



Capital Adequacy Requirements and the Behaviour of Commercial Banks – An Analysis

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ABSTRACT

The macroeconomic consequences of asset quality of banking institutions have been subject matter of much attention of policy makers. Besides, the worldwide trend towards deregulation of financial sectors and the widespread banking problems of many nations arising largely in consequence of this trend have raised a host of Queries relating to the linkages between de-regulation, risk-behaviour of banks and banking crisis. Consequently, the banking sector, or for that matter, the financial sector in general, in most emerging economics are passing through challenging. As a consequence a lot of discussion generated and pertinent exercise is the prevention of banking distress and the forms such crisis – resolution methods made, namely the macroeconomic and socio-political constraints in each aspect. These measures, broadly classified, take the form of emergency (short-term) measures and regulatory reforms (long-term) measures. The present paper focus in this angle with certain objectives i) to investigate the relationship between changes in attitudes to risk and the level of capital in the banking sector, ii) to know capital requirements and bank behaviour theory and evidence and iii) to frame implications of the new capital accord for bank behaviour. Building upon with these objectives, the paper would utilize several cross-section data on commercial banks in a simultaneous equation framework to estimate the effect of capital changes or risk. While the results do not guarantee that bank capital levels are adequate relative to the risk in bank portfolios, they suggests a framework for operating the concept of prompt corrective action (PCA) in the Indian Scenario

KEYWORDS: Capital adequacy, Capital requirements, Commercial banks, Risks.

INTRODUCTION

Over the past decade the macroeconomic consequences of asset Quality of banking institutions have been the subject matter of much Attention of policy makers. As Lindgren et al.(1996) have observed, since 1980, over 130 countries, comprising almost three fourths of the International Monetary fund's member countries, have experienced Significant banking sector problems, with 41 instances of crisis in 36 Countries and 108 instances of significant problems. Added to this, the worldwide trend towards deregulation of financial sectors and the widespread banking problems of many countries arising largely in consequence of this trend have raised a host of questions relating to the Linkages between de-regulation, risk behavior of banks and banking Crises. Consequently the banking sector, or for that matter, the financial Sector in general, in most emerging economies are passing through Challenging yet exciting times.

Concerns about banking crises are hardly surprising. Bank failures Generate serious negative externalities for the economy as a whole. These externalities take a wide variety of forms. The use of public money to Bail-out insolvent banks can endanger efforts to rein in budget deficits. And even if budget deficits are viewed as (domestic) transfers rather. Then as real economic costs, such recapitalization can compel the Authorities towards less benign ways of deficit financing (e.g., an inflation tax); the rescue process itself can weaken the incentives for creditors to monitor the behaviour of banks in the future.

During the ' seventies, regulators were not unconcerned about bank capital, but there were regulations that specified minimum capital ratios. At the beginning of the eighties, regulators became increasingly dissatisfied with many banks' capital ratios, especially those of the larger banking organizations. As a result, regulators in U.S. specified minimum capital-to-asset ratios for raise their capital-to-asset ratios to some pre-specified minimum by 1983.

Year	Measure(s) Announced
1981	The Federal Deposit Insurance Corporation (FDIC) sets numeric guidelines for all banks it regulates.
1981	The Office of the Comptroller of the Currency (OCC) and the Federal Reserve divide banks into three categories: community, regional and multinational (the seventeen largest banking organizations). Numeric guidelines are set for the community and regional banks. No standards are set for the multinational banks, but they are encouraged to raise their capital ratios.
1983	The OCC and Federal Reserve impose the regional bank numeric guidelines on multinational banks.
1985	The FDIC, OCC and Federal Reserve establish a common set of capital guidelines that all to all banking organisations.
1990	Interim risk-based capital guidelines take effect for all banking organisations. The risk-based guidelines are supplemented with leverage guidelines.

1991	The FDIC Improvement Act, which establishes five capital categories, is passed. Regulators are given a menu of mandatory and optimal enforcement actions they may undertake as a bank's capital ratios decline. Regulators ultimately define the categories both in terms of risk-based and leverage ratios.
1992	Final risk-based capital guidelines take effect for all banking organizations. The risk-based guidelines are still supplemented with leverage guidelines.

