Effective exchange rates – revised calculation

The calculation of effective exchange rates[1] has been revised in a number of ways. The revisions were described in the March issue of the Treasury's *Economic Progress Report.* A new index for sterling has been published daily since 1st March; the former measure of sterling's effective depreciation ceased to be published on 8th March.

The new effective exchange rates are expressed in the form of an index, i.e. weighted averages of nominal exchange rates. In this index, the middle rates contained in the Smithsonian agreement of December 1971 will be set at 100 (and percentage appreciations or depreciations will no longer be published). Thus, an effective depreciation will appear in the index as a figure less than 100 (see Table A).

The new calculation is based on an article, 'Indices of Effective Exchange Rates' by R. R. Rhomberg, in the March 1976 issue of the International Monetary Fund's *Staff Papers.* The main differences between the old and new calculations are as follows:

1   The country coverage has been extended to include Australia, Austria, Denmark, Finland, Hong Kong, the Republic of Ireland, Norway, Spain, Taiwan and Yugoslavia (see Table B).

2   The new weights are calculated by reference to trade figures for 1972 rather than for 1969.

3   The effective exchange rate index is now calculated as a simple geometric weighted average of exchange rates rather than by the more complicated method described in *Economic Trends.* Also, different assumptions are now made in calculating the weights themselves.[2]

The new and old versions of the effective exchange rate for sterling during 1972 to 1976 (expressed in index form in both cases) are given in Table A. The new weights are shown in Table B.

Table A

'New' and 'old' indexes of the sterling effective exchange rate

		New	Old
1972	1st qtr	99·57	99·50
	2nd ,,	98·98	99·02
	3rd ,,	93·06	92·95
	4th ,,	90·20	90·38
1973	1st qtr	88·82	88·75
	2nd ,,	89·31	88·80
	3rd ,,	84·18	82·29
	4th ,,	82·99	81·54
1974	1st qtr	83·09	81·87
	2nd ,,	84·67	82·83
	3rd ,,	84·18	82·49
	4th ,,	82·60	80·21
1975	1st qtr	81·71	78·43
	2nd ,,	79·05	75·90
	3rd ,,	75·20	72·64
	4th ,,	73·02	70·36
1976	1st qtr	72·04	68·93
	2nd ,,	65·82	61·98
	3rd ,,	64·14	61·29
	4th ,,	59·60	54·60

Up to the end of 1976, the new index is an average of daily values of the effective exchange rate based on noon exchange rates in New York. From 1977 the new series is calculated from closing rates in the London market, but these differ little from noon rates in New York and comparisons with earlier periods should not be significantly affected. The old index is based on closing rates in London throughout, but is calculated as an average of end-weeks for the first quarter of 1972 to the first quarter of 1973 inclusive, and thereafter as a daily average.

The historical series for the new index is calculated from the effective exchange rate index published in *International Financial Statistics*, adjusted for the difference in the base period. The adjustment is given by calculating the value of the IMF index using their base values on 18 December 1971. Dividing their series by this figure (1.01333) rebases it to 18 December 1971.

[1] Described in the June 1974 issue of *Economic Trends.*
[2] Explained in 'A Multilateral Exchange Rate Model', by J. R. Artus and R. R. Rhomberg, IMF *Staff Papers*, vol. xx no. 3, November 1973, page 591.

Table B
Weights derived from the multilateral exchange rate model[a]

