Bank Capital Requirement Reform:
Long-Term Size and Structure, the Transition, and Cycles

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There is general agreement that the minimum bank capital ratio requirements (hereafter MCRR) set by regulators in the US and elsewhere were inadequate leading up to the financial crisis, and that this substantially contributed to the financial crisis (Calomiris 2009, Calomiris and Herring 2011, Calomiris, Eisenbeis and Litan 2011). Inadequate MCRR contributed to the crisis ex ante by encouraging excessive risk taking (the so-called moral-hazard problem of limited liability, which is exacerbated by the possibility of taxpayer-financed bailouts); ex post, inadequate capital meant that intermediaries' net worth was too low to absorb losses without jeopardizing banks' solvency, substantially raising counterparty risk among banks, and thereby producing a funding liquidity crisis for banks that led to massive credit contraction, selloffs of risky assets, and widespread financial distress.

Throughout the world, policy makers are calling for more capital, or in Treasury Secretary Timothy Geithner's phrasing, "capital, capital, capital." In this paper, I will address three questions about the reform of MCRR: (1) What size and structure of MCRR should we be moving toward? (2) How should we manage the transitional issues of raising capital requirements, in light of the potentially huge adverse consequences for credit supply that can result from higher MCRR? (3) How should so-called "macro-prudential" capital regulation be managed, together with monetary policy, so that capital requirements can add productively to the policy makers' toolkit of mitigating business cycles?

Size and Structure
When considering the reform of MCRR policy, two considerations should be paramount: effectiveness (both ex ante, in providing good incentives, and ex post, in providing a credible buffer against loss), and costliness (not all MCRR policies of equal effectiveness have equal private or social costs).

With respect to effectiveness, it is important to begin by recognizing that the MCRR must be set on a risk-weighted basis; otherwise, capital may still prove inadequate (or excessive) relative to the riskiness of banks.[1] In April 2006, for example, Citigroup had a capital ratio (on a market value basis) of roughly 13%, much higher than required in terms of book MCRRs and nearly twice that of Goldman Sachs (Calomiris and Herring 2011). And yet, it was Citigroup that became insolvent as a result of the crisis, not Goldman Sachs. Obviously, Citigroup's capital was much lower relative to its risk than Goldman's.

A second effectiveness concern arises once substantial losses begin to be incurred. Bankers and regulators tend to be unwilling to recognize losses in a timely way (bankers "evergreen" and regulators "forebear" – both lovely sounding synonyms for disguising losses that would require costly recapitalization of banks). Since losses can accumulate quickly, the failure to recognize loss honestly can lead erstwhile well-capitalized banks to quickly become under-capitalized or insolvent. In December 2008, as it faced insolvency and a government bailout, Citi still boasted a risk-based book capital ratio of nearly 12%. On a market value basis, however, Citigroup's capital ratio had been falling steadily over more than a year; there was plenty of time for policy makers to require it to boost its capital – in late 2007, early and mid 2008 – but regulators, like bankers, did not react to that observable, dramatic and persistent decline with any meaningful intervention.

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[1] More broadly, alongside improved capital requirements, additional reforms are necessary to improve risk measurement, and to add other safeguards to the prudential framework that make capital requirements work better. For a fuller discussion of an integrated agenda for meaningful reform, see Calomiris (2011b).

Despite the obvious gross benefits of raising MCRR or recognizing losses on a timely basis, there can be substantial costs associated with regulatory interventions (either raising MCRR or recognizing losses) that force banks to close the gap between their actual capital ratio and MCRR. In particular, the cost of raising capital must be taken into account, particularly in the wake of bank loan losses that impose adverse-selection costs on issuers (Myers and Majluf 1984). These costs are not only private costs to bank stockholders; banks facing a binding MCRR typically choose to cut loans and reduce the denominator of their risk-based capital ratio, rather than raise the numerator (for new evidence on bank reactions to increases in MCRR, and reviews of the literature on bank responses to capital ratio shortfalls, see Aiyar, Calomiris, and Wieladek 2011, Jimenez et al. 2011). Some economists and policy makers have tried to minimize the size of these social costs (see, for example, Admati et al. 2011), but they do so at their peril. There is overwhelming microeconomic empirical evidence that banks suffering capital ratio shortfalls during difficult economic times prefer to cut credit rather than dilute shareholders by raising capital.

Calomiris and Herring (2011) show that a combination of book equity capital requirements and contingent capital (CoCo) requirements of roughly equal magnitudes (with each set, say, at about ten percent of risk-weighted assets) can provide both an effective and a cost-effective solution to the problem of setting and maintaining an adequate, credible, and cost-effective MCRR. CoCos are less costly to issue than equity (both from the standpoint of adverse-selection costs and taxes). If designed properly, they can be much more effective than book equity requirements in encouraging the prompt replacement of lost capital (by using appropriate market-based conversion triggers that motivate banks to voluntarily issue equity in response to capital losses). Because this MCRR regime would credibly impose substantial costs on shareholders and managers of failing to manage risk well, they would also encourage better bank risk management ex ante.

