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PROCYCLICALITY OF REGULATORY RATIOS?

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Introduction

“Procyclicality” has become something of a buzzword in recent discussions about regulatory ratios. The feeling that banks have accentuated economic cycles in the emerging markets has been nurtured by the experience of recent crises. Massive increases in bank lending fuel rapid and unsuitable growth and, when the recession comes, the machine goes into reverse. In almost every recent crisis in the emerging markets, sharp contractions in bank lending appear to have made bad recessions worse. This note looks briefly at one aspect of this: how far the bank regulatory system contributes to this procyclicality. Four distinct aspects are identified for consideration.

The question of the procyclicality has several aspects. One concerns the timing of any tightening of capital rules – usually after a crisis when bank lending is in any case being curtailed. A second possible element is a supposed regulatory bias in favour of short-term lending, rather than long-term, lending – which means that emerging markets are more vulnerable in a downturn. Another concerns the inherent cyclicity of any invariant minimum capital ratio. A final aspect is that capital ratios themselves could move in a procyclical way – the proposed use of credit rating agencies could lead to this. A key philosophical question that lies behind the whole issue of cyclicity is how far financial institutions (and those who supervise them) should use discretion in following current (and cyclical) market prices.

Timing of tightening capital rules

The timing of measures to tighten capital or loan classification rules is bound to be controversial. It has been argued that regulatory rules should not be tightened when macroeconomic conditions are adverse because the very sharp change in reported bad loans that would result might undermine confidence. In practice, most countries allow a phase-in period for the tightening of prudential ratios or in dealing with generalised problems. For instance, US money centre banks whose loans to heavily indebted countries exceeded their capital in the early 1980s were allowed several years to adjust – but there was no doubt that they would have to adjust. The Basle Accord itself, published in July 1988, envisaged a transitional period to the end of 1992 (backed up with an interim standard to be met by the end of 1990). Following the recent crisis, several Asian countries have established timetables for meeting specified capital standards or for adopting realistic rules for loan-loss provisioning. In Thailand, for instance, tighter requirements for loan-loss provisioning are being phased in over a two-to-three years transitional period. As each deadline during this period is reached, additional capital can be required.

One consideration that often tells against tightening capital rules too abruptly is the reluctance to take banks into state ownership – which in effect occurs if the full and

immediate recognition of losses wipes out a bank's capital and the government injects new equity. In countries with efficient state institutions that are not susceptible to corruption and with a well-established tradition of keeping economic activity in the private sector, a temporary state takeover of a private bank may work well (as in Sweden, for example). But in countries where these preconditions are not satisfied (or in countries which have only recently managed to privatise their banks), it may be better to leave the bank with the original owners who may be more likely than government-appointed administrators to implement the necessary restructuring, ensure that loans are extended on commercial criteria and keep up the pressure to collect on bad loans. If so, there may be a tactical case for not forcing shareholders to fully or immediately write down the losses incurred.

None the less, it is important to make clear that any departure from normal prudential norms decided upon in exceptional times is temporary. There should be a commitment to meet normal standards according to some explicit timetable. And because temporary forbearance can be effective only if it does not damage confidence, it must be accompanied by measures that build confidence in the long-run viability of the banking system. For instance, any protection granted to the stronger banks should be accompanied by urgent measures to close or restructure the weakest banks.

Regulatory bias towards short-term lending?

Under the present Accord, international interbank lending of up to one year maturity has a 20% risk-weight irrespective of country. As interbank lending of more than one year to non-OECD countries carries a 100% risk weight, short-term lending to non-OECD countries may be encouraged at the expense of long-term lending. One possible consequence of this distinction is that bank lending to emerging markets is "too" short term, and thus more subject to cyclical forces. While a lower risk weight for short-term lending than for long-term lending may make sense for the lending of an individual bank (which is the focus of the supervisors), it makes less sense if all banks lend short-term so that the borrower is vulnerable to a sudden loss in liquidity. In other words, the systemic (or macro) considerations may to some extent run counter to supervisory (or micro) considerations.

