PUTTING IT ALL TOGETHER: THE ECRI CUBE

The economy is a highly complex system. But econometricians typically build models from equations that try to mimic the way it has moved in the past. Such models oversimplify the real world and fail to capture the complexity that produces economic fluctuations. The forecasting record shows that these models break down when they are needed most—at predicting turning points when the economy shifts directions and the rules of the game change.

We've shown that the economy's complexity cannot be captured in a single leading index. Our forecasting success comes from a many-cycles view that monitors events as they actually happen, tracking leading indicators to measure the risk of a directional change in many different aspects of the economy. Only in that way can we capture the nuances of the economy's gyrations.
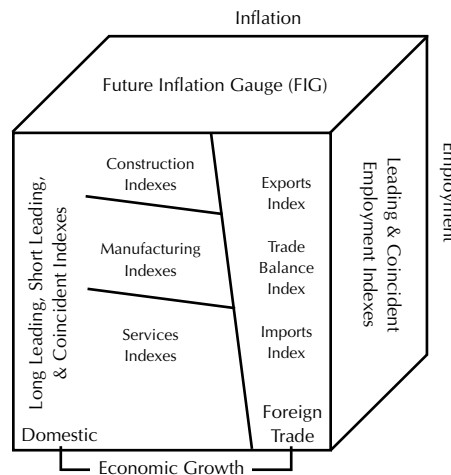
The interrelationships among different parts of the economy are not static (as most econometric models assume) but dynamic, i.e., ever-shifting. The challenge of a many-cycles approach is in combining these multiple cycles into one coherent outlook. In order to accurately observe and forecast the economy, we need to follow its three key aspects—aggregate economic activity, inflation, and employment—including the numerous specific indicators tracking the durable sequences within those cycles. How can all of this be captured and monitored at one time?

In the last ten years, our observations have crystallized to form the multidimensional framework that we call the *economic cycle cube*. It gives us a representation of what is going on in the economy's complex organic system.

Economic activity, employment, and inflation form the three dimensions of the cube. We further divide economic activity into foreign trade and domestic activity. Finally, domestic activity is sliced up both by sector and by long and short leading indicators. In this way, the full array of leading indexes monitored at ECRI (more than 100 in all) can be organized to produce a coherent and evolving outlook.

To be sure, the majority of individuals and small businesses have no special need for such a sophisticated "dashboard." However, in working with global corporations and financial institutions, we have found that such a state-of-the-art cockpit can be useful (much as a commercial jetliner has a far more sophisticated array of instruments than does a single-propeller private airplane).

The Economic Cycle Cube

Inflation

Future Inflation Gauge (FIG)

Construction Indexes

Manufacturing Indexes

Services Indexes

Exports Index

Trade Balance Index

Imports Index

Long Leading, Short Leading, & Coincident Indexes

Leading & Coincident Employment Indexes

Employment

Domestic

Foreign Trade

Economic Growth

Three key aspects of the economy are shown—economic growth, inflation, and employment. The economic growth aspect is sliced up into areas covered by specialized leading indexes.

The cube construct enables ECRI to view growth and inflation in the economy independently, allowing us to see when they are moving in or out of sync. The cube also provides us with a mental framework for arranging and making sense of the constant flow of economic data that would be impossible to manage otherwise.

Each of our composite indexes organizes and distills data on a relatively small scale. But as the number of indexes increases with our many-cycles approach, it is necessary to create a larger framework to organize them all. Each month, as countless bits of economic data are produced worldwide, we focus on the data needed to update our indexes, then interpret their performance within the framework of the cube.

The cube represents the state of the art in economic cycle analysis in terms of the variety of leading indicators it allows us to analyze. But our knowledge keeps growing as we continue our research and observation. New cyclical relationships are sure to be discovered or come into greater focus as our understanding of the economy evolves. Our development of indicators for new countries will add levels of nuance and insight beyond our reach today. While we do not know exactly what shape the research will take in the future, we are establishing "cubes" with similar systematically interrelated parts for all the major economies in the world.

Both stagflation and inflation-free growth are hard for most economic models to predict, as they require modifications to standard economic theories. The cube does not require any modification in order to suggest a nonstandard economic outlook. Key aspects of the economy are placed in separate but loosely related dimensions, so there is no contradiction in forecasting cycles that

