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How Accurate are the IMF's Short-Term Forecasts? Another Examination of the World Economic Outlook

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Abstract

This paper analyzes the short-term forecasts for industrial and developing countries produced by the International Monetary Fund, and published twice a year in the *World Economic Outlook* (*WEO*). For the industrial country group, the WEO forecasts for output growth and inflation are satisfactory and pass most conventional tests in forecasting economic developments, although forecast accuracy has not improved over time, and predicting the turning points of the business cycle remains a weakness. For the developing countries, the task of forecasting movements in economic activity is even more difficult and the conventional measures of forecast accuracy are less satisfactory than for the industrial countries.

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Contents

Contents

Page

Text Tables (Concluded)

Charts

Summary

This paper analyzes the short-term forecasts for the industrial and developing countries, produced by the International Monetary Fund and published twice a year in the *World Economic Outlook*.

For the *industrial country group* as a whole, *World Economic Outlook* forecasts for output have on average over- or under-predicted growth by about 1 percentage point, and have generally been unbiased, serially uncorrelated, and efficient. Inflation has been over- or under-predicted on average by about ¾ of 1 percent a year; although these forecasts have been unbiased and efficient, they appear to suffer from serial correlation.

Forecasting output and inflation for the industrial countries has not become any easier over time. An analysis of two subsamples of the forecast errors (pre- and post-1983) shows that there is not a great deal of difference in the accuracy of forecasts between the two periods relative to forecasts based on "naive" methods, such as the assumption of a random walk. The study also confirms that the greatest area of weakness in forecasts for the industrial countries is predicting turning points in the business cycle. In addition, a comparison with the private sector *Consensus Forecast* reveals that over the last business cycle (1990–94), the forecasting errors for output growth and inflation were generally about the same.

For the *developing country group*, forecasting movements in economic activity is even more difficult. Many of these economies experience relatively greater volatility; and the data on which the forecasts are based tend to be poor in quality and lack timeliness. The average forecast errors for the period 1977–94 for output growth and inflation differ considerably across regions of the developing world, but are relatively large in comparison with their actual average absolute values. Overall, by comparison with the results for the industrial countries, these results suggest that it is much more difficult to forecast both output and inflation for the developing countries.

I. Introduction

This paper reports the results of an examination of the short term forecasts produced by the International Monetary Fund and published twice a year in its *World Economic Outlook.*

The forecasts concerned are comprehensive in their coverage, both of countries and of economic variables and only a part of the whole is examined here. The evaluation is thus directed at the accuracy of short term forecasts for key economic variables for the principal industrialized ("G-7") countries and for regional aggregates of developing countries. This concentration on the value of the forecasts contained in the *World Economic Outlook* (*WEO*) follows the precedent of an earlier examination by the present author (Artis, 1988), which itself built on a previous analysis by Kenen and Schwarz (1986), and was subsequently updated and supplemented by Barrionuevo (1993).

Two cautionary notes are enjoined by this concentration on forecast post-mortem analysis. First, for many commentators the principal value of the *WEO* may lie in its analysis of the conjuncture, its diagnosis of the situation reached by the world economy and its evaluation of the options available to the world's policymakers—rather than in the fine detail of its short-run forecasts. Second, from the perspective of strengthening global economic policy making and performance in the longer run, the IMF's medium-term projections and scenario analyses are arguably more relevant than the short-term forecasts. However, it must remain true that the quality of the IMF's analysis should be reflected in its forecast of the near-term evolution of the world economy and, as these forecasts are reported with considerable precision and detail, they offer the most accessible and feasible means of bringing quantitative analysis to bear on the quality of the IMF's conjunctural analysis.

The choice of evaluation methods employed is dictated in part by the forecasting methods employed by the IMF. These forecasts are not produced in the framework of an overall econometric model, so that forecast post mortem methods applicable to model-based forecasting (see e.g. Osborn and Teal, 1979; Artis 1982; Wallis et al. 1984) are not appropriate. Rather than relying upon a global model (and forecaster intervention on the model) to produce forecasts, IMF procedures rely heavily on the provision of forecast information from individual country desk officers. This optimizes on the availability of country-specific information at the desks. Overall economic consistency is provided in two stages - first, via the setting of common global assumptions to which the country desks work and, second, via the aggregation and resultant check for consistency of the individual country output, trade and balance of payments projections provided by the country desks. Inconsistencies revealed by the aggregation result in iterations on the original country forecasts until an acceptable set of forecasts is arrived at. The global assumptions specified to the country desk officers in a *WEO* forecasting round will typically include the values to be assumed for oil prices and assumptions to be made regarding key monetary and fiscal policy variables and sensitive market variables such as exchange rates. In general, policy

variables are taken to be given at current values or at publicly projected values if firm commitments have been made by the governments concerned. Thus, in principle, and like most official forecasts, those in the WEO are formally presented as projections based on "unchanged policy" assumptions; however, it is certainly difficult for forecasters to maintain such an assumption strictly, for much of the market information "in the air" at any point of time (including such relevant indicators as interest rates, exchange rates, and business expectations) will reflect, *inter alia*, anticipation that the values of policy variables may be changed in the future. Such anticipations will also, of course, be reflected in forward-looking market variables. It can be argued, in fact, that much the greater part of any genuine policy innovations will in general not be felt until some time after the horizon of the forecast. For these reasons the general practice of treating "unchanged policy" projections as "total" or "unconditional" forecasts is followed in this study.[1]

The plan of the paper is as follows. In the next section, we lay out the principal definitions of forecast and out-turn used in the study and comment on the selection of variables to be examined. In the same section we go on to discuss the evaluation methods to be used. The main results are then presented and discussed in the following two sections - the first dealing with the industrial and the second with the developing group of countries. There is a final section of conclusions. Appendix A lays out the sources for forecast and out-turn data in detail and provides a statistical characterization of the corresponding data distributions. Appendices B and C provide the full data listing used.

II. Basic Definitions and Methods of Evaluation

As in the previous studies mentioned earlier we employ two definitions of forecast horizon with corresponding out-turn in this study. The "paradigm" *WEO* timetable provides for publication twice a year, in May and October; the forecasts themselves are finalized in April and September. Correspondingly, we define as a "current year forecast" the forecast for year x appearing in the May issue of the *WEO* for year x. The out-turn data, which we describe as "first available estimates" are taken from the issue of the *WEO* appearing in May of year $x + 1$. Thus, the "current year" forecast corresponds to a near-term forecast, made at a time when some data for the first quarter of the year in question are already on hand for most, though not all, countries; and the realization for the year as a whole is identified with the data available in the first publication of the following year. We then also define a "year ahead" forecast, which is of longer term. Thus the "year ahead" forecast for year x is found in the issue of the *WEO* for October of year $x - 1$; the realization for this forecast is identified

[1]In Artis (1988), an attempt was made to explain forecast errors by relating those errors to deviations in policy and environmental variables from the values set for the forecast. This was quite a difficult procedure and produced no positive results that were not already obvious. It has not been repeated in this study.

with the data published in the issue of the *WEO* for October of year $x + 1$. These data are termed "first settled estimates".

These definitions were first suggested by Kenen and Schwarz (1986) and were employed in our earlier study. They provide for a test of the sensitivity of the forecast to its horizon. There is no clearly agreed definition of the "correct" vintage of realization data to employ. These data are continuously revised and the forecast post mortems are dependent, in detail, on the choice of data vintage made. A more common practice than that employed here is to use the latest available data—a mixed set of revision vintages. This reflects an understanding of the objective of forecasts which is that they aim to "forecast the truth" whilst the nearest to the revealed truth on hand at any time is the latest available set of data.[2] But this may not be the way in which the forecasts are evaluated by their constituency, where a higher premium on immediate predictive accuracy may be found. It is arguable that confronting the forecaster with the latest available set of realizations obliges him to forecast the data revision process as well as to predict the immediate evolution of the data he has available. In practice, there is probably little of general significance in the results that depends on the vintage of realization data employed.[3] The definitions of forecast and out-turn given above apply to "paradigm" *WEO* publication schedules. In practice, and especially in the period before the forecasts were made public, the intervals between reporting are sometimes erratic and the interpretation of "current year" and "year ahead" forecasts with their associated out-turn has to be adjusted correspondingly. Appendix Table A1 lists in detail the precise sources of forecast and out-turn data.

The *WEO* forecasts are rich in detail. It would be excessively burdensome to process all the series for which forecasts are made. Those that we concentrate upon here are the projections for GDP, inflation, the balance of payments and the growth of imports and exports. These choices coincide with those made in the previous study. It is forecasts for the industrial countries group—specifically the individual G-7 member countries—which are the most detailed and the larger part of the study is devoted to them. When the record for the developing countries is examined, the analysis is confined to regional aggregates.

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[2] Leitch and Tanner (1995) quote the judgement of McNees and Ries (1983) to the effect that "it is crucial to use the most accurate estimate of the actual data in order to avoid penalizing the best prediction of what actually happened as opposed to the best prediction of what initially was mistakenly thought to have happened."

[3] In Artis (1988) the principal calculations were all replicated on latest available data in order to check the sensitivity of the general results to the choice of realization data. Whilst the results were somewhat weaker, no significant qualitative difference was discovered.

The study examines the whole *WEO* forecasting record from its inception in 1971 to 1994. The length of the series now available enables us also to examine whether any significant change has occurred in the IMF's record over time, particularly in the interval since the previous study.

The literature is replete with a large number of suggested forecasting evaluation techniques (see Wallis (1989) for a survey). Rationality considerations suggest that a "good" (rational) forecast should produce errors which are unbiased and display an absence of serial correlation: evidence to the contrary would suggest immediately that an improving correction could be made to the forecast process. In addition, it ought not to be possible to show that the forecast errors could be explained (hence potentially reduced) by taking account of any information available at the time the forecast was made (such as, for example, information provided by alternative forecasting procedures). The first two *desiderata* of a rational forecast can be tested for directly by applying the appropriate econometric procedures to the series of forecast errors. To test for the efficiency of the forecast procedure in the broader sense involves the evaluator in determining what might be critical information and testing to see whether indeed forecast error can be explained by it. An immediate difficulty is that the set of possibly relevant information is huge. Evaluators have generally concentrated on an easily available subset, stressing in particular, the possible relevance of the forecast values themselves, and the forecasts that could have been produced by alternative naive - or not so naive - time series forecasts. The first set of information is exploited exclusively by the "realization-forecast" regression introduced by Mincer and Zarnowitz (1969); this regression has the attractive property that it is clear what parameter restrictions would correspond to the perfect forecast. Results for this regression featured extensively in our previous study and do so again in the current one.

Forecast evaluation traditionally looks to some alternative forecasting procedure to provide a benchmark against which to appraise the performance of the procedures under examination. One set of alternatives is provided by simple time series models. Traditionally, the potential contribution of alternative, naive models has been filtered through the Theil (1966) statistic which is computed as the ratio of the RMSE of the forecast in question to the RMSE of the naive alternative (in Theil's original exposition the 'no change' forecast). In practice the naive alternative may be represented by a "not-so-naive" model, such as, for example, a BVAR (see Artis and Zhang 1990 for such an application). In this study we present Theil statistic computations both for the original naive interpretation and for a less naive alternative based on a knowledge of the trend. However, these computations simply provide point estimates without any accompanying significance level. A more recent extension of this form of testing against an alternative has been formulated so as to provide significance tests. Tests of this type, in the form of the "MSE regression", are also introduced in the present study.

On the occasion of the previous study (Artis 1988), extensive comparisons were made between the forecasts produced in the WEO with those produced by the OECD, and by individual national official forecasters. This extensive comparison of official forecasts was

notable chiefly for the finding that the major forecasting errors were widely shared across the official forecasting community and for emphasizing the importance of timeliness to good forecasting.[4] This time, we have sought to make a comparison with private sector forecasts. The extent to which it is possible to do this is limited, however, since the Consensus Forecasts which are used are only available from the latter part of 1989. The comparison is thus confined to the part of the study which investigates the forecast record through the last cycle.

In addition to testing the quantitative forecast it is well-recognized that an added dimension of a forecast is the directional information it contains. Leitch and Tanner (1991, 1995) have shown that accurate directional information is important for business users of forecasts; for policy makers, correctly predicting the turning point in the business cycle is also of separate and significant importance to quantitative accuracy. For this reason we also include tests of directional accuracy and discuss some aspects of turning point forecasting in the latest business cycle.

Finally, we also examine how general the prediction errors are across the economies of the world. Interdependence between economies might be expected to result in a synchronization of the business cycle, leading individual national forecasters to commit forecasting errors of similar sign. This indeed was a finding of the earlier study. The IMF, by reason of its position, should in principle be better placed to 'internalize' international interdependence in its forecasting procedures.

III. Industrial Countries

1. Basic facts

The summary table (Table 1) and the four Figures (Charts 1-4) give an immediate impression of the quality of the IMF forecasts for output growth and inflation, both for the "current year" and the "year ahead" forecasts. Table 1 provides evidence on the questions of bias and persistence.

Bias may be identified with the significance of the mean forecast error, as indicated by a simple regression of the error on a constant term (see Holden and Peel, 1990). In the

[4] The study employed a form of encompassing test with respect to the OECD forecasts. Thus the question was posed whether OECD forecasts could explain IMF forecast errors (the question was also posed in reverse). Almost no evidence was discovered then that IMF forecast error could be explained by OECD forecasts (the reverse question was also answered in the negative).

Table 1. Test for Biasedness and Serial Correlation of Forecast Error in Industrial Countries

	United States	Japan	Germany	France	Italy	United Kingdom	Canada
Current year (1971-1994)			Test for biasedness				
GDP growth							
β_0	.08	.10	.18	.09	.13	.15	.21
Significance level	.67	.76	.51	.71	.65	.54	.42
Inflation							
β_0	.01	.47	.04	-.26	-.54	-.46	-.14
Significance level	.92	.26	.80	.25	.11	.24	.64
Year ahead (1973-1994)							
GDP growth							
β_0	.27	.76	.60	.52	.33	.45	.79
Significance level	.49	.20	.17	.15	.47	.27	.07
Inflation							
β_0	-.05	.44	.02	-.50	-.81	-1.01	-.38
Significance level	.86	.54	.88	.14	.19	.07	.44
Current year (1971-1994)			Test for serial correlation (Ljung-Box Q-statistic)				
GDP growth							
Significance level-Q(1)	.28	.81	.11	.46	.78	.76	.33
Significance level-Q(2)	.10	.71	.12	.75	.31	.60	.46
Significance level-Q(3)	.18	.30	.22	.50	.45	.59	.46
Inflation							
Significance level-Q(1)	.49	.42	.46	.85	.39	.03	.10
Significance level-Q(2)	.41	.03	.33	.26	.42	.00	.20
Significance level-Q(3)	.55	.06	.53	.36	.58	.00	.35
Year ahead (1973-1994)							
GDP growth							
Significance level-Q(1)	.64	.43	.92	.59	.53	.04	.56
Significance level-Q(2)	.74	.63	.98	.85	.25	.11	.43
Significance level-Q(3)	.88	.81	.99	.86	.43	.14	.63
Inflation							
Significance level-Q(1)	.08	.78	.57	.02	.06	.11	.03
Significance level-Q(2)	.22	.53	.75	.06	.15	.25	.09
Significance level-Q(3)	.35	.73	.53	.13	.05	.32	.16

Notes: The test for biasedness is based on the regression expressed as $e_t=\beta_0+\mu_t$, where e_t is the forecast error, and the significance level of the t-statistic for $\beta_0=0$ is reported. The Ljung-Box Q statistic is used to measure serial correlation and the Q statistic up to M lags may be expressed as $Q(M) = T(T+2)\ \Sigma_{j\leq M}\ \hat{\rho}_j^2\ /(T-j)$. Under a null hypothesis of no serial correlation, Q is asymptotically distributed as a χ^2.

Chart 1. World Economic Outlook Forecast: Real GDP Growth in Industrial Countries

Current Year Forecast and First Available Out-Turn

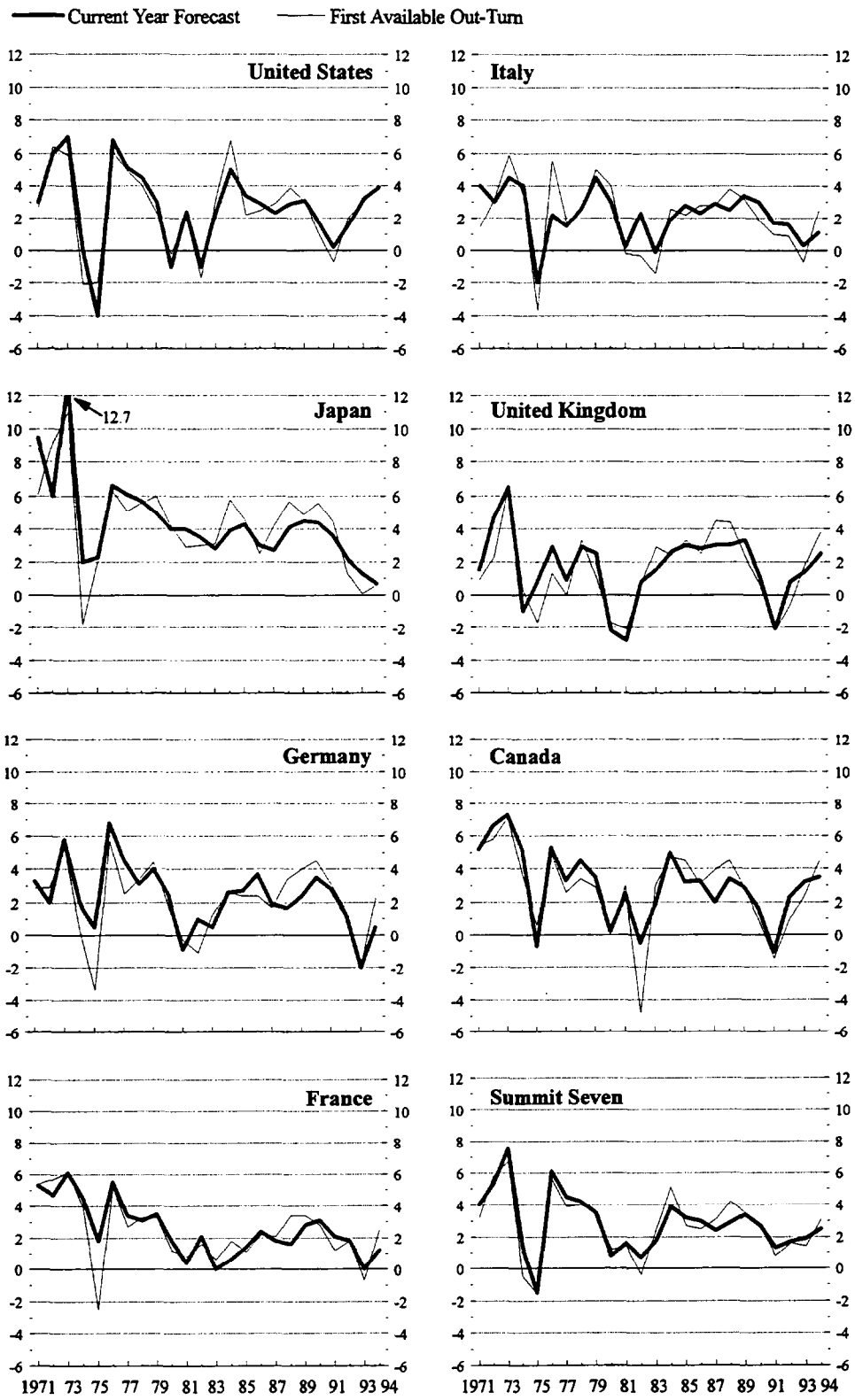


Chart 2. World Economic Outlook Forecast: Real GDP Growth in Industrial Countries

Year Ahead Forecast and First Settled Estimate

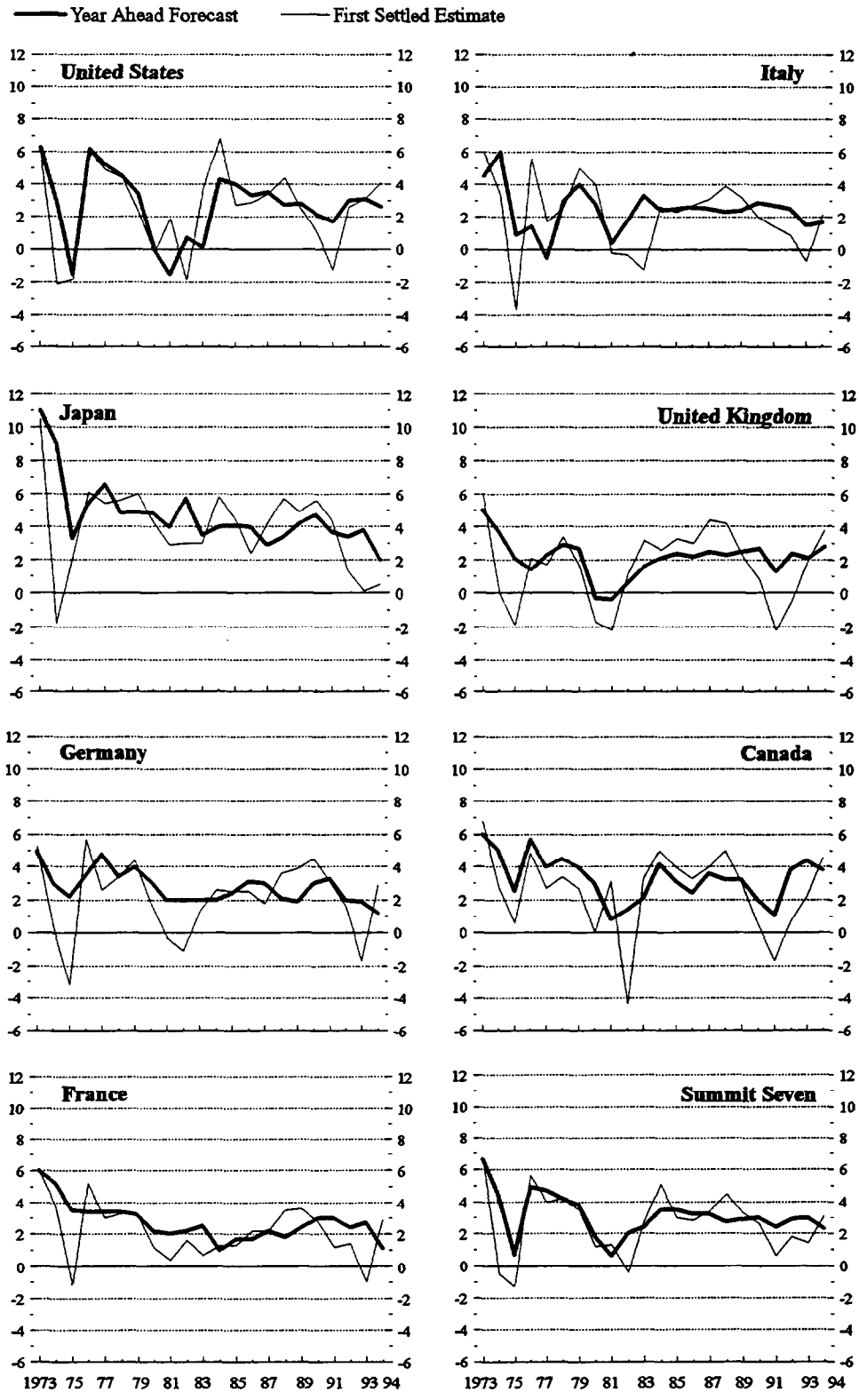


Chart 3. World Economic Outlook Forecast: Inflation in Industrial Countries

Current Year Forecast and First Available Out-Turn

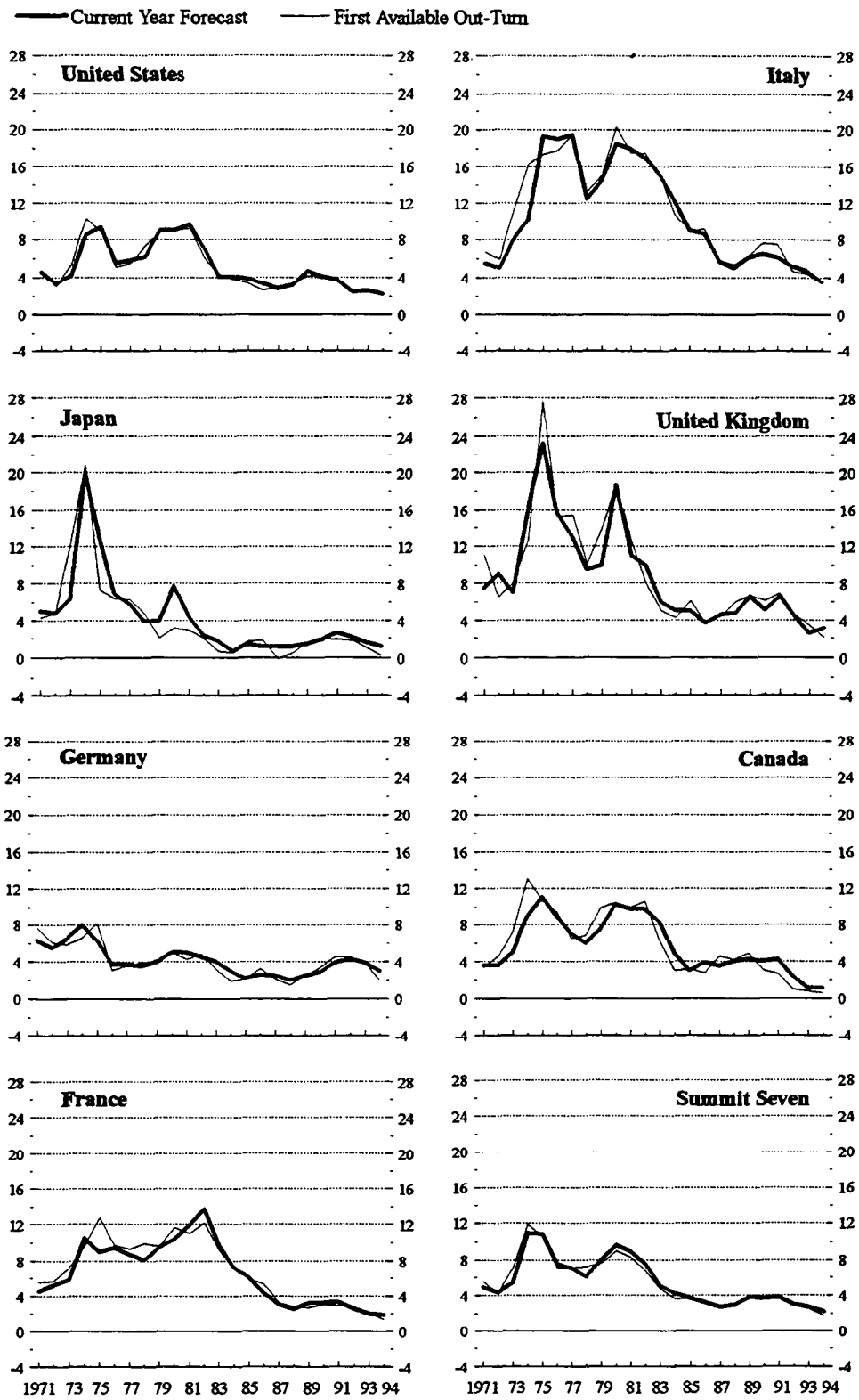
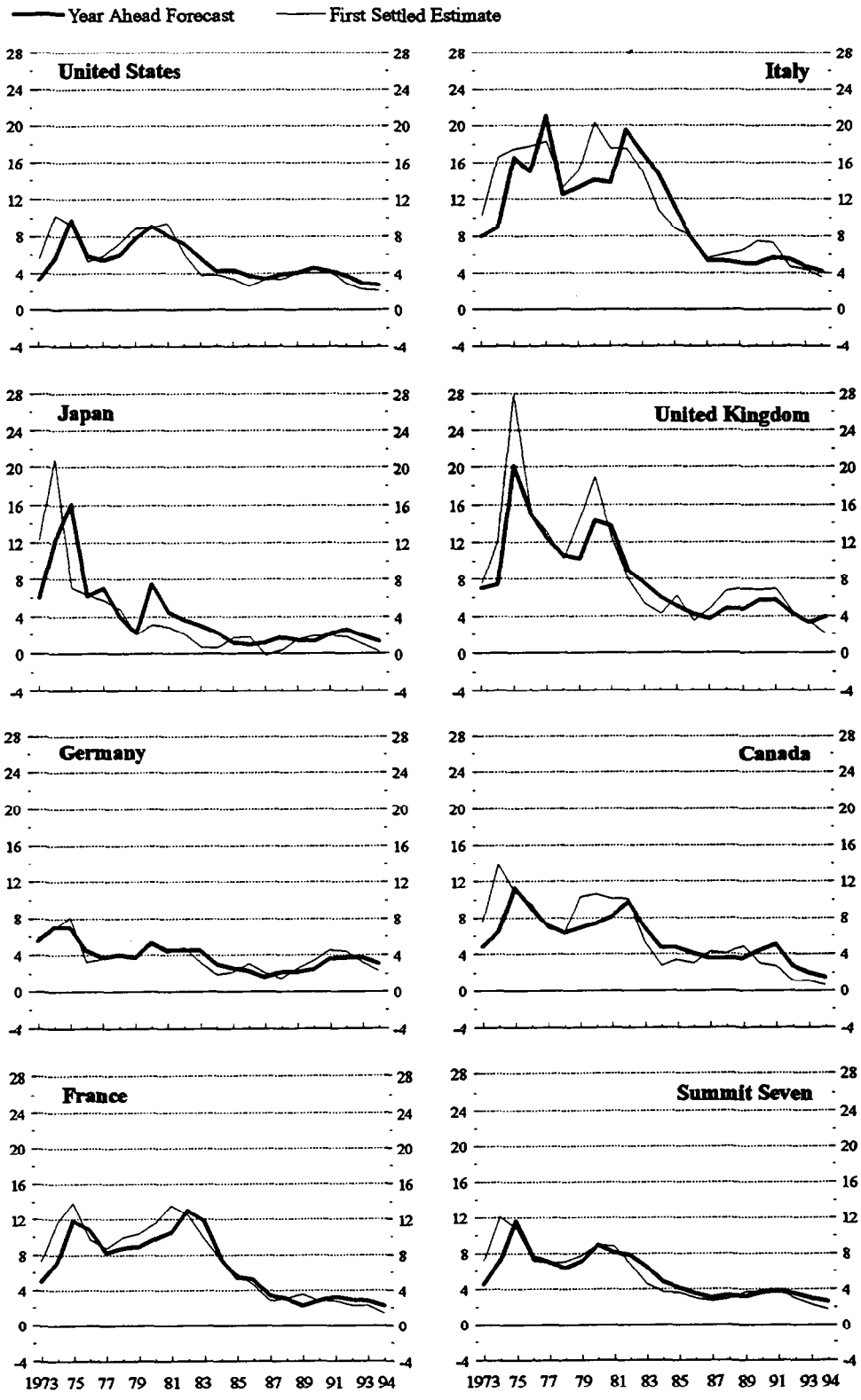


Chart 4. World Economic Outlook Forecast: Inflation in Industrial Countries

Year Ahead Forecast and First Settled Estimate



table, the value of the mean forecast error, β_0, is shown both for output growth and for inflation for each member country of the G-7 for each of the types of forecast distinguished. In parentheses are shown the significance levels or probability values at which the null (mean equal to zero) might be rejected. As indicated, these values are generally far in excess of the significance levels which it is customary to employ in this type of situation (0.01, 0.05 or 0.10). Generally, then, the evidence is that these forecasts are not, on a country-by-country basis, biased. This evidence seems especially strong for the current year forecasts of output growth - stronger than for the corresponding year ahead forecasts, for example, and a similar account holds true for the inflation forecasts. It is worth noting, however, that the qualification 'country-by-country' may be a little misleading. The fact is that all of the point estimates of bias in the GDP growth rate forecasts are positive – suggesting that there may be a widespread error of output growth optimism. Indeed, when the individual country observations are pooled, the result is a finding that there is significant positive bias in the year ahead forecasts of just over 0.5 percent per year; but when the period is divided into two (the first sub-period terminating in 1982), it appears that this bias is overwhelmingly due to experience in the first sub-period; bias is not significant in the later period. For the current year forecasts the pooling did not reveal any significant bias for the period as a whole (a product of some positive bias in the first sub-period and some negative bias in the second).[5]

Serial correlation in the time series of the forecast errors itself is tested by the Ljung-Box Q-statistic, significance levels for the null (no serial correlation) being shown in parentheses. Test statistics are reported for up to three orders of autocorrelation. The forecasts for inflation appear to suffer from serial correlation in the errors far more than the output growth forecasts do. In the current-year forecasts for inflation, serial correlation is detected for both Japan and the U.K.; in the year ahead forecasts serial correlation affects the errors for France, Italy, and Canada. In the corresponding chart (Chart 4), it seems clear that serial correlation affects the errors for the G-7 as a whole. By contrast, the output growth forecasts are almost entirely free of serial correlation in the errors, even at the 10 percent level, with the single exception of the year ahead forecasts for the UK, where serial correlation of the first order is detectable.

