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*Western Prudential Regulation: Assessment, and Reflections
on its Application to Central and Eastern Europe*

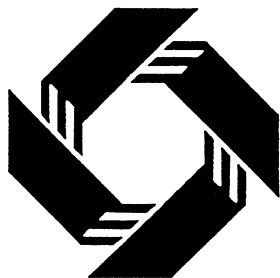
Jean Tirole

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*Western Prudential Regulation: Assessment, and Reflections
on its Application to Central and Eastern Europe*

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December, 1993

[Achieving a safe and efficient financial intermediation in Central and Eastern Europe (CEE) is a complex matter. This paper first supplies a conceptual framework for the analysis of prudential regulation, and derives a number of implications for capital adequacy requirements, balance sheet adjustments, and accounting. It also discusses political economy issues and the question of whether large banks are really "too big to fail." The second part of the paper summarizes the situation in CEE and establishes a list of specificities of the banking environment there. It then reviews some major policy questions in the light of these specificities.]

Author's Acknowledgements

Part I of this paper uses material from the author's European Economic Association Schumpeter lecture, delivered on August 29, 1993 in Helsinki. The author is grateful to Mathias Dewatripont for letting him borrow unrestrainedly from their joint monograph, and to Roy Grohs and Robert Muscat for their aid

Disclaimer

This publication was made possible through support provided by the Office of Education and Institutional Development, Bureau for Research and Development, U.S. Agency for International Development, under the terms of Grant No. PDC# 0095-A-00-1126-00. The opinions expressed herein are those of the author(s) and do not necessarily reflect the views of the U.S. Agency for International Development or the Institute for Policy Reform.

Executive summary

Achieving a safe and efficient financial intermediation is a complex matter. Examples of recent large-scale problems in banking alone abound in the west (e.g., in the USA, Japan, Scandinavia and Latin America). That such debacles occurred in countries with substantial experience in private banking and in prudential oversight provides material for reflection for the emerging banking systems in the substantially riskier environments of Central and Eastern Europe (CEE).

CEE central banks tend to be subordinated to the finance ministry and do not fully take on the traditional tasks of prudential regulation. They typically encourage state-owned banks to direct most of their loans to failing state-owned enterprises; they also substitute for the tax authorities by imposing high unremunerated reserve requirements to raise revenue. Most commercial banks are likely to be insolvent. Poor capitalization, loose regulation (despite the recent tightening), and conflicts of interest set the stage for a potential worsening of the situation. The proclaimed goal of imposing western-style prudential standards is hard to implement. For one thing, banks would have incentives to take large risks if they were confronted with real performance requirements; gambling for resurrection would then be their only option. Furthermore a credit squeeze might not work well in the current environment, because state-owned enterprises when pressured by their bank might borrow from other firms or refuse to pay their suppliers.

In view of this complex and new environment, it is useful to develop a conceptual framework in which one can analyze financial regulation in the CEE countries. The first part of the paper develops such a framework and draws some of its general implications. The theoretical model stresses the importance of capital adequacy for intermediaries. Capital requirements play a dual incentive role. They threaten bank management with a shift of control away from shareholders in case of poor performance. They also adjust shareholders' incentives, in particular by preventing gambling for resurrection in case of poor capitalization.

Understanding that prudential regulation must address the double moral hazard problem for bank insiders and outsiders is the key to most of our insights. Consider for instance the debate about whether capital requirements should be adjusted along the business cycle. Relative ratio advocates call for substantially lower solvency standards in recessions while international regulations have set an absolute solvency requirement. Both viewpoints are one-sided. Absolute ratio advocates fail to insulate management from macroeconomic risk while relative ratio advocates ignore shareholders' incentives (despite the painful lesson learned by relaxing the S&Ls solvency standards). The debate between market value and historical cost accounting can be analyzed along similar lines.

We then study public regulation and its political economy: Which mission should be conferred on the regulators? Is a partisan objective appropriate? Can proper incentives be provided for regulators?

A discussion of the difficulty of letting large banks fail concludes the first part of the paper. Two policies are suggested, that might reduce the occurrence of bailouts motivated by the possibility that some banks are "too big to fail".

While the general insights all have implications for Central and Eastern Europe, one should be extremely careful before applying them in this context. Part two of the paper lists specificities of the CEE banking environment. The banks' management of loans is observed to be particularly complex. On the liability side, the lack of familiarity of CEE depositors with privately-owned banks and financial markets exposes them to much risk. While the lack of sophistication and the free-riding of western depositors is, in my view, a major argument in favor of regulation of part of the banking sector, it is so with a vengeance in the short run in the CEE countries. Last, prudential regulation is particularly hard to set up and enforce.

We then review various issues in the light of CEE specificities: market value accounting, relative ratios, systemic risk, deposit insurance, and the timing of reform.

1. Introduction

Financial intermediaries, such as banks, mutual funds, securities firms, investment managers, insurance companies and pension funds, play a crucial role in modern economies. They issue credit and insurance policies to firms and consumers, manage pensions and are the key players on the securities, currencies and derivatives markets. They also, in the case of banks, underlie the payment system.

Achieving a safe and efficient financial intermediation is not straightforward. Examples of recent large-scale problems in banking alone abound, from Japan (where the financial system was presumed to hold \$500 billion in bad loans in 1992¹) to the United States (with its Savings and Loans debacle which will, according to imprecise estimates, cost \$1000 per inhabitant, and with its thousand-odd commercial bank failures in the 1980's), not to mention Scandinavia (where many large banks were recently rescued by the governments) and Latin America (many large banks in Argentina, Brazil, Chile and Mexico either failed or were nationalized in the eighties). That such debacles occurred in countries with substantial experience in private banking and in prudential oversight provides material for reflection for the emerging banking systems in the substantially riskier environments of Central and Eastern Europe (CEE).

In the CEE countries the monobank inherited from the old regime was generally split into a central bank and several large public commercial banks². The *central bank* tends to be subordinated to the finance ministry and does not fully take on the traditional tasks of

¹ *The Economist*, Nov 7, 1992.

² See Sarcinelli (1992), and especially Thorne (1992) and DAI (1993, as well as its four country specific studies) for more complete descriptions of the recent process. The monobank description of the old regime is not quite accurate, and leaves aside savings, specialized and foreign trade banks.

prudential regulation. It typically encourages state-owned banks to direct most of their loans to failing state-owned enterprises; the central bank also substitutes for the tax authorities by imposing high unremunerated reserve requirements to raise revenue³.

Most newly created *commercial banks* are likely to be insolvent. For example, EBRD officials estimate that bad debts represent more than 60 % of the balance sheet of some of the largest CEE banks⁴. Poor capitalization, loose regulation, and conflicts of interest set the stage for a potential worsening of the situation. For example, banks would have incentives to take large risks if they were confronted with real performance requirements; gambling for resurrection would then be their only option.

