

Current Macroeconomic Events

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Abstract

This brief note discusses current macroeconomic events, with special emphasis on the U.S. economy. As the economy softens and inflation continues to rise, we study the events that brought us to this point. In particular, we analyze the macroeconomic implications of the rise in the prices of basic commodities such as oil and corn, the collapse of housing prices, and the financial turmoil of the last year. The final section of the note uses the AS/AD framework of *Macroeconomics* to help us understand these events and what the future may hold.

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1. Introduction

The world economy in 2008 is beset by more macroeconomic uncertainty than at any time in the last 25 years. Prices for key commodities such as oil, natural gas, coal, and corn have been rising sharply, spurred at least in part by rapidly growing demand in China and other developing countries. Yet one important price has moved strongly in the opposite direction: housing prices in the United States have fallen by nearly 20 percent relative to their peak in 2006. And the financial turmoil that rocked the world economy in August of 2007 continues to rear its ugly head.

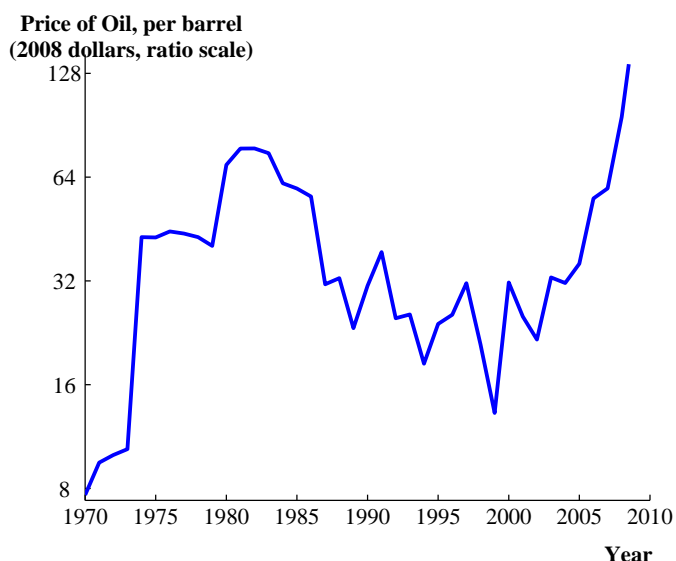
This note provides an overview of these events and explores their consequences for the U.S. economy. We begin by documenting the two separate macroeconomic shocks that have hit the economy in recent years, the sharp rise in commodity prices and the sharp decline in housing prices, and then study the financial turmoil that has amplified the shock to housing prices. Next, we consider recent data on macroeconomic outcomes like inflation, unemployment, and GDP to document the performance of the economy to date. Finally, we use the Aggregate Supply / Aggregate Demand (AS/AD) framework of *Macroeconomics* to study these events and guide our thinking about the future.

2. Recent Shocks to the Macroeconomy

In studying macroeconomics, it is common to consider one shock at a time. We might analyze the effect of a decline in consumer confidence on the macroeconomy, or study the macroeconomic consequences of a boom in U.S. exports due to rapid growth in China. This one-shock-at-a-time approach is quite useful for learning how the macroeconomy works. In the real world, however, the situation is often more complicated, and that is certainly the case in the U.S. and world economies today.

Though many forces are at work, it is fundamentally accurate to view our current macroeconomic situation as the result of two important shocks: the rise in the prices of basic commodities, such as oil, and a sharp decline in housing prices. The financial turmoil that began with the subprime mortgage crisis in August of 2007 can be traced to the housing market as well. It can be viewed as

Figure 1: The Price of Oil



Note: Oil prices rose by more than a factor of 6 between 2002 and July 2008, roughly comparable to the increase in the 1970s.

a feature of the economy that has amplified the housing shock.

The remainder of this section discuss these shocks in more detail.

2.1. Prices for Oil and Other Basic Commodities

After nearly two decades of relative tranquility, oil prices have risen in recent years to levels never seen before. These prices are shown in Figure 1. From a low of about \$20 per barrel in 2002, oil prices have risen to more than \$140 per barrel during the summer of 2008. This seven-fold increase is comparable in magnitude to the oil shocks of the 1970s. Other basic commodities such as natural gas, coal, steel, corn, wheat, and rice have also featured large price increases in recent years.

Why have these prices risen so sharply? It is instructive to consider the case of oil more carefully. The first fact to appreciate is that world oil consumption has increased significantly during this same period of sharply rising prices. For example, during the first half of 2008, a decline in oil consumption among OECD countries (including the United States) was more than offset by increases in China, India, and the Middle East. Rising prices coupled with rising quanti-

ties are a classic sign of an outward shift in demand, and it appears that rising demand — throughout the world but especially among some rapidly growing emerging economies — is a major driving force behind the increase in the prices of basic commodities. Shorter-term factors such as supply disruptions, macroeconomic volatility (in the United States, China, and elsewhere), and poor crop yields appear to have played a role in exacerbating the price movements.

