

Morris and Shin (2008, 2009) describe the rationale for liquidity requirements and provides an analysis of the mechanisms invoked. The idea is to take those elements that are responsible for the vicious circle of distress and self-reinforcing runs and then harness them to create a *virtuous circle* of beliefs leading to a stable outcome. Liquidity requirements mandate a cushion of cash assets over some interval of time, such as requiring banks to maintain reserves at the central bank over some fixed maintenance period. Such liquidity requirements can moderate the externalities involved in a run by influencing the risks of spillovers across financial intermediaries. When a borrower bank has a high level of liquidity, then the withdrawal of funding by its creditor banks can be met (at least partly) by its liquid resources, which makes the debtor bank less likely to run on other banks. For creditor banks, there are two effects. First, knowing that the debtor bank is less vulnerable to runs reduces the incentive to run that arises purely from a coordination motive. In addition, when each creditor bank realizes that other creditor banks have higher liquidity levels, the coordination problem among the creditor banks becomes less sensitive to strategic risk - making them less jittery when faced with a run scenario. The more relaxed attitude of creditors and debtors are mutually reinforcing, just in the same way that distress and concerns about others' viability can be self-reinforcing. In this way, the same forces that lead to the vicious circle of run psychology can be harnessed and channeled to generate a *virtuous circle* of stability.

Approach 2: Forward-looking provisioning

A second way to moderate fluctuations of the boom bust cycle is to operate directly on the equity $\{e_i\}$ of the banks. The forward-looking statistical provisioning scheme that has operated in Spain is a good example of such a method. By imposing a provisioning charge when new loans are made, there is a corresponding diminution of the equity level of the bank making the loan. For any given desired leverage of the bank, a lower equity level means lower total assets, hence restraining the rapid growth of balance sheets.

$$\sum_{i=1}^n y_i = \sum_{i=1}^n e_i z_i (\lambda_i - 1) + \sum_{i=1}^n e_i$$

The Spanish pre-provisioning scheme highlights one of the important lessons in a boom⁵. Under a boom scenario, the problem is that there is *too much equity* in the banking system. There is overcapacity in the sense that the level of aggregate capital is too high. Capital is higher than is consistent with only prudent loans being made. Overcapacity leads to the chasing of yields and the lowering of credit standards. Elsewhere (Shin (2009)), I have sketched a mechanism for the emergence of subprime lending based on this mechanism. Expanding balance sheets are like an expanding balloon. Just as an expanding balloon needs air to fill the balloon, expanding balance sheets need new asset creation. But when all prime mortgage borrowers are already catered for, lending standards must be lowered in order to generate new assets. Hence, subprime lending emerges as a result of the urge to expand balance sheets.

In the Geneva Report, we discuss the merits of a variant of the Spanish pre-provisioning scheme called the Pigovian Tax. The idea is that rather than reducing equity through a provision, equity

⁴ The Bank of England's RAMSI framework is described in the recent issue of the IMF's Global Financial Stability Report (2009, chapter 2).

⁵ For a description of the Spanish pre-provisioning system, see the Bank of Spain working paper by Fernandez et al (2000).