The overall conclusion is that on a country-by-country basis, looking at the period as a whole, there is little evidence of bias in the forecasts; when the data are pooled, where evidence of significant bias emerges, this is due entirely to early experience. The record in respect of an absence of serial correlation is somewhat less reassuring, especially in relation to the longer-term forecasts of inflation. The rather more favorable impression given by the current year forecasts than by the year-ahead projection is borne out by the graphical evidence of Charts 1-4. Charts 1 and 3 for the current year forecasts give a very strong impression that these forecasts are highly accurate and that errors are soon canceled.

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[5]Barrionuevo (1993) came to similar conclusions. In the earlier study (Artis, 1998), we noted that the bias finding in the earlier period was itself essentially due to particularly large errors in 1974.

Charts 2 and 4, for the year-ahead forecasts, indicate much greater variability in the accuracy of the projections.

2. Further summary results

Further summary statistics are reported in Tables 2-6. These report the mean (average) absolute error, the mean absolute actual value (for comparison), the root mean square forecast error (RMSE) and two Theil statistics. Each of these is constructed as the ratio of the RMSE of the *WEO* forecast to the RMSE of a 'naive' alternative. 'Naive 1' is simply the original Theil 'no change' forecast (here meaning "the same rate of growth (inflation, etc.) as last year") and 'Naive 2' which is a value equal to the trend. Whilst Naive 1 corresponds to a random walk with no drift, Naive 2 is the opposite extreme of instant mean reversion. By construction, values of the Theil statistics in excess of unity indicate that the *WEO* forecast is inferior to a forecast built on one of these two alternative extreme assumptions.[6]

For output growth forecasts and for inflation forecasts the statistics reported in Tables 2 and 3 support two general propositions: first, these *WEO* forecasts are superior to the naive alternatives posed; second, the performance of the current year forecasts is notably better than that of the year ahead forecasts: RMSEs are some 50 percent bigger in the year ahead forecasts than in the case of the current year forecasts; and the size of the mean absolute error is also generally larger by a similar margin.

The balance of payments forecasts (Table 4) are much less satisfactory. Whilst current year forecasts are again generally superior to the year ahead projections, even in the former case the Theil statistic exceeds unity in the case of Canada: in the year-ahead forecasts those for Italy and for all industrial countries exceed unity (Naive 1) or are very close to unity (Naive 2).

Tables 5 and 6 report results for export and import growth. These are comparable with those obtained for output growth.

The summary statistics clearly support the propositions that current year forecasts are better than the longer term year-ahead projections; and that the balance of payments forecasts are markedly weaker than those for output growth, inflation and the growth of export and import volumes. These findings are much in line with those arrived at in the earlier study on a smaller data set, as will be amplified further below.

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[6]Despite the typification of the random walk assumption as 'naive', it is worth recalling that in some circumstances a random walk is about the best forecast assumption available--e.g., this is so for a variety of asset prices, exchange rates etc.

Table 2. World Economic Outlook Forecast Accuracy: Real GDP Growth in Industrial Countries

(In percent)

	United States	Japan	Germany	France	Italy	United Kingdom	Canada	All Industrial	Summit Seven	Europe
					Current year (1971-1994)					
Mean absolute actual value	3.16	4.42	2.72	2.72	2.62	2.23	3.38	2.84	2.95	2.36
Average absolute error	.77	1.14	.99	.71	1.01	.93	.91	.60	.58	.65
RMSE	.94	1.53	1.32	1.12	1.31	1.15	1.25	.72	.72	.96
Theil statistic										
Naive 1	.29	.43	.46	.46	.39	.47	.42	.29	.27	.42
Naive 2	.34	.45	.57	.52	.50	.48	.48	.33	.31	.51
Regression										
intercept	.10	.35	.06	.00	-.53	.01	-.26	-.22	-.12	-.29
	(.72)	(.58)	(.89)	(1.00)	(.29)	(.97)	(.57)	(.44)	(.68)	(.46)
slope	.93	.90	.90	.97	1.18	.90	1.02	1.03	1.00	1.05
	(.38)	(.42)	(.48)	(.81)	(.32)	(.41)	(.89)	(.71)	(1.00)	(.75)
joint test	.62	.68	.62	.91	.55	.59	.72	.64	.74	.63
$\bar{R}^2$	.86	.68	.62	.67	.64	.73	.74	.86	.87	.68
D-W	2.33	1.88	1.39	1.70	1.80	1.72	2.34	1.50	1.69	1.52
					Year ahead (1973-1994)					
Mean absolute actual value	3.17	4.10	2.74	2.41	2.66	2.46	3.12	2.76	2.86	2.30
Average absolute error	1.24	1.73	1.54	1.18	1.58	1.47	1.69	1.04	1.05	1.17
RMSE	1.78	2.75	2.02	1.66	2.06	1.84	2.07	1.46	1.49	1.59
Theil statistic										
Naive 1	.36	.46	.60	.74	.61	.50	.60	.38	.36	.62
Naive 2	.50	.59	.76	.80	.74	.62	.74	.50	.47	.73
Regression										
intercept	-.05	1.88	-.92	.36	.24	-.87	-1.18	-.54	-.56	-.41
	(.94)	(.19)	(.49)	(.69)	(.80)	(.31)	(.31)	(.53)	(.50)	(.71)
slope	.92	.44	1.12	.68	.77	1.20	1.12	1.03	1.03	.95
	(.70)	(.05)	(.80)	(.29)	(.50)	(.57)	(.71)	(.91)	(.89)	(.89)
joint test	.74	.07	.38	.20	.61	.46	.20	.37	.37	.28
$\bar{R}^2$	.51	.07	.20	.17	.16	.35	.35	.42	.45	.18
D-W	2.14	1.76	1.96	2.15	1.78	1.08	2.21	1.70	1.78	1.87

Notes: The regression is expressed as $R_t=\beta_0+\beta_1 F_t+\mu_t$, where R_t is the realization in year t (first available out-turn or first settled estimate) and F_t is the forecast for year t. Figures in parentheses are the significance level of the t-statistic for $\beta_0=0$ or $\beta_1=1$. The significance level of the F-statistic for the test of the joint hypothesis: $\beta_0=0$ and $\beta_1=1$, is reported. "Naive 1" means a no-change forecast and "Naive 2" means a forecast which is set at the trend (average value) for the period.

Table 3. World Economic Outlook Forecast Accuracy: Inflation in Industrial Countries

(In percent)

	United States	Japan	Germany	Italy	France	United Kingdom	Canada	All Industrial	Summit Seven	Europe
					Current year (1971-1994)					
Mean absolute actual value	5.11	3.78	4.08	6.75	11.15	9.12	5.83	5.62	5.47	6.90
Average absolute error	.42	1.23	.59	.77	1.03	1.39	1.05	.36	.42	.62
RMSE	.61	2.01	.76	1.09	1.65	1.88	1.39	.52	.58	.84
Theil statistic										
Naive 1	.35	.53	.50	.72	.59	.35	.65	.33	.36	.45
Naive 2	.24	.41	.38	.29	.29	.28	.37	.18	.20	.26
Regression										
intercept	-.05	-.26	-.29	.38	1.19	-.10	-.55	.02	-.02	.40
	(.87)	(.66)	(.54)	(.44)	(.11)	(.89)	(.39)	(.94)	(.95)	(.38)
slope	1.01	.95	1.06	.98	.94	1.06	1.12	1.00	1.00	1.00
	(.90)	(.61)	(.58)	(.78)	(.31)	(.39)	(.23)	(.96)	(.98)	(.94)
joint test	.99	.48	.83	.51	.17	.35	.43	.95	.98	.10
$\bar{R}^2$	.93	.81	.81	.91	.92	.90	.85	.96	.95	.92
D-W	1.74	1.64	2.10	1.99	1.62	2.80	1.52	1.14	1.27	1.45
					Year ahead (1973-1994)					
Mean absolute actual value	5.30	3.67	3.82	7.15	11.46	9.14	6.02	5.72	5.57	6.97
Average absolute error	.96	2.07	.59	1.20	2.15	1.84	1.65	.83	.90	.94
RMSE	1.38	3.28	.70	1.60	2.84	2.62	2.26	1.30	1.38	1.24
Theil statistic										
Naive 1	.35	.66	.39	.43	.64	.36	.53	.31	.33	.41
Naive 2	.29	.44	.38	.26	.38	.34	.37	.21	.22	.31
Regression										
intercept	-.40	-.03	-.06	.01	1.91	-.98	-.87	-.19	-.27	.22
	(.65)	(.98)	(.89)	(.99)	(.18)	(.34)	(.48)	(.81)	(.73)	(.75)
slope	1.09	.90	1.01	1.07	.90	1.25	1.22	1.06	1.06	1.05
	(.58)	(.61)	(.93)	(.44)	(.38)	(.03)	(.27)	(.64)	(.64)	(.62)
joint test	.84	.73	.99	.26	.29	.02	.40	.80	.87	.11
$\bar{R}^2$	.70	.50	.80	.86	.74	.86	.65	.77	.76	.84
D-W	1.29	1.79	1.70	1.08	1.09	1.40	1.33	1.14	1.19	.79

Note: For definitions *etc.*, see notes to Table 2.

Table 4. World Economic Outlook Forecast Accuracy: Balances of Payments on Current Account in Industrial Countries

(In billions of U.S. dollars)

	United States	Japan	Germany	France	Italy	United Kingdom	Canada	All Industrial	Summit Seven
				Current year (1973-1994)					
Mean absolute actual value	59.59	44.07	18.40	4.77	7.40	8.81	7.95	–	28.23
Average absolute error	12.84	9.33	6.92	2.77	4.49	5.04	3.05	–	14.50
RMSE	15.91	12.69	9.62	3.88	7.01	7.27	4.28	–	17.21
Theil statistic									
Naive 1	.47	.68	.60	.74	.74	.79	1.13	–	.63
Naive 2	.25	.27	.40	.66	.74	.60	.53	–	.67
Regression	.50	2.71	-1.27	-.31	-1.17	-.24	-.86	–	-5.81
intercept	(.92)	(.48)	(.59)	(.73)	(.45)	(.89)	(.53)	–	(.31)
slope	1.03	.98	.99	.85	.69	.84	.98	–	.80
	(.67)	(.73)	(.93)	(.42)	(.06)	(.29)	(.91)	–	(.25)
joint test	.87	.76	.82	.71	.17	.51	.73	–	.49
$\bar{R}^2$	.93	.92	.83	.50	.47	.62	.70	–	.52
D-W	1.37	1.61	1.10	1.33	2.27	1.51	2.58	–	2.27
				Year ahead (1973-1994)					
Mean absolute actual value	57.52	44.21	19.61	4.55	7.70	9.42	8.26	27.90	24.62
Average absolute error	21.05	15.55	11.51	4.38	8.13	5.97	2.45	28.68	20.88
RMSE	30.24	21.73	17.17	5.57	12.86	8.61	3.50	34.64	24.55
Theil statistic									
Naive 1	.61	.70	.68	.79	.92	.75	.68	.95	.87
Naive 2	.46	.44	.69	.98	1.24	.63	.38	1.01	.83
Regression									
intercept	-6.03	4.71	.32	-.61	-2.83	-.20	-.10	-9.58	-4.89
	(.50)	(.48)	(.95)	(.62)	(.26)	(.92)	(.92)	(.23)	(.38)
slope	.87	.97	.85	.40	.03	.84	1.19	.44	.58
	(.26)	(.77)	(.48)	(.06)	(.00)	(.36)	(.08)	(.01)	(.01)
joint test	.52	.75	.71	.15	.00	.63	.04	.02	.02
$\bar{R}^2$	.75	.76	.43	.04	-.05	.51	.87	.18	.41
D-W	1.05	1.30	.86	1.14	1.06	1.11	1.36	1.39	1.78

Note: For definitions *etc.*, see notes to Table 2.

Table 5. World Economic Outlook Forecast Accuracy: Growth of Export Volumes in Industrial Countries

(In percent)

	United States	Japan	Germany	France	Italy	United Kingdom	Canada	All Industrial	Summit Seven
				Current year (1972-1994)					
Mean absolute actual value	8.71	6.11	6.56	5.91	6.03	4.65	7.05	5.64	5.81
Average absolute error	2.30	3.90	3.26	2.50	3.54	2.80	3.61	1.97	1.99
RMSE	3.06	4.99	4.10	3.13	4.36	3.59	4.98	2.51	2.59
Theil statistic									
Naive 1	.36	.54	.44	.46	.69	.61	.59	.43	.43
Naive 2	.34	.70	.57	.54	.84	.74	.68	.54	.53
Regression									
intercept	-.30	1.46	-2.11	-.69	2.45	1.63	1.25	-.43	-.51
	(.72)	(.30)	(.15)	(.59)	(.18)	(.18)	(.37)	(.69)	(.63)
slope	1.15	.83	1.43	1.12	.53	.62	1.16	1.14	1.16
	(.11)	(.38)	(.09)	(.57)	(.10)	(.13)	(.51)	(.47)	(.39)
joint test	.18	.56	.22	.84	.25	.29	.15	.70	.60
$\bar{R}^2$	.87	.44	.61	.54	.11	.21	.51	.61	.64
D-W	2.59	2.15	1.86	2.52	2.00	2.11	1.56	2.03	2.17
				Year ahead (1973-1994)					
Mean absolute actual value	8.67	6.32	6.09	5.57	5.91	4.70	7.02	5.69	4.91
Average absolute error	3.15	5.35	4.18	3.10	4.13	2.96	3.83	2.82	2.65
RMSE	4.18	6.25	5.31	4.08	4.91	3.48	5.13	3.57	3.21
Theil statistic									
Naive 1	.33	.59	.58	.69	.71	.58	.58	.58	.58
Naive 2	.36	.90	.70	.85	.94	.73	.82	.73	.78
Regression									
intercept	-.07	2.43	-.30	.69	4.02	1.64	2.06	.95	1.51
	(.95)	(.23)	(.91)	(.76)	(.04)	(.23)	(.28)	(.65)	(.47)
slope	1.25	.67	1.02	.73	.22	.62	1.03	.82	.74
	(.09)	(.30)	(.97)	(.48)	(.02)	(.18)	(.94)	(.64)	(.59)
joint test	.09	.47	.98	.54	.06	.40	.14	.89	.74
$\bar{R}^2$	.78	.15	.12	.11	-.02	.17	.27	.15	.10
D-W	2.36	2.40	2.26	2.45	1.92	2.13	2.04	2.21	1.80

Notes: For definitions *etc.*, see notes to Table 2. Year-ahead data for Summit Seven cover the period 1980-94.

Table 6. World Economic Outlook Forecast Accuracy: Growth of Import Volumes in Industrial Countries

(In percent)

	United States	Japan	Germany	France	Italy	United Kingdom	Canada	All Industrial	Summit Seven
				Current year (1972-1994)					
Mean absolute actual value	8.83	8.02	6.85	6.51	7.39	6.47	8.42	6.24	6.72
Average absolute error	4.19	3.65	3.37	2.86	3.97	2.86	5.08	2.64	2.86
RMSE	5.15	4.48	4.73	3.56	5.13	3.45	5.95	2.97	3.16
Theil statistic									
Naive 1	.44	.39	.62	.38	.48	.49	.59	.40	.41
Naive 2	.52	.46	.73	.49	.61	.57	.69	.50	.50
Regression									
intercept	.54	-2.36	-.35	-1.04	-2.48	-.34	.89	-1.34	-1.02
	(.70)	(.10)	(.85)	(.36)	(.16)	(.76)	(.60)	(.22)	(.37)
slope	1.20	1.27	1.03	1.23	1.36	1.24	1.28	1.34	1.28
	(.26)	(.10)	(.92)	(.19)	(.18)	(.25)	(.32)	(.07)	(.13)
joint test	.18	.21	.98	.41	.33	.35	.16	.16	.26
$\bar{R}^2$	.67	.75	.37	.70	.54	.62	.49	.72	.70
D-W	1.96	2.27	1.86	1.63	1.82	2.22	1.94	1.78	1.93
				Year ahead (1973-1994)					
Mean absolute actual value	8.84	7.25	6.37	6.24	7.43	6.20	8.16	6.02	5.77
Average absolute error	4.92	4.96	3.95	3.99	4.61	3.80	5.25	3.57	2.99
RMSE	5.82	6.55	4.83	5.22	6.35	4.57	6.42	4.40	3.39
Theil statistic									
Naive 1	.44	.47	.53	.64	.50	.50	.60	.56	.65
Naive 2	.58	.56	.77	.79	.64	.66	.78	.72	.60
Regression									
intercept	-1.11	-1.64	.55	1.00	-1.26	-.34	1.27	-1.22	-1.04
	(.53)	(.50)	(.80)	(.64)	(.59)	(.86)	(.55)	(.66)	(.61)
slope	1.51	1.05	.86	.78	1.08	1.13	1.15	1.23	1.42
	(.06)	(.86)	(.71)	(.54)	(.83)	(.73)	(.70)	(.65)	(.33)
joint test	.08	.66	.92	.83	.81	.92	.37	0.90	.44
$\bar{R}^2$	.62	.35	.18	.16	.27	.28	.27	0.20	.44
D-W	2.18	1.73	1.83	2.12	1.88	1.92	1.97	1.93	1.96

Notes: For definitions *etc.*, see notes to Table 2. Year-ahead data for Summit Seven cover the period 1980-94.

3. Efficiency

A test of weak efficiency is represented by the realization-forecast equation

$$R_1 = \beta_0 + \beta_1 F_t + \mu_t$$

where R_t is the realization, F_t the forecast and μ_t an error term.

Since $R_t \equiv F_t + e_t$ where e is the forecast error, the estimate of β_1 in the equation would significantly differ from unity if in fact F_t and e_t are correlated. But if they are, the forecast could be improved. It is in this sense that the realization-forecast equation can be thought of as a weak efficiency test. An efficient forecast would yield an estimate of β_1 that is not significantly different from unity, and an estimate of β_o that is not significantly different from zero. Otherwise, again, there would be a simple way of improving the forecast. Since estimates of β_o and β_1 are generally likely to be correlated, the appropriate test of whether these desirable restrictions ($\beta_o = 0; \beta_1 = 1$) hold is a joint one (Wallis, 1989).[7] Tables 2-6 report estimates of realization-forecast regressions for output growth, inflation, the balance of payments and export and import growth and show the significance level of the F-test for the joint restriction.

The results are reasonably reassuring regarding the efficiency of these *WEO* forecasts. Certainly, in Table 2 (output growth) the evidence in favor of efficiency is very strong: with the exception of Japan the significance levels reported exceed the customary value (0.05) by a substantial margin: albeit this margin is bigger for the current year than it is for the year ahead forecasts. The results reported for forecasts of inflation are also generally reassuring: the exception is the year ahead forecast for the UK. Turning to the balance of payments (Table 4), there is again evidence of a much weaker performance. The year ahead balance of payments forecasts for Italy, Canada, the G-7 as a group and for individual countries as a whole all fail the weak efficiency test. The forecasts for the growth of exports and imports are on the other hand all highly satisfactory from this point of view.

In summary, the *WEO* forecasts generally perform well in relation to the test for weak efficiency. It is, however, entirely possible for a forecast to be efficient in this sense, yet to be poor in some other key respects. A forecast may satisfy the tests for bias and serial correlation in its errors and those for weak efficiency without being the minimum variance forecast and without being good enough for its purpose.

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[7] This test is sometimes interpreted as a test for bias, but this is misleading. It is true that if $\beta_o = 0, \beta_1 = 1$ there will be no bias ($\bar{e}$ will be zero), but it is possible for $\bar{e}$ to be zero even while $\beta_o \neq$ and $\beta_1 \neq 1$. The appropriate test for bias per se is the one reported earlier; the realization-forecast regression is an efficiency test of a weak type. Barrionuevo (1993) provides an instructive discussion of these issues.

4. World variables

Table 7 reports the summary statistics and estimates of the realization-forecast regressions discussed above for two key 'world' variables: the growth of world trade and industrial countries' terms of trade. *WEO* estimates of world trade are widely used by national forecasting agencies in their own forecasts in which world variables are 'exogenous'. The evidence of Table 7 is reassuring in this respect, since the data reported strongly support the efficiency of the corresponding forecasts and they appear to be superior by a margin to the two naive alternatives. For the terms of trade forecasts, the results are less reassuring. Whilst superior to naive forecasts in RMSE terms, they are strikingly inefficient.

5. MSE Regression Tests

Ashley et al. (1980) suggest a procedure for examining the statistical significance of the difference between the mean square errors of pairs of forecasts. Originating in the context of a causality study the test is directly applicable to an evaluation of alternative forecasts and has been used as such by, among others, Stekler (1991) and Kolb and Stekler (1993). Where, as in these studies and the present one, the alternative forecast is the original Theil (1966) "naive" random walk model, the test can be regarded as supplying significance levels in a context in which forecast comparison is otherwise carried out by simple inspection of the point value of the Theil statistic. In the present case, this supplementary examination confirms the handful of particularly weak Theil statistic performances already noted above (Tables 2-6).

The basis for the test is the 'MSE regression'

$$\delta = \beta_1 + \beta_2 (\sigma_t - \overline{\sigma}_t) + \mu_t$$

where δ is the difference (in our case) between the error of the naive forecast and the error of the WEO forecast and σ is the sum of these errors ($\overline{\sigma}$ its mean). The null – in our case that the WEO cannot improve on the naive forecast – can be rejected, in the case that both β_1 and β_2 are non-negative, if a joint F-test for $\beta_1 = \beta_2 = 0$ is satisfied or, either β_1 or β_2 being negative (but not significantly so) a t-test on the other coefficient shows it to be not significantly different from zero. If either β_1 or β_2 is negative, the null cannot be rejected.

These tests can be shown to be equivalent to appropriate tests on an expression which defines the difference in mean square error of each of the two forecasts (see, e.g., Ashley et al. 1980).

The results of this regression test are shown in Tables 8 and 9. Nearly all the forecasts are shown as superior to the naive (in the sense that the naive does not improve on the *WEO* forecast). Exceptions arise for the balance of payments forecasts (France and Canada in the case of the current year forecasts; France and Italy in the case of the year-ahead forecasts). It has already been shown that the balance of payments is the most poorly forecast

Table 7. World Economic Outlook Forecast Accuracy: World Trade Volumes and Terms of Trade

(In percent)

	World Trade	Industrial Countries' Terms of Trade	World Trade	Industrial Countries' Terms of Trade
	Current year (1972-1994)		Year ahead (1973-1994)	
Mean absolute actual value	5.44	2.53	5.52	2.43
Average absolute error	1.85	1.00	2.99	2.13
RMSE	2.17	1.35	3.66	3.11
Theil statistic:				
Naive 1	.40	.25	.60	.51
Naive 2	.48	.26	.75	.66
Regression:				
intercept	-.87	.37	-1.26	.19
	(.35)	(.10)	(.66)	(.75)
slope	1.18	1.32	1.12	2.69
	(.28)	(.00)	(.81)	(.01)
joint test	.55	.00	.75	.03
$\bar{R}^2$	.71	.94	.16	.48
D-W	2.09	2.23	2.04	1.89

Notes: For definitions *etc.*, see notes to Table 2. Current-year data for industrial countries' terms of trade cover the period 1974-1994.

Table 8. MSE Regression Test: Current Year Forecast

	United States	Japan	Germany	France	Italy	United Kingdom	Canada
GDP Growth							
β_1	-.135	.283	-.148	.030	.065	-.257	-.191
	(.662)	(.418)	(.737)	(.919)	(.817)	(.573)	(.616)
β_2	.665	.468	.509	.447	.493	.615	.524
	(.000)	(.000)	(.000)	(.000)	(.000)	(.001)	(.000)
F-test:		.000		.000	.000		
H_0: $\beta_1=\beta_2=0$	reject	reject	reject	reject	reject	reject	reject
Inflation							
β_1	.096	-.278	.143	-.404	-.648	.717	-.274
	(.483)	(.523)	(.482)	(.187)	(.115)	(.222)	(.109)
β_2	.523	.361	.426	.242	.344	.618	.225
	(.000)	(.000)	(.001)	(.090)	(.002)	(.000)	(.000)
F-test:	.000		.002			.000	
H_0: $\beta_1=\beta_2=0$	reject	reject	reject	reject	reject	reject	reject
Balances of Payments on Current Account							
β_1	6.062	3.986	-.319	.490	.738	-.700	.048
	(.059)	(.026)	(.831)	(.504)	(.466)	(.434)	(.941)
β_2	.378	.179	.273	.170	.156	.130	-.073
	(.000)	(.004)	(.000)	(.052)	(.020)	(.025)	(.389)
F-test:	.000	.003		.119	.051		
H_0: $\beta_1=\beta_2=0$	reject	reject	reject	no	reject	reject	no
Growth of Export Volumes							
β_1	-.500	-.959	.286	.055	-.286	.141	-1.586
	(.490)	(.445)	(.780)	(.944)	(.727)	(.890)	(.165)
β_2	.532	.362	.451	.450	.213	.330	.344
	(.000)	(.001)	(.000)	(.000)	(.020)	(.019)	(.001)
F-test:			.000	.000		.059	
H_0: $\beta_1=\beta_2=0$	reject	reject	reject	reject	reject	reject	reject
Growth of Import Volumes							
β_1	-1.245	-.741	-.200	.177	-.968	-.823	-2.027
	(.401)	(.521)	(.849)	(.858)	(.270)	(.430)	(.111)
β_2	.502	.511	.279	.532	.387	.454	.323
	(.000)	(.000)	(.005)	(.000)	(.000)	(.000)	(.001)
F-test:				.000			
H_0: $\beta_1=\beta_2=0$	reject	reject	reject	reject	reject	reject	reject

Notes: Figures in parentheses are two-sided significance values of the t-statistic for $\beta_1=0$ or $\beta_2=0$. "Reject" denotes that the null hypothesis ($\beta_1=\beta_2=0$) is rejected at the 5 percent significance level and "no" means no rejection of the null at the 5 percent significance level.

Table 9. MSE Regression Test: Year Ahead Forecast

	United States	Japan	Germany	France	Italy	United Kingdom	Canada
GDP Growth							
β_1	.200	.135	-.325	-.105	.090	-.345	-.655
	(.716)	(.763)	(.473)	(.739)	(.843)	(.344)	(.283)
β_2	.609	.447	.313	.189	.285	.377	.374
	(.000)	(.000)	(.002)	(.037)	(.005)	(.000)	(.007)
F-test:	.000	.001			.017		
H_0: $\beta_1=\beta_2=0$	reject	reject	reject	reject	reject	reject	reject
Inflation							
β_1	.290	.365	.325	.985	1.340	-1.560	.900
	(.281)	(.639)	(.062)	(.007)	(.019)	(.010)	(.036)
β_2	.601	.359	.476	.455	.248	.533	.338
	(.000)	(.053)	(.000)	(.000)	(.017)	(.000)	(.003)
F-test:	.000	.134	.000	.000	.006		.003
H_0: $\beta_1=\beta_2=0$	reject	no	reject	reject	reject	no	reject
Balances of Payments on Current Account							
β_1	13.890	9.045	.545	.690	-.260	-1.290	.500
	(.007)	(.001)	(.767)	(.510)	(.853)	(.436)	(.471)
β_2	.244	.143	.201	.128	.044	.163	.220
	(.000)	(.006)	(.000)	(.147)	(.404)	(.064)	(.020)
F-test:	.000	(.000)	.001	.279			.052
H_0: $\beta_1=\beta_2=0$	reject	reject	reject	no	no	reject	reject
Growth of Export Volumes							
β_1	-1.810	-1.815	-.385	-.055	-.355	-.530	-1.925
	(.154)	(.254)	.764	(.953)	(.731)	(.549)	(.109)
β_2	.627	.307	.320	.223	.215	.320	.444
	(.000)	(.006)	.004	(.032)	(.054)	(.005)	(.000)
F-test:							
H_0: $\beta_1=\beta_2=0$	reject	reject	reject	reject	reject	reject	reject
Growth of Import Volumes							
β_1	-.730	-.320	-.645	1.130	.285	-.590	-1.810
	(.675)	.838	.407	.278	.806	.639	.287
β_2	.488	.427	.333	.245	.370	.401	.325
	(.000)	.000	.000	.006	.000	.001	.006
F-test:				.015	.000		
H_0: $\beta_1=\beta_2=0$	reject	reject	reject	reject	reject	reject	reject

Note: See notes to Table 8.

variable and it is for the balance of payments that the Theil statistics ("Naive 1") appeared least satisfactory. According to the MSE regression test, however, the year ahead forecasts for inflation (Table 9) for Japan and the UK are also unsatisfactory. Whilst Japan (Table 3) had the highest Theil statistic, that for the UK was quite low: but it may be recalled that the realization-forecast regression for the UK was adverse in this case and, more relevant, that this was one of the few cases where bias was shown to be significant.

6. The WEO forecasts over time

The availability of data over a comparatively long period of time as in the full sample lends strength to the statistical verdicts it is possible to deduce from the record. However, interest attaches to the question whether the forecast record has improved over time. At one level, this question may be answered by simply inspecting the error statistics and looking for reduced values; this does not allow, however, for the possibility that the economy may have become 'easier' to forecast. To allow for this it seems natural to make a comparison with an alternative forecast. In addition it might be hoped that bias, if initially present would disappear: we have already noted the extent to which this is the case. In addition to the issue of the underlying forecastibility of the economy and summary error statistics, there is also the issue of timely recognition of cyclical turning points, which we deal with below. Here, Tables 10 and 11 provide summary statistics for two sub-samples, where the main sample is approximately halved by breaking it at 1983. This means that the first sub-sample contains both of the major oil price increases and the forecasting errors associated with them. Nevertheless, it does not appear to be the case that the subsequent environment proved notably easier to forecast.

There is not a great deal of difference between the current year and year ahead forecasts in respect of their relative performance in the two sub-samples. For output growth, the mean absolute actual value fell nearly everywhere--as did the actual absolute error and the RMSE. Nevertheless, the Theil statistic values (computed for the naive 1 or no change assumption) tended to rise. This perhaps indicates that, with a less volatile economy, the random walk forecast itself improves. For inflation, there are quite large declines in the values of the mean absolute actual value, with similarly quite large declines in the average absolute error and RMSE. The Theil statistic values, however, display little systematic change.

For the balance of payments, actual absolute values have increased considerably and with them the error statistics: in this case the Theil statistic values also tend to increase overall (more clearly in the current year forecasts than in the year ahead forecasts). Perhaps curiously, it is in respect of the forecasts of export and import volume growth that forecasting error, judged by reference to the behavior of the Theil statistic values, has risen between the two periods most noticeably. The Theil statistics have increased in value in nearly every case, although average absolute forecasting error is not systematically greater.

Table 10. A Comparison of Two Subperiods: Current Year Forecasts

	Period	United States	Japan	Germany	France	Italy	United Kingdom	Canada
GDP Growth								
Mean absolute actual value	1971-82	3.36	5.27	2.84	3.48	3.08	1.83	3.69
	1983-94	2.86	3.53	2.48	1.94	2.01	2.47	3.20
Actual absolute error	1971-82	.83	1.38	1.21	.74	1.22	1.04	.98
	1983-94	.71	.87	.88	.67	.94	.77	1.12
RMSE	1971-82	1.02	1.89	1.57	1.33	1.63	1.30	1.46
	1983-94	.84	1.03	1.13	.83	1.12	.94	1.53
Theil statistic	1971-82	.27	.38	.44	.43	.36	.43	.45
	1983-94	.33	.64	.52	.58	.53	.55	.36
Inflation								
Mean absolute actual value	1971-82	6.92	6.42	5.25	9.48	14.88	13.31	8.56
	1983-94	3.52	1.20	3.05	4.64	8.19	5.16	3.67
Actual absolute error	*1971-82*	*.60*	*1.91*	*.69*	*1.16*	*1.55*	*2.13*	*1.10*
	1983-94	.30	0.54	.48	.47	.51	.76	.98
RMSE	1971-82	.80	2.77	.89	1.48	2.22	2.54	1.58
	1983-94	.41	0.65	.59	.62	.71	.93	1.15
Theil statistic	1971-82	.35	0.53	.47	.87	.66	.34	.65
	1983-94	.42	0.75	.55	.34	.35	.47	.64
Balances of Payments on Current Account								
Mean absolute actual value	1973-82	7.45	6.78	6.56	4.95	5.15	5.37	3.33
	1983-94	95.73	69.89	26.34	5.18	8.98	11.32	11.07
Actual absolute error	1973-82	6.65	5.07	3.97	2.29	2.62	3.11	1.92
	1983-94	17.24	12.28	8.71	3.28	5.69	6.30	4.23
RMSE	1973-82	7.41	6.20	5.16	3.07	3.14	4.36	2.95
	1983-94	19.78	15.65	11.67	4.44	8.70	8.67	5.31
Theil statistic	*1973-82*	*.59*	*.59*	*.65*	*.56*	*.47*	*.67*	*.94*
	1983-94	.47	.70	.59	.87	.79	.81	1.21
Growth of Export Volumes								
Mean absolute actual value	1972-82	8.05	8.18	8.30	7.49	6.54	4.73	6.15
	1983-94	9.52	4.12	4.72	4.42	5.16	4.28	7.29
Actual absolute error	1972-82	1.95	4.03	2.95	3.00	4.35	2.77	2.27
	1983-94	2.68	4.02	3.62	2.42	2.98	2.85	4.57
RMSE	1972-82	2.71	5.16	3.64	3.70	5.27	3.34	2.77
	1983-94	3.37	5.04	4.49	3.07	3.50	3.76	6.12
Theil statistic	1972-82	.30	.43	.32	.45	.62	.42	.34
	1983-94	.41	.87	.61	.48	.97	.94	.70
Growth of Import Volumes								
Mean absolute actual value	1972-82	8.00	8.97	6.01	7.73	8.07	6.34	7.30
	1983-94	9.20	6.60	7.09	5.22	6.40	6.47	9.85
Actual absolute error	1972-82	3.14	3.42	2.69	2.60	4.98	3.10	4.34
	1983-94	5.17	3.73	3.78	3.05	3.07	2.82	6.22
RMSE	1972-82	3.93	4.11	3.39	3.03	5.84	3.63	5.40
	1983-94	6.00	4.64	5.47	3.88	4.32	3.43	6.96
Theil statistic	1972-82	.25	.28	.51	.24	.43	.40	.55
	1983-94	.67	.62	.67	.63	.60	.71	.62

Notes: For definitions *etc.*, see notes to Table 2. The Theil statistic is the ratio of the RMSE of the WEO forecast to that of the "Naive 1" forecast.