ECRI's International Coverage
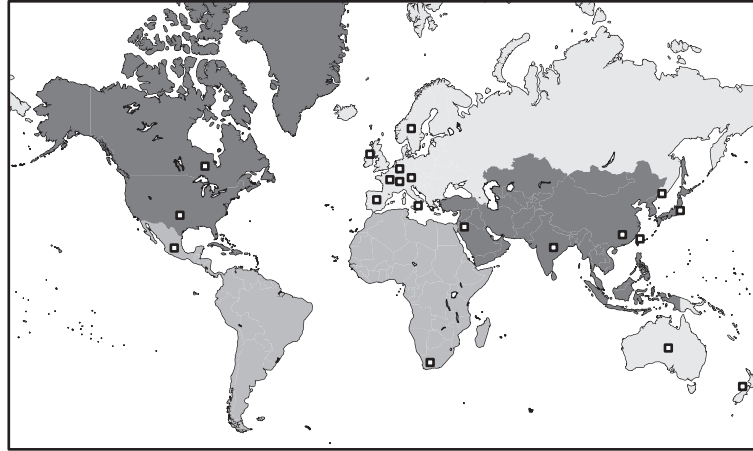
Each little cube represents an economy covered by ECRI indexes.

may or may not be in sync. While inflation-free growth and even two-speed economies may be unusual developments, they are entirely predictable when observed through the cube framework. Such powerful insights are invaluable when the consensus is confounded by divergences from standard models of the economy.

## THE PROOF IS IN THE PUDDING

The cube's "many-cycles" perspective has proven its merit numerous times in recent years, allowing us to build a consistent track record of predictions. Standard econometric modeling approaches that many economists and businesses still follow are unable to duplicate our record. In recent years, economic growth, inflation, and employment cycles have sometimes operated out of sync, as they have on many occasions in the postwar era.

Employment declined in 1976 and 1978, for example, even though inflation continued to climb, creating what came to be known as stagflation—economic stagnation with inflation. There were also several episodes in the postwar era when employment grew strongly without causing inflation. Out of thirteen upswings in employment during the postwar period, ten were followed by an inflation upswing within a year or so. This emboldened some econometric model builders to assume that inflation *always* rises when the jobless rate drops below a threshold. However, in two cases, the inflation upswing started *before* the upswing in employment began, and in 1980, 1991, and 1996, a sustained upswing in employment was accompanied by an inflation *downturn*. Models that assumed stable links between unemployment and inflation proved inadequate for forecasting what happened during the late 1990s boom.

The cube's ability to see through the confusion has paid handsome dividends for those who followed our work. Five months before the start of the 1990–91 recession, ECRI's Leading Employment Index forecast a sharp, recessionary rise in the jobless rate. Combined with weakness in our leading indexes of growth, this made it clear that a recession was imminent. The recession of 1990–91 started in July 1990, but no one "predicted" it until well after the fact. When the recovery began in early 1991, most failed to note its arrival because the jobless rate kept rising even though economic activity, led by the service sector, was picking up—as anticipated by the Leading Services Index (see chart on facing page). Many companies missed the so-called jobless recovery because it looked like no recovery at all. Yet those who prepared for the upturn enjoyed a significant competitive advantage.

The cube also provided critical insights in the late 1990s,

U.S. Leading Services Index, Growth Rate (%)

Shaded area represents 1990–91 recession.
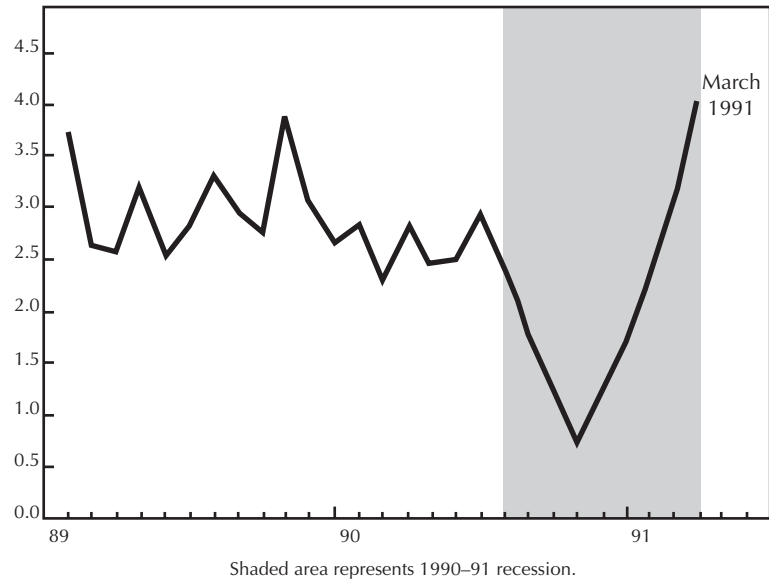
Growth in the Leading Services Index anticipated the end of the 1991 recession.

when the U.S. economy experienced several years of strong non-inflationary growth. To explain this phenomenon many had to invoke a "new paradigm" of inflation-free growth. During this period, the Future Inflation Gauge (FIG) accurately predicted subdued inflation, even as our separate leading indicators of economic growth correctly forecast a robust economy. In other words, we did not need to create any new indexes to predict or explain these events—the ECRI cube had no problem predicting the phenomenon of inflation-free growth. Rather than credit a productivity miracle, we could see (through the FIG) that overall inflationary pressures were being kept in check primarily by falling import prices rather than New Economy productivity.

