

FEDERAL RESERVE BANK OF ST. LOUIS

The Evolution to Inflation Targeting: How Did We Get Here and Where Do We Need to Go?

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The economics profession has made considerable progress in its understanding of the role of central banks in controlling inflation during the 45 years since I took my first course in economics. Until at least the early 1970's the majority of the economics profession believed that central banks could do little to control inflation. Conventional wisdom had it that monetary policy was relatively ineffective for controlling inflation or economic stabilization. Fiscal policy, not monetary policy, was the principle way that governments could stabilize the economy and keep inflation low. Government spending and tax policy could be used to fill the void between private demand and potential output. I review the evolution of economic thought from "there is little central banks can do to control inflation" to "inflation targeting." I argue that policymakers' belief in the efficacy of monetary policy to control inflation changed dramatically in spite of the fact that there was no fundamental refutation of what I call the *monetary-policy-ineffectiveness* proposition. The evolution to inflation occurred because central banks, most importantly the Federal Reserve, demonstrated that monetary policy could control inflation. Unfortunately, there was no accompanying advancement in the professions' understanding of the way that monetary policy works. I argue that the gap between the apparent effectiveness of monetary policy for inflation control and our lack of understanding of how monetary policy works poses a serious challenge to the continued effectiveness and perhaps viability of inflation targeting. I believe that inflation-targeting central banks must confront directly the tension between economic theory and the practice of inflation targeting.

2. The Monetary-Policy-Ineffectiveness Proposition

It is difficult to envision any central banker in the world who would have recommended inflation targeting in the 1950s and 1960s. As Cagan (1978) pointed out, "the quantity of money was not considered important, indeed was hardly worth mentioning, for questions of aggregate

demand, unemployment, and even inflation.”¹ This view of monetary policy extended well into the early 1970s. Nelson (2005) makes a compelling argument that the lack of faith in the ability of monetary policy to cure inflation in the early 1970s was due, in part, to the belief that inflation was caused by “cost-push” factors, not amenable to effects of monetary policy actions on aggregate demand. This view was not an integral part of the monetary-policy-ineffective proposition, however. Rather, it was an endogenous response to the experience of accelerating inflation and declining output growth. Cost-push inflation was simply a name given to a variety of factors that academic economists and policymakers thought might cause inflation other than an excess of aggregate demand at or near potential output. The experience of the early 1970s caused Chairman Burns to observe that “as time passed, it became increasingly clear that the laws of economics were not working as they once had.”² Burns attributed inflation to a variety of “special factors.” As these special factors dissipated, but inflation did not, Burns blamed inflation on government deficits (Hetzel, 1998). At the January 1978, FOMC meeting Chairman Burns suggested “we need an anti-inflation policy on the part of the Administration, something we don’t have at the present time.”³ The view that fiscal policy and not monetary policy caused inflation is reflected in staff briefings as well. For example, in a March 21, 1978 FOMC staff briefing James Kichline suggested that “in the absence of an effective Administration anti-inflation program, the risks appear weighted toward higher rather than lower rates of inflation.”⁴

Just as today, the conventional view of inflation was it was caused by an excess of aggregate demand at or near the “full employment” level of output. The monetary-policy-ineffectiveness proposition stemmed from a belief that monetary policy had relatively little effect

¹ Cagan (1978), p. 85.

² Burns (1974), p. 2. Also, see Nelson (2005) for additional details.

³ FOMC (1978), p. 5.

⁴ FOMC Briefing (1978), p. 5.

on aggregate demand. Unable to affect aggregate demand, there is little monetary policy can do to control inflation. The monetary-policy-ineffectiveness proposition had several components. Important among these was the belief that a monetary-policy-induced change in the money supply would have little or no *direct* effect on aggregate demand. The theoretical basis for the direct link between the supply of money and prices was the quantity theory of money or, more simply, the equation of exchange. The quantity theory was widely viewed as a tautology, rather than an economic theory.⁵ Virtually everyone agreed that if the central bank simply handed everyone money, prices would increase, but this was not how central banks increased the money supply. Policy-induced changes in the money supply were the consequence of open market operations, discount window lending, and changes in reserve requirements. These actions would have an immediate effect on bank reserves and, hence, short-term interest rates. Critics of a direct effect of changes in the money supply on aggregate demand argued that a policy-induced increase in the supply of money would cause interest rates to fall, which would in turn increase the quantity of money demand. The increase in the money supply would be largely offset by a decline in money's velocity. The result would be little or no change in aggregate demand and, consequently, prices or output.

