Forecasting in Uncertain Times

Additional Information

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Introduction

My talk today is about forecasting in uncertain economic times. A very wise man named Yogi Berra once said "the future ain't what it used to be." Economic forecasters know exactly what he means. As a member of the FOMC, the Federal Reserve's policy-making arm, I am often asked about my economic outlook. But I am less often asked about how I arrive at that outlook. I thought it would be especially useful to spend this time with you today to give you a brief—and I hope demystifying—look at forecasting at the Federal Reserve Bank of Cleveland.

In my remarks today, I'd like to cover three broad areas related to forecasting. First I will discuss why and how we develop our forecasts. Then I will describe why the role of judgment becomes paramount for forecasting during uncertain times such as these. I will finish by describing my current economic outlook.

As always, the views I express today are mine alone and do not necessarily reflect those of my colleagues in the Federal Reserve System.

Forecasting at the Federal Reserve Bank of Cleveland: Why and How

Let me start with why we forecast. The Federal Reserve has been given a dual mandate by Congress to promote maximum employment and stable prices. We calibrate monetary policy to achieve these objectives. However, monetary policy affects the economy with a lag, and to paraphrase the Nobel laureate Milton Friedman, a lag that is both long and variable. Even though the decisions we make today may have an immediate effect on financial markets, their effect on output, employment, and prices develops much more slowly, and will begin to show up six to 18 months after a monetary policy decision. Consequently, in setting monetary policy, the Federal Reserve has to be forward looking.

So to make the best decisions we can, we must project future economic conditions with our own potential policy actions in mind. Unlike many private forecasters, our forecasts are not designed to just be our single best estimate about the future. Instead, they are intended to provide us with a range of scenarios that might occur based on differing policy choices. The objective of the exercise is to select those policy options that will best help us achieve our dual mandate of promoting both price stability and maximum employment.

This is why we forecast. Now, let me describe how we forecast. Any economic forecast incorporates three essential ingredients, and they are used in different proportions depending on the forecaster and his

or her resources. These ingredients are data, models, and judgment.

First, there is data—the raw material of any forecast. We have data on the economy from a variety of sources, which are fairly complete over the past 50 to 60 years. Unfortunately, prior to the 1950s, most economic data are inconsistent, unreliable, or unavailable. It is interesting to note that data from the Great Depression era are not as complete, which presents a challenge as such data would have been very useful in light of the financial crisis we have just lived through.

The science and art of forecasting, then, is to develop techniques that take these data and wring out every bit of useful information possible from them. That's where models come in. A model, simply put, is a mathematical description of the economy. Our models at the Federal Reserve Bank of Cleveland are intended to describe our national U.S. economy, capturing the relationships in the data. Think of a composer who takes lots of musical notes and combines them into a musical score. Just as the score provides a framework for the individual notes to make sense, a forecasting model provides a framework for economic data to make sense.

We start with a forecast produced by a model that draws on the historical experience from the past half-century of data to inform our view of the future. This historical dimension is vital. I can't help but think of Mark Twain's famous remark that "history does not repeat itself, but it often rhymes." Of course, despite the useful lessons of history, no past experience occurs again in exactly the same way, and the economy inevitably changes and evolves in ways that cannot be captured precisely with any mathematical model.

For that reason, we need to adjust our model's predictions with the third and possibly most important economic forecasting ingredient — and that is judgment. Think of my example of the musical score. Just as every conductor's expert interpretation of a musical score will be slightly different based upon his or her judgment, we alter our model's forecast based on our interpretation of current conditions. Weighing this balance between the force of history and the force of current events is critical to the forecasting process because ignoring either one can easily lead to bad projections.

One fairly recent and prominent example of this interplay between models and judgment came during the dot.com period. The tech boom was in high gear, and labor productivity growth rates surpassed the levels we expected to see. These rates moved from near 2 percent in the mid-1990s to more than 3 percent by 1999. Models generally failed to anticipate this development because it was not in their history.

During the tech boom, the FOMC, using judgment, correctly recognized this productivity burst and how it contributed to lower inflation, and set monetary policy accordingly. Taking model-based forecasts of productivity growth and using our judgment to adjust them higher was clearly the right thing to do, and serves as an example of how just relying on models and history while ignoring or misinterpreting current conditions can spell trouble for policymakers. This example illustrates why the interplay of historical data, models, and judgment about current conditions becomes so very vital in structuring economic forecasts.

When Judgment is Paramount: Forecasting in Uncertain Times

Let me now turn to the challenges of forecasting during today's uncertain times. I know that some of you in this room produce economic forecasts for your organizations, and if you do, you know

that even under normal circumstances, forecasting is a tough job. During this crisis, it has been even more challenging. And, as forecasters, it is during times of uncertainty that the role of judgment becomes especially important.

