We Are All FIT-ers Now:
Is Flexible Inflation Targeting fit to a new financial environment?

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Abstract:
With adoption of a (flexible) inflation targeting framework (with 2% target) by FRB on January 25, 2012 and by BOJ on January 22, 2013, major central banks, both advanced and emerging market economies, are all inflation targeters. If an inflation (expectation) differential is a major cause for the currency appreciation and depreciation, then universal adoption of inflation targeting with 2% target is expected to stabilize (in the medium run) the exchange rates among inflation targeters. When major shocks such as the Lehman Brothers failure occur, central banks will ease dramatically (ZIRP and QE) in order to maintain inflation targeting. This may be mistaken as a “currency wars” by non-crisis countries. However, a globally concerted monetary easing among crisis hit countries is not an act of currency wars but global liquidity provision that would prevent global depression.

Keywords: inflation targeting; monetary policy, Phillips curve;
JEL:

1. Introduction

Inflation targeting (IT) is a monetary policy framework that aims at price stability with a numerical target. Many inflation targeting central banks choose a low but positive inflation rate (typically 2%, or a range of 1 to 3 %). Inflation targeting started in New Zealand in 1990, and then spread to other smaller advanced countries like Canada, Sweden and Australia. Later, IT was adopted in emerging market economies like Thailand, Korea, and Indonesia.[1] The long and variable lag in the monetary policy transmission channel makes it necessary to adjust policy instruments with forecasts of the inflation rate of several quarters ahead. The inflation targeting is is only possible as a medium-term objective. Hence, it is sometimes called inflation "forecast" targeting (Svensson (1997)).

An early criticism of IT is that the framework focuses solely on the inflation rate, ignoring other important macroeconomic variables, such as GDP and employment. However, the objective of inflation targeting is to stabilize the inflation rate, so that the GDP and employment would be also be stabilized. For example, the speed of approaching the target from the higher-than-target inflation rate will depend on the output and employment developments. If the economy is weak, a strong monetary tightening would not be applied so that the above-the-target inflation rate may persist longer than otherwise. In a theoretical model, even in the inflation targeting framework, the objective function of monetary policy is thought to contain both the inflation gap (=actual inflation rate minus inflation target rate) and the GDP gap (=actual GDP minus potential GDP). Thus, in order to clarify such dual objective, the approach that have positive weights both on the inflation rate and output is called "flexible" inflation targeting (FIT). The central bank loss function that is used in the FIT literature typically contains two variables, the squared deviation of the inflation rate from the optimal inflation rate and the squared deviation of output from the potential output. The short-run tradeoff between inflation and output targets is well recognized in the FIT literature. An important feature of FIT then is to state that the inflation rate will be on average at the target over the business cycle, which is the language in the Australian IT regime, and not every month.

One of the most important benefits of the FIT framework is to anchor the inflation expectation, thus to reduce volatility in the shocks arising from expectation variations (position of the New Keynesian supply curve). The long run inflation

[1] For early analysis of inflation targeting, see Bernanke, Laubach, Mishkin and Posen (1999), and Bernanke and Mishkin (1997). Truman (2003) has a survey of IT adopters as of 2003.

expectation should still be at the target rate, if the central bank has credibility. With success of early adopters of FIT, more and more countries adopted FTI. The FIT seems to have become best practice among advanced countries and emerging market economies with floating exchange rate regime. B late-2000s, almost all advanced countries have adopted inflation targeting explicitly, except the three largest free-float economies, the United States, Japan, and the Euro zone.

One of the stated reasons why the Bank of Japan had not adopted FIT was that the Federal Reserve System (FRB) and ECB had not adopted inflation targeting. As of 2011, neither the FRB nor BOJ had announced a numerical target. ECB had said that the desirable inflation rate is below but close to 2%. Although there existed some controversy whether ECB should be classified as inflation targeter, it was very close to practicing inflation targeting, if not flexible inflation targeting (Svensson (2000)).

Many observers regarded FRB as pursuing FIT-like policy, but the specific number as an institutional target was not announced, until January 25, 2012, when the Federal Reserve published the longer-run goal and policy strategy. As will be analyzed in the next section, this document was the first in the FRB history that 2% was mentioned as a target inflation rate with an agreement among Federal Open Market Committee (FOMC) members.

Since FRB was under dual mandate, price stability and maximum employment, it was clear that FRB was adopting flexible inflation target as opposed to inflation target in the narrow sense. This was the moment FRB became flexible inflation targeter, or FITer.[2]

A few weeks after FRB announced, the Bank of Japan (BOJ) came with an announcement that the BOJ would be adopting the 1% goal. The BOJ policy board announcement on February 14 appeared that it had followed the FRB in adopting the inflation targeting but with a different number, 1% instead of 2%. However, the Bank of Japan did not follow this up with a confirmation of this being an action of adopting the inflation targeting. The BOJ also used a much vague translation of “goal” in the Japanese language, so that many observers in Japan regarded it as not adopting an inflation targeting. The clear announcement of adopting inflation targeting with 2% target rate did not come until January 22, 2013, almost a year later.

With adoption of a (flexible) inflation targeting framework (with 2% target) by FRB on January 25, 2012 and by BOJ on January 22, 2013, major central banks, both

[2] Since Ben Bernanke has been an inflation targeting advocate, many expected that FRB would adopt inflation targeting soon when he took over FRB chair in February 2006. It took six years that the prediction became the reality.

advanced and emerging market economies, became inflation targeters. We are all FITers now.

However, just when almost all central banks have become FITers, some challenges to FIT have emerged. In the wake of global financial crisis starting with the collapse of Lehman Brothers, some scholars blamed FIT for the financial crisis. Paying attention only to the CPI inflation rate (and output), the central banks were complacent against the housing bubble and too much leveraging among banks. Some scholars declared that "inflation targeting is dead" (Frankel, 2012) or at least raised the possibility of that (Reichlin and Baldwin (eds.) 2013). This line of post-Lehman criticism can be viewed as an extension of an earlier criticism by William White at BIS (Borio and White, 2003). When asset prices are rising sharply, should central banks deviate from what FIT would prescribe? Some think yes. (Cecchetti, S. G., H. Genberg, J. Lipsky, and S. Wadhwani. 2000)

Admittedly, FIT does not include asset prices in the objective function. However, to the extent that the asset prices influence future prices and output, FIT does pay attention to asset prices. Putting too many variables into the objective functions of monetary policy, without additional policy instrument may significantly lower the power of the central bank. It has become a mainstream view that most important policy instrument for financial stability is macro prudential regulation, separate from monetary policy. The financial systemic stability must be pursued with macro prudential policy whether it is within the central bank—financial stabilization wing—or outside the central bank—FSA.

Even among those who blame central banks, in particular FRB and BOE, for not preventing the global financial crisis, it is a minority to advocate replacing FIT with something else (Frankel (2012) belongs to this minority). After examining the literature, it is my view that (monetary policy wing of) central banks should stay FIT, while macro-prudential measures should be prepared by the financial stability wing of central banks or by the separate agency, such as FSA.