Much thought has been given to this bad loan problem (see, e.g., Bonin-Mitchell (1992), DAI (1993) and Dittus (1993)). While no one disputes the necessity of recapitalizing the banks, questions arise as to the appropriate timing of the recapitalization and as to its fiscal feasibility. One procedure for restoring solvency of the public bank would consist in cancelling some of their debts (e.g., to the central bank); debt cancellation has taken place in none of the four countries surveyed by DAI (1993). Government usually prefer to increase the real value of bank assets (debt socialization). For instance, in Hungary and Bulgaria bad loans are moved into centralized "hospital banks" (called the "Consolidation Bank" in the former Czechoslovakia) in exchange for government bonds.

Unsurprisingly, the commercial banks' lending policies do not accord with western standards. By and large, commercial banks keep lending to insolvent large state-owned enterprises. Very little credit is channelled to the private sector. Credit is mainly short term

³ In 1992, the average reserve ratios in Hungary and Poland were 18.3 % and 14.3 %, respectively. The cost of mandatory reserves amounted to 1.1 % of GDP in both countries (Dittus (1993)).

⁴ *Financial Times*, August 3, 1993, cited by Goodhart (1993).

credit, due to inflation and to the general uncertainty. To be certain, some incentives are given to banks to improve their solvency. For instance, some CEE countries try to pursue "self-reliance" policies in which banks must provision against their bad loans, which provides them with some incentives to seek repayment of claims and to resist taxation (Bonin-Mitchell (1992).) In Poland, banks are forced to restructure their debtor companies in return for recapitalization (DAI (1993), Thorne (1992); see also the 1989 Hungarian policy described in Mitchell (1993)). Overall, prudential regulation and supervision has been substantially tightened in 1992 (Dittus (1993)).

It must be recognized, though, that credit squeezes do not work well in the current environment (Goodhart (1993).) State-owned enterprises that are pressured by their bank borrow from other firms or simply refuse to pay their suppliers. Many countries have witnessed an impressive growth of inter-enterprise arrears (which is of a much higher order of magnitude than the growth observed during credit crunches in our economies.)⁵ This results from the fact that suppliers are generally on a soft budget constraint and therefore may extend trade credit at negative real interest rate to nearly insolvent buyers.

Furthermore, it is not clear why banks would want to incur the cost of inducing liquidation of almost valueless firms (Ickes-Ryterman (1992).) Banks may also be concerned about signaling the existence of bad loans in their portfolio. We refer to Begg-Portes (1993) and Mitchell (1993) for a much broader discussion of why banks tend not to foreclose their borrowers (for example, in 1991, only 9 out of 681 bankruptcy filings in Hungary were made by banks.)

To conclude this very brief review of the state of banking in CEE, let us recall the

⁵ Nonetheless, the trend is towards a stabilization of inter-enterprise credit. The importance of inter-enterprise arrears may have been exaggerated in the academic literature (Dittus (1993)).

fact that there has been little entry into banking. In Poland for instance, emerging private banks hold 10 % of the assets and focus on basic trade and working capital finance. They are not always financially sound and confidence is low.

The first part of the paper considers banking regulation in broad terms. In view of the current lack of a theory of financial regulation, the purpose of part I of this paper is to sketch how one might go at building a framework for the study of prudential regulation and at deriving policy implications. It is organized as follows. Section 2 discusses the market failures that may make financial intermediation a good candidate for regulatory supervision. Section 3 provides a short introduction to the practice of prudential regulation. Sections 4 and 5 demonstrate the importance of capital adequacy for intermediaries. Sections 6 and 7 look at two topical policy debates: absolute vs relative solvency ratios, and historical cost vs market value accounting. Section 8 derives some principles for prudential regulation. Section 9 studies the extent to which agency incentives and political economy issues may hamper the realization of these objectives. Section 10 focuses on the specific question of whether large banks can fail⁶.

Part II of the paper uses the theoretical framework to shed light on the alternatives facing the emerging banking systems in CEE. In view of my amateur knowledge of the banking environment there, it would be presumptuous for me to make any recommendation. At most can I try to bring a few thoughts for the general reflection on the topic. Section 11 lists some specificities of CEE countries that we should keep in mind before transposing western paradigms to the transition phase. Section 12 addresses regulatory rules while section 13 analyzes the organization of regulation and central bank objectives and briefly touches on

⁶ Most of part I borrows from ongoing work with Mathias Dewatripont (1993a), to which we refer for a broader selection of topics and for a formal treatment.

the important issue of the timing of privatization and recapitalization. Section 14 concludes.

PART 1: Western Institutions: Practice and Theory

2. What is special about banks?

We will focus on banks among financial intermediaries in order not to burden the exposition with distinctions and caveats. The reader should however bear in mind that a number of arguments can be directly transposed to other financial intermediaries.

The liability side of the balance sheet of a bank is, as in any firm, made up of debt (in this case, retail and wholesale deposits, which are senior, and subordinated debt) and equity. Roughly, its assets are composed of interbank loans, loans to government and government securities, loans to consumers and industry, participations, and a bit of physical capital. Off-balance activities (which, mainly for the biggest banks, have grown tremendously in the recent years) include bank acceptances, contingent loans and lines of credit, and exchange and interest rate swaps and options.

While there are many similarities between banks and nonfinancial companies, which we will later exploit, there are also a few interrelated *differences*. First, the debt of the banking sector is held by small depositors to a much larger extent than that of the nonfinancial sector⁷. Second, banks finance most of their investment externally, while nonfinancial companies finance about two thirds of theirs from retained earnings (Mayer (1988)). Because the issuance of shares represents a small fraction of financing in both cases, the debt-equity ratios differ much between the two sections: for instance in the US in 1985

⁷ This fact is investigated in Holmström-Tirole (1993).

it was about 2 for all industries, 11 for commercial banks and 28 for savings banks. While stark differences in asset composition imply that one should not make too much of this comparison, these numbers still point at a potential fragility of the banking sector to shocks. Third, unlike the debt of nonfinancial firms, much of the banks' debt is insured, either explicitly (most of retail deposits) or implicitly (rest of retail deposits and often wholesale deposits as well). Fourth, the solvency of banks is key to a smooth functioning of the payment system. Fifth, although it is no less competitive than many unregulated industries, banking is heavily regulated.

Concerning this last difference, one might argue that the real point of departure is that the supervision is public rather than private. Indeed, the public regulation of banks' capital adequacy and risk taking offers some similarities with a bank or debtholders imposing covenants on debt issuance, net worth and risk taking by a nonfinancial borrower; or with a private clearinghouse monitoring positions and collateral of its members⁸. The analogy does not stop here. A clearinghouse acts as a delegated monitor for the members who find it too costly to supervise and constrain each other's positions and to coordinate the negotiation of credit lines to a member on a continuous basis. Similarly, a bank or a venture capitalist may act as a certifier for other lenders⁹. In both cases the monitor puts at stake both its own money and the cofinanciers' (through loss-sharing rules in the case of a clearinghouse). Similarly, the government as regulator commits its own money (through the deposit insurance scheme) and that of uninsured creditors and equityholders. So, there is nothing unusual in the designation of a representative of depositors, all the more that, in the

⁸ See Gorton (1985) for more on the second analogy.

