



***“Inflation and Monetary Policy in
Extraordinary Times”***

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It is a pleasure to be here today to discuss the outlook for the economy and, in particular, the possible path of inflation and the orientation of monetary policy.* In unique economic times like we are experiencing, these are issues that policymakers, businesspeople, and citizens are rightly concerned about.

But before I delve into the topic, I would just like to mention how much we at the Boston Federal Reserve Bank enjoy having opportunities to collaborate with the Chamber, on a number of initiatives. For example, studies undertaken by the Chamber and the Boston Fed, focused on maintaining a highly-educated work force in the region, are leading to concrete actions – including a successful event we held together for local employers’ summer interns. It was

* *Of course, the views I express today are my own, not necessarily those of my colleagues on the Board of Governors or the Federal Open Market Committee (the FOMC).*

designed to help the interns learn about the benefits of living and working in Greater Boston after graduation, with an eye to retaining their talent within the region's workforce. My colleague Paul Connolly, the Bank's Chief Operating Officer – whom many of you know well – has been a true leader on this effort, and on many others that the Bank and Chamber have pursued together. I want to thank him for that leadership. Paul and I and our colleagues at the Bank certainly look forward to future collaboration with the Chamber, to strengthen our local economy.

Waves of financial turmoil have been with us for about two years – ever since I took this job, by the way – but it was about a year ago that we experienced a series of financial-market problems that brought us to the brink of financial meltdown. In light of that anniversary, it is useful to reflect on just how far we have come. A year ago, the stock market was in what anyone would agree was a “tailspin”; short-term and highly liquid financial instruments were either not trading or were trading at huge spreads over Treasury securities; and many counterparties were wondering whether significant financial institutions had the capacity to survive.

One year later, the S&P 500 Index has increased more than 50 percent from its March nadir, and many stock market indices around the world have staged similar recoveries, as shown in **Chart 1**. The volume of short-term interbank lending is increasing, and **Chart 2** shows that the interest rates banks charge each other on these loans (the Libor¹ rate) are returning to a level where the premium or “spread” relative to other financial instruments is comparable to what we saw prior to the crisis. And furthermore, the stock prices of many of our major financial institutions reflect a renewed belief that they can weather their credit problems and be profitable.

The *financial* recovery has in fact led the *economic* recovery, which is not unusual when emerging from a severe recession. However, despite the very positive signs we are seeing, the

economic recovery remains fragile and quite capable of falling short of the more positive expectations and degrees of confidence now reflected in financial markets.

I believe it is important that monetary and fiscal policy continue to support the economy until private-sector spending has resumed, and until we are confident that the recovery will continue once the programs that have supported the economy over the past year are removed. We have historic precedent for accommodative policies that were removed too quickly, thus exacerbating to a significant degree the financial and economic troubles facing a nation. Today I am going to discuss the risk of this sort of premature policy action, in the context of a specific historical case that I studied in detail in my research career. The case involves Japan, where policymakers were confronted with economic difficulties that were greatly aggravated by problems in real estate, banking, and financial markets.²

So this morning I intend to provide some of my own perspectives on the economy, the Federal Reserve's actions, and the lessons we can draw from the Japanese experience. I hope, in addition, that my remarks will bolster my fundamental argument: It is essential that we ultimately remove many of the extraordinary programs needed to fight our economic problems – and, by the way, many of those programs are already well on the way to being unwound – *but*, at the same time, we need to be sure the economy continues on a path that will bring the unemployment rate down. And in my view, we need to see inflation return to a trajectory that is more consistent with where I would like to see it settle in the longer run.

Inflation and Monetary Policy

I would like to begin with a few of my own perspectives on inflation, and on the monetary policy actions undertaken by the Federal Reserve.

It is particularly striking to note the divergence we currently see among professional forecasters in their outlook for inflation. In stable and developed economies, inflation is generally viewed as moving relatively slowly in response to economic policies. So it is surprising how divergent the views on the outlook for inflation currently are – even over relatively short horizons.

For example, in **Chart 3** we see that the forecasters in the Blue Chip survey disagree to a significant degree about inflation (measured by the consumer price index or CPI) in even the fourth quarter of 2010 – despite the *consensus* forecast that the CPI inflation rate will be about 2 percent then. What is interesting is how wide the spread is. The ten highest inflation forecasts average 3.3 percent, while the ten lowest inflation forecasts average 0.7 percent.³

The CPI forecast can be influenced by assumptions on food and energy prices. But no doubt the major reason for this divergence involves differences of opinion about the significant *drivers* of inflation.

The forecasters that are predicting relatively low inflation over the next several years – and I generally share this view – highlight the importance of excess capacity in the economy. These models note that the inflation rate after a recession is often well below the rate prior to the recession, as you can see in **Chart 4**. During recessions, there are downward pressures on wages and salaries, and many firms find it difficult to pass on price increases. In fact, a distinctive feature of the current recession has been the near disappearance of upward pressure on

compensation, as seen in **Chart 5**. Indeed, in my own discussions with small and medium sized businesses over the past year, it is striking how many have reported that they have cut wages and benefits in lieu of further layoffs.

On the other side of the spectrum, many of the forecasters who expect much higher inflation rates have cited as a rationale the dramatic growth in the Federal Reserve balance sheet in response to the financial crisis, as **Chart 6** shows. Just for clarity, I should note that many foreign central banks have taken a similar course with their own balance sheets in this crisis.

Initially, much of the increase was related to our efforts to stabilize financial markets, last fall, and was designed to “automatically” diminish as the economy heals. Most of the programs initiated last fall were designed to be attractive during periods of financial stress and less attractive (that is, quite costly for the participant) during less stressful periods – thus encouraging firms to seek funds from sources other than the Federal Reserve when market conditions were more normal.

Indeed, as **Chart 7** shows, Federal Reserve lending to support money market funds, the commercial paper market, primary dealers, and foreign central banks grew rapidly last fall, but has since fallen quite dramatically. In fact, our lending supporting money market funds and primary dealers is now virtually zero, and the other two programs have shrunk quite dramatically. However, as these programs have wound down, the Federal Reserve has been purchasing mortgage-backed securities and government securities to stabilize financial markets and lower the cost of funds, to help promote economic growth. *These* purchases have added to our balance sheet as the shrinking of the liquidity programs has drawn it down – so that on net our balance sheet has remained relatively stable, and large, in recent months. As a reminder,

with the constraint of the zero nominal bound on the fed funds rate, alternative policy instruments had to be examined.

Lessons from Japan's Experience

With this background I would now like to share some observations on Japan's experience – hopefully to help us narrow this difference of opinion about inflation's trajectory and its drivers. I should stress at the outset that I do not equate our situation to Japan's, or expect us to follow Japan's path; but I do think there are insights to gain from their experience.

This perspective may be particularly helpful in relation to concerns about the impact of the growth of the Federal Reserve's balance sheet. The impact is hard to quantify, because we have not needed to take such dramatic actions in the previous 50 years here in the United States or in most other advanced economies – there is simply not much historical data on a crisis like this. The closest precedent to the current expansion of a central bank's balance sheet in a developed economy involves the actions taken by the Bank of Japan, in response to their financial crisis that began in the early 1990s.

