January 26, 2010

Can Monetary Policy Stabilize the Economy

Lester G Telser, *University of Chicago*

Can Monetary Policy Stabilize the Economy

L. G. Telser

Abstract. No individual bank can expand without cost when most banks are contracting. Likewise no bank can contract without cost when most banks are expanding. The cause lies in the nature of clearing debts and credits among banks. The result places a heavy burden on the Fed that wants to stabilize the economy by inducing banks to reverse course. To understand the reason for this requires analysis of clearing houses in organized futures markets and in banking. JEL E58 Central Banks and Their Policies

1. Clearing in Futures Markets and Banking

Clearing houses use different rules in organized futures markets than in banking. In an organized futures market the clearing house is a creature of exchange members. Default of a futures transaction is nearly unheard of because the clearing house of the futures exchange guarantees each one. Futures contracts of the same maturity and quantity are perfect substitutes for each other. Loans of the same maturity and amount are not. Federal Reserve Banks clear the checks of their member banks but the Fed does not guarantee every check they clear is sound. A check can bounce. Because checks and credit are closely tied and because bank loans of the same amount and maturity are remote substitutes at best, this complicates the clearing process in banking.

2. How Clearing Works

To clarify the differences between the two kinds of clearing houses, I start with a description of the clearing practice in banking. The simplest case has two banks, A (Able) and B (Baker), that are members of a clearing house CH (Charley). Let $\Delta L_A = 100$ denote an increase in the loans made by bank A and $\Delta D_A = 100$ the corresponding increased deposit in the borrower's checking account. Bank A makes its loans by putting funds into the borrower's checking account on which the borrower may write checks. The first row of the table shows how this transaction appears on the balance sheet of bank A. Assume the borrower spends the whole amount of the loan by purchases from someone whose checking account is in bank B. Hence his deposit in his checking account in bank B increases by 100 and we see that $\Delta D_B = 100$. Bank B incurs a liability from this deposit and acquires an equal asset in the form of the check written on bank A. Bank B presents this check to the clearing house, CH. CH now owes bank B 100 and is owed 100 by bank A because of the check written on the checking account of Bank A. On the asset side of the balance sheet of CH appears $\Delta CH_A = 100$ and on the liability side $\Delta CH_B = 100$. The deposits in bank A that were its liability in period 1 are replaced in period 2 by an equal liability of bank A to the clearing house in period 2, namely $\Delta CH_A = 100$. However, bank A still has the loan it had

made in period 1 carried over as an asset in period 2. These events are shown in row 2 of Table 1.

Table 1. Balance Sheets of Bank A, B and the Clearing house

pd	bank A		clearing house		bank B	
	Asset	Liability	Asset	Liability	Asset	Liability
1	ΔL_A 100	ΔD_A 100				
2	ΔL_A 100	ΔCH_A 100	ΔCH_B 100	ΔCH_A 100	ΔCH_B 100	ΔD_B 100
3.1	ΔL_A 0	ΔCH_A 0	ΔCH_B 0	ΔCH_A 0	ΔL_B 100	ΔD_B 100
3.2	ΔL_A 100	ΔCH_A 100	ΔCH_B 100	ΔCH_A 100	ΔL_B 95	ΔD_B 195

3. Fixing an Imbalance in Banking

Because the situation described in period 2 rearranges assets and liabilities among the three parties, suitable changes must occur in period 3 depending on the rules and actions of the clearing house. Bank A has a liability to the clearing house in exchange for the liability in the form of a deposit in period 2. The balance sheet of bank A shows this liability equals the asset in the form of the loan it had made in period 1. Bank B has a liability resulting from the increase in its deposit offset by an asset of 100 equal to what the clearing house owes it.

4. Do Nothing

A possible resolution of the situation carried into period 3 is simple – do nothing. This depends on whether the Clearing House is willing to carry on its books the amount owed it by Bank A and on whether Bank B is willing to extend a loan to the Clearing House. Even if the rules allow all this it rests on the hope that bank B will lend to someone who will pay someone who has a checking account in bank A. The resulting imbalance will disappear if bank A makes a loan to someone who will pay someone who has a checking account in bank B. In short, the flow of loans, deposits, withdrawals among banks and their customers who have checking accounts in these banks can offset the changes in assets and liabilities. The result can produce so small a net change compared to the huge flows of payments and receipts surging back and forth among the banks that doing nothing may seem amply justified. Let all the banks move up and down together, net flows will approach zero and all will be well. Often reality is kind to this hope but sometimes not. When there is a persistent move in one direction, more is needed to resolve imbalances among banks.

Another way to interpret the remedy of doing nothing is instructive. Doing nothing is equivalent to treating the individual banks as if they were branches of one bank. Were there only a single bank with branches then doing nothing would indeed be both feasible and efficacious.

The basic facts are plain. Bank A owes the clearing house an amount equal to the value of its loan made in the first period. The clearing house owes bank B an amount equal to this same

loan. Let bank A transfer title to this loan to the clearing house. This expunges the liability of bank A to the clearing house. Let the clearing house transfer title to this loan to bank B. This settles the claim of bank B on the clearing house. Provided bank B regards the loan made by bank A with the same esteem it had for bank A in the first place, all should go well. But here is the rub. Loans of the same amount and same maturity are not perfect substitutes. Moreover, hard times may arrive, defaults may rise, collateral may shrink in value.