Source: Alfriend (1988), Hall(1993) and Wagster (1993)

At the heart of the revised framework is its explicit reliance on rating. Risk differentiation between counterparts, be they sovereigns, banks, corporate, public sector enterprises or securities firms, will be either on the basis of external or internal ratings. Risk dispersion is achieved by ranging the possible risk weights from 20per cent to 150 per cent, depending upon the rating of the counter- party instead of the flat-rate 20 per cent [for banks] or an uniform 100 per cent [for others] as at present. The rating is to be either by an external rating agency or by the bank's own [reliable] internal rating process. For corporate borrowers, for example, only 3 buckets are proposed; 20 per cent for the triple, A rated, 150per cent for the very low quality and 100 per cent for all others, including un –rated ones. This reliance on external ratings agencies poses a problem given the low penetration of these agencies in most developing economies. Leaving aside the issue of penetration, it remains that banks in most emerging markets have already invested substantial resources in the credit management function, and are thus relatively better informed than external rating agencies may not yield the desired results. In India, even the vast majority of corporate borrowers are unrated. Since unrated borrowers are given the benefit of a risk weight of 100 percent, which is lower than that proposed for the lowest rated borrowers, there is no real incentive to move towards rating for this vast majority. For the banks, this would mean a status quo in risk weight at 100 percent as applicable now. There is, however, an incentive for those borrowers who lend to them, as this would make claims on them entitled to a preferential risk weight of 20 percent and hence an ability to negotiate a finer rate from the banks and for the banks to discharge capital held against them now. An additional capital requirement could however arise for Indian banks from the high NPA levels, for the unprovoked portion of these assets could qualify for a risk weight of 150 per cent associated with the lowest quality credits, raising the Basle minima by an estimated 4 per cent on the capital to be allocated.

Proposed Risk Weights based on External Risk Assessment

	Sovereigns	Banks		Corporate
		Option 1	Option 2	
AAA to AA-	0	20	20	20
A+ to A-	20	50	50*	100

BBB+ to BBB-	50	100	50*	100
BB+ to B-	100	100	100*	100
Below B+	150	150	150	150
Unrated	100	100	50*	100

*Claims on banks of short-term maturity, e.g., less than 6 months would receive a weighting that is one category more favourable than usual risk weight on the bank's claim.

Option 1: Based on risk weighting of sovereign where bank is incorporated

Option 2: Based on assessment of the individual bank.

As far as claims on banks go, two options have been offered, of which one links the bank's rating to that of the sovereign in which it is incorporated. This option is not likely to find favour since location cannot be a true indicator of financial strength, a point in case being the Japanese banks. The more acceptable proposal is the second option, which proposes to assign risk weights from 20 per cent to 150 per cent depending on the rating, with unrated banks being given the benefit of a lower weight of 50 per cent. Not all banks in India have gone in for rating, and only a few have had their short / long term borrowings rated by the agencies. Even if the banks continue to be unrated, then the 50 per cent risk weight on claims on them (up from 20 per cent as at present) would more than double the capital allocation required by them on this account. And, if the banks do get themselves rated, then it is very likely that several will receive ratings, which qualify them for even higher risk weights.

RESULTS AND DISCUSSION

The regression results for the case in which the dependent variable is the CRAR. The analysis suggests that the capital requirements significantly affect banks' capital ratio decisions. The coefficient on the regime dummy is positive and significant. The point estimate implies that banks decrease their CRAR by more than 100-percentage points per quarter when the capital ratio approaches the regulatory minimum. In addition, we find that banks raise their CRAR by roughly 60 percent per quarter following an increase in the trigger ratio by the supervisors.

In the results for the regressions of changes in 100-percent weighted assets as a ratio of total risk-weighted assets on a lagged level of this ratio and on the same conditioning variables as those included in the CRAR regressions. Although the parameter on the trigger dummy has the expected sign, it is insignificant. The only significant coefficient is the off-balance sheet activity, suggesting the possibility that increasing diversification by public sector banks into off balance sheet activity is

CRAR and 100-percent Weighted Assets Regression Results

	CRAR	HRRWA
Change in trigger dummy	0.59 (1.60)#	-0.24 (0.026)
FIRWA	-0.54 (-0.63)	2.33 (1.08)
NIIRWA	0.36 (1.13)	1.04 (1.30)
BDRWA	0.12 (1.28)	0.03 (0.14)
CRAR trigger (<than 1 s.d)	-2.73 (-4.64)*	1.44 (0.96)
OBSRWA	0.012 (0.84)	0.06 (1.74)#
PFRWA	0.44 (2.58)*	0.18 (0.43)
PVRWA	-0.09 (-0.35)	0.15 (0.26)
HRRWA	-0.023 (-0.99)	
Lagged Dependent Variable	-1.09 (-21.05)*	-1.09 (-16.32)
R ²	0.63	0.57
Hausman Ho:RE vs FE	$\chi^2(10)=55.2$	$\chi^2(10)=39.6$

Figures in brackets indicate t-ratios.

