individual capital requirements for vega risk for each time-band; and

(D) The delta plus method risk weights are:

Time-band	Modified du- ration (aver- age as- sumed for time-band)	Assumed interest rate change (%)	Risk-weight for gamma ¹
Under 1 month	0.00	1.00	0.00000
1 up to 3 months	0.20	1.00	0.00020
3 up to 6 months	0.40	1.00	0.00080
6 up to 12 months	0.70	1.00	0.00245
1 up to 2 years	1.40	0.90	0.00794
2 up to 3 years	2.20	0.80	0.01549
3 up to 4 years	3.00	0.75	0.02531
4 up to 5 years	3.65	0.75	0.03747
5 up to 7 years	4.65	0.70	0.05298
7 up to 10 years	5.80	0.65	0.07106
10 up to 15 years	7.50	0.60	0.10125
15 up to 20 years	8.75	0.60	0.13781
Over 20 years	10.00	0.60	0.18000

¹ According to the Taylor expansion, the risk weights are calculated as ¹/₂ (modified duration x assumed interest rate change)²/100.

(iii) For options with equities as the underlying, delta-weighted option positions should be incorporated in the measure of market risk set forth in section 6(b) of this appendix B. Individual equity issues and indices should be treated as separate underlyings. In addition to the capital requirement for delta risk, a bank should apply a further capital charge for gamma and vega risk:

(A) For gamma risk, the net gammas that are negative for each underlying are multiplied by 0.72 percent (in the case of an individual equity) or 0.32 percent (in the case of an index as the underlying) and by the square of the market value of the underlying;

(B) For volatility risk, a bank calculates the capital requirement for vega for each underlying, assuming a proportional shift in volatility of ±25.0 percent; and

(C) The capital requirement is the absolute value of the sum of the individual capital requirements for net negative gammas plus the absolute value of the individual capital requirements for vega risk.

(iv) For options on foreign exchange and gold, the net delta (or delta-based) equivalent of the total book of foreign currency and gold options is incorporated into the measurement of the exposure in a single currency position as set forth in section 6(c) of this appendix B. The gamma and vega risks should be measured as follows:

(A) For gamma risk, for each underlying exchange rate, net gammas that are negative are multiplied by 0.32 percent and by the square of the market value of the positions;

(B) For volatility risk, a bank calculates the capital requirements for vega for each currency pair and gold assuming a proportional shift in volatility of ±25.0 percent; and

(C) The capital requirement is the absolute value of the sum of the individual capital requirements for net negative gammas plus the absolute value of the sum of the individual capital requirements for vega risk.

(v) For options on commodities, the deltaweighted positions are incorporated in one of the measures described in section 6(d) of this appendix B. In addition, a bank must apply a capital requirement for gamma and vega risk:

(A) For gamma risk, net gammas that are negative for each underlying are multiplied by 1.125 percent and by the square of the market value of the commodity;

(B) For volatility risk, a bank calculates the capital requirements for vega for each commodity assuming a proportional shift in volatility of ±25.0 percent; and

(C) The capital requirement is the absolute value of the sum of the individual capital requirements for net negative gammas plus the absolute value of the sum of the individual capital requirements for vega risk.

(vi) Under certain conditions and to a limited extent, the OCC may permit banks that are significant traders in options with debt securities or interest rates as the underlying to net positive and negative gammas and vegas across time-bands. Such netting must be based on prudent and conservative assumptions and the bank must materially meet the qualitative standards set forth in section 5 of this appendix B.

(vii) A bank may base the calculation of vega risk on a volatility ladder in which the implied change in volatility varies with the maturity of the option. The assumed proportional shift in volatility must be at least ± 25.0 percent at the short end of the maturity spectrum. The proportional shift for longer maturities must be at least as stringent in statistical terms as the 25.0 percent shift at the short end.

(viii) A bank should also monitor the risks of rho (the rate of change of the value of the option with respect to the interest rate) and theta (the rate of change of the value of the option with respect to time).

Section 7. Reservation of authority

(a) *Partial models.* The OCC reserves the authority to require a bank subject to the market risk requirements of this appendix B to develop or use an internal market risk model, the supervisory market risk model, or

any combination thereof, for the purposes of compliance with the capital requirements of this appendix $B^{.29}$

(b) *De minimis exposures*. The OCC also may permit a bank with negligible exposures to certain types of market risk (activities in remote locations and minor currencies) to adopt alternative measurements for those exposures if the alternative measurements are able to adequately measure the risk.

(c) Multiplication factor for qualifying internal market risk model. The OCC may increase or decrease the multiplication factor applicable to the capital requirement under a qualifying internal market risk model based on an assessment of the quality and historic accuracy of the bank's risk management system.

Office of the Comptroller of the Currency. Dated: July 10, 1995.

Eugene A. Ludwig,

Comptroller of the Currency.

FEDERAL RESERVE BOARD

12 CFR Chapter II

For the reasons set out in the preamble, parts 208 and 225 of title 12 of the Code of Federal Regulations are proposed to be amended as set forth below.

PART 208—MEMBERSHIP OF STATE BANKING INSTITUTIONS IN THE FEDERAL RESERVE SYSTEM (REGULATION H)

1. The authority citation for part 208 is revised to read as follows:

Authority: 12 U.S.C. 36, 248(a), 248(c), 321–338a, 371d, 461, 481–486, 601, 611, 1814, 1823(j), 1828(o), 1831o, 1831p–1, 3105, 3310, 3331–3351, and 3905–3909; 15 U.S.C.

²⁹ The OCC generally expect banks with significant trading positions to use internal market risk models for the purposes of this appendix B.