2. FRB adopting FIT on January 25, 2012

2.1.Implicit Inflation Targeging

It was well-known that Chairman Greenspan was against inflation targeting. When Bernanke, a long time IT advocate, took over chair of the Federal Reserve Board in February 2006, there was a high hope, among inflation targeting advocates, that inflation targeting will be introduced at FOMC. When Rick Mishkin joined as a board

member, the hope was even elevated. However, it did not happen and Rick Mishkin left the Board. When Janet Yellen, who was also known to be sympathetic to inflation targeting, the hope was again renewed.

Some viewed that inflation targeting had been practiced without announcing it under the Bernanke regime, even before the formal adoption of January 2012. Changes in monetary policy seemed to target the 2% level of inflation. The market started to believe that the monetary policy practice was consistent with the inflation targeting with 2% target. The inflation expectation seemed to have been anchored at 2%. Even though Greenspan was said to be against inflation targeting as a monetary framework, steps were taken to guide the inflation rate low and stable. Indeed, Chairman Greenspan also contributed to disinflation. Goodfriend (2005) thinks that "it would appear that the Greenspan Fed Adopted, gradually and implicitly, an approach to monetary policy that can be characterized as an inflation targeting."

2.2. Making inflation targeting more explicit as crisis management

After the Lehman Brothers' collapse, economic activities sharply contracted and inflation started to decelerate. The FRB was concerned that the U.S. may fall into deflation and, once in the deflationary, it would be difficult to get out. The FRB was also concerned that the inflation expectation anchor may be broken toward downward. Japan was a model of deflation, not to follow.

From the summer of 2008 to the fall 2008, the economic conditions became worse and worse, as the subprime crisis started to push large banks toward bankruptcy. When the Lehman Brothers failed, the US and European financial system became dysfunctional. Economists realized that bad economic situations would persist so that economic projections became worse and worse as the current economic conditions worsened.

FOMC members are asked to make "projections" of macroeconomic variables, four times a year, for the next three years. A majority view, eliminating highest three and lowest three, is called "central tendency."[3] Until June 2008, 3-year ahead projection of the inflation rate has been always close to, but below, 2.0 %. For example, in June 2008 projection, the inflation rate of 2010 was projected to be in the range of 1.8 to 2.0. However, in October 2008, the range dropped to 1.4 to 1.7.

The FOMC was concerned that this projection may not be consistent with their medium run (implicit) inflation target. In order to signal the policy determination to

[3] The document footnote states: "The central tendency excludes the three highest and three lowest projections for each variable in each year"

pursue strong easing to achieve inflation targeting in the medium term, the FOMC started to publish "longer run" projection. In the January 2009 projection, the inflation rate of 2011 was projected to be in the range of 0.9 and 1.7 markedly lower with wide range, compared to earlier three-year projection. The newly-published "longer run projection" stated the range of 1.7 to 2.0. See Table 1 for the list of projections from October 2007 to July 2011. The longer run projection is defined as the medium-term inflation rate that FOMC members forecast to achieve when appropriate monetary policy is employed.[4] Essentially, this is another way of expressing inflation targeting. The Federal Reserve took a one-step toward becoming an inflation targeter.

Table 1 about here

The table shows that the "longer run projection" was introduced in January 2009 and that the longer-run projection stayed at the 1.7-2.0 range (in a few cases, 1.6-2.0) since its introduction while the three-year projections have been variable since January 2009. It shows that at the onset of the global financial crisis, FOMC members became very pessimistic and they immediately forecasted that three years would not be enough to get back to the targeted inflation rate.

This introduction of longer-run projection was a step closer to inflation targeting of 2%. FOMC members thought that that restating a 2% (implicit) inflation target in the middle of crisis would help to keep anchoring the inflation expectation, despite the decelerating actual inflation rate. Thus, inflation targeting was thought to be a crisis management measure.

2.3. Inflation Targeting Declaration

The FRB's final step to inflation targeting was taken on January 25, 2012, when the FOMC published a document called "Longer-run Goals and Policy Strategy." The inflation targeting is stated in the following sentence: "inflation at the rate of 2 percent, … , is most consistent over the longer run with the Federal Reserve's statutory mandate."

This declaration is different from disclosing "longer-run projection" four times a year in three aspects. First, the 2012 declaration is shared as a consensus by the FOMC members. The longer-run projection was a collection of individual members' projection. The inflation targeting was shared and described as an institutional decision. Second, the projection stayed mostly in the range of 1.7 to 2.0, which can be described as below but close to 2%, while the inflation targeting of January 2012 was pinpointing

[4] The official document states: Longer-run projections represent each participant's assessment of the rate to which each variable would be expected to converge under appropriate monetary policy and in the absence of further shocks to the economy.

at 2%. Announcing the target point is generally thought in the literature to be better in anchoring the expectation. The step would enhance communication of the inflation target. Third, replacing the range (1.7, 2.0) with the point target of 2.0, the tolerance range for deviation must have risen from (1.7, 2.0) to (2.0-x, 2.0+x). Albeit slightly, the Federal Reserve became more tolerant with inflation; to put differently, it recognized the importance of a "buffer" against the negative shock. Even with a negative shock, like the global financial crisis in the future, the inflation rate at the lowest point should be above zero.

Although it was mentioned 2% "goal," Chairman Bernanke used "goal" and "target" interchangeably in the press conference following the FOMC decision, it was clear to the market as well as the observes that the FRB adopted inflation targeting in the academic sense. When asked by a reporter whether this was an inflation targeting, Chairman Bernanke was rejecting the notion that the Federal Reserve is an inflation targeting in narrow sense (not paying attention to output), but is similar to all other central banks that call themselves inflation targeters and pay attention to output as well as prices:

> Bernanke: Now, are we inflation targeters? If by "inflation targeter" you mean a central bank that puts top priority on inflation and other goals, like employment, as subsidiary goals, then the answer is no. We are a dual-mandate central bank: We put equal weight on price stability and maximum employment; those are the goals given to us by the Congress. … (W)e're not absolutists: If there's a need to let inflation return a little bit more slowly to target in order to get a better result in employment, then that's something that we would be willing to do. Having said all that, I think it's worth noting that even banks that—central banks that call themselves inflation targeters typically pay at least some attention to other parts of the economy: employment, growth, financial stability, and the like. So I don't think there's really any central bank, or very few, at least, that focus only on inflation. (Press conference transcript, January 25, 2013)

One of the reasons that the Federal Reserve could not have taken the last step toward announcing the pinpoint target rate was the Federal Reserve is under dual mandate and declaring inflation targeting may invoke an unnecessary attack from those who regard inflation targeting as a label for a narrow-minded inflation targeting, and not flexible inflation targeting. In the document of January 2012, inflation targeting of 2% is stated to be consistent with the dual mandate of Federal Reserve, that is, price stability and maximum employment. The logic was, in the language of economic textbook, the distinction between the short-run and long-run Phillips curve.

