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Business Cycle Indicators

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Real M2 and Its Impact on **The Conference Board Leading Economic Index**® (LEI) for the United States

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Contrary to its historical behavior as a leading indicator, real money supply, as measured by the monetary aggregate M2 adjusted for inflation, remained on an uptrend in the period prior to the start of the recession in December 2007. The behavior of real M2 at the beginning of the last recession made the recession signal from the LEI less sharp. This month's article examines the historical behavior of real M2 and its impact on the performance of the LEI in the 2007–2009 downturn.

The Changing Relationship between Real M2 and Economic Activity

Until the mid-1980s, real M2 performed well as a leading indicator. It was procyclical and anticipated turning points in general economic activity. The leading relationship and usefulness of broad monetary aggregates were documented by Victor Zarnowitz and Charlotte Boschan in the 1970s.[1] When monetary aggregates were deflated with an appropriate price index, they tended to show consistent leads ahead of business cycle turning points. This happens because nominal money growth in the late stages of an economic expansion tends to fall as banks become increasingly restrained in their ability to create deposits by the availability of reserves. At the same time, the increase in prices usually picks up late in the cycle. Thus, real money balances would typically decline ahead of an economic downturn.

However, this relationship broke down during the past two decades as a result of structural changes in the U.S. economy and the banking and financial sectors (Chart 1). The 10-year correlation between the six-month growth rates of real M2 and **The Conference Board Coincident Economic Index**® (CEI) for the United States, a measure of current economic activity, was fairly stable and high (0.8) during the 1960s and 1970s. However, this relationship deteriorated in the following decades, and it eventually became negative during the past decade. Furthermore, the growth of real M2 began to lag that of The Conference Board CEI for the United States in the mid-1990s.

Chart 1

Annual Change in Real M2 and the U.S. CEI
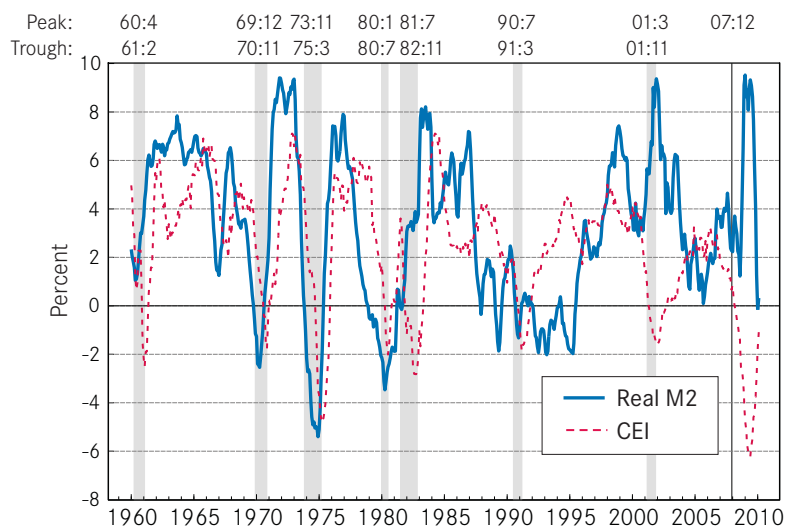
Sources: Federal Reserve Board, Bureau of Economic Analysis, and The Conference Board

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[1] Victor Zarnowitz and Charlotte Boschan, "Cyclical Indicators: An Evaluation and New Leading Indexes," reprinted in Bureau of Economic Analysis, *Handbook of Cyclical Indicators: A Supplement to Business Conditions Digest*, 1977, pp 170-184.

Recent research by Gad Levanon of The Conference Board provides further evidence of the changing relationship between real M2 and economic activity through the use of models based on recession probabilities.[2] His research shows that, compared to other leading indicators and the LEI itself, real M2 has performed poorly as a leading indicator since 1989. For every indicator studied, the quarters in the sample were ranked by the likelihood of being recession quarters and then compared with the timing of the actual recessions. For the 1989–2009 period, 10 of real M2's 12 recession signals were produced in quarters when a well-performing leading indicator should not have signaled a recession.

