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Regulation and banks' incentives to control risk

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Introduction

A more competitive and dynamic environment may not be compatible with traditional regulatory structures.

The financial sector has become very dynamic. Developments in information technology, the proliferation of financial markets, the blurring distinction between banking and non-banking financial institutions and the continuous barrage of new product innovations have fundamentally changed the landscape of financial services. In fact, the traditionally stable pillars of the financial system, institutions (what is a bank?), distribution channels and products are all in flux. This more competitive and dynamic environment may not be compatible with traditional regulatory structures. The key question is how to adapt the regulatory framework to the increasingly competitive environment of banking. In a less orthodox terminology, how do we regulate a moving target?

One needs to recognize that eroding margins and fierce competition can undermine stability.

This question is quite complex. The dynamic environment of today puts the notions of regulatory arbitrage and level playing field high on the agenda. Competitiveness needs to be preserved, and the possibility of bypassing regulation (regulatory arbitrage) needs to be recognized. The picture is even more complicated because stability and competitiveness are likely to be conflicting rather than complementary objectives, thus presenting regulators with a difficult trade-off. In particular, one could argue that restrictions on competition would improve banks' profitability, reduce failure rates and hence safeguard stability (Keeley (1990)), and (Demsetz, Saidenberg and Strahan (1996)). While I do not want to carry this argument too far (lack of competition could negatively affect the vitality of an institution in the long run), one needs to recognize that eroding margins and fierce competition can undermine stability.

Against this backdrop we need to evaluate what central banks and regulators can do about financial instability. I focus on what type of regulation may help, and in particular on the effectiveness of capital regulation. Capital regulation is central to the rules adopted by the Bank for International Settlements, BIS, and also plays an important role in the new BIS proposals. It arguably is the most predominant form of regulation. In this evaluation, I abstain from discussing potential frictions with monetary policy issues; these are discussed in other contributions to this symposium.

The rest of this paper is organized as follows. In the next section, I address the question what is special about banks. In particular, what makes them warrant such "special" regulatory treatment? This question is particularly relevant given the changes in the competitive environment. After that I focuse on whether banks have a selfish incentive to behave prudently. This is followed by a section asking the question what we would really want from regulation considering the competitive and dynamic environment of today. Subsequently, we discuss capital regulation followed by conclusions.

Are banks special?

A crisis in one bank may lead to confidence crisis in the banking sector as a whole, emphasizing the importance of systemic risk.

The regulatory interference that characterizes banking suggests that banks are considered "special" or different from other firms. Obviously, regulation has made them special. But what is different about their operations that justifies this "special" regulatory treatment? Many authors have tried to answer this question (see Freixas and Rochet (1997)). The general insight is that bank failures impose externalities, i.e. the social cost of a bank failure exceeds the private cost. One could point at the important role of banks in the payment system, as well as in the credit provision to small and medium-sized businesses. Moreover, of particular concern are linkages between banks. We can think about interbank balances (direct exposure) but also vaguer notion of "confidence". A crisis in one bank may lead to confidence crisis in the banking sector as a whole, emphasizing the importance of systemic risk.

A little uncertainty about the nature of a run may trigger a system-wide collapse or a panic.

The direct source of instability in banking is often associated with the banks' role in providing liquidity to depositors, particularly the vulnerability to runs rooted in the withdrawal-upon-demand and sequential-service-constraint features of the deposit

contract. The fear is that excessive withdrawals would force a bank to liquidate assets and thereby incur substantial liquidation costs that undermine the bank's ability to honor its remaining deposits. The excessive withdrawals could be triggered by concern about the bank's well being. However, the bank's demise could then become a self-fulfilling prophecy: once a depositor thinks that others will withdraw, he will withdraw too. This is optimal given the presence of the sequential service constraint. These arguments explain potential runs on individual banks, but of real concern are systemic crises. Chari and Jagannathan (1988) show that a little uncertainty about the nature of a run may trigger a system-wide collapse or a panic. The social cost of bank failures may then be considerable.[1]

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The potential vulnerability of deposit-funded banks to runs and the banking system's vulnerability to panics are often used as motivation for regulation, and in particular for deposit insurance (Diamond and Dybvig (1983)). But deposit insurance, DI, while safeguarding depositors, widens the gap in governance; depositors no longer have any incentive to monitor the bank. Therefore, it exacerbates the problem of excessive risk taking by bank managers since only the tax payer – the ultimate financier of the DI system – bears the consequences of any increase in downside risk. The existence of DI then necessitates *further* regulation, in particular on the lending side to contain the risk-taking incentives. These arguments help explain why extensive deposit guarantees – as observed throughout the world – have induced governments to severely regulate the banks' operations.