5 An Imbalance in a Futures Market

Next let us turn to a futures market and study its clearing house. All traders on the exchange floor are members of the exchange. The members may act as agents of others, the principals, who are not members of the exchange. However, because traders on the exchange may be agents not principals there are complications as we shall see. Even so, the terms between agents and principals do not affect the clearing process. Let a trader sell a contract to a buyer. The transaction implies their mutual agreement on a price. The terms of the futures contract state when the contract will mature. While transactions occur at whatever price the traders are willing to accept, all futures of the same maturity are equivalent. A trader who sells futures contracts owes the clearing house these futures contracts and in return the clearing house owes the trader payment for them. For each unit sold a unit is bought and conversely. The buyer of these contracts owes payment to the clearing house and the clearing house owes the contracts to the buyer. That few futures contracts remain unsettled until the maturity date is of no concern to this analysis. The books of the clearing house in futures always balance both in money and in futures contracts. It is critical to understand that a futures contract is a standardized fungible instrument such that the clearing house guarantees fulfillment of its terms. A clearing house in futures allows traders little time, perhaps only a few hours, to settle their accounts both in money and futures contracts by the end of the trading day. Other rules of no present interest ensure that defaults are rare and that the market clears rapidly. Row 3.1 of Table 1 shows the details of clearing that would take place in a futures market.

6. What Happens in Banking

Banking is different. The Fed is the clearing house In banking. Member banks count as their reserves their deposits in a Federal Reserve Bank. As a member of the Federal Reserve, bank A has up to 7 days to settle its debt to the Fed's clearing house. It can do so if it pays bank B by check drawn on its account at the Fed. Alternatively, it can borrow funds either from other member banks or from the Fed itself to settle its debt to bank B. The latter alternative means the Fed lends member bank A enough to cover its obligation to member bank B. Row 3.2 of Table 1 shows the details of clearing under Fed rules.

We must be aware of a major fact. The loan by bank A to its customer is not a fungible financial instrument in any way resembling a futures contract traded on an organized futures exchange. The Fed is not obliged to accept the paper representing any loan made by a member

bank in payment for the liability of that bank to the Fed. Even if the Fed did accept such financial paper, it could not pass it on to a member bank to fulfill the Fed's clearing obligation to that bank. Bank loans are not fungible financial instruments guaranteed by a clearing house in the same way as are futures contracts.

Still another important implication follows from this analysis. If the loan on the asset side of bank A's balance sheet remains there, then credit must increase enough to cover its obligation to bank B. Therefore, bank B can lend more because it has more funds available to lend. If bank B puts aside 5 percent of its asset from the Fed and uses the remainder to lend more, total loans can increase by 95 simply because of a check written on a checking account in bank A and deposited in a checking account of bank B. The Fed can and may accommodate this razzle dazzle.

7 Probing More Deeply

To reach the true nature of the difference between clearing in banking and futures we must probe more deeply. Reconsider the situation in banking. Bank A has tangible evidence of its loan to its customer in a written contract stating the terms both accept. No third party guarantees the lender and the borrower both will fulfill these mutually acceptable terms.

Futures trading offers a close parallel to banking if we look again at the situation between the trader on the exchange and his customer on whose behalf he trades. These two have a contract stating the terms of their relation just as the terms of the loan by the bank to the borrowers describe their relation. No third party guarantees the terms between the futures trader and his customer on whose behalf he trades. The clearing house only guarantees that trades among members of the exchange will be consummated. It is silent about the terms between trader as agent and customer as principal.

8 Federal Funds Market

Something resembling a futures exchange is present in banking, the Federal Funds Market, but with an important difference. The Fed does not explicitly guarantee the validity of trades among member banks on the Federal Funds Market. At first blush one might think such a guarantee would be superfluous but its absence does pose a difficulty. While it is true that member banks trade freely among themselves on the Federal Funds Market at interest rates that they quote each other which they may accept or reject as they please, borrowing and lending funds lodged in their Fed accounts, a potential difficulty is present. It stems from soundness of the member banks themselves. The strength of a member bank need not correspond to the size of its account in a Federal Reserve Bank. Admittedly, something roughly similar does hold in futures trading. A futures exchange member can fail. The clearing house guarantees the trades, not survival of its members who are traders.

The first defense of the checks outstanding of a troubled bank are the funds in its account at the Fed, its reserves. The second defense is the willingness of the Fed to shore up a troubled bank with loans from the Fed.

The third defense draws on basic differences between clearing houses in futures and in banking. A clearing house in wheat futures, oil futures, silver futures or T-bond futures cannot change inventories of wheat, oil, silver or T-bonds. The clearing house for member banks, the Fed, has unique power. It can change the amount of bank reserves by means of open market operations. No futures clearing house has similar power over the inventories underlying the contracts traded on a futures exchange.

9 What Can the Fed Do

This powerful tool in the hands of the Fed can help overcome the effects of those forces that drive all member banks to move together even if it would be injurious to stability of the whole economy. When most banks are contracting, any individual bank attempting to expand incurs debt to the other banks. This is because more checks are presented for payment to the expanding bank than it presents to the contracting banks. When banks are expanding, an individual bank moving in the opposite direction by contracting has fewer checks to present for payment from other banks than it receives from them. In either case the imbalance imposes a penalty on any individual bank trying to move contrary to the others.

The Fed faces a difficult challenge in this situation. While in principle it can control the stock of money directly in various ways, it cannot control directly the velocity of this stock. It has two instruments to affect the stock - reserve requirements and open market operations. Nor is this all. Neither the record of the past nor the actions of the present give one confidence in the sagacity of the Fed to use these instruments in a fashion that helps rather than harms the economy. The velocity of the means of payment depends on many factors of which interest rates play only a minor role.

Beyond preventing collapse of the banking system, the Fed can do little.

10 References

Telser, Lester G. 1986. Futures and Actual Markets: How They Are Related. Journal of Business. 59:S5-S29. April.

_____. 2007. Solvency vs. Competition: Hobson’s Choice for the Fed. Journal of International Money and Finance. 26:1151-73. Nov.