The breakdown in the procyclical relationship between real M2 and the coincident index can be attributed to several factors. The shift in the conduct of monetary policy in the 1980s, when the Federal Reserve abandoned targeting monetary aggregates in favor of targeting interest rates, weakened the positive link between real M2 and economic activity. In addition, the innovations that resulted from financial market deregulation—the creation of interest-

bearing checking accounts and money market funds— spurred safe-haven demand for real M2. In periods of high risk aversion, such as those that occur before or during recessions, investors would shift away from risky assets to money, thereby raising M2 balances and creating a negative relationship between real M2 and economic activity. During these periods, inflation could also fall, which would push real M2 higher and possibly magnify its negative relationship to economic activity. The downtrend in inflation since the 1980s could also have contributed to the poor performance of real M2, since it was the interaction between nominal money balances and inflation that was believed to be important in making real M2 a suitable leading indicator. A negative relationship between real money supply and economic activity could occur when nominal M2 is rising faster than the price level.

The Impact of Real M2 on the LEI in 2007

Until the 1990s, real M2 had performed fairly well in signaling peaks and troughs in economic activity. Since then, real M2 has not conformed well to the business cycle, and it even missed the 2001 and 2007 recessions (Chart 2).

Chart 2
Cyclical Timing of Real M2

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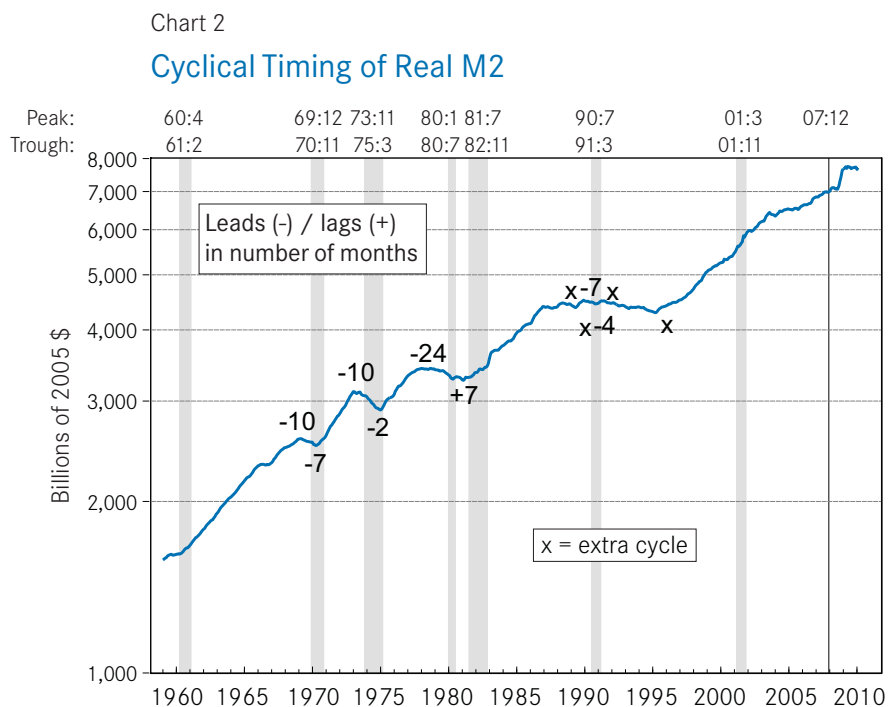
2   Gad Levanon, "Evaluating and Comparing Leading and Coincident Economic Indicators," *Business Economics*, Vol. 45, No. 1, 2010, pp. 16–27.

From 2007 to 2008, the correlation between the monthly changes in real M2 and the CEI was -0.6, while the correlation for real M2 and real GDP was -0.7. Since real M2 continued to increase from 2007 to 2008, the declines in the LEI during this period were smaller compared to what they would have been had M2 not been in the index (Chart 3).[3]

Without real M2, the six-month declines in the LEI would have exceeded 5.0 percent (annual rate) at the beginning of 2008, which, according to the Three Ds criteria, would have been a clearer recession signal than the one the present LEI (including real M2) produced.[4] It should be noted that real GDP did not contract severely until the second half of 2008.