While important, the regulatory concerns are broader. The fact of the matter is that even ignoring the issue of deposit insurance arrangements, banks are often still considered "special" and bank failures socially costly. A bank safety net may then be *implicitly* present even in the absence of deposit insurance.

Do banks have an incentive to behave prudently?

It is important to realize that banks may well have an incentive to behave prudently. One mechanism is rooted in the banks' incentives to develop a reputation. A sufficient reputation could convince the market that a bank would not exploit problems of unobservability and moral hazard.[2] Historically, monopolistic benefits provided banks with compelling incentives to follow low-risk strategies, despite the presence of deposit insurance. Market discipline was not necessary, and regulation and supervision were only of secondary importance; rents were the primary defense against moral hazard (see Keeley (1990)). With the dissipation of rents, rigid regulatory structures like the Glass Steagall Act in the U.S. were subjected to unique challenges. The viability of the financial system now hinged upon regulation and supervision.

Reputation-building incentives have improved owing to changes in the banking business.

But does the reputation mechanism work? I believe that reputation-building incentives have improved owing to changes in the banking business, partially alleviating the increased pressures on regulatory design. What I have in mind is that the ever-increasing importance of credit ratings in banking suggests that reputation is gaining in importance.[3] The important insight is that more recently, banking has been transformed from a solely "on-the-balance-sheet" business to one that is extensively "off-the-balance-sheet". Guarantees, letters of credit, absorption of counter-party risk, and various other contingent liabilities are becoming increasingly important. A bank's credibility in these activities depends to a large extent on its solidity, and thus reputation. Reputation-building incentives in banking therefore have improved, witness also the increased importance of credit ratings in banking. This is good news for regulators and for the regulatory design of banking in general. Prudent behavior might in fact be less at risk than suggested by the overly simplistic moral hazard story of deposit insurance.

What do we really want?

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The preceding discussion implies that regulation has become more difficult, albeit the viability of the industry might depend less on (intrusive) regulation than often thought. An useful starting point for discussing a sensible

[1] Bhattacharya, Boot and Thakor (1998) provide a comprehensive overview of the rationales for regulation in the context of the fragility of financial intermediaries.

[2] An important observation is that the banks' reliance on deposit insurance fixes their costs of (insured) funds at the risk-free rate, and also guarantees the availability of those funds. Reputation then no longer benefits the banks' costs or availability of funds, and the banks' incentives to develop reputations would accordingly be diminished (see Boot and Greenbaum (1993)). Their prudential operation would then be compromised (unless Keeley's (1990) monopoly rents are sizable).

[3] This could be linked to Keeley's (1990) analysis that showed that monopoly rents as a source of franchise value have become less important. My arguments suggest that reputation may have replaced monopoly rents as a source of franchise value.

regulatory structure is to ask the question: What do we really want? I would summarize it as "a healthy and competitive financial services sector that is minimally affected by regulation, and simultaneously is a source of stability and strength to the economy at large".

In my view this means several things, including,
- limited dependence on regulation;
- more market discipline, better "early warning systems";
- fewer interdependencies between banks (systemic risk!);
- low(er) impact of any one default;
- prudent but competitive and innovative positioning of financial institutions.

Regulation that seeks to induce the desired behavior is called "indirect regulation".

In related work[4], we have analyzed the type of regulation that is sustainable in the more competitive environment of today. What we showed was that traditional forms of regulation either stipulate behavior or seek to induce the desired behavior. The former is called "direct regulation". A typical example of this type of regulation is the traditional separation of investment banking and commercial banking in the U.S. Regulation that seeks to induce the desired behavior is called "indirect regulation". This alternative approach does not prescribe behavior (i.e., permissible activities), but rather establishes incremental price and non-price incentives that are designed to elicit socially desired choices by financial institutions. Ultimately, indirect regulation aims at making undesirable activities more expensive. Risk-based capital adequacy rules that seek to delicately fine-tune to the exact level of risk would be one example. Rather than prohibiting risky activities, they seek to mitigate risk-taking incentives by making risky lending more expensive to fund than safe lending. The problem here is, of course, fine-tuning the price incentives. As a further illustration, the indirect approach would sensitize deposit insurance premia to risk in order to encourage low-risk strategies, whereas the direct approach would prohibit high-risk strategies funded with insured deposits. In both cases, compliance would need to be monitored.