Table 11. A Comparison of Two Subperiods: Year Ahead Forecasts

	Period	United States	Japan	Germany	France	Italy	United Kingdom	Canada
GDP Growth								
Mean absolute actual value	1973-82	3.14	4.77	2.82	2.89	3.24	2.19	3.14
	1983-94	3.10	3.49	2.54	1.98	2.04	2.56	3.21
Actual absolute error	1973-82	1.35	2.06	1.98	1.16	2.03	1.51	2.05
	1983-94	1.26	1.55	1.32	1.15	1.28	1.37	1.72
RMSE	1973-82	2.10	3.62	2.50	1.77	2.44	1.94	2.49
	1983-94	1.58	1.81	1.68	1.51	1.72	1.69	2.25
Theil statistic	1973-82	.31	.30	.56	.58	.51	.42	.84
	1983-94	.40	.70	.69	1.11	.61	.66	.43
Inflation								
Mean absolute actual value	1973-82	7.70	6.71	4.97	10.91	16.43	13.99	9.61
	1983-94	3.52	1.22	3.02	4.68	8.11	5.32	3.58
Actual absolute error	1973-82	1.36	3.38	.39	1.85	3.10	2.51	2.04
	1983-94	.68	1.02	.72	.64	1.42	1.26	1.24
RMSE	1973-82	1.85	4.70	.55	2.18	3.74	3.55	2.98
	1983-94	.83	1.17	.77	.83	1.79	1.42	1.35
Theil statistic	1973-82	.30	.64	.27	.50	.72	.34	.56
	1983-94	.56	.74	.46	.26	.51	.61	.54
Balances of Payments on Current Account								
Mean absolute actual value	1973-82	7.00	6.84	7.55	4.40	5.13	5.96	3.33
	1983-94	92.40	70.18	28.15	5.03	9.47	12.15	11.59
Actual absolute error	1973-82	7.64	7.78	6.53	4.07	5.09	4.30	1.39
	1983-94	30.04	20.43	15.30	4.77	9.97	6.94	3.45
RMSE	1973-82	8.81	9.78	7.79	4.79	6.25	5.36	2.09
	1983-94	38.58	26.93	21.48	6.17	15.81	10.17	4.37
Theil statistic	1973-82	.61	.69	.72	.73	.71	.73	.90
	1983-94	.60	.71	.68	.80	.97	.76	.68
Growth of Export Volumes								
Mean absolute actual value	1973-82	8.16	8.47	8.16	6.87	6.37	5.04	5.74
	1983-94	9.32	4.42	4.17	4.45	5.12	4.15	7.48
Actual absolute error	1973-82	3.14	5.80	4.68	3.41	5.30	3.19	2.91
	1983-94	3.19	5.12	3.82	3.15	3.32	2.81	4.34
RMSE	1973-82	4.24	6.84	6.17	4.47	6.15	4.01	3.99
	1983-94	4.08	5.81	4.48	4.06	3.71	2.99	5.70
Theil statistic	1973-82	.23	.52	.52	.71	.71	.51	.41
	1983-94	.43	.66	.72	.67	.68	.73	.62
Growth of Import Volumes								
Mean absolute actual value	1973-82	8.31	8.48	5.51	7.26	8.09	5.88	7.09
	1983-94	8.91	5.76	6.59	5.21	6.51	6.35	9.49
Actual absolute error	1973-82	4.54	6.35	3.89	4.31	5.96	4.73	5.05
	1983-94	5.25	3.68	3.80	3.62	3.49	3.17	5.91
RMSE	1973-82	5.81	8.16	4.66	5.79	7.58	5.41	6.13
	1983-94	5.80	4.66	4.79	4.55	4.99	3.85	7.16
Theil statistic	1973-82	.35	.41	.51	.52	.40	.48	.74
	1983-94	.57	.70	.54	.96	.84	.63	.46

Note: See notes to Table 10.

We return to a judgement of the record later below. Provisionally, however, the summary statistics reviewed here do not afford a basis for a strong verdict either way on whether forecasting error has fallen over the period. Barrionuevo's (1993) conclusion that forecast accuracy had improved through the period was based on a data sample which omitted the most recent downturn and, more significant, did not attempt to control for changes in the stochastic structure of the world economy and, thus, in the 'ease' or 'difficulty' of forecasting.

7. Directional Accuracy

Timely prediction of turning points in the business cycle is of obvious importance to the forecaster whose predictions are designed to support policy actions. The record of *WEO* forecasting through the recent cycles is discussed in the next subsection of this paper. Conventional methods of quantitative assessment overlook the significance of directional accuracy. The conventional alternative benchmark, the 'naive' no-change or random walk forecast, for example, makes no effort to predict a direction of change at all. In this section we present estimates of the directional accuracy of *WEO* forecasts over the whole sample period of the study and offer a non-parametric method of assessment. Tables 12 and 13 tabulate information on directional accuracy for forecasts of growth, inflation, the balance of payments and the growth of export and import volumes, respectively, for current year and year ahead definitions.

The directional data can be arranged in a 2x2 contingency table (one for each variable and country) and a simple χ^2 test applied. Given a table in which two columns are formed for forecasts of positive and negative change and two rows for positive and negative realizations, it is clear that the desideratum is that the sum of entries in the two cells of the leading diagonal should be satisfactorily "large". Then, in a high proportion of cases, the signs of the direction of forecast change and the realization are the same. A formal test of independence can be supplied in this framework (the classic reference is Yates (1984): the null is that forecasts and realizations are independent; non-rejection of this hypothesis ("n.r." in the table) implies that the success rate of directional forecasting is too low; rejection, on the other hand, implies that there is a significant association between the signs of forecasts and realizations. In practice, with the values relevant to Tables 12 and 13, an accuracy rate (percentage of correctly signed forecasts) of above 70 percent is required; values below this region lead to a verdict of non-rejection at the 5 percent level.[8]

By this standard, the *WEO* record in near-term forecasting (the 'current year' forecasts) is reassuring. Failures are at the rate of only 1 in 7 for output growth forecasting

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[8] The significance levels for a small number of observations are relevant in our case; they may be found in Daniel (1978).

Table 12. 2×2 Contingency Table of Directional Forecast Accuracy: Current Year Forecasts

	$\Delta F>0$ and $\Delta R>0$	$\Delta F>0$ and $\Delta R\leq 0$	$\Delta F\leq 0$ and $\Delta R>0$	$\Delta F\leq 0$ and $\Delta R\leq 0$	Percentage of correct forecasts	Significance level
GDP Growth						
United States	9	1	3	10	.83	1%
Japan	8	0	5	10	.78	1%
Germany	7	4	3	9	.70	n.r.
France	7	1	3	12	.83	1%
Italy	8	5	1	9	.74	5%
United Kingdom	11	1	0	11	.96	1%
Canada	10	1	2	10	.87	1%
Inflation						
United States	10	0	0	13	1.00	1%
Japan	8	4	1	10	.78	1%
Germany	9	2	2	10	.83	1%
France	5	3	3	12	.74	n.r.
Italy	8	0	2	13	.91	1%
United Kingdom	9	0	2	12	.91	1%
Canada	7	4	3	9	.70	n.r.
Balances of Payments on Current Account						
United States	6	2	3	10	.76	5%
Japan	13	3	1	4	.81	5%
Germany	8	4	4	5	.62	n.r.
France	11	1	1	8	.91	1%
Italy	8	1	1	11	.91	1%
United Kingdom	9	2	2	8	.81	1%
Canada	6	5	3	7	.62	n.r.
Growth of Export Volumes						
United States	10	0	1	11	.96	5%
Japan	5	5	3	9	.64	n.r.
Germany	5	3	4	10	.68	n.r.
France	7	2	3	10	.77	5%
Italy	8	2	6	6	.64	n.r.
United Kingdom	9	1	2	10	.86	1%
Canada	7	2	3	10	.77	5%
Growth of Import Volumes						
United States	6	2	3	11	.77	5%
Japan	11	1	1	9	.91	1%
Germany	9	2	3	8	.77	5%
France	7	2	3	10	.77	5%
Italy	9	2	1	10	.86	1%
United Kingdom	7	0	6	9	.73	5%
Canada	4	0	8	10	.64	n.r.

Notes: F and R denote the current year forecast and the first available out-turn respectively, and $\Delta F=F_t-R_{t-1}$, $\Delta R=R_t-R_{t-1}$. In the last column, "1 percent" indicates that the null hypothesis of independence can be rejected at the 1 percent significance level; "5 percent" at the 5 percent significance level and "n.r." indicates no rejection at 5 percent level.

Table 13. 2×2 Contingency Table of Directional Forecast Accuracy: Year Ahead Forecasts

	$\Delta F>0$ and $\Delta R>0$	$\Delta F>0$ and $\Delta R\leq 0$	$\Delta F\leq 0$ and $\Delta R>0$	$\Delta F\leq 0$ and $\Delta R\leq 0$	Percentage of correct forecasts	Significance level
GDP Growth						
United States	7	2	2	9	.80	5%
Japan	6	2	2	10	.80	5%
Germany	7	3	3	7	.70	n.r.
France	8	1	3	8	.80	1%
Italy	7	3	4	6	.65	n.r.
United Kingdom	8	2	4	6	.70	n.r.
Canada	6	2	4	8	.70	n.r.
Inflation						
United States	7	2	1	10	.85	1%
Japan	6	6	0	8	.70	5%
Germany	10	1	0	9	.95	1%
France	4	1	3	12	.80	5%
Italy	3	0	5	12	.75	5%
United Kingdom	4	0	4	12	.80	5%
Canada	5	3	2	10	.75	n.r.
Balances of Payments on Current Account						
United States	7	1	2	10	.85	1%
Japan	12	3	2	3	.75	n.r.
Germany	8	3	4	5	.65	n.r.
France	9	3	2	6	.75	5%
Italy	8	0	4	8	.80	1%
United Kingdom	7	2	2	9	.80	5%
Canada	4	4	2	10	.70	n.r.
Growth of Export Volumes						
United States	7	1	1	11	.90	1%
Japan	7	3	2	8	.75	5%
Germany	7	4	0	9	.80	1%
France	4	4	2	10	.70	n.r.
Italy	8	1	4	7	.75	5%
United Kingdom	7	3	1	9	.80	1%
Canada	5	2	5	8	.65	n.r.
Growth of Import Volumes						
United States	8	2	2	8	.80	5%
Japan	9	2	1	8	.85	1%
Germany	8	0	4	8	.80	1%
France	6	2	4	8	.70	n.r.
Italy	7	2	2	9	.50	n.r.
United Kingdom	8	1	3	8	.80	1%
Canada	5	1	3	11	.80	5%

Notes: F and R denote the year ahead forecast and the first settled estime respectively, and $\Delta F=F_t-R_{t-2}$, $\Delta R=R_t-R_{t-2}$. In the last column, "1 percent" indicates that the null hypothesis of independence can be rejected at the 1 percent significance level; "5 percent" at the 5 percent significance level and "n.r." indicates no rejection at 5 percent level.

and 2 in 7 for inflation forecasting. The record in longer-term forecasting is less good: 4 in 7 country growth rate forecasts fail to maintain direction accuracy at an appropriate level and 2 in 7 country inflation forecasts fail the test.

The overall verdict on directional accuracy is therefore somewhat mixed. Very few of the forecasts are right about the sign of the change less than 50 percent of the time. But not enough are turning out with rates of directional accuracy clearly above 70 percent.

8. Forecasting the Cycle

Whilst the statistics of directional accuracy consider the relationship between the sign of forecasts and realizations, Table 14 tabulates the *WEO* forecasts and realizations through the most recent cycles. In order to examine the process of recognition of the cycle and corresponding revision of forecasts the table dispenses with the "current year" and "year ahead" distinction. Instead, it takes the successive forecasts for the out-turn in year x to be found, first, in the April issue of the *WEO* for year x-1, then in the October issue for year x-1, and subsequently the April and October issues for year x itself. The realization is identified with the data in the *WEO* for October of year x+1.

Systematic turning point error taking the form of an initial under- or over-estimate of output growth, followed by persistence in the same error with accompanying forecast revisions in the same direction is uncomfortably pervasive in the data. The tabulation below (Table 15) identifies systematic underestimates as processes where the initial estimate is below the final realization and where the process of revision is systematic (with no more than one change in direction of revision allowed). In addition the table shows the amount of the differences between the initial and final figure. Systematic overestimates are defined in a similar manner. Chart 5 displays the data for the US and Germany.

It is clear from the data that 1988 - a peak year in the growth cycle everywhere except in Germany (where unification delayed the peak by two more years) - was a year for which the forecast process exhibited systematic underestimation for all the G-7 countries. In Germany and France the process of systematic underestimation was repeated in the following year and, for Germany, in 1990 also. Japan appears as a special case in that systematic underestimation was a feature of the data in every year to 1991. The degree of underestimation on the other hand was rarely more than 2 percentage points and more commonly around 1.5 points. This contrasts with the data shown for systematic overestimation where figures in excess of 3 percentage points are not uncommon. Where the US and Canada feature overestimation of the out-turns as early as 1990 and 1991, for the European countries the experience of systematic overestimation appears to set in a little later, to be persistent through 1993 (except for the UK) and to involve some very large errors. The same could be said for Japan. The errors are notably smaller for the United States. The difference between the US and the other countries may partly be related to the dislocation of the cycle in the early 1990s. Synchronicity with the US cycle weakened, with the development of a European cycle based around Germany, producing a trough in 1993, two

Table 14. Forecasts Made at Different Time Horizons

	GDP Growth					Inflation				
	Realization[1]	October /current	May[2] /current	October /previous	May[2] /previous	Realization	October /current	May[2] /current	October /previous	May[2] /previous
United States										
1988	4.4	4.0	2.9	2.7	3.1	3.3	3.2	3.2	3.8	3.4
1989	2.5	2.9	3.1	2.8	2.7	4.1	4.5	4.7	4.1	3.5
1990	1.0	1.3	1.7	2.1	2.5	4.1	4.3	4.1	4.6	4.5
1991	-1.2	-0.3	0.2	1.7	2.3	4.1	4.0	3.7	4.2	4.1
1992	2.6	1.9	1.6	3.0	2.7	2.9	2.7	2.4	3.7	4.0
1993	3.1	2.7	3.2	3.1	3.5	2.2	2.8	2.6	2.9	2.9
1994	4.1	3.7	3.9	2.6	3.2	2.1	2.3	2.2	2.7	2.9
Japan										
1988	5.7	5.8	4.1	3.4	3.3	0.4	0.9	1.2	1.7	2.6
1989	4.9	4.9	4.5	4.2	3.8	1.5	1.8	1.4	1.4	1.5
1990	5.6	5.1	4.4	4.7	4.4	1.9	1.5	1.9	1.3	1.2
1991	4.4	4.5	3.6	3.7	4.2	1.9	2.5	2.6	2.1	1.5
1992	1.3	2.0	2.2	3.4	3.9	1.8	1.7	2.1	2.6	2.6
1993	0.1	-0.1	1.3	3.8	3.9	1.0	1.3	1.5	1.9	1.9
1994	0.5	0.9	0.7	2.0	3.5	0.2	0.5	1.2	1.3	1.6
Germany										
1988	3.6	2.9	1.7	2.1	2.0	1.5	1.8	2.0	2.2	2.6
1989	3.9	4.0	2.4	1.9	1.7	2.6	2.5	2.5	2.2	2.0
1990	4.5	3.9	3.5	3.0	2.9	3.4	2.9	2.9	2.5	2.5
1991	3.1	3.1	2.8	3.3	2.7	4.5	3.9	3.9	3.6	3.0
1992	1.6	1.4	1.3	2.0	1.9	4.4	4.3	4.3	3.7	3.5
1993	-1.7	-2.2	-2.0	1.9	2.2	3.2	3.8	3.9	3.7	3.8
1994	2.9	1.8	0.5	0.8	1.2	2.3	2.4	2.7	2.8	2.3
France										
1988	3.5	2.9	1.6	1.8	2.1	3.1	2.6	2.5	3.0	2.6
1989	3.6	3.4	2.8	2.4	1.7	3.5	3.2	3.2	2.2	2.5
1990	2.8	3.1	3.1	3.0	2.8	2.8	3.4	3.3	2.8	2.5
1991	1.2	1.3	2.1	3.0	3.1	2.8	3.1	3.3	3.2	2.8
1992	1.4	2.2	1.8	2.4	2.7	2.3	2.9	2.5	2.9	2.7
1993	-1.0	-1.0	0.0	2.7	2.6	2.3	2.2	2.0	2.8	2.3
1994	2.9	1.9	1.2	1.1	2.3	1.3	1.6	1.9	2.2	2.5
Italy										
1988	3.9	3.0	2.5	2.3	2.3	6.0	5.1	5.0	5.3	5.2
1989	3.2	3.2	3.4	2.4	2.3	6.3	6.6	6.1	5.0	5.0
1990	2.0	2.7	3.0	2.9	3.0	7.5	6.5	6.5	5.1	5.0
1991	1.4	1.3	1.7	2.7	2.9	7.3	6.7	6.1	5.7	4.9
1992	0.9	1.3	1.6	2.5	2.5	4.7	5.6	5.2	5.5	5.7
1993	-0.7	0.3	0.3	1.5	2.4	4.4	3.7	4.7	4.7	5.2
1994	2.2	1.5	1.1	1.7	1.9	3.6	3.8	3.5	4.2	4.7
United Kingdom										
1988	4.2	4.0	3.0	2.3	2.3	6.7	5.2	4.8	4.8	5.0
1989	2.2	3.0	3.3	2.5	2.2	6.9	7.5	6.6	4.7	4.5
1990	0.8	1.4	1.1	2.7	2.1	6.8	5.5	5.1	5.7	5.8
1991	-2.2	-1.8	-2.1	1.3	2.2	6.9	6.2	6.6	5.7	6.5
1992	*-0.5*	*-0.8*	*0.8*	*2.4*	*1.9*	*4.4*	*5.0*	*4.4*	*4.2*	*4.7*
1993	2.0	1.8	1.4	2.1	3.1	3.4	2.0	2.5	3.3	3.1
1994	3.8	3.3	2.5	2.8	3.1	2.1	2.4	3.1	3.9	4.0
Canada										
1988	5.0	4.2	3.4	3.2	3.0	4.1	3.9	4.0	3.5	3.2
1989	3.0	2.6	2.9	3.2	3.1	4.9	5.2	4.3	3.6	3.7
1990	0.5	1.1	1.6	2.0	2.5	3.0	3.6	4.0	4.4	3.8
1991	-1.7	-0.9	-1.1	1.1	3.1	2.7	3.4	4.3	5.1	4.7
1992	0.7	2.1	2.3	3.8	3.6	1.1	1.0	2.4	2.7	2.8
1993	2.2	2.6	3.2	4.4	4.9	1.1	0.8	1.1	2.0	2.6
1994	4.6	4.1	3.5	3.8	4.4	0.6	0.5	1.1	1.5	2.0

1/ From October issue of the *WEO* in the following year.
2/ From April or May issue of the *WEO*.

Chart 5. Forecasts Made at Different Time Horizon

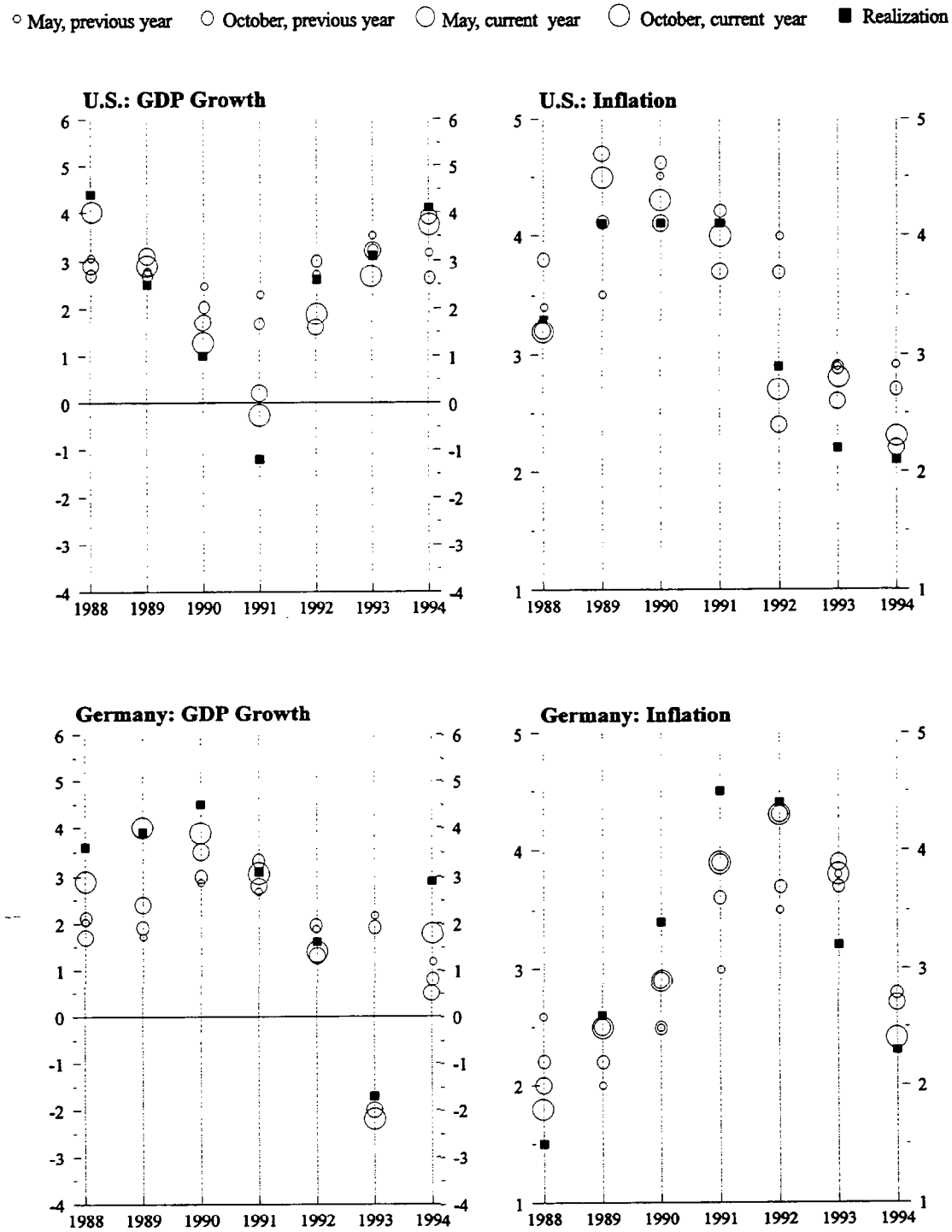

Table 15. Turning Point Errors: Systematic Under and Overestimation in Output Growth Forecasts

	Underestimation	Overestimation
United States	1988 (1.3)	1990 (1.5) 1991 (3.5)
Japan	1988 (2.4) 1989 (1.1) 1990 (1.1) 1991 (0.2)	1992 (2.6) 1993 (3.8) 1994 (3.0)
Germany	1988 (1.6) 1989 (2.2) 1990 (1.6)	1992 (0.3) 1993 (3.9)
France	1988 (1.4) 1989 (1.9)	1991 (1.9) 1992 (1.3) 1993 (3.6)
Italy	1988 (1.6)	1990 (1.0) 1991 (1.5) 1992 (1.6) 1993 (3.1)
United Kingdom	1988 (1.9)	1991 (4.4) 1992 (2.4)
Canada	1988 (2.0)	1990 (2.0) 1991 (4.8) 1992 (2.9) 1993 (2.7)

Notes:A systematic over (under-) estimation is defined as a process in which a) the initial forecast is above (below) the realization and b) the forecasts display constant downward (upward) revision with no more than one revision in the opposite direction. The figure in parentheses is the difference between the initial forecast and the realization. The data are from Table 14.

years behind the US cycle (the UK being an exception) and, independently, a long drawn out deflation in Japan. These new developments were poorly forecast.

The classification of systematic over- and under-estimation captures a particular type of turning point error where the forecaster takes on board the evolution of the cycle too slowly. The forecast process for 1994 reflects a different form of error - one in which, for most countries, an initially quite good forecast is pursued by a lack of confidence, with forecast performance falling away, only to be revived towards the end. The data for inflation reveal for all countries except Germany a pattern of systematic overestimation in 1994 and, to a lesser extent, in the preceding two years. This is particularly marked for Italy and the UK in 1994 and for Japan and Canada in 1992-1994. This may constitute evidence that the forecasters only gradually became convinced about the efficacy of the global policies of disinflation set in place since the early to mid-1980s.

9. A comparison with private sector forecasts

The availability of an alternative, private-sector forecast with which to compare the *WEO* is limited. However, Consensus Forecasts has made available, on a month-by month basis, a private sector consensus computed as the simple mean of a number of private sector forecasts. The literature on optimal forecasts (see e.g. Diebold and Lopez, 1996) shows that such simple means often perform well even compared to "optimal composites". The time series available for comparison is, however, relatively brief as the Consensus Forecasts are not available until late in 1989. Defining Consensus Forecasts for output growth and inflation on the same basis as for the *WEO* yields just five data points per country for the "current year" forecasts and six data points for the "year ahead" forecasts.[9] With so few data points it makes little sense to process the Consensus data in the same way as the *WEO* data have been processed to this point in this study.

In the circumstances, the comparison is limited to the following exercises. First, in Charts 6-9 we present the *WEO* and Consensus Forecasts errors in the form of scatter diagrams, pooling all the country observations. Second, we present the Consensus Forecasts through the recent cycle in Tables 16 and 17, which may be directly compared with Tables 14 or 15 above for the *WEO*.

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[9]To be specific, current year forecasts are assumed to be those for May in the year in question whilst year ahead forecasts are those for October for the following year. Realization data are those used in the *WEO* evaluation in this study. The Consensus averages, in any given month, a number of forecasts (how many depending on the country), many if not most of which will have been produced in preceding months. It is not clear precisely how the 'center of gravity' of Consensus Forecasts compares with that of *WEO* forecasts: but we think the comparison dates chosen are as fair as they can be.

Table 16. Consensus Forecasts Through the Cycle

	GDP Growth				
	Realization	October /current	May /current	October /previous	May /previous
United States					
1990	1.0	0.9	2.1	1.9	...
1991	-1.2	-0.3	-0.5	0.6	2.4
1992	2.6	1.8	2.0	2.6	2.6
1993	3.1	2.7	3.1	2.6	3.0
1994	4.1	3.7	3.6	2.8	3.1
Japan					
1990	5.6	5.5	4.3	4.3	...
1991	4.4	4.2	3.4	3.8	3.9
1992	1.3	2.0	2.1	2.9	3.8
1993	0.1	0.2	1.2	2.6	3.9
1994	0.5	0.7	0.6	1.4	3.1
Germany					
1990	4.5	3.9	3.7	3.1	...
1991	3.1	3.0	2.5	3.0	3.2
1992	1.6	1.1	1.1	2.0	2.2
1993	-1.7	-2.1	-1.7	1.2	2.3
1994	2.9	2.4	0.8	0.8	1.0
France					
1990	2.8	2.7	3.3	3.0	...
1991	1.2	1.3	1.7	2.5	3.1
1992	1.4	2.0	1.9	2.3	2.5
1993	-1.0	-1.3	–	1.9	2.6
1994	2.9	2.1	1.5	0.8	2.0
Italy					
1990	2.0	2.7	3.0	3.0	...
1991	1.4	1.1	1.4	2.3	2.9
1992	0.9	1.2	1.5	2.1	2.5
1993	-0.7	-0.1	0.3	1.2	2.2
1994	2.2	1.8	1.5	1.4	1.5
United Kingdom					
1990	0.8	1.3	1.1	1.8	...
1991	-2.2	-2.1	-1.5	1.3	2.3
1992	-0.5	-0.9	0.9	1.8	2.1
1993	2.0	1.8	1.5	1.5	2.3
1994	3.8	3.4	2.7	2.6	2.5
Canada					
1990	0.5	1.0	1.4	1.5	...
1991	-1.7	-0.8	1.3	0.7	1.7
1992	*0.7*	*1.3*	*2.0*	*3.5*	*3.1*
1993	2.2	2.6	3.2	3.3	3.9
1994	4.6	4.0	3.5	3.4	3.8

Notes: Forecast data are from Consensus Forecasts, realizations from Table 14.

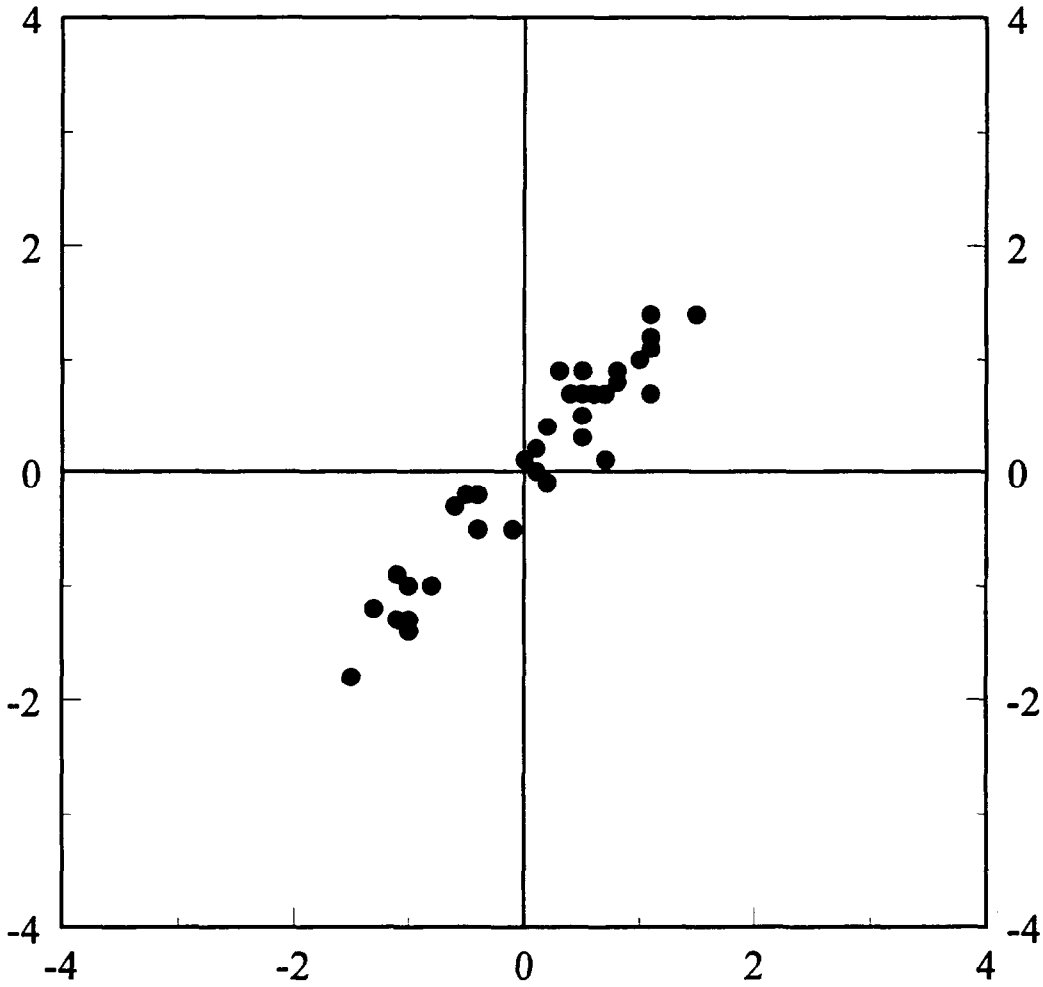
Table 17. Turning Point Errors: Systematic Under and Overestimation in Output Growth Forecasts

	Underestimation	Overestimation
United States	1994 (1.0)	1991 (3.6)
Japan		1992 (2.5)
		1993 (3.8)
		1994 (2.6)
Germany		1992 (0.6)
		1993 (4.0)
France		1991 (1.9)
		1992 (1.1)
	1994 (0.9)	1993 (3.6)
Italy		1991 (1.5)
		1992 (1.6)
	1994 (0.7)	1993 (2.9)
United Kingdom		1990 (4.5)
	1994 (1.3)	1992 (2.6)
Canada		1991 (3.4)
		1992 (2.4)
	1994 (0.8)	1993 (1.7)

Notes: The table is constructed on the same basis as Table 15, with which it may be compared. Data are from Table 16.