The document stated that monetary policy determines the longer-run inflation rate: “The inflation rate over the longer run is primarily determined by monetary policy, and hence the Committee has the ability to specify a longer-run goal for inflation.” The long-run position of the maximum employment, however, cannot be determined by monetary policy, but “largely determined by nonmonetary factors that affect the structure and dynamics of the labor market.”

These clear-cut plain-language sentences can be translated into the Phillips curve framework. The long-run Phillips curve is vertical at the level of maximum level of employment, or the natural unemployment level. This level cannot be determined by monetary policy. However, in the short-run, there is a tradeoff between the unemployment level and the inflation rate, and monetary policy can influence both the inflation rate and the unemployment level. The position of the short-run Phillips curve can the influenced by inflation expectation. The purpose of inflation targeting is to set the short-run Phillips curve at a position here the short-run Phillips curve crosses the long-run Phillips curve at 2% inflation rate. This is shown in Figure 1

Insert Figure 1 about here

Although it may not be an act of monetary policy, the level of maximum employment changes over time. The document states “[C]onsequently, it would not be appropriate to specify a fixed goal for employment.” Then, quoting the longer-run projection, “FOMC participants' estimates of the longer-run normal rate of unemployment had a central tendency of 5.2 percent to 6.0 percent,”

In the short-run, achieving the two goals simultaneously may not be possible, so the Federal Reserve must face whether to put more weight on achieving 2% inflation target or on maximum employment. The document stated that FOMC “seeks to mitigate deviations of inflation from its longer-run goal and deviations of employment from the Committee's assessments of its maximum level. These objectives are generally complementary.” This can be translated into the Phillips curve framework as the central bank having a loss function with two variables, deviations from 2% inflation and deviations from natural unemployment level, as shown in Figure 2.

Figure 2

When “not complementary, it follows a balanced approach in promoting them, taking into account the magnitude of the deviations and the potentially different time horizons over which employment and inflation are projected to return to levels judged consistent with its mandate.” This can be translated as follows.

The both objectives are “complementary” when the inflation rate is below target and the unemployment rate is above the target level. In this case, it is easy to pursue

monetary easing, from both objectives. The two objectives are “not complementary,” when, for example, the inflation rate is above target but the unemployment rate is above the natural rate of unemployment. The above-target inflation rate alone would direct monetary policy to tighten, while the above-target unemployment level would direct monetary policy to ease. The narrow minded inflation targeting would say, “tighten.” The document says that the Federal Reserve take “a balanced approach,” which can be interpreted as “it depends.” It examines both the price dynamics and labor market conditions and decide whether to ease or to tighten.

The balanced approach also means the choice of dynamic path depends on many things. Since both unemployment and inflation rates change only slowly as result of various economic shocks and monetary policy, how to converge the long-run goals are difficult. In the process of achieving the long-run goal, the inflation may overshoot or undershoot depending on the employment situation. In some case monetary policy may allow the inflation rate to overshoot, if that helps the unemployment rate to return to long-run faster. This is illustrated in Figure 3.

Figure 3

The initial position is when both objectives are “complementary,” and monetary policy should be in an easing direction. When the long-run target of the inflation rate is achieved, the unemployment rate is still above natural rate of unemployment. At this point, the narrow-minded inflation targeting would say, “stop easing.” However, the balanced approach would say, keep easing to help the unemployment rate would continue to decline. Then the tricky part would be to soft-land both the unemployment and inflation rate to be at the long-run goal by decreasing the degree of easing gradually.

In sum, the Federal Reserve made an important step toward inflation targeting in January 2009 in the wake of the global financial crisis by start publishing “longer-run goals.” This was motivated to keep anchoring the inflation expectation at below but close to 2%. Then, the Federal Reserve declared that the inflation targeting in January 2012 as the consensus of the FOMC. The explanation of why inflation targeting is consistent with dual mandate can be framed in the short-run, long-run Phillips curve.

3. The Bank of Japan

3.1 Price Stability

The Bank of Japan has long resisted to an idea that announcing a numerical target would be an important instrument for anchoring inflation expectation. The Bank of Japan obtained legal independence in April 1998 in the aftermath of its worst banking

crisis since 1927. The large banks were failing and the financial systemic risk was heightened. The output contracted sharply in 1998 and the inflation rate became negative. This was the first year of what would become a 15-year long deflation.

Ito (2004) detailed the evolution of the zero interest rate policy and its exit condition as a trigger for movement toward defining price stability. In October 2000, the Bank of Japan issued a document, "On Price Stability," in which the Bank could not specify which price measure is the best to focus; and the Bank also defined price stability as "as a state that is neither deflation nor inflation." This is almost a tautology. The document stated that it would be difficult to pick a price index to define price stability, let alone the number to represent price stability.

On March 19, 2001, the Bank of Japan adopted quantitative easing, with the interest rate being allowed to be zero. In this decision, the BOJ provided an exit condition, as follows: "The new procedures for money market operations continue to be in place until the consumer price index (excluding perishables, on a nationwide statistics) registers stably a zero percent or an increase year on year." It is significant that the appropriate price index had finally been identified. However, the exit condition is only minimum condition for the interest rate could be raised above zero, and it could not be regarded as a desirable long-run inflation rate. Moreover, "stably" was not defined numerically.

In October 2003, "stably" was further defined as above zero for a few months and when there would be no risk of falling back into deflation. Also, while these two conditions were explicitly mentioned as necessary conditions, they may not be sufficient. A transition from a necessary condition for exit from quantitative easing and zero interest rate to some sort of inflation targeting could have been possible upon exit. Some argued for such a change. However, that did not occur. The BOJ continued to resist an idea of issuing any number of the inflation rate as a target or a reference.

The closest the Bank of Japan came was the document issued on March 9, 2006, "The Introduction of a New Framework for the conduct of Monetary Policy." In the document, price stability was defined as follows: "Price stability is, conceptually, a state where the change in the price index without measurement bias is zero percent. Currently, there seems to be no significant bias in the Japanese consumer price index." However, the minutes of the day reveals that there is considerable disagreement over what price stability means among policy board members. Each member expressed some number (e.g., above 1, below 1, close to 0) that he or she considers price stability. The range of 0-2% was chosen as the window that spans the all different opinions about point estimates of the inflation rate that is consistent with price stability.

Then, the medium to long-term price stability, according to the policy board members, was described as follows: “an approximate range between zero and two percent was generally consistent with the distribution of each Board member's understanding of medium- to long-term price stability.” Although the range, 0-2%, similar to ECB is mentioned, there are important differences. First, it is said to be consistent with policy board members’ “understanding” and not an institutional judgment, not to mention commitment. Second, the floor zero is explicitly included in the range.

3.2 Inflation goal of 1 percent

The Federal Reserve adopting an explicit inflation targeting of 2%, on January 25, 2012 must have some impact on thinking about inflation targeting inside the Bank of Japan. , it must have impacted on the Bank of Japan’s thinking of the issue. On February 14, the Bank of Japan announced that it is adopting the 1% inflation rate as a policy goal.

