The IS-LM model and the Credit Crunch

In the Autumn 2008 the world economy entered the deepest recession since the Great Depression. The origin of the crisis was the financial crisis in US in 2007, in the so called "sub-prime" market. The "sub-prime" market is a relatively small part of the mortgage market intended for borrowers with a relatively high probability of not being able to repay their loan. How can it be possible that problems in such a small market can create such a big recession? Furthermore, can we study the current recession using the IS-LM model? To study the credit crunch using the IS-LM model, we need to introduce in the model the role of banks. Implicitly we have the banks in the IS-LM since the interest rate is also the price of credit. However, we need to introduce the role of banks more explicitly. Banks are financial intermediaries, they collect money from savers and lend it to borrowers. Here we consider a commercial bank and not an investment bank. The balance sheet of a commercial bank is given by:

Assets	Liabilities	
Loans	Capital	
Other assets	Deposits	IN

The value of the bank's assets is mostly the value of all cans it has made to households and firms (although the bank bey of the other assets, such as the buildings it uses or financial assets such (s) bonds.) Capital which appears on the right side, is the difference between the value of the assets and the value of the liabilities since Assets - Capital + Deposits, this increacounting identity for a commercial bank.

Leverage: when you buy an asset (financial or real like a house) the leverage is the ratio between how much you borrow and how much your own capital you put up to buy the asset. The capital you put up is called "equity". As the expression below shows, the smaller the amount of equity for any given value of the asset you buy, the higher the leverage.

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Leverage = _____ = ____ Debt

Capital Cost of the investment – Amount borrowed (Debt)
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For a commercial bank, the leverage is: $\frac{Assets}{Capital}$

Consider the leverage for a commercial bank: lower is the level of capital compared to the debt and riskier the bank becomes.



Suppose that after the increase in output money demand increases from L to L^a. The new interest rate in the money market, if money supply remains fixed, should that is higher than the interest rate set by according to the Type Rule. In particular, we should be at point C in the old IS-LM model and point C urve should be steeper than the Taylor Rule (the LM curv Al be the curve that or hects point A with point C. So depending on his the money demand facts the changes in output we may have erest rate depending if we use the IS-LM or the onse in terras IS-TR model (obviously we can have also the case where the TR schedule is steeper than the LM curve). In this case the central bank will increase the money supply in order to reach point D on the money demand schedule L^a, since that will guarantee the interest rate i to arise in equilibrium. How do we model a change in monetary policy in the IS-TR model? For example the central bank may change the natural interest rate. This will shift the TR schedule. Another possibility is that central bank may change the way it responds to deviation of output from the natural level. In this case it will be the parameter β to change. This will rotate the TR schedule.

However, as you can see the qualitative results of the IS-LM model are still the same even if we consider a more realistic form of monetary policy. What is different is the mechanism behind those results (for example, we still have the crowding out effect, but here the way it arises is different from the way it arises in the classical IS-LM model). Another main difference with the IS-LM model, is that here the Central Bank