Chart 3

U.S. LEI with and without Real M2

Six-Month Annual Rate of Change

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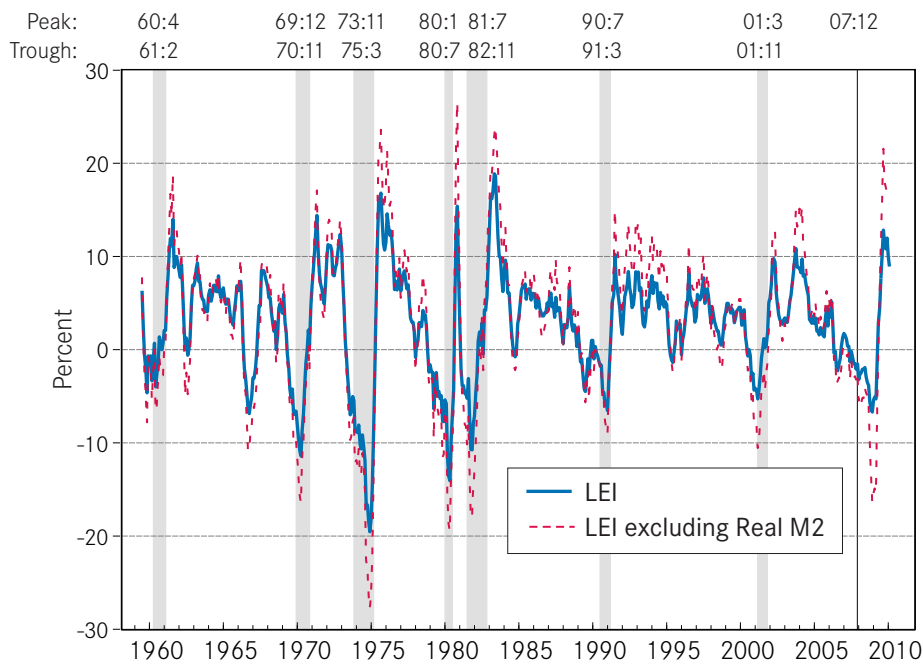
[3]   In general, the amplitude in the present LEI is smaller than if real M2 was excluded from the index.

[4]   According to the "Three Ds" rule, a recession usually follows when the (annualized) six-month decline in the LEI reaches 4.5 percent and the six-month diffusion falls below 50 percent.

On the other hand, the peak of the LEI ahead of the latest recession without real M2 would have been much earlier and far less credible. If real M2 is excluded, the leading index would have reached a turning point in January 2006, which is 23 months ahead of the cyclical peak. The turning point in the current leading index is 12 months (Table 1). An earlier peak would have also eliminated the essentially flat period from January 2006 to July 2007—a pattern that was generally consistent with economic conditions prevailing at that time. All previous peaks of the LEI are unaffected by the omission of real M2. Excluding real M2 from the LEI would change some of its troughs and reduce the median lead at troughs from 7 months to 2 months and the average lead from 5.9 months to 2.9 months.

The Future of Real M2 as an Indicator

The Conference Board reviews the components and composite indexes with the BCI Advisory Panel at regular intervals. When research reveals that significant improvements for the LEI are possible, changes may be made to its methodology and composition. Real M2 has performed poorly as a leading indicator in the past two business cycles, and there is growing evidence of its negative influence on the LEI. Therefore, we are seriously considering removing real M2 and replacing it with a suitable indicator of monetary and credit conditions. Future issues will report on the results of further research on the possible options.

Table 1
Leads (-)/Lags (+) of the LEI with and without Real M2 (Number of Months)

Business Cycle Peaks	LEI	LEI excluding Real M2	Business Cycle Troughs	LEI	LEI excluding Real M2
April 1960	−10	−10	February 1961	−11	−2
December 1969	−8	−8	November 1970	−7	0
November 1973	−9	−9	March 1975	−2	−2
January 1980	−14	−15	July 1980	−2	−2
July 1981	−8	−8	November 1982	−10	−10
July 1990	−18	−18	March 1991	−2	−2
March 2001	−11	−11	November 2001	−7	−2
December 2007	−12	−23			
Mean	−11.3	−12.8	Mean	−5.9	−2.9
Median	−10.5	−10.5	Median	−7.0	−2.0
Standard deviation	3.4	5.4	Standard deviation	3.9	3.2
Extra	1	1	Extra	1	1
Missed	0	0	Missed	0	0

If you have suggestions or comments about the selection and use of indicators, please contact us (indicators@conferenceboard.org).