How important this effect has proved in practice is open to question. Simple calculations suggest that the rule is unlikely to add more than 100 basis points to the charge for a long-term loan over a short-term loan.¹ A second consideration is that a bank that holds

¹ For example, if a bank borrows at 4% and has a cost of capital of 20% (to choose a number at the high end of the range), then the additional cost of a longer-term loan is $0.08*(1-0.2)*(20-4) = 1.02\%$. (This assumes banks would not set aside more capital of their own accord for longer-term lending.) Bonte et al (1999, p24) compare the proportion of lending with maturity under one year to OECD economies with that to non-OECD economies with similar ratings. This suggested there was some effect among higher-rated borrowing economies but little among lower-rated ones (but it is based on a fairly small sample).

capital above the regulatory minimum need not be constrained by officially-imposed risk weights – it may attach a lower risk weight for short-term lending on the basis of its own risk procedures. Informal enquiries made of banks and empirical studies have not resolved the question of the quantitative importance of the 20%/100% distinction.

At any event, the consultative document proposes to considerably soften this distinction. Under one option (where risk weighting depends on the rating of the bank rather than the sovereign risk rating), claims on banks of short original maturity (e.g. less than six months) will receive a risk weight one notch lower than for longer maturities.

Procyclicality arising from minimum capital ratios

The third aspect concerns the possible procyclicality of capital ratios. Loan losses tend to rise in a recession. To the extent that they are not covered by loan provisions (and in practice these usually prove inadequate), such losses will lead to capital write-offs. If capital ratios then fall near or even below the required minimum, banks will have to raise new capital or reduce assets with high risk weights, especially loans. Because raising capital is difficult in a recession, banks are likely to choose the second option and cut lending. There is strong evidence that banks do indeed act in this way.²

One ad hoc response to this problem is to set the required capital ratio higher when output is above trend. In practice, of course, it is often very difficult to identify the true cyclical position.³ Furthermore, it would be even more complicated to translate it to cyclically adjusted ratios for individual banks because banks lend to various sectors and thus have different exposures to cyclical conditions. For these reasons, any rigid rule relating capital to cyclical position is probably not feasible. But something could be done in more flexible ways. For instance, the supervisory review pillar proposed in the Basel Committee's consultative document could encourage banks to take account of cyclical influences in assessing their capital adequacy needs.

The ideal response to procyclicality is for provisions made for possible loan losses (i.e. subtracted from equity capital in the books of the bank) to cover normal cyclical risks. If done correctly, provisions built up in good times can be used in bad times without necessarily

² See Jackson et al (1999). It might, however, be noted that capital requirements do incorporate one significant aspect that makes capital ratios less procyclical: the fact that loans to the private sector carry a 100% risk weight while government bonds have a 0% risk weight. In a recession, banks tend to replace some loans with government bonds which lowers the measure of risk-weighted assets and so reduces the capital required.

³ Japan's problems in the 1990s dramatically illustrate this point. The weakening of growth in early 1992 was at the time regarded as a cyclical downturn in an economy with an underlying growth rate of around 4%. With the benefit of hindsight it was the early stage of a decade when growth would only average 1½% a year.

affecting reported capital.⁴ To ensure this, and because all loans have some risk of loss, it is important to maintain some general provisioning that applies to all loans. But there are some possible impediments when it comes to the practice.

The first stumbling block is that tax laws often severely limit the tax deductibility of precautionary provisioning and may insist on evidence that losses have actually occurred. This is important because loan loss provisions increase internal funding for the bank only to the extent that they reduce taxes. This problem is complex (ministries of finance generally view any narrowing of the tax base with scepticism), but does require attention.

A second possible stumbling block may be the securities laws. For example, the SEC in the United States has argued that precautionary provisioning distorts financial reports and may mislead investors. These are legitimate concerns. Allowing banks to build up reserves to cover possible losses that are not foreseen in any detail may prove difficult to square with the demands of having well-documented accounting because the decision on how much reserves to set aside is inherently judgmental. Too much discretionary accounting would allow banks to smooth earnings over time and perhaps delay the revelation of developing problems.