- “[T]he Board decided to express "the price stability goal in the medium to long term" in specific inflation rates by making some allowances as "a positive range of 2 percent or lower in terms of the year-on-year rate of change in the CPI." Within this range, the Board decided to set a goal at 1 percent for the time being to clarify the inflation rate which the Bank's monetary policy aims to achieve.” (The Bank of Japan, February 14, 2012. Emphasis added by the author.)

Many investors thought that the Bank of Japan adopted an inflation targeting framework, just like the Federal Reserve, three weeks earlier. As inflation targeting had been advocated outside the Bank, and resisted inside the Bank, this statement interpreted by investors to be a real change in the Bank. They initially thought that finally the Bank decided to take actions to end deflation and aim at a higher inflation rate. The market reacted to this statement with depreciating the yen and increasing the stock prices. The yen depreciation and stock prices

However, Governor Shirakawa did not endorse the interpretation that this is a declaration of inflation targeting and any new actions like enhancing quantitative easing, to achieve the stated goal, were not coming. Moreover, several comments came from the Bank of Japan that they were not comfortable with yen depreciation and stock price appreciation, since that is not traditional transmission channel of monetary policy. Stock price increases, as a reaction to expectation alone, were regarded to be something close to a bubble, according to the Bank of Japan.

After Investors finally decided that the February 24 announcement was not a fundamental change in monetary policy, disappointments among investors brought the yen/dollar level and stock price levels back to the pre-February 24 levels. The overvalued level of the yen continued until the fall of 2012.

When the Diet was dissolved in the mid-November, the market participants anticipated that the then ruling party, DPJ, would lose and the opposition party, Liberal Democratic Party (LDP), would win in the up-coming general election. Investors started to listen to the election platform of Mr. Abe, a leader of the LDP. Mr. Abe put policies to get out of deflation to be a first priority. He started to make comments that the change in monetary policy is necessary and put pressure on the Bank of Japan. Mr. Abe also endorsed inflation targeting with 2% target rate as a credible framework to fight deflation.

He was reported to have said that if the Bank of Japan does not cooperate in fighting against deflation, it may be necessary to change the Bank of Japan law. Some critics called this as violating the independence of the Bank, defenders argued that many central banks including Bank of England and Federal Reserve do not have "goal independence" but "instrument independence." Introducing an inflation targeting framework with 2% in agreement between the government and the central bank is not uncommon. With the pressure from Mr. Abe as an opposition leader before and as Prime Minister after December 26, 2013, the Bank of Japan adopted the inflation targeting framework on January 22, 2013, if not reluctantly.

3.3. Inflation targeting with 2% target

On January 22, 2013, the Bank of Japan decided to adopt the 2% inflation targeting framework, which Prime Minister had wanted. The Bank of Japan and the Government, represented by two ministers, signed the document that set out the Bank of Japan to pursue the inflation targeting policy, while the government cooperates with the Bank of Japan in an attempt to achieve the same goal.

In the document, the inflation targeting is unmistakably laid out as the Bank's objective: "the Bank sets the 'price stability target' at 2 percent."

The benefit of inflation targeting is recognized as making inflation expectation anchored at 2%, in order to get out of deflation: "as prices are expected to rise moderately, it is judged appropriate to clearly indicate the target of 2 percent in order to anchor the sustainable rate of inflation."

However, it is stated that inflation target is not a policy priority that should be achieved regardless of the conditions in the real side of the economy. The Bank of Japan

Act of 1997 states that price stability should be pursued to make realize the sound economy.

> Article 2: Currency and monetary control by the Bank of Japan shall be aimed at achieving price stability, thereby contributing to the sound development of the national economy.

It may be comparable to dual mandate in the United States. The inflation targeting has to be consistent with this article. Thus the document first described the objectives of the Bank of Japan:

> "The Bank of Japan conducts monetary policy based on the principle that the policy shall be aimed at achieving price stability, thereby contributing to the sound development of the national economy, and is responsible for maintaining financial system stability. The Bank aims to achieve price stability on a sustainable basis, given that there are various factors that affect prices in the short run."

It lists, "price stability, which contributes to the sound development of the national economy," which is reiterating the Article 2; and financial system stability. Then with this aim in mind, the document declares inflation target of 2 percent:

> The Bank recognizes that the inflation rate consistent with price stability on a sustainable basis will rise as efforts by a wide range of entities toward strengthening competitiveness and growth potential of Japan's economy make progress. Based on this recognition, the Bank sets the price stability target at 2 percent in terms of the year-on-year rate of change in the consumer price index. (January 22, 2013c, emphasis added by the author)

– "The conduct of monetary policy has to be flexible by examining various risk factors, including those related to financial imbalances, in addition to the assessment of current developments and outlook for economic activity and prices, from the perspective of achieving sustainable growth with price stability." (January 22, 2013a,)

These statements, combined with Article 2 can be regarded as a declaration of flexible inflation targeting, although it is not quite as explicit as the US declaration of inflation target of one year earlier.

3.4. New Regime

On March 20, Governor Shirakawa was succeeded by new Governor Kuroda.[5]

[5] Governor Shirakawa resigned as Governor, a few weeks ahead of the expiration of the

Governor Shirakawa had been reluctant to adopt an inflation targeting framework or to expand the balance sheet. New Governor Kuroda was chosen by Prime Minister Abe since he embraced the inflation targeting framework. On April 4, Governor Kuroda introduced quantitative and qualitative easing (QQE), a plan to double monetary base by aggressively purchasing long bonds, listed stock index funds (ETF) and other kinds of assets. Under the Shirakawa regime, the Bank bought government bonds with remaining maturity of three years or less. Hence, even though large purchases every month, the balance sheet did not expand rapidly. By more than doubling the remaining maturity of government bonds, the Bank can expand the size of balance sheets.

On April 26, the semi-annual "Outlook" document was released and the forecasts of Monetary Policy Board Members under the new inflation target regime were disclosed. The median of forecasts of the CPI inflation rate was 0.7% for fiscal year (FY) 2013, 1.4% for FY 2014, and 1.9% for FY 2015. This is shown in Table 2. In fact, under the old regime, the April Outlook had only two years of forecasts. The forecast horizon was extended to three years to show that the forecasts do indeed show the picture consistent with newly-adopted inflation targeting. The projection was consistent with Governor Kuroda's promise of 2% inflation rate in two years.

Insert Table 2 about here

The process of declaring the inflation targeting framework and then reflect the new change in forecast (projection) of Policy Board at the Bank of Japan in the spring of 2013 is exactly the same with the FOMC of the Federal Reserve, one year earlier. One difference is that the BOJ forecasts do not have a column of "longer-run projection." But, after the FOMC adoption of 2% inflation targeting, the longer-run projection became the exactly the same number with inflation target, so in the sense redundant.

In sum, the Federal Reserve and the Bank of Japan joined the flexible inflation targeter (FIT) club in January 2012 and January 2013, respectively. Now the list of FIT includes most of advanced countries with free floating exchange rate regime. They share many common institutional features not only declaring the numerical target but such as legal independence and various transparency measures. Many FITers publish monetary policy committee members' forecasts or institutional forecasts (Inflation Report), publish minutes and voting records of policy committee, and have Governor's press conference after committee decisions. There seems to be a convergence to a best practice, called FIT, among major central banks (with a notable exception of ECB). So we are all FITers.