Over time, such high prices should stimulate additional efforts by world markets to supply more oil and other basic commodities and to use the existing supplies more efficiently. This is especially true of “renewable” commodities such as agricultural crops but should even be true of nonrenewable resources such as oil. For example, at \$100 per barrel, reserves that could not be profitably extracted at lower prices (such as oil shale or hard-to-reach deposits under the ocean) may become economical.¹

2.2. Housing Prices

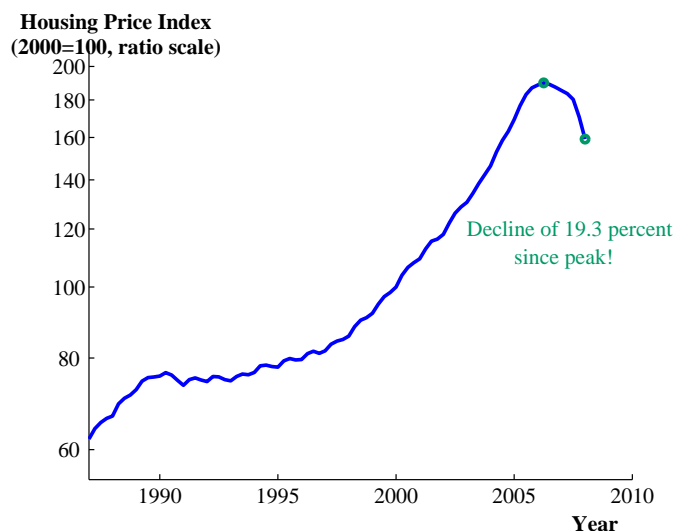
The second major macroeconomic shock in recent years is a large decline in housing prices. Housing prices grew at an ever-increasing rate in the decade before 2006, but then collapsed by nearly 20 percent over the next two years, as shown in Figure 2. Fueled by demand pressures during the “new economy” of the late 1990s, by low interest rates in the 2000s, and by every-loosening lending standards, prices increased by a factor of 2.4 between 1996 and 2006, an average rate of 8.7% per year. Gains were significantly larger in some markets, such as Boston, Los Angeles, New York, and San Francisco.

Alarmingly, the national index for housing prices in the United States declined by nearly 20% between the middle of 2006 and 2008. This is remarkable because it is by far the largest decline in the index since its inception in 1987. By comparison, the next largest decline was just 4% during the 1990-91 recession.

What caused the large decline in housing prices? It’s possible that it is in part an “echo” of the collapse of stock prices in 2000 following the dot-com boom.

¹A helpful discussion of the oil market is presented in the Energy Information Administration’s “[Short-Term Energy Outlook](#)”, U.S. Department of Energy, July 8, 2008; see especially the first three pages. On the recent sharp swings in oil prices, see James Hamilton’s “[Oil Prices and Economic Fundamentals](#)” online. For agricultural commodities, see “[Grain and Bear It](#)” from The Economist Intelligence Unit, May 23rd 2008.

Figure 2: A Bursting Bubble in U.S. Housing Prices?



Note: The S&P/Case-Shiller U.S. National Index of Housing Prices (nominal).

However, other fundamental causes are easy to point to, related to the financial turmoil of recent years. We discuss this next.

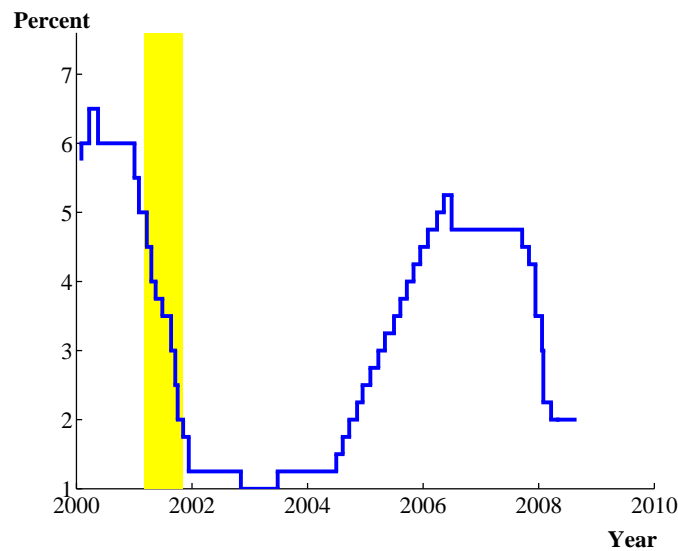
2.3. Subprime Lending and the Rise in Interest Rates