* Significant at 1 per cent

Significant at 10 per cent

engendering a significant change in 100-per cent risk weighted assets. However, in general, t-statistics are low, suggesting that 100-percent weighted asset ration does not behave in a statistically stable way over time and across public sector banks. In summary, it seems fair to conclude that banks do not significantly rely on asset substitution away from high-risk-weighted assets to meet their capital requirements as they approach the regulatory minimum.

The results of the panel data model for the long and short-term ratings case are presented in Table.

At the outset, it needs to be mentioned that it has not been the purpose of this exercise to assess the impact of the new Accord, especially since it is still in its early days. The treatment of ratings and how it is impacted upon by capital, among other variables, in this part has been more based on 'back-of-the-envelope' calculations. However, what is intended is to raise some issues based on impending capital regulation which could point to future work which needs to be done in this direction. Secondly, the panel data set used in the methodology for determining long-term and short-term ratings is neither based on a uniform set of banks nor is the set of PSBs same in both cases. The results would therefore need to be interpreted with caution.

In both panels, high GNPA is clearly associated with higher probability of a low rating, confirming the fact that non-performing assets is a critical factor in determining bank's rating. And importantly, higher the GNPA, the higher is the probability that a bank will receive a lower rating. The coefficient on the GNPA is negative in both the long-term

Determinants of Bank Ratings-1997:Q1 to 1999:Q4

Variables	Long-term	Short-term
	Dependent Variable: RATELO	Dependent Variable: RATESH
Constant	16.17 (2.38)*	7.64 (1.07)
Capital (t-1)	-0.05 (-0.36)	0.66 (2.60)*
NIIRWA	-1.31 (-1.85)**	-3.14 (-3.25)*
FIRWA	1.69 (1.05)	10.71 (3.78)*
BDRWA	-0.17 (-1.73)**	-0.14 (-1.16)
OBSRWA	0.02 (0.94)	-0.03 (-1.25)
PFRWA	-0.55 (-1.49)	0.79 (1.64)\$
PVRWA	-0.54 (1.29)	1.74 (2.62)*
HRRWA	-0.07 (-1.21)	-0.06 (-0.92)
GNPA	-0.24 (-2.88)*	-0.34 (-3.50)*
R ²	=0.35	=0.62
No. of observations	144	228
Fraction of Correct Predictions	0.88	0.92
Log-likelihood	-42.63	-36.62

Figures in brackets indicate t-ratios.

* Significant at 1 per cent

** Significant at 5 per cent

\$ Significant at 10 per cent

And the short-term cases, and is statistically significant in both cases. Also, a rise in the 100-per cent risk-weighted assets appears to worsen bank rating, although it is statistically insignificant in both cases. On the other hand, profitability plays an important role in determining short-term rating and is statistically significant, while the sign on the profit variable in the long-term ratings case appears to be counter-intuitive. The provisions variable has the expected sign, with a negative sign in the long-term and a positive sign in the short-term (and is statistically significant). Intuitively, higher the provision in the short-run, the better is a bank equipped to deal with shocks in their balance sheets. In the long-run however, banks are expected to have full provided for any contingency, so that, in an eventuality, higher provisions appear to lower the probability of a better rating. The bank deposit variable has the expected sign, being statistically significant in the long-run as opposed to the short-run. Economically, deposits suffer from a vulnerability to 'runs', so that deposits above a threshold often leads to a lower rating. Importantly, higher net interest income does not necessarily imply a higher rating, reflecting the perception that the bank is unable to diversify into non-fund based activities.

CONCLUDING REMARKS

With the Accord still in its early days and expected to be revised based on the comments received by the BCBS from the respondents to the June 1999 consultative paper, it is too early to gauge the full impact of the final Accord on our banks. Some simple conclusions however suggest themselves. Claims on banks would overall attract higher risk weights irrespective of whether they continue to remain unrated or ob-

tain ratings, internal or external since the present ceiling of 20 per cent would now become a floor. With most corporate being unrated, there would be no major change in the overall risk weights on good quality assets, and there would even be lower risk weights for premium borrowers. However, net NPAs would attract the 150 per cent risk weight from the 100 per cent at present and hence require more capital to support them. And, if the second pillar is implemented, then an add-on

can be expected for some banks, though some of this could be met by the existing system-wise add-on of 1 per cent prescribed from the year 2000-01. However, if the Reserve Bank's position of keeping the ceiling on risk weights at 100 per cent for corporate and 50 per cent on banks is accepted, then the strain on the system may be minimized. Yet, overall the conclusion is inescapable that the new Accord would require net additional capital for the system.

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