Chart 8 shows that following the sharp decline in stock prices in Japan in 1990, the Bank of Japan began to lower interest rates. Interest rates were reduced quite *gradually* – over a four-year period interest rates⁴ moved from over eight percent to one half of one percent.⁵ The gradual nature of this action stands in contrast to Federal Reserve policies in the recent crisis. Then, once the Bank of Japan had reduced interest rates to nearly zero, the Bank began using what you might call non-traditional monetary policy actions.

As there were tentative signs of recovery, and because of concerns with fiscal deficits, the Japanese government announced a tax increase in 1997. Shortly thereafter GDP fell sharply and Japan went into a period of *deflation* that persisted for much of the past decade. **Chart 9** highlights the fact that during that period, the Bank of Japan nearly tripled the size of its balance sheet. Despite the sizable expansion of bank reserves that this entailed, core consumer prices fell throughout the period – with a brief pause in mid 2008. Strikingly, the CPI line is below the zero line on the chart for most of a decade.

Furthermore, not only was monetary policy accommodative, but so was fiscal policy, as you can see in **Chart 10**. The 1997 tax increase notwithstanding, the ratio of government debt to GDP more than doubled, and is currently more than double the rate in the United States. To be clear, however, I would note that Japan's private saving has historically been much higher than that of the United States.

So, why did Japan experience deflation despite very accommodative fiscal and monetary policy? Certainly part of the story involves problems with financial institutions. Japan's government was famously slow to force resolution of banking problems, and many Japanese banks were constrained because their capital was not sufficient to support growth in their assets.⁶ As a reminder, loans are assets for banks, and banks are obliged to maintain a reasonable capital-to-assets ratio.

As **Chart 11** shows, bank lending in Japan did not expand despite the sizable increase in the balance sheet of the Japanese central bank. Sizable increases in bank reserves will have little impact on the economy if banks are shrinking assets, which they do primarily by maintaining tight credit standards for lending, in order to meet capital requirements. In essence, the bank

reserves sat in the banking system. Had Japanese banks been able to lend these reserves to credit-worthy businesses, it would likely have spurred economic activity.⁷ But dormant, un-lent bank reserves have little if any effect on spending – and consequently, in an environment of significant excess capacity, will do little to spur an increase in inflation.

I see three important lessons to take from the Japanese experience:

- First, taking *gradual* action in response to a significant asset-bubble decline may not be as effective as taking more aggressive action. Thus I am pleased to note that both the decrease in U.S. interest rates and the increase in the Federal Reserve's balance sheet have occurred over a much shorter time period than we saw in Japan.
- Second, significant expansion of the central bank's balance sheet is *not* likely to be inflationary during a period when financial institutions are capital-constrained and substantial excess capacity exists in the economy.⁸
- Third, persistent problems in the *financial* sector may be a significant impediment to a general *economic* recovery, because of the importance of credit being available to finance the economic expansion.

Conclusion

And now I'll offer a few concluding remarks.

Based on the historical experience with inflation in the United States and Japan, I personally expect our primary short-run concern to be *disinflation* rather than inflation. The growth rate of the core PCE inflation index over the past year is 1.3 percent. This rate is well

below the 2 percent rate that most members of the FOMC expect to see in the long run, as revealed in their published forecasts.⁹

There remains substantial excess capacity in the economy, and while I expect that we will see positive growth in the third and fourth quarter of this year, it will not be sufficient to make significant headway in improving labor-market conditions right away. This significant excess capacity in labor markets has the potential to be disinflationary at a time when the inflation rate is already below where we expect it to settle in the long run.

Despite the many positive signs we are seeing in the economy, the financial markets and the real economy need more time to heal. There are significant impediments to more rapid growth. Commercial real estate prices have been falling in many areas of the country, and non-performing commercial real estate loans have been rising. Such loans are likely to be a potential challenge for many of the banks that are trying to improve their balance sheets. Also, while credit conditions have improved, firms and individuals with impaired balance sheets are likely to find credit difficult and costly to obtain. And individuals that are still recovering from house and equity values well below their peaks are likely to remain slow to spend on consumer goods until their comfort with their “household balance sheet” has been restored. These challenges will likely make the recovery rather restrained by historical standards, with subdued levels of spending and lending continuing to hold back a more rapid recovery.

While many of the non-traditional approaches to monetary policy enacted to combat the recession are already in the process of being removed, how quickly to further reduce the policy accommodation should depend on economic conditions. In particular, we need the economy to grow rapidly enough that unemployment falls substantially and inflation settles at a rate near 2

percent. Price stability implies that the inflation rate should not diverge significantly on the downside or upside. Thus, just as policy needs to insure that inflation rate does not get too high, equally important is that it does not get too low.¹⁰

The extraordinary economic times we have been experiencing give us all pause, and leave many observers with concern about policy actions and their possible outcomes. I believe, however, that despite the differences in our economies, the lessons from Japan's experience are illuminating and should bring comfort that current U.S. policy is on the right path – with beneficial implications for the trajectories of both inflation and economic growth.

Thank you.

NOTES:

¹ The London Interbank Offered Rate.

² For additional perspective see my March 2009 talk entitled “Addressing the Credit Crisis and Restructuring the Financial Regulatory System: Lessons from Japan”, available on the Bank's website at <http://www.bos.frb.org/news/speeches/rosengren/2009/030209.htm>

³ For the CPI inflation rate.

⁴ In this case, the uncollateralized call rate.

⁵ Indeed, it took roughly eight years – early 1991 to early 1999 – to get to 0.25 percent.

⁶ See the article I wrote with Joe Peek, "The International Transmission of Financial Shocks: The Case of Japan," in the *American Economic Review* vol. 87, no. 4 (September 1997), pages 495-505.

⁷ See the article I wrote with Joe Peek, "Unnatural Selection: Perverse Incentives and the Misallocation of Credit in Japan," the *American Economic Review*, vol. 95(4), September 2005, pages 1144-1166.

⁸ Particularly a large, developed economy.