The genesis of the financial turmoil since 2007 lies in the housing market. Lured by low interest rates, increasingly lax lending standards, and perhaps by the belief that housing prices could only continue to rise, large numbers of borrowers — including so-called “subprime” borrowers whose credit records and loan applications did not meet mainstream standards — took out mortgages and purchased homes. According to *The Economist*, by 2006, one fifth of all new mortgages were subprime. Moreover, the interest rates on many of these were adjustable, starting at low teaser rates that were scheduled to reset to market rates after an introductory period. Others required payments of “interest only” for an introductory period, followed by higher payments later that included the principal.²

Against this background and after more than two years of exceedingly low

²An excellent early summary of the subprime crisis and the liquidity shock of 2007 can be found in “CSI: Credit Crunch” *The Economist*, October 18, 2007.

Figure 3: The Fed Funds Rate



Note: After keeping interest rates very low from 2002 to 2004, the Fed raised rates sharply over the next two years. Following the financial turmoil that began in August 2007, the Fed cut interest rates just as sharply.

interest rates, the Federal Reserve began to raise its fed funds target — the rate charged for overnight loans between banks — as shown in Figure 3. Between May 2004 and May 2006, the Fed raised its interest rate from 1.25% to 5.25%, in part because of concerns over increases in inflation. (This was arguably a reasonable policy — according to the Taylor Rule, interest rates were too low in the preceding years and the Fed raised them to a more reasonable level. This will be discussed further below.) Higher interest rates generally lead to a softening of the housing market, as borrowing becomes more costly. In an environment with subprime borrowers facing mortgages whose rates were moving from low teaser rates to much higher market rates, the effect on housing prices was even more severe. According to Chairman Bernanke, by August 2007, nearly 16 percent of subprime mortgages with adjustable rates were in default, and additional mortgages were scheduled to experience their first interest rate reset in the coming quarters.³

³Ben S. Bernanke, “The Recent Financial Turmoil and its Economic and Policy Consequences” October 15, 2007.

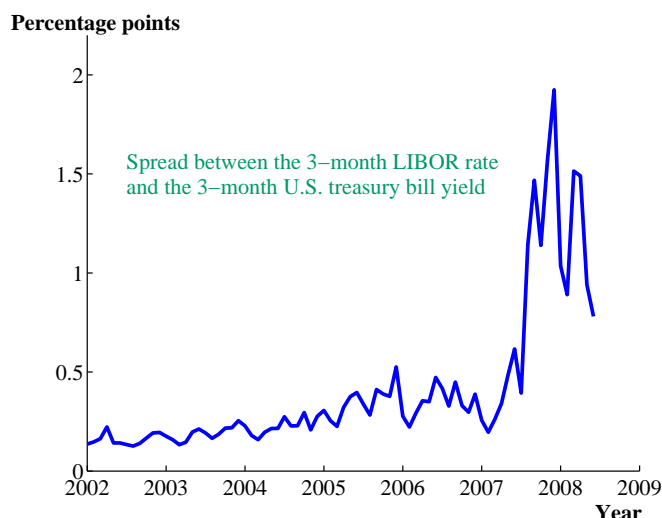
2.4. The Financial Turmoil of 2007-200?

To understand the financial turmoil that followed, it helps to appreciate a (generally valuable) innovation in finance. Like a decadent buffet at an expensive hotel, modern finance involves lumping together large numbers of individual financial instruments (such as mortgages) and then slicing and dicing them into different pieces that appeal to different types of investors. A hedge fund may take the riskiest piece in the hope of realizing a high return. A pension fund may take a relatively safe portion, constrained by the rules under which it operates. The resulting pieces go by many names and acronyms, such as mortgage backed securities, asset backed commercial paper (ABCP), and collateralized debt obligations (CDOs).

In principle, combining large numbers of assets can diversify the risk associated with any individual asset. For instance, one subprime mortgage may be especially risky, but if you put thousands together and only a few go into default, the aggregate instrument will be somewhat insulated. In the case of the subprime crisis, however, the underlying mortgages proved to be significantly riskier than most investors realized. Banks that generated the mortgages sold them off and did not have to bear the consequences if their particular mortgages went bad; as a result, lending standards deteriorated. When the Fed raised interest rates, more and more subprime mortgages went under, housing prices fell, and this led even more mortgages to go under: if you put 10% down to buy a house and the price falls by 20%, it may make financial sense to default and let the bank take over.

