, whereas income on bands is taxed as capital gains. This puts bank deposits at a disadvantage relative to bonds in attracting the relatively more wealthy people. *Fifth*, the administered rate of interest on savings accounts and current accounts is low. To some extent, this encourages the use of money market mutual funds at the expense of bank deposits. *Sixth*, banks are effectively not allowed to offer indexed deposits (where the principal and interest are linked to the price level). To some extent, this encourages the use of gold. The reason is as follows. The importance of gold is usually attributed to a strong taste for gold. However, it is possible that this taste is partly for a simple, safe and liquid asset that is also a good hedge against inflation, rather than for gold per se. If so, then indexed deposits in a good bank can also satisfy the properties that gold has, and hence, can reduce demand for gold to some extent. *Seventh*, in India, a borrower has, for all practical purposes, no access to the judiciary even if she can prove that she deserves to get a loan and has not got one from her bank (without effectively bribing the bank officials). *Eighth*, in practice, financial repression is to some extent related to the public sector character of most banks.

There are several reasons why the Government of India may be reluctant to reduce financial repression. One reason is that the government's fiscal deficit is high. Given its fiscal deficit, the government needs assured access to funds at reasonable rates of interest. There is also public pressure to keep inflation under control. So borrowing from the Reserve Bank of India can not go beyond a point. In this context, the government finds the SLR (and even CRR) requirements on commercial banks useful. Moreover, it needs an alternative to subsidies to help the priority sectors in the economy, given its budget constraint. The policy of *priority sector lending* by banks may be viewed as a second best policy. We conclude that a pre-condition to reduce financial repression in banks is to improve fiscal condition of the government.

Usually people are risk averse and/or uninformed on trade in assets. So banks are important because a bank deposit gives a fixed return, and is liquid (see Gorton and Pennacchi, 1990). Banks are also important for borrowers, especially for emerging and non-reputed entrepreneurs. However, this importance of banking does not get reflected in data. This is because financial repression in banks has reduced the return on bank deposits and has led to less allocation of funds to deposits and more in favor of the stock market, mutual funds, non-bank finance companies, micro-finance, and RAs.

The gap between the return on bank deposits and that on real estate is not just due to financial repression in banks. The return on real estate itself is also high. We may, for simplicity, classify real estate into two categories - urban and rural. It seems that the much talked about appreciation in price is primarily in the case of urban (and expected to become urban) real estate. Accordingly we will focus on urban real estate.

The usual reason given for impressive appreciation in real estate price is

a rise in population, in incomes, and so on. This argument is not entirely correct. The appreciation is to some extent due to government policy. The reason is as follows. The average price of land in rural areas is a fraction of that in urban areas, even after adjusting for the cost of 'development' in the case of urban real estate. The government has not approved the use of land for urban development and has not built (or allowed others to build) infrastructure in urban areas at the rate that is commensurate with the needs of the economy. The impact of this is being felt more and more over time. Hence, we have appreciation of the developed (and expected to be developed) urban real estate. So the appreciation is not entirely market driven in a rapidly growing economy. It is also an effect of the regulatory regime.

The appreciation in price of land has been impressive, and has motivated our assumption in this paper that the gap between return on real estate and that on bank deposits is positive. However, there are good reasons to believe that the government policy on urban real estate may change. As urbanization spreads, urban vote banks will increase and rural vote banks will decrease. Also, it seems that the government is responsive to the needs of the outsourcing industry. This industry is not just due to cheap and skilled labor, but also due to cheap urban real estate in Tier II towns (cheap relative to that in developed countries). If appreciation of land continues at the rate witnessed in the recent past, then India may lose on this account to some extent. So it is possible that the government will change policy in various ways, as it has already to some extent in the recent past (see the policy on *special economic zones*). Furthermore, it is only recently that we are becoming really aware of the role of, what we may call, the government's *license-permit-quota raj in real estate* (see Glaeser, et al. (2005) for a related

issue). If the change in policy occurs, then there will be more of urban real estate that has infrastructure and is approved. Then the rate of appreciation may fall.

Price of property is also a matter of confidence. If confidence in real estate declines, then, there can be a fall of price. This also makes real estate a risky asset. Self-fulfilling expectations play a role in this market. Furthermore, there is a *noise trader risk*, particularly in the case of upcoming cities, which is where the bulk of pure investment and trading is. These features of real estate market are not well understood. The result is that people are taking a risk that they may not be able to deal with. This argument is consistent with the theory and evidence in Behavioral Economics. It is true that the forthcoming real estate investment trusts (REITs) can remove some of the problems, but it is doubtful if they can solve all the problems. In fact, difficulties due to noise traders may increase rather than decrease.

The formal model in this paper focused on one kind of RA viz., real estate. However, an important RA in the context of India is an owner-managed enterprise. We will discuss this briefly to complete this discussion. Owner-managed enterprises are associated with self-employment.

India is characterized by not only a high ratio of investment in RAs to FAs, but also a high ratio of self-employment to, what we may call, *wage employment*[10]. Pant et al. (2006) have shown that the two ratios are related. The implication of their analysis is that to shift from RAs to FAs, we also need a shift from self-employment to wage employment. After all,

[10]Wage employment is where a person is employed by somebody else for a fixed wage, unlike in the case of self-employment, where a person is employed by oneself and the return is usually uncertain. Furthermore, wage employment does not involve capital, whereas self-employment may require some capital.

one cannot delegate only capital. It has to be accompanied by delegation of labor. The former is a case of a shift from RAs to FAs, whereas the latter is a case of a shift from self-employment to wage-employment.

Often the terms self-employment and entrepreneurship are used interchangeably. This is, however, incorrect. India has more than 50% self-employment (Gupta, 2002). It is unlikely that all agents who are self-employed are also entrepreneurs. It follows then that there is a need to reduce self-employment and increase wage employment. Though the government is keen on the latter, there is hardly any mention of the former. It is not easy to distinguish between an entrepreneur and a non-entrepreneur. However, competition can be used as a procedure for discovery in the market (Hayek, 1968). Businesses of those who are self-employed and have entrepreneurial ability need to be allowed to grow, whereas the remaining self-employed agents need to close down their owner-managed enterprises, invest their wealth in FAs, and find jobs with the entrepreneurs. This will obviously lead to a fall in RAs and increase in FAs.

5 Conclusion

Our model incorporated financial repression, and considerable use of black money in some sectors of the economy, which leads to segmented markets. It was shown that while both reduction of financial repression and integration of secondary markets increase expected utility, there are opposing effects on the portfolio choice between real assets and financial assets in the primary market. Reduction in financial repression leads to an increase in investment in financial assets in the primary market, whereas integration of secondary markets leads to a decrease in the same. Suppose that there is a shift from

segmented markets to integrated markets, and that there is a reduction in financial repression. Then investment in financial assets in the primary market will rise if the reduction in financial repression is *adequate*.

Real asset and financial asset markets are somewhat segmented in India, given the greater use of black money in real asset markets. This makes a shift for existing investors from real assets to financial assets difficult. However, this is only part of the problem, as was discussed in the previous section. There are other obstacles too. So it will require a comprehensive and sustained policy change on several fronts for quite some time. Having said this, we hasten to add that the problem of a low ratio of financial assets to real assets is not insurmountable.

Another interesting theoretical result in this paper is follows. The standard *lemon* problem involves one strategic sale. In our model, we considered two strategic trades - sale of one asset and purchase of another, possibly in the same market. We observed that under some conditions, the price at which strategic trade takes place is irrelevant.

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