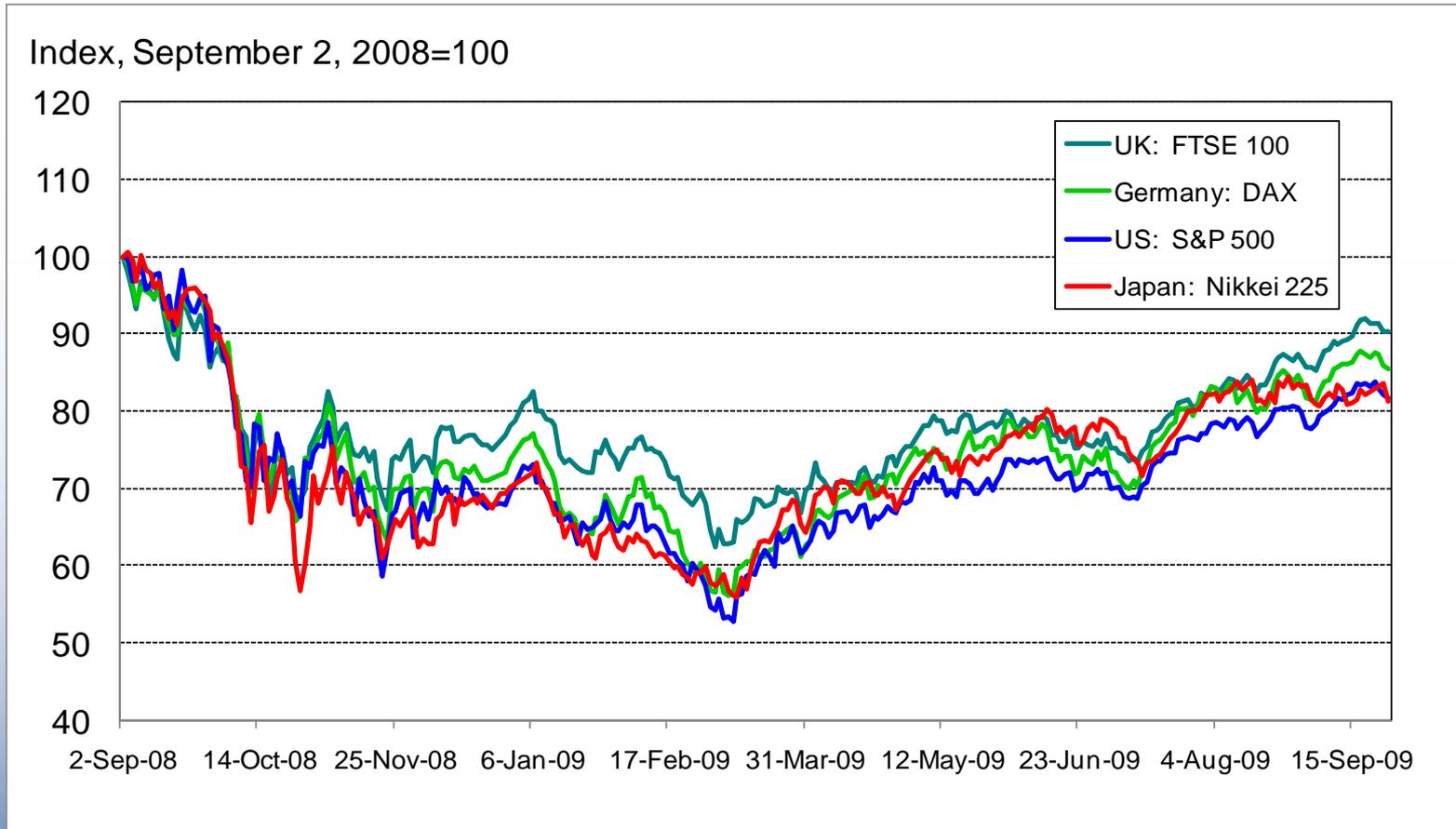
⁹ See the Summary of Economic Projections published with the minutes of the June 23-24 FOMC meeting (<http://www.federalreserve.gov/monetarypolicy/files/fomcminutes20090624.pdf>). The Summary includes the following: "Most participants judged that a longer-run PCE inflation rate of 2 percent would be consistent with the Federal Reserve's dual mandate; others indicated that inflation of 1½ percent or 1¾ percent would be appropriate. Modestly positive longer-run inflation would allow the Committee to stimulate economic activity and support employment by setting the federal funds rate temporarily below the inflation rate when the economy suffers a large negative shock to demands for goods and services."

¹⁰ See the above footnote concerning the Summary of Economic Projections.

Figure 1

International Stock Market Indexes

September 2, 2008 - September 25, 2009

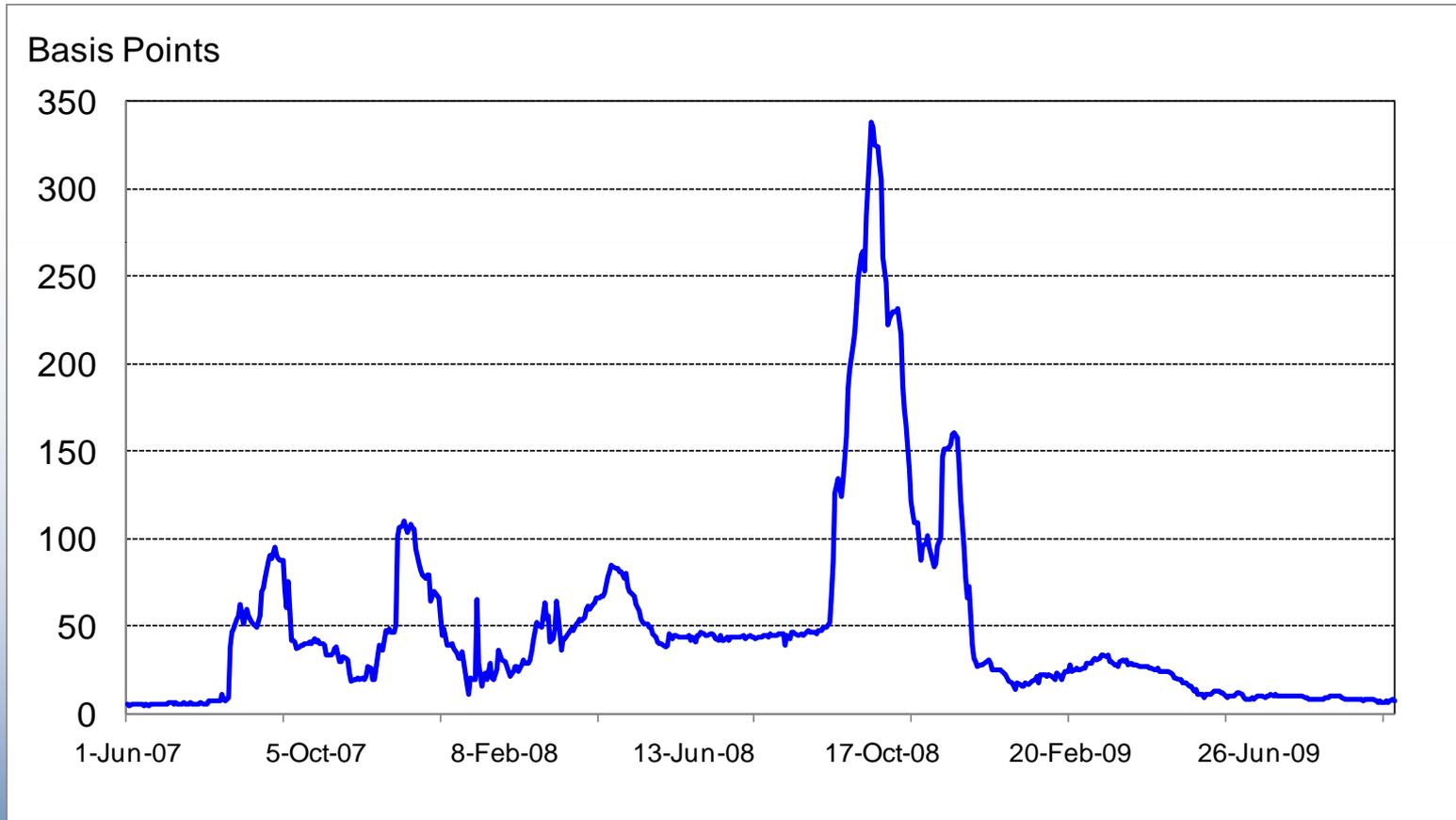


Source: New York Times, Financial Times / Haver Analytics

Figure 2

Spread: One-Month London Interbank Offered Rate (LIBOR) to Overnight Index Swap (OIS) Rate