Indirect regulation has gained importance.

Both direct and indirect forms of regulation are costly, particularly in a more competitive environment where issues of a level playing field and regulatory-arbitrage become of primary concern. In particular, direct regulation seems very costly in a competitive, rapidly changing environment. This regulatory structure runs the risk of being outdated constantly by new developments. Indirect regulation has thus gained importance, witness for example the increased emphasis put on further refining the risk-based capital requirements and other control instruments. But in a competitive environment, these control instruments must be delicately and constantly fine-tuned such that they do not cause competitive distortions. Hence, the applicability of the indirect, control-oriented approach to regulation is also strained. As a consequence, the effectiveness of both direct and indirect forms of regulation has suffered.

Against this backdrop, Boot, Dezelan and Milbourn (2001) recommend a shift to certification type regulatory structures, complemented with "compliance type" monitoring and timely non-discretionary intervention when needed.[5] Such regulatory structure would basically seek to keep "lemons" out of the industry without trying to directly affect the behavior of institutions with delicate fine-tuning.[6]

The new framework for capital regulation and the potential dependence on internal risk models as suggested in the most recent BIS proposals could be interpreted as one manifestation of certification requirements (unless the ambition of the proposals is a delicate fine-tuning of the capital requirements).

I will now focus on capital regulation in more detail.

Risk-based capital requirements

A core element in the new and old BIS proposals are capital requirements (Estrella (1998)). Capital requirements do have adamant supporters. Blattner (1996) writes "I think that there are hardly any convincing alternatives to capital adequacy regulation. This type of banking regulation is probably the most convincing, not least on grounds of theoretical considerations."

Others, however, cast some serious doubts on the presumption that capital adequacy rules will in-fact reduce failure risk of banks, despite their role as loss buffers. Given this debate, it makes sense to first see how proponents and opponents come to their conclusions. Subsequently, I will discuss what role I see for capital requirements.

[4] See Boot et al. (2001).

[5] Boot, Dezelan and Milbourn also include some discretionary regulatory elements. As a guardian of the integrity of the financial system, regulators may in exceptional cases have to intervene when they believe it is warranted.

[6] In Boot, Dezelan and Milbourn (2000) the effect of competitiveness on the efficiency of direct and indirect types of regulation is analyzed.

Let's focus on two specifications that could produce opposite insights.

Why may capital requirements not work? The literature is ambivalent. As a general observation theoretical prescriptions are extremely sensitive to the agency or informational problems that the theoretician has chosen to model. This issue is particularly important because the model-specification flexibility is enormous. Let's focus on two specifications that could produce opposite insights.

One is a standard asset-substitution problem where shareholders are in control. An alternative is one where insiders provide effort, and this affects the overall risk of the institution.

One is a standard asset-substitution problem where shareholders are in control. More specifically, shareholders choose the level of risk. With this approach more capital discourages risk taking and thus is an effective instrument. An alternative modeling approach is one where insiders provide effort, and this affects the overall risk of the institution. It is assumed that these insiders are shareholders. In this formulation imposing capital requirements could be bad because more capital could force insiders to dilute their ownership claim in the bank. Insiders may then respond by reducing their effort choice. This happens because the insiders may have to invest their own resources (e.g. effort), while the benefits are now shared with new outside shareholders. This is a standard Jensen and Meckling (1976) agency problem, and was first used by Boot and Greenbaum (1993) in the context of capital adequacy regulation. The net result then is that capital regulation lowers monitoring incentives (the effort) and that therefore asset quality may deteriorate.

There are a few things we can say about the potential disappointing effectiveness of capital regulation. First, the formalization presumes a shareholder base that is actively involved in the management and/or supervision of the bank. While applicable in some cases, it does not seem to apply to banks in most countries. Second, market mechanisms may develop that reduce the inefficiency. This is a small hint at the Coase-theorem. One could think of reputational arguments that can mitigate incentives to engage in effort reduction. For example, initial owners only get full value for the shares they issue, if they can commit not to reduce effort subsequently. A bank that has to enter the market regularly may therefore want to establish "a reputation" for good behavior. Skeptics may, however, counter (rightfully so) that reputation arguments could be used to mitigate nearly any conflict of interest, and actually may suggest that we do not need capital adequacy regulations at all.