Chart 6. Comparative WEO and Consensus Forecasts Prediction Errors

Output Growth: Current Year Forecasts

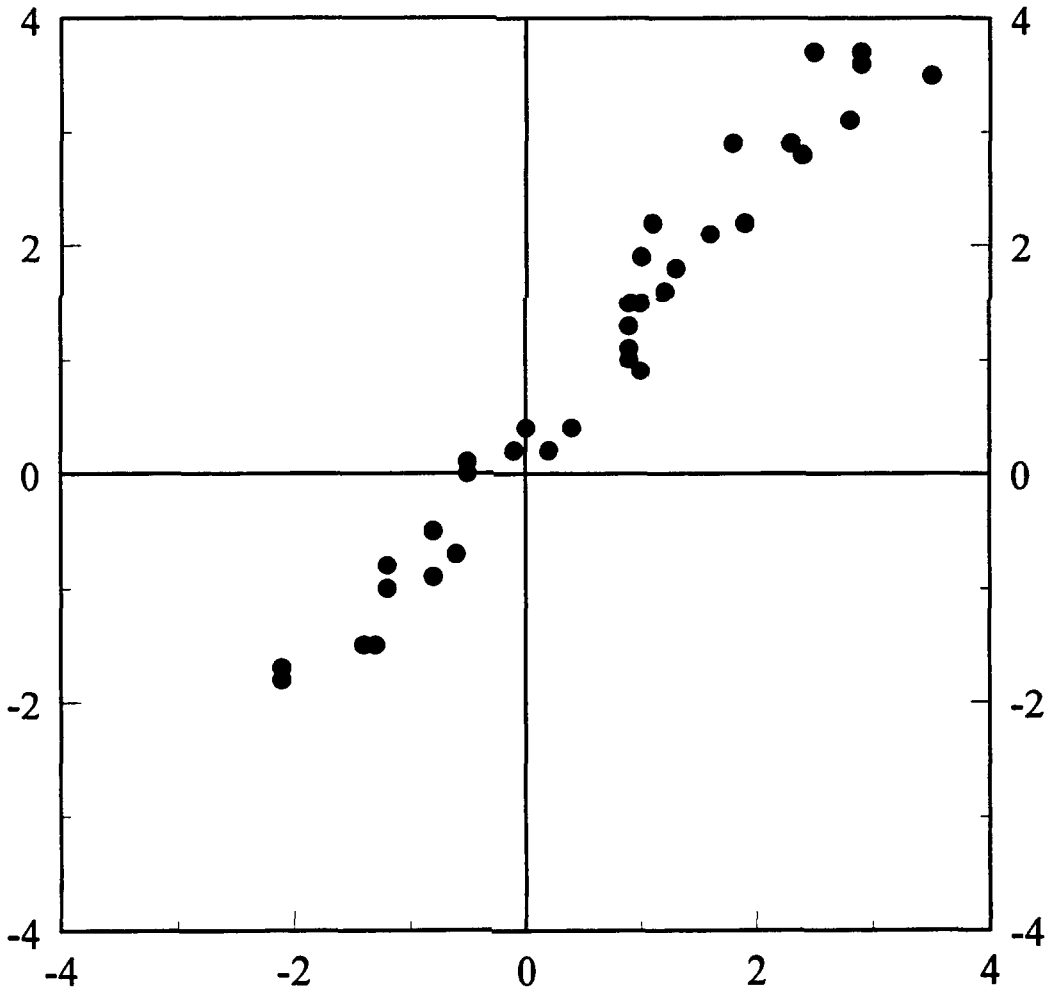


Source: *World Economic Outlook;* and Consensus Economics, Inc.

[1] Forecast errors are for the period 1990-94 and are defined as current year forecast value minus actual realized value. Each observation shows the *Consensus* and *World Economic Outlook* forecast errors for one of the seven major industrial countries for forecasts constructed at approximately the same time.

Chart 7. Comparative WEO and Consensus Forecasts Prediction Errors

Output Growth: Year Ahead Forecasts

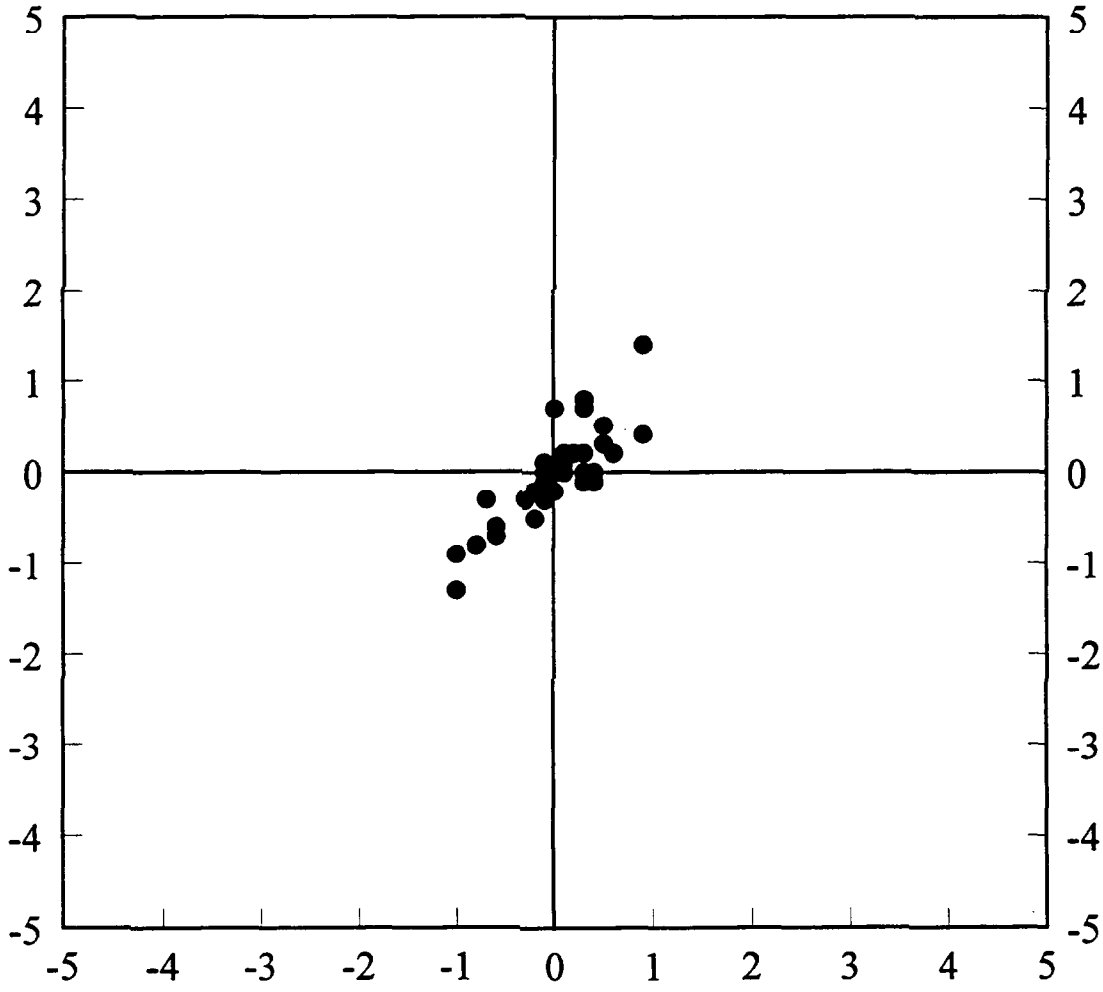


Source: *World Economic Outlook;* and Consensus Economics, Inc.

[1] Forecast errors are for the period 1990-94 and are defined as year ahead forecast value minus actual realized value. Each observation shows the *Consensus* and *World Economic Outlook* forecast errors for one of the seven major industrial countries for forecasts constructed at approximately the same time.

Chart 8. Comparative WEO and Consensus Forecasts Prediction Errors

CPI Inflation: Current Year Forecasts

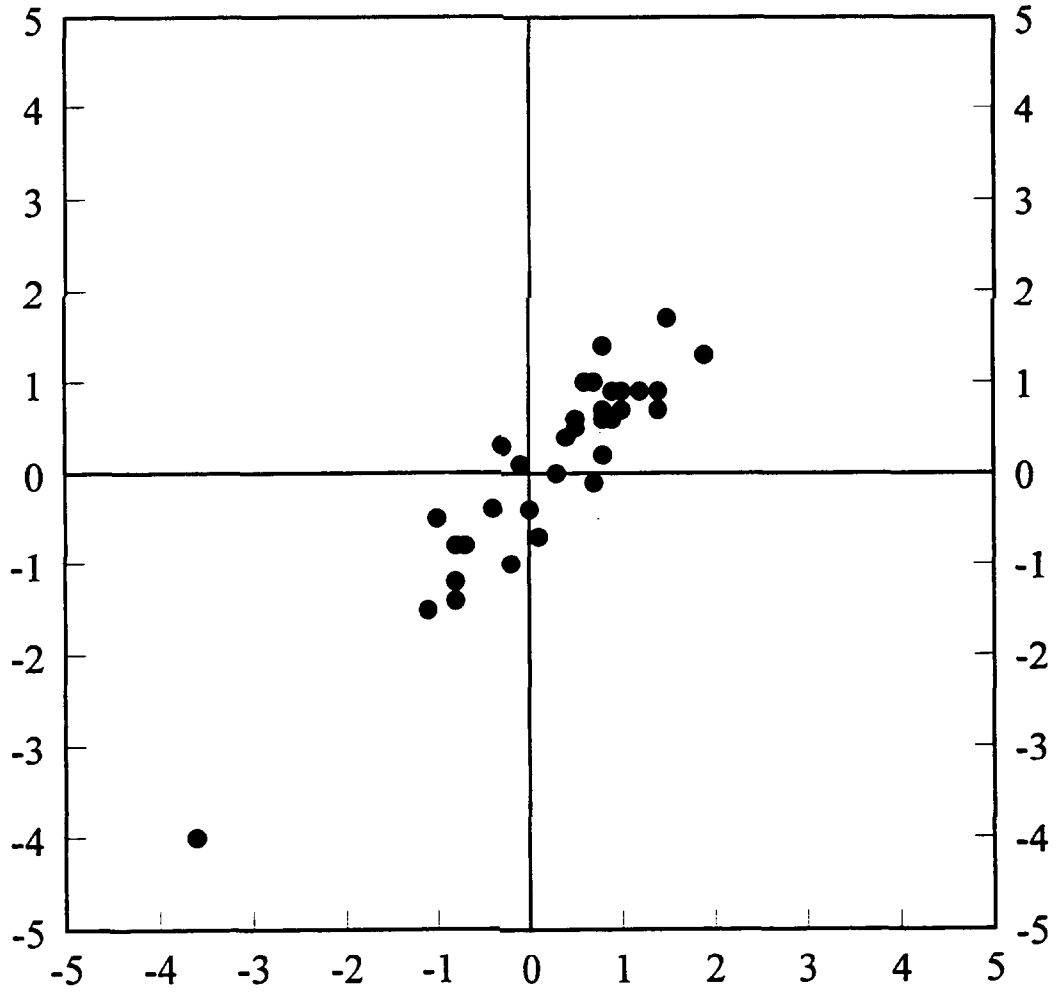


Source: *World Economic Outlook;* and Consensus Economics, Inc.

[1] Forecast errors are for the period 1990-94 and are defined as current year forecast value minus actual realized value. Each observation shows the *Consensus* and *World Economic Outlook* forecast errors for one of the seven major industrial countries for forecasts constructed at approximately the same time.

Chart 9. Comparative WEO and Consensus Forecasts Prediction Errors

CPI inflation: Year Ahead Forecasts



Source: *World Economic Outlook;* and Consensus Economics, Inc.

[1] Forecast errors are for the period 1990-94 and are defined as year-ahead forecast value minus actual realized value. Each observation shows the *Consensus* and *World Economic Outlook* forecast errors for one of the seven major industrial countries for forecasts constructed at approximately the same time.

Turning now to discuss this evidence, Chart 6 shows the scatter of errors in output growth forecasting on a "current year" basis for the period 1990-94; the errors, as should be expected, are generally quite small and not obviously biased--most, but not all are confined to the range +/- 1 percentage point. The fact that the preponderance of observations falls on and close to the 45-degree diagonal (not shown in the Chart) indicates that the two forecast error records are very similar. Chart 7 plots the prediction errors for the *WEO* and Consensus Forecasts "year ahead" output growth forecasts. Here the preponderance of errors fall in the positive quadrant, indicative of the propensity to overestimate growth in this period: both forecasts are equally culpable for the bias, however, sharing the errors, even when these are large ones. Relative to a 45-degree diagonal there are few marked deviations (those few that there are, however, are *WEO* errors). Charts 8 and 9 provide scatters of the current year and year ahead prediction error for CPI inflation. Once again, the current year errors appear relatively small and unbiased; and the observations indicate that there was little difference between *WEO* and Consensus prediction errors. Chart 9 shows a slight positive bias in the forecasting of CPI inflation, with little between the *WEO* and Consensus error. (The outlier observation pertains to the forecast for U.K. inflation in 1990, where the common large error appears to be related to the introduction of the Community Charge ("poll tax").)

The data in Tables 16 and 17 may be directly compared with that in Tables 14 and 15, being constructed for the Consensus Forecasts in the same manner. Bearing in mind that the limited availability of data removes 1988, 1989, and 1990 from the comparison, the most striking point is the qualitative similarity of the pattern of error. Both Consensus Forecasts and the *WEO* make the same type of error in the same years for the same country.

10. Generality of forecast errors

How general, across countries, has forecast error been? Tables 18 and 19 provide evidence, in the form of cross correlations of forecast error between countries. The cross correlations are, perhaps, lower (for output growth) than might have been expected: the largest ones--between France and Germany and between the U.S., Canada and Japan--might reflect the strong trading relationship within these groups of countries. The year-ahead forecast error correlations (Table 19) suggest a stronger role for Germany in respect of other European countries than the current year forecasts.

The prevalence of negative correlations between inflation forecast errors in the current year forecasts (Table 18) is striking - especially as this is not so marked in the year-ahead forecasts. Unforeseen exchange rate developments could be a reason for the negative correlations, but it is not clear why this should not also be a feature of the year ahead forecasts. The prevalence of negative signs on the balance of payments forecasts is of course to be expected on account of the closed nature of the world economy as a whole. Notably, however, nearly all the signs of the export and import growth volume forecast error correlations are positive. This suggests that the forecast mistakes have a general character - an underestimation or overestimation of the buoyancy of trade as a whole is more important than idiosyncratic error.

Table 18. Cross-Correlation of Current Year Forecast Errors

	United States	Japan	Germany	France	Italy	United Kingdom	Canada
GDP Growth							
United States	1.00	.47	.00	-.02	.01	-.14	.40
Japan		1.00	.41	.29	.27	-.16	.21
Germany			1.00	.80	.23	.33	.24
France				1.00	.36	.43	.06
Italy					1.00	.03	.24
United Kingdom						1.00	.23
Canada							1.00
Inflation							
United States	1.00	.43	-.34	.10	.73	-.20	.49
Japan		1.00	-.32	-.22	.42	-.28	.25
Germany			1.00	.58	-.24	.50	-.25
France				1.00	-.18	.56	-.04
Italy					1.00	-.36	.65
United Kingdom						1.00	-.14
Canada							1.00
Balances of Payments on Current Account							
United States	1.00	-.28	-.45	.14	-.11	-.04	-.23
Japan		1.00	-.15	.20	.00	.04	-.55
Germany			1.00	-.18	.24	-.27	.37
France				1.00	.50	.07	-.39
Italy					1.00	.05	.00
United Kingdom						1.00	-.18
Canada							1.00
Growth of Export Volumes							
United States	1.00	.27	.48	.18	.03	.41	.42
Japan		1.00	.50	.48	.02	.21	.25
Germany			1.00	.65	.16	.46	.16
France				1.00	.50	.12	.10
Italy					1.00	.10	.46
United Kingdom						1.00	.07
Canada							1.00
Growth of Import Volumes							
United States	1.00	.48	.02	.15	.36	.45	.61
Japan		1.00	.18	.45	.56	.59	.40
Germany			1.00	.62	.60	.08	.21
France				1.00	.71	.40	.26
Italy					1.00	.43	.46
United Kingdom						1.00	.69
Canada							1.00

Table 19. Cross-Correlation of Year Ahead Forecast Errors

	United States	Japan	Germany	France	Italy	United Kingdom	Canada
GDP Growth							
United States	1.00	.53	.20	.17	.18	.44	.67
Japan		1.00	.53	.38	.43	.43	.36
Germany			1.00	.85	.62	.42	.40
France				1.00	.77	.58	.36
Italy					1.00	.41	.27
United Kingdom						1.00	.50
Canada							1.00
Inflation							
United States	1.00	.67	.09	.84	.64	.35	.82
Japan		1.00	-.05	.31	.33	-.16	.49
Germany			1.00	.25	.19	.44	-.01
France				1.00	.68	.60	.79
Italy					1.00	.54	.76
United Kingdom						1.00	.49
Canada							1.00
Balances of Payments on Current Account							
United States	1.00	-.19	-.61	-.12	-.50	-.11	-.41
Japan		1.00	-.28	.39	.15	.08	-.46
Germany			1.00	-.29	.17	-.29	.50
France				1.00	.56	.16	-.22
Italy					1.00	.29	.02
United Kingdom						1.00	.09
Canada							1.00
Growth of Export Volumes							
United States	1.00	.10	.42	.28	.04	.21	.43
Japan		1.00	.62	.62	.22	.43	.10
Germany			1.00	.78	.24	.63	-.10
France				1.00	.37	.50	-.12
Italy					1.00	.44	.45
United Kingdom						1.00	.06
Canada							1.00
Growth of Import Volumes							
United States	1.00	.62	.18	.36	.41	.61	.66
Japan		1.00	.48	.66	.60	.82	.48
Germany			1.00	.67	.70	.34	.15
France				1.00	.86	.71	.24
Italy					1.00	.65	.23
United Kingdom						1.00	.66
Canada							1.00

In the previous study (Artis, 1988) it was discovered that forecasts of nominal GDP growth outperformed those of real GDP and inflation taken separately. This must be true for the extended sample used in the present study in that, with only one exception, the correlations between inflation and real output growth for the sample period as a whole are negative (Table 20). It is notable, though, that when attention is given to the sample separation, the correlations in the second half of the sample are less supportive of the previous conclusion. Whilst a balance of the reported correlations remains negative, they are on the whole lower in value than the nearly universal negative correlations of the first sub-period and include quite a number of positive correlations. A straightforward explanation for the negative correlation of the first sub-period is that the innovations facing forecasters then were predominantly supply shocks; accordingly, this evidence suggests a reduction in the incidence of this type of shock in the second sub-period. Chart 10 illustrates for the G-3 countries - the US, Japan and Germany, where the negative relationship of output growth and inflation forecast errors is indeed quite prominent for the years up to 1983 and where, through the 1990s, a positive relationship can be seen to emerge.

IV. The Developing Countries

Forecasts for the developing countries are analyzed for five regional groupings (Africa, Middle East, Asia, Western Hemisphere and Europe) and for one functional category - nonfuel exporters. Charts 11-14 display forecast and realization data for output growth and inflation for the current year and year ahead forecast definitions. These charts - especially as compared with those for the G-7 (Charts 1-4) - demonstrate that *WEO* forecasts for these groups of developing countries are not particularly accurate.

Data for many of these countries are poor and tardy; their economies, in some cases, have been undergoing dramatic structural change; some of the forecasts incorporate data for countries under IMF stabilization programmes, where the programme targets are taken as the forecast; and year-to-year growth and inflation rates can be extremely volatile.[10] There are plenty of reasons why it is difficult to forecast growth and inflation for developing countries and, hence, why the forecast performances for the developing countries will not look particularly impressive. This is what we found in the previous study.

The data shown in Tables 21-26 confirm this verdict. Table 21 reports the results of tests for bias and serial correlation in the forecast errors. According to the former test, there are several instances where bias cannot be rejected. Current year output growth forecasts for Africa, for example, appear to display a significant positive bias whilst those for inflation exhibit bias more generally - for Africa, Asia and the Western Hemisphere. When it comes

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[10] This issue was investigated by Barrionuevo (1993) who discovered that, indeed, it was a source of forecast error.

Chart 10. Forecast Errors in GDP Growth and Inflation

Current Year Forecast

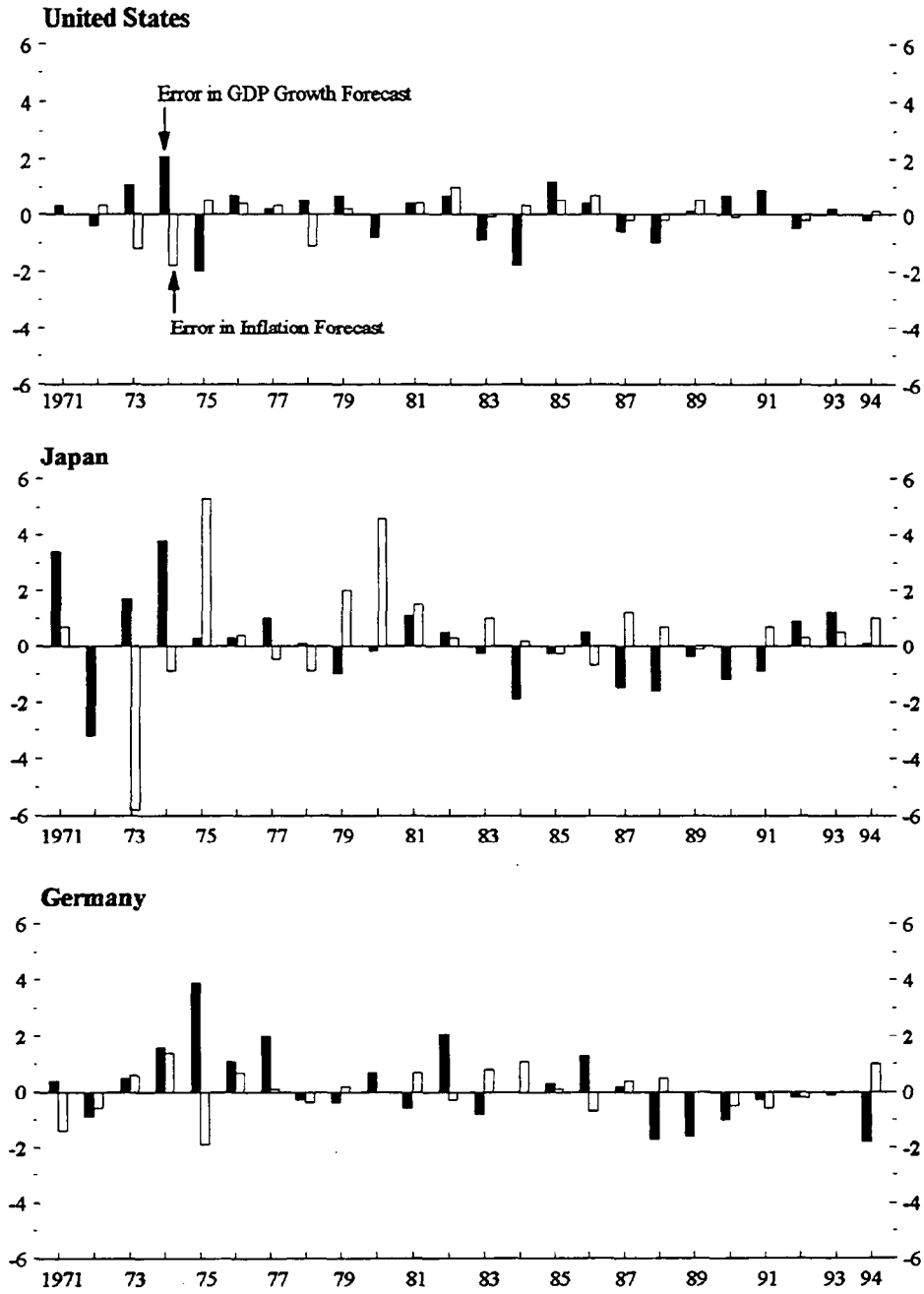


Chart 11. World Economic Outlook Forecast: Real GDP Growth in Developing Countries

Current Year Forecast and First Available Out-Turn

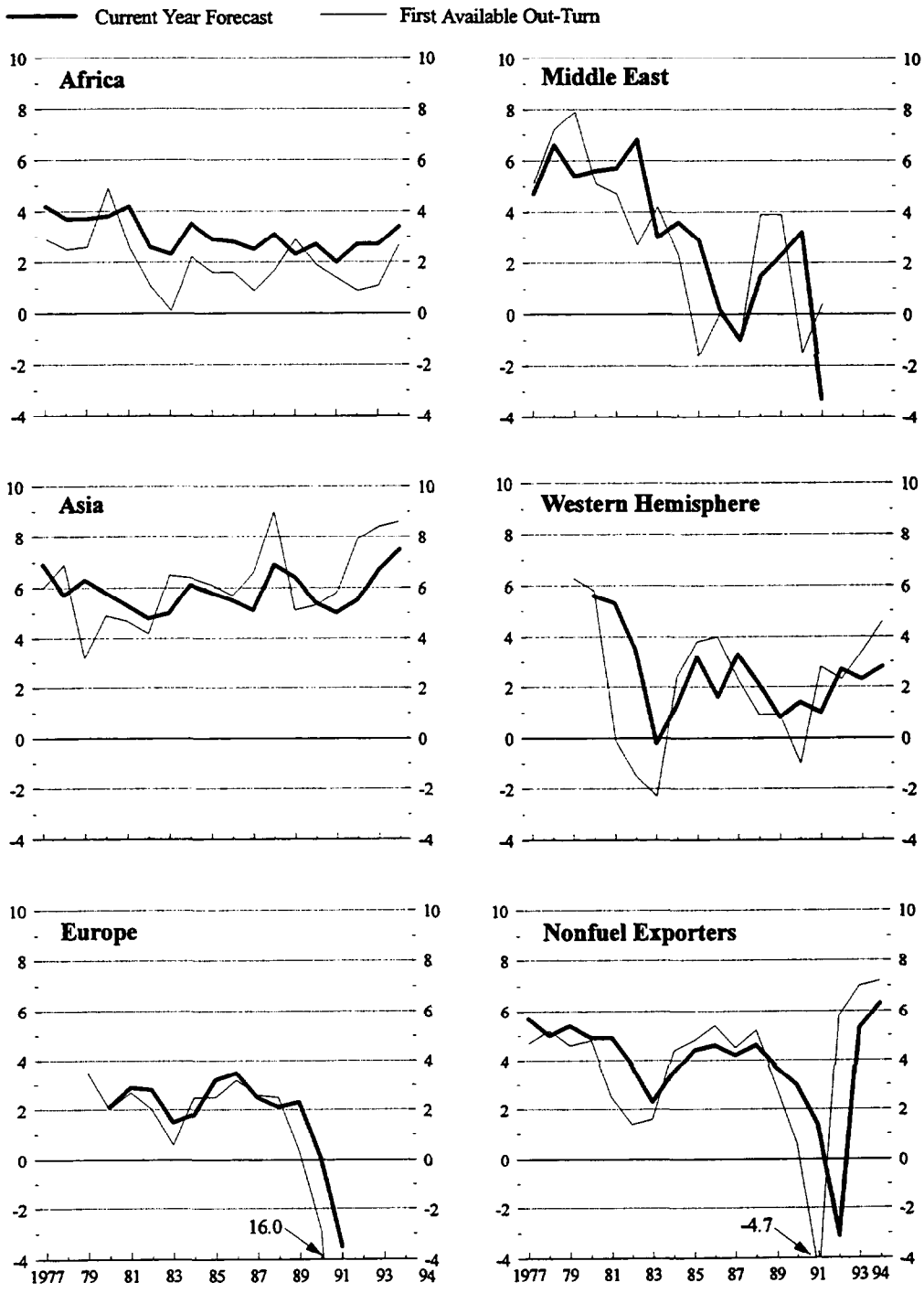


Chart 12. World Economic Outlook Forecast: Real GDP Growth in Developing Countries

Year Ahead Forecast and First Settled Estimate

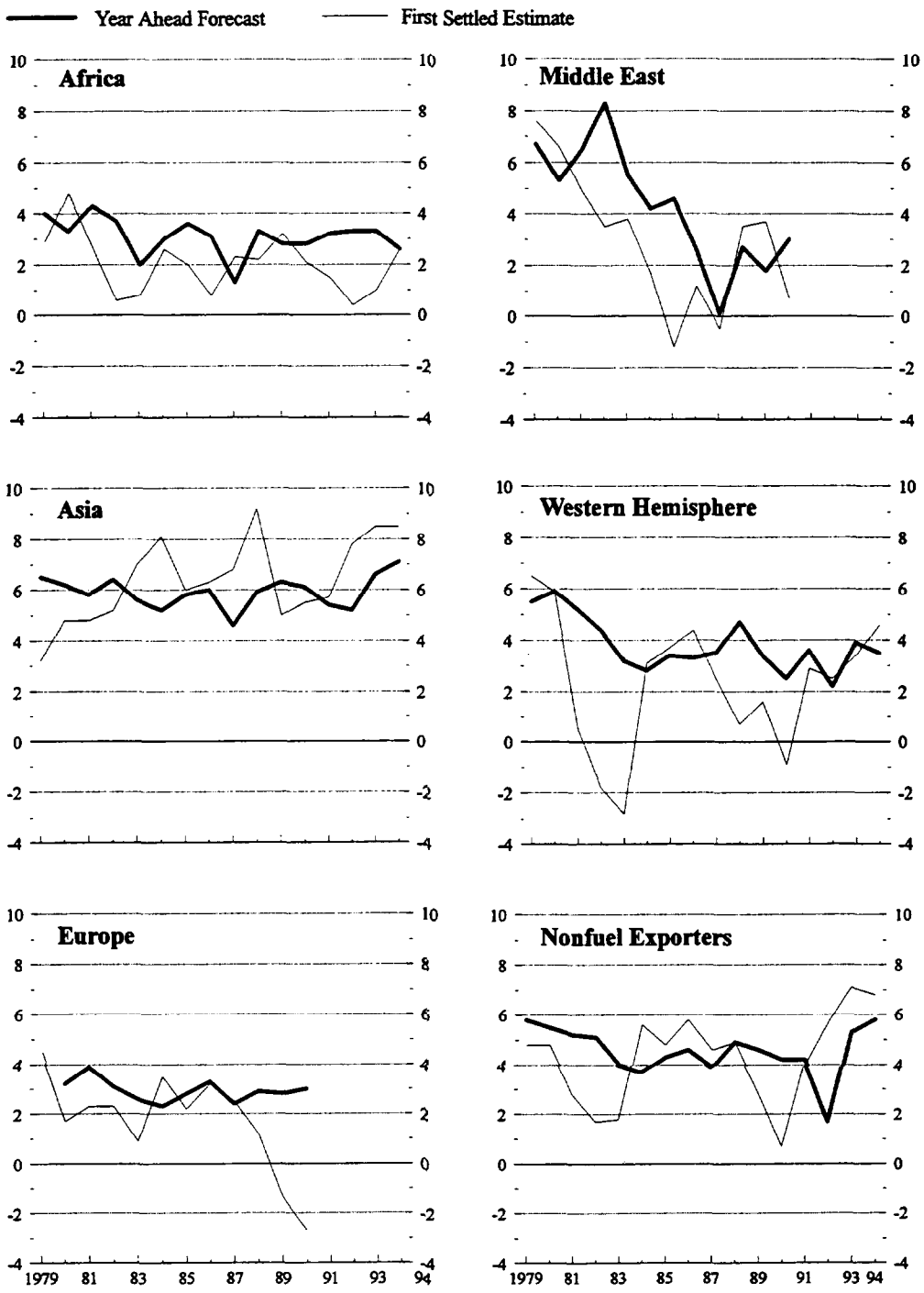
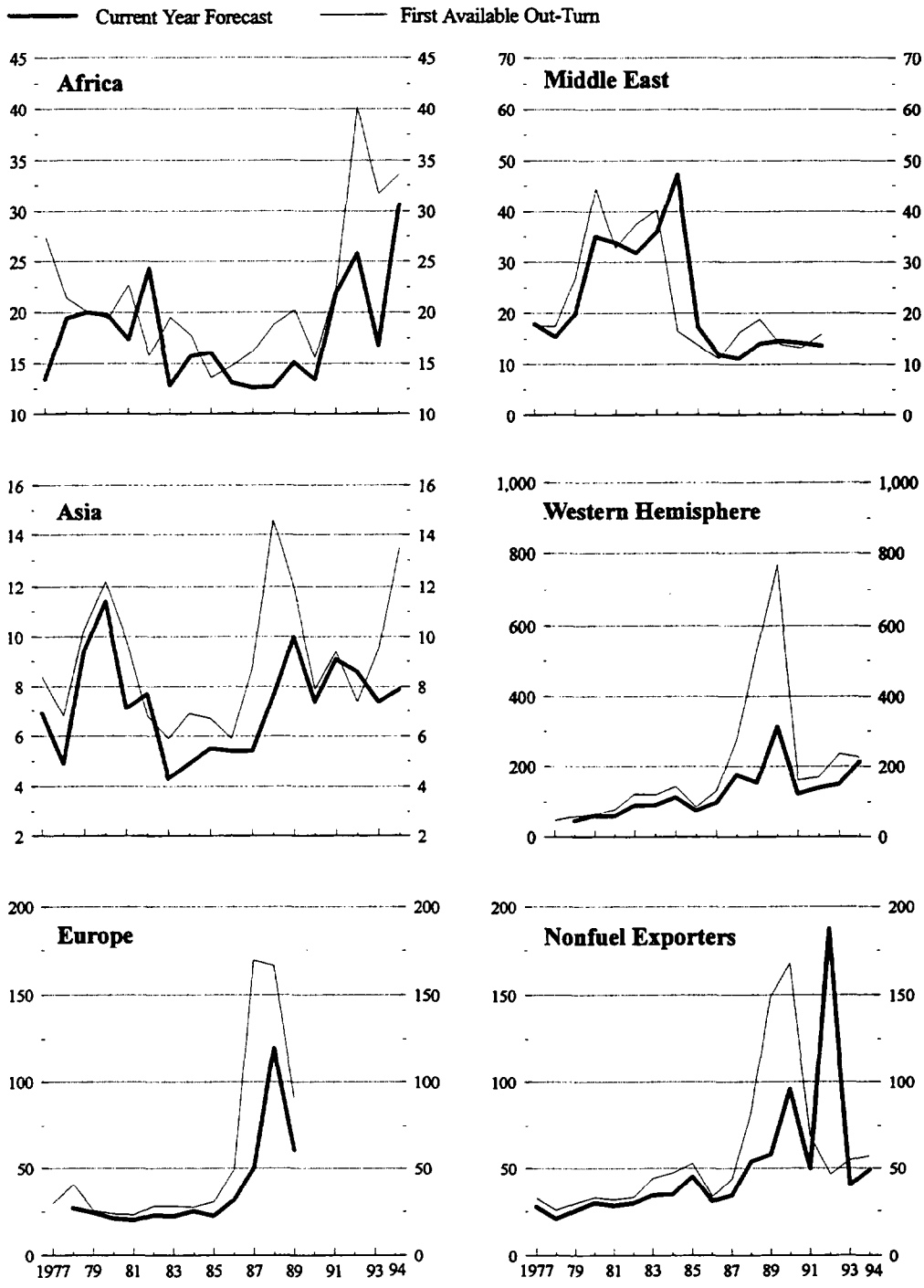