⁹ Sometimes with disastrous outcomes. A well-known case is that of Penn Square, a US bank which failed in 1982 and had sold a large number of its loans to other banks which had not checked their quality.

case of banking, investors are really very small and lack sophistication. So, the real specificity of banking in this respect seems to be that the regulator is usually public.

Last, it is often suggested that a main motivation for regulation is to avert "systemic risk". This may mean several things. First, regulation may reduce the probability of occurrence of the externality caused by a bank's failure on many other parties: local communities, uninsured creditors (including banks holding overnight loans¹⁰ or a bilateral intraday surplus, banks using the bank as a correspondent bank and holding a positive balance at it) or borrowers who have contracted for or will shortly need lines of credit. On the other hand, the bankruptcy of General Motors would also impose distress on many other parties (suppliers¹¹, local communities, dealers, consumers who have ordered cars, creditors, etc.) and yet GM is not regulated.

The second concept of systemic risk is that the failure of a bank would more indirectly affect other banks through some informational effect. One possibility is that depositors learn that banks with similar balance sheets might also fail. This effect is certainly most potent for small depositors and can be considerably alleviated through deposit insurance. The other type of inference, certainly more relevant for large depositors, is that the central bank is less willing to rescue failing banks than was previously thought. Such an inference may well result in a run in the wholesale market. One difficulty with the argument that systemic risk calls for public regulation, though, is that the government could rescue unregulated as well as regulated banks; indeed, the US government did rescue Chrysler,

¹⁰ 66 banks had uninsured deposits at Continental Illinois greater than their net worth when that bank failed in 1984.

¹¹ It is estimated in France that 20 % of failures of french nonfinancial firms are linked with the failure of one of their customers (Conseil National du Cr dit (1993,p12)).

Lockheed, and New York City¹². While it may be the case that the government can more easily rescue a regulated firm (or has more incentives to, say in order to cover up poor monitoring), a more careful analysis of the desirability of regulation on such grounds is called for¹³.

3. Banking regulation in a nutshell

We will not review all features of the 1988 international (G-10) Basel accords. Rather we emphasize capital adequacy requirements. Banks must maintain a capital ratio of at least 8 % (unless their home country specifies a more stringent rule). A bank's capital ratio or *Cooke ratio* is defined as the ratio of equity to the total risk-weighted (on- and off-balance) assets. Weights for assets on the balance sheet depend on the institutional nature of the borrower. For example, the weight is equal to 0 for a Treasury security, meaning that the bank can finance such a security through deposits without adding any equity. There are three other possible weights, all meant to reflect credit risk: .2 (e.g., for interbank loans or for loans to local governments), .5 (e.g., for mortgages), and 1 (e.g., for industrial and commercial loans and for securities). So for a \$1 loan, the bank needs to add 8 cents in equity if the borrower is a nonfinancial firm but only 1,6 cents if the borrower is another

¹² Within the financial sector, rescues are not limited to banks. In the US, the Pension Benefit Guaranty Corporation often makes good for shortfalls (due to, say, skimping on contributions by firms) in the pension funds. Another case in point is the 1989 establishment by the UK government of a compensation fund to meet up £150 million out of a total of £180 million in claims when the investment management firm Barlow Clowes failed.

¹³ "Systemic risk" actually has a third connotation relative to the functioning of the payment system and refers to an unwinding in a net settlement system or a gridlock in a gross settlement system.

bank. Weights for off-balance assets depend on the nature of the borrower and on the type of the transaction.

In case the bank does not meet the minimal capital requirement, the *regulator* is meant to act in a fairly nondiscretionary fashion. First, the bank should be asked to recapitalize to the minimum level. Second, if recapitalization does not occur, the regulator must either sell or liquidate the bank, depending on which is cheaper. [Here there is a fair amount of discretion in evaluating the cost of liquidation. For example, there is some concern that the government might be tempted to sell the bank, with the concomitant infusion of taxpayer money in the form of recapitalization, acquisition of bad loans at historical value or other means, by arguing that liquidation would have a systemic effect on the bank's customers and on other banks].

The Cooke ratio attempts at summarizing complex information on on- and off-balance sheet activities of a bank in a single-dimensional variable. It has some well-known *drawbacks* that are the topic of ongoing reflection. First, there is almost no measure of *portfolio risk*¹⁴. The Cooke ratio therefore does not reflect the positive or negative correlation of the assets. Similarly it does not measure the bank's exposure to interest rate risk. Interest rate shocks started the Savings and Loans' crisis in the US. S&Ls had invested in long-term, fixed-nominal-rate mortgages, while their debt was short-term. This created an imbalance when interest rates went up considerably in the late seventies and early eighties. Banks have means of reducing their exposure to interest rate risk, namely maturity matching, indexing, entering interest rate swaps, and trading in options or futures markets. Yet, a swap meant to insure

¹⁴ Except for the fact that banks cannot have any single large risk in excess of 20 % of their capital and a sum of large risks exceeding 800 % of their capital.

them against interest rate (or exchange rate, for that matter) fluctuations adds a new operation and lowers their Cooke ratio instead of raising it.

Another well-known drawback of Cooke ratios is that they are based on historical cost accounting, so the assets are unlikely to reflect their *true market value*. To be certain, some market value accounting shows up in the Cooke ratio through the auditors' and regulators' insistence on provisioning for foreseeable losses; it is also the object of some reporting requirements under some regulations¹⁵. But market value accounting still has little bite on actual regulation. Yet, economists usually come up fairly strongly in its favor (while recognizing that, in the absence of auctions of assets, its application is often subjective and therefore prone to manipulations). We will discuss in section 7 whether this position is warranted.

Third, Cooke ratios, because they rely on balance sheet information (together with regular updating reports by the bank), are *slow* to adjust to new information. Private and governmental ratings help reduce this lag and reflect market value information.

Last, the Cooke ratio is meant to measure banks solvency, and says little about the bank's potential exposure to short-term, *liquidity* problems. Of course, in a perfect information world, a solvent bank would never have any trouble raising funds to cover temporary imbalances between its payments and receipts. It could borrow, as it does in practice, from other banks or, if there is more time, from depositors (by increasing deposits). Things look different though if its solvency is in question, unless either interbank loans are explicitly or implicitly insured (in which case other banks are willing to lend to an illiquid bank) or the bank can collect insured deposits sufficiently fast. While the Basel agreements

¹⁵ The Federal Deposit Insurance Corporation Improvement Act of 1991 requires US banks to disclose estimated fair market values.

rightly treat solvency as the central issue, it should be remembered that liquidity problems may matter in practice, especially if one attempts to move away from full deposit insurance as is often recommended by economists; and that perhaps they should matter anyway (regulators may detect a solvency problem through the bank's liquidity problems in the same way banks often get an advance signal of the potential failure of their customer through an increase in short-term borrowing.)

