Show Me The Money

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Unless your head is buried deep in the sand, you know we are in a credit crunch. But what exactly does that mean? It doesn't mean that interest rates are out of sight. In fact, mortgage rates are near historic lows and interest rates on BBB investment grade bonds are back below 8%.[1]

Do these moderate interest rates mean that the Troubled Asset Recovery Program ("TARP") is working to ease the crunch? Under TARP, the government pumped hundreds of billions of dollars into banks in the hopes that they would increase lending. What happened to that money? Did they lend it out? Did they buy other banks or pay bonuses as Casey Mulligan and others have worried?

A look at the reserves held by depository institutions in Table 1 suggests one part of the answer. Pause now to have a look at column 4 of the table.

Although Jamie Dimon, the President of JP Morgan Chase, Kenneth Lewis of Bank of America, and other bank executives recently testified to Congress about their ample lending efforts,[2] excess reserves have risen to dizzying heights. In August 2008 they were a fairly normal 2 billion dollars. By January 2009 they were 798 billion dollars. Stop. Read that again. 798

Table 1
(billions of $)

	Total Reserves	Required Reserves	Excess Reserves
2008-Jan.	42.2	40.5	1.6
Feb.	42.8	41.1	1.7
Mar.	44.3	41.3	3.0
Apr.	43.6	41.7	1.8
May	44.1	42.1	2.0
June	43.4	41.1	2.3
July	43.3	41.4	2.0
Aug.	44.6	42.6	2.0
Sep.	102.8	42.7	60.1
Oct.	315.5	47.6	267.9
Nov.	609.9	50.9	559.1
Dec.	820.9	53.5	767.4
2009-Jan.	858.4	60.2	798.2
Feb	701.0	57.5	643.5

Source: *Federal Reserve, Board of Governors*, Table 1: Aggregate Reserves of Depository Institutions and the Monetary Base, available at: http://www.federalreserve.gov/releases/h3/hist/h3hist1.txt.

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billion dollars of excess reserves. Think about that figure.

Remember the massive credit crunch in August 2007 when the subprime crisis first became apparent to the world? At that time, real estate investors said their business had shut down overnight, and you can see the effects in the reserve numbers. Banks were so nervous then that excess reserves tripled from $1.6 billion in July 2007 to $4.8 billion in August 2007. Impressive to be sure. But nothing compared to now: even after tumbling in February, excess reserves were a whopping $650 billion at month end. Thars the problem folks. Or if not the problem, one heckuva symptom.

The Federal Reserve makes these figures available since 1959 on the web. Before 2007, the highest excess reserves ever got as a percentage of required reserves was 50%. Now excess reserves are 1300% of required reserves. To appreciate the enormity of these reserves (and the fear that must be causing them), consider that the 50% number was from September, 2001, and you can bet dollars to donuts that was from fear caused by September 11. If we exclude September 2001, then the highest excess reserves ever got pre-2007 was 7% of required reserves.

What would happen if banks lent these excess reserves out or cut them in half to $400 billion? Might that restart the economy? It certainly might. After all, $400 billion is itself a lot of money. But even more incredible, according to a standard model of banking where the reserve ratio is 10%, cutting excess reserves by $400 billion would increase the M1 money supply and bank loans by as much as $4 trillion, because of what is known as the money multiplier. That would increase bank loans outstanding by more than 50% of their current amount.[3]

WHY WON'T BANKS LEND THEIR $800 BILLION OF EXCESS RESERVES?

Why are banks content to leave all this money parked at the Fed at trivial interest? One reason may be that the bank regulators won't allow them to loan out the money because their capitalization is too low. Another is that the banks themselves think that their capitalization is too low and they must keep the money rather than lend it and thereby allow their capitalization ratio to decrease even further. Still another factor is that, somewhat ironically, the Federal Reserve has started to pay interest on excess reserves, a change that increases bank incentive to hold, rather than to lend, these reserves.

Let's look at these alternatives.

First, consider the regulatory capital requirements. Banks are required to finance certain proportions of their total assets with capital (as opposed to deposits). The reason is that capital is captive whereas deposits can run. Banks considered "well capitalized" by the regulators generally hold capital equal to at least 8% of their "risk-based" assets according to Douglas Elliott of the Brookings Institution. Cash assets held at the Federal Reserve are considered risk-free and therefore face no capital requirements. As a bank lends out its excess reserves, however, its required capital will rise, possibly forcing the bank to raise new capital.

There is a stark difference between the views of the regulators and those of the markets on bank capitalization. As recently as February 23, 2009, The Federal Reserve has declared the major banks all to be "well capitalized", the highest standard set.[4] Hence regulators would not appear to be standing in the way of lending.