As sophisticated financial instruments were developed and traded, it became difficult to know how much exposure an individual bank had to this risk. In August of 2007, these forces came to a head and banks sharply increased the interest rate that they charged to each other for anything other than very short-term loans: If Bank A worries that Bank B is backed by a large number of bad mortgages, it will demand a premium to lend money or may not lend at all. There was a “flight to safety” as lenders decided to place their funds in treasury bills instead of lending to other banks, and the spread between treasury bill yields and interbank lending rates rose dramatically, as shown in Figure 4. What had been a modest premium of 0.2 to 0.4 percentage points rose sharply to between 1.0 and

Figure 4: The Liquidity Shock of August 2007



Note: The rate at which banks borrow and lend to one another rose sharply in August 2007 during the subprime crisis. Source: EconStats.com.

1.5 percentage points. If the yield on treasuries was 2.0%, banks might lend to one another at 2.3% before the crisis. After, these rates rose to as much as 3.5%, and the amount of lending dropped, producing a classic example of a *liquidity crisis* — a situation in which the volume of transactions in some financial markets falls sharply, making it difficult to value those financial assets and thereby raising questions about the overall value of the firms holding those assets. Since August 2007, the premium has fluctuated, but it remains high. As of July 2008, interbank loans still commanded a premium of more than a full percentage point, suggesting that concerns in financial markets remain heightened, perhaps driven by the fact that large declines in housing prices can threaten otherwise relatively safe mortgages.

3. Policy Responses and Macroeconomic Outcomes

Oil prices have risen sharply since 2002. The U.S. housing market has been weak since 2006. And the financial turmoil that began in August 2007 still threatens. Given these facts, macroeconomic outcomes in the United States have been sur-

prisingly good until recent months, surely in part because of the policy responses to these events. However, all of the main indicators (inflation, short-run output, and the labor market) are beginning to deteriorate at the time of this writing (August 2008).

3.1. Policy Responses

The policy responses to recent macroeconomic events fall into three main categories: an easing of monetary policy by the Federal Reserve, expanded lending and the provision of liquidity by the Federal Reserve, and a fiscal stimulus by the government in the form of “economic stimulus payments” to taxpayers during spring and summer 2008.

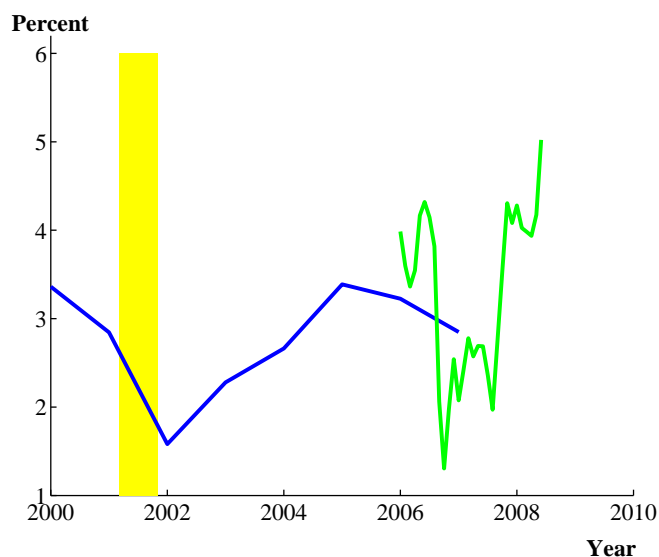
Looking back at Figure 3, one sees that the Federal Reserve cut interest rates sharply in response to the financial turmoil of 2007: between September 2007 and May 2008, the fed funds rate fell from 5.25% to 2.0%.

In conjunction with the sharp decline in interest rates, the Fed has created new lending policies to provide liquidity to financial institutions. Examples include allowing large investment banks to swap less liquid financial instruments for treasury securities for short periods of time, the organized sell-off of Bear Sterns to J.P. Morgan in March of 2008, and the provision of liquidity (in conjunction with the U.S. Treasury) to the large government-sponsored mortgage companies Fannie Mae (the Federal National Mortgage Association) and Freddie Mac (the Federal Home Mortgage Corporation) in July 2008.

Some economists have worried about the “moral hazard” implications of these actions by the government. In particular, these actions signal a willingness of the government to step in and provide liquidity when large financial institutions find themselves in trouble. The worry is that by insulating them from the downsides of their actions, these policies can lead financial institutions to undertake excessively risky investments in the future. There is no doubt that this is a valid concern and a cost of intervention. The Fed’s position is that the costs of intervention have been significantly lower than the costs of *not* intervening — for example, in terms of an even more severe financial crisis that could have ensued.⁴

⁴For example, see Frederic S. Mishkin, “Global Financial Turmoil and the World Economy” July 2, 2008.

Figure 5: Inflation in the United States



Note: Inflation rates at the monthly interval (green) reveal a significant increase in recent months: between June 2007 and June 2008, CPI inflation was 5.0%. Excluding food and energy, however, the rate was 2.4%.