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term, in order to synchronize the timing of change with Deputy Governors.

4. Is Inflation Targeting passé? [6]

4.1. Two Roots of critical views

Just when almost all major central banks became FITers, a best practice, some voices of criticism became louder. Publication of "Is Inflation Targeting Dead? Central Banking After the Crisis" by VoxEU is symbolic. In short, the global financial crisis of 2008-09, with an epicenter at the United States made some scholars and policy makers that inflation targeting is not enough for sound management of monetary policy. The CPI inflation rate and growth rate did not give any sign of overheating in the years of build-up of subprime mortgages, which later caused a bust. After all, the Federal Reserve, a *de facto* inflation targeter before the crisis, and the Bank of England, an explicit inflation targeter, could not prevent the financial crisis, which sent the output growth in the negative territory and the inflation rate to very close to deflation. When adhering to FIT made the great financial crisis, why could it be a best practice?

But, this critical view of FIT was heard even before the global financial crisis. In fact, the Japanese real estate bubble in the second half of the 1970s got bigger and bigger without any signs in the CPI inflation rate. Any inflationary pressure from higher-than-potential growth rate was offset by pass-through from a large yen appreciation. Even a balanced focus on price stability and growth did not seem to work. Even as early as late 1990s to early 2000s, the Bank of International Settlements (BIS) and BOJ were putting out views that price stability has to be balanced with financial stability, not (or at least less on) growth. We review the literature on criticism of inflation targeting, some take lessons from the Japanese experience of real estate boom and it burst, and some take lessons from the global financial crisis, spread from the subprime crisis of the United States.

4.2. Global Financial Crisis

A huge asset housing bubble in the US and its collapse pushed the world economy near the brink of depression in the fourth quarter of 2008 and the first quarter of 2009. Low-quality (subprime) mortgages were created, securitized, re-securitized and distributed to the world. When the default rate of original mortgages became higher, the prices of those securities plummeted, and a panic in the financial markets spread worldwide. In many security markets, buyers simply vanished, and institutions that held subprime-related securities with leverage were squeezed for liquidity and suffered large capital losses. In the early stage of the crisis, the damage was limited to those who held

[6] This section is drawn from Ito (2010).

subprime-related securities. However, as the financial crisis deepened and became more serious, global financial and capital markets were universally affected.

After the failure of Lehman Brothers in September 2008, both financial and real activities were drastically curtailed. Many financial institutions in the US and Europe failed or were bailed out by the government. Consumption, investment, and output activities in Europe and the US shrank rapidly. The Japanese and Asian economies were also affected severely through financial spillovers and export collapse. Although the worst outcome was avoided by unconventional monetary policy as well as *de facto* global zero interest rate policy, policy discussions as well as academic debates continue regarding the causes, cures, and prevention of a financial crisis. (See Bernanke 2010 for a summary of the view from the Federal Reserve.) The lender-of-last-resort measures like massive liquidity provision and asset purchase by the Federal Reserve, Bank of England, and European Central Bank prevented the meltdown of the world economy. Crisis management, that is, policy reactions to a crisis is less controversial. But how to prevent such a crisis is less clear, and the role of central banks in prevention is being debated.

There are three suspected causes of the US subprime crisis and global financial crisis: (1) failure of financial supervision, (2) global imbalances of saving glut, and (3) failure of monetary policy. Although main concern of this paper is the third possibility, it is important to review the relative importance of all these causes in order to assess the degree of necessity of monetary policy to prevent future housing bubbles in other countries.

(1). Lack of Supervision and Regulation on Securitization

Banks originating mortgages knew that mortgages they originated would be securitized, so that theycarelessly lent to financially weak (subprime) borrowers. This is moral hazard. Investment banks pooled hundreds of securitized mortgages and created senior, mezzanine, and equities out of the pooled securities. The resecuritization created AAA securities out of subprime loan securities, which turned out to be an unrealistic assumption of uncorrelated housing prices over different regions. Moreover, the AAA rating was obtained in consultation with credit rating agencies over what assets (safe assets, if necessary) need to be included in the pool. In this regards, the credit rating agencies were guilty of conflict of interest. Investment banks sold those AAA securities to final investors, such as pension funds, hedge funds, and commercial banks. The sale subsidiaries, known as conduits or special investment vehicles (SIVs) were not consolidated in parent banks' balance sheets.

This accounting irregularity made the accounting opaque and made the risk

assessment very difficult. The Securities and Exchange Commission (SEC) was supposed to be a main supervisory agency for investment banks and their financial products. However, there is a consensus that the SEC was not effective on this front. Major investment banks and an insurance company, AIG, were underregulated. Some of the problems described above—moral hazard, conflict of interest, opaque accounting—would be preventable if the supervision and regulatory framework regime is completely revamped.[7]

(2). Global Imbalances

The large US current account deficit and large current account surpluses in the People's Republic of China and oil-producing countries that maintained the dollar peg resulted in large amounts of intervention. Intervention in turn resulted in purchases of US Treasuries. Thus, the dollar peg and current account surpluses made it possible to depress interest rates in the US, in particular long rates, and contributed to fueling the housing bubble. When the US current account deficits were rising from 2001 to 2006, the US dollar was expected to depreciate, which may have resulted in higher inflation and higher nominal interest rates. However, global imbalances and the saving glut in the form of money pouring into the US market concealed the risk in the US asset markets, particularly the housing market. According to this view, surplus saving in emerging markets recycled into the US markets caused the housing bubble.[8]

During the long process of interest hikes by the Federal Reserve from 2004 to 2006, the long-term interest rate remained low, and did not rise with the short-term rate. Greenspan called the phenomenon a "conundrum."[9] Global imbalances and global saving glut seem to explain the conundrum.

(3). Low Interest Rates

Taylor (2007 and 2009) argues that the interest rate from 2002 to 2006 had been too low (compared to the Taylor rule), so that the housing price increases became excessive. The interest rate was reduced sharply in 2001 to help the economy soft land from the

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[7] See Ito (2009) and Svensson (2009) for this view.

[8] See Portes (2009) for this view, and Obstfeld and Rogoff (2009) for a view that both global imbalances and housing boom were created by a common cause. In that sense, the two issues are intimately related.