June 1, 2007 - September 25, 2009

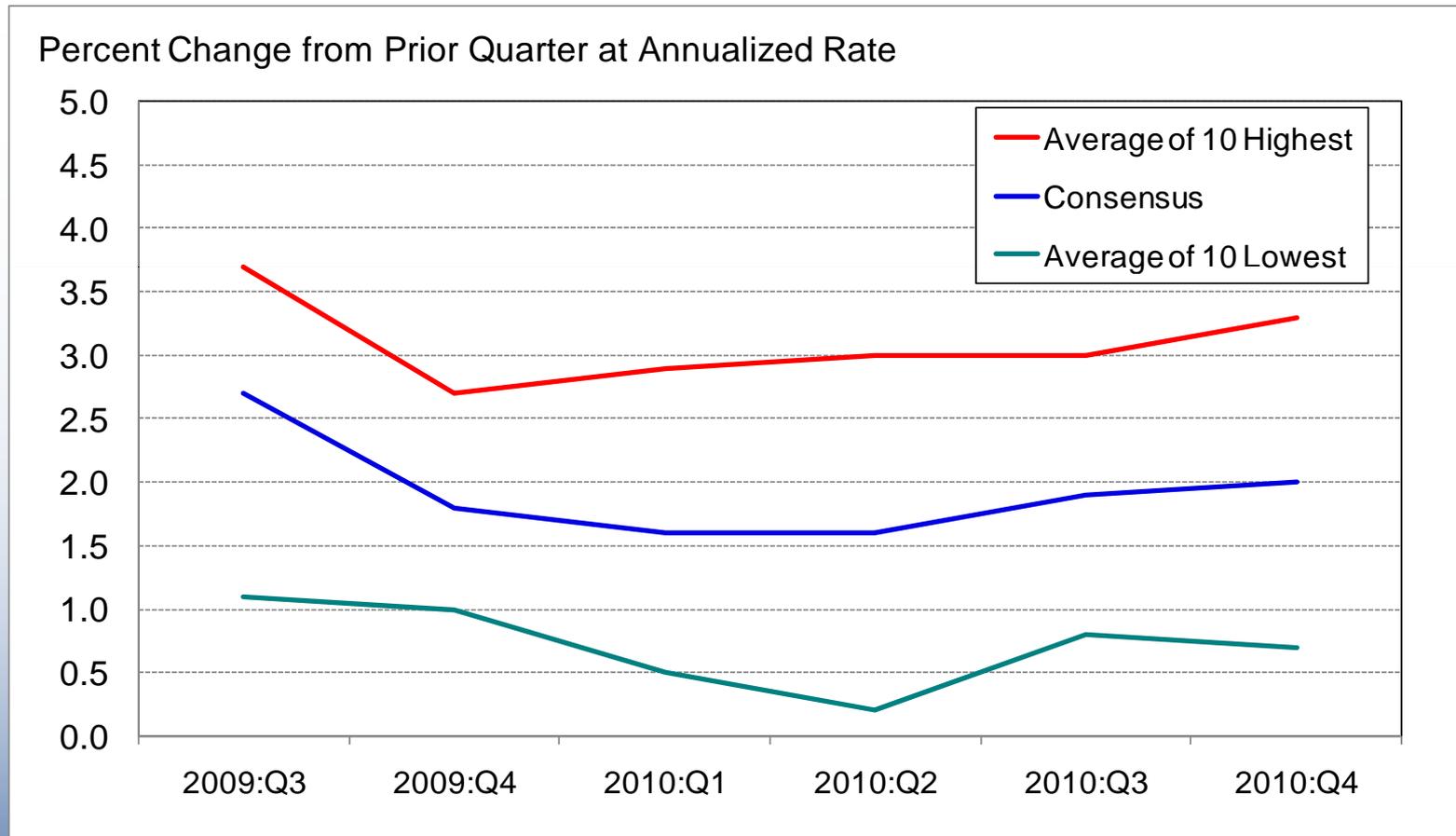


Source: Financial Times, Bloomberg / Haver Analytics

Figure 3

Blue Chip Forecast for CPI

September 10, 2009

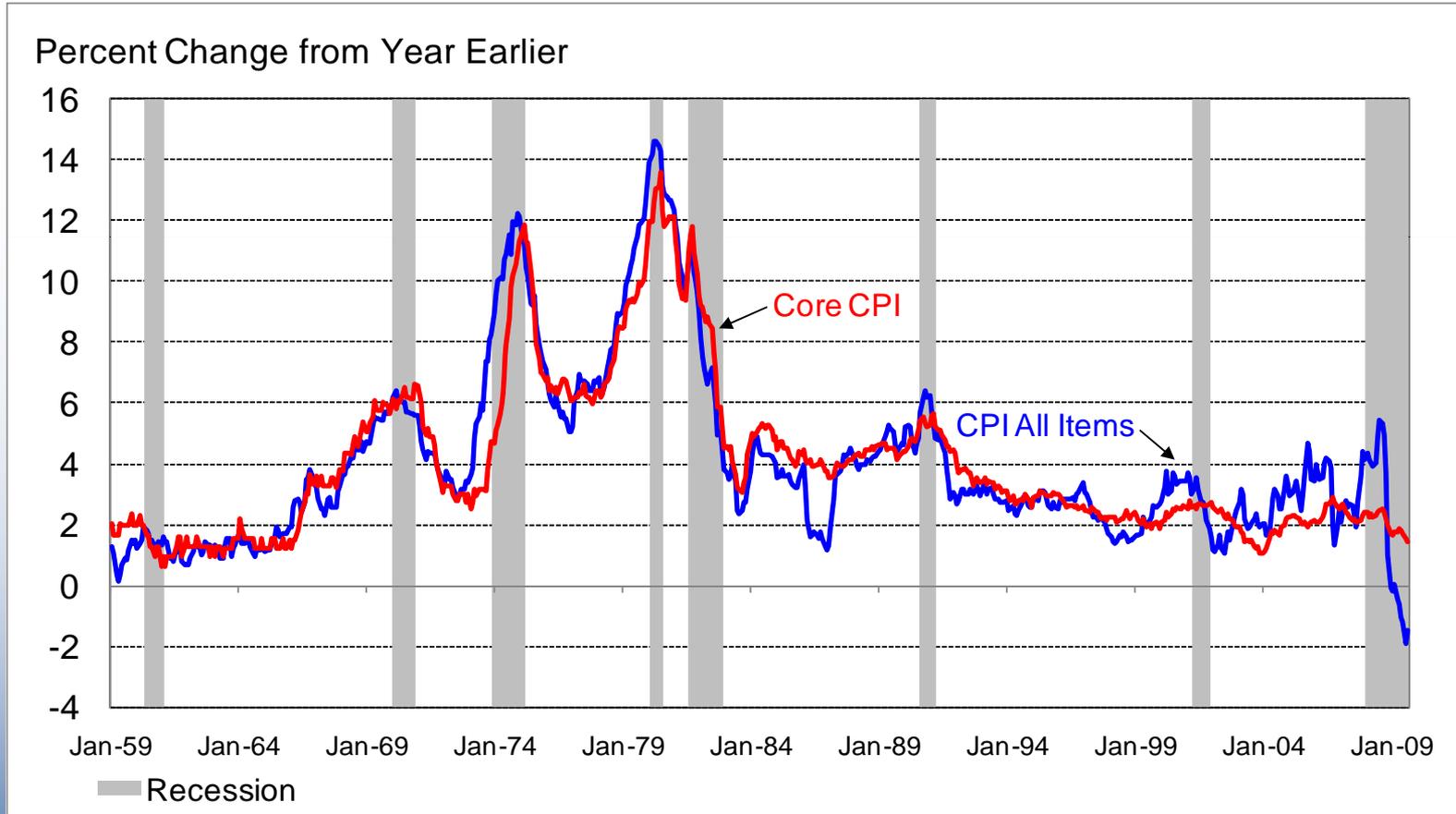


Source: Blue Chip Economic Indicators