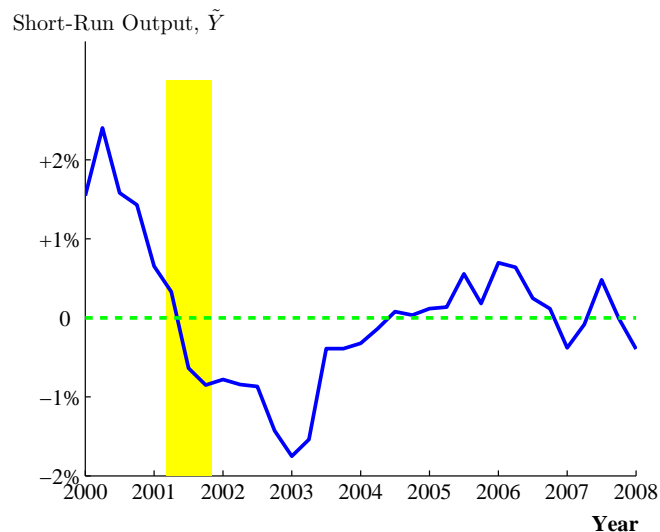
Finally, the U.S. federal government enacted the Economic Stimulus Act of 2008 to help stimulate the economy. Stimulus payments ranging from \$300 to \$600 per taxpayer were distributed to low and middle-income taxpayers in the 2nd and 3rd quarters of 2008. In the aggregate, these payments amount to more than \$100 billion, or nearly 1% of GDP.⁵

3.2. Macroeconomic Outcomes

Given these events and policies, how has the macroeconomy fared? Figure 5 shows the inflation rate since 2000. The rate has fluctuated around 3% in recent years, probably higher than the Federal Reserve would prefer (in part because of rising commodity prices), but showing no real sign of accelerating.

The monthly data (shown in green) for the last two years are more troubling, and a sharp increase in the rate of inflation over the last year or so is evident. The

⁵Christian Broda and Jonathan Parker have already analyzed the preliminary impacts of this stimulus program and found them to be substantial; see “[The 2008 Economic Stimulus: First Take on Consumer Response](#)” in the Real Time Economics blog of the *Wall Street Journal*, July 30, 2008.

Figure 6: U.S. Short-Run Output, \tilde{Y} 

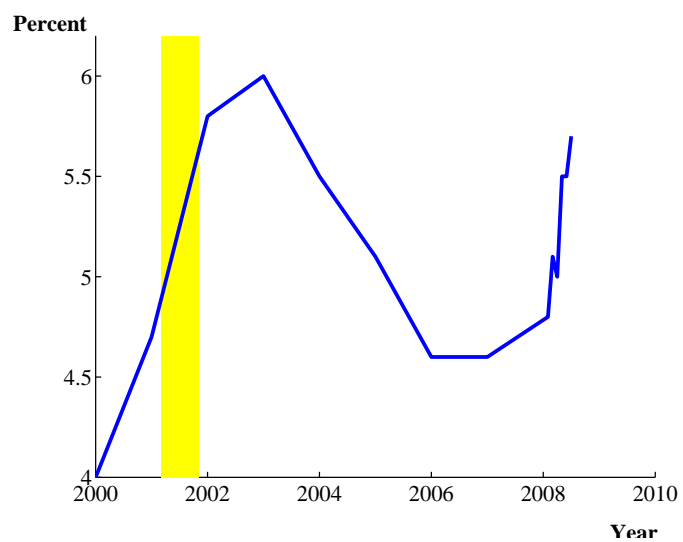
Source: Bureau of Economic Analysis (quarterly data) and author's calculations.

most recent data show an increase in the Consumer Price Index (CPI) of 5.0% between June 2007 and June 2008. Excluding food and energy, however, this latest number is a more modest 2.4%.

The performance of the real economy exhibits a similar pattern. As seen in Figure 6, short-run output has fluctuated in a tight band around potential since about 2004. There is a recent suggestion of a small negative output gap emerging, but future data will be needed to see whether this is just another blip close to trend or if short-run output will fall significantly below potential.