Chart 13. World Economic Outlook Forecast: Inflation in Developing Countries

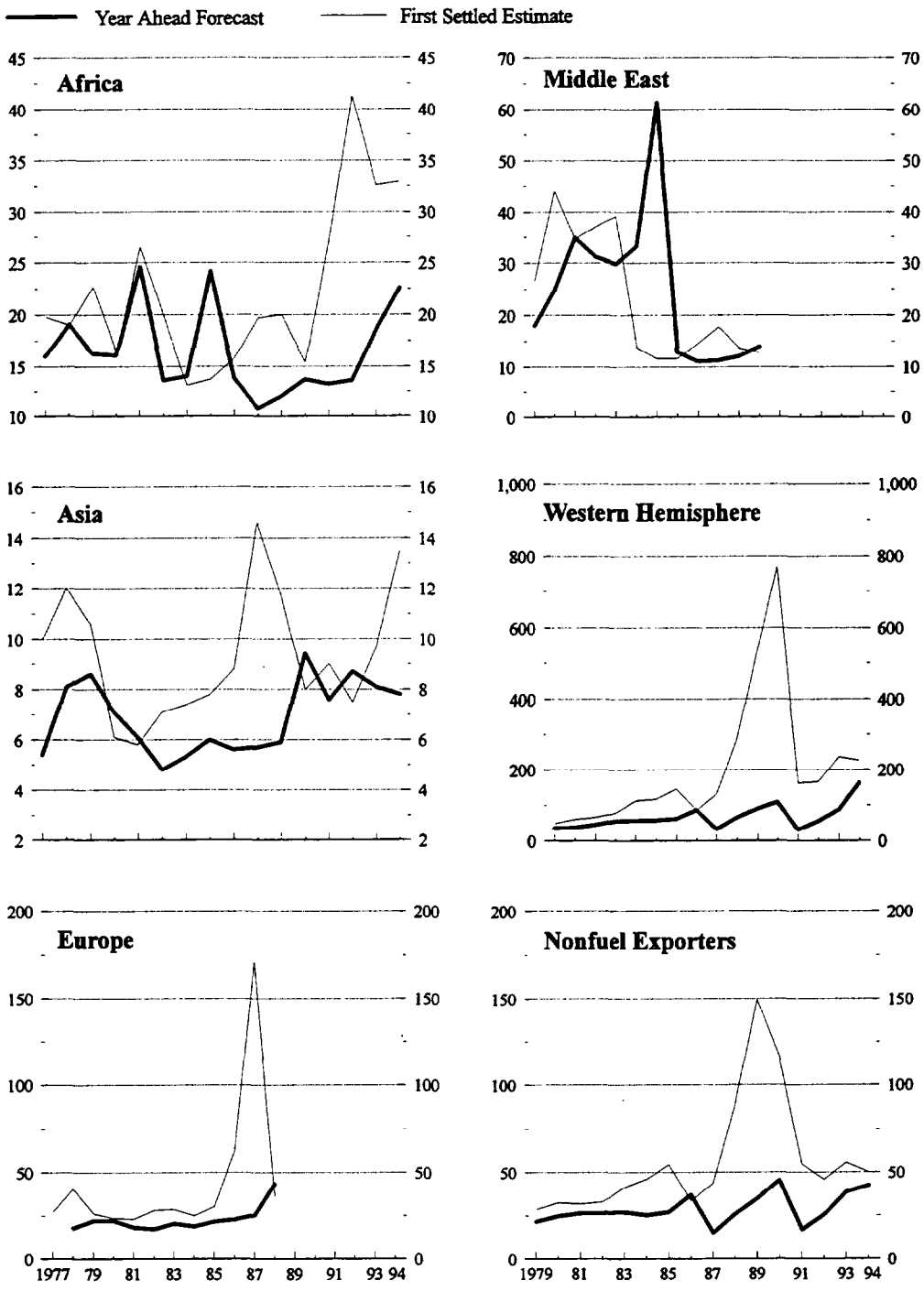
Current Year Forecast and First Available Out-Turn[1]



[1] Note different scales.

Chart 14. World Economic Outlook Forecast: Inflation in Developing Countries

Year Ahead Forecast and First Settled Estimate [1]



[1] Note different scales.

Table 20. Cross-Correlation of Forecast Errors Between GDP Growth and Inflation

	United States	Japan	Germany	France	Italy	United Kingdom	Canada
Current Year							
1971-1994	-.34	-.22	-.35	-.55	-.04	-.33	-.21
1971-1982	-.55	-.26	-.29	-.59	-.02	-.34	-.32
1983-1994	.32	-.23	-.39	-.11	-.20	-.19	.49
Year Ahead							
1973-1994	-.37	-.44	-.27	-.24	.08	-.58	-.08
1973-1982	-.36	-.51	-.69	-.51	-.05	-.78	.06
1983-1994	-.26	-.07	.02	.37	.19	-.25	.37

Table 21. Test for Biasedness and Serial Correlation of Forecast Error in Developing Countries

	Africa	Asia	Europe	Middle East	West Hemisphere	Nonfuel Exports
Current year (1977-1994)			**Test for biasedness**			
GDP growth						
β_0	1.08	-.31	1.61	.26	.56	.11
Significance level	.00	.36	.15	.70	.37	.87
Inflation						
β_0	-3.92	-1.77	-21.23	-.19	-84.52	-8.78
Significance level	.01	.00	.05	.94	.03	.42
Year ahead (1979-1994)						
GDP growth						
β_0	1.07	-.48	1.51	1.32	1.51	.25
Significance level	*.01*	*.32*	*.03*	*.08*	*.03*	*.63*
Inflation						
β_0	-5.85	-2.46	-22.26	1.39	-135.45	-27.86
Significance level	.01	.00	.11	.79	.01	.00
Current year (1977-1994)			**Test for serial correlation (Ljung-Box Q-statistic)**			
GDP growth						
Significance level-Q(1)	1.00	.45	.42	.40	.17	.65
Significance level-Q(2)	.92	.63	.67	.66	.38	.76
Significance level-Q(3)	.35	.82	.81	.83	.40	.74
Inflation						
Significance level-Q(1)	.74	.46	.17	.78	.04	.49
Significance level-Q(2)	.89	.26	.37	.84	.12	.47
Significance level-Q(3)	.96	.30	.55	.93	.21	.21
Year ahead (1979-1994)						
GDP growth						
Significance level-Q(1)	.98	.13	.10	.24	.06	.04
Significance level-Q(2)	.38	.29	.24	.45	.15	.10
Significance level-Q(3)	.53	.47	.34	.64	.02	.07
Inflation						
Significance level-Q(1)	.03	.20	.96	.23	.02	.00
Significance level-Q(2)	.08	.23	.96	.35	.05	.01
Significance level-Q(3)	.13	.19	.99	.46	.11	.03

*Notes: For definitions of the tests etc., see notes to Table 1. Current-year data for Europe cover the period 1980-*1991. Current-year data for Middle East cover the period 1977-1991. Current-year data for Western Hemisphere cover the period 1980-1994. Year-ahead data for Europe cover the period 1980-1990.
Year-ahead data for Middle East cover the period 1979-1990.

Table 22. World Economic Outlook Forecast Accuracy: Real GDP Growth in Developing Countries

(In percent)

	Africa	Asia	Europe	Middle East	Western Hemisphere	Nonfuel Exporters
			Current year (1977-1994)			
Mean absolute actual value	1.98	6.18	3.32	3.43	2.54	4.29
Average absolute error	1.27	1.14	1.81	1.91	1.77	1.74
RMSE	1.34	1.39	3.79	2.48	2.34	2.81
Theil statistic						
Naive 1	1.09	.82	.94	.97	.97	.92
Naive 2	1.14	.84	.71	.79	.86	.99
Regression						
intercept	-1.35	.76	-4.69	.79	.65	2.08
	(.17)	(.78)	(.00)	(.42)	(.57)	(.15)
slope	1.09	.92	2.74	.67	.51	.44
	(.78)	(.87)	(.00)	(.17)	(.22)	(.09)
joint test	.00	.65	.00	.34	.31	.22
$\bar{R}^2$	.41	.16	.92	.35	.05	.05
D-W	2.03	1.58	2.34	1.91	1.23	1.74
			Year ahead (1979-1994)			
Mean absolute actual value	2.03	6.40	2.17	3.24	2.99	4.30
Average absolute error	1.43	1.58	1.75	2.13	2.03	1.64
RMSE	1.67	1.87	2.40	2.63	2.88	2.01
Theil statistic						
Naive 1	.97	.85	1.21	1.02	.79	.81
Naive 2	1.23	.87	1.15	.81	.85	.96
Regression						
intercept	1.69	8.50	1.41	.20	-.48	3.87
	(.23)	(.06)	(.74)	(.89)	(.85)	(.11)
slope	.11	-.35	.00	.65	.73	.10
	(.05)	(.08)	(.50)	(.27)	(.68)	(.09)
joint test	.00	.12	.08	.12	.10	.19
$\bar{R}^2$	-.07	-.05	-.11	.25	.02	-.07
D-W	1.39	.96	.62	1.15	1.02	.92

Notes: For definitions *etc.*, see notes to Table 2. Current-year data for Europe cover the period 1980-1991. Current-year data for Middle East cover the period 1977-1991. Current-year data for Western Hemisphere cover the period 1980-1994. Year-ahead data for Europe cover the period 1980-1990. Year-ahead data for Middle East cover the period 1979-1990.

Table 23. World Economic Outlook Forecast Accuracy: Consumer Prices in Developing Countries

(In percent)

	Africa	Asia	Europe	Middle East	West Hemisphere	Nonfuel Exports
			Current year (1977-1994)			
Mean absolute actual value	21.74	9.04	58.61	22.44	211.96	57.30
Average absolute error	5.17	2.00	21.23	5.26	84.52	24.48
RMSE	6.99	2.64	38.71	8.97	157.82	44.30
Theil statistic	1.07	.98	.92	1.00	.85	1.43
Naive 1	.84	.96	.70	.77	.80	1.10
Naive 2						
Regression	7.52	2.79	-.87	8.28	-98.10	39.78
intercept	(.17)	(.16)	(.95)	(.13)	(.10)	(.02)
slope	.80	.86	1.59	.64	2.43	.36
	(.49)	(.59)	(.09)	(.10)	(.00)	(.02)
joint test	.04	.01	.04	.24	.00	.04
$\bar{R}^2$	.29	.38	.68	.38	.74	.07
D-W	1.43	1.41	2.32	1.61	1.35	.92
			Year ahead (1979-1994)			
Mean absolute actual value	22.24	9.35	44.97	23.18	202.01	56.60
Average absolute error	7.29	2.95	23.63	10.54	135.45	28.30
RMSE	10.07	3.69	46.46	17.01	219.29	40.89
Theil statistic	1.18	.94	1.02	1.42	.89	.95
Naive 1	1.20	1.16	1.03	1.17	1.06	1.12
Naive 2						
Regression	18.06	8.25	23.10	19.91	7.74	7.09
intercept	(.05)	(.03)	(.63)	(.02)	(.94)	(.81)
slope	.26	.16	.96	.13	2.92	1.72
	(.15)	(.10)	(.99)	(.01)	(.16)	(.46)
joint test	.02	.00	.31	.02	.01	.01
$\bar{R}^2$	-.05	-.06	-.08	-.07	.22	.13
D-W	.76	1.13	1.97	.72	.80	.75

Notes: For definitions *etc.*, see notes to Table 2. Current-year data for Europe cover the period 1980-1991. Current-year data for Middle East cover the period 1977-1991. Current-year data for Western Hemisphere cover the period 1980-1994. Year-ahead data for Europe cover the period 1980-1990. Year-ahead data for Middle East cover the period 1979-1990.

Table 24. World Economic Outlook Forecast Accuracy: Balances of Payments on Current Account in Developing Countries

(In billions of U.S. dollars)

	Africa	Asia	Europe	Middle East	Western Hemisphere	Nonfuel Exports
			Current year (1977-1994)			
Mean absolute actual value	8.57	12.96	4.83	12.68	21.16	36.91
Average absolute error	2.18	6.93	1.83	5.12	4.83	8.50
RMSE	3.35	9.18	2.27	7.09	6.50	11.11
Theil statistic						
Naive 1	.99	.93	.70	.40	.74	.71
Naive 2	1.00	.69	.47	.54	.45	.39
Regression						
intercept	-5.26	-.81	.46	2.39	-.87	1.37
	(.05)	(.77)	(.66)	(.35)	(.78)	(.76)
slope	.38	.73	1.05	.90	1.04	.96
	(.04)	(.10)	(.78)	(.47)	(.75)	(.69)
joint test	.11	.14	.90	.08	.53	.47
$\bar{R}^2$	.05	.55	.73	.77	.78	.83
D-W	1.35	1.51	1.38	1.81	1.46	1.72
			Year ahead (1978-1994)			
Mean absolute actual value	8.38	11.49	6.23	9.06	21.77	40.23
Average absolute error	2.49	9.83	5.06	5.52	9.76	20.72
RMSE	3.44	13.32	8.89	7.22	11.34	22.81
Theil statistic						
Naive 1	.79	.96	.85	.89	.67	.69
Naive 2	.86	.93	1.02	.90	.66	.59
Regression						
intercept	-3.11	-1.40	-4.28	3.64	-3.56	-2.58
	(.43)	(.73)	(.31)	(.49)	(.59)	(.81)
slope	.61	.47	-.10	1.02	.94	.83
	(.38)	(.06)	(.19)	(.97)	(.84)	(.45)
joint test	.65	.06	.40	.24	.70	.55
$\bar{R}^2$	.06	.13	-.12	.27	.36	.47
D-W	1.79	1.43	1.27	2.73	.75	.86

Notes: For definitions *etc.*, see notes to Table 2. Current-year data for Europe cover the period 1980-1991. Current-year data for Middle East cover the period 1977-1991. Current-year data for nonfuel exports cover the period 1973-1994. Year-ahead data for Europe cover the period 1981-1990. Year-ahead data for Middle East cover the period 1978-1990.

Table 25. World Economic Outlook Forecast Accuracy: Growth of Export Volumes in Developing Countries

(In percent)

	Africa	Asia	Europe	Middle East	West Hemisphere	Nonfuel Exports
			Current year (1981-1994)			
Mean absolute actual value	3.49	10.14	6.99	5.33	5.45	6.96
Average absolute error	2.23	4.84	5.40	6.98	3.76	2.49
RMSE	3.09	5.76	7.05	8.02	4.54	3.10
Theil statistic						
Naive 1	.73	.89	1.06	.78	.70	.67
Naive 2	.64	1.15	.79	1.02	.80	.79
Regression						
intercept	-.40	12.84	-10.47	1.04	.14	1.82
	(.84)	(.01)	(.10)	(.69)	(.95)	(.33)
slope	.81	-.34	3.23	.15	.75	.83
	(.69)	(.03)	(.12)	(.15)	(.53)	(.55)
joint test	.40	.03	.24	.33	.54	.43
$\bar{R}^2$	.14	-.05	.34	-.10	.17	.28
D-W	.64	2.03	1.65	1.92	1.45	1.92
			Year ahead (1981-1994)			
Mean absolute actual value	3.34	10.49	7.22	5.54	5.80	7.64
Average absolute error	2.29	4.43	5.63	7.10	3.34	3.40
RMSE	3.32	5.50	8.29	8.14	4.52	4.15
Theil statistic						
Naive 1	.52	.83	.76	1.04	.54	.66
Naive 2	.52	1.06	.84	1.00	.78	.97
Regression						
intercept	.36	11.20	-22.16	.64	-.55	7.20
	(.84)	(.05)	(.08)	(.90)	(.88)	(.16)
slope	.52	-.09	5.16	.24	.81	.03
	(.27)	(.11)	(.09)	(.41)	(.74)	(.18)
joint test	.15	.07	.18	.41	.37	.35
$\bar{R}^2$	.04	-.08	.35	-.11	.08	-.06
D-W	1.33	1.80	1.29	2.16	1.34	1.65

Notes: For definitions *etc.*, see notes to Table 2. Current-year data for Europe and Middle East cover the period 1981-1991. Current-year data for nonfuel exports cover the period 1973-1994. Year-ahead data for Europe and Middle East cover the period 1981-1990. Year-ahead data for nonfuel exports cover the period 1977-94.

Table 26. World Economic Outlook Forecast Accuracy: Growth of Import Volumes in Developing Countries

(In percent)

	Africa	Asia	Europe	Middle East	West Hemisphere	Nonfuel Exports
			Current year (1979-1994)			
Mean absolute actual value	3.31	9.21	5.05	6.51	9.03	6.81
Average absolute error	3.46	2.94	5.93	5.76	8.04	3.00
RMSE	4.67	3.89	9.95	7.19	8.83	3.81
Theil statistic:						
Naive 1	1.07	.74	1.52	.91	.94	.69
Naive 2	1.10	.76	1.47	.83	.74	.67
Regression						
intercept	-1.97	1.50	5.98	-3.35	-.71	.25
	(.07)	(.61)	(.03)	(.09)	(.80)	(.88)
slope	.37	.96	-.95	.73	1.28	.96
	(.13)	(.90)	(.00)	(.27)	(.57)	(.88)
joint test	.06	.52	.00	.08	.84	.99
$\bar{R}^2$	-.01	.31	.31	.42	.29	.43
D-W	1.40	2.06	.91	1.37	.69	1.30
			Year ahead (1980-1994)			
Mean absolute actual value	3.83	9.09	3.61	6.23	8.42	7.36
Average absolute error	4.09	3.15	4.16	6.40	7.01	3.43
RMSE	4.95	4.60	5.66	9.29	8.43	4.76
Theil statistic						
Naive 1	.87	.84	1.11	.90	.56	.74
Naive 2	1.03	.88	1.20	1.00	.56	.79
Regression						
intercept	-1.72	4.14	2.54	-4.43	-4.67	.49
	(.19)	(.23)	(.33)	(.14)	(.16)	(.89)
slope	.31	.66	-.07	.58	1.57	.96
	(.25)	(.43)	(.04)	(.47)	(.25)	(.94)
joint test	.12	.30	.06	.12	.35	.98
$\bar{R}^2$	-.05	.09	-.11	.01	.42	.10
D-W	1.99	1.24	1.88	1.14	1.09	1.16

Notes: For definitions *etc.*, see notes to Table 2. Current-year data for Europe cover the period 1980-1991. Current-year data for Middle East cover the period 1979-1991. Current-year data for nonfuel exports cover the period 1973-1994. Year-ahead data for Europe and Middle East cover the period 1980-1990.

to the year ahead forecasts, the suggestion of bias is more widespread: positive growth bias is significant for Africa, Europe and the Western Hemisphere, and a negative inflation bias is evident for all but two of the regions distinguished. The Q-statistic test for up to third order serial correlation, on the other hand, reveals rather little evidence that the forecast errors are autocorrelated: the principal exception is the finding of some first order serial correlation in the year ahead inflation forecast errors for Africa, the Western Hemisphere and the group of non-fuel exporters. Tables 22-26 show the average absolute error of the forecasts (and immediately above, the mean absolute actual value), the RMSE, Theil statistics for two alternatives (Naive 1 - the random walk alternative; Naive 2--the mean reversion alternative), and the weak efficiency realization-forecast regression. Table 22 concerns the forecasts for output growth: it is easy to see that these are little better on average than a random walk assumption would be, as the Theil: Naive 1 statistics are close to (sometimes above) unity. Nor is the evidence from the weak efficiency test reassuring: although for the most part the joint test for efficiency is satisfied, the p-values recorded are generally not high. The criteria suggest that the year-ahead forecasts are less accurate than the current-year projections.

For forecasts of inflation, Table 23 affords a not dissimilar picture. The Theil: Naive 1 statistics are close to, sometimes above, unity whilst the forecasts barely pass and often fail the weak efficiency test. The year ahead projections appear again to be less satisfactory than the current year forecasts. Again, by comparison with the results for the industrial countries (Table 2) the quality of these forecasts is markedly poorer.

The WEO also provides data, for roughly one half of our period, pertaining to the median forecasts for inflation and output growth. The former are available for the regional aggregates quoted in the main tables here, the latter only (except for a very short period) for the developing countries as a bloc. It might be expected that the median figures would be less prone to disturbance by single large country shocks, or by the practice of citing program targets as forecasts, than the average figures processed in Tables 21-26 here. As far as the inflation forecasts go, this speculation is largely confirmed when the median data are substituted for the averages: the results (not shown) involve a large fall in the RMSE and average absolute error statistics. Nevertheless, the quality of the forecasts continues to leave a good deal to be desired as regards conformity with weak efficiency desiderata and acceptably low Theil statistics. The errors in median output growth forecasts, which could only be examined for the developing country group as a whole and not for the regional aggregates, showed no improvement at all in relation to the errors revealed for the average forecasts.

Whilst the balance of payments forecasts for the industrial countries were notably weaker than the output growth and inflation forecasts for those countries this is not obviously the case for the developing countries (Table 24). However, these forecasts are not of high quality either. The export and import volume growth forecasts (Tables 25 and 26) are of comparable quality to the output forecasts: again the value of the Theil: Naive 1 statistics are close to, sometimes above, unity whilst the estimates pass the weak efficiency test with little to spare.

Table 27, finally, examines *WEO* forecasts of commodity prices (other than fuel). Prices of agricultural raw materials, beverages, food, minerals and metals and total nonfuel exports are separately distinguished. These forecasts generally satisfy the weak efficiency test on the parameters of the realization-forecast regression and, when compared to the two naive alternatives, are apparently superior. But their accuracy is not high: the average absolute error of forecast is high in relation to the mean absolute actual value (in one case - the year ahead forecasts for minerals and metals - greater), Theil statistic values are quite high with a number exceeding 0.70; the R^2 of the realization-forecast regression is generally low.

The overall conclusion must be that the developing country forecasts are distinctly weaker than those for the developed industrial group; whilst most of them pass the hurdles set by Theil statistic values less than one and parameter values in the realization-forecast regression which do not reject the standard joint restriction, these are not powerful tests and overall accuracy is not high. This finding qualitatively repeats the conclusion of the earlier study. There are a number of reasons why we might expect it to be the case.

V. Conclusions

The overall conclusions to which this study directs us are not dissimilar from those that were derived in the earlier investigation.

Taking the period as a whole, *WEO* forecasting

- passes most conventional tests in forecasting economic developments in the industrial country group, for the most part, quite easily, but
- the balance of payments is much the worst forecast variable and
- year-ahead forecasts are less good than near term forecasts; yet
- in terms of directional accuracy, the record is less satisfactory, whilst
- the record in anticipating the strength of the boom and subsequently the length of the recession in the last cycle was rather poor; and,
- for the developing countries the record on conventional measures of forecast accuracy is much less good than it is for the developed group;
- comparison with private sector forecasts over a limited period suggests that the major forecasting errors were substantially the same

Table 27. World Economic Outlook Forecast Accuracy: Nonfuel Commodity Prices

(In percent)

	Agricultural Raw Materials	Beverages	Food	Minerals and Metals	Nonfuel Exports
			Current year (1981-1994)		
Mean absolute actual value	7.58	16.79	9.24	11.02	8.07
Average absolute error	5.71	12.88	6.24	10.20	6.32
RMSE	8.03	20.53	8.01	12.47	7.67
Theil statistic					
Naive 1	.58	.75	.53	.75	.61
Naive 2	.67	.79	.59	.79	.66
Regression					
intercept	-2.99	-.41	-1.98	.49	-1.28
	(.25)	(.95)	(.37)	(.89)	(.57)
slope	1.69	.89	1.33	1.05	1.05
	(.16)	(.78)	(.30)	(.91)	(.89)
joint test	.32	.96	.40	.99	.84
$\bar{R}^2$	.49	.23	.58	.22	.42
D-W	2.11	1.09	1.43	1.40	1.59
			Year ahead (1981-1994)		
Mean absolute actual value	7.47	16.81	8.94	11.42	7.91
Average absolute error	6.51	13.91	6.96	13.04	6.09
RMSE	9.02	20.54	9.13	16.03	7.64
Theil statistic					
Naive 1	.51	.76	.47	.73	.50
Naive 2	.72	.78	.66	.93	.61
Regression					
intercept	-1.54	-1.16	-2.25	.74	-.98
	(.61)	(.85)	(.39)	(.87)	(.65)
slope	1.39	1.48	1.27	.30	1.37
	(.54)	(.45)	(.53)	(.18)	(.40)
joint test	.80	.74	.57	.37	.64
$\bar{R}^2$	.23	.27	.40	-.05	.42
D-W	1.48	1.32	1.10	1.24	1.28

Note: For definitions *etc.*, see notes to Table 2.

At this point we can return to the issue whether any improvement is detectable through time in *WEO* forecasting. There are a number of reasons why there should be improvement: there is the cumulation of experience, there have been significant advances in data processing which should improve timeliness and there is the competition offered by the large increase in economic forecasting practice around the world. At the same time it is clear that there are changes in the stochastic structure of the world economy. Earlier in the study we noted that on the basis of summary statistics of forecast accuracy, little could be said regarding change in forecast accuracy between the first half of our sample period and the second. A different type of comment might be prompted by the relative experiences in cyclical turning point prediction. In the last study it could be seen that the forecasting record for events following the second oil price rise was better than that for the period following the first; and it also seemed reasonable to excuse the forecasters for not having foreseen the price increases themselves. Thus the two major cycles associated with the oil price shocks were of a character such that the forecast record actually emerged rather well. The period since the mid-1980s has been rather different. The prevalence of supply shocks is not so obvious (although there is the 1986 fall in oil prices and the 'mixed' but substantial shock of German unification); the major world boom towards the end of the decade and the following deep recession appear to be endogenous to the development of the economy in a way that provides fewer obvious 'excuses' to forecasters. The greatest weakness of the subsequent forecast record lies therefore in the failure to anticipate in timely fashion this cycle. If the judgement is right that this cycle was largely endogenous to the natural momentum of a world economy now more integrated then ever before and substantially less regulated than in earlier decades, the forecasters will do well to learn from it: it is too early to say how successful this learning process will be.

Table A1. Classification and Calibration of Forecasts in *The World Economic Outlook* (WEO)

Current year forecast and first available out-turn			**Year ahead forecast and first settled estimate**		
Publication	Forecast	Out-turn	Publication	Forecast	Estimate
May 27, 1971	1971	--			
April 13, 1972	1972	1971	January 31, 1973	1973	--
June 14, 1973	1973	1972	December 21, 1973	1974	--
May 23, 1974	1974	1973	December 24 & 31, 1974	1975	1973
May, 23, 1975	1975	1974	December 12, 15 & 16, 1975	1976	1974
July 9, 1976	1976	1975	March 3, 1977	1977	1975
July 5, 1977	1977	1976	December 27, 1977	1978	1976
			or April 4, 1978	1978	1976, 1977
April 4, 1978	1978	1977	December 1, 1978	1979	1977
			or February 15, 1979	1979	--
February 15 or June 11, 1979	1979	1978	August 30, 1979	1980	1978
			or May 1980[1]	1980	1978, 1979
May 1980[1]	1980	1979	August 22, 1980	1981	1979
			or June 1981[1]	1981	1980
June 1981[1]	1981	1980	August 24, 1981	1982	1980
			or April 1982[1]	1982	1981
April 1982[1]	1982	1981	August 2, 1982	1983	1981
			or May 1983[1]	1983	1982
May 1983[1]	1983	1982	August 19, 1983	1984	1982
			or April 1984[1]	1984	1983
April 1984[1]	1984	1983	September 1984[1]	1985	1983
April 1985[1]	1985	1984	October 1985[1]	1986	1984
April 1986[1]	1986	1985	October 1986[1]	1987	1985
April 1987[1]	1987	1986	October 1987[1]	1988	1986
April 1988[1]	1988	1987	October 1988[1]	1989	1987
April 1989[1]	1989	1988	October 1989[1]	1990	1988
May 1990[1]	1990	1989	October 1990[1]	1991	1989
May 1991[1]	1991	1990	October 1991[1]	1992	1990
May 1992[1]	1992	1991	October 1992[1]	1993	1991
May 1993[1]	1993	1992	October 1993[1]	1994	1992
May 1994[1]	1994	1993	October 1994[1]	--	1993
May 1995[1]	--	1994	October 1995[1]	--	1994

Notes:
The table shows, for each of the documents listed, the forecast and out-turn information to be found in it. For example, the April 1984 issue of The World Economic Outlook contains current year forecast data for 1984 and, as well, first available estimates for 1983. Occasionally the complete data set is to be found only in two or more documents (more details may be found in Tables B1-B12 and C1-C12). The superscript (1) indicates a published document; as shown by the absence of the superscript, many of the earlier documents were not published, being circulated only within the Fund.

