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BANK COMPETITION AND THE ROLE OF REGULATION

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Much of the banking literature assumes that regulations on minimum capital requirements are binding. However, this is often not the case in practice. For example, although capital constraints in the United States appeared to be binding during the 1980s, Flannery and Rangan (2002) find that this was not the case, at least for large banks in the 1990s. Kim, Kristiansen, and Vale (2005) find using a sample of Norwegian banks in the 1990's that capital constraints are also not binding, and that borrowers may be drawn to banks with high quality portfolios. They suggest that this is evidence that borrowers may discipline banks.

The most common justification for capital regulation for banks is the reduction of bank moral hazard. Given the presence of deposit insurance, banks have easy access to deposit funds. If they hold a low level of capital, then there is an incentive for them to take on excessive risk. If the risky investment pays off, the banks' shareholders receive the payoff. On the other hand, if it does not, the bulk of the losses are borne either by depositors or by the body providing deposit insurance. Given the widely accepted view that equity capital is more costly for banks than other forms of funds, one would expect banks to ensure that they minimized the use of equity capital, implying that the capital constraint would always be binding. While in a dynamic environment one might expect there to be a buffer so that banks would be above the statutory requirement, in the 1990s many U.S. banks nevertheless had a surprisingly high level of capital. For many of them the amount of capital in excess of the regulated amount appeared to be well above what would be required as a buffer (Flannery and Rangan, 2002). In general, it seems that capital constraints often do not bind, but there has been little research to understand the likely cause of this important issue.

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We propose a model of a competitive credit market where equity capital is costly but banks may nevertheless choose a level that is above the minimum regulated amount. The market failure is an agency problem between the shareholders and managers of the firm. Banks can help solve this agency problem by monitoring the firm. We model this agency problem by assuming that the greater the amount of bank monitoring, the greater the probability the firm's investment is successful. An alternative interpretation of the model is that banks perform a screening function. The more effort they exert, the higher is the probability of obtaining a good project, or of providing information that is useful to the firm's investment decisions.

Bank monitoring thus has two effects. The first is that it increases the probability that the firm's loan is repaid. This provides an incentive for the bank to monitor. The second is that the firm's owners are also better off as a result of the monitoring. Bank loans may therefore be desirable from the firm owner's point of view.

This perspective on bank monitoring implies that higher interest rates on loans can be good not only for the bank but also for the firm. A higher loan rate gives the bank a greater incentive to monitor because it receives a higher payoff on average. This increased average payoff can also benefit the firm's owners if it exceeds the extra amount they pay the bank for the loan. This is not, however, the only way to provide banks with an incentive to monitor. In addition, the amount of equity capital the bank has affects its incentive to monitor in the usual way. The more capital there is, the greater the loss the bank's owners will face if the loan is not repaid and so the greater is their incentive to monitor. Thus incentives for the bank to monitor are provided by the loan rate and the amount of capital.

The other important determinants of bank monitoring are deposit insurance and the structure of the loan market. Following the rest of the literature on capital regulation, we take it as given that there is deposit insurance. The first case we consider is one where the demand for loans by firms with good projects exceeds the banks' supply of funds so that borrowers must compete for funds. The second case is one where there is a shortage of good projects relative to the funds available so that the banks must compete for the firms' business and tailor their contracts to do so.

In the first case, when borrowers compete for funds, banks optimally choose to hold no capital since equity is more costly than deposits and limited liability protects them from having to repay depositors when their loans are not repaid. They also raise the interest rate on loans to the highest possible level and this provides them with an incentive to monitor. In this context, we show that when the cost of equity is not significantly greater than the cost of deposits, a regulator interested in maximizing social welfare would impose a requirement that banks hold a positive amount of capital. This leads to improved monitoring and reduces the cost to the deposit insurance fund, an aspect which is not internalized by the banks. However, when the cost of equity is sufficiently high relative to the cost of deposits, the regulator will prefer to economize on the use of the costly input (capital) and will not impose any capital requirement. Either way, the bank would like to have as low a level of capital as possible and any capital constraint imposed by a regulator will be binding.

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The case where banks compete for projects is more complex. Even in the absence of a regulator, banks will be required to hold a positive amount of capital. Capital acts as a commitment device for banks to monitor, which is good for borrowers. The result is that either the level of capital will be such that banks' profits are driven to zero or that banks will be all equity financed. This finding suggests that market discipline can be imposed not only from the liability side, as has been stressed in the literature on the use of subordinated debt, but also from the asset side. As bank capital must be set to attract borrowers, loan rates must also be set at the level which is most advantageous for borrowers. Interestingly, this is not necessarily the lowest rate consistent with non-negative profits for the banks because borrowers benefit from bank monitoring, and a higher loan rate provides better incentives for banks to do this. In equilibrium, however, the incentive effect of the loan rate must be balanced against the cost to the borrowers.

A regulator interested in maximizing social welfare will in general want to choose a different level of capital than the level dictated by market conditions. However, in contrast to the case where borrowers compete for funds, this socially optimal level can be above or below that chosen by the market. In particular, when the cost of equity capital is high relative to the cost of deposits, the regulator may want to impose a lower capital requirement than what would be preferred by the market. The reason is that borrowers do not fully internalize the cost of equity capital, while a regulator takes into account the low opportunity cost of deposits relative to capital. In other words, any capital requirement set by a regulator would not be binding, as competition for borrowers leads banks to hold greater amounts of capital than is socially optimal. By contrast, if the cost of equity capital is close to the cost of deposits, then the capital requirement may be above the market level for the usual reason that the cost of deposit insurance is not internalized by market participants.

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