The effectiveness of monetary policy was a consequence of monetary policy actions on interest rates, not on the supply of money. The so-called interest rate channel of money policy was thought to be relatively weak, however. Specifically, empirical evidence suggested that consumption and investment spending were relatively interest inelastic. Consequently, the monetary authority would have to generate a relatively large change in interest rates to have a significant impact on aggregate demand. Investment decisions were thought to be determined

⁵ Cagan (1978), p. 86, notes that "textbooks in basic economics and even in money and banking mentioned the quantity theory of money, if at all, only to hold it up to ridicule."

more by expectations of future earnings than interest rates. Changes in the interest rate not accompanied by changes in expectations about the economy would be of little consequence for aggregate demand. Many thought the efficacy of monetary policy might be asymmetric: Reducing interest rates during a period of economic slack would be less effective than raising interest rates during a period of economic expansion. The Fed, it was said, cannot *push on a string*.

This tenet of the monetary-policy-ineffectiveness proposition was reinforced by the fact that monetary policy actions directly affect only very short-term interest rates. The ability of the central bank to affect longer-term interest rates, the rates that most thought were important for spending decisions, was problematic. For example, in his July 24, 1975, congressional testimony, Chairman Burns noted that while it is long-term rates that matter for spending decisions, “all of us recognize that the influence the Federal Reserve has on long-term rates is negligible.”

2.1 The Monetary-Policy-Ineffectiveness Proposition, Circa 2009

The last 50 years has done little to change economists’ and central bankers’ views about the basic tenets of the monetary-policy-ineffectiveness proposition. Consumption and investment spending are still thought to be relatively interest inelastic. Most believe that short-term rates are relatively unimportant for spending, and the ability of the monetary authority to influence long-term rates remains questionable. Moreover, the view among the most influential in the profession is that monetary-policy-induced changes in reserves or the money supply have no effect on aggregate demand, except through their effect on interest rates.

The Interest Insensitivity of Spending

Acknowledging that there is little agreement “on exactly how monetary policy exerts its influence” on the real economy, Bernanke and Gertler (1995) note that the conventional model,

whereby “monetary policymakers use their leverage over short-term interest rates to influence the cost of capital and, consequently, spending on durable goods, such as fixed investment, housing, inventories and consumer durables,” is incomplete in several important ways.⁶ They note that important among these is the fact that “empirical studies of supposedly ‘interest sensitive’ components of aggregate spending have in fact had great difficulty in identifying a quantitatively important effect of the neoclassical cost-of-capital variable.”⁷ They go on to note that “gaps in the conventional story have led a number of economists to explore whether imperfect information and other “frictions” in credit markets *might help explain the potency of monetary policy.*”⁸ One such attempt is called the credit channel of monetary policy. The credit channel of monetary policy has two separate channels: the “balance-sheet” channel and the “bank-lending” channel. The balance-sheet channel suggests that restrictive monetary policy increases the wedge between the cost of internal and external finance. Specifically, monetary-policy engineered increases in short-term interest rates adversely affect the value of potential borrower’s assets, their cash flow and, consequently, their creditworthiness, which increases the external finance premium. The external finance premium increases for small borrowers by more than the increase in short-term rates. While there is evidence that heterogeneity is important for the effect of changes in interest rates on firms and individuals, the empirical importance of the balance-sheet channel remains unclear (e.g., Hubbard, 1995).

The bank-credit channel (e.g., Bernanke and Blinder, 1988; Bernanke, 1993; and Gertler and Gilchrist, 1993) asserts that restrictive monetary policy actions have a direct effect on bank lending. It is generally recognized (e.g., Bernanke, 2007; and Thornton, 1994) that whatever its

⁶ Bernanke and Gertler (1995), p. 27.

⁷ Bernanke and Gertler (1995), p. 27.

⁸ Bernanke and Gertler (1995), p. 28, emphasis added. In essence, Bernanke and Gertler are saying we know that monetary policy is efficacious, we just don’t know why. The credit channel of monetary policy, as it is called, is an attempt to provide a theoretical basis for the belief in the efficacy of monetary policy. Also see Bernanke (2007).

potential significance historically, “in the United States today it seems unlikely to be quantitatively important.”⁹ The reason is simple. Federal Reserve actions to reduce the supply of reserves have little or no effect because banks have access to external funds that are not constrained by reserve requirements and, hence, the availability of reserves. Bernanke (2007) suggests that restrictive monetary policy may affect banks by increasing the external finance premium paid by banks in much the same way that the balance-sheet channel is thought to effect individuals and firms. It is not clear why restrictive monetary policy should increase banks’ external finance premium, however. Indeed, the spread between the equivalent-term Libor rate (the rate at which banks lend to each other) and the CD rate (the rate at which banks borrow externally) has been small historically. Moreover, it does not vary with the overnight federal funds rate.

Monetary Policy and Long-Term Rates

It also remains the case the most economists believe that long-term rates, not short-term rates, matter for spending decisions (e.g., Blinder et al., 2001; Broaddus, 2002; Eggertsson and Woodford, 2003; Freedman, 2002; and Woodford, 2001). Moreover, many economists and policymakers believe that central bank actions have a limited effect on long-term rates. For example, in his July 20, 1993, congressional testimony, Chairman Greenspan noted that “currently, short-term rates, most directly affected by the Federal Reserve, are not far from zero; longer-term rates, *set primarily by the market*, are appreciably higher.”¹⁰

Conventional wisdom sees central banks influencing longer-term rates in accordance with the expectations hypothesis (EH) of the term structure of interest rates. The EH asserts that the long-term rate is determined by the market’s expectation for the short-term rate over the maturity

⁹ Bernanke (2007).