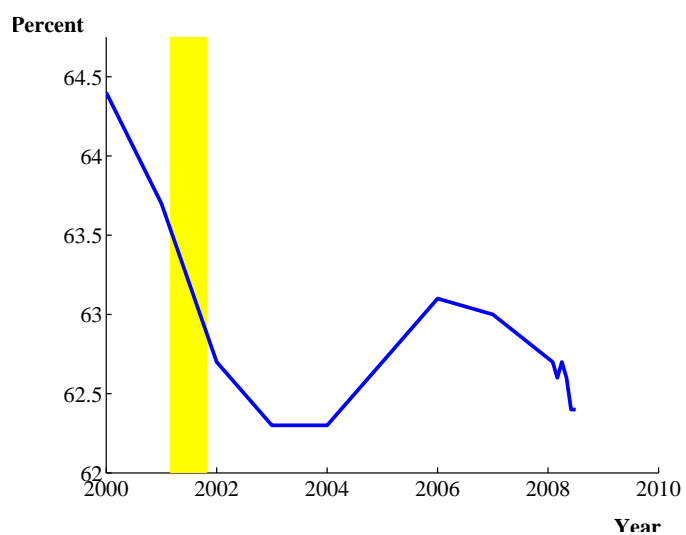
Figures 7 and 8 show the unemployment rate and the ratio of employment to population for recent years. The unemployment rate has risen sharply in recent months, reaching 5.7% during July of 2008. The ratio of employment to population (which better accounts for discouraged workers who may drop out of the labor force) has also begun to decline.

Figure 7: The U.S. Unemployment Rate



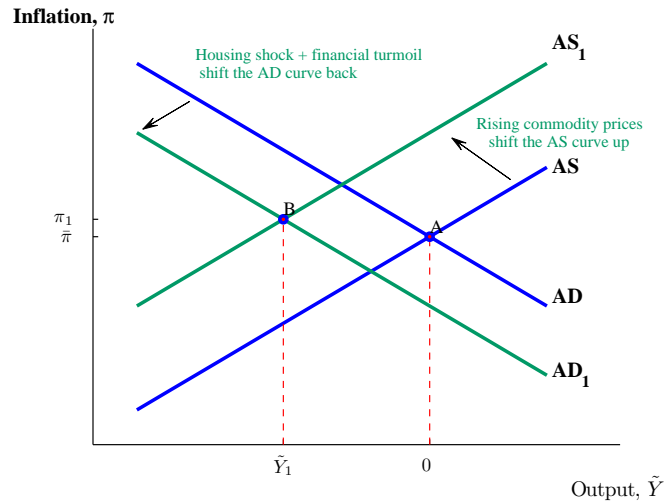
Note: The unemployment rate has risen sharply since 2007, reaching 5.7% in July 2008.

Figure 8: The U.S. Employment-Population Rate



Note: The employment-population rate has fallen since 2006, reaching 62.4% in July 2008.

Figure 9: Recent Shocks in an AS/AD Framework



Note: The rise in commodity prices shifts the AS curve up and to the left. The collapse of housing prices and the ensuing financial turmoil shift the AD curve down and to the left. The two shocks lead to offsetting effects on inflation, but both reduce short-run output, and the economy moves from point A to point B.

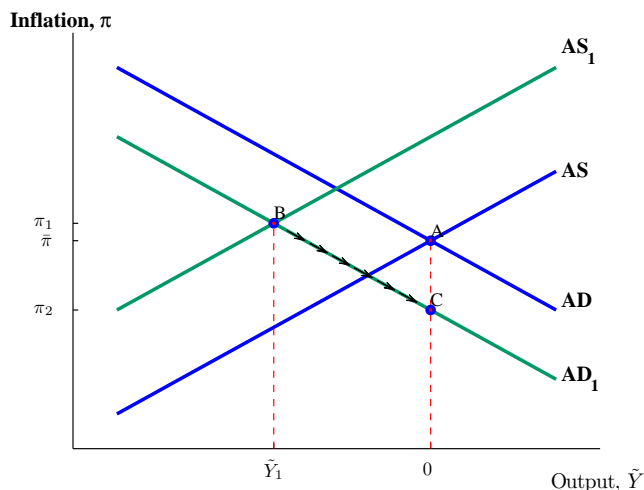
4. Modeling and Policy Response

The facts we have documented — the shocks to the macroeconomy and the responses of inflation and the real economy — can be understood using the Aggregate Supply/Aggregate Demand (AS/AD) framework of modern macroeconomics. (For example, see Chapter 12 of *Macroeconomics*).

Current events are best interpreted as arising from two separate shocks that have impacted the economy recently. The rise in the price of oil and other commodities causes the AS curve to shift up and to the left. The decline in housing prices and the ensuing financial turmoil is a negative shock to aggregate demand, which shifts the AD curve down to the left. These changes are shown graphically in Figure 9.

According to the AS/AD framework, these two shocks have different effects on inflation. The rise in commodity prices is a positive inflation shock, while the decline in aggregate demand tends to reduce inflation. The net effect of these two shocks on the rate of inflation is ambiguous and depends on the magnitudes of

Figure 10: The Near-Term Response of the Economy



Note: In the absence of additional shocks, the AS curve shifts down over time as the weak economy leads firms to be restrained in how much they raise prices. This occurs until either output is restored to potential or until the aggregate demand shock dissipates, and the AD curve shifts back to its original position. Once this occurs, the economy transits back to point A (not shown).

the shocks.