A third possible stumbling block is that the management of banks may be too eager to report strong improvements in earnings during booms (and so too reluctant during good times to make adequate provisions for losses). The present wave of takeovers in the banking industry may accentuate this eagerness: good reported earnings and high share prices serve to fend off takeovers.

Procyclical capital ratios: danger of using credit rating agencies?

The 1988 Capital Accord is under major review. Under that Accord, the risk weight for sovereign entities is basically decided by OECD membership, and this approach is also reflected in the risk weights for banks. All corporates receive a single risk weight of 100%. These ratings were not cyclically sensitive – indeed one frequent criticism of them is that they are not sufficiently risk responsive.

The recent consultative paper (Basel Committee, 1999) envisages a major overhaul of this approach based on greater reliance on “credit assessment agencies” – a deliberately broad expression to encompass export insurance agencies, credit registers, market data as well as credit-rating agencies. But it is credit-rating agencies that have attracted the most attention. The possible risk weights for sovereigns (based on S&P’s ratings) are shown in Table 1. The risk weighting for banks will, under one possible option, be one notch higher than the weighting of its home country. Top-quality corporates will receive a 20% risk weighting,

⁴ Under the Basle Capital Accord, loan loss provisions can count as tier 2 capital.

while corporates with a very low rating will receive a 150% weighting. All other corporates will continue to be weighted at 100%.

Table 1
Risk weightings for emerging economies

Credit rating	Risk weight	Unchanged* 1997-99	As at June 97	As at June 98	As at Dec 99
AAA to AA-	0%	Singapore Taiwan	Korea		
A+ to A-	20%	Chile Czech Rep. Hong Kong	Malaysia Thailand	Malaysia	
BBB+ to BBB-	50%	China Colombia Hungary Poland	Indonesia Colombia	Thailand Colombia	Korea Malaysia Thailand
BB+ to B-	100%	Argentina Brazil India Mexico Peru Philippines South Africa Turkey Venezuela	Russia	Korea Russia	Colombia
below B-	150%			Indonesia	Indonesia Russia

*In some cases, the rating has changed by a notch or two but not enough to imply a change in risk weighting.

Sources: Basel Committee (1999), Standard & Poor's.

Most would be wary of putting too much emphasis on the assessment of credit-rating agencies. Their performance during the Asian crises certainly suggests a marked cyclicity: while they did not downgrade Asian countries pre-crisis (when imbalances were developing), their downgrades in the midst of the crisis – especially when they brought Korean, Indonesian and Thai bonds to non-investment grade – made the crisis worse. Perhaps the most damning criticism is that the rating agencies were backward-looking rather than forward-looking in their assessments. For instance, there is evidence that credit ratings of countries exhibit a strong negative correlation with the real effective exchange rates.⁵ This means that depreciation in the wake of a crisis typically leads to a downgrade – whereas a forward-looking approach (e.g. as applied in much of the recent work on indicators of vulnerability)

⁵ Monfort and Mulder (1999).

would recognise a more competitive exchange rate as a source of medium-term strength, not weakness.

One particular danger of reliance on external credit assessment agencies is that developing countries that are downgraded in a crisis would be hit twice: once via higher risk-weights used by international lending banks and secondly via higher risk-weights for domestic bank lending to major corporations which also may be downgraded in a crisis. A second reservation is that making greater use of ratings could tempt the raters to be more lenient. Finally, the development of corporate ratings is quite uneven across countries – and because there may be a tendency to rate newly-rated entities conservatively (i.e. on the low side), those without a history of credit rating may be placed at a transitional disadvantage.

Nevertheless, the recent proposals represent a major improvement on present practice which is rather arbitrary. The aim should be to rely on credit assessments that have a long-term focus (i.e. “see through” economic cycles) and which can therefore exert a stabilising influence. It is possible that export insurance agencies and the official credit registers that exist in some countries do indeed have a more appropriate long-term focus. As Bonte et al (1999) have observed, an expanded regulatory use of external ratings needs to be carefully researched.