[9] n his Congressional testimony, Greenspan (2005) said, "Concurrently, greater integration of financial markets has meant that a larger share of the world's pool of savings is being deployed in cross-border financing of investment. The favorable inflation performance across a broad range of countries resulting from enlarged global goods, services and financial capacity has doubtless contributed to expectations of lower inflation in the years ahead and lower inflation risk premiums. But none of this is new and hence it is difficult to attribute the long-term interest rate declines of the last nine months to glacially increasing globalization. For the moment, the broadly unanticipated behavior of world bond markets remains a conundrum."

collapse of the dotcom bubble in 1999–2000. The decisions that kept the interest rate low from 2001 to 2003 and that raised the interest rate only very gradually from 2004 to 2006 were based on the fear that the US economy might tumble into a Japan-like deflation and stagnation. The skillful soft landing was generally praised at the time. However, in retrospect, some experts like Taylor argued that the low interest rate (to mitigate the pain of the burst of a bubble) spawned another bubble.[10]

4.3. To FIT or unFIT

There are two opposing views to the question posed above:[11]

> (A) The FIT should not react to asset price increases and decreases, since asset prices are not the target variable. First, it is very difficult to differentiate a bubble from a fundamentally strong economy. Second, the prevention of banking crises should be dealt with using financial supervision policy. In order to prevent a hard landing of the banking system, the regulatory authority can introduce various prudential measures such as higher (and variable) capital standards, introducing/tightening regulation on the loan-to-value ratio and the loan-income ratio ceiling, and examining the internal risk assessment of bank portfolios.
>
> (B) The FIT should pay more attention not only to the (projected) CPI but also to asset prices, and react to them. Since the bubble burst most likely causes financial instability, precautionary monetary tightening is recommended. Low interest rates are designed to encourage risk-taking activities—from the normal to the reckless—whereas financial supervision policy cannot completely prevent risk concentration in some sectors of the economy. Some authors have recommended that asset prices should be included in a set of target variables.

The first view is most famously told by then Federal Reserve Chairman Greenspan, who in the aftermath of the dotcom bubble said, “Moreover, it was far from obvious that bubbles, even if identified early, could be preempted short of the central bank inducing a substantial contraction in economic activity—the very outcome we would be seeking to avoid” (Greenspan 2002, 5).

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[10] Some Bank of Japan economists agree with Taylor’ s criticism of the low interest rate for fuelling the housing bubble, since they hold the view that the low interest rate in the second half of the 1980s was the main cause ofthe asset price bubble that burst in the 1990s to cause widespread financial instability.

[11] See Ito (2006). See also Ingves (2007) and Svensson (2009) for slightly different classification and discussions.

It is true that the interest rate is a blunt instrument to tame asset bubbles. FIT cannot pursue too many policy goals with only one policy instrument. The second view was recently put forward by Taylor (2007 and 2009), who criticized the low interest rates (compared to the Taylor rule) from 2002 to 2006. However, a similar argument was put forward by Cecchetti, Genberg, Lipsky, and Wadhwani (2000) and Borio and White (2003). This view is sometimes called "lean against the wind".

Based on the hypothetical (desirable) Taylor rule interest rate path, Taylor estimated the "counterfactual housing starts" that showed a much more moderated rise and decline from 2003 to 2006.

With respect to the Japanese housing bubble in the second half of the 1980s and its subsequent collapse in the first half of the 1990s, an interesting debate took place in a Jackson Hole conference in 1999. Bernanke and Gertler (1999, 77–125) presented a paper in which they heavily criticized the Bank of Japan monetary policy: "We find that easy monetary policy in Japan actively fueled the increase in stock prices during the 1987–89 period." They showed that the optimal policy rule they estimated would have suggested an 8% interest rate as early as the summer of 1988, when the actual call rate was at around 3%. Then Deputy Governor of the Bank of Japan Yutaka Yamaguchi responded that it would have been very difficult to raise the interest rate from 4% to 8% when the CPI inflation rate was below 1%.[12]

Okina, Shirakawa, and Shiratsuka (2001) also reflected on the 1999 debate. While they also considered that a preemptive interest rate hike a la Bernanke and Gertler would have been impossible, there would have been merit to raising the interest rate early: "If interest rates had been raised early, expectations for the continuation of low interest rates would have receded more quickly than otherwise, and to that extent the timing of the autonomous collapse of the bubble would have been somewhat expedited."

4.4. Assessment of the Earlier Debate

Housing prices and stock prices sometimes exhibit a spectacular price increase followed by a crash. Toward the end of the boom, many investors are lured into the market just to make profits from short-term buying and selling. Traditional fundamental signals, like the price-rental ratio or, equivalently, the ratio of the purchase price to theoretical discounted present value of rental revenues, are totally disregarded. The phenomenon of

[12] Ito and Iwaisako (1996) showed that although the fundamental value of an asset price may be quite sensitive to a permanent change in the interest rate, a temporary change in the interest rate would not change the fundamental value very much.

high price levels (in relative to the fundamental, intrinsic value) supported only by expectation of further price increases is typically called a bubble.

Can we identify, with reasonable certainty in real time a housing-market bubble as opposed to fundamentals-driven price increases? Probably yes, but only at the very last stage of the bubble. While housing price increases improve economic welfare of many households and firms since they produce wealth effects, a premature end to the price increase would be economic loss.

On the other hand, a crash brings about hardship. Foreclosure of homes, bankruptcy of firms, and unemployment soars, and when these are severe, the banking system becomes very weak. The banking crisis causes credit crunch, liquidity shortage, and, in the worst case scenario, systemic breakdown. Simply put, financial stability is threatened when the bubble bursts. Many cases in history stand as evidence. The costs to the economy from financial instability could become enormous.

An asset price bubble often occurs without an acceleration of CPI inflation. That was the case in the US housing boom of 2002–2006, US dotcom stock boom of 1997–2001, and Japanese housing (land) boom of 1985–1989.

How should the FIT central bank react to asset price inflation? Let me first make one point clear. The FIT targets not only the current inflation rate, but medium-term price stability, that is, the expected inflation rate. Therefore, if the asset price boom is expected to produce overheating in the near future, most likely through wealth effects, then the FIT will act to stop it. How should the FIT react to the asset price boom when the CPI inflation rate is projected to stay low and stable? Supervision policy, conducted by supervision agencies like financial supervision agencies and central banks, should pay much more attention to the asset price bubble to ensure the robustness of financial institutions. Capital requirement should be increased during a boom (dynamic capital requirement); the loan-to-value ratio should be adjusted when asset prices are rising fast; and risk assessment, like stress tests, should be regularly conducted on the large, systemically important institutions. One more important element is to legislate a framework to take over a large, systemically important institution if their capital becomes less than a certain critical level, a resolution mechanism. This avoids moral hazard while systemic stability is maintained. The inflation targeting framework should be coordinated with supervision policy. Coordination between the central bank and the supervision agency, which may be an independent agency or a wing in the central bank, is critical. However, it does not necessarily mean that the interest rate path has to be changed in the period of asset price inflation. The prudential measures can be taken by the supervision agency.

5. Is Inflation Targeting Dead?

Five years after the global financial crisis, economic recovery in advanced countries has been slow in the US, Japan, the Euro zone and the UK. The four major central banks adopted (near-) zero interest rate policy (ZIRP) and quantitative easing (QE), in varying sizes of QE, in the wake of the Lehman Brothers collapse. For five years, the size of QEs has been increasing in the four economies and an exit from QE is not in sight in those economies. The economies trapped in ZIRP and QE with slow recovery gave critics of inflation targeting with more ammunition.

