2003 Annual Benchmark Revisions to the Composite Indexes

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The January 23, 2003 release of The Conference Board's U.S. composite indexes of leading, coincident, and lagging indicators through December 2002 incorporated annual benchmark revisions. Benchmark revisions have long been part of the index methodology and were adopted to avoid numerous minor revisions to the index during the course of the year. The process essentially updated the composite indexes to include the revisions made to the history of the components in the past year. Throughout the year, monthly updates to the composite indexes only included revisions to the underlying component data going back six months. Since the composition of the indexes was not altered, the changes were very minor and the cyclical performance of the indexes was not affected. Nonetheless, the new benchmarked indexes are not strictly comparable to those published previously.

The last scheduled benchmark was in January 2002. However, in August 2002, The Conference Board undertook a midyear benchmark revision to accommodate significant changes, especially in the National Income and Product Accounts (NIPA), by the Bureau of Economic Analysis (BEA). The BEA announced substantial data revisions in July 2002, which in turn had significant effects on our composite indexes, most notably the coincident index. A midyear benchmark revision in August 2001 was also necessary to accommodate the conversion of many of the BEA statistics from the Standard Industrial Classification (SIC) to the North American Industrial Classification System (NAICS). However, midyear benchmark revisions to the composite indexes are not commonplace.

Standardization Factors

The Conference Board's index methodology includes an adjustment, through the standardization factors, which equalizes the volatility of each component in the index. The standardization factors are calculated by inverting the standard deviation of the monthly symmetric changes in each component and then normalized so that they add up to one. Hence, these factors only take into account the relative volatility of the component indicators. Thus, a volatile component would get a smaller resulting standardization factor but this would not necessarily mean that it has less significance to the index performance. Components that are wider in coverage, however, typically tend to be less volatile. This results in larger standardization factors for those components.

Many years ago, at the National Bureau of Economic Research and the U.S. Department of Commerce, the index methodology included component weighting. This was in addition to the volatility adjustment mentioned previously. The weights used then were derived from a complex scoring process performed on hundreds of individual economic indicators. A better performing indicator would get a larger score on the 0-100 scale. Performance was measured in terms of economic significance, statistical adequacy, timing, conformity, smoothness, and currency. The indicators with the highest scores were then selected to be included in one of the three indexes, depending on their cyclical classification. After these same scores were normalized to sum to one, they were used to act as the weights of the components of the associated index. Accordingly, the component with a higher score had more sig-

nificance to the index. Because the highest-scored indicators were selected, first to be included in the publication and then in the composite indexes, their scores were very narrowly dispersed around one. As a result, the weights were all almost equal and therefore, had little effect on the performance of the composite indexes. This process was dropped late in the 1980s and equal weights were given to each of the chosen component of the indexes.

Many users and followers of the composite indexes often wrongly refer to the standardization factors as weights. The current index methodology, when it adopted a consistent weighting system, effectively assumed that the components had equivalent importance to the performance of the indexes.

The standardization factors are updated at the same time annual benchmark revisions are undertaken. Last year's standardization factors were based on the period from 1959-2000. This year's new standardization factors are based on the period from 1959-2001. Table 1 shows the standardization factors used in 2002 and the factors for 2003. As you will see in the table, the standardization factors do not change very much from year to year.

Component Revisions and Cyclical Performance of the Composite Indexes

The BEA revisions in July 2002 affected manufacturers' new orders for consumer goods and materials, and manufacturers' new orders for nondefense capital goods. None of the other eight leading component series had any major revision in 2002.

Among the components of the coincident index, personal income less transfer payments and manufacturing and trade sales were the series mostly affected by the July 2002 BEA revisions. In December 2002, the industrial production index was reclassified from the SIC to the NAICS by the Federal Reserve. Moreover, the Federal Reserve also rebased this series as a percentage of output in 1997, changed from 1992.

Among the lagging index components, the July 2002 BEA revisions only affected the ratio of manufacturing and trade inventories to sales. Following the revisions by the Federal Reserve last December, one lagging index component, change in labor cost per unit of output manufacturing, was also revised since this particular series is calculated using industrial production for manufacturing.

One of the strengths of the index methodology is its ability to keep the indexes very stable. While revisions to the components may be substantial at times, these revisions are usually not reflected to the same extent in the index. Component revisions tend to offset each other, thereby diminishing the impact of data revisions to the index.

The levels of the new composite indexes differ from their levels prior to the revision and therefore must not be spliced. Their cyclical patterns, however, remain unchanged. The peak and trough dates of the leading, coincident, and lagging indexes, and the coincident-to-lagging ratio after the benchmark process and the adoption of the new standardization factors are the same as peak and trough dates prior to the benchmark revision. The accompanying charts show the overall effect of the benchmark revisions on the indexes.