In terms of output, however, both shocks work in conjunction to slow the economy. The decline in aggregate demand and the increase in commodity prices both tend to reduce output in the short run.

Following the impact of the shock, how does the economy evolve over time? Recall that the dynamics of the AS/AD framework arise as the AS curve shifts to restore output back toward potential. This occurs as the state of the economy impacts inflation expectations and the price setting behavior of firms. In this case, the softening of the economy leads firms to be more restrained in raising prices than otherwise, causing the inflation rate to decline over time. These dynamics are shown in Figure 10.

An interesting caveat to these dynamics is that additional inflation shocks — such as the further increases in oil prices that occurred in the early part of the summer of 2008 — can shift the AS curve upwards again, leading to both a rise in inflation and a further weakening of the real economy.

The long-run response of the economy is to move back to point A. This occurs as the aggregate demand shock dissipates and inflation expectations gradually return to the long-run target rate chosen by the Federal Reserve. An interesting question at this point in the cycle of the economy is “How long is the long run?” Unfortunately, most indications suggest that the economy will remain soft for at least the next year or more.

4.1. Policy Responses

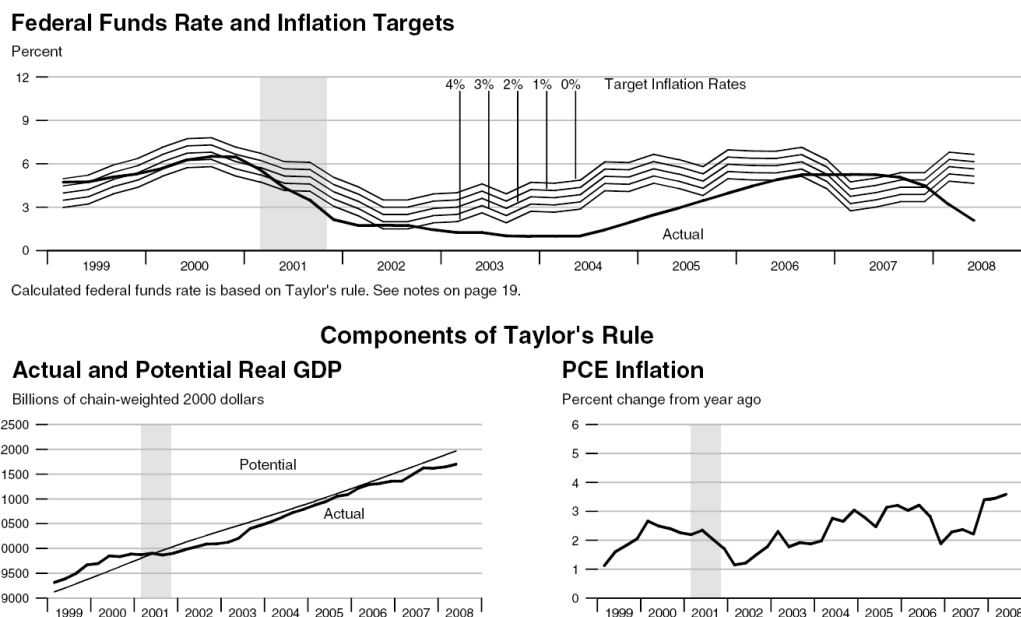
Qualitatively, the response of the Federal Reserve to these commodity price and housing shocks seems to be consistent with the model. The rise in commodity prices has been occurring since 2002, so that shock may be thought of as occurring first. To understand the response of the Fed, it is helpful to consider the graphs shown in Figure 11, which reports the fed funds rate together with the Taylor Rule’s predictions for that rate. (These predictions are from the mainstream version of the Taylor Rule in which the fed funds rate directly responds to both inflation and short-run output.) The gradual rise in inflation since 2002 is matched by an increase in the fed funds rate, as predicted by the Taylor Rule.

If there is a problem with Fed policy before the subprime crisis, in fact, it may be that the fed funds rate was kept too low for too long. That is certainly what the basic Taylor Rule shown in Figure 11 suggests. In 2004, for example, the fed funds rate was substantially lower than even a 4% inflation target would indicate. These low rates may have contributed to the gradual rise in inflation that one sees in the bottom-right panel of the figure.

After the housing market softened — and especially after the liquidity shock of August 2007 — the fed sharply lowered interest rates. Interestingly, according to the Taylor Rule shown in Figure 11, however, the fed funds rate was arguably kept too high in 2007 — it rises all the way to the top of the band, corresponding to a zero percent inflation target.