The markets, however, seem to think differently. Citibank stock closed at $1/share on Friday, March 6, 2009, giving it a market

capitalization of under $6 billion.[5] Given that Citi's total assets as of year-end 2008 were just under $2 trillion,[6] the market seems to think its effective capital ratio is under 0.5%.

What explains the difference?

One is tempted to say that the stock market takes into account people's views of the future and realizes that housing values are likely to fall farther and drive bank losses, which will reduce equity farther. To the extent that accounting is based on historical values or mark to bad models, the regulators might not pick up this low capitalization problem. It is also possible that the market is factoring in fears that the regulators will soon close the bank, whatever is its intrinsic value. On the other hand much of the securitized assets are being marked to market or to models that our colleagues studying the matter, Nancy Wallace and Richard Stanton, say dramatically undervalue the assets, implicitly assuming that an unrealistically large number of mortgages will default. So whose view is right?

Only time will tell who is right, but if the regulators are really convinced that capitalization is adequate, it makes one wonder whether they shouldn't require that reserves be lent, as Swapan Dasgupta has suggested in *The Economists' Voice*. Likewise, it makes us wonder why the Fed is now paying interest on reserves (although the interest rate is now only 0.25%)?[7] We doubt that this interest rate is sufficiently high to explain why banks aren't lending, but at the same time, it hardly seems geared to induce lending.

If we are worried about bank capitalization, despite the Fed's reassurance, this brings us to proposals by Luigi Zingales and others to recapitalize the banks by forcing a swap of debt for equity, which would increase bank capitalization much as would the government swapping preferred stock for equity in Citigroup, as is currently under discussion. Historically, regulators have used required debt for equity swaps only after they have closed a bank, so to accomplish this with a still-functioning bank would probably require Congressional action.

SHOULD WE TRY TO INDUCE BANKS TO LEND MORE?

In their more candid moments, bankers are saying that they would be delighted to lend more if only they could find more creditworthy borrowers. Of course, there is likely a distinction in this downturn between the private incentives to lend and the social benefits, which would include getting the economy moving again. After all, the reason many business projects are not creditworthy is because the project's prospective customers are cutting back since they too can't get credit. Recessions involve a coordination failure which tends to make the social return to loans higher than the private return.

Could we stimulate the economy by setting a maximum on excess reserves as suggested by Swapan Dasgupta, or a tax on reserves as suggested by Scott Sumner? A tax on excess reserves is a policy equivalent to paying a negative interest rate on reserves, and would account for the perceived social value of lending out reserves in excess of private value.[8]

Suppose a policy of negative interest rates on reserves drove down excess reserves to $400 billion. (One might for example imagine a tax imposed on excess reserves that exceed seven times required reserves). Assuming that the Fed does not allow total bank reserves to fall, which the Fed can prevent by buying Treasuries with open market operations, banks would need to loan more money out or return

deposits and force depositors to find other places to lend their money or invest it. Sure, some loans would go bad. But even bad loans are as likely to stimulate the economy as the stimulus package. And wouldn't the average loan (made in a credit crunch) be more likely to be spent in a nonwasteful way than a sudden surge in government spending? And can't the nation's idle loan officers be put to work faster than the government can surge spending?

If loans are as vital as everyone seems to believe, would it be so wrong to step in the way of the massive accumulation of excess reserves? Although we are not certain it will work, we doubt it would do much harm. To be sure, people will argue, and the markets agree, that the banks are in shaky financial condition and this mitigates against them making loans. But the solution to that is more likely some kind of recapitalization than hoarding cash at the Fed.

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NOTES

1. http://www.federalreserve.gov/releases/h15/data/Weekly_Friday_/H15_BAA_NA.txt.
2. Rieker, Matthias, Marshall Eckblad and Joe Bel Bruno (2009).
3. A multiplier of 10 assumes that total bank reserves at the Fed (the sum of required and excess), currency held in bank vaults and currency held by the public remain constant. Total reserves are determined by Federal Reserve policy, so a bank or the banking system can eliminate excess reserves only by creating new loans and deposits. As deposits expand, excess reserves become required reserves. Bank loans and leases outstanding on February 25, 2009 totaled over $7 trillion, as found at: http://www.federalreserve.gov/releases/h8/Current/.
4. http://www.federalreserve.gov/newsevents/press/bcreg/20090223a.htm.
5. http://www.google.com/finance?client=ob&q=NYSE:C. (Giving market capitalization and stock prices.)
6. http://www.citigroup.com/citi/corporategovernance/ar.htm.
7. http://www.federalreserve.gov/monetarypolicy/reqresbalances.htm.
8. Relatedly, Scott Sumner argues in *The Economists' Voice* that a tax on reserves would be appropriate in times of deflation in a model like Robert Hall's 1983 paper in *Journal of Monetary Economics*.