Figure 4

Inflation Rate: Core and All-Items Consumer Price Index

January 1959 - August 2009

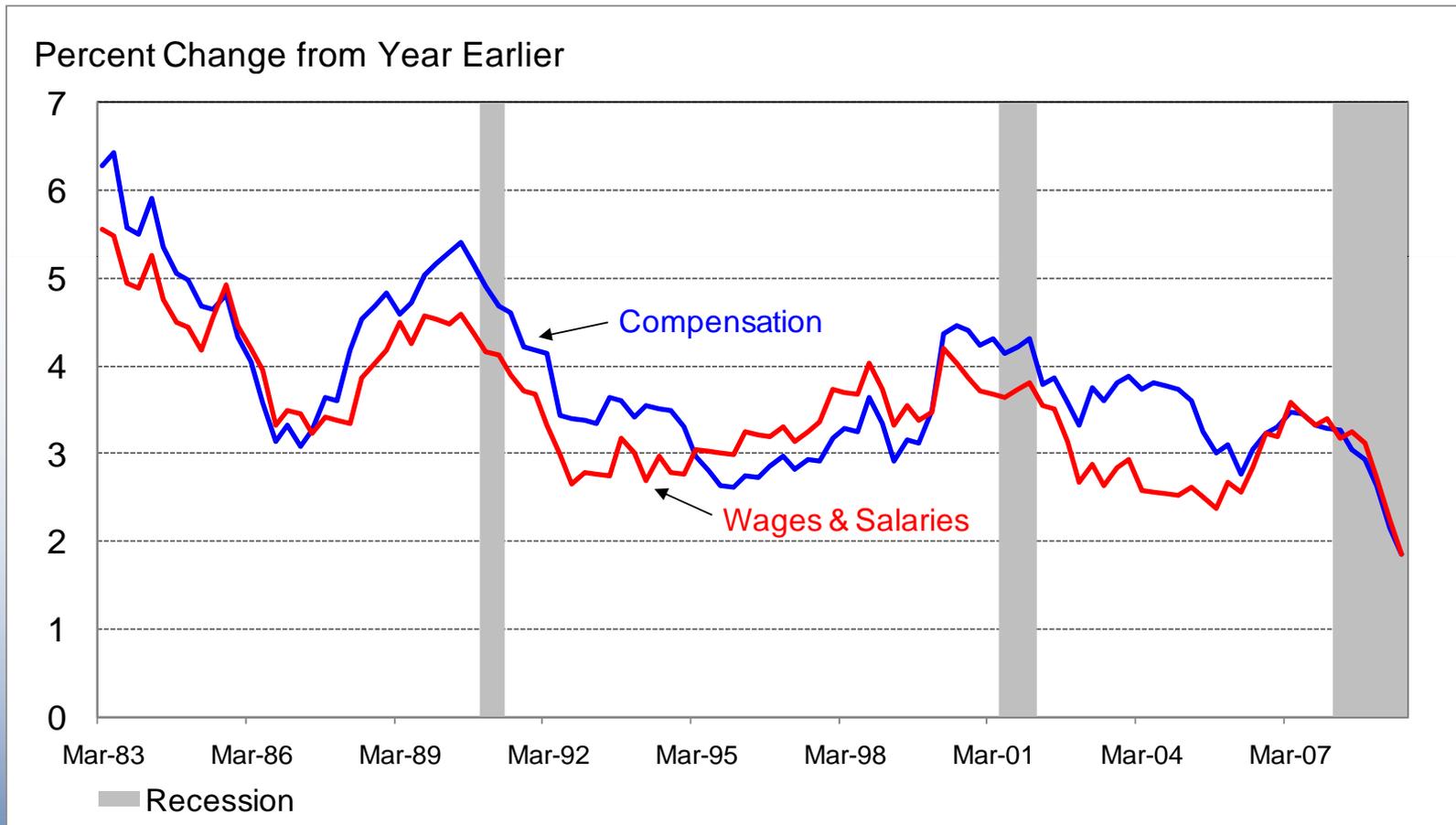


Source: BLS / Haver Analytics

Figure 5

Employment Cost Indexes for Civilian Workers