4. Optimal governance structure for banks¹⁶

Unlike the regulation of telecommunications, electricity or local services, banking regulation does not seem motivated by the existence of large economies of scale resulting in a monopoly position and the concomitant price and quality regulation. In our view, banking regulation stems primarily (although not exclusively) from the desire to protect uninformed, incompetent and free-riding depositors¹⁷. Our approach consists in first viewing a bank as an ordinary firm and second introducing this "market failure".

So let us backtrack and ask ourselves how one usually tries to control moral hazard in firms. Firm managers are given formal incentive schemes (bonuses, stock options), but are also subject to less formal incentives in the form of potential outside involvement in management. For example, shareholders, in particular through the board of directors, can put the firm under the control of a holding company, ask the manager to reverse a decision, divest a division, cancel an R&D project, forgo some perks, or leave. Similarly, and perhaps

¹⁶ The ideas in this section were first explored in Dewatripont-Tirole (1993b).

¹⁷ Another motivation is the functioning of the payment system. We will ignore this motivation for conciseness, and also because it is more specific to banks. We should note however that it is related to the solvency focus of this paper.

more importantly as we will see, debtholders, in particular a main bank, can force the firm to take such decisions when they could induce failure by refusing to extend a credit line or reschedule their claims. We view external pressure or interference as a main component of managerial incentive schemes given the obvious limitations of formal incentives.

It is tautological to say that managers dislike interference in that they prefer being left doing whatever they want to do. Therefore managerial discipline is best provided by promising a low level of interference in case of good performance and a high level of interference in case of a mediocre one.

Because external intervention cannot be precisely specified, outsiders upon whom control is conferred must be given incentives to intervene in the proper way. In a sense, we have a "double moral hazard problem" for insiders and outsiders. The outsiders' incentive schemes are provided by the return streams attached to their securities. We therefore predict that the securities' returns streams and control rights should follow a systematic pattern. And, indeed, equityholders, with their convex return structure, typically have control in good times while debtholders, with their concave return structure, have de facto control in bad times.

To accord with the forms of interference discussed above and also to be able to match this observed correlation between return streams and control rights, it is natural to assume that interference leads to a decrease in risk. Then, claimholders with a concave return structure (debtholders) are more prone to interfere (are tougher) than those with a convex return structure (shareholders.) Combining this with the general point that interference should follow a mediocre performance, we thus conclude that *control should shift from soft claimholders (equityholders) to tough ones (debtholders) in case of mediocre performance.*

In the two-period model in Dewatripont-Tirole (1993a), a low first-period profit, or (equivalently in this model) the nonreimbursement of debt maturing in that period allows

debtholders to take control or at least to threaten to take control in order to impose their demands. But here is the twist: In the case of a nonfinancial company, a main bank or a few large debtholders can easily exert such control rights¹⁸. In the case of a bank, debtholders are mostly small, uninformed, and free-riding. This suggests that they should be *represented*. Although they are usually represented by government agencies, one may also consider alternative "regulators" such as a banking club, a rating agency, a private deposit insurance company or a large debtholder. We refer to Dewatripont-Tirole (1993a) for a detailed discussion of the costs and benefits of private banking regulation.

5. Net worth adjustments as a response to perverse incentives

The optimal interference policy does not only consist in allocating control between equityholders and debtholders. The incentives of the controlling claimholders must further be adjusted within each control region through, say, net worth adjustments (recapitalization, dividend distribution).

To see this, let us sketch the two-period model alluded to above and which will be referred to later on. The bank lends short term and long term to industry and faces in period 1 managerial moral hazard in its management of both types of loans. The bank's first-period profit v (net of first-period deposit withdrawals) is realized; more generally, v could stand for any objective information that would be recorded in the bank's Cooke ratio at the end of period 1. The second-period profit η is not yet realized, although a signal about the prospects of the bank or its environment might accrue at this stage. Let the bank's period-two

¹⁸ Bondholders on the other hand are usually quite dispersed, but only firms which are well capitalized (Hoshi et al (1993)) or reputable (Diamond (1991)) and therefore less likely to enter financial straits have access to the bond market anyway.

obligation to depositors be equal to D , and let $\bar{\eta}$ denote the historical cost (value of the principal) of the long-term assets. The balance sheet at the end of period 1 is thus:

Assets	Liabilities
v	D
$\bar{\eta}$	E

where net worth or equity, E , is as usual defined as a residual. Assume that v is reinvested in a safe asset, say a Treasury Bond, at the market rate of interest of zero¹⁹. According to the international agreements, the safe asset has weight 0 while the industrial loans $\bar{\eta}$ carry full weight. The Cooke ratio at the end of period 1 is then

$$r = \frac{v + \bar{\eta} - D}{\bar{\eta}} .$$

A straightforward reinterpretation of the allocation of control to shareholders in good times ($v \geq v^{\min}$ for some v^{\min}) and to debtholders in bad times ($v < v^{\min}$) is in terms of Cooke ratios: Letting $r^{\min} \equiv (v^{\min} + \bar{\eta} - D)/\bar{\eta}$, shareholders keep control if and only if

$$r \geq r^{\min} .$$

We are now in a position to discuss net worth adjustment in each control region. For conciseness, let us focus on shareholder control (the conclusions are the same for debtholder control.) Suppose that the bank's performance v deteriorates. Net debt $D-v$ increases, so the bank is less capitalized, in the sense of a lower Cooke ratio. Shareholders are then more tempted not to interfere to reduce risk (formally the set of signals about second-period prospects that lead to risk taking expands.) This is easily understood: For example, if net

¹⁹ See Dewatripont-Tirole (1993a) for the case of reinvestment in risky assets.

debt is large, the shareholders can make money only if they "gamble for resurrection". And indeed the evidence shows that the S&Ls which took the most risk were the zombies. We thus conclude that poor performance is followed by reduced interference, yielding a clearly perverse incentive for managers. A recapitalization compensating the deterioration of the balance sheet counters this perverse evolution of the balance sheet. Conversely, in case of brilliant performance shareholders want to play conservatively in order not to jeopardize their newly acquired assets; a dividend distribution then helps reduce the level of interference.

