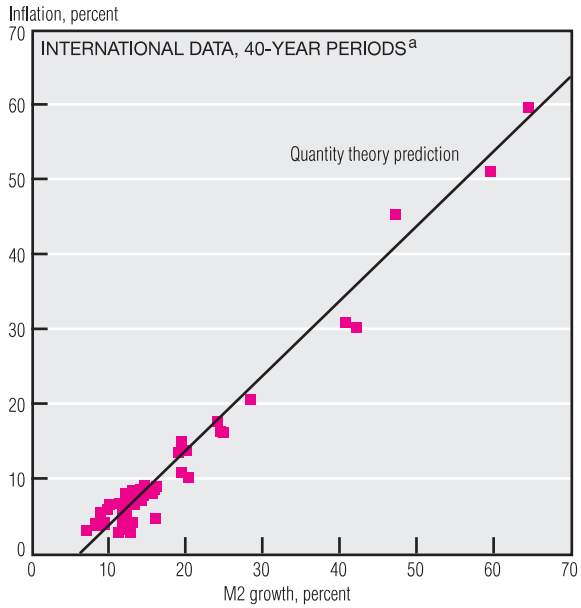
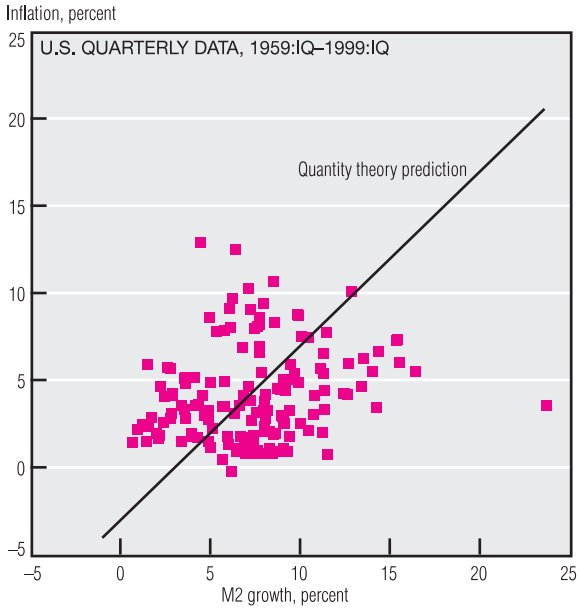
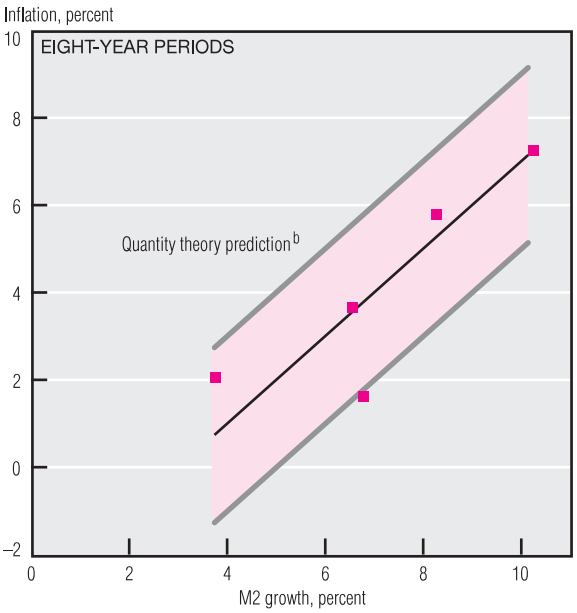
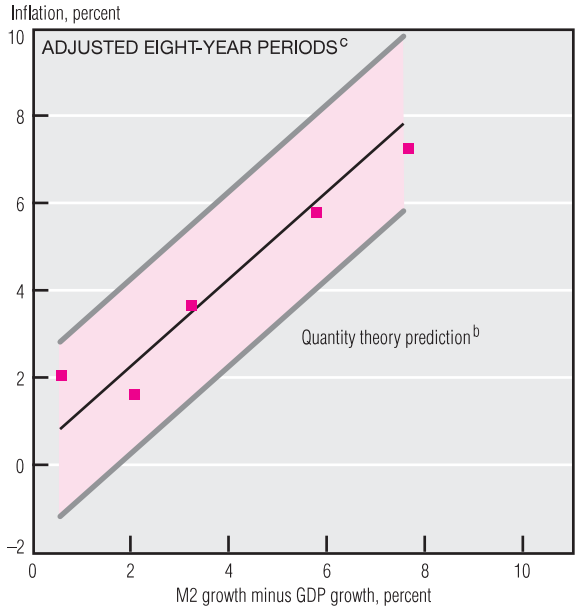
Money Growth and Inflation









a. Includes 49 nations for which at least 40 years of continuous data are available in *International Financial Statistics.*
b. The shaded region represents the quantity theory prediction, a 45-degree line through the grand mean of the data, plus or minus 2%.
c. Adjusted for GDP growth.
NOTE: Data are annual except where noted.
SOURCES: U.S. Department of Commerce, Bureau of Labor Statistics; Board of Governors of the Federal Reserve System; and International Monetary Fund, *International Financial Statistics.*

One of the Federal Reserve's principal objectives in conducting monetary policy is to maintain low inflation. The Fed's main instrument for achieving that objective is its control of the nation's money supply. To the extent that there is a strong link between inflation and money supply growth, the low-inflation objective can be readily achieved.

The quantity theory of money provides a clear prediction about the relationship between money growth and inflation, asserting that money supply growth is the primary factor determining the inflation rate. In its strictest form, the theory holds that inflation increases one-for-one with money growth.