Getting from Here to There: Transitions and the Problem of Commitment
Given the low likely yields of CoCos as proposed by Calomiris and Herring (2011),[2] and their tax deductibility, the costs to banks of raising the amounts of equity and CoCos envisioned by their proposal would be much less than the costs of raising a similar amount of equity alone. Still, those costs could be substantial if banks were forced to comply immediately with the new requirements, especially in light of the uncertainties that currently plague bank balance sheets, which make it difficult for prospective purchasers of equity to value banks' cash flows. European banks recently were informed of a likely change in capital regulation that would force them to recognize their losses honestly (e.g., recognize the loan losses associated with real estate development lending and mortgages in Spain, and mark down sovereign debt holdings according to market values), and also boost their MCRR to an equity ratio in excess of 9% of risk-weighted assets. The banks responded by suggesting that they would respond to this new regime, and to the capital ratio requirement shortfall that would result from it, by reducing the denominator of their capital ratios (through asset sales and loans reductions) rather than by initiating dilutive equity offerings.

In light of the potential social costs of making the transitional time frame too short, how should policy makers phase in new, higher MCRR? The answer to that question is not just a matter of trading off the physical costs of lower credit against the benefits of improved prudential policy. The ability to achieve the benefits of gradual implementation of desirable

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[2] Yields would be low because, in equilibrium, the probability of conversion to equity would be very low. Thus, the returns on CoCos, if designed as they suggest, should be quite similar to senior debt instruments.

long-term reform is a luxury enjoyed only by governments whose announcements about long-term reform are credible. When policy makers do not already enjoy credibility, they may be forced to accelerate the pace of reform to demonstrate that reform is real, and to help ensure that it will become real.

In Latin America in recent years, for example, counter-cyclical monetary and fiscal policy has become possible largely because governments have earned credibility about their long-term intentions – fiscal deficits and interest rate cuts, therefore, do not produce destabilizing capital flight. Similarly, when Paul Volcker engineered the monetary contraction and recession of 1980-1982, many economists (including some SOMC members) criticized that policy as insufficiently gradual and unnecessarily costly. But Volcker was struggling to establish the credibility of a new policy regime, and he did not have an indefinite tenure in office. It is not surprising that he chose dramatic change, as a way to ensure that reform would happen, and to demonstrate (through his willingness to permit a severe recession) the credibility of his long-run commitment to fighting inflation.

Similarly, policy makers seeking to reform financial regulation today lack long-term credibility. The literature on the past four decades of unprecedented instability in banking systems worldwide has shown that, with respect to the recognition of loss and the establishment of effective prudential regulation, there is no effective tradeoff between growth and stability; ineffectual prudential regulation, and delayed recognition of loss are bad both for growth and stability (Barth et al. 2006, Calomiris 2011a). But the advantages to politicians of delaying recognition or preventing the enforcement of tough rules against banks can be substantial, and there is substantial evidence that short-term political advantages can trump economic gains (Brown and Dinc 2005).

Furthermore, the opportunity to implement meaningful reform may be short-lived. In the wake of a financial crisis, taxpayers' resentment at the cost of bailouts can limit special interests' abilities to prevent reform. But over time, the popular support for reform may fade, and special interests that oppose reform may once again may come to dominate the regulatory agenda. Reforms, therefore, may enjoy brief windows of opportunity. Reform postponed may be reform denied.[3]

Given the fleeting opportunities for reform, and the importance of establishing the credibility of a commitment to reform, policy makers cannot afford to simply announce a multi-year phased-in program that will begin, say, a year after the crisis has passed. They must begin to implement reforms immediately. At the same time, even in an environment where credibility is lacking, the transition need not be accomplished overnight, so long as sufficient progress is made to bolster the long-run credibility of the policy. The right balance is hard to define precisely, and likely will vary across countries (e.g., depending on differences in banks' conditions and the credibility of policy commitments across countries).

Cycles
Should MCRR vary over the cycle? If so, based on what criteria? What is the proper interplay between macro-prudential policy and traditional monetary policy? How should variation be coordinated among countries? These questions are the subjects of voluminous and growing

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[3] At the same time, hasty reforms may encourage unwise, populist or politicized actions. For a review of the shortcomings associated with hasty bank regulatory reform in the wake of the Great Depression, see Calomiris (2010).

literatures, which include complex modeling frameworks and empirical studies. Nevertheless, some guiding principles seem clear.