Comparison with the Basel agreements. Under international regulations, equity does keep control for a high enough solvency ratio as suggested by the theory. In contrast, debtholders, or rather their representative (the regulator) does not quite get control in case of low solvency. Running the bank in the best interest of depositors (or the deposit insurance) is not an allowed option. Rather, if recapitalization does not occur, the regulator is meant to liquidate or sell the bank. The practice thus confirms theory in that a tougher stance is taken in case of low solvency. One can in particular check that the lower the solvency ratio, the less likely shareholders are to recapitalize and the tougher is the discipline. Yet practice involves a less discretionary debt control than given by the theory. This discrepancy can be viewed as reflecting the political economy concerns studied in section 9.

6. Should capital adequacy requirements depend on the business cycle?

International regulations state that a bank's Cooke ratio must exceed 8 % at all times. Many have criticized this rule on the grounds that it is harder for a bank to reach 8 % in a banking recession than in a boom. As a matter of fact, regulators have often been more lenient during banking recessions. For example, in the early 80s, when the US S&Ls were

badly hurt by interest rate shocks, the regulators lowered solvency standards substantially first by lowering the floor from 5 % to 3 % and second by adopting new, laxist accounting procedures; they could accordingly declare most S&Ls "solvent". Regulators defended their policy precisely on the grounds that solvency requirements should be indexed on the cycle.

Taking an incentive approach to banking sheds light on this debate between absolute and relative ratios. Informativeness theory (Holmström (1979), Shavell (1979)) implies that banks should be insulated from uncertainty that they do not control. For example, suppose that bank i 's verifiable variable entering the Cooke ratio, v_i (in the notation of section 5) is the sum of an idiosyncratic risk v_i^1 and of an aggregate risk v^A (real estate, interest rate, loans to LDCs, etc.), common to all banks. Theory recommends that bank management not be affected by v^A . All this is standard. What is less well understood is that this reasoning does not call for a relative ratio rule because the incentives of outsiders in control must be accounted for (the double moral hazard problem for insiders and outsiders is the key to most of our insights.)

To understand this, suppose that the minimum solvency ratio is equal to 8 % in the absence of aggregate shock and that a macroeconomic downturn lowers the solvency ratio of all banks by 6 %. A bank that would have normally reached a ratio of 8.5 % has a ratio of 2.5 %. To leave control to shareholders, as is appropriate, the solvency requirement should be lowered to 2 %. However shareholders do not behave in the same way when the real solvency is 2.5 % and 8.5 %. Indeed following the downturn, they want to gamble for resurrection. To complement the relative ratio rule (which preserves the proper allocation of control), one must also recapitalize the bank by an amount (here 6 %) contingent on the average profitability of banks with a similar balance sheet composition to account for the altered incentives. [Of course, a recapitalization may not be easy, all the more as many other

banks in a downturn are also trying to recapitalize. One may then consider alternative instruments such as pro-cyclical deposit insurance²⁰ or any other government policy that would have the effect of helping banks in a downturn and tax them in a boom.]

Note last that the Basel accords insulate bank managers from aggregate risk as long as shareholders have an incentive to recapitalize. They are however much too strict in case of a large adverse macroeconomic shock because they force liquidation or sale in circumstances that are out of the realm of managerial control.²¹

7. Market value or historical cost accounting?

One can apply the same informativeness reasoning to shed light on another important policy debate: Should one record a bank's assets at their historical cost (as has generally been done) or at their market value (assuming that this value can be measured)?

Returning to our two-period framework, assume now that the bank's second-period profit is $\eta + \epsilon$, where η is not yet realized in period 1 and ϵ is some macroeconomic shock that is revealed in period 1. For example, ϵ reflects news on the real estate market, the interest rate or the value of loans to LDCs. Macroeconomic shocks are of particular interest because they can often be measured more objectively than idiosyncratic shocks, and therefore give the best chance to market value accounting. [Idiosyncratic shocks are more likely to be measured objectively at the time of a sale of the assets by the bank. We refer to Dewatripont-Tirole (1993a) for a formal analysis of securitization.]

²⁰ Of course, adjusting deposit insurance premia introduces other distortions. On this, see Dewatripont-Tirole (1993a).

²¹ The discussion here is purely incentives based. For a macroeconomic approach to the issue of absolute vs relative ratios, see Holmström-Tirole (1993).

The balance sheet and the solvency ratio at the end of period 1 are, for the two accounting methods:

MARKET VALUE ACCOUNTING

$v + \epsilon$	D
$\bar{\eta}$	E

$$r = \frac{v + \epsilon + \bar{\eta} - D}{\bar{\eta}}$$

HISTORICAL COST ACCOUNTING

v	D
$\bar{\eta}$	E

$$r = \frac{v + \bar{\eta} - D}{\bar{\eta}}$$

We immediately observe that market value accounting, but not historical cost accounting, implies an excessively volatile allocation of control under a capital adequacy requirement. On the other hand, none of accounting conventions adjusts the shareholders' incentives, who again are induced to gamble for resurrection in case of adverse shock. Historical cost accounting, like the relative ratio rule, insulates the allocation of control from exogenous noise but takes no account of the effect of this noise on the shareholders' incentives. Market value accounting, like the absolute ratio rule, improperly allocates control. The policy implications, including the need for a median policy, follow the lines of section 6.

8. Public Regulation

As mentioned earlier, we will by lack of space, focus our attention on government regulation. In fact we do find some appeal to some form of mix of public and private regulation; we will touch briefly on the issue in section 10 but, by and large, refer the reader to Dewatripont-Tirole (1993a).

Adopting the viewpoint that the government represents depositors has simple but powerful implications: The government ought to intervene in case of insufficient solvency with the aim of maximizing depositors' welfare.

One way of thinking about this behavior is to envision full public deposit insurance combined with control rights for the deposit insurance fund. Full deposit insurance implies that the government receives the return stream of depositors (up to a constant, namely the nominal value of deposits). It then becomes natural to let the government also inherit the control rights attached to the corresponding claims. An agency attempting to minimize the expected loss of the deposit insurance fund and on whom the usual control rights associated with debt are conferred would act as a perfect representative of depositors.

Before tackling the question of whether such a pattern of regulation is feasible or even desirable, we should also point out that this view gives a biased objective to the regulatory agency: like a finance ministry imposing fiscal rigor on "spending ministries", the regulatory agency in charge of prudential policy is not meant to internalize social welfare, but rather to be more narrowly concerned by the financial health of the deposit insurance fund. *This narrow objective is precisely what guarantees bank discipline, in the same way the finance ministry is meant to impose rigor on the public sector and debtholder control effectively constrains the management of nonfinancial firms²².* Indeed, the internalization of social welfare as a whole by the regulator can be shown to lead to excessively soft behavior, as shareholders, and of course management itself, are less prone than debtholders to interfere with the will of managers. [And, needless to say, regulators are even softer when they are

²² There is actually a formal analogy between multiminsty oversight of projects or utilities, the financial structure of firms, and banking regulation. See Tirole (1993).

captured by the industry in that they put more weight on shareholders and management than on depositors.]