One subject for reflection is how quickly a change in credit rating should be reflected in the regulatory risk weight. On the new proposed scale, for instance, loans to the Korean government would have gone from a zero risk weight in 1997 to a 100% risk weight in 1998 only to go back to 50% in 1999 (Table 1). However, it is sometimes overlooked that there is nothing in the Basel Committee’s consultative document to say that changes in credit ratings have to be immediately reflected in risk weights. Indeed, the need to mitigate procyclicality might suggest a case for phasing in very gradually any change in risk weights resulting from a change in credit ratings. If the phase-in period were long relative to the length of the economic cycle, then procyclicality might be mitigated. But there is of course a trade-off: such smoothing devices weaken the link between risk and capital weights – yet the whole point of the recent proposals is to make Basel Accord rules more risk sensitive. And it is not clear how effective these devices would be in practice. Expectations are important and the knowledge that a country’s “ultimate” risk weighting has gone up might have an immediate impact on banks’ decisions irrespective of any phase-in period and might, in addition, affect the market value of the exposed bank.

Perhaps an added danger of a reliance on any small number of credit assessors (e.g. a credit rating agency) in assessing risk is that it could narrow the diversity of opinions and so could increase the degree and spread of procyclicality. For instance, a downgrade by a major agency could trigger sudden and simultaneous attempts by all banks to cut their exposure. If instead very many banks are independently assessing risk, the chances of imposing

progressive discipline on a country running into trouble – rather than provoking a sudden discontinuous drying up of foreign inflows – are greatly enhanced. For this reason, the fragmentation of risk assessment across many different banks and other institutions may help the market mechanism to work more smoothly.⁶

These considerations suggest putting greater reliance on banks' own internal rating mechanisms, as the Basel Committee has recently proposed. Internal ratings are of course easier to apply to corporations where there are data on credit history (so that default probabilities can be calculated) than to sovereigns. The greater use of internal ratings may well offer one of the more promising avenues for avoiding putting too much weight on rating agencies.

Following the market versus discretion: a fundamental dilemma

However, lurking behind widely-held reservations about the performance of credit rating agencies is a still more fundamental problem – the fact that market prices are themselves cyclical. Asset prices rise and credit spreads typically narrow with the cycle. If lending institutions “follow the market”, their behaviour will also be procyclical. Moreover, the time horizon for banks' credit assessments tends to be rather short, with the probability of default on a loan being calculated over a near-term horizon (e.g. over one year) rather than over the whole cycle. And many quantitative models of credit risk tend to extrapolate recent history (so that low current rates of default tend to lead to low expected default rates). This can be made worse by the “herding” of financial institutions, all using very similar risk management techniques.

This raises a key dilemma for both the private and the public sectors. In making judgements of valuation and risk, how closely should a financial institution follow the dictates of the market? How much discretion should it apply? It is important to understand that the various mechanisms that are often proposed to address the dilemma in effect replace (partially or completely) current market prices by some other prices. (1) Value collateral at a discount on current market prices (perhaps at a cyclically adjusted discount – some supervisory authorities, for instance, reduce loans-to-value ratios during a boom). (2) Credit risk models could put greater emphasis on variables covering macroeconomic or financial overextension and the consequent threat to current prices. (3) The time horizon for default calculations could be extended, perhaps involving the calculation of the present discounted value of future expected losses. (4) Use could be made of stress tests that allow for unfavourable scenarios

⁶ A similar conclusion is reached by Morris and Shin's (1999) analysis of market mechanisms where outcomes depend on what others do, which can in simple models lead to multiple equilibria. They argue that when there are disparities in the information available to participants, the indeterminacy is largely removed.

(“how will this loan look in a recession?”). These techniques are easy to state, but are hard to implement in practice because macroeconomic developments are uncertain, borrowers are affected differentially by cyclical developments and so on.