During that period, U.S. Federal Reserve policy correlated remarkably with cycles in the FIG. So it was not surprising that during congressional testimony Alan Greenspan said that he would look very closely at our inflation indicators.[4] A recent biography of Greenspan stated that the FIG is one of his favorite indicators.[5]

In 1997, one of the nation's largest mutual funds, which follows the ECRI cube closely, took particular interest in the plunge in our Japanese Long Leading Index of economic growth, which was predicting a new recession. It was not just the Japanese gov-

Future Inflation Gauge, Fed Funds Rate, and CPI Inflation, 1988–2001

FIG base year 1992=100
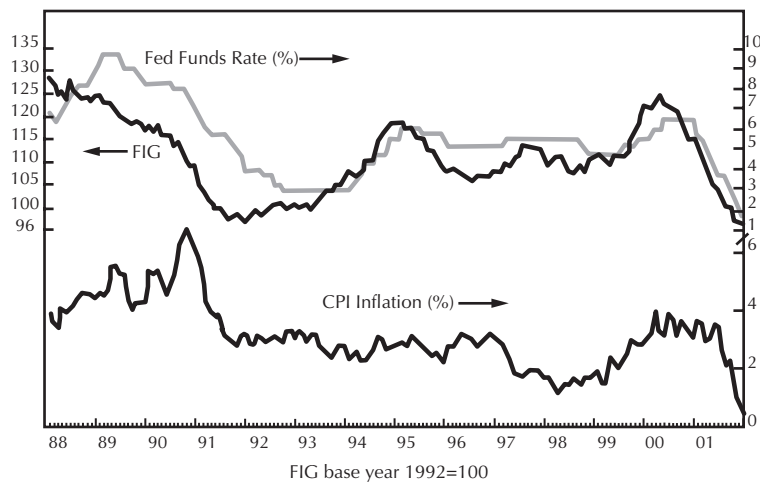
During this period, when the Fed moved preemptively ahead of inflation, the Future Inflation Gauge anticipated the ups and downs in the Fed funds rate. Before the 1990–91 and 2001 recessions, which lowered inflation sharply, the Fed funds rate lagged noticeably behind the Future Inflation Gauge.

ernment that was oblivious to this threat, but Japanese businesses as well. In June 1997, three months into the new recession, the Bank of Japan's respected Tankan survey showed business optimism climbing to a five-year high. Even so, Japanese government bonds were yielding only 2¾ percent. Our client, based on our recession call, decided to bet that those yields would fall much further. As the recession deepened, those yields approached 1 percent. Because the price of bonds rises when their yields drop, they profited handsomely from that recession call.

In June 1998, we made a presentation to the Bank of England at the behest of one of the monetary policy committee members, who was also an ECRI client. As luck would have it, the Bank had just raised interest rates that morning.

Awkwardly, our presentation showed a sharp weakening in the U.K. Long Leading Index of the economy, predicting a serious slowdown ahead, contrary to the convictions of the audience. Our host diplomatically concluded the meeting by saying that "the proof is in the pudding." Four months later, the Bank started slashing interest rates and the U.K. economy averted a recession.

As the late-1990s boom became an unsustainable bubble, many relied on their faith in a new paradigm to deny that a day of reckoning was at hand. The ECRI cube, on the other hand, detected the rise in inflation pressures that led the Fed to raise rates. This set the stage for a slowdown in economic activity, and the plunging profits and rising unemployment that would help trigger the 2001 recession. Moore did not live to see that call. A year to the day after his passing, our indicators plunged to such an extent that we were forced to make the recession call.

Many thought that Moore's personal experience and expertise had been responsible for the successful calls we had made in the past. When we predicted the recession of 1990–91, for instance, some chalked our success up to Moore's gut feel for the economy rather than credit the tools he had developed. The 2001 call proved once and for all that it was ECRI's indicators, viewed in the context of the cube, that made recessions and recoveries predictable. The success of the tools he developed is a fitting tribute to Moore's legacy.

When most analysts woke up to the reality of the recession, it was about to end. Our leading indicators of overall growth correctly called the recovery, but in early 2002, belated pessimism fueled much talk of a double-dip recession, which never happened. Then, as corporate scandals grew, geopolitical tensions flared up, and stock prices plunged, deflation fears became widespread. Our leading inflation indicators properly allayed those concerns as well.

In early 2003, economic growth was held back by the uncertainty surrounding the Iraq War. Once the war began and stocks rebounded, many expected job growth to snap right back, but our indicators told a different story. While the leading indexes of overall growth, along with the leading services index, pointed to a robust upturn, the leading manufacturing index languished, as did our leading employment index. The array of indicators that make up the cube correctly foresaw a lopsided recovery—more in GDP and less in jobs, more in services and less in manufacturing—pointing to a structural shift in manufacturing employment. Once again, our state-of-the-art forecasting tools cut through the confusion with clarity and precision.