

Appendices
APPENDIX A1 :
BACKGROUND OF THE BASLE ACCORD OF 1988

Year	Event Description
January 1986	US bank regulators proposed new guidelines for establishing risk-based capital reserves.
March 1986	G-10 banking supervisors planned to implement stricter measures requiring off-balance sheet liabilities to have capital backing.
January 1987	US and UK bank regulators proposed a joint risk-based capital regulation.
April 1987	The Basle Committee formally took the US-UK agreement under consideration and addressed the possibility of expanding it to include all G-10 countries plus Luxembourg and Switzerland.
June 1987	The 'Brussels formula' was conceived that defined banks capital similar to the method used in the US-UK agreement. For the first time, German authorities indicated they could, in principle, support the new plan.
September 1987	The US, UK and Japanese regulators met for the first time. It was decided to use the two-tier capital definition, that loan-loss reserves would be included in tier-II capital and that Japanese banks would count 45 per cent of their hidden reserves as tier-II capital.
November 1987	Long-standing German and unexpected French objections threaten to delay the international bank-capital agreement. German officials contended that the definition of capital was too broad while French authorities avered that the definition of capital was too narrow.
April 1988	The EC unveiled a plan to require banks in the EC to maintain a common minimum capital-to-risk-adjusted assets ratio.
July 1988	Central bankers agreed to a new minimum capital standards for international banks.

Source: Hall (1993) and Wagster (1996).

APPENDIX A2 :
COMPONENTS OF TIER 1 AND TIER 2 CAPITAL

Tier I	
Paid-up Capital	
Disclosed Free Reserves	
Capital Reserves representing surplus arising out of sale proceeds of assets	
Reserves (excluding Revaluation Reserves)	
<i>Less</i>	
Losses, including accumulated losses	
Equity Investment in Subsidiaries	
Intangible Assets	
Tier II	

Undisclosed Reserves	
Revaluation Reserves (at a discount of 55 per cent)	
Hybrid Debt Capital Instruments	
General Provision/General Loan-loss Reserves (subject to a ceiling of 1.25 per cent RWA #)	
Sub-ordinated Debt*	

RWA: Risk-weighted assets

* Sub-ordinated Debt: Original maturity not less than 5 years

Remaining Maturity (in Years)	Rate of Discount-(per cent)
Less than 1	100
1-2	80
2-3	60
3-4	40
4-5	20

**APPENDIX A3 :
SALIENT RECOMMENDATIONS OF THE
NARASIMHAM COMMITTEE-I AND NARASIMHAM COMMITTEE-II
ON CAPITAL ADEQUACY NORMS**

Narasimham Committee – I
1. The ratio of capital funds in relation to a bank's deposits or its assets is a well-recognised and universally accepted measure of the strength and stability of the institution. 2. For the purpose of calculating capital adequacy, risk weights have to be assigned to different categories of assets. The specific circumstances obtaining in India have to be taken due note of in assigning such weights. 3. For the purpose of calculation of capital ,BIS has classified capital into two categories, namely Tier I capital consisting of share capital and disclosed reserves and Tier II capital consisting of undisclosed and latent reserves, hybrid capital and subordinated debt. It has also been indicated that Tier II capital should not exceed Tier I capital. 4. The BIS norm for capital adequacy is 8 per cent of the risk-weighted assets. The Committee recommends that all banks in India reach this figure in a phased manner. For those banks which operate on an international scale, the norm should be achieved as early as possible and in any event within three years, i.e., March 1994. As far as other banks are concerned, they should achieve a capital adequacy norm of 4 per cent by March 1993 (of which Tier I should not be less than 2 per cent) and the 8 per cent norm in full within the next three years, i.e., by March 31, 1996. 5. Before arriving at the capital adequacy ratio for each bank, it is necessary that the assets of the banks be evaluated on the basis of their realisable values. The Committee proposes that the banks and financial institutions' adopt uniform accounting practices

particularly in regard to income recognition and provisioning against doubtful debts.

Narasimham Committee – II

1. Pending the emergence of markets in India where market risks cannot be covered, it would be desirable to take into account market risks in addition to the credit risks.
2. In the next three years, the entire portfolio of Government securities should be marked to market and this schedule of adjustment should be announced at the earliest. It would be appropriate that there should be a 5 per cent weight for market risk for Government and approved securities.
3. In order to ensure that banks do not suddenly face difficulties in meeting the capital adequacy requirement, the new prescription on risk weight for Government guaranteed advances should be made prospective from the time the new prescription is put in place.
4. There is an additional capital requirement of 5 per cent of the foreign exchange position limit. Such risks should be integrated into the calculation of risk-weighted assets. The Committee recommends that the foreign exchange open position limits should carry a 100 per cent risk weight.
5. The Committee believes that it would be appropriate to go beyond the earlier norms and set new and higher norms for capital adequacy. The Committee accordingly recommends that the minimum capital to risk weighted assets ratio be increased to 10 per cent from its present level of 8 per cent. Accordingly, the Committee recommends that an intermediate minimum target of 9 per cent be achieved by the year 2000 and the ratio of 10 per cent by 2002.