Over long-term horizons, the quantity theory has been an empirical success. The average rates of money growth and inflation over long periods of time and across many countries show a striking one-to-one connection between money growth and inflation, as predicted by the quantity theory.

Unfortunately, this connection is not clear for short-term horizons—periods, such as a quarter or a year, over which the Federal Reserve might seek to maintain low inflation. Suppose, for instance, that inflation averaged 3% in the long run but bounced between 20% and –14% from year to year. Few people would consider this scenario desirable.

How long a horizon, then, is required for the quantity theory to hold? To answer that question, one may compare the average annual growth rates of the money supply and the price level over different time horizons, averaging money growth and inflation data from 1959 through 1999 over periods of eight,

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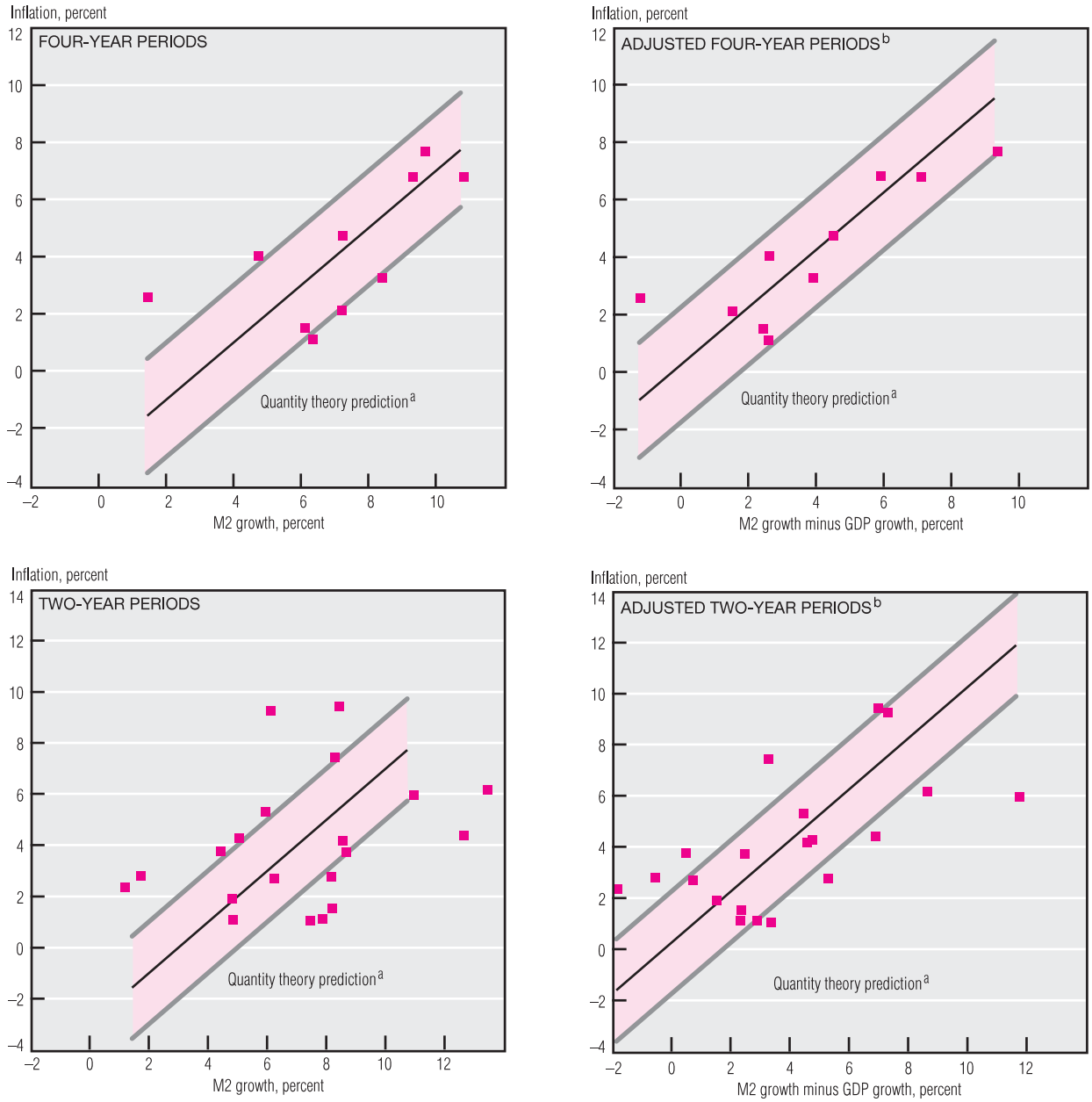
Money Growth and Inflation (cont.)



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four, and two years. Charts drawn from these data suggest that although there is a positive relationship between money growth and inflation at each of these intervals, none of the relationships is especially close. One might conclude, however, that the quantity theory holds reasonably well over eight-year periods.

Possibly the relationship between money and inflation over these horizons is not especially close because real output growth varies across periods. Economic theory says that periods of high real output growth will be periods of high money demand growth and thus of lower inflation. One way to adjust for differences in real GDP growth across periods is simply to subtract output growth from money supply growth. This produces a measure of the "excess" growth in money supply above that justified by output growth.

Adjusting for differences in real output growth substantially tightens the relationship between money growth and inflation over all time horizons. Over eight-year and four-year periods, the relationship is close to the 45-degree line predicted by the quantity theory. And while the two-year relationship is not especially tight, there is a clear positive association.

These results accord with the current view that quarterly or even annual growth rates in the monetary aggregates provide limited information as to inflation's short-term behavior. However, the findings do suggest that relatively strong money growth rates exceeding GDP growth for periods of four years—and perhaps as short as two years—should concern policymakers. Whether the money growth rates experienced in the last two years fit this pattern remains to be seen.