March 1983 - June 2009

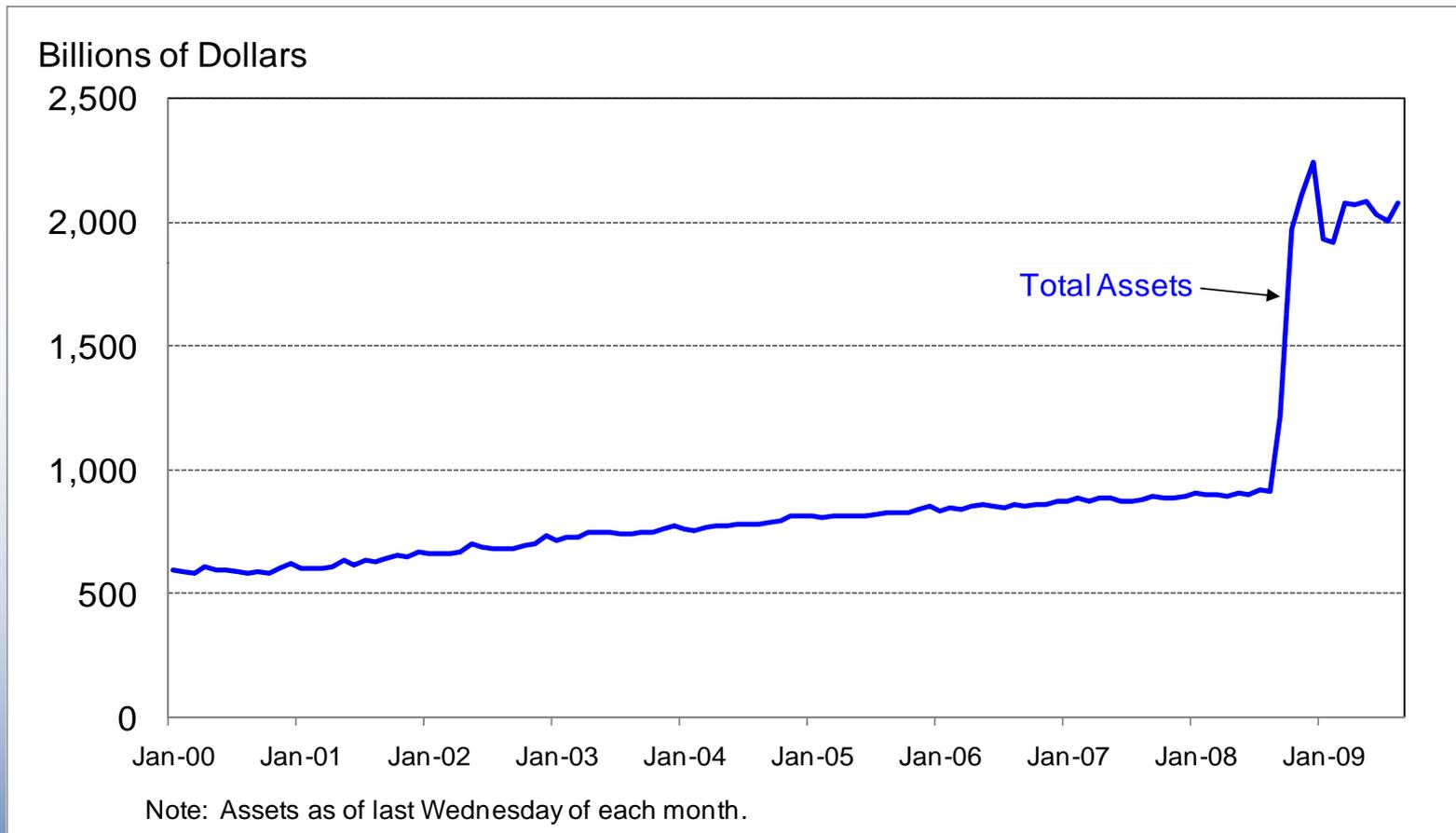


Source: BLS / Haver Analytics

Figure 6

Federal Reserve System Assets

January 2000 - August 2009



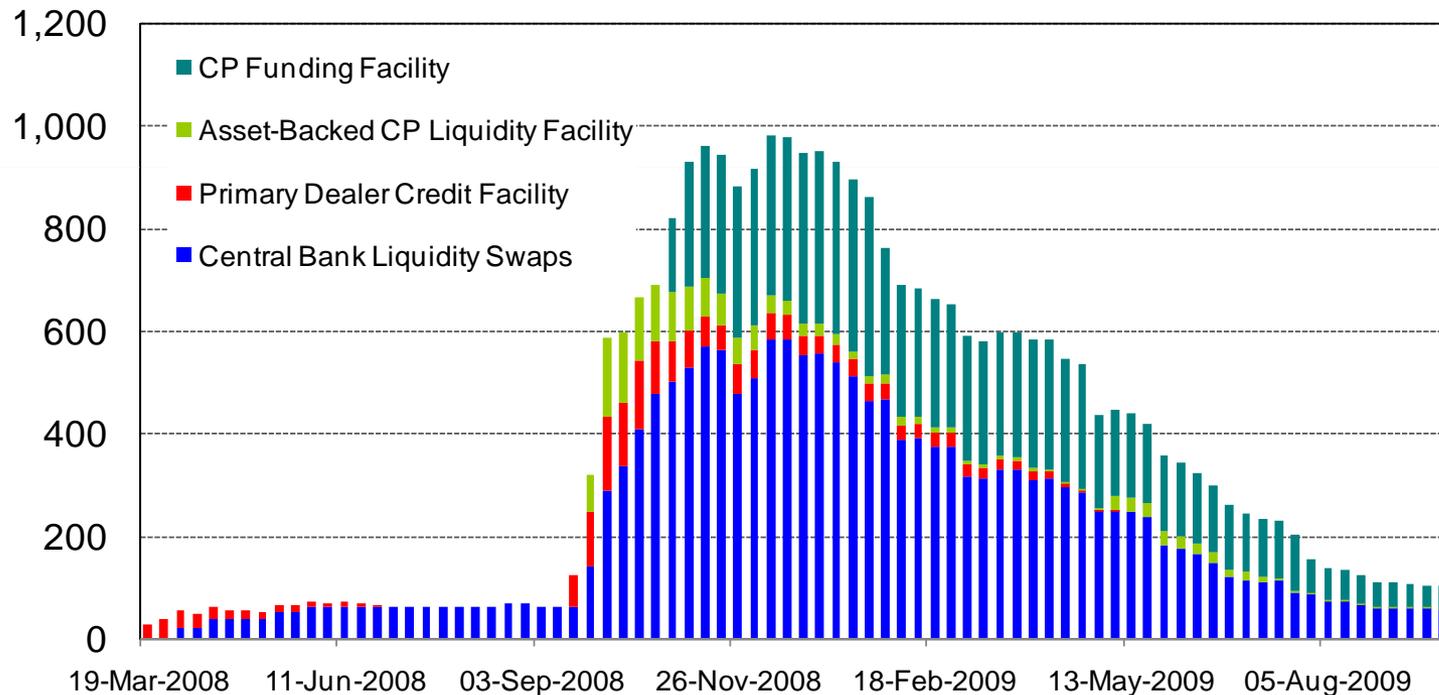
Source: Federal Reserve Statistical Release H.4.1