Once the dilemma is stated in this way, the complexity of the issue becomes evident. The main cause of procyclical behaviour by financial institutions lies in the procyclicality of markets. Correcting this, while ensuring that financial institutions respond to market signals (essential for efficiency), is a formidable challenge. What might help is to intensify supervisory oversight during booms, rather than during recessions (when the problems are usually revealed). In addition, those responsible for the oversight of the financial system as a whole need to monitor carefully any instances of “herding” when financial institutions all take on the same exposures – e.g. real estate, high-tech companies – and thus magnify the aggregate risks.

Conclusion

The question of the procyclicality of regulatory ratios is an important one, to which there is no easy answer. It is clear that financial markets are themselves cyclical. The financial system can amplify shocks of all kinds, including cyclical ones, and can do so irrespective of the regulatory system in place. A question to ask of any supervisory framework is whether it exacerbates or lessens this potential amplification of shocks. The issues that have been raised in this note can be distilled into four sub-questions, to which only partial answers can be given.

1. *Do rules decided on micro grounds make sense on macro grounds?* Supervisors have much experience in designing effective “micro rules” – that is, for individual institutions. Such rules can be refined from long experience with many thousands of enterprises. But there is an aggregation problem: a rule that makes sense for an individual institution may not make sense in aggregate. Taking account of macro aspects is therefore one key challenge.
2. *Do rules introduce destabilising discontinuities?* One well-known example is risk weight matrices which mean a small change in credit standing can lead to a large jump in capital requirements. If a change of ratings moves a borrower across one of these thresholds, then a sudden withdrawal of funds can be triggered, even though the change in underlying risk assessment is rather modest. The answer to this is to construct more sophisticated approaches that allow the smooth graduation of risk assessment and measurement.
3. *What can public policy do to encourage diversity of opinion among financial institutions?* This old issue (Keynes’s beauty contest metaphor) has been given new life by the rise of rating agencies and quantitative risk management techniques. The public sector should be wary of doing anything that encourages blind reliance on rating agencies, value-at-risk models or indeed any specific formula that could encourage “herding” among financial

institutions. Proper risk assessment requires judgement, and differences of perspective are healthy.

4. *Are other public policy interests blocking reforms that would make the financial system safer?* Any prospective adjustment of the regulatory system has to face the fact that there are several distinct public policy interests whose perspectives on potential reforms can differ. In some cases, desirable reforms may be blocked or unnecessarily delayed. This paper noted several such impediments to the frequently proposed response to procyclicality that banks should build up general provisions in good times to be drawn down in bad times. Resolving such conflicts is never easy because it involves the balancing of several (possibly conflicting) objectives. In the international arena, however, the creation of the Financial Stability Forum should help by ensuring different public policy interests “talk to each other” about contentious issues. This is a major step forward.

Yet the complexity of addressing procyclicality should not be underestimated. There is no reason to think that the public sector is any more able to forecast the cycle than is the private sector. At the same time, the market has many shortcomings. Market prices are themselves procyclical. Market participants often tend to copy each other (“herding”). In the face of uncertainty, diversity of opinion (and of action) is more likely to be stabilising than is uniformity. Such desirable diversity could well be favoured by the increased reliance on banks’ own internal ratings mechanisms that is envisaged by the Basel Committee.

Bibliography

Basle Committee on Banking Supervision (1999): “A New Capital Adequacy Framework” Paper No 50. June. (www.bis.org)

Bonte, R et al (1999): “Supervisory lessons to be drawn from the Asian crisis” Basel Committee on Banking Supervision Working Paper No 2. June. (www.bis.org)

Jackson, P et al. (1999): “Capital requirements and bank behaviour: the impact of the Basle Accord.” Basle Committee on Banking Supervision Working Paper No 1. April. (www.bis.org)

Monfort, B and C Mulder (2000): “Using credit ratings for capital requirements on lending to emerging market economies – possible impact of a new Basel accord” IMF working paper 00/69. March (www.imf.org)

Morris, S and H S Shin (1999): “Risk management with interdependent choice.” *Oxford Review of Economic Policy*. Vol 15, No. 3, Autumn pp.52-62.