A final remark on Figure 11 relates to the level of the interest rate in the summer of 2008. The rise in inflation in recent months leads a Taylor Rule to prefer a substantially higher interest rate than what the Fed has delivered. Is this a mistake in policy that portends higher inflation in the future? Or is the Fed using its superior information and analysis to keep interest rates low in response to the

Figure 11: The Fed Funds Rate and the Taylor Rule



Note: The actual fed funds rate and the target suggested by a mainstream Taylor Rule that includes both inflation and short-run output. Different rates corresponding to different inflation targets are shown. "PCE" denotes the inflation rate using the deflator for personal consumption expenditures in the national accounts. Source: The Federal Reserve Bank of St. Louis, [Monetary Trends](#), August 2008, p. 10.

financial crisis? The answer is not clear. The AS/AD framework suggests that the weak economy is likely to provide a natural brake on inflation. Given the credibility that the Federal Reserve has established in the last 25 years for keeping inflation low, it seems unlikely that the expectations for low inflation in the medium to long run will be undone easily. But this is clearly something that the Federal Reserve is watching closely.

A related observation is that the Federal Reserve and the European Central Bank have followed very different policies in recent months. The European Central Bank has kept interest rates high to fight the inflation shocks, while the Fed has lowered interest rates in response to the financial crisis. How do you think these positions can be reconciled?⁶

5. Conclusion: Evaluating Bernanke

Even before taking up his position as Chair of the Federal Reserve in February of 2006, Ben Bernanke was one of the most widely respected macroeconomists in the world. He is an expert on monetary policy and the financial system and has authored some of the most highly regarded papers on the Great Depression. The general view of the economics profession — to the extent that one can make such a generalization — is that he is the ideal person to have leading the Fed during the present financial turmoil.⁷

The Fed has responded aggressively, first to rising commodity prices and then to the subprime crisis and the recent financial turmoil. To date, the macroeconomic outcomes have been relatively good. However, a standard analysis using the AS/AD framework — together with the most recent macroeconomic data — suggests that a weak economy with modest inflation may be expected to prevail in the near term.

⁶One possibility is that the decline in housing prices and the ensuing economic weakness has been more severe in the United States than in Europe, leading the European Central Bank to focus primarily on the inflation shock. As an alternative, Guido Tabellini, an economist at Bocconi University, argues that one of the two central banks is making a mistake: <http://www.voxeu.org/index.php?q=node/1259>.

⁷This does not mean there are not criticisms of Bernanke's policies, some of which have been mentioned above. There is also a minority view along the lines of "When you have a hammer, everything looks like a nail," suggesting that the world's expert on financial factors and the Great Depression may mistakenly see those factors operating in the world today.

6. Useful Readings

Ben S. Bernanke, “[The Recent Financial Turmoil and its Economic and Policy Consequences](#)” October 15, 2007. *Chairman Bernanke’s early assessment of the subprime crisis and the liquidity shock of August 2007.*

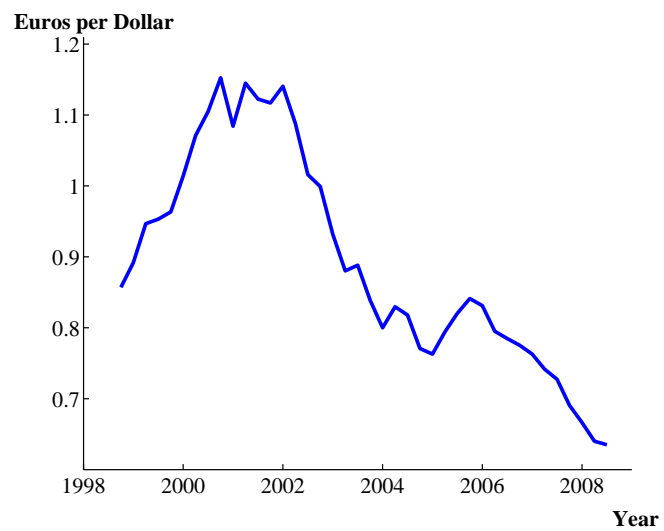
“[CSI: Credit Crunch](#)” *The Economist*, October 18, 2007. *A good early summary of the subprime crisis and the liquidity shock of August 2007.*

[The Economic Report of the President, 2008](#), Council of Economic Advisers, Chapter 2, “Credit and Housing Markets.”

Frederic S. Mishkin, “[Global Financial Turmoil and the World Economy](#)” July 2, 2008. *An excellent summary of the broader financial crisis and the Fed’s response, through July 2008.*

Peter S. Goodman “[Uncomfortable Answers to Questions on the Economy](#)” *New York Times*, July 19, 2008. *An excellent, readable summary of the state of the economy and how we got here.*

Figure 12: The Long Slide of the Dollar...



Note: By mid-2008, the dollar had fallen to 0.63 euros. Source: Econ-Stats.com.