I tend to conclude that we should not expect a direct empirical validity for our models on this subject. Actually, I would expect a non-monotonic effect of the level capital on risk taking. That is, I believe that it is unlikely that risk-taking incentives are monotonically decreasing in capital. At the extreme, with low or negative levels of capital, introducing a capital adequacy requirement will likely reduce incentives for "gambling for resurrection". However, we may not expect that this behavior continues to improve for any further increase in capital.

With low or negative levels of capital, introducing a capital adequacy requirement will likely reduce incentives for "gambling for resurrection".

On a more fundamental level capital regulation should in my view be seen as "a right to play"; that is, as a certification requirement. What this means is that a specific level of (risk-based) capital is enforced, but that this level of capital should normally not be binding. That is, a "normal" institution may privately choose *at least* that level of capital. The capital requirement is then basically intended to keep "lemons" out.

On a more fundamental level capital regulation should in my view be seen as "a right to play"; that is, as a certification requirement.

If this is true, the real puzzle is why bankers consider capital (regulation) very costly. The answer is not obvious. In my view the, what I call, "cost of capital fallacy" plays an important role.

Cost of capital fallacy

It seems a fact of life that banks consider capital very expensive, and therefore want to use their capital as effectively as possible. In practice, bankers will tell you that capital costs say 15%, while debt (deposits) will not even cost half of that. In their mind capital has this *fixed* high price. It is therefore not surprising that they will choose to utilize this expensive capital as effectively as possible. The problem with this line of (popular) reasoning is that capital does not have *one* price; the cost of capital is determined by the risks this capital is exposed to. This is a standard result in corporate finance. As we as finance theoreticians know, capital that supports risk-free investment (like shares in a money-market mutual fund that invests in government paper) will be priced to earn close to relevant market interest rate.

It seems a fact that banks consider capital very expensive, and therefore want to use their capital as effectively as possible.

Bankers will counter that they are confronted with this high price for capital whatever the theory might say. This puzzle has – in my view – a straightforward resolution. The bankers' beliefs in expensive and fixed priced equity create a self-

The bankers' beliefs in expensive and fixed priced equity create a self-fulfilling prophecy creating a perverse equilibrium.

fulfilling prophecy. The market knows that banks will put to use any unit of idle capital (not using it, *given the high fixed price* is a waste!), and therefore the market anticipates that any capital granted to a bank will be exposed to substantial risks. As a matter of fact, matters might even be worse. Banks will seek to put to use idle capital rapidly which elevates risk even more. These beliefs and anticipations create a perverse equilibrium. Given the bankers state mind – fixed priced, expensive capital that needs to be put to use as quickly as possible – the market responds rationally by charging a high price for capital. And given these anticipations by the market, the bankers' beliefs are justified and confirmed in equilibrium.

This perverse equilibrium undermines the effectiveness of capital adequacy regulations.

This perverse equilibrium further undermines the effectiveness of capital adequacy regulations. One implication of the equilibrium is that imposing higher capital requirements on banks will induce them to undertake new risky activities. That is, in the bankers' minds – with their "capital has a fixed price" – fallacy-capital needs to be exposed to sufficient risk to make it cost effective. I believe that this equilibrium is very relevant for the current practice in banking. The question then is how can we get away from this perverse equilibrium? Here I believe we need to look at the industry (or market) structure of banking.

***Market discipline* might then work. This could break the perverse equilibrium.**

The perverse equilibrium that is rooted in self-fulfilling beliefs is particularly relevant for opaque banking institutions. The market can then not sufficiently observe actual risk choices and therefore acts on what it anticipates the banks might do. In more transparent institutions, funding costs are better linked to *actual* risk choices, and less dependent on the potentially "demoralizing" indirect inferences (via the self-fulfilling belief of bankers and market). Now banks could be more readily rewarded for good behavior. In other words, *market discipline* might then work. This could break the perverse equilibrium.

Conclusions

Regulating a dynamic and competitive financial services industry is not easy. I strongly believe that regulation has to move in the direction of "certification requirements" which will keep potential distortions to the minimum. The BIS proposals on capital requirements and the potential use of internal risk models could be consistent with this view on regulation. However, the "cost of capital fallacy" (see page 21–22) poses a serious problem. If bankers really foolishly consider capital extremely expensive, without sufficiently appreciating the benefits of an adequate capitalization, intrusive capital regulation might be needed. In that case also substantial skepticism is warranted on allowing banks to have capital levels depend on their internal risk models. Banks incentives would then be so much driven by minimizing capital that the credibility of the model outcomes might be compromised.

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