Table A2. Basic Sample Distribution Statistics: Current Year Forecasts and Realizations

		United States	Japan	Germany	France	Italy	United Kingdom	Canada
GDP Growth								
Mean:	Realization	2.60	4.27	2.16	2.45	2.09	1.53	2.85
	Forecast	2.68	4.37	2.34	2.54	2.22	1.68	3.07
Standard deviation:	Realization	2.56	2.79	2.19	2.01	2.24	2.26	2.55
	Forecast	2.57	2.60	1.95	1.72	1.54	2.15	2.18
Skewness:	Realization	-.32	.13	-.83	-.21	-.62	.09	-1.23*
	Forecast	-.60	1.66**	.07	.51	-.86	-.32	-.19
Kurtosis:	Realization	-.44	.91	.76	.56	.73	-.26	2.47*
	Forecast	.85	3.91**	.76	-.45	1.15	.60	-.16
Inflation								
Mean:	Realization	5.11	3.77	4.08	6.75	11.15	9.12	5.83
	Forecast	5.13	4.23	4.12	6.49	10.61	8.66	5.69
Standard deviation:	Realization	2.48	4.62	1.80	3.61	5.49	5.93	3.62
	Forecast	2.38	4.39	1.54	3.51	5.61	5.30	2.99
Skewness:	Realization	.83	2.61**	.73	.08	.24	1.52**	.38
	Forecast	.78	2.42**	.82	.33	.44	1.29*	.35
Kurtosis:	Realization	-.60	8.03**	.05	-1.43	-1.50	2.78*	-.99
	Forecast	-.73	6.91**	.27	-1.10	-1.43	1.29	-1.08
Balances of Payments on Current Account								
Mean:	Realization	-57.29	41.81	7.52	-1.70	-3.51	-5.47	-7.56
	Forecast	-56.25	39.98	8.87	-1.62	-3.37	-6.18	-6.82
Standard deviation:	Realization	61.57	46.41	23.88	5.67	9.27	11.95	8.00
	Forecast	57.83	45.61	21.99	4.84	9.42	11.29	6.85
Skewness:	Realization	-.41	.71	.60	.51	-.43	-.83	-.88
	Forecast	-.42	.82	.90	1.08	1.04	-.81	-.61
Kurtosis:	Realization	-1.55	-.76	-.54	.02	.43	.58	-.40
	Forecast	-1.64	-.36	.66	.96	3.94**	-.29	-.40
Growth of Export Volumes								
Mean:	Realization	6.47	5.26	4.75	4.85	5.34	4.08	5.84
	Forecast	5.86	4.60	4.80	4.93	5.47	3.93	3.95
Standard deviation:	Realization	8.35	6.79	6.44	4.81	4.53	4.00	6.80
	Forecast	6.79	5.60	3.59	3.22	3.30	3.20	4.26
Skewness:	Realization	.02	1.01	-.70	-.38	-.72	.10	.48
	Forecast	-.01	1.24*	.40	.91	1.38*	.73	.18
Kurtosis:	Realization	.93	.33	1.55	.00	2.52*	-.20	1.57
	Forecast	.84	4.36**	.83	2.81*	1.17	2.52*	.07
Growth of Import Volumes								
Mean:	Realization	6.72	5.91	5.31	4.76	4.34	4.75	6.33
	Forecast	5.13	6.53	5.51	4.70	5.00	4.10	4.27
Standard deviation:	Realization	8.69	8.68	6.20	6.50	7.54	5.59	7.96
	Forecast	5.98	5.97	3.80	4.45	4.15	3.61	4.46
Skewness:	Realization	-.16	.16	-.89	-.18	-.67	-.61	-.62
	Forecast	.65	1.00	1.02	.91	-.50	-.41	.50
Kurtosis:	Realization	.20	1.12	2.47*	.91	-.21	-.10	1.00
	Forecast	1.58	3.81**	1.09	1.61	1.17	.05	.24

Note:
'**' indicates skewness or kurtosis at 1% significance level; '*' at 5% significance level.

Table A3. Basic Sample Distribution Statistics: Year Ahead Forecasts and Realizations

		United States	Japan	Germany	France	Italy	United kingdom	Canada
GDP Growth								
Mean:	Realization	2.52	3.93	2.16	2.21	2.11	1.69	2.57
	Forecast	2.79	4.69	2.77	2.73	2.44	2.13	3.35
Standard deviation:	Realization	2.61	2.61	2.25	1.76	2.31	2.30	2.50
	Forecast	2.06	2.01	.98	1.18	1.36	1.18	1.39
Skewness:	Realization	-.43	.04	-.72	.07	-.61	-.33	-1.09
	Forecast	-.49	1.96**	.80	1.21*	.39	-.21	-.03
Kurtosis:	Realization	-.60	1.24	.32	.22	.60	-.59	1.78
	Forecast	.40	4.42**	.27	2.11	1.78	1.73	-.38
Inflation								
Mean:	Realization	5.30	3.65	3.82	7.15	11.46	9.14	6.02
	Forecast	5.25	4.10	3.85	6.65	10.65	8.13	5.64
Standard deviation:	Realization	2.61	4.80	1.62	4.16	5.49	6.09	3.81
	Forecast	2.02	3.86	1.45	3.61	5.31	4.55	2.54
Skewness:	Realization	.68	2.61**	1.00	.13	.10	1.60**	.38
	Forecast	.89	1.95**	.72	.26	.37	1.13*	.45
Kurtosis:	Realization	-.91	7.66**	1.10	-1.48	-1.60	3.08*	-.98
	Forecast	-.11	3.88**	.33	-1.40	-1.15	.66	-.26
Balances of Payments on Current Account								
Mean:	Realization	-53.79	42.17	10.92	-1.16	-2.96	-3.82	-7.75
	Forecast	-54.61	38.80	12.48	-1.38	-4.35	-4.32	-6.44
Standard deviation:	Realization	61.40	46.14	23.43	5.42	9.94	12.60	8.63
	Forecast	61.28	42.04	18.64	3.94	8.77	10.99	6.79
Skewness:	Realization	-.40	.71	.42	.61	-.48	-.69	-.93
	Forecast	-.30	.80	.36	.16	-1.85**	-.87	-.81
Kurtosis:	Realization	-1.58	-.76	-.47	-.16	.64	.07	-.32
	Forecast	-1.77	-.20	1.15	-.66	4.78**	-.62	-.53
Growth of Export Volumes								
Mean:	Realization	6.44	5.63	4.71	4.65	5.19	4.16	6.62
	Forecast	5.19	4.75	4.93	5.43	5.25	4.04	4.44
Standard deviation:	Realization	8.36	6.86	5.95	4.41	4.42	3.82	5.69
	Forecast	5.94	4.49	2.38	2.39	3.20	2.78	3.04
Skewness:	Realization	.00	1.02	-.30	-.51	-.98	-.12	.64
	Forecast	-.76	-1.17*	.67	1.21*	2.43**	-.12	.06
Kurtosis:	Realization	.93	.30	1.42	-.47	2.56**	-.25	1.54
	Forecast	.53	1.89	.24	1.58	7.19**	2.51*	-.13
Growth of Import Volumes								
Mean:	Realization	6.62	5.13	5.02	4.92	4.10	4.39	6.00
	Forecast	5.14	6.43	5.19	5.00	4.96	4.17	4.10
Standard deviation:	Realization	8.78	8.37	5.56	5.92	7.69	5.63	7.49
	Forecast	4.67	4.93	3.00	3.38	3.91	2.80	3.58
Skewness:	Realization	.16	.43	-.17	.25	-.73	-.50	-.96
	Forecast	.62	1.03	.44	.73	-.20	-.10	.74
Kurtosis:	Realization	.21	2.03	-.02	.67	-.12	-.27	1.49
	Forecast	-.07	2.81*	.17	1.76	.82	1.11	1.55

Note:
'**' indicates skewness or kurtosis at 1% significance level; '*' at 5% significance level.

Table B1. Industrial Countries: Real GDP: Current Year Forecasts and First Available Out-Turns (F.A.)
(Annual Percent Change)

	United States		Japan		Germany[8]		France		Italy		United Kingdom		Canada		All Industrial[6]		Summit Seven		Europe[6,7]	
	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.
1971	3.0	2.7	9.5	6.1	3.3	2.9	5.3	5.4	4.0	1.4	1.5	0.9	5.2	5.4	4.0	3.2	4.0	3.2	3.6[2]	2.8[5]
1972	6.0	6.4	6.0	9.2	2.0	2.9	4.7	5.7	3.0	3.2	4.7	2.3	6.6	5.8	5.1	5.6	5.3	5.8[4]	3.4[3]	3.7
1973	7.0	5.9	12.7	11.0	5.8	5.3	6.1	6.1	4.5	5.9	6.5	6.6	7.3	7.1	7.1	6.4	7.5[1]	6.7[4]	5.6	5.6
1974	0.0	-2.1	2.0	-1.8	2.0	0.4	4.5	3.9	4.0	3.4	-1.0	0.3	5.2	3.7	1.5	-0.2	1.3[1]	-0.5[4]	2.6	2.0
1975	-4.0	-2.0	2.3	2.0	0.5	-3.4	1.8	-2.5	-2.0	-3.7	0.8	-1.7	-0.7	0.6	-1.1	-1.6	-1.5[1]	-1.6[4]	0.7	-2.6
1976	6.8	6.1	6.6	6.3	6.8	5.7	5.5	5.2	2.2	5.6	2.9	1.3	5.3	4.9	5.7	5.4	6.1	5.6	4.7	4.4
1977	5.1	4.9	6.1	5.1	4.5	2.5	3.4	2.7	1.5	1.7	0.9	0.0	3.3	2.6	4.4	3.7	4.5	3.9	3.1	2.0
1978	4.5	4.0	5.7	5.6	3.1	3.4	3.1	3.3	2.6	2.6	2.9	3.3	4.5	3.4	4.0	3.8	4.2	4.0	2.8	2.9
1979	3.0	2.3	5.0	6.0	4.0	4.4	3.5	3.3	4.5	5.0	2.5	1.1	3.5	2.9	3.5	3.4	3.5	3.5	3.5	3.4
1980	-1.0	-0.2	4.0	4.2	2.5	1.8	1.8	1.2	3.0	4.0	-2.2	-1.7	0.2	0.1	1.0	1.2	0.8	1.2	1.5	1.4
1981	2.4	2.0	4.0	2.9	-0.9	-0.3	0.4	0.8	0.2	-0.2	-2.8	-2.1	2.5	3.0	1.5	1.2	1.6	1.4	-0.4	-0.3
1982	-1.0	-1.7	3.5	3.0	1.0	-1.1	2.1	1.6	2.3	-0.3	0.8	0.7	-0.5	-4.8	0.8	-0.3	0.7	-0.4	1.5	0.2
1983	2.4	3.3	2.8	3.1	0.5	1.3	0.0	0.6	-0.1	-1.4	1.5	2.9	1.9	3.0	1.6	2.3	1.8	2.5	0.6	1.1
1984	5.0	6.8	3.9	5.8	2.6	2.6	0.6	1.8	1.9	2.6	2.6	2.4	5.0	4.7	3.6	4.9	3.9	5.1	1.9	2.4
1985	3.4	2.2	4.3	4.6	2.7	2.4	1.4	1.1	2.8	2.2	3.0	3.3	3.2	4.5	3.1	2.8	3.2	2.7	2.4	2.3
1986	2.9	2.5	3.0	2.5	3.7	2.4	2.4	2.2	2.3	2.8	2.8	2.5	3.3	3.1	3.0	2.4	3.0	2.5	2.9	2.4
1987	2.3	2.9	2.7	4.2	1.9	1.7	1.8	2.1	2.9	2.8	3.0	4.5	2.0	3.9	2.3	3.1	2.4	3.1	2.2	2.6
1988	2.9	3.9	4.1	5.7	1.7	3.4	1.6	3.4	2.5	3.8	3.0	4.4	3.4	4.5	2.8	4.1	2.9	4.2	2.0	3.6
1989	3.1	3.0	4.5	4.9	2.4	4.0	2.8	3.4	3.4	3.2	3.3	2.3	2.9	2.9	3.3	3.5	3.4	3.5	2.8	3.4
1990	1.7	1.0	4.4	5.6	3.5	4.5	3.1	2.8	3.0	1.9	1.1	0.6	1.6	0.9	2.7	2.5	2.7	2.6	2.7	2.6
1991	0.2	-0.7	3.6	4.5	2.8	3.1	2.1	1.2	1.7	1.0	-2.1	-2.2	-1.1	-1.5	1.3	0.8	1.3	0.8	1.4	0.8
1992	1.6	2.1	2.2	1.3	1.3	1.5	1.8	1.8	1.6	0.9	0.8	-0.6	2.3	0.9	1.8	1.5	1.7	1.6	1.8	1.1
1993	3.2	3.0	1.3	0.1	-2.0	-1.9	0.0	-0.7	0.3	-0.7	1.4	1.9	3.2	2.4	1.7	1.2	1.9	1.4	0.1	-0.3
1994	3.9	4.1	0.7	0.6	0.5	2.3	1.2	2.5	1.1	2.5	2.5	3.8	3.5	4.5	2.4	3.0	2.5	3.1	1.3	2.8

1. Constructed from country detail using 1971 GNP weights, Main Economic Indicators (MEI), December 1972.
2 & 3. Constructed as residual from detail shown using GNP weights from MEI December 1972, November 1971, the "first available".
4. Constructed from country detail and 1971 GNP weights, MEI, December 1972.
5. Constructed as residual from figures shown and 1970 GNP weights, MEI, November 1971.
6. Definitions of "All Industrial" and "European" were changed with effect from 1980 on; these figures are reconstructed from country detail on old definitions.
7. Definition of "European" was changed from "European countries" to "European Community" in 1992 and subsequently to "European Union" in 1994.
8. Germany is West Germany throughout.

Table B2. Industrial Countries: Inflation (GDP Deflator): Current Year Forecasts and First Available Out-Turns (F.A.)
(Annual Percent Change)

	United States		Japan		Germany[7]		France		Italy		United Kingdom		Canada		All Industrial[5]		Summit Seven		Europe[5,6]	
	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.
1971	4.6	4.6	5.0	4.3	6.3	7.7	4.5	5.5	5.5	6.7	7.5	11.1	3.6	3.4	5.0	5.6	4.9	5.5	5.7[1]	7.7[3]
1972	3.3	3.0	4.8	4.8	5.5	6.1	5.2	5.6	5.0	5.9	9.0	6.5	3.6	4.6	4.4	4.4	4.3	4.2[4]	4.6[1]	6.4
1973	4.2	5.4	6.4	12.2	6.5	5.9	5.8	7.2	8.0	11.2	7.0	8.0	5.0	7.1	5.4	7.1	5.4[2]	7.1[4]	6.9	7.7
1974	8.5	10.3	20.0	20.9	8.0	6.6	10.5	9.6	10.2	16.3	15.9	12.6	9.0	13.1	10.8	11.7	10.9[2]	11.9[4]	10.3	9.7
1975	9.3	8.8	12.6	7.3	6.3	8.2	9.0	12.7	19.3	17.4	23.3	27.6	11.1	10.7	10.8	10.6	10.8[2]	10.5[4]	11.5	13.6
1976	5.5	5.1	6.8	6.4	3.8	3.1	9.4	9.7	19.0	17.8	15.5	15.2	9.0	9.5	7.6	7.2	7.5	7.1	9.6	9.2
1977	5.8	5.5	5.8	6.3	3.7	3.6	8.7	9.3	19.5	19.5	13.0	15.4	7.0	6.5	6.9	7.1	7.0	7.1	8.6	8.9
1978	6.2	7.3	3.9	4.8	3.5	3.9	8.1	9.9	12.5	13.3	9.5	10.1	6.0	6.8	6.2	7.0	6.1	7.2	7.0	7.6
1979	9.0	8.8	4.0	2.0	4.0	3.8	9.5	9.6	14.5	15.1	10.0	13.9	7.5	9.9	7.5	7.6	8.0	7.6	7.5	8.5
1980	9.0	9.0	7.7	3.1	5.0	5.0	10.4	11.6	18.5	20.3	18.7	18.8	10.3	10.5	9.6	9.0	9.6	9.0	10.3	10.7
1981	9.6	9.2	4.4	2.9	5.0	4.3	11.9	11.0	18.0	17.6	11.0	12.5	9.8	10.0	8.9	8.4	8.9	8.3	9.6	9.6
1982	7.0	6.0	2.3	2.0	4.5	4.8	13.7	12.1	17.0	17.5	10.0	8.0	9.8	10.6	7.6	7.2	7.5	6.7	9.8	9.5
1983	4.1	4.2	1.7	0.7	4.0	3.2	9.8	9.2	15.1	15.0	6.0	5.1	8.3	6.2	5.6	5.1	5.1	4.7	8.0	7.2
1984	4.1	3.8	0.7	0.5	3.0	1.9	7.2	7.0	12.2	10.7	5.0	4.2	4.9	3.0	4.5	4.1	4.2	3.6	6.1	5.7
1985	3.8	3.3	1.4	1.7	2.2	2.1	6.1	5.9	9.0	9.0	5.0	6.1	3.0	3.2	3.9	3.9	3.7	3.6	5.1	5.3
1986	3.3	2.6	1.1	1.8	2.6	3.3	4.3	5.3	8.6	9.1	3.7	3.6	3.9	2.8	3.4	3.4	3.2	3.1	4.3	5.0
1987	2.8	3.0	1.1	-0.1	2.5	2.1	3.0	3.2	5.7	5.8	4.6	4.4	3.5	4.6	2.9	2.9	2.7	2.7	3.6	3.6
1988	3.2	3.4	1.2	0.5	2.0	1.5	2.5	2.8	5.0	5.4	4.8	6.0	4.0	4.2	3.0	3.1	2.9	2.9	3.3	3.6
1989	4.7	4.2	1.4	1.5	2.5	2.5	3.2	2.7	6.1	6.3	6.6	6.7	4.3	4.9	3.8	3.9	3.8	3.6	4.1	4.6
1990	4.1	4.2	1.9	1.9	2.9	3.4	3.3	3.0	6.5	7.6	5.1	6.1	4.0	3.1	3.9	4.1	3.6	3.8	4.6	5.2
1991	3.7	3.7	2.6	1.9	3.9	4.5	3.3	2.9	6.1	7.5	6.6	6.9	4.3	2.7	4.1	3.9	3.8	3.8	5.1	5.5
1992	2.4	2.6	2.1	1.8	4.3	4.5	2.5	2.7	5.2	4.7	4.4	4.6	2.4	1.0	3.2	3.1	3.0	3.0	4.5	4.6
1993	2.6	2.6	1.5	1.0	3.9	3.9	2.0	2.1	4.7	4.4	2.5	3.4	1.1	0.8	2.8	2.6	2.7	2.5	3.6	3.6
1994	2.2	2.1	1.2	0.2	3.0	2.0	1.9	1.4	3.5	3.5	3.1	2.0	1.1	0.6	2.3	1.9	2.2	1.7	3.1	2.6

1. Constructed as residual of figures shown, using 1970, 1971 GNP weights (Main Economic Indicators (MEI), November 1981, December 1982).
2. Constructed from country detail using GNP weights.
3. Calculated as residual from figures shown using 1970 GNP weights (MEI November 1971).
4. Constructed from country detail using first available GNP weights.
5. Definitions of "All Industrial" and "European" were changed with effect from 1980 on; these figures are reconstructed from country detail on old definitions.
6. Definition of "European" was changed from "European countries" to "European Community" in 1992 and subsequently to "European Union" in 1994.
7. Germany is West Germany throughout.

Table B3. Industrial Countries: Balances of Payments on Current Account[1]: Current Year Forecasts and First Available Out-Turns (F.A.)
(in billions of U.S. dollars)

	United States		Japan		Germany[2]		France		Italy		United Kingdom		Canada		Summit Seven	
	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.
1971	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1972	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1973	-5.7	3.1	5.2	-0.1	0.3	4.7	0.9	0.2	1.1	-3.2	-1.6	-3.6	-0.7	-0.3	-0.5	0.8
1974	1.0	-4.0	-6.4	-4.7	3.6	9.3	-6.3	-6.2	-7.9	-7.9	-10.4	-9.0	-0.8	-1.9	-27.2	-24.4
1975	0.5	11.9	-0.9	-0.7	8.8	3.9	-4.1	0.3	-3.6	-0.5	-5.5	-3.8	-4.8	-4.9	-9.6	6.2
1976	-2.2	-0.6	2.6	3.7	2.7	2.9	-3.3	-6.0	-2.1	-2.9	-2.8	-2.5	-4.6	-4.2	-9.7	-9.6
1977	-10.5	-20.2	5.1	11.0	3.0	3.5	-3.8	-3.1	-0.9	2.2	0.2	0.0	-3.7	-4.0	-10.6	-10.6
1978	-19.1	-16.0	11.4	16.6	4.0	8.7	-1.9	4.0	1.9	6.3	1.0	0.5	-3.0	-4.6	-5.7	15.5
1979	-10.0	-0.3	5.0	-8.6	5.5	-5.7	2.0	2.4	3.5	5.2	1.5	-5.2	-4.0	-4.4	3.5	-16.6
1980	-3.0	3.7	-16.5	-10.7	-15.0	-16.0	-4.0	-7.4	-4.0	-9.8	-2.5	6.0	-6.0	-1.3	-51.0	-35.5
1981	9.0	6.6	-2.0	4.8	-14.0	-7.6	-8.0	-7.9	-9.5	-8.0	8.5	16.2	-2.5	-5.5	-18.5	-1.5
1982	0.0	-8.1	12.0	6.9	4.0	3.3	-7.5	-12.0	-7.0	-5.5	9.0	6.9	-5.0	2.2	5.5	-6.3
1983	-25.0	-39.3	17.0	21.0	7.5	3.3	-5.0	-3.8	-1.5	0.3	3.0	3.1	4.5	0.6	1.0	-14.9
1984	-73.0	-101.6	27.5	35.0	4.0	6.3	0.0	0.0	0.5	-3.2	2.0	0.3	-1.5	1.5	-40.5	-61.3
1985	-124.0	-117.7	39.4	49.7	11.0	13.2	0.5	0.3	-5.5	-3.7	1.8	3.8	2.1	-1.9	-74.7	-56.2
1986	-110.5	-140.6	72.0	86.0	25.4	36.0	9.0	3.7	2.1	4.7	3.9	-1.6	-4.2	-6.3	-2.4	-18.1
1987	-138.9	-160.7	83.0	86.7	34.9	44.2	3.6	-4.4	3.8	0.0	-4.9	-2.8	-8.8	-7.2	-27.3	-44.2
1988	-141.1	-135.3	77.8	79.5	41.4	48.5	-2.9	-3.8	-1.0	-4.2	-7.3	-26.2	-10.7	-9.2	-43.7	-50.7
1989	-139.3	-106.0	84.0	57.2	49.7	52.8	-2.0	-3.3	-5.3	-10.9	-30.3	-34.2	-13.8	-16.6	-57.0	-61.1
1990	-113.3	-99.3	57.4	35.7	62.3	44.5	-3.9	-7.5	-11.5	-15.7	-25.7	-22.8	-20.2	-13.7	-54.9	-78.8
1991	-37.8	-8.6	42.0	72.6	9.8	-20.7	-6.8	-5.7	-17.5	-19.3	-15.6	-7.8	-10.2	-23.4	-36.2	-12.9
1992	-53.4	-62.4	93.3	117.6	-14.1	-25.1	-4.5	2.8	-20.2	-25.2	-14.9	-21.0	-18.4	-23.7	-32.1	-37.0
1993	-101.0	-109.2	137.2	131.4	-26.7	-21.9	2.0	10.5	-15.7	10.6	-26.0	-16.0	-19.2	-19.5	-49.2	-14.2
1994	-140.3	-155.7	133.4	129.3	-13.0	-22.6	10.3	9.6	26.2	13.5	-19.4	-0.6	-14.5	-18.1	-17.3	-44.6

1. Figures include official transfers.
2. Data through June 1990 apply to West Germany only.

Table B4. Industrial Countries: Growth of Export Volumes: Current Year Forecasts and First Available Out-Turns (F.A.)
(Annual Percent Change)

	United States		Japan		Germany[2]		France		Italy		United Kingdom		Canada		All Industrial		Summit Seven	
	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.
1971	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.
1972	*8.5*	9.3	*6.9*	6.6	*3.9*	8.5	*7.4*	14.3	*7.5*	14.2	*4.5*	-1.1	*6.5*	9.8	*6.0*	8.9	*6.4*	8.5
1973	*17.0*	23.8	*9.0*	5.0	*12.8*	18.0	*14.4*	10.9	*13.7*	4.4	*8.3*	12.2	*13.0*	9.2	*12.7*	13.4	*13.4*	14.8
1974	*7.5*	8.2	*5.4*	15.8	*9.0*	12.3	*6.4*	10.2	*11.1*	6.9	*2.3*	6.8	*0.3*	-5.9	*6.3*	7.7	*6.4*	8.3
1975	*0.1*	-2.5	*3.6*	2.0	*-3.0*	-10.4	*-1.7*	-3.8	*4.0*	1.7	*1.9*	-4.0	*-4.8*	-7.1	*-0.5*	-4.5	*-0.3*	-4.1
1976	*3.3*	3.4	*22.9*	21.8	*12.1*	12.4	*9.9*	9.2	*12.8*	12.2	*8.8*	8.3	*10.3*	11.3	*10.4*	10.5	*10.1*	10.0
1977	*3.4*	0.5	*8.9*	5.3	*7.4*	5.6	*8.2*	6.6	*8.9*	6.0	*6.7*	8.2	*11.0*	9.9	*6.9*	4.4	*7.1*	5.4
1978	*6.3*	7.7	*3.0*	-1.1	*4.2*	5.5	*6.4*	6.3	*3.6*	6.5	*3.3*	3.8	*5.1*	7.9	*4.7*	5.7	*4.9*	5.8
1979[1]	*9.2*	9.6	*-1.4*	-1.3	*5.9*	7.4	*5.5*	8.8	*6.0*	7.1	*5.4*	3.6	*4.1*	2.6	*5.3*	6.5	*5.9*	6.0
1980	*7.9*	8.3	*9.0*	17.6	*4.7*	4.0	*4.3*	3.2	*2.0*	-7.9	*2.9*	1.8	*-0.5*	0.5	*4.8*	4.5	*5.2*	5.1
1981	*-1.4*	-3.3	*7.0*	10.5	*3.5*	5.3	*2.2*	5.2	*2.0*	4.7	*-3.4*	-1.4	*2.5*	3.2	*1.7*	2.6	*1.6*	3.0
1982	*-8.5*	-12.0	*4.0*	-3.0	*6.5*	1.9	*3.0*	-3.9	*5.5*	0.3	*4.0*	0.8	*-1.5*	-0.2	*2.0*	-2.5	*1.0*	-3.6
1983	*-7.2*	-6.8	*0.9*	8.7	*1.6*	0.4	*4.0*	4.0	*2.5*	5.1	*1.7*	1.4	*3.1*	7.4	*0.6*	2.0	*0.0*	1.1
1984	*1.3*	8.6	*6.0*	14.8	*4.5*	9.2	*4.9*	6.0	*3.4*	5.6	*4.3*	7.1	*7.8*	24.4	*4.4*	9.9	*4.3*	10.3
1985	*3.8*	-1.2	*6.4*	4.8	*8.4*	6.4	*4.0*	1.9	*4.1*	6.5	*4.9*	5.8	*6.4*	4.2	*5.3*	3.9	*5.6*	3.5
1986	*3.3*	7.8	*-1.8*	-1.4	*4.0*	1.2	*3.4*	0.2	*3.5*	2.2	*3.0*	3.7	*4.2*	2.6	*2.7*	2.9	*2.5*	2.5
1987	*12.7*	12.1	*-4.0*	-2.0	*0.5*	2.4	*3.0*	1.3	*2.5*	3.1	*2.4*	5.7	*3.3*	6.4	*3.4*	4.3	*3.3*	4.4
1988	*21.3*	24.1	*-4.2*	4.3	*2.0*	7.6	*3.9*	6.9	*3.8*	6.4	*2.7*	0.2	*2.5*	9.3	*4.6*	8.7	*5.1*	9.4
1989	*11.3*	12.0	*5.9*	3.9	*5.6*	7.7	*5.4*	9.4	*4.9*	9.2	*1.8*	5.7	*0.4*	-0.7	*6.1*	7.0	*6.3*	7.3
1990	*12.0*	9.0	*4.8*	5.0	*5.8*	4.5	*6.7*	5.9	*6.7*	4.7	*12.9*	6.8	*2.2*	3.8	*7.2*	5.4	*7.8*	6.1
1991	*5.8*	6.6	*5.5*	3.0	*2.8*	0.8	*4.4*	3.6	*4.9*	0.5	*1.1*	1.6	*-1.4*	1.6	*4.0*	2.7	*3.9*	2.4
1992	*4.7*	6.9	*3.9*	0.7	*2.7*	-0.1	*4.3*	5.5	*3.2*	3.7	*3.9*	2.8	*5.1*	9.0	*4.2*	3.2	*4.0*	3.5
1993	*4.7*	5.2	*5.2*	-1.0	*1.2*	-10.3	*0.6*	-4.5	*5.3*	8.8	*5.3*	3.0	*4.4*	10.1	*3.5*	0.4	*3.7*	0.0
1994	*7.8*	11.4	*-1.1*	1.0	*4.4*	8.9	*2.8*	4.4	*3.8*	11.0	*1.7*	11.1	*6.9*	15.1	*4.0*	8.6	*3.9*	8.6

1. From February 1979 WEO (not June).
2. Data through June 1990 apply to West Germany only.

Table B5. Industrial Countries: Growth of Import Volumes: Current Year Forecasts and First Available Out-Turns (F.A.)
(Annual Percent Change)

	Unites States		Japan		Germany[2]		France		Italy		United Kingdom		Canada		All Industrial		Summit Seven	
	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.	Forecast	F.A.
1971	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.
1972	*5.9*	13.7	*11.4*	10.8	*6.9*	9.4	*8.4*	13.5	*6.1*	12.0	*9.3*	7.6	*10.1*	16.3	*7.4*	10.6	*7.8*	11.8
1973	*7.8*	4.8	*25.3*	27.8	*14.7*	7.8	*15.2*	13.2	*14.0*	14.2	*10.3*	13.2	*13.7*	13.8	*13.0*	11.6	*13.6*	11.6
1974	*0.5*	-0.4	*5.6*	-0.2	*5.0*	-1.3	*6.2*	3.4	*6.5*	-5.8	*1.3*	1.2	*5.2*	3.0	*4.1*	0.4	*3.9*	0.0
1975	*-7.3*	-13.1	*-4.8*	-13.4	*3.2*	2.6	*-3.2*	-6.9	*-4.3*	-11.6	*-3.2*	-7.1	*-2.0*	-4.6	*-2.6*	-7.5	*-2.8*	-6.9
1976	*21.2*	22.2	*11.3*	12.0	*14.4*	15.3	*15.7*	19.1	*8.2*	14.0	*3.7*	6.2	*9.8*	7.7	*12.4*	14.5	*13.9*	15.4
1977	*10.6*	13.4	*8.9*	3.9	*8.4*	5.7	*2.7*	1.4	*4.6*	0.0	*4.1*	1.4	*5.4*	1.1	*6.6*	4.8	*7.1*	5.4
1978	*3.4*	7.3	*8.2*	9.5	*6.0*	8.4	*6.0*	6.0	*4.6*	3.2	*5.4*	6.5	*-0.2*	3.4	*4.2*	5.7	*4.7*	6.7
1979[1]	*2.3*	2.1	*7.9*	11.6	*8.9*	9.3	*6.5*	11.7	*10.7*	14.0	*4.3*	11.6	*1.5*	9.2	*5.6*	8.6	*5.9*	8.5
1980	*-2.5*	-6.0	*-3.5*	-7.4	*4.2*	2.1	*4.0*	5.5	*6.5*	2.0	*-0.8*	-5.2	*2.0*	-4.1	*1.5*	-0.8	*0.7*	-1.8
1981	*0.4*	0.6	*1.4*	-2.0	*0.0*	-3.5	*0.0*	-1.2	*-4.0*	-10.0	*-2.2*	-4.7	*3.5*	2.4	*-0.2*	-2.3	*-0.2*	-2.4
1982	*1.0*	-4.4	*2.0*	-0.1	*2.0*	0.7	*5.5*	3.1	*5.5*	2.0	*10.0*	5.0	*-3.0*	-14.7	*2.0*	-0.5	*2.5*	-1.1
1983	*3.7*	10.0	*2.3*	1.3	*0.9*	5.4	*-0.7*	-1.6	*1.5*	1.0	*4.2*	7.1	*1.5*	14.7	*2.1*	4.1	*2.5*	5.4
1984	*15.2*	23.2	*3.8*	10.7	*4.0*	5.4	*0.0*	2.7	*4.0*	9.4	*6.2*	10.4	*13.5*	21.3	*6.6*	12.2	*7.9*	13.8
1985	*9.8*	6.5	*6.6*	-0.4	*4.6*	4.6	*2.7*	4.3	*7.0*	7.5	*5.5*	4.6	*3.4*	8.2	*6.1*	5.2	*6.5*	5.0
1986	*4.1*	14.6	*5.5*	13.5	*6.6*	6.1	*6.5*	7.9	*8.5*	6.0	*3.1*	6.2	*2.0*	6.0	*5.0*	8.9	*5.1*	9.6
1987	*1.8*	5.1	*8.5*	8.3	*3.6*	5.0	*4.8*	6.2	*7.5*	10.0	*6.0*	7.4	*4.9*	9.1	*4.3*	6.1	*4.4*	6.2
1988	*5.9*	7.1	*12.7*	16.7	*5.2*	6.9	*3.6*	8.0	*6.1*	7.2	*6.2*	13.2	*6.0*	13.9	*6.0*	9.5	*6.6*	10.0
1989	*5.0*	5.3	*8.2*	7.8	*5.0*	8.0	*5.5*	9.0	*6.0*	8.3	*4.5*	9.1	*4.9*	7.6	*5.9*	8.0	*5.9*	7.9
1990	*9.6*	3.7	*4.3*	5.8	*8.0*	13.0	*7.6*	5.7	*6.7*	4.0	*5.7*	2.2	*3.9*	-0.6	*6.7*	5.1	*7.2*	5.6
1991	*1.5*	-0.4	*9.4*	3.0	*8.7*	16.2	*4.3*	2.1	*4.4*	4.7	*-2.0*	-2.8	*-2.7*	1.6	*3.6*	2.5	*3.5*	2.5
1992	*1.4*	11.6	*3.0*	-0.7	*3.1*	1.3	*4.0*	0.9	*3.4*	3.2	*3.4*	5.9	*4.4*	7.0	*3.5*	4.0	*3.3*	4.8
1993	*7.7*	12.7	*5.0*	4.0	*2.4*	-12.9	*0.3*	-10.4	*0.0*	-7.7	*3.5*	4.2	*3.7*	10.3	*3.9*	-0.2	*4.6*	0.7
1994	*9.1*	15.0	*7.2*	13.5	*1.0*	6.7	*2.5*	5.9	*1.5*	12.2	*5.9*	6.0	*6.6*	13.1	*5.4*	10.5	*5.7*	11.4

1. From February 79 WEO (not June).
2. Data through June 1990 apply to West Germany only.

Table B6. World Trade Volumes and Terms of Trade: Current Year Forecasts and First Available Out-Turns
(Annual Percent Change)

	World Trade		Industrial Countries' Terms of Trade	
	Forecast	Out-Turn	Forecast	Out-Turn
1971	*n.a.*	n.a.	*n.a.*	n.a.
1972	*6.8*[1]	8.3[1]	*n.a.*	n.a.
1973	*12.0*[1]	12.5	*n.a.*	-2.2
1974	*6.0*	5.1[1]	*-8.6*	-11.5
1975	*-1.9*[1]	-4.1[2]	*1.1*	2.8
1976	*10.5*[2]	11.5	*-0.7*	-0.7
1977	*7.0*	5.0	*-0.2*	0.0
1978	*5.0*	5.0	*1.4*	3.0[3]
1979	*5.5*	6.5	*-1.0*[3]	-3.0
1980	*3.0*	1.5	*-6.0*	-6.5
1981	*1.5*	0.0	*-0.5*	-0.6
1982	*2.0*	-2.5	*1.5*	2.5
1983	*1.0*	2.0	*1.5*	2.1
1984	*5.5*	8.8	*0.0*	-0.2
1985	*5.4*	2.9	*0.0*	1.8
1986	*3.3*	4.9	*6.7*	9.4
1987	*3.3*	4.9	*0.6*	0.9
1988	*5.5*	9.3	*2.0*	1.7
1989	*5.8*	7.2	*0.0*	0.0
1990	*6.6*	3.9	*0.2*	-0.5
1991	*2.4*	3.3	*1.0*	1.6
1992	*5.0*	4.2	*-0.3*	1.8
1993	*5.2*	2.4	*-0.2*	1.4
1994	*5.8*	9.4	*1.0*	1.2

1. Computed as simple average of import and export growth figures.
2. Import growth.
3. Computed as the difference between export unit value increases and import unit value increases.

