What assets should banks be allowed to hold?

Appendix A-2

Infeasibility of maturity transformation when assets are publicly traded

Suppose that the households discussed in Appendix A-1 are allowed to buy and sell "apples in the ground" in period t=1. [Our argument builds on that in Jacklin (1987), Wallace (1988) and Farhi, Golosov and Tsyvinski (2009).]

Next, suppose that a group of households gets together and agrees to the $c(1) = c(2) = 1.6$ apples arrangement outlined above. (Call this group the bank and its customers.) Consider a household that is not a customer of the bank which plants its apple in the ground. If the household turns out to be patient, it lets its investment mature to period t=2 and eats two apples ($c(2)$=2). If the household turns out to impatient, rather than eating one apple at t=1, it sells the right to eat two apples at t=2 to a patient customer of the bank. Here, the patient customer withdraws at t=1 (and thus gets 1.6 apples from the bank) and gives these apples to the impatient noncustomer in return for its claim to two apples at t=2. The patient bank customer clearly prefers this arrangement to eating 1.6 apples at t=2. Further, as long as the noncustomer is not infinitely risk averse, it too is strictly better off by not being a bank customer, eating 1.6 apples if it is impatient and two apples if it is impatient. Note, then, that if the bank exists, all households will wish to exit it. This logic implies that when a market exists for selling apples in the ground, the only allocation that can be implemented is one in which impatient households eat one apple at t=1 and patient households eat two apples at t=2. Maturity transformation cannot be implemented.