9. The political economy of banking regulation

There are really two kinds of criticisms that can be addressed to the stance taken in the previous section. The first (desirability issue) is that the partisan objective described there results from an analysis too narrowly focused on banking supervision. The second (feasibility issue) is that it may be hard to give the regulatory agency the proper incentives to accomplish its mission.

- *What should banking supervisors do?*

Central banks have multiple missions: (1) monetary and exchange rate policy, (2) banking supervision (in countries where it is located at the central bank rather than at the Treasury), (3) regulation of the payment system, (4) agent for the Treasury, as well as some other missions, for instance (5) operation of a clearing system (for most central banks). Naturally they must arbitrage among these different goals. For instance, a strong-currency objective may jeopardize bank solvency by jacking up interest rates (arbitrage between (1) and (2)). Another arbitrage might stem from the fact that central bank decisions (e.g., with respect to (1) and (2)) impact on the Treasury's welfare (mission (4)) through various channels: e.g., demand for Treasury securities affected by interest rates or by the definition of acceptable collateral for approved overdrafts and loans; externality of supervisory policy on a deposit insurance fund located at the Treasury. The central bank may also have to arbitrage between the operation of a public clearing system and the regulation of the system's private competitors in the payment system (missions (3) and (5)). Last, and without any

attempt at exhaustivity²³, we should note that supervision and operations ((2) and (3)) in countries like France and the US are separated by Chinese walls, with no mutual access to information except in exceptional circumstances.

There is nothing wrong *per se* in weighing several socially desirable objectives. Indeed, until now, I have been careful to use the word "arbitrage" rather than the phrase "conflict of interest" more commonly employed in this context.

- *Can proper incentives be provided?*

The issue of incentives in government is a broad one and I refer to my 1993 paper for a fuller treatment (itself based on ongoing work with Mathias Dewatripont). There are two reasons why it is not straightforward to provide *formal* incentives to a central bank. First, while some dimensions of a central bank's performance are easily measurable (e.g., the solvency of the deposit insurance fund), others are harder to pin down (how does one measure the efficiency of a payment system?). Furthermore, as has been noted in the incentive literature (see, e.g., Holmström-Milgrom (1991) for a treatment and references), one cannot simply give powerful incentives to an agent on the measurable dimensions of her performance and no incentives on the nonmeasurable ones, because this induces a serious misallocation of resources toward the dimensions that are the subject of formal incentives.

So, like most government agencies, central banks are governed by *informal* incentives rather than formal ones. There are two main kinds of informal incentives (besides public service mindedness, and the ego): supervision by the political system (legislative, executive, or even the judiciary) and career concerns. As is well known, political supervision has the

²³ Some arbitrages are country specific. For example, we mentioned that a major issue in Central and Eastern Europe is that the central bank (under political pressure) encourages state-owned banks to direct most of their loans to failing state-owned enterprises; and that it also substitutes for taxing authorities by imposing high unremunerated reserve requirements in order to raise revenue.

drawback of creating a likely bias in favor of those policy dimensions that concern powerful interest groups²⁴. In the background here lurks the standard debate about the allocation of control between the central bank and the Treasury, which is more accountable but also more subject to interest group pressure. There is no point dwelling on this issue.

The second classic informal incentive is career concerns. Civil servants care about being promoted and receiving job offers in the public and private sectors, and politicians care about being reelected. An analysis of multitask career concerns shows that composite missions that reflect the several goals of social optimization may not fit with the officials' self interest. That is, *the official may pursue a single mission even if given a composite one*. Consider the following illustration: Suppose that the official may have high or low ability (and, for simplicity, does not know which prevails). The official has two tasks, 1 and 2, and may reach a poor or a good performance in either task. Assume further that an official with a low ability obtains a poor outcome in tasks 1 and 2 regardless of his allocation of effort. What then matters to the official is to demonstrate high ability when this is indeed the case. It is then likely to be optimal for the official to "put all his eggs in the same basket", that is to allocate all his attention to a single task; for, there is no extra gain having a high performance in both tasks; it is far more important to make sure that at least one task is successful²⁵.

Behavior may actually be more complex than this. For instance, multitask career concerns may give rise to "fuzzy mission equilibria", in which an official given a composite mission actually follows a single mission, yet this mission is unknown to the labor market.

²⁴ The power of an interest group reflects not only its stake and its level of organization, but also the type of policy intervention (see Laffont-Tirole (1993, chapters 11-16)).

²⁵ In contrast, if high ability were demonstrated primarily by being successful in both tasks, then composite mission equilibria would exist.

For motivation (primarily based on Wilson (1989)) as well as a formal treatment, see Tirole (1993). Overall, the incentives provided by career concerns in a multitask framework are likely to be even more removed from optimal incentives than in a single task framework.

We conclude this section with two related points on career concerns. First, we emphasized the allocation of effort or resources among the various missions of the agency. Yet a different concern arises when the implementation of one mission reveals information about the performance in another mission. A case in point is "regulatory cover up", in which bank supervisors refrain from closing banks they know are insolvent by fear that a failure would be interpreted as resulting from loose monitoring in the past. Regulators often prefer to ignore the solvency problem and either pass the buck to the next administration or engage in regulatory gambling, that is hope that a positive shock will recapitalize the bank²⁶. Second, another motivation for splitting tasks among agencies and giving each a single and therefore biased mission is the process of collecting information and arguing a case on its basis. In the same way it is natural to have an attorney and a prosecutor in a trial, or representatives of different districts in a parliament, or else ministries with different objectives in government, it may well be the case that having different groups in a central bank, each in charge of making a case for its own cause, may be a fine method for a central bank governor or a minister of finance to obtain information that is relevant for decision-making (see Tirole (1993) for more details).

10. Too big to fail?

As we have seen, questions about government incentives surface in many areas of

²⁶ On this, see Dewatripont-Tirole (1993a), and especially Boot-Thakor (1993), Gale-Vives (1993) and Seabright (1993).

banking regulation. A particularly controversial behavior is the pervasive policy of rescuing large banks. Governments often balk at liquidating the bank (that is, using the "payoff" method) and instead provide cash to attract a buyer ("purchase and assumption"), or inject capital and take shares in the bank, or else simply absorb some of the bank's bad loans. Before undertaking those rescues, the regulator may have exerted forbearance by not enforcing capital requirements. It is customary — and correct — to assert that "too big to fail" is one of the most serious issues in banking.

Consider the wholesale market. The rationale for the existence of interbank loans, relative to a purely centralized, government operated market for liquidity, is that banks can more easily lend to each other on the basis of fine (subjective) information about their solvency. If the government (for political economy reasons) is constrained to lend solely on the basis of more objective information (Cooke ratios, independent ratings), direct interbank lending offers a further boost for intrinsically healthy banks and a further constraint on weak ones. Yet interbank loans that are implicitly insured by the government do not reflect fine information and therefore do not discriminate among banks. The benefits of a decentralized wholesale market are then unclear, all the more that the central bank may lose some control over total bank borrowing in the short term.