One way to see this is by looking at the growing importance of judgment as this most recent recession unfolded. The initial phase of the recession was moderate and heavily connected to slowing in the housing sector. Indeed, the second quarter of 2008 had many signs of a recovery, with GDP posting a surprising spurt of growth. As we all know too well, those positive signs were fleeting. Models were telling us that the recovery was beginning; after all, the average recession lasts less than three quarters. At the same time, discouraging financial market information kept coming in over the summer, which weighed against the sustainability of the recovery. In September, the financial crisis deepened sharply following the collapse of Lehman Brothers. Outlooks were repeatedly revised down as forecasters, both public and private, tried to catch up with financial markets.

What happened? As the decline in housing prices began to accelerate across the country, this exposed underlying cracks in the financial system. Foreclosures began to rise, loan losses mounted, and housing prices dropped even more, creating a downward spiral not seen since the 1930s.

This episode revealed three clear reasons why models became less useful and why the use of judgment has become so critical. First, as I mentioned earlier, economic data go back only as far as the 1950s, so our model could not take into account housing price declines and troubles in the banking sector that had not been experienced since the 1930s. Second, with hindsight it is clear that macroeconomic models do not adequately capture the financial intermediation that has come to characterize today's financial system or how it affects the real economy. Third, the emergency measures that the Federal Reserve took during this crisis, such as near-zero short-term interest rates or the large increase in our balance sheet, were entirely unprecedented and not accommodated by our models. For these three reasons, we have had to monitor current events closely and continuously apply judgment to the forecasting process.

And although we have weathered the worst of the financial crisis, we are still learning a lot about the effects of our policy tools on the economy as the recovery takes hold. I continue to bring a greater degree of judgment to the forecasting process than I ordinarily would in more certain times. And I am not alone in this regard. Since the onset of the crisis, most of my colleagues on the FOMC have reported greater uncertainty about their projections for economic growth and inflation compared with historical norms.

What the Forecast Tells Us Now: Current Trends

So that's a brief look at the forecasting process at the Federal Reserve Bank of Cleveland. I will now focus on my current economic forecast.

As we are all aware, we're emerging from the deepest and longest recession since the Great Depression. Our models would tell us that the deeper the downturn in the economy, the more rapid the recovery. You've probably heard this referred to as a V-shaped recovery.

However, my outlook is that our journey out of this deep recession will be a slow one because we face two primary headwinds that I expect will temper growth for awhile. The first is the effect of prolonged unemployment, and the second is a heightened sense of

caution on the part of consumers and businesspeople. Let me explain the power of these headwinds, beginning with prolonged unemployment.

Millions of people have lost their jobs during this recession, and while job loss is common to all recessions, this time around it has been more severe. Typically, during a recession, for each 1 percent that GDP falls, the unemployment rate ticks up by about seven-tenths of a percentage point. In this recession, GDP fell by 4 percent, so you would expect unemployment to rise by a little less than three percentage points. Unfortunately, it shot up by more than five percentage points, which means an extra one-and-a-half million people lost their jobs compared with our historical experience.

Just as critical is the length of time people are remaining out of work in this recession. About half of those who are currently unemployed have been out of work for at least six months, and the longer someone is out of work, the harder it is to find a job. In the 1982 recession, which was another severe recession, the average duration of unemployment peaked at 21 weeks, but today the average is already over 30 weeks—a record high. Research also tells us that workers lose valuable skills during long spells of unemployment, and that some jobs simply don't return. So workers who are lucky enough to find jobs may be going to jobs that aren't familiar to them, which means they and the companies they join may suffer some loss of productivity. Multiply this effect millions of times over, and it has the potential to dampen overall economic productivity for years.

The second powerful headwind in this recession is a heightened sense of caution, driven by a deep uncertainty about where the "new normal" or baseline might be. A whole generation of Americans who began their working careers in the mid-1980s had experienced only long periods of prosperity punctuated by just two very brief downturns. Those experiences encouraged an expectation for relatively smooth growth. Now everyone's expectations have shifted as a result of this long and deep recession.

People's attitudes about their own prospects have fundamentally changed. In a recent survey by Ohio's Xavier University, 60 percent of those polled believe attaining the American dream is harder for this generation than ones before. And nearly 70 percent think it will be even more difficult for their children. Many people are now just aiming for "financial security" as their American dream.

This has led many people to delay major purchases until their circumstances are clearer. While home sales have risen slightly as of late, overall sales have fallen by more than two million since 2006. Car sales are also still down to an annualized rate of under 12 million instead of the 16 million or more seen in the years before the downturn.

Businesses are also cautious. Business leaders base many decisions on forecasts, and they tell me that they are attaching the same high degree of uncertainty around their projections as I am. Most business leaders say that they're not planning significant hiring until there's more clarity about how the recovery is going to progress and about policies relating to health care, energy, the environment, and taxes. This caution translates into fewer job opportunities, fewer equipment purchases, fewer building projects—and on and on.