Table B7. Developing Countries: Real GDP: Current Year Forecasts and First Available Out-Turns
(Annual Percent Change)

	Africa		Asia		Europe		Middle East		Western Hemisphere		Nonfuel Exports	
	Forecast	Out-Turn	Forecast	Out-Turn	Forecast	Out-Turn	Forecast	Out-Turn	Forecast	Out-Turn	Forecast	Out-Turn
1977	*4.2*	2.9	*6.9*	6.0	*n.a.*	n.a.	*4.7*	5.1	*n.a.*	n.a.	*5.7*[1]	4.7[1]
1978	*3.7*	2.5	*5.7*	6.9	*n.a.*	n.a.	*6.6*	7.2	*n.a.*	n.a.	*5.0*[1]	5.2[2]
1979	*3.7*	2.6	*6.3*	3.2	*n.a.*	3.5	*5.4*	7.9	*n.a.*	6.3	*5.4*[2]	4.6[2]
1980	*3.8*	4.9	*5.8*	4.9	*2.1*	2.0	*5.6*	5.1	*5.6*	5.8	*4.9*[2]	4.8[2]
1981	*4.2*	2.6	*5.3*	4.7	*2.9*	2.7	*5.7*	4.7	*5.3*	-0.1	*4.9*[2]	2.5[2]
1982	*2.6*	1.1	*4.8*	4.2	*2.8*	2.0	*6.8*	2.7	*3.5*	-1.5	*3.8*[2]	1.4[2]
1983	*2.3*	0.1	*5.0*	6.5	*1.5*	0.6	*3.0*	4.2	*-0.2*	-2.3	*2.3*[2]	1.6[2]
1984	*3.5*	2.2	*6.1*	6.4	*1.8*	2.5	*3.6*	2.3	*1.3*	2.4	*3.5*[2]	4.4
1985	*2.9*	1.6	*5.8*	6.1	*3.2*	2.5	*2.9*	-1.6	*3.2*	3.8	*4.4*	4.8
1986	*2.8*	1.6	*5.5*	5.7	*3.5*	3.2	*0.2*	0.0	*1.6*	4.0	*4.6*	5.4
1987	*2.5*	0.9	*5.1*	6.6	*2.5*	2.6	*-1.0*	-1.0	*3.3*	2.3	*4.2*	4.5
1988	*3.1*	1.7	*6.9*	9.0	*2.1*	2.5	*1.5*	3.9	*2.1*	0.9	*4.6*	5.2
1989	*2.3*	2.9	*6.4*	5.1	*2.3*	0.3	*2.3*	3.9	*0.8*	0.9	*3.7*	2.9
1990	*2.7*	1.9	*5.4*	5.3	*0.1*	-2.9	*3.2*	-1.5	*1.4*	-1.0	*3.0*	0.6
1991	*2.0*	1.4	*5.0*	5.8	*-3.5*	-16.0	*-3.3*	0.4	*1.0*	2.8	*1.4*	-4.7
1992	*2.7*	0.9	*5.5*	7.9	*-13.5*	n.a.	*15.0*	n.a.	*2.7*	2.3	*-3.1*	5.8
1993	*2.7*	1.1	*6.7*	8.4	*n.a.*	n.a.	*n.a.*	n.a.	*2.3*	3.4	*5.3*	7.0
1994	*3.4*	2.7	*7.5*	8.6	*n.a.*	n.a.	*n.a.*	n.a.	*2.8*	4.6	*6.3*	7.2

1. Less developed countries.
2. Non-oil developing countries.

Table B8. Developing Countries: Consumer Prices: Current Year Forecasts and First Available Out-Turns
(Annual Percent Change)

	Africa		Asia		Europe		Middle East		West Hemisphere		Nonfuel Exports	
	Forecast	Out-Turn	Forecast	Out-Turn	Forecast	Out-Turn	Forecast	Out-turn	Forecast	Out-Turn	Forecast	Out-Turn
1977	*13.4*	27.4	*6.9*	8.4	*n.a.*	n.a.	*17.9*	17.5	*n.a.*	n.a.	*27.6*[1]	32.2[1]
1978	*19.4*	21.4	*4.9*	6.8	*n.a.*	n.a.	*15.4*	17.5	*n.a.*	n.a.	*20.9*[1]	25.6[2]
1979	*20.0*	20.1	*9.4*	10.3	*n.a.*	29.5	*19.8*	26.8	*n.a.*	48.7	*25.4*[2]	29.4[2]
1980	*19.7*	19.4	*11.4*	12.2	*27.0*	40.3	*35.0*	44.4	*47.6*	60.2	*29.6*[2]	32.5[2]
1981	*17.4*	22.7	*7.1*	9.9	*24.5*	25.9	*33.8*	32.8	*61.4*	65.7	*28.1*[2]	31.4[2]
1982	*24.3*	15.8	*7.7*	6.8	*21.2*	23.8	*31.8*	37.6	*61.1*	78.0	*29.4*[2]	32.8[2]
1983	*12.8*	19.5	*4.3*	5.9	*20.2*	23.3	*35.9*	40.3	*90.2*	122.7	*34.0*[2]	44.1[2]
1984	*15.7*	17.8	*4.9*	6.9	*23.0*	28.0	*47.2*	16.5	*91.6*	119.8	*34.5*[2]	47.1
1985	*16.1*	13.6	*5.5*	6.7	*22.4*	27.9	*17.3*	13.8	*113.7*	144.0	*45.0*	53.0
1986	*13.1*	14.8	*5.4*	5.9	*25.2*	27.4	*11.9*	11.1	*76.0*	86.9	*30.6*	33.1
1987	*12.6*	16.2	*5.4*	8.7	*22.7*	30.3	*11.1*	16.3	*97.7*	130.8	*33.8*	43.5
1988	*12.7*	18.8	*7.6*	14.6	*31.3*	49.3	*14.1*	18.8	*177.5*	277.6	*54.0*	82.5
1989	*15.1*	20.2	*10.0*	11.9	*50.3*	169.8	*14.6*	13.9	*154.9*	531.0	*58.1*	148.6
1990	*13.4*	15.6	*7.4*	7.9	*119.9*	166.4	*14.2*	13.3	*312.2*	768.0	*95.9*	167.8
1991	*21.9*	22.5	*9.1*	9.4	*60.8*	90.9	*13.7*	16.0	*122.9*	162.5	*49.7*	69.0
1992	*25.8*	40.2	*8.6*	7.4	*636.8*	n.a.	*14.8*	n.a.	*140.0*	169.9	*187.6*	46.3
1993	*16.8*	31.7	*7.4*	9.5	*n.a.*	n.a.	*n.a.*	n.a.	*150.9*	236.5	*40.0*	55.1
1994	*30.6*	33.6	*7.9*	13.5	*n.a.*	n.a.	*n.a.*	n.a.	*213.9*	225.8	*49.1*	57.4

1. Less developed countries.
2. Non-oil developing countries.

Table B9. Developing Countries: Balances of Payments on Current Account: Current Year Forecasts and First Available Out-Turns
(in billions of U.S. dollars)

	Africa		Asia		Europe		Middle East		Western Hemisphere		Nonfuel Exports	
	Forecast	Out-Turn	Forecast	Out-Turn	Forecast	Out-Turn	Forecast	Out-Turn	Forecast	Out-Turn	Forecast	Out-Turn
1971	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.
1972	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	-6.8[1]
1973	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*-11.0*[1]	-8.8[2]
1974	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*-20.0*[2]	-27.2[2]
1975	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*-35.7*[2]	-37.0[2]
1976	*n.a.*	-5.2	*n.a.*	-2.7	*n.a.*	n.a.	*n.a.*	-6.6	*n.a.*	-11.2	*-32.0*[2]	-25.8[2]
1977	*-4.9*	-6.0	*-3.3*	-1.4	*n.a.*	n.a.	*-8.4*	-6.1	*-7.9*	-8.6	*-25.0*[2]	-22.1[2]
1978	*-7.6*	-8.4	*-4.0*	-5.2	*n.a.*	n.a.	*-7.3*	-5.8	*-11.6*	-11.6	*-30.0*[2]	-31.0[3]
1979[4]	*-8.5*	-8.5	*-8.0*	-13.8	*n.a.*	-9.3	*-8.5*	-8.1	*-13.0*	-18.6	*-38.0*[3]	-55.0[3]
1980	*-10.1*	-11.2	*-21.1*	-23.7	*-10.8*	-10.3	*-10.1*	-7.7	*-21.6*	-33.1	*-68.0*[3]	-82.1[3]
1981	*-12.9*	-13.3	*-25.5*	-24.7	*-9.2*	-7.9	*-7.9*	-9.0	*-39.9*	-41.5	*-97.5*[3]	-99.0[3]
1982	*-13.0*	-13.2	*-26.8*	-20.8	*-6.2*	-7.1	*-12.3*	-12.9	*-35.7*	-34.9	*-97.0*[3]	-86.8[3]
1983	*-13.4*	-10.8	*-20.8*	-10.7	*-4.2*	-5.5	*-12.2*	-12.0	*-21.7*	-18.5	*-67.8*[3]	-56.4[3]
1984	*-9.4*	-10.9	*-8.2*	-7.9	*-2.5*	-3.3	*-11.9*	-16.3	*-18.5*	-5.5	*-50.0*[3]	-38.2
1985	*-9.8*	-1.4	*-8.2*	-15.4	*-2.7*	-2.3	*-16.1*	-10.7	*-7.5*	-4.3	*-35.3*	-27.6
1986	*-11.6*	-7.0	*-15.4*	2.1	*1.3*	-1.7	*-36.7*	-24.9	*-6.9*	-16.1	*-20.3*	-11.9
1987	*-6.7*	-6.6	*1.7*	23.0	*-2.3*	0.2	*-18.1*	-2.9	*-15.9*	-9.3	*-20.5*	5.4
1988	*-6.7*	-9.5	*19.0*	10.0	*-1.9*	3.5	*-7.9*	-11.7	*-10.5*	-11.5	*0.9*	1.3
1989	*-7.8*	-8.9	*8.8*	-0.2	*1.4*	3.8	*-10.4*	2.6	*-11.5*	-11.2	*-6.3*	-9.3
1990	*-7.7*	-4.0	*-0.8*	-3.7	*-1.2*	-2.3	*2.7*	13.8	*-12.8*	-12.0	*-17.4*	-16.8
1991	*-6.3*	-5.8	*-19.2*	-13.1	*-7.7*	-10.0	*-49.3*	-45.7	*-12.3*	-19.4	*-37.5*	-34.3
1992	*-7.5*	-7.8	*-17.4*	-21.2	*-23.9*	n.a.	*-22.2*	n.a.	*-22.4*	-33.5	*-54.8*	-32.6
1993	*-6.8*	-8.3	*-27.3*	-25.1	*n.a.*	n.a.	*n.a.*	n.a.	*-33.4*	-43.3	*-39.0*	-56.2
1994	*-4.1*	-12.6	*-28.3*	-11.2	*n.a.*	n.a.	*n.a.*	n.a.	*-46.6*	-47.9	*-58.8*	-47.2

1. Less developed countries.
2. Other developing countries.
3. Non-oil developing countries.
4. From February 1979 WEO (not June).

Table B10. Developing Countries: Growth of Export Volumes: Current Year Forecasts and First Available Out-Turns
(Annual Percent Change)

	Africa		Asian		Europe		Middle East		Western Hemisphere		Nonfuel Exports	
	Forecast	Out-Turn	Forecast	Out-Turn	Forecast	Out-Turn	Forecast	Out-Turn	Forecast	Out-Turn	Forecast	Out-Turn
1973	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*6.2*[1]	7.0[1]
1974	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*3.0*[1]	2.0[1]
1975	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*-1.0*[1]	0.0[2]
1976	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*8.3*[2]	12.7[3]
1977	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*7.2*[3]	6.7[3]
1978	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*7.2*[3]	8.0[1]
1979	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*8.5*[1]	8.3[2]
1980	*n.a.*	4.1	*n.a.*	9.0	*n.a.*	8.2	*n.a.*	9.8	*n.a.*	9.0	*5.7*[2]	7.9[2]
1981	*3.8*	-3.8	*6.8*	7.8	*6.2*	13.0	*3.5*	-1.3	*12.1*	8.4	*6.8*[2]	3.9[2]
1982	*6.8*	0.4	*9.1*	1.1	*5.0*	1.8	*-1.0*	-4.7	*8.2*	0.2	*6.4*[2]	0.8[2]
1983	*4.9*	3.1	*4.2*	9.5	*3.9*	5.2	*8.8*	-5.3	*5.4*	2.5	*4.7*[2]	5.3[2]
1984	*6.6*	6.2	*8.6*	14.0	*4.5*	13.1	*5.9*	-0.4	*6.9*	7.7	*7.1*[2]	12.0
1985	*4.3*	6.1	*7.4*	2.5	*7.2*	4.6	*3.0*	-5.9	*4.8*	-1.2	*7.6*	3.4
1986	*3.1*	2.2	*6.2*	17.1	*4.1*	2.4	*2.9*	16.6	*-0.2*	-8.8	*4.3*	7.7
1987	*1.6*	-1.7	*6.1*	13.8	*3.2*	6.7	*-3.2*	-0.8	*0.1*	5.2	*3.9*	10.0
1988	*3.6*	2.4	*8.6*	13.4	*4.0*	6.4	*4.5*	12.2	*5.2*	11.2	*6.9*	10.8
1989	*3.8*	6.1	*9.8*	10.1	*3.2*	0.8	*-2.0*	7.0	*0.8*	3.0	*7.0*	7.3
1990	*5.6*	8.3	*9.4*	5.8	*1.4*	-9.0	*3.1*	0.6	*3.8*	3.2	*7.2*	3.5
1991	*2.8*	3.6	*3.2*	12.6	*2.6*	-13.9	*-7.5*	-3.8	*7.1*	3.2	*3.5*	4.4
1992	*2.7*	1.4	*10.0*	11.1	*-7.9*	n.a.	*13.6*	n.a.	*5.0*	4.3	*5.4*	9.5
1993	*4.0*	3.5	*11.8*	9.8	*n.a.*	n.a.	*n.a.*	n.a.	*6.0*	8.0	*10.3*	9.7
1994	*-0.1*	0.1	*10.1*	13.4	*n.a.*	n.a.	*n.a.*	n.a.	*7.3*	9.4	*9.6*	12.2

1. Other developing countries.
2. Non-oil developing countries.
3. Less developed countries.

Table B11. Developing Countries: Growth of Import Volumes: Current Year Forecasts and First Available Out-Turns
(Annual Percent Change)

	Africa		Asia		Europe		Middle East		West Hemisphere		Nonfuel Exports	
	Forecast	Out-Turn	Forecast	Out-Turn	Forecast	Out-Turn	Forecast	Out-Turn	Forecast	Out-Turn	Forecast	Out-Turn
1972	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	1.7[1]
1973	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*7.3*[1]	9.4[2]
1974	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*4.5*[2]	12.0[2]
1975	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*-7.0*[2]	-4.1[3]
1976	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*3.0*[1]	1.4[1]
1977	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*10.5*[1]	4.9[1]
1978	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*7.5*[1]	9.0[2]
1979	*-0.3*	-1.1	*13.1*	12.7	*n.a.*	7.6	*7.8*	10.1	*3.5*	9.9	*6.5*[2]	8.2[3]
1980	*0.7*	1.4	*5.2*	6.2	*2.5*	0.7	*0.6*	1.3	*-1.4*	9.8	*4.3*[3]	5.8[3]
1981	*1.2*	-4.5	*5.1*	4.4	*1.0*	1.5	*3.3*	7.0	*8.5*	1.2	*5.2*[3]	2.2[3]
1982	*0.7*	-4.1	*7.1*	-0.9	*6.1*	-6.7	*8.6*	-0.9	*-4.7*	-21.7	*3.2*[3]	-7.7[3]
1983	*2.8*	-7.8	*6.7*	8.8	*0.7*	0.2	*4.9*	5.8	*-5.5*	-19.0	*2.3*[3]	-0.6[3]
1984	*-0.3*	0.8	*7.4*	7.1	*-0.9*	6.8	*4.8*	-5.5	*9.3*	1.5	*5.5*[3]	5.9
1985	*-0.6*	-5.2	*6.9*	6.3	*5.0*	4.1	*1.2*	-11.4	*8.2*	-1.3	*5.6*	3.3
1986	*-0.2*	-11.0	*2.8*	4.3	*5.3*	5.6	*-13.3*	-18.3	*3.2*	-4.8	*5.1*	3.9
1987	*-4.0*	-4.8	*4.9*	9.4	*2.8*	4.0	*-12.5*	-9.5	*-0.8*	2.6	*3.3*	7.3
1988	*3.3*	1.3	*12.9*	17.8	*8.0*	5.6	*-3.1*	-1.6	*1.7*	7.3	*10.1*	12.3
1989	*0.5*	2.3	*8.8*	13.0	*3.4*	8.9	*6.4*	3.4	*-2.6*	2.8	*6.2*	9.6
1990	*2.4*	0.1	*9.1*	5.5	*9.8*	1.4	*4.7*	-7.3	*3.3*	7.3	*7.3*	3.1
1991	*-1.4*	1.9	*6.0*	14.7	*14.1*	-15.1	*12.9*	2.5	*3.6*	15.6	*6.6*	5.8
1992	*4.0*	3.3	*9.9*	12.0	*4.7*	n.a.	*13.6*	n.a.	*10.5*	18.0	*8.4*	10.8
1993	*2.2*	0.4	*11.9*	11.2	*n.a.*	n.a.	*n.a.*	n.a.	*4.4*	8.0	*10.3*	11.4
1994	*-6.5*	-2.9	*9.4*	13.1	*n.a.*	n.a.	*n.a.*	n.a.	*7.3*	13.7	*8.4*	11.2

1. Less developed countries.
2. Other developing countries.
3. Non-oil developing countries.

Table B12. Developing Countries: Nonfuel Commodity Prices: Current Year Forecasts and First Available Out-Turns
(Annual Percent Change)

	Agricultural Raw Materials		Beverages		Food		Minerals and Metals		Nonfuel Exports	
	Forecast	Out-Turn	Forecast	Out-Turn	Forecast	Out-Turn	Forecast	Out-Turn	Forecast	Out-Turn
1981	-4.6	-9.7	-22.6	-22.3	-7.2	-13.9	-11.2[1]	-14.0[1]	-10.2[2]	-14.9[2]
1982	-7.1	-13.7	7.8	2.5	-16.3	-21.0	0.8[1]	-9.2[1]	-5.7[2]	-13.3[2]
1983	4.9	9.4	2.3	7.6	4.2	8.8	9.6[1]	0.0[1]	6.3[2]	7.9[2]
1984	8.6	4.0	6.1	14.7	8.6	-1.5	4.4[1]	-6.3[1]	7.1[2]	2.7[2]
1985	0.9	-12.2	-7.0	-11.6	-4.5	-18.7	3.6[1]	-2.8[1]	-2.3[2]	-12.3
1986	3.7	-1.0	36.6	16.2	3.4	-11.6	1.1[1]	-10.0	12.3	-1.4
1987	6.4	29.4	-21.6	-28.7	-1.5	7.3	3.7	19.9	-5.4	2.2
1988	8.1	8.2	8.8	0.2	11.8	25.3	9.2	40.3	10.0	18.7
1989	2.3	-0.7	1.3	-17.0	0.3	-0.2	2.0	5.4	0.3	-0.8
1990	-2.0	-3.4	-18.4	-13.3	-4.6	-6.6	-18.3	-8.3	-9.3	-7.0
1991	0.7	-0.6	3.1	-6.8	-1.4	1.6	-6.0	-9.3	-2.7	-4.1
1992	4.5	1.8	3.0	-12.7	0.9	-0.8	-4.6	-2.4	0.8	-2.5
1993	5.6	0.5	11.0	6.9	-0.3	-2.5	-1.3	-15.6	2.5	-4.3
1994	6.7	11.5	7.6	74.6	9.2	9.6	-0.9	10.8	5.6	20.9

1. Metals only.
2. Non-oil developing countries.

Table C1. Industrial Countries: Real GDP: Year Ahead Forecasts and First Settled Estimates (F.S.)
(Annual Percent Change)

	United States		Japan		Germany[3]		France		Italy		United Kingdom		Canada		All Industrial		Summit Seven		Europe[2]	
	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.
1973	6.3	5.9	11.0	10.5	5.0	5.3	6.0	6.0	4.5	5.9	5.0	6.0	6.0	6.8	6.3	6.3	6.6[1]	6.6[1]	5.0	5.5
1974	2.8	-2.1	9.0	-1.8	3.0	0.4	5.2	3.8	6.0	3.4	3.7	0.1	5.0	2.8	4.3	-0.2	4.3[1]	-0.5[1]	4.3	2.0
1975	-1.5	-1.8	3.3	2.1	2.2	-3.2	3.5	-1.2	0.9	-3.7	2.1	-1.9	2.5	0.6	0.9	-1.4	0.7[1]	-1.3	2.5	-2.3
1976	6.2	6.0	5.4	6.1	3.5	5.7	3.4	5.2	1.4	5.6	1.4	2.1	5.7	4.9	4.6	5.3	4.9[1]	5.6	2.7	4.4
1977	5.2	4.9	6.6	5.4	4.8	2.6	3.4	3.0	-0.5	1.7	2.3	1.7	4.0	2.7	4.6	3.8	4.7	4.0	3.2	2.2
1978	4.5	4.4	4.8	5.6	3.4	3.4	3.4	3.3	3.0	2.6	2.9	3.4	4.5	3.4	4.0	4.0	4.2	4.2	3.2	2.9
1979	3.4	2.3	4.9	6.0	4.0	4.4	3.2	3.2	4.0	5.0	2.7	1.7	4.0	2.7	3.7	3.4	3.8	3.5	3.4	3.3
1980	0.0	-0.2	4.8	4.3	3.1	1.8	2.2	1.2	2.8	4.0	-0.3	-1.7	3.0	0.0	1.9	1.3	1.8	1.2	2.2	1.5
1981	-1.5	1.9	4.0	2.9	2.0	-0.3	2.0	0.4	0.4	-0.2	-0.4	-2.2	0.8	3.1	0.7	1.2	0.6	1.3	1.2	-0.3
1982	0.7	-1.9	5.7	3.0	2.0	-1.1	2.2	1.6	1.8	-0.3	0.6	1.1	1.4	-4.4	2.0	-0.3	2.0	-0.4	1.8	0.2
1983	2.1	3.7	3.5	3.0	2.0	1.3	2.5	0.7	3.3	-1.2	1.6	3.2	2.1	3.3	2.4	2.6	2.4	2.7	2.3	1.3
1984	4.3	6.8	4.0	5.8	2.0	2.6	1.0	1.3	2.4	2.6	2.1	2.6	4.2	5.0	3.3	4.9	3.5	5.1	1.9	2.3
1985	4.0	2.7	4.1	4.5	2.4	2.5	1.7	1.3	2.5	2.3	2.4	3.3	3.1	4.0	3.4	3.0	3.5	3.0	2.4	2.4
1986	3.3	2.9	4.0	2.4	3.1	2.5	1.7	2.2	2.6	2.7	2.2	3.0	2.4	3.3	3.1	2.7	3.2	2.8	2.5	2.6
1987	3.5	3.4	2.9	4.2	3.0	1.8	2.2	2.2	2.5	3.1	2.5	4.4	3.6	4.0	3.1	3.3	3.2	3.4	2.4	2.7
1988	2.7	4.4	3.4	5.7	2.1	3.6	1.8	3.5	2.3	3.9	2.3	4.2	3.2	5.0	2.6	4.4	2.7	4.5	2.0	3.6
1989	2.8	2.5	4.2	4.9	1.9	3.9	2.4	3.6	2.4	3.2	2.5	2.2	3.2	3.0	2.8	3.4	2.9	3.3	2.3	3.4
1990	2.1	1.0	4.7	5.6	3.0	4.5	3.0	2.8	2.9	2.0	2.7	0.8	2.0	0.5	2.9	2.6	3.0	2.6	2.8	2.7
1991	1.7	-1.2	3.7	4.4	3.3	3.1	3.0	1.2	2.7	1.4	1.3	-2.2	1.1	-1.7	2.4	0.6	2.4	0.6	2.6	0.8
1992	3.0	2.6	3.4	1.3	2.0	1.6	2.4	1.4	2.5	0.9	2.4	-0.5	3.8	0.7	2.8	1.7	2.9	1.8	2.2	1.1
1993	3.1	3.1	3.8	0.1	1.9	-1.7	2.7	-1.0	1.5	-0.7	2.1	2.0	4.4	2.2	2.9	1.3	3.0	1.4	2.3	-0.3
1994	2.6	4.1	2.0	0.5	1.2[4]	2.9[4]	1.1	2.9	1.7	2.2	2.8	3.8	3.8	4.6	2.2	3.1	2.3	3.1	1.6	2.8

1. Constructed from country detail using GNP weights.
2. Definition of "European" was changed from "European countries" to "European Community" in 1992 and subsequently to "European Union" in 1994.
3. Germany is West Germany unless otherwise stated.
4. For whole Germany.

Table C2. Industrial Countries: Inflation (GDP Deflator): Year Ahead Forecasts and First Settled Estimates (F.S.)
(Annual Percent Change)

	United States		Japan		Germany[3]		France		Italy		United Kingdom		Canada		All Industrial		Summit Seven		Europe[2]	
	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.
1973	3.3	5.6	6.0	12.3	5.5	5.9	5.0	7.3	8.0	10.3	7.0	7.5	4.8	7.6	4.7	7.2	4.6[1]	7.2[1]	6.2	7.5
1974	5.6	10.3	12.2	20.8	7.0	6.8	7.2	11.6	9.0	16.6	7.4	12.2	6.5	13.9	7.2	11.9	7.2[1]	12.1[1]	7.4	10.5
1975	9.8	9.3	16.1	7.1	7.0	8.1	11.8	13.9	16.5	17.5	20.1	27.9	11.3	10.8	11.6	11.0	11.6[1]	10.8[1]	12.0	14.0
1976	5.9	5.3	6.2	6.3	4.5	3.3	10.8	9.7	15.0	17.8	15.2	15.2	9.0	9.5	7.6	7.2	7.6[1]	7.2[1]	9.6	9.2
1977	5.4	5.9	7.0	5.7	3.7	3.6	8.2	8.7	21.0	18.3	12.5	13.1	7.2	6.9	6.9	6.9	7.0[1]	6.9	8.5	8.5
1978	6.0	7.3	4.0	4.8	4.0	3.9	8.7	9.9	12.5	13.3	10.6	10.2	6.3	6.3	6.3	7.0	6.3	7.1	7.4	7.7
1979	7.8	8.9	2.2	2.0	3.7	3.9	8.9	10.4	13.3	15.1	10.2	14.4	6.9	10.3	7.0	7.8	7.1	7.8	6.8	8.6
1980	9.1	9.0	7.5	3.1	5.2	5.1	9.7	11.5	14.1	20.3	14.3	18.9	7.4	10.6	8.6	8.9	8.9	9.0	8.7	10.9
1981	8.1	9.4	4.5	2.9	4.5	4.3	10.5	13.6	13.8	17.6	13.7	12.5	8.1	10.1	8.2	8.8	8.1	8.8	9.1	10.1
1982	7.2	6.0	3.6	2.1	4.5	4.8	13.0	12.5	19.5	17.5	9.0	8.0	9.8	10.1	7.9	7.3	7.8	6.8	9.7	9.6
1983	5.6	3.8	3.0	0.7	4.5	3.2	11.8	9.7	17.0	15.0	7.6	5.4	7.0	5.4	6.8	5.0	6.5	4.6	9.0	7.3
1984	4.2	3.8	2.2	0.6	3.0	1.9	7.6	7.3	14.8	10.7	6.0	4.2	4.7	2.8	5.0	4.1	4.8	3.7	6.8	5.7
1985	4.4	3.4	1.2	1.7	2.6	2.2	5.4	5.8	11.1	8.8	5.0	6.1	4.7	3.4	4.4	3.8	4.1	3.6	5.4	5.2
1986	3.7	2.6	0.9	1.8	2.3	3.1	5.2	4.6	7.9	8.0	4.2	3.5	4.1	3.0	3.7	3.3	3.5	3.0	4.6	4.7
1987	3.4	3.3	1.2	-0.2	1.6	2.1	3.4	2.8	5.4	5.6	3.7	4.8	3.5	4.3	3.1	2.9	3.0	2.7	3.4	3.5
1988	3.8	3.3	1.7	0.4	2.2	1.5	3.0	3.1	5.3	6.0	4.8	6.7	3.5	4.1	3.3	3.2	3.3	2.9	3.5	4.0
1989	4.1	4.1	1.4	1.5	2.2	2.6	2.2	3.5	5.0	6.3	4.7	6.9	3.6	4.9	3.3	3.9	3.2	3.7	3.3	4.7
1990	4.6	4.1	1.3	1.9	2.5	3.4	2.8	2.8	5.1	7.5	5.7	6.8	4.4	3.0	3.7	4.1	3.6	3.8	3.9	5.2
1991	4.2	4.1	2.1	1.9	3.6	4.5	3.2	2.8	5.7	7.3	5.7	6.9	5.1	2.7	4.0	4.1	3.8	3.9	4.7	5.5
1992	3.7	2.9	2.6	1.8	3.7	4.4	2.9	2.3	5.5	4.7	4.2	4.4	2.7	1.1	3.7	3.1	3.5	3.0	4.1	4.5
1993	2.9	2.2	1.9	1.0	3.7	3.2	2.8	2.3	4.7	4.4	3.3	3.4	2.0	1.1	3.1	2.5	3.0	2.3	3.9	3.7
1994	2.7	2.1	1.3	0.2	3.1[4]	2.3[4]	2.2	1.3	4.2	3.6	3.9	2.1	1.5	0.6	2.7	1.9	2.6	1.7	3.4	2.7

1. Constructed from country detail using GNP weights.
2. Definition of "European" was changed from "European countries" to "European Community" in 1992 and subsequently to "European Union" in 1994.
3. Germany is West Germany unless otherwise stated.
4. For whole Germany.