Figure 7

Federal Reserve System Assets: Selected Temporary Lending Facilities

March 19, 2008 - September 23, 2009

Billions of Dollars

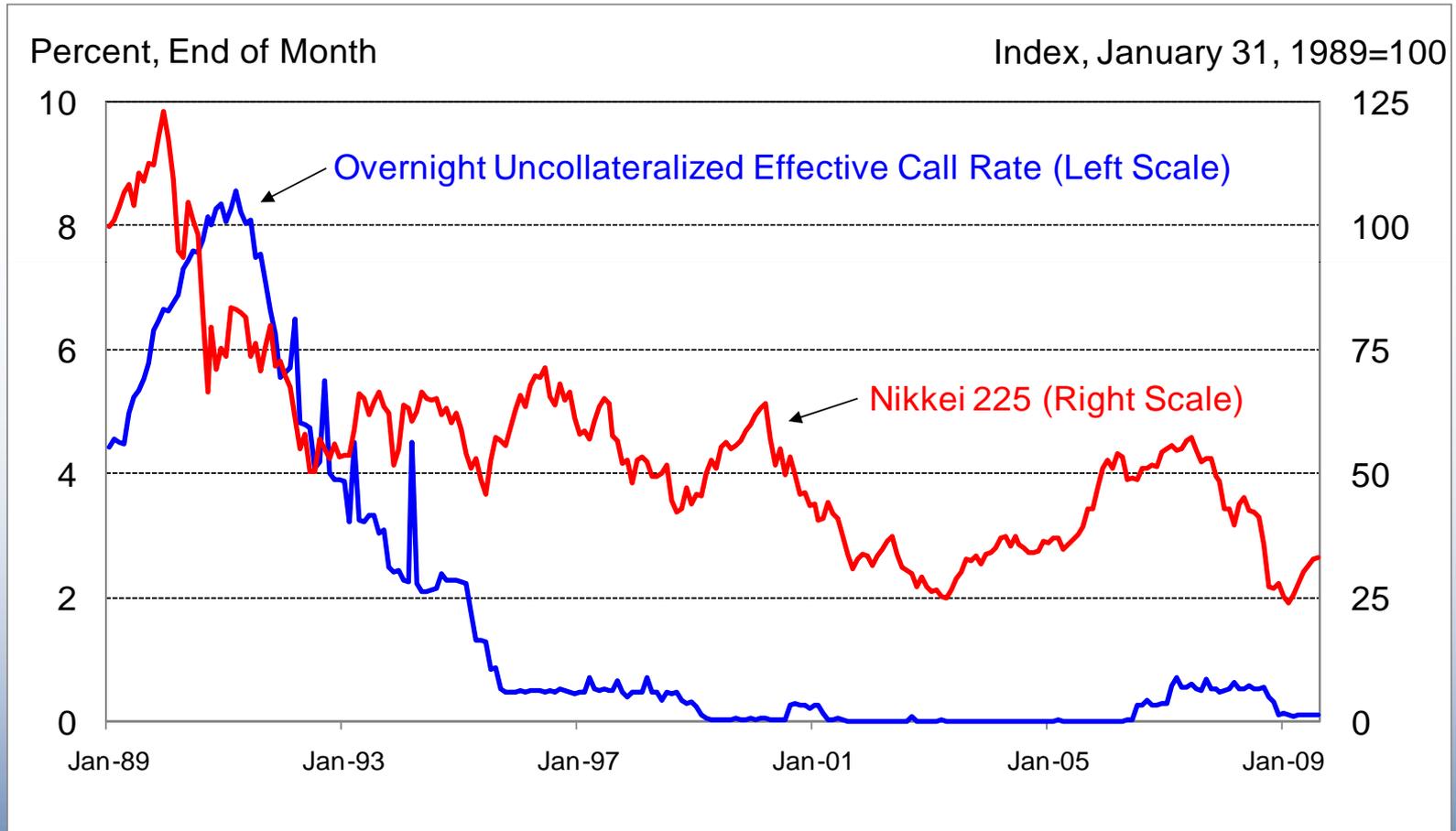


Source: Federal Reserve Statistical Release H.4.1

Figure 8

Interest Rates and Stock Prices in Japan

January 1989 - August 2009

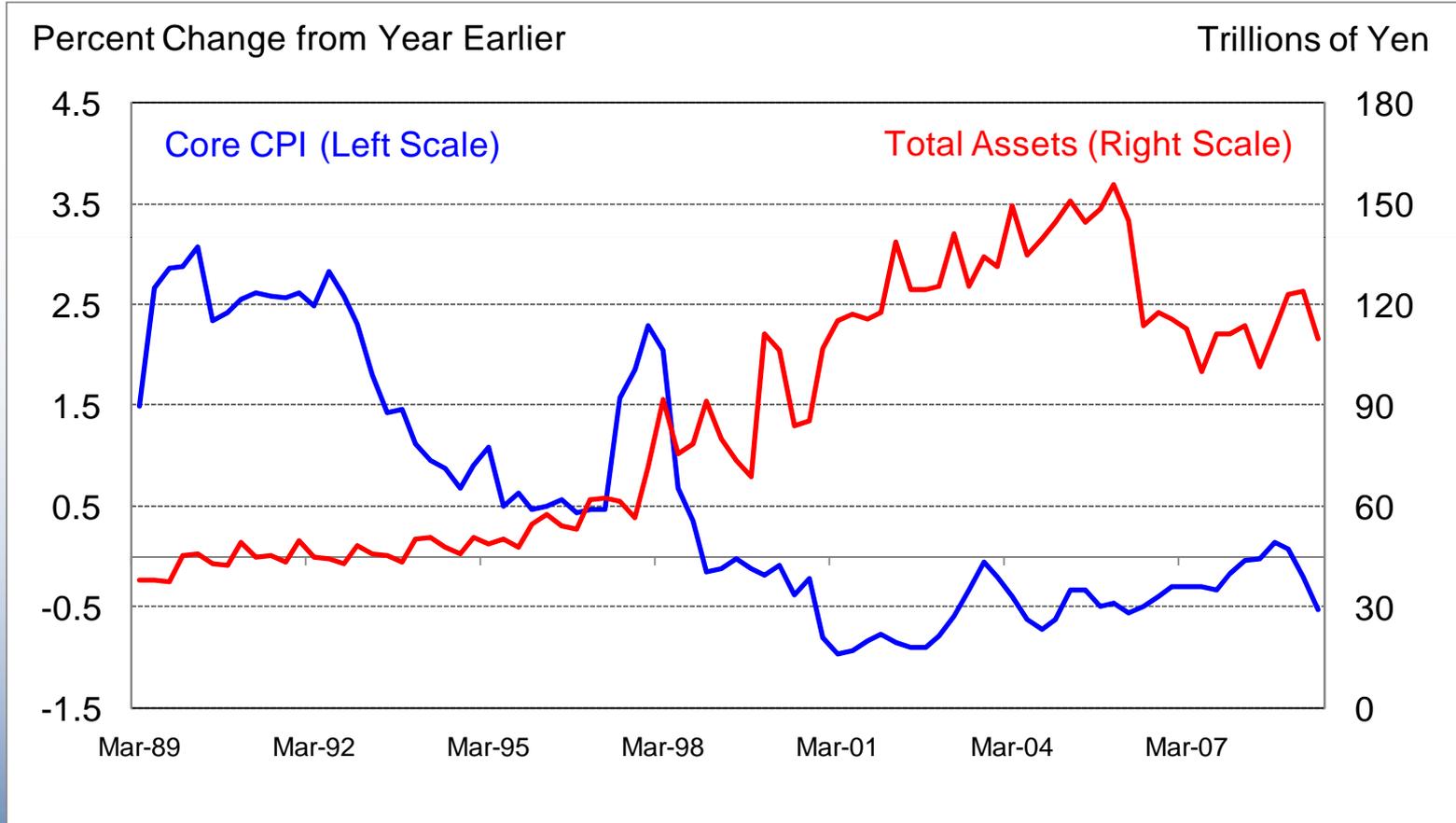


Source: Bank of Japan, Financial Times / Haver Analytics

Figure 9

Japan: Core Consumer Price Index and Bank of Japan Total Assets

