Discussion of Hart-Zingales' "Liquidity and Inefficient Investment"

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October 19, 2013

Question

How does the circulation of assets facilitate exchange when human capital is not pledgeable?

Does the competitive economy achieve the efficient investment in risky and safe assets?

What would fiscal policy reduce the distortion?

Framework

Four dates: 1, 2, 3 and 4

Two types of many agents with equal population: doctors and builders

Everyone endowed with goods (wheat) $e \geq 1$ at date 1

Two technologies (assets)

$$\text{Safe: } y_s \text{ goods at date 1} \longrightarrow y_s \text{ goods at date 4}$$

$$\text{Risky: } y_r \text{ at date 1} \longrightarrow \begin{cases} R^H y_r \text{ goods } wp.\ \pi \\ R^L y_r \text{ goods } wp.\ 1-\pi \end{cases} \text{ at date 4}$$

$$R^L < 1 < \overline{R} < R^H$$

At date 1, people invest in assets, and trade Arrow securities to claim date 4 goods contingent on aggregate productivity. Aggregate productivity realizes at the end of date 1

At date 2, builders build for doctors at cost $b^2/2$

At date 3, doctors cure builders' illness at cost $d^2/2$

At date 4, everyone produces flower at mill with cost $\lambda^2/(2c)$. The utility of doctor and builder is

$$U_d = w_d + b - \frac{1}{2}d^2 + \lambda_d - \frac{1}{2c}(\lambda_d)^2$$
$$U_b = w_b - \frac{1}{2}b^2 + d + \lambda_b - \frac{1}{2c}(\lambda_b)^2$$

Assumption: Doctors cannot precommit to provide the medical service and repay to the creditor-builder at date 3

Case of very risky asset: $2eR^L < \left(\frac{1-\pi}{\pi}\frac{1-R^L}{R^H-1}\right)^{4/3} < 1$

Without intervention, both technologies are used. Doctors buy all the security of low state and some of high state

$$\begin{aligned} x_d^L &= R^L y_r + y_s \\ x_d^H + x_b^H &= R^H y_r + y_s \end{aligned}$$

date 2	date 3
x_d^L	x_d^L
doctor $\rightleftarrows$ builder	doctor $\leftrightarrows$ builder
$\frac{x_d^L}{p_b^L} = \frac{p_b^L}{p_d^L}$	$p_d^L = \frac{x_d^L}{p_d^L}$

Too much safe investment relative to the constrained efficient

Fiscal policy commitment is welfare improving

When productivity is low at date 2, government issues notes m against date 4 tax revenue on milling

$$m = T = \frac{2t(1-t)}{c},\ \lambda_d = \lambda_b = \frac{1-t}{c},$$

and gives m to doctors

date 2	date 3
$x_d^L + m$	$x_d^L + m$

doctor $\rightleftarrows$ builder	doctor $\leftrightarrows$ builder
$\frac{x_d^L + m}{p_b^L} = \frac{p_b^L}{p_d^L}$	$p_d^L = \frac{x_d^L + m}{p_d^L}$

Fiscal policy mitigates the liquidity shortage of doctors, stimulates production in date 2 and 3. It reduces date 1 investment in safe asset

Critical Comments:

A nice counter example to the view of too much risk-taking investment during the boom

Need more than the non-pledgeability of human capital

If a doctor's default is public information, government can

(i) stop the dividend payment of the doctor's assets, at least for government notes

(ii) ban the access of the mill to the doctor $\longrightarrow$ can enforce the debt up to $(1-t)^2/(2c)$

$\longrightarrow$ The doctor's service exchanges must be private information. Kocherlakota (1998). Lagos-Wright (2005)

The parameter space for too much safe investment is small

$$\overline{R} - 1 < \left[(2eR^L)^{-3/4} - 1\right](1-\pi)(1-R^L)$$

Even the most favorable case of $e = 1$ needs a huge aggregate disaster $R^L < 1/2$ and the best possible risky technology with $R^L = 0.4$ is

$$\begin{aligned} \overline{R} - 1 &= 1.1\%, \text{ if } 1 - \pi = 10\% \\ \overline{R} - 1 &= 2.2\%, \text{ if } 1 - \pi = 20\% \end{aligned}$$

Perhaps the average citizen would choose the safe asset over such a risky asset

Perhaps the collapse of liquidity supply is related to bank-run. The relevant choice is the narrow banking with 100% reserve vs. the universal banking