Table C3. Industrial Countries: Balances of Payments on Current Account:[1,2] Year Ahead Forecasts and First Settled Estimates (F.S.)
(in billions of U.S. dollars)

	United States		Japan		Germany[3]		France		Italy		United Kingdom		Canada		All Industrial		Summit Seven	
	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.
1973	-4.1	2.5	6.3	0.1	0.9	7.0	1.9	0.3	3.4	-1.3	0.1	-2.1	-0.9	-0.5	9.4	9.6	7.6	6.0
1974	8.7	2.1	-0.9	-4.5	3.6	12.3	-0.2	-4.8	-2.0	-6.6	-3.5	-7.8	-0.4	-1.8	7.3	-10.7	5.3	-11.1
1975	-3.5	14.6	0.3	-0.4	12.3	7.5	-5.3	1.1	-4.5	0.9	-6.6	-2.8	-3.9	-4.8	-12.5	17.8	-11.2	16.1
1976	6.1	1.7	-1.5	3.9	7.4	7.2	-1.7	-5.1	2.0	-1.7	-2.9	-0.8	-3.9	-4.3	7.1	-1.4	5.5	0.9
1977	-3.0	-12.5	2.0	10.9	8.0	7.9	-3.3	-2.1	0.6	4.0	-0.7	2.7	-3.8	-3.9	1.8	-0.7	-0.2	7.0
1978	-13.5	-10.7	11.0	16.8	7.0	13.1	-2.0	5.3	2.5	8.9	6.0	4.1	-4.0	-4.7	4.0	31.1	7.0	32.8
1979[4]	-4.0	2.7	11.6	-8.0	10.5	0.6	3.4	3.0	5.9	6.1	5.0	-0.6	-3.4	-4.4	25.4	-14.1	29.0	-0.6
1980	3.0	8.4	-0.5	-9.5	5.0	-9.0	1.0	-6.3	5.0	-9.4	6.0	10.6	-6.0	-1.9	8.0	-46.3	13.5	-17.1
1981	21.5	9.0	-11.0	6.2	-5.5	-1.0	-4.5	-6.6	-1.0	-7.5	4.5	17.7	-5.0	-4.8	-25.0	-3.7	-1.0	13.0
1982	-2.0	-5.8	9.5	8.1	-1.0	9.9	-3.0	-9.4	-6.5	-4.9	8.5	10.4	-2.5	2.2	-23.0	-3.6	3.0	10.5
1983	0.5	-35.5	17.0	22.2	11.5	9.8	-8.0	-1.8	-1.5	1.0	2.0	7.5	-0.5	1.3	13.0	2.8	21.0	4.5
1984	-54.0	-93.0	26.0	36.4	13.0	13.2	0.0	1.1	-3.0	-2.8	4.5	3.7	3.5	2.2	-11.5	-35.2	-100.0	-39.2
1985	-109.0	-117.7	41.5	49.2	12.0	13.3	2.6	-0.1	-1.8	-4.2	4.2	4.9	0.0	-0.4	-46.2	-53.5	-50.5	-55.1
1986	-141.0	-141.4	57.0	85.8	24.3	37.2	4.2	3.4	-7.6	4.4	4.9	-1.4	-1.1	-6.7	-51.1	-18.1	-59.3	-18.6
1987	-123.0	-154.0	74.1	87.0	25.5	45.0	6.5	-4.1	3.0	-1.0	-1.3	-2.6	-2.9	-8.0	-11.6	-42.9	-18.0	-37.6
1988	-140.6	-126.5	83.2	79.6	32.5	48.6	-4.0	-4.3	-1.9	-5.2	-3.5	-26.0	-9.2	-8.4	-44.2	-54.4	-43.4	-42.2
1989	-128.7	-110.0	80.9	57.2	41.5	55.4	-2.8	-3.9	-4.2	-10.5	-19.0	-31.3	-11.9	-14.1	-51.4	-82.4	-44.2	-57.2
1990	-138.7	-92.1	89.7	35.8	56.8	47.9	-4.9	-8.4	-10.2	-14.5	-26.0	-25.7	-16.5	-18.9	-69.6	-97.5	-50.6	-75.8
1991	-99.7	-3.7	55.8	72.9	38.4	-19.8	-4.9	-5.9	-11.7	-21.1	-21.0	-11.2	-16.9	-25.5	-100.8	-23.5	-60.5	-14.3
1992	-92.0	-66.4	59.4	117.6	9.4	-25.1	-8.0	2.8	-16.1	-26.6	-12.3	-15.2	-14.6	-22.9	-96.5	-39.0	-74.4	-35.8
1993	-54.5	-103.9	100.9	131.4	-8.6	-20.1	-0.4	10.5	-33.4	11.4	-19.2	-15.5	-20.8	-23.8	-35.6	19.3	-36.1	-9.9
1994	-130.0	-151.2	141.3	129.1	-29.9	-20.6	3.1	9.7	-12.8	15.5	-24.8	-2.6	-16.9	-16.3	-51.9	-6.3	-70.1	-36.4

1. The forecasts through 1985 and the first settled estimates through 1983 are those which exclude official transfers.
2. The forecasts after 1985 and the first settled estimates after 1983 are those which include official transfers.
3. Data through June 1990 apply to West Germany only.
4. From February 15, 1979.

Table C4. Industrial Countries: Growth of Export Volumes: Year Ahead Forecasts and First Settled Estimates (F.S.)
(Annual Percent Change)

	United States		Japan		Germany[1]		France		Italy		United Kingdom		Canada		All Industrial		Summit Seven	
	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.
1973	13.6	23.7	10.0	5.6	10.0	17.6	12.0	10.7	11.3	4.3	8.0	11.6	10.0	9.0	10.6	13.8	n.a.	n.a.
1974	10.0	7.9	10.9	16.1	8.1	12.6	9.6	10.8	16.5	7.4	10.8	6.7	5.4	-4.2	9.5	7.9	n.a.	n.a.
1975	-1.4	-2.5	8.9	2.3	3.6	-10.6	6.6	-3.5	6.0	2.3	4.8	-4.0	1.3	7.0	3.9	-4.6	n.a.	n.a.
1976	5.5	3.6	7.6	22.1	5.1	12.5	4.8	9.3	6.1	12.6	3.9	9.7	10.2	11.3	5.8	10.7	n.a	n.a.
1977[2]	6.6	0.5	9.5	5.3	10.0	5.6	9.0	6.6	6.3	6.0	7.4	8.2	7.1	9.9	8.1	4.4	n.a	n.a.
1978[3]	6.3	10.2	3.0	-0.9	4.2	4.1	6.4	6.7	3.6	11.1	3.3	2.6	5.1	9.5	4.7	5.5[9]	n.a.	n.a.
1979	9.2	9.6	-1.4	-1.3	5.9	7.4	5.5	8.8	6.0	7.1	5.4	3.6	4.1	2.6	5.3	6.5[10]	n.a.	n.a.
1980[4]	7.9	8.3	9.0	17.6	4.7	4.0	4.3	3.2	2.0	-7.9	2.9	1.8	-0.5	0.5	5.0[9]	4.4[11]	5.2	5.1
1981[5]	-1.4	-3.3	7.0	10.5	3.5	5.3	2.2	5.2	2.0	4.7	-3.4	-1.4	2.5	3.2	3.5[10]	2.9[12]	1.6	3.0
1982[6]	-8.5	-12.0	4.0	-3.0	6.5	1.9	3.0	-3.9	5.5	0.3	4.0	0.8	-1.5	-0.2	4.5[11]	-1.8[13]	1.0	-3.6
1983[7]	-7.2	-6.8	0.9	8.7	1.6	0.4	4.0	4.0	2.5	5.1	1.7	1.4	3.1	7.4	0.5[12]	2.0	0.0	1.1
1984[8]	1.3	8.3	6.0	15.7	4.5	9.6	4.9	5.2	3.4	6.5	4.3	7.0	7.8	22.2	4.0[13]	9.7	4.3	10.2
1985	3.6	0.8	5.5	4.4	7.0	6.4	4.5	1.7	4.0	7.5	4.0	6.8	7.7	5.9	5.1	4.3	5.4	4.0
1986	3.3	8.0	5.5	-1.3	5.3	1.2	3.7	-0.2	4.0	1.6	1.8	3.7	0.8	4.3	4.1	2.6	4.0	2.6
1987	11.5	13.2	-8.2	0.4	3.1	2.9	2.5	1.2	3.0	3.4	2.0	5.7	5.1	6.7	3.1	5.3	2.6	5.1
1988	14.6	23.5	-0.3	4.3	2.1	7.4	3.4	8.7	3.5	5.7	2.2	-0.6	2.5	10.0	4.0	8.9	4.4	9.6
1989	10.8	10.9	3.1	3.8	3.6	7.7	4.5	10.2	4.0	9.0	1.5	5.5	3.5	1.3	5.1	7.0	5.4	7.3
1990	7.1	8.8	7.4	5.5	6.0	4.5	6.9	4.9	5.5	3.5	4.0	6.6	4.0	4.5	6.0	5.9	6.3	5.8
1991	6.0	7.2	6.0	2.5	2.8	0.2	6.8	4.7	6.0	0.7	5.7	1.7	3.0	1.0	5.2	2.9	5.2	2.7
1992	4.5	6.9	5.3	1.6	5.5	-2.7	5.1	4.7	5.1	3.9	4.8	3.3	5.2	8.8	4.6	3.5	5.2	3.1
1993	7.4	5.8	4.9	-1.1	4.1	-1.8	5.8	-2.5	4.4	8.5	5.6	2.6	5.3	10.7	5.7	2.4	5.9	2.2
1994	3.5	9.0	-0.1	5.1	1.2	7.5	4.0	5.9	4.8	10.9	4.2	8.2	5.9	14.2	2.8	8.1	2.7	8.2

1. Data through June 1990 apply to West Germany only.
2. From March 3, 1977.
3. From April 4, 1978.
4. From May 1980.
5. From June 1981.
6. From April 1982.
7. From May 1983.
8. From April 1984.
9. From August 30, 1979.
10. From August 22, 1980.
11. From August 24, 1981.
12. From August 2, 1982.
13. From August 19, 1983.

Table C5. Industrial Countries: Growth of Import Volumes: Year Ahead Forecasts and First Settled Estimates (F.S.)
(Annual Percent Change)

	United States		Japan		Germany[1]		France		Italy		United Kingdom		Canada		All Industrial		Summit Seven	
	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.
1973	7.1	12.6	20.8	27.7	11.7	7.4	14.1	13.6	13.0	13.6	9.5	13.0	10.5	12.6	11.2	11.7	n.a.	n.a.
1974	1.0	-0.8	14.0	0.6	6.0	-1.1	11.1	4.4	11.0	-4.8	7.1	1.0	5.4	10.0	7.6	1.0	n.a.	n.a.
1975	-0.3	-13.2	4.5	-13.2	6.9	2.4	5.5	-5.8	-1.0	-11.4	3.5	-7.2	4.5	-4.6	3.6	-7.5	n.a.	n.a.
1976	14.5	22.6	10.0	12.0	6.5	15.4	8.2	19.1	4.0	15.2	1.3	5.3	7.8	7.7	7.3	14.6	n.a.	n.a.
1977[2]	9.6	13.4	12.4	3.9	11.0	5.7	4.0	1.4	-1.0	0.0	4.2	1.4	4.4	1.1	7.1	4.8	n.a.	n.a.
1978[3]	3.4	7.4	8.2	6.3	6.0	7.5	6.0	6.8	4.6	7.9	5.4	4.4	-0.2	4.5	4.2	5.4[9]	n.a.	n.a.
1979	2.3	2.1	7.9	11.6	8.9	9.3	6.5	11.7	10.7	14.0	4.3	11.6	1.5	9.2	5.6	8.6[10]	n.a.	n.a.
1980[4]	-2.5	-6.0	-3.5	-7.4	4.2	2.1	4.0	5.5	6.5	2.0	-0.8	-5.2	2.0	-4.1	1.5[9]	-0.8[11]	0.7	-1.8
1981[5]	0.4	0.6	1.4	-2.0	0.0	-3.5	0.0	-1.2	-4.0	-10.0	-2.2	-4.7	3.5	2.4	-0.2[10]	-2.3[12]	-0.2	-2.4
1982[6]	1.0	-4.4	2.0	-0.1	2.0	0.7	5.5	3.1	5.5	2.0	10.0	5.0	-3.0	-14.7	2.0[11]	-0.5[13]	2.5	-1.1
1983[7]	3.7	10.0	2.3	1.3	0.9	5.4	-0.7	-1.6	1.5	1.0	4.2	7.1	1.5	14.7	2.1[12]	4.1	2.5	5.4
1984[8]	15.2	22.8	3.8	10.4	4.0	5.5	0.0	3.6	4.0	9.2	6.2	10.3	13.5	18.4	6.6[13]	11.7	7.9	13.4
1985	11.1	4.5	5.5	0.4	4.7	4.5	1.5	4.9	6.5	8.9	4.7	5.5	7.7	9.3	6.5	4.8	7.0	4.7
1986	5.8	14.8	3.7	7.2	5.4	5.9	3.6	6.9	5.5	4.4	4.0	6.4	3.9	8.0	4.7	8.4	4.8	8.9
1987	3.9	5.5	7.9	9.1	4.8	5.4	5.7	6.2	8.0	10.8	5.5	7.4	0.2	8.2	4.9	6.9	5.0	6.7
1988	1.2	7.0	5.9	16.7	4.5	6.7	4.8	9.0	5.4	7.0	4.5	12.8	3.0	14.6	3.6	9.5	3.7	9.9
1989	8.5	5.8	4.4	7.8	4.0	7.1	4.6	10.7	4.9	8.3	2.9	7.8	5.8	4.8	5.4	8.1	5.7	7.8
1990	7.2	3.3	7.7	5.8	6.4	12.8	5.7	5.2	6.5	4.5	1.7	1.2	3.8	-0.4	5.6	5.2	6.0	5.3
1991	1.4	0.6	4.6	2.8	8.2	14.4	6.6	2.8	5.6	4.8	2.5	-2.8	2.6	2.3	4.5	2.4	4.1	2.8
1992	7.2	10.9	6.6	-0.7	3.8	-4.3	4.2	1.0	4.7	3.5	3.8	6.7	3.2	6.5	4.5	3.7	5.3	3.5
1993	6.4	12.8	5.1	4.2	3.0	-5.9	5.7	-5.9	4.0	-10.4	4.5	3.4	5.3	11.0	5.1	1.8	5.6	3.3
1994	4.9	13.4	6.2	8.4	1.2	7.1	3.3	6.8	3.3	9.8	5.0	6.1	3.3	10.5	3.4	9.2	4.0	9.6

1. Data through June 1990 apply to West Germany only.
2. From March 3, 1977.
3. From April 4, 1978.
4. From May 1980.
5. From June 1981.
6. From April 1982.
7. From May 1983.
8. From April 1984.
9. From August 30, 1979.
10. From August 22, 1980.
11. From August 24, 1981.
12. From August 2, 1982.
13. From August 19, 1983.

Table C6. World Trade Volumes and Terms of Trade: Year Ahead Forecasts and First Settled Estimates
(Annual Percent Change)

	World Trade		Industrial Countries' Terms of Trade	
	Forecast	Estimate	Forecast	Estimate
1973	*10.0*[1]	12.5	*0.4*[3]	-2.5
1974	*8.9*[1]	6.0	*-2.9*[1]	-11.2
1975	*4.0*	-4.6[2]	*1.8*	2.9
1976	*6.5*	12.0	*-0.5*	-0.5[3]
1977	*7.4*[2]	5.0[2]	*-0.4*	-0.7
1978	*5.0*	5.0	*1.0*[3]	3.0[3]
1979	*5.0*[2]	7.0	*0.3*	-2.5
1980	*4.0*	2.0	*-1.5*[3]	-6.7
1981	*3.0*	0.5	*-0.5*	-0.8
1982	*5.5*	-2.5	*0.0*	2.4
1983	*5.0*	2.0	*0.0*	2.2
1984	*4.5*	8.5	*0.0*	-0.4
1985	*5.5*	3.1	*0.4*	0.9
1986	*4.3*	4.8	*1.0*	9.0
1987	*3.8*	5.8	*1.7*	0.5
1988	*4.4*	9.0	*-0.6*	1.6
1989	*5.6*	7.3	*0.1*	-0.2
1990	*5.7*	4.3	*0.0*	-0.4
1991	*5.3*	2.3	*-0.2*	1.6
1992	*5.0*	4.6	*-0.5*	1.5
1993	*6.7*	4.0	*-0.8*	1.6
1994	*5.0*	8.7	*0.3*	0.4

1. Figures are computed as the simple average of export and import growth figures.
2. World imports in volume.
3. Figures are computed from those given on export and import unit values.

Table C7. Developing Countries: Real GDP: Year Ahead Forecasts and First Settled Estimates (F.S.)
(Annual Percent Change)

	Africa		Asia		Europe		Middle East		Western Hemisphere		Nonfuel Exporters	
	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.
1979	*4.0*	2.9	*6.5*	3.2	*n.a.*	4.5	*6.7*	7.6	*5.5*	6.5	*5.8*[1]	4.8[2]
1980	*3.3*	4.8	*6.2*	4.8	*3.2*	1.7	*5.3*	6.6	*5.9*	5.9	*5.5*[2]	4.8[2]
1981	*4.3*	2.7	*5.8*	4.8	*3.9*	2.3	*6.5*	4.9	*5.2*	0.5	*5.2*[2]	2.8[2]
1982	*3.7*	0.6	*6.4*	5.2	*3.1*	2.3	*8.3*	3.5	*4.4*	-1.8	*5.1*[2]	1.7[2]
1983	*2.0*	0.8	*5.6*	7.0	*2.6*	0.9	*5.5*	3.8	*3.2*	-2.8	*4.0*[2]	1.8[2]
1984	*3.0*	2.6	*5.2*	8.1	*2.3*	3.5	*4.2*	1.7	*2.8*	3.1	*3.7*[2]	5.6
1985	*3.6*	2.0	*5.8*	6.0	*2.8*	2.2	*4.6*	-1.2	*3.4*	3.7	*4.3*[2]	4.8
1986	*3.1*	0.8	*6.0*	6.3	*3.3*	3.2	*2.6*	1.2	*3.3*	4.4	*4.6*	5.8
1987	*1.3*	2.3	*4.6*	6.8	*2.4*	2.5	*0.1*	-0.5	*3.5*	2.5	*3.9*	4.6
1988	*3.3*	2.2	*5.9*	9.2	*2.9*	1.2	*2.7*	3.5	*4.7*	0.7	*4.9*	4.9
1989	*2.8*	3.2	*6.3*	5.0	*2.8*	-1.4	*1.8*	3.7	*3.4*	1.6	*4.6*	2.9
1990	*2.8*	2.1	*6.1*	5.5	*3.0*	-2.7	*3.0*	0.7	*2.5*	-0.9	*4.2*	0.7
1991	*3.2*	1.5	*5.4*	5.7	*2.1*	n.a.	*3.7*	n.a.	*3.6*	2.9	*4.2*	4.0
1992	*3.3*	0.4	*5.2*	7.8	*-3.3*	n.a.	*11.2*	n.a.	*2.2*	2.5	*1.7*	5.7
1993	*3.3*	1.0	*6.6*	8.5	*n.a.*	n.a.	*n.a.*	n.a.	*3.9*	3.4	*5.3*	7.1
1994	*2.6*	2.6	*7.1*	8.5	*n.a.*	n.a.	*n.a.*	n.a.	*3.5*	4.6	*5.8*	6.8

1. Less developed countries.
2. Non-oil developing countries.

Table C8. Developing Countries: Consumer Prices: Year Ahead Forecasts and First Settled Estimates (F.S.)
(Annual Percent Change)

	Africa		Asia		Europe		Middle East		West Hemisphere		Nonfuel Exporters	
	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.
1979	*16.0*	19.8	*5.4*	10.0	*n.a.*	27.3	*18.0*	26.7	*35.6*	48.8	*21.5*[1]	28.5[2]
1980	*19.1*	19.0	*8.1*	12.0	*17.9*	40.4	*24.9*	44.1	*36.9*	60.2	*24.7*[2]	32.4[2]
1981	*16.3*	22.7	*8.6*	10.6	*22.2*	26.2	*34.9*	34.7	*44.5*	65.6	*26.4*[2]	31.8[2]
1982	*16.1*	16.4	*7.1*	6.1	*22.1*	23.6	*31.2*	37.1	*55.3*	77.9	*26.5*[2]	32.9[2]
1983	*24.6*	26.5	*6.1*	5.8	*18.3*	23.2	*29.8*	39.2	*56.8*	112.7	*27.1*[2]	41.4[2]
1984	*13.6*	19.8	*4.8*	7.1	*17.2*	28.1	*33.2*	13.9	*57.4*	117.0	*25.1*[2]	46.0
1985	*14.0*	13.1	*5.3*	7.4	*20.4*	28.6	*61.4*	11.7	*61.5*	145.7	*27.1*[2]	54.4
1986	*24.2*	13.7	*6.0*	7.8	*18.8*	24.9	*13.0*	11.7	*86.5*	86.5	*37.0*	33.5
1987	*13.8*	15.8	*5.6*	8.8	*21.5*	30.3	*11.1*	14.7	*32.2*	131.2	*15.1*	43.7
1988	*10.8*	19.7	*5.7*	14.6	*22.8*	62.5	*11.3*	17.8	*64.9*	286.4	*25.9*	88.6
1989	*12.0*	20.0	*5.9*	11.7	*25.3*	171.1	*12.1*	13.7	*89.4*	538.2	*34.8*	149.5
1990	*13.7*	15.4	*9.4*	8.0	*43.3*	35.8	*14.0*	12.9	*108.4*	769.8	*45.4*	116.6
1991	*13.2*	27.1	*7.6*	9.0	*19.0*	n.a.	*14.1*	n.a.	*30.1*	163.2	*17.0*	54.7
1992	*13.6*	41.3	*8.7*	7.5	*23.6*	n.a.	*12.2*	n.a.	*55.0*	165.9	*25.5*	45.9
1993	*18.6*	32.6	*8.1*	9.7	*n.a.*	n.a.	*n.a.*	n.a.	*87.6*	236.4	*38.4*	55.7
1994	*22.6*	32.9	*7.8*	13.5	*n.a.*	n.a.	*n.a.*	n.a.	*162.9*	226.7	*42.3*	50.0

1. Less developed countries.
2. Non-oil developing countries.

Table C9. Developing Countries: Balance of Payments on Current Account: Year Ahead Forecasts and First Settled Estimates (F.S.)
(in billions of U.S. dollars)

	Africa		Asia		Europe		Middle East		West Hemisphere		Nonfuel Exports	
	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.
1978	-7.5	-7.9	-3.5	-4.8	n.a.	n.a.	-7.0	-7.3	-11.5	-12.0	-30.0[1]	-32.0[1]
1979	-8.5	-9.1	-8.0	-13.4	n.a.	n.a.	-8.5	-8.1	-13.0	-19.8	-38.0[2]	-56.1[1]
1980	-8.0	-12.1	-15.5	-23.7	n.a.	-10.9	-13.0	-7.7	-16.5	-32.5	-53.0[1]	-83.7[1]
1981	-10.5	-13.4	-25.0	-21.7	-11.0	-8.4	-10.0	-10.5	-27.5	-42.4	-80.0[1]	-101.0[1]
1982	-12.5	-12.4	-25.5	-20.3	-9.0	-7.0	-8.5	-11.2	-41.5	-36.0	-100.0[1]	-84.0[1]
1983	-12.5	-10.2	-25.0	-11.5	-4.0	-5.4	-16.0	-10.2	-30.5	-15.5	-90.0[1]	-52.6[1]
1984	-12.0	-11.6	-17.5	-7.9	-4.0	-2.7	-13.5	-14.9	-21.5	-5.0	-67.5[1]	-38.9
1985	-9.6	-0.1	-6.5	-12.7	-3.0	-2.0	-10.6	0.5	-15.5	-4.6	-45.0[1]	-23.3
1986	-7.7	-9.4	-14.6	4.9	-2.1	-1.7	-16.0	-23.3	-8.0	-17.6	-39.2	-9.2
1987	-6.4	-5.0	-9.1	20.9	-1.8	0.9	-16.7	-5.2	-12.6	-11.3	-22.5	4.3
1988	-6.1	-9.4	10.0	12.3	-2.5	7.0	-7.0	-8.3	-13.8	-10.7	-14.6	10.0
1989	-7.8	-8.9	8.2	-1.9	-0.4	3.6	-13.0	0.3	-13.2	-8.9	-5.5	-9.8
1990	-7.5	-2.7	2.8	-1.7	2.1	-23.6	-0.6	10.3	-13.0	-6.9	-12.9	-35.3
1991	-8.3	-3.6	-4.6	-4.3	0.4	n.a.	13.0	n.a.	-11.4	-19.9	-21.9	-11.7
1992	-7.2	-7.6	-10.0	-4.7	-13.1	n.a.	-18.8	n.a.	-15.2	-34.4	-37.4	-17.7
1993	-7.4	-7.9	-14.2	-24.6	n.a.	n.a.	n.a.	n.a.	-27.9	-45.8	-27.4	-56.8
1994	-7.0	-11.2	-28.0	4.0	n.a.	n.a.	n.a.	n.a.	-37.0	-46.8	-48.2	-57.5

1. Non-oil developing countries.
2. Less developed countries.

Table C10. Developing Countries: Growth of Export Volumes: Year Ahead Forecasts and First Settled Estimates (F.S.)
(Annual Percent Change)

	Africa		Asia		Europe		Middle East		West Hemisphere		Nonfuel Exports	
	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.
1977	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*7.5*[7]	5.0[5]
1978	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*7.5*[6]	8.0[6]
1979	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*7.2*[5]	9.5[7]
1980	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*6.0*[6]	8.0[7]
1981	*3.8*[1]	-3.8[2]	*6.8*[1]	7.8[2]	*6.2*[1]	13.0[2]	*3.5*[1]	-1.3[2]	*12.1*[1]	8.4[2]	*8.0*[7]	4.6[7]
1982	*6.8*[2]	0.4[3]	*9.12*	1.1[3]	*5.0*[2]	1.8[3]	*-1.0*[2]	-4.7[3]	*8.2*[2]	0.2[3]	*8.0*[7]	0.4[7]
1983	*4.9*[3]	3.1[4]	*4.2*[3]	9.5[4]	*3.9*[3]	5.2[4]	*8.8*[3]	-5.3[4]	*5.4*[3]	2.5[4]	*5.5*[7]	5.8[7]
1984	*6.6*[4]	7.2	*8.6*[4]	13.9	*4.5*[4]	13.0	*5.9*[4]	0.4	*6.9*[4]	8.2	*5.5*[7]	12.0
1985	*3.8*	3.7	*6.6*	3.8	*5.2*	4.9	*7.7*	-5.4	*6.9*	-1.7	*6.2*[7]	3.4
1986	*4.2*	5.2	*6.9*	17.2	*6.0*	0.1	*3.3*	15.2	*3.1*	-7.0	*6.1*	7.7
1987	*2.9*	-2.9	*6.3*	16.6	*5.9*	7.8	*3.2*	-1.3	*5.7*	6.5	*5.6*	12.1
1988	*3.5*	3.4	*6.8*	13.1	*4.5*	5.8	*8.6*	14.6	*7.3*	8.5	*6.4*	10.7
1989	*4.7*	2.7	*9.7*	9.2	*5.7*	0.8	*2.9*	6.2	*2.7*	4.8	*7.6*	6.4
1990	*4.0*	6.1	*7.8*	7.1	*2.4*	-19.8	*3.1*	-1.0	*5.6*	4.7	*6.5*	-1.8
1991	*0.0*	2.2	*7.0*	12.3	*3.0*	n.a.	*3.7*	n.a.	*5.3*	4.0	*5.6*	9.5
1992	*2.0*	2.1	*9.0*	11.2	*-2.0*	n.a.	*7.3*	n.a.	*5.7*	8.5	*5.8*	9.8
1993	*5.5*	3.6	*11.7*	10.1	*n.a.*	n.a.	*n.a.*	n.a.	*6.4*	7.9	*10.6*	10.1
1994	*0.0*	-0.4	*11.5*	13.9	*n.a.*	n.a.	*n.a.*	n.a.	*6.7*	8.3	*9.7*	12.7

1. From June 1981.
2. From April 1982.
3. From May 1983.
4. From April 1984.
5. Less developed countries.
6. Other developing countries.
7. Non-oil developing countries.

Table C11. Developing Countries: Growth of Import Volumes: Year Ahead Forecasts and First Settled Estimates (F.S.)
(Annual Percent Change)

	Africa		Asia		Europe		Middle East		West Hemisphere		Nonfuel Exports	
	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.
1977	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*6.4*[7]	4.9[6]
1978	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*7.0*[5]	8.0[5]
1979	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*n.a.*	n.a.	*4.8*[6]	10.0[7]
1980	*0.7*	1.4[1]	*5.2*	6.2[1]	*2.5*	0.7[1]	*0.6*	1.3[1]	*-1.4*	9.8[1]	*4.0*[5]	6.0[7]
1981	*1.2*[1]	-4.5[2]	*5.1*[1]	4.4[2]	*1.0*[1]	1.5[2]	*3.3*[1]	7.0[2]	*8.5*[1]	1.2[2]	*4.5*[7]	2.9[7]
1982	*0.7*[2]	-4.1[3]	*7.1*[2]	-0.9[3]	*6.1*[2]	-6.7[3]	*8.6*[2]	-0.9[3]	*-4.7*[2]	-21.7[3]	*6.0*[7]	-8.2[7]
1983	*2.8*[1]	-7.8[4]	*6.7*[3]	8.8[4]	*0.7*[3]	0.2[4]	*4.9*[3]	5.8[4]	*-5.5*[3]	-19.0[4]	*4.0*[7]	-1.8[7]
1984	*-0.3*[4]	2.5	*7.4*[4]	5.9	*-0.9*[4]	5.9	*4.8*[4]	-5.9	*9.3*[4]	2.2	*5.0*[7]	5.0
1985	*1.9*	-7.0	*6.5*	5.6	*4.3*	4.8	*6.2*	-14.0	*6.9*	0.6	*5.7*[7]	3.4
1986	*-0.3*	-6.7	*4.6*	4.8	*5.6*	1.5	*-2.9*	-19.3	*5.0*	-1.5	*3.7*	4.0
1987	*-4.3*	-5.3	*1.7*	11.8	*6.5*	5.6	*-8.3*	-8.7	*7.9*	3.6	*3.2*	8.9
1988	*2.9*	6.1	*8.2*	17.3	*8.8*	2.0	*0.3*	0.7	*4.7*	4.5	*7.3*	11.9
1989	*2.5*	-0.5	*11.2*	13.6	*6.8*	9.8	*2.6*	2.3	*6.6*	1.5	*8.9*	9.3
1990	*1.3*	-0.2	*7.2*	7.3	*7.1*	-1.0	*4.6*	-2.6	*6.3*	6.3	*6.7*	3.2
1991	*-1.3*	-3.0	*6.1*	12.5	*4.4*	n.a.	*11.9*	n.a.	*8.7*	16.9	*4.6*	10.0
1992	*2.4*	4.8	*8.7*	12.2	*-3.8*	n.a.	*12.4*	n.a.	*5.2*	16.9	*5.7*	11.2
1993	*2.6*	-0.9	*11.9*	12.9	*n.a.*	n.a.	*n.a.*	n.a.	*8.1*	8.9	*10.7*	13.0
1994	*-2.5*	2.7	*12.3*	12.1	*n.a.*	n.a.	*n.a.*	n.a.	*5.8*	11.7	*10.2*	10.7

1. From June 1981.
2. From April 1982.
3. From May 1983.
4. From April 1984.
5. Less developed countries.
6. Other developing countries.
7. Non-oil developing countries.

Table C12. Developing Countries: Nonfuel Commodity Prices: Year Ahead Forecasts and First Settled Estimates (F.S.)
(Annual Percent Change)

	Agricultural Raw Materials		Beverages		Food		Minerals and Metals		Nonfuel Exports	
	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.	Forecast	F.S.
1981[1]	-4.6	-9.7	-22.6	-22.3	-7.2	-13.9	-11.2[5]	-14.0[5]	-10.2[6]	-14.9[6]
1982[2]	-7.1	-13.7	7.8	2.5	-16.3	-21.0	0.8[5]	-9.2[5]	-5.7[6]	-13.3[6]
1983[3]	4.9	9.4	2.3	7.6	4.2	8.8	9.6[5]	0.0[5]	6.3[6]	7.9[6]
1984[4]	8.6	4.0	6.1	14.7	8.6	-1.4	4.4[5]	-6.3[5]	7.1[6]	2.9
1985	3.6	-12.0	-3.8	-11.6	2.7	-18.6	7.8[5]	-3.5[5]	1.7[6]	-12.4
1986	2.1	-1.0	0.4	16.2	-0.3	-11.6	5.2[5]	-9.9[5]	1.1	-1.3
1987	4.3	29.4	-10.7	-28.7	0.5	7.3	3.0[5]	19.9[5]	-1.6	2.2
1988	0.4	8.2	7.9	0.2	7.7	25.3	0.1[5]	40.3	4.4	19.3
1989	-0.6	-0.7	0.4	-17.0	-0.4	0.4	-14.3[5]	5.4	-3.3	-0.7
1990	2.1	-3.5	-8.5	-13.3	-5.6	-6.9	-19.5	-8.1	-7.0	-6.9
1991	2.7	-0.6	8.7	-6.8	3.7	1.6	-10.8	-8.6	-0.5	-3.9
1992	2.6	1.8	8.8	-12.7	2.7	-0.8	-0.9	-2.5	2.4	-2.5
1993	5.9	0.5	10.1	6.9	0.7	-2.5	2.7	-15.6	3.3	-4.3
1994	6.5	10.1	11.3	74.9	1.6	5.1	3.8	16.6	5.0	18.3

1. From June 1981.
2. From April 1982.
3. From May 1983.
4. From April 1984.
5. Metals only.
6. Non-oil developing countries.

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