We therefore should think about ways of protecting the government from the fait accompli of a large bank about to fail and jeopardizing a number of other financial institutions. This paper does not supply a solution to this problem but can point at a few relevant considerations. One extreme policy would be to forgo decentralized interbank lending (both intraday and overnight) by letting the central bank be a counterparty and guarantee each transaction and possibly constrain total net borrowing of banks. This centralized framework dominates a decentralized one in which interbank loans are implicitly

insured: Systemic risk is averted in both cases, but the central bank can more easily monitor and constrain total borrowing by each bank. The central bank is then the bank of banks in the strongest sense.

However more decentralized schemes, that yet are not as decentralized as an unconstrained interbank market, may be preferable. First, the regulator might limit each bank's exposure toward any other bank. For instance, the ratio of bank *i*'s net lending to bank *j* over bank *i*'s net worth might be required to be at any time lower than a fraction that depends on bank *j*'s Cooke ratio or/and public and private ratings. The idea would be to make it likely that bank *j*'s failure would not trigger bank *i*'s, and therefore to disengage the central bank. The constraint on bilateral net lending would be more stringent when the borrowing bank is less healthy and therefore more likely to fail.

Second, and in the same spirit, one could consider coinsurance on the interbank market. Currently the lending bank formally bears 100 % of the risk of default of an interbank loan; in practice it bears close to 0 % if the borrower is big. One might formalize some intermediate degree of risk-sharing. Insurance would then have an explicit deductible; this deductible would be the relevant measure of net lending by bank *i* to bank *j* in the definition of the bilateral net lending cap above. The insurer might be public or private, or a mixture of the two. A private insurer would of course be subject to stringent capital requirements since its risks would be fairly correlated (banks tend to fail in a downturn of economic activity.) In a sense, this coinsurance would mimic institutions already existing in other settings. For instance, one tier down, suppliers of goods and services can obtain insurance against default of a customer from a credit insurance company. Credit insurance companies act as delegated monitors by developing their own rating of customers and helping suppliers intervene. In France, the credit insurance companies (which insured F 700 billion

in 1991) usually bear 60 to 75 % of the risk²⁷. An alternative and common arrangement allowing suppliers to obtain insurance against customer default consists in transforming the debt between the two nonfinancial parties into a debt between the supplier's and the customer's banks. This involves a "double delegated monitoring", with the customer's bank monitoring the customer and the supplier's bank monitoring the customer's bank. Last, an analogy with coinsurance by the government is supplied by the US system of federal matching of state grants for programs involving substantial interstate externalities (e.g., in education and welfare programs).

PART II: Reflections on Central and Eastern Europe

11. CEE specificities

There are a number of quantitative differences between CEE banks and western banks.

- *Asset side*

As previously noted, CEE banks hold a large number of nonperforming loans from state-owned enterprises and have not lent to the private sector. Leaving aside the specific incentives provided by public ownership and by the banks' soft budget constraint, as well as the shortage of banking skills, the management of loans is particularly complex in CEE. When deciding whether to extend further credit, forgive some debt or foreclose a firm, a bank would normally weigh the option value of future repayments and of the relationship with the firm with the expected cost of the bailout. Uncertainty about the option value is

²⁷ See Conseil National du Credit (1993).

particularly high in CEE. First, firms are part of a web of interfirm credit. Assessing the solvency of a particular firm may require assessing that of many firms. Second, there may be political uncertainty about the extent to which firms will be recapitalized or will be bailed out if they fail. Third, there is the general uncertainty about economic conditions facing the firms (input prices, interest rates, demand.) Fourth, although most countries have adopted some bankruptcy code, there is still uncertainty about their exact application as well as about the speed at which bankruptcies can be handled (court systems are currently clogged.) For example, several authors (Holmström (1993, sections 4 and 6), Mayer (1993), DAI (1993)) have stressed the desirability of secured lending. Secured lending will indeed be more pervasive if courts respect the induced structure of claims²⁸.

- *Liability side*

We argued in Part I that the lack of sophistication and the free riding of western *depositors* is a major argument in favor of the regulation of part of the banking sector. I would conjecture that the lack of familiarity of CEE depositors with privately owned banks and financial markets would in the short run expose them even more to risk. An extreme illustration of this is supplied by a Romanian deposit-taking institution called Caritas which repays 8 times the original sum after 100 days. Caritas, organizing a standard Ponzi game, repays old depositors from new depositors. Using the fact that Caritas paid out around \$75 million a week, *The Economist* (September 18, 1993) computed that Caritas' annualized gross inflow would overtake Romania's GDP within three months! Another case in point is the serbian bank Yugoskandic, which collected an estimated \$2 billion by paying 15 % monthly

²⁸ In France, article 40 of the bankruptcy code states that after a firm files for bankruptcy new lenders become senior to secured ones (who are already junior to employees, social security and tax authorities.) While such rules prove useful to alleviate the debt overhang problem *ex post*, they tend to discourage lending *ex ante*.

interest on hard-currency deposits and closed its door, with its managers moving abroad. To be certain, CEE depositors will learn to avoid such swindles as westerners did in the past, but like their western counterparts they will still have a hard time and have little incentive to understand their bank's balance sheet and to organize in order to exercise their control rights.

The task facing *regulators* is even more complex than that of western regulators. First, CEE countries still lack trained bank supervisors. Second, regulators are confronted with the possibility of multiple failures in the financial and nonfinancial sectors. While systemic risk is always an important concern in the west, it is an everyday reality in CEE. Third, conflicts of interest among central bank missions (see section 9) are very severe because of the government's intervention to force banks to direct credit to failing state-owned enterprises and to contribute revenue.

Last, *equity* is currently held by the government, while western banks are mostly private.

12. Some regulatory options

This section considers arm's length, western style banking regulation. Whether this mode of regulation is desirable in the short run for all banks is another matter, which we will briefly touch on later.

- *Market value accounting.* Technical reasons may make the implementation of market value accounting even more difficult in CEE than in the west; for, market value accounting requires large numbers of qualified auditors as well as, perhaps, well-developed asset markets in order to limit accounting manipulations.

We also saw in section 7 that there also exist more *conceptual* difficulties with market

value accounting, namely that it makes a bank's solvency ratio very volatile and that it does not correct shareholders' incentives after a macroeconomic shock. While these criticisms do not vindicate the use of historical cost accounting, the switch to market value accounting, beyond an indexation to inflation and provisioning for loan losses, may not be the most urgent reform.