Table 1

U.S. Composite Indexes: Components and Standardization Factors
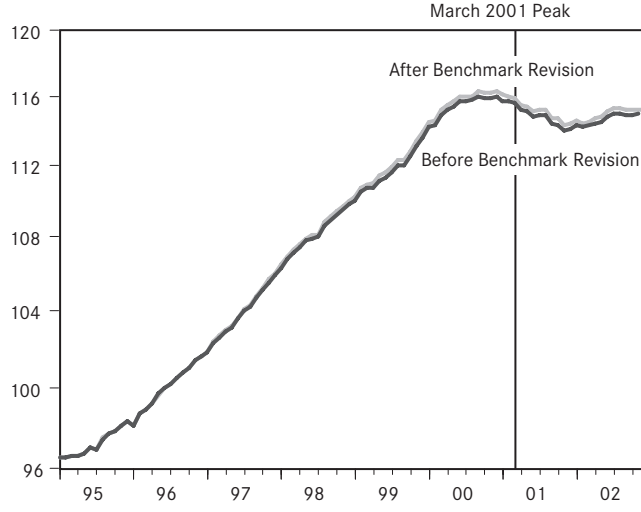
	2003	August 2002	January 2002
Leading Index			
1. Average weekly hours, manufacturing	.1946	.1812	.1812
2. Average weekly initial claims for unemployment insurance	.0268	.0261	.0241
3. Manufacturers' new orders, consumer goods and materials	.0504	.0496	.0456
4. Vendor performance, slower deliveries diffusion index	.0296	.0276	.0277
5. Manufacturers' new orders, nondefense capital goods	.0139	.0130	.0131
6. Building permits, new private housing units	.0205	.0191	.0191
7. Stock prices, 500 common stocks	.0309	.0308	.0310
8. Money supply, M2	.2775	.3038	.3068
9. Interest rate spread, 10-year Treasury bonds less federal funds	.3364	.3305	.3330
10. Index of consumer expectations	.0193	.0183	.0185
Coincident Index			
1. Employees on nonagricultural payrolls	.5186	.5230	.4805
2. Personal income less transfer payments	.2173	.2176	.2814
3. Industrial production	.1470	.1407	.1292
4. Manufacturing and trade sales	.1170	.1187	.1090
Lagging Index			
1. Average duration of unemployment	.0368	.0378	.0367
2. Inventories to sales ratio, manufacturing and trade	.1206	.1257	.1225
3. Labor cost per unit of output, manufacturing	.0693	.0624	.0611
4. Average prime rate	.2692	.2521	.2454
5. Commercial and industrial loans	.1204	.1300	.1265
6. Consumer installment credit to personal income ratio	.1951	.1992	.2209
7. Consumer price index for services	.1886	.1929	.1869

2003 Benchmark Revisions

Leading Index (1996=100)

March 2001 Peak

Before Benchmark Revision

After Benchmark Revision

116
112
108
104
100
96

95 96 97 98 99 00 01 02
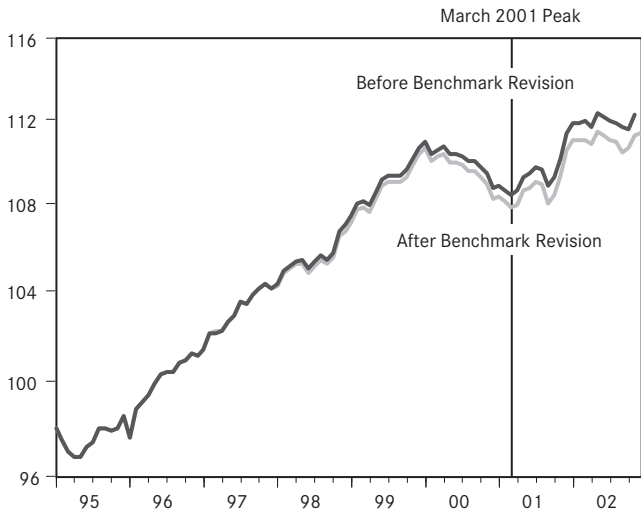
Coincident Index (1996=100)

March 2001 Peak

After Benchmark Revision

Before Benchmark Revision

120
116
112
108
104
100
96

95 96 97 98 99 00 01 02

Lagging Index (1996=100)

March 2001 Peak

Before Benchmark Revision

After Benchmark Revision

110
108
106
104
102
100
98
96

95 96 97 98 99 00 01 02
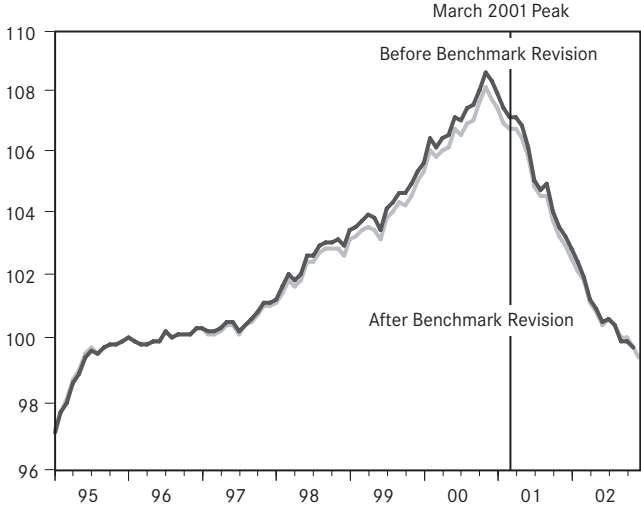
Ratio of Coincident to Lagging Index

March 2001 Peak

After Benchmark Revision

Before Benchmark Revision

1.20
1.16
1.12
1.08
1.04
1.00
0.96

95 96 97 98 99 00 01 02