## TABLE II.—HORIZONTAL DISALLOWANCES

Zone	Time-band	Within the zone (per- cent)	Between adjacent zones (per- cent)	Between zones 1–3 (percent)
1	0–1 month 1–3 months 3–6 months	40	40	100
2	6–12 months 1–2 years 2–3 years 3–4 years	30	40	100
3	1–5 years 5–7 years 7–10 years 0–15 years	30	40	100
	5–20 years over 20 years			

i. Finally, the net risk-weighted long or net risk-weighted short positions remaining in the zones are summed to reach a single net risk-weighted long or net risk-weighted short position for the bank's portfolio. The sum of the absolute value of this position and the vertical and horizontal disallowances is the capital requirement for general market risk. An example of the calculation of general market risk under the maturity method is in Attachment II to this appendix E.

j. In the *duration method*, the bank, after calculating each instrument's modified duration<sup>27</sup> using a formula that is subject to supervisory review, multiplies that modified duration by the interest rate shock specified for an instrument of that duration in Table III in section IV.A.2.k. of this appendix E. The resulting product (representing the expected percentage change in the price of the instrument for the given interest rate shock) is then multiplied by the current market value of the instrument. The resulting amount is then slotted as a long or short position into a time-band in the maturity ladder in Table III on the basis of the instrument's modified duration.28

k. Once all of the bank's traded debt instruments have been slotted into the maturity ladder, the bank conducts the same rounds of netting and disallowances described in sections IV.A.2.f. through IV.A.2.h. of this appendix E for the maturity method, with the exception that the vertical disallowance requirement for the duration method is 5.0 percent (horizontal disallowances continue to be those set out in

<sup>28</sup> For example, an instrument held by a bank with a maturity of 4 years and 3 months and a current market value of \$1,000 might have a modified duration of 3.5 years. Based on its modified duration, it would be subjected to the 75basis point interest rate shock, resulting in an expected price change of 2.625 percent ( $3.5 \times 0.75$ ). The corresponding expected change in price of \$26.25, calculated as 2.625 percent of \$1,000, would be slotted as a long position in the 3.3 to 4.0 year time-band of the maturity ladder. Table II).<sup>29</sup> As with the maturity method, the sum of the absolute value of the final net position and the vertical and horizontal disallowances is the general market risk capital requirement:

TABLE III.—DURATION METHOD: TIME-BANDS AND ASSUMED CHANGES IN YIELD

Zone	Time-band	Assumed change in yield
1 2 3	Up to 1 month 1 up to 3 months 3 up to 6 months 6 up to 12 months 1.0 up to 1.8 years 2.6 up to 3.3 years 3.3 up to 4.0 years 4.0 up to 5.2 years 5.2 up to 6.8 years 6.8 up to 8.6 years 8.6 up to 9.9 years 9.9 up to 11.3 years 11.3 up to 16.6 years Over 16.6 years	1.00 1.00 1.00 0.90 0.80 0.75 0.75 0.75 0.70 0.65 0.60 0.60 0.60 0.60
	-	

3. Interest rate derivatives. a. Debt derivatives and other off-balance-sheet positions that are affected by changes in interest rates are included in the measurement system under section IV.A. of this Appendix E (except for options and the associated underlyings, which are included in the measurement system under the treatment discussed in section IV.E. of this Appendix E). A summary of the treatment for debt derivatives is set out in Attachment III to this Appendix E.

b. Derivatives are converted into positions in the relevant underlying instrument and are included in the calculation of specific and general market risk capital charges as described above. The amount to be included is the market value of the principal amount of the underlying or of the notional underlying. For instruments where the apparent notional amount differs from the effective notional amount, a bank must use the effective notional amount.

c. Futures and forward contracts (including FRAs) are broken down into a combination of a long position and short position in the notional security. The maturity of a future or a FRA is the period until delivery or exercise of the contract, plus the life of the underlying instrument.<sup>30</sup> Where a range of instruments may be delivered to fulfill the contract, the bank may chose which deliverable instrument goes into the maturity or duration ladder as the notional underlying. In the case of a future on a corporate bond index, positions are included at the market value of the notional underlying portfolio of securities.

d. Swaps are treated as two notional positions in the relevant instruments with appropriate maturities. The receiving side is treated as the long position and the paying side is treated as the short position.<sup>31</sup> The separate sides of cross-currency swaps or forward foreign exchange transactions are slotted in the relevant maturity ladders for the currencies concerned. For swaps that pay or receive a fixed or floating interest rate against some other reference price, for example, an equity index, the interest rate component is slotted into the appropriate repricing maturity category, with the long or short position attributable to the equity component being included in the equity framework set out in section IV.B. of this Appendix E.32

<sup>31</sup>For example, an interest rate swap under which a bank is receiving floating-rate interest and paying fixed is treated as a long position in a floating rate instrument with a maturity equivalent to the period until the next interest reset date and a short position in a fixed-rate instrument with a maturity equivalent to the remaining life of the swap.

<sup>32</sup> A bank with a large swap book may, with prior approval of the Federal Reserve, use alternative Continued

<sup>&</sup>lt;sup>27</sup> The duration of an instrument is its approximate percentage change in price for a 100 basis point parallel shift in the yield curve assuming that its cash flow does not change the yield curve shifts. Modified duration is duration divided by a factor of 1 plus the interest rate.

<sup>&</sup>lt;sup>29</sup> Two different vertical disallowances are used since the duration method takes into account an instrument's specific characteristics (maturity and coupon) and there is less opportunity for measurement error.

<sup>&</sup>lt;sup>30</sup> For example, a long position in a June threemonth interest rate future (taken in April) is reported as a long position in a government security with a maturity of five months an a short position in a government security with a maturity to two months.