Reichlin and Baldwin (2013), "Is Inflation Targeting Dead?" is a collection of 14 short essays, written by economists, examining critical views of inflation targeting. Two views are in the undercurrent of these essays. (1) Inflation targeting did not prevent the global financial crisis and (2) inflation targeting has not contributed to faster recovery. The first critical view has common elements to the earlier criticism of inflation targeting exemplified by the BIS economists, Borio and White (2003). Namely, the bubble cannot be prevented by the FIT framework. In particular, central banks, not paying enough attention to financial vulnerability, are accused of being complacent. However, the question is whether it is monetary policy or supervisory agency that should prevent a bubble. If the latter, the supervisory agency should have used macro-prudential measures.

In the United States, it was the breakdown of supervision and regulation that caused the subprime crisis, as explained in details above. Securities brokers and investment bank (non-depository institutions) were not in the supervisory responsibility of Federal Reserve, so it is unfair to blame the Federal Reserve. Given that the optimal prudential policy was not taken, should the Federal Reserve have raised the interest rate, possibly as a second best solution?

Some critics argue that when the interest rate is lowered to zero (ZIRP), monetary policy lacks an effective instrument to control the inflation rate. Hence, the inflation rate loses the credibility. However, a majority of central banks under ZIRP consider that quantitative easing (QE) would work in stimulating aggregate demand. Figure 4 shows how the four largest central banks with free floating exchange rates expanded their respective balance sheet after the collapse of the Lehman Brothers.

Insert Figure 4

As for the second question, it is important to observe that FRB FIT and the BOJ FIT were introduced after the global financial crisis started, as detailed in the

earlier sections. This shows at least the two central banks regarded an (explicit) FIT to be contributing to effective monetary policy. By anchoring inflation expectation at 2% was regarded important in fighting disinflation or deflation in the wake of the global financial crisis. In addition to inflation target of 2%, having a dual mandate was also regarded helpful, at least in the United States. Large unemployment meant additional rationale for continuation of QEs. This may be helpful to enhance a notion that tightening comes later than usual (say, the Taylor rule) when a recovery progress. Provided that inflation expectation is anchored at 2%, the inflation rate can overshoot, while the employment and output would increase when a recovery is rather slow. This is a situation depicted in Figure 3 earlier Hence, contrary to a notion of ineffective FIT under ZIRP, held by critics, inflation targeting with QE, with or without dual mandate can stimulate the economy.

6. Concluding Remarks

6.1. Asset Prices

Recall the two extreme views: (A) no special attention to asset prices is needed (beyond that of being one of the variables for predicting future CPI); and (B) asset price stability should be as important as CPI price stability and output stability in the objective function of a central bank. Advocates of (A) press the advocates of (B) whether asset prices should be in the central bank loss function along with inflation rate and output gap. If the answer is no, then advocates of (A) would say that the FIT already takes into account asset prices when they form medium-term forecasts of CPI and output.

Is there a middle ground? In my view, many central banks operate in some form of compromise between (A) and (B). Let us explore some of them. The first compromise is to allow a tolerance band of CPI inflation targeting, and use the band to lean against asset price inflation. When asset prices are rising quickly, the FIT should be vigilant: interest hikes should be earlier, and the levels should be on a high side within the tolerance range of projected CPI inflation rates. The second compromise is the “two pillar” approach. The first pillar is more short-term, CPI stability, while the second pillar is financial stability. As long as the second pillar is not threatened, the first pillar operates with a usual FIT central bank policy rule with CPI price stability and output stability in the objective function. When worrying signs such as credit expansion, asset price increases, and vulnerable bank balance sheets are detected, the first pillar will give way to the second pillar. This follows a more lexicographic ordering from financial stability to CPI inflation stability.

The third compromise is fine-tuning the interest rate hike/lowering based on the asset price increases. Ingves (2007, 438) describes the Riksbank view: “The paths of asset prices and indebtedness can at times be either difficult to rationalize or unsustainable in the long term. This means that there are risks of sharp corrections in the future which, in turn, affect the real economy and inflation. … In practice, taking risks of this kind into consideration can mean that interest rate changes are made somewhat earlier or later, in relation to what would have been the most suitable according to the forecasts for inflation and the real economy.”

The original (A) advocates may condition their views on the existence of strong regulatory frameworks. Dynamic capital ratio, strong power to direct financial institutions avoiding risk concentration, and some sort of resolution authority in case some banks fall into trouble after the bubble has burst may be important to separate financial stability and monetary policy. In other words, if the country has an effective regulatory regime, the burden on the monetary policy is lessened. Hence, strengthening the regulatory framework to prevent the bubble and clean up the crash swiftly is always welcome. I find it more pressing and important to debate over the issue of best practice in a supervision and regulatory framework and concrete measures of anti-bubble regulations, than to debate how asset prices should be used in monetary policy. I will elaborate on my position in the last section.

Since the crisis did not happen in Asia this time, there may be some complacency in financial supervision. As world demand recovers with Asia leading the postcrisis recovery, the danger of an asset price bubble may be just around the corner, if not already happening in some countries. Governments and central banks have to come up with a theoretical and practical framework to address the asset price inflation in preparation for future risk. First, the supervision and regulation of financial institutions should be enhanced. Whether this is done within or outside the central bank may depend on the availability of experts on these issues. Often human resources are limited in emerging market economies, so that supervision is most efficiently done within the central bank. However, in that case, a potential conflict of interest from monetary policy objectives should be controlled. In fact, in many Asian countries, macro-prudential policy has to be greatly enhanced in addition to micro-prudential policy that was revamped during the Asian crisis in 1997.

With enhanced supervision and regulation, monetary policy may be freed from the difficulty of pursuing too many targets with a limited number—often just one—of strong policy instruments. The question of whether the monetary policy should take into account threats to financial stability from a housing bubble cannot be answered without

discussing supervision and regulation. Whether FIT can be modified to take into account asset price bubbles also depends on the effectiveness of financial supervision tools such as regulation of the loan-to-value ratio and credit growth controls. It has to be recognized that the interest rate is regarded as a blunt instrument against an asset price bubble. In the next section, lessons for Asian economies are summarized as policy recommendations.

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Table 1

PCE inflation rate pojections by FOMC members
Central tendency

Time of projection	2008	2009	2010	2011	Longer Run
October 2007	1.8 to 2.1	1.7 to 2.0	1.6 to 1.9		
January 2008	2.1 to 2.4	1.7 to 2.0	1.7 to 2.0		
April 2008	3.1 to 3.4	1.9 to 2.3	1.8 to 2.0		
June 2008	3.8 to 4.2	2.0 to 2.3	1.8 to 2.0		
October 2008		1.3 to 2.0	1.4 to 1.8	1.4 to 1.7	n.a.
January 2009		0.3 to 1.0	1.0 to 1.5	0.9 to 1.7	1.7 to 2.0
April 2009		0.6 to 0.9	1.0 to 1.6	1.0 to 1.9	1.7 to 2.0
September 2009		1.0 to 1.4	1.2 to 1.8	1.1 to 2.0	1.7 to 2.0