March 1990 - June 2009

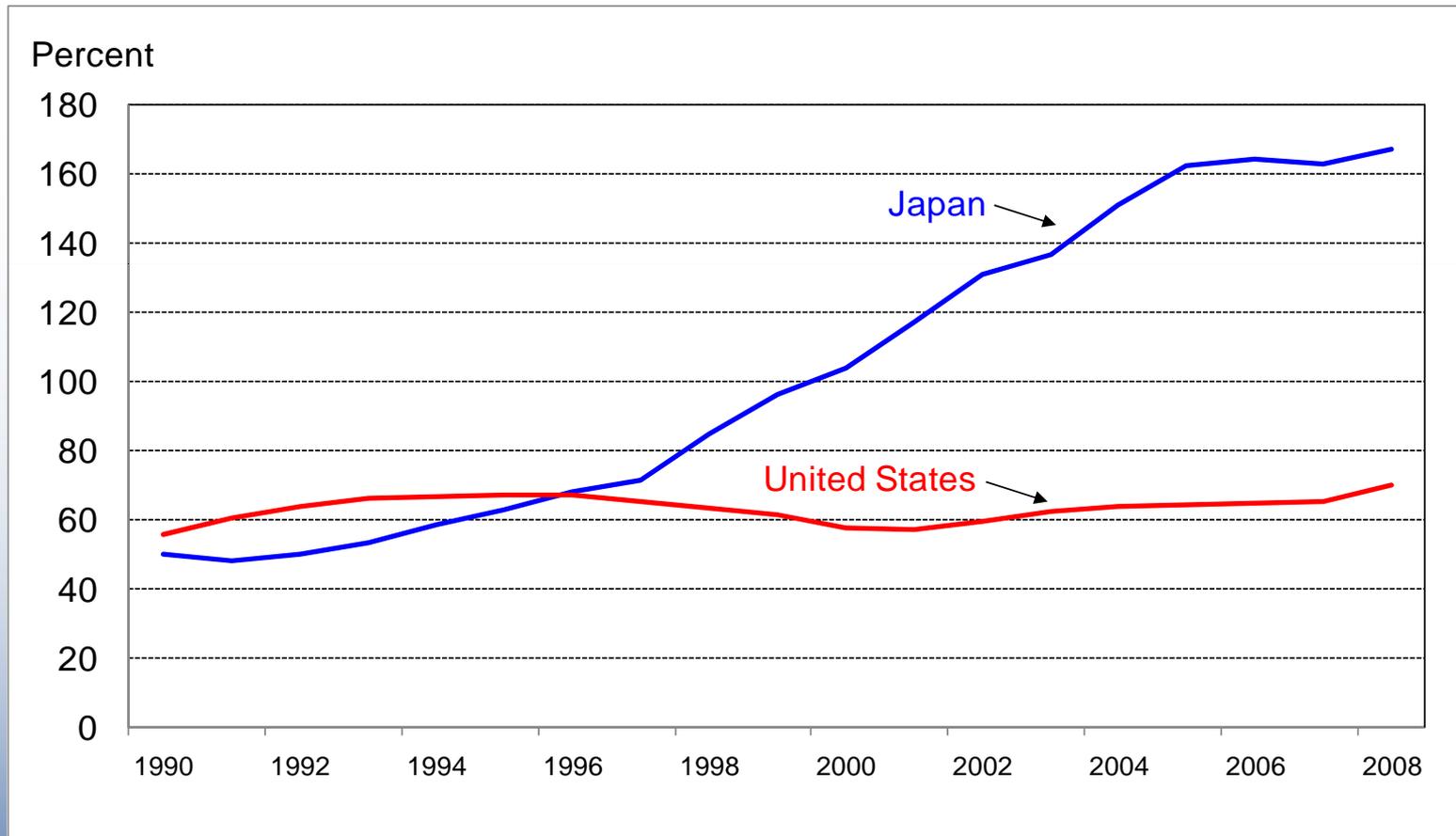


Source: Bank of Japan, Ministry of Internal Affairs and Communications / Haver Analytics

Figure 10

Federal Debt as a Percent of GDP

1990 - 2008

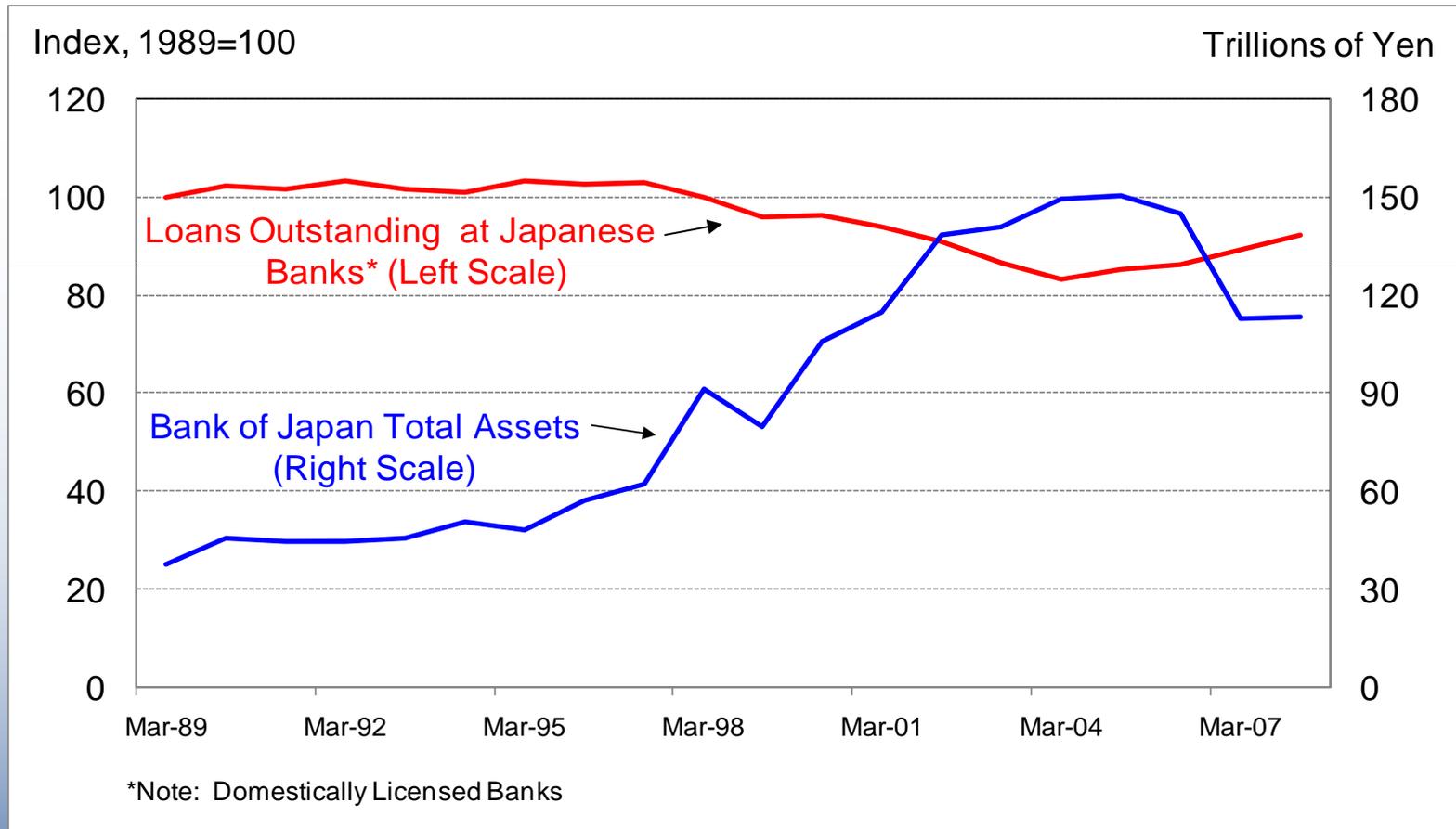


Source: Bank of Japan, Cabinet Office, US Treasury, OMB / Haver Analytics

Figure 11

Bank Lending in Japan and Bank of Japan Assets

March 1989 - March 2008



Source: Bank of Japan