APPENDIX A4 :
VALUE-AT-RISK AND PRE-COMMITMENT APPROACHES
TO MEASUREMENT OF MARKET RISK

I. Value at Risk Approach to Market Risk

The bank's capital charge at date t is based on the larger of the bank's current 10-day-ahead risk estimate or the average of its risk estimates over the prior 60 business days, subject to a multiplication factor. Let VAR_{t-1} represent a bank's risk exposure estimate for date $(t-1)$, and CMR_t represent the bank's market risk capital requirement for date t . The bank's regulatory market risk capital requirement is,

$$CMR_t = \text{Max} \left[\frac{SM_t}{60} \sum_{i=1}^{60} VaR_{t-i}, VaR_{t-1} \right] + SR_{t-1}, \quad (A1)$$

where SM_t is the supervisory determined multiplication factor and SR_t is the additional capital charge for the specific risk of trading book positions. The proposed minimum value for the multiplication factor, SM_t is 3. The multiplier can be increased if the supervisor is not satisfied with the accuracy of a bank's risk exposure estimate. For verifying risk estimates, a "back-testing" methodology is proposed which would be based on the frequency of realized daily losses exceeding the models' predicted daily losses at the 1 per cent critical values. The specific risk capital charge applies to traded debt and equity positions. It is intended to account for idiosyncratic risks, as risk measurement generally measure risks generated by market-wide factors. The specific risk charge is equal to one-half of the specific risk capital charge as calculated under the standardised approach.

II. Pre-Commitment Approach to Market Risk

Assume that the bank's overall financial position is such that the bank could pay any penalty that it might incur for a capital violation. The penalty is assumed to be a direct Rupee charge proportional to the excess of the loss over the pre-committed capital. Let K_T denote the capital committed to cover trading losses. The *ex-post* charge for a capital commitment breach is

$$\Psi(\Delta V) = -y \text{ Min } \{ \Delta V + K_T, 0 \}$$

(A2)

where ΔV represents the change in the value of the trading portfolio realized at the end of the period. Thus, the bank incurs a penalty if

$$\Delta V < -K_T$$

(A3)

In determining the appropriate incentives, the cost of regulatory capital to the bank plays an important role in determining the appropriate regulatory choice of a penalty rate, ψ . Among other things, this cost will depend on the bank's leverage and will vary with the leverage ratio. For purposes of this illustration, the bank's cost of regulatory capital is assumed to be strictly proportional at the rate R to the level of capital. Let, $f(\Delta V)$ be the probability density for ΔV , $F(\Delta V)$ be the associated distribution function and r the required discount rate on a payoff described by $\Psi(\Delta V)$. The full cost of the capital commitment, inclusive of potential penalty, is

$$RK_T - \frac{y}{1+r} \int_{-\infty}^{-K_T} (\Delta V + K_T) d(\Delta V)$$

(A4)

The first term of expression (A4) is the current cost of committing K_T of capital to trading risk. The second term is the current value of the monetary policy for a pre-commitment violation.

Assuming that the bank minimizes (A4), the capital commitment K_T that satisfies an interior optimum first-order condition is given by the expression:

$$R = \frac{y}{1+r} F(-K_T^*)$$

(A5)

Expression (A5) suggests how the regulator might set an appropriate penalty rate. Solving (A5) for Ψ leads to the penalty rate

$$y^* = \frac{R(1+r)}{F^*}$$

(A6)

where F^* represents the regulator's objective in terms of the probability of trading losses exceeding committed capital. Replacing Ψ in expression (A5) with the optimal penalty

rate in expression (A6) shows that a cost-minimising bank will choose a capital commitment K_T^* , such that,

$$F(K_T^*) = F^* \quad (A7)$$

Expression (A6) indicates that the penalty rate is inversely related to the regulator's acceptable probability of losses exceeding capital. Lowering the desired probability of observing a breach of capital lowers the likelihood of a penalty and thereby, lowers the expected penalty cost. To counter this effect, a higher penalty rate is needed. Expression (A6) also indicates that the appropriate penalty rate depends on the cost to the bank of meeting the regulatory capital commitment, R (with r being of second order importance). In general, it is difficult to know this cost as it will depend on the value of the leverage to the bank. A single penalty rate that reflects the highest cost of regulatory capital will be a conservative approach in that it will lead to over-commitment by most banks. Thus, some flexibility in the penalty rate based on the likely cost of regulatory capital would be desirable.ⁱ

ⁱ In case where R is zero, the bank would want to commit equity even if $F(-K_T) < F^*$.