	Austria	Belgium	Canada	Denmark	France	Western Germany	Italy	Japan	Netherlands	Norway	Sweden
Austria	0·0000	0·0137	0·0356	0·0247	0·0951	0·1010	0·0867	0·0836	0·0179	0·0115	0·0474
Belgium	0·0122	0·0000	0·0084	0·0121	0·1876	0·3091	0·0599	0·0556	0·1216	−0·0050	0·0030
Canada	0·0023	0·0073	0·0000	0·0127	0·0265	0·0344	0·0186	0·0825	0·0082	0·0022	0·0093
Denmark	0·0194	0·0234	0·0310	0·0000	0·0860	0·1401	0·0651	0·0603	0·0245	0·0505	0·0998
France	0·0111	0·0647	0·0287	0·0125	0·0000	0·2448	0·1157	0·0750	0·0257	0·0065	0·0230
Western Germany	0·0365	0·0648	0·0281	0·0163	0·1901	0·0000	0·0720	0·0800	0·0404	0·0086	0·0349
Italy	0·0028	0·0315	0·0236	0·0082	0·1736	0·2557	0·0000	0·0771	0·0233	0·0059	0·0180
Japan	0·0073	0·0156	0·0476	0·0106	0·0649	0·1104	0·0420	0·0000	−0·0076	0·0085	0·0212
Netherlands	0·0095	0·1031	0·0020	0·0165	0·1830	0·3059	0·0870	0·0490	0·0000	0·0144	0·0052
Norway	0·0119	0·0270	0·0127	0·0434	0·1084	0·2049	0·0487	0·1006	0·0241	0·0000	0·0421
Sweden	0·0180	0·0266	0·0491	0·0447	0·1062	0·0976	0·0485	0·0876	0·0125	0·0465	0·0000
Switzerland	0·0294	0·0226	0·0321	0·0128	0·1321	0·1336	0·0436	0·1398	0·0111	0·0113	0·0285
United Kingdom	0·0137	0·0355	0·0240	0·0078	0·1160	0·1314	0·0566	0·1150	0·0272	0·0086	0·0258
United States	0·0076	0·0231	0·1847	0·0106	0·1083	0·1361	0·0604	0·2408	0·0226	0·0059	0·0265
Australia	0·0040	0·0100	0·0689	0·0092	0·0717	0·0513	0·0313	0·1932	0·0144	0·0060	0·0132

	Switzerland	United Kingdom	United States	Australia	Taiwan	Finland	Hong Kong	Republic of Ireland	Spain	Yugoslavia
Austria	0·0903	0·0721	0·2473	0·0168	0·0045	0·0177	0·0017	0·0042	0·0149	0·0135
Belgium	0·0257	0·0197	0·1716	−0·0050	0·0010	0·0029	0·0012	−0·0010	0·0145	0·0048
Canada	0·0053	0·0314	0·7333	0·0046	0·0077	0·0023	0·0012	0·0021	0·0049	0·0029
Denmark	0·0344	0·1463	0·1497	0·0175	0·0031	0·0130	0·0042	0·0085	0·0161	0·0073
France	0·0342	0·0523	0·2497	0·0093	0·0033	0·0085	0·0014	0·0030	0·0227	0·0079
Western Germany	0·0556	0·0527	0·2558	0·0117	0·0031	0·0136	0·0026	0·0042	0·0165	0·0127
Italy	0·0298	0·0413	0·2590	0·0068	0·0050	0·0064	0·0016	0·0031	0·0230	0·0042
Japan	0·0161	0·0525	0·5713	−0·0122	0·0088	0·0089	0·0117	0·0026	0·0122	0·0075
Netherlands	0·0247	0·0413	0·1248	−0·0053	0·0015	0·0136	0·0056	−0·0004	0·0140	0·0046
Norway	0·0184	0·0859	0·1996	0·0082	0·0061	0·0294	0·0049	0·0041	0·0127	0·0070
Sweden	0·0060	0·0752	0·2826	0·0217	0·0053	0·0378	0·0033	0·0053	0·0178	0·0077
Switzerland	0·0000	0·0400	0·2792	0·0240	0·0059	0·0072	0·0102	0·0031	0·0248	0·0087
United Kingdom	0·0393	0·0000	0·3277	0·0212	0·0052	0·0061	0·0057	0·0097	0·0163	0·0071
United States	0·0187	0·0669	0·0000	0·0313	0·0114	0·0090	0·0062	0·0045	0·0182	0·0072
Australia	0·0080	0·0681	0·3844	0·0000	0·0212	0·0072	0·0164	0·0040	0·0088	0·0084

[a] The weights relating to the effective exchange rates of the countries in the left-hand column are obtained by reading across the appropriate rows.