	2010	2011	2012	Longer run
Novembe 2009	1.3 to 1.6	1.0 to 1.9	1.2 to 1.9	1.7 to 2.0
January 2010	1.4 to 1.7	1.1 to 2.0	1.3 to 2.0	1.7 to 2.0
April 2010	1.2 to 1.5	1.1 to 1.9	1.2 to 2.0	1.7 to 2.0
June 2010	1.0 to 1.1	1.1 to 1.6	1.0 to 1.7	1.7 to 2.0

	2011	2012	2013	Longer run
November 2010	1.1 to 1.7	1.1 to 1.8	1.2 to 2.0	1.6 to 2.0
January 2011	1.3 to 1.7	1.0 to 1.9	1.2 to 2.0	1.6 to 2.0
April 2011	2.1 to 2.8	1.2 to 2.0	1.4 to 2.0	1.7 to 2.0
July 2011	2.3 to 2.5	1.5 to 2.0	1.5 to 2.0	1.7 to 2.0

	2012	2013	2014	Longer run
November 2011	1.4 to 2.0	1.5 to 2.0	1.5 to 2.0	1.7 to 2.0
January 2012	1.4 to 1.8	1.4 to 2.0	1.6 to 2.0	2
April 2012	1.9 to 2.0	1.6 to 2.0	1.7 to 2.0	2
June 2012	1.2 to 1.7	1.5 to 2.0	1.5 to 2.0	2

	2012	2013	2014	2015	Longer run
September 2012	1.7 to 1.8	1.6 to 2.0	1.6 to 2.0	1.8 to 2.0	2
December 2012	1.6 to 1.7	1.3 to 2.0	1.5 to 2.0	1.7 to 2.0	2

Notes:1. The central tendency excludes the three highest and three lowest projections for each variable in each year Return to table

2. The range for a variable in a given year includes all participants' projections, from lowest to highest, for that variable in that year. Return to table

3. Longer-run projections represent each participant's assessment of the rate to which each variable would be expected to converge under appropriate monetary policy and in the absence of further shocks to the economy.

Source: Compiled by the author from various issues of "Monetary Policy Report" of the Federal Reserve Board

Table 2: The Bank of Japan, Policy Board Members' forecast

Inflation rate, projection		FY 2013	FY 2014	FY 2015
Oct 2012	Range	0.2 - 0.6	0.4 - 1.0	
	Median	0.4	0.8	
Jan 2013	Range	0.3 - 0.6	0.5 - 1.0	
	Median	0.4	0.9	
April 2013	Range	0.4 - 0.8	0.7 - 1.6	0.9 - 2.2
	Median	0.7	1.4	19

Figure1

FRB View (1) Longer-Run Goals

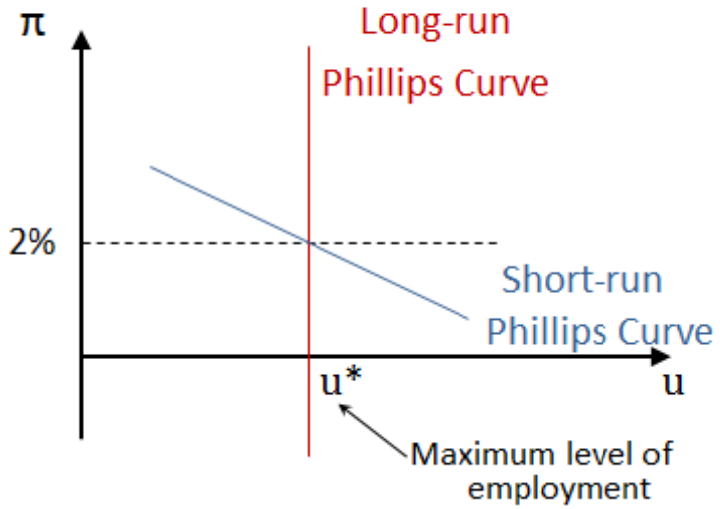

Figure 2

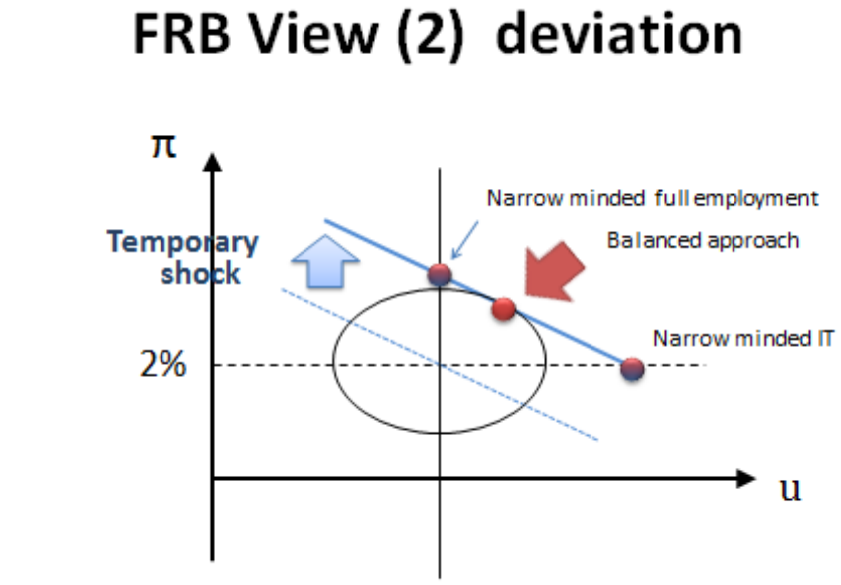
FRB View (2) deviation
π
Temporary shock
2%
Narrow minded full employment
Balanced approach
Narrow minded IT
u

Figure 3

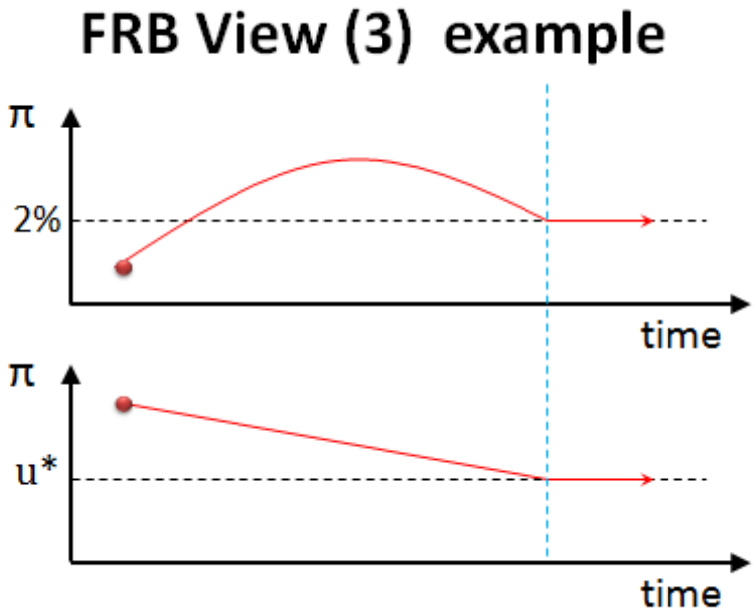

Figure4

Balance Sheets of 4 Major Central Banks (Jan 2007=100)