- *Relative ratios.* Should the capital adequacy ratios be indexed on the state of the economy or on that of the banking industry? Let us first note that this question becomes meaningful only once banks have been recapitalized and given a proper governance structure. The issue of relative ratios is a complex one in the west; it is so with a vengeance in CEE because of the large macroeconomic uncertainty and because the fiscal situation and the lack of equity may well prevent large scale public or private recapitalization of banks during downturns. For, we saw in section 7 that a mere indexation of the minimum solvency ratio is not efficient and that a recapitalization is required. One approach to the wide-scale recapitalization requirement for banks in recessions would be to set up an insurance scheme by which international financial institutions would automatically purchase newly issued shares in banks in *macroeconomics* downturns; but this might create moral hazard in supervision by the central bank, as well as a feeling of uneasiness about foreign ownership of a substantial share of the banking sector. Alternatives should be considered. We view this question as central, given that entire banking industries have been wiped out (and rescued) in more stable environments.

- *Systemic risk.* There is an analogy between trade credit in CEE and interbank loans in the west. The failure of one firm in the first case or of one bank in the second might have severe systemic consequences. Western-style concerns may also arise with the development of interbank markets in CEE. I have little here to add to my discussion of section 10 on ways

of limiting systemic risk. Let me just stress that original solutions must be devised for the transition period. It is unclear how global risk containment measures would work in a situation where a number of banks and firms are still on a soft budget constraint.

- *Deposit insurance.* Deposit insurance has a bad press in our profession's discussions of both the west and CEE. Deposit insurance is widely blamed for causing moral hazard by removing depositors' incentives. Yet, depositors have neither the expertise nor the incentive to monitor the banks and to exercise their control rights²⁹. Besides the difficulties and the welfare costs incurred in organizing depositors' monitoring, incomplete deposit insurance would most likely trigger runs on the banks at the slightest rumors. Last, another argument in favor of deposit insurance is that it would help create competition by private banks, the public banks enjoying de facto deposit insurance.

Private deposit insurance could be considered. But we should note in this respect that private deposit insurance funds themselves ought to be carefully regulated by the government, all the more as their liabilities would be very correlated³⁰. Another issue with private deposit insurance is what is widely considered to be its virtue: It generates risk-based premiums. This implies that premiums increase substantially when the bank is in trouble; this increase further encourages the bank to take excessive risk³¹. On the other hand, there is no denying that governmental deposit insurance is costly. It is clear that public deposit insurance must go hand in hand with a careful monitoring and intervention by the

²⁹ The usual reply to this argument is that depositors could at least read ratings. Some drawbacks of the exclusive use of ratings are discussed in Dewatripont-Tirole (1993a).

³⁰ Important runs occurred in the 80s in the US in three states when depositors had doubts about the solvency of the state deposit insurance fund.

³¹ And, possibly, to increase its level of deposits! On both aspects, see Dewatripont-Tirole (1993a).

government. For example, a FDIC-style mandate to minimize the cost to the deposit insurance fund (and therefore to represent the welfare of depositors, as discussed in section 8) together with a political-pressure-free exercise of control rights in case of undercapitalization may be appealing.

13. The central bank and the timing of reform

It is by no means easy to design a mandate and an organizational structure for the central bank. Nor it is clear that this mandate should remain the same along the transition or that there should not be several agencies within the central bank/treasury. In view of the current laxism in prudential policy, the economist's first instinct might be to push for an independent central bank that would, after recapitalization, impose discipline on the banking system. Things are complex, though. One cannot disentangle the evolution of commercial banks (as fashioned by the regulatory oversight) from that of the borrowers. The tightening of bank credit in the current situation is offset by a growth in trade credit. Even if this were not the case, one could not just let the banks foreclose firms that have accumulated large debts for historical reasons, and give credit to possibly less efficient ones who were more lucky in the past. Last, there is no guarantee that even hard-budget-constraint banks will handle properly firms that are "too big to fail" and therefore likely to be rescued by the government.

In this light, proposals such as the ones in Goodhart (1993) and Thorne (1992) deserve careful consideration. Recognizing that privatization and recapitalization of firms and banks will not occur instantly and that the intertwining of soft-and hard-budget-constraint sectors is hazardous, these authors offer to disconnect a hard-budget-constraint sector from a soft-budget-constraint one which would be under centralized control. One could for

example envision a private banking and nonfinancial sectors that would grow internally as well as through new recapitalizations-cum-privatizations of state-owned banks and firms, while the soft budget constraint banks and firms would temporarily remain under strict monitoring by a state agency. [There are also private, high-monitoring-intensity alternatives for this sector. See the large literature on the use of mutual funds in CEE.] The accumulation of new nonperforming loans and trade credit would be prevented through financial discipline (enforced by the threat of bankruptcy) in the expanding hard-budget-constraint sector, and through intense monitoring in the soft-budget-constraint sector. A number of walls should then be erected to limit the interbank market to the first sector, and to prevent interfirm credit between the two sectors³². This process might also require some synchronicity in the privatization and recapitalization of banks and their borrowers. Although several issues remain to be investigated (for example, the nature of the governance structure in the second sector), Goodhart's and Thorne's proposals are worth investigating.

The reader will have noted that I have hardly discussed the issue of central bank independence or of rules protecting the central bank from the treasury³³. I do believe this issue is very important, but we first need a clear picture of what is to be achieved in the financial and nonfinancial sectors. Only then will we be able to derive a mandate and as governance structure for the central bank.

³² This may involve a costly enforcement of rules such as "delivery vs payment after less than x days" if the suppliers and the buyers do not belong to the same sector.

³³ For example, the Hungarian law specified that from 1991 no more than 3 % of the forecast budget revenue could be allocated to Treasury financing (Sarcinelli (1992)).

14. Conclusion

Part I of this paper developed a simple, yet rich framework for the study of banking regulation. Besides being consistent with common banking behavior and with regulatory practice, this conceptual framework generates new ideas about policy questions such as relative Cooke ratios and market value accounting. Yet it is incomplete in many respects. Section 10 did not do justice to the issues of liquidity, interbank loans and private regulation. And we did not touch on major topics such as universal vs restricted banking, bank vs nonbank competition, and international regulation. We hope that future research will provide conceptual insights on these issues.

Part II has discussed some specificities of the banking environment in CEE, and investigated some issues in the light of the conceptual framework developed in Part I. Going beyond our simple observations would require answering questions outside the scope of this limited study, such as those relative to the speed of the transition, to the governance structure during the transition³⁴, and to the ultimate goal³⁵. Much work remains to be done before we reach a good understanding of the issues facing banking reform.

³⁴ Some emphasize a potential role for stockmarkets. Others (e.g., Holmström (1993), Mayer (1992), or Tirole (1991)) rather stress hands-on monitoring by intermediaries. There is a related debate as to whether such intermediaries should be mutual funds (equity holders), restricted banks or universal banks, and as to whether they should issue retail deposits.

³⁵ See, e.g., Goodhart (1993), Mayhew-Seabright (1992) and Mayer (1992) for discussions of "insider" or "outsider" systems.

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