First, given the demonstrated potency of MCRR regulation in influencing the supply of lending (Aiyar, Calomiris, and Wieladek 2011, Jimenez et al. 2011), macro-prudential regulation can be an effective tool for counter-cyclical policy. As numerous authors have recognized, traditional "constant" capital requirements tend to have undesirable pro-cyclical effects (especially under Basel II). It makes sense for capital requirements to be high during booms, and to be relaxed somewhat during recessions (so long as the MCRR remains sufficiently high to avoid adverse incentive consequences).

Indicators that presumably will guide changes in capital requirements over the cycle may include credit/GDP, credit growth, asset price growth, borrowers' leverage, or other measures of financial sector risk. Work on establishing the potential usefulness and robustness of such measures is ongoing. The establishment of clear (not necessarily rigid) rules to guide the implementation of macro-prudential policy will be essential for its success. If the variation in macro-prudential policy is not embodied in clear rules, which envision changes based on observable criteria, the credibility of macro-prudential policy will be hard to establish, its effectiveness may be lessened, and the uncertainties faced by economic agents about the policy environment they face will be higher.

What is the right balance between traditional monetary policy and macro-prudential policy in controlling credit and money over the cycle? There is some evidence that capital requirements are a more effective tool than monetary policy for combating at least some credit-driven "bubbles." For example, the recent experience of Colombia showed that substantial increases in interest rates (400 basis points) had little effect in cooling credit growth, but subsequent increases in capital, provisioning, and liquidity requirements had much greater effect.

The right balance between the two tools (macro-prudential use of capital requirements, and an interest rate instrument of monetary policy) remains a topic of ongoing research, but whatever the right balance may be, it is important to maintain some separation between the two policies, based on clearly specified rules. Simply saying that both tools should be used as the central bank sees fit over the cycle is not desirable, since that would make it even harder than it already is to figure out what guides monetary and regulatory policy, or to hold policy makers accountable for their actions. Greater policy uncertainty and lack of accountability will tend to produce inferior policy outcomes.

Monetary policy should be formulated as a rule that targets an observable outcome that is affected by changes in the monetary policy instrument. A Taylor Rule that specifies a target inflation rate would be one example; a nominal GDP targeting rule would be another. Macro-prudential policy should vary the MCRR in response to crossing some combination of thresholds – for example, for credit growth and asset pricing growth. Keeping the rules for both types of policy separate ensures policy transparency and accountability, which are essential to effective policy.

How much should macro-prudential policy be coordinated among countries, and what are the best ways of achieving such coordination? A key problem that motivates coordination is "leakage," which is defined as actions by foreign banks that are not subject a given country's capital requirements (e.g., banks operating from other countries) to offset the effects of

macro-prudential policy in that country. Some countries – like the US – enforce national treatment of capital standards (requiring that all foreign branches and subsidiaries based in the US abide by US regulatory requirements). For those countries, leakages may still occur, but only for classes of borrowers that are able to access credit at great distance (relatively large domestic firms). For other countries – including countries in the EU – branches of banks based out of other countries are not subject to domestic capital requirements. Aiyar, Calomiris, and Wieladek (2011) show that in the UK leakages associated with foreign branches are substantial. This suggests that, in Europe, it may be desirable either to move toward a national-treatment regime, or to coordinate macro-prudential policy better across countries.

Conclusion

Capital requirements should rise for US and European banks. More importantly, they must be credibly linked to bank risk ex ante, and must credibly recognize losses on a timely basis ex post. A mix of a higher equity requirement and a large CoCo requirement based on a market trigger would provide a more effective MCRR regime than the current book-equity capital standard. A combination of equity and CoCos would also be a more cost-effective means of raising capital ratios.

Increases in capital ratios are not costless, privately to bank stockholders, or socially, given the substantial reactions of bank credit supply to increases in MCRR. A combination of book equity requirements and CoCos mitigates the costliness of higher MCRR, but the costs of meaningfully higher MCRR are still significant.

Those costs suggest that phasing in the raising of capital requirements may be desirable. The extent to which a gradual phase in is desirable, however, also depends on the political credibility of long-term reform. To the extent to which long-term reform is not credible, it may be desirable to increase MCRR more quickly than one would otherwise wish to do.

Varying MCRR over the cycle (so-called macro-prudential policy) is a potentially effective tool for stabilizing cyclical variation in credit flows and the business cycle. Which indicators provide the best basis for that variation remains a topic of research. Whatever indicators are chosen, effectiveness, accountability, and credibility will be maximized if policy makers make the rules governing macro-prudential policy clear. Monetary policy should follow its own clear rule-based procedures. The effectiveness of macro-prudential policy is enhanced in policy environments that either enforce capital requirements based on equal national treatment, or that coordinate the timing of MCRR changes across countries.

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