These two factors—overall caution and the effects of labor market damage—lead me to an outlook for relatively subdued output growth through this year and next, with unemployment rates that decline only gradually.

The two headwinds will also have important implications for my

inflation forecast. Again, the Federal Reserve's dual mandate compels us to promote maximum employment in a context of price stability. And, as I have noted, the inflation outlook is unusually uncertain when compared with historical norms. Some observers are concerned about the likelihood of much higher inflation. Those who support this view see the possibility of inflation expectations rising as a result of the public's concerns about the Federal Reserve's expanded balance sheet at a time of very large federal budget deficits. However, there are other observers who place more stock in arguments that support an outlook for further disinflation. Where do I stand? In emerging from this recession, there are three key elements that lead me to conclude inflation will remain subdued: current inflation, labor costs, and inflation expectations. Because of the importance I attach to keeping inflation low and stable, I would like to comment on each of these factors and explain how they fit into my inflation outlook.

Let's begin with current inflation. Recent evidence I am seeing puts momentum on the side of disinflation, at least in the short run. Measures of core inflation have been falling during the past year. Core inflation measures are fairly good predictors of near-term inflation because inflation itself tends to move sluggishly. At the Federal Reserve Bank of Cleveland, we track two measures of inflation—what we call the "trimmed mean" and the median CPI series. Both of these series have been on a disinflationary path since the middle of 2008, and the prices of roughly 50 percent of the items we track in our market basket of consumer expenditures have been declining over the past three months. In this economy, companies are really holding the line on prices to boost their sales, and they can do that profitably in part because labor costs are so restrained.

Now let's turn to the second element, unit labor costs, which I also see as a good short-term predictor of inflation. Unit labor costs, or output per labor hour, consist of two components: labor compensation and labor productivity. While higher productivity is always good for long-run prosperity, it is also critical for the near-term inflation outlook. Higher rates of productivity growth reduce the amount of labor needed to produce a given amount of goods and services. In today's labor market, wages are likely to be restrained by the unemployment situation -- labor supply far exceeds labor demand. Combining rising productivity with restrained wages causes the cost of producing goods and services to fall. In fact, the data show that labor costs have fallen by nearly 5 percent since the fourth quarter of 2008, and many of my business contacts continue to talk about wage and price reductions, not increases.

Finally, I pay close attention to inflation expectations. Fortunately, despite the Federal Reserve's accommodative monetary policy stance and well-publicized balance sheet, inflation expectations over the medium to longer term have remained anchored at near 2 percent. Here once more, I must temper my forecasting model with professional judgment. Over the half-century span of data, it is reasonable to expect that, on average, inflation expectations match up with actual inflation. It may sound like a self-fulfilling prophecy—that we get low inflation because we collectively expect low inflation, but it is nevertheless borne out by both models and historical precedent.

Let me bring all the elements of my outlook together. For the next couple of years, I expect employment levels to remain well below what I would consider full employment. Similarly, I expect inflation to only gradually drift up from its currently low level but nonetheless remain subdued. In my view, this outlook warrants exceptionally low levels of the federal funds rate for an extended period of time. That said, there is more uncertainty than usual around my outlook, so it

will be critical to monitor incoming information and respond as necessary to promote economic recovery and price stability.

Conclusion

I hope that by explaining why and how we develop our forecasts at the Federal Reserve of Cleveland, you have a better idea about the logic behind my economic outlook and my monetary policy position.

Of course, I am only one of several FOMC participants. The Federal Reserve was designed to benefit from a large, diverse, and inclusive perspective—and that is one of our organization's greatest strengths. As most of you are aware, my Bank is one of 12 Reserve Banks in the Federal Reserve System. Each of the 12 Reserve Bank presidents and each member of the Board of Governors creates his or her own forecasts of the national economy. The Board of Governors' staff also provides a forecast, known as the Greenbook, which is used as a focal point for discussion at our FOMC meetings. These many individual forecasts are based on independently developed models and separately informed judgments.

Not surprisingly, we do not always hold the same assumptions, outlooks, or policy preferences. But the forecasting process provides a very structured way for FOMC participants to discuss the outlook and our policy options, and to reach decisions. Although this process requires some time, effort, and diplomacy, it has real value. Research shows that groups of people can produce better judgments than a sole decision maker. You can learn the results of our latest deliberations very soon. We release a summary of our economic forecasts quarterly, and in fact we will be releasing the minutes of our last FOMC meeting, held in April, along with our most recent summary of economic projections, tomorrow afternoon.

I cannot stress enough how difficult forecasting is in uncertain times, and the extent to which we as forecasters have been analyzing how to better harness our historical data, our models, and the thought processes that go into our own judgment of future conditions.