¹⁰ Greenspan (1993), emphasis added.

of the long-term asset plus a constant risk premium. The risk premium compensates investors for the higher degree of market risk associated with holding longer-term assets. The evidence against the EH is overwhelming (e.g., Sarno, et al., 2007, and Della Corte, et al., 2008, and the references cited therein). One reason for the empirical failure of the EH is that conventional tests of the EH are based on the assumption that the expected future short-term rate deviates from the actual future short-term interest rate by a white noise error. Interest rates are notoriously difficult to predict, however. Hence, it seems likely that the empirical failure of the EH is a consequence of incompatibility of the assumption upon which tests of the EH are based and the unpredictability of interest rates generally (e.g., Guidolin and Thornton, 2009).

The belief that long-term rates are determined in accordance with the EH suggests that central banks should be explicit about the path for their short-term interest rate instrument. Until recently, this has not been the case, however. For example, elsewhere (Thornton, 2006) I show that when the Federal Open Market Committee (FOMC) returned to targeting the overnight funds rate in late 1982, not only did it not announce the change in operating procedure, as it did in October 1979 when it began targeting nonborrowed reserves, but it attempted to conceal the fact that it was targeting the funds rate. Moreover, the FOMC remained secretive about the extent to which it was targeting the funds rate long after the market participants became aware that the FOMC was using a funds rate targeting operating procedure. For example, at the conclusion of its February 1994 meeting, the FOMC shocked the markets by announcing that it had taken a policy action.¹¹ The FOMC's statement read "the Federal Open Market Committee decided to increase slightly the degree of pressure on reserve positions. The action is expected to

¹¹ It is perhaps no accident that the Fed's most dramatic move to greater transparency came on the heels of congressional hearings led by Henry Gonzalez, who was "on a crusade to make the Fed more accountable" (Greenspan, 2007, p. 150).

be associated with a *small increase in short-term money market interest rates.*”¹² The vagueness of the announcement is difficult to reconcile with the fact that, by this time, there was no doubt among FOMC members that it was targeting a specific level of the federal funds rate (Thornton, 2006). If the FOMC had wanted to affect longer-term rates, it should have been more precise about the magnitude and the duration of the effect of its actions on the federal funds rate.

Experience and theory suggest that central banks should not be able to reduce long-term rates simply by engaging in open market operations in long-term securities. Indeed, the belief that they can is at odds with the theoretical underpinnings of the EH, which assumes a high degree of substitutability among securities of different maturities. The market would have to be significantly segmented in order for the Fed to affect long-term rates by engaging in open market operations in long-term securities. There is significant doubt that investor preferences are sufficiently strong to segment the market to any significant degree. Moreover, Eggertsson and Woodford (2003) observe that even if the long-term market was segmented, “in equilibrium, no one else holds any or plays any role in pricing them” so that reducing long-term yields “may not correspond to any reduction in the perceived cost of long-term borrowing for other institutions, so that it is unclear that such a reduction should do much to stimulate economic activity or to halt deflationary pressures.”¹³

There has been considerable interest in affecting long-term rates recently as a consequence of Woodford’s (1999) work on “optimal monetary policy inertia.” Monetary policy inertia exists when policymakers adjust their short-term policy rate gradually to changes in economic conditions, e.g., they adjust the rate by less than what the current reading of their policy rule would suggest they should. In response to a presentation by Glenn Rudebusch on

¹² Board of Governors (1994), emphasis added.

¹³ Eggertsson and Woodford (2003), p. 162.

monetary policy inertia, then-Governor Bernanke indicated that “I’m very interested in this basic point that the Fed should be more predictable...I was wondering if there had been evidence on whether or not the responsiveness of long-term interest rates to movements in the fed funds rate was consistent with the predictability of the type that you propose or the type that uses more partial adjustment.”¹⁴ Rudebusch responded by saying that “I don’t think we have the empirical evidence of monetary policy inertia, and I don’t think optimal monetary policy inertia is very convincing.”¹⁵ Bernanke suggested that Rudebusch’s evidence means only that it has not been tried, noting that “one might argue that Glenn’s interpretation of the Taylor rule is correct—that there is no inertia in the policy rule and that there should be more in order to get more effect on long-term rates. I think that’s an open question.”¹⁶

The FOMC took up the topic of conducting monetary policy at the zero nominal rate bound at its June 2003 meeting. While a number of Committee members voiced reservations about attempting to influence longer-term interest rates, Governor Bernanke endorsed the idea, saying

to those of you who have argued against trying to “target” long-term interest rates—if by that you mean that we specify a target for the five-year bond and then try to enforce it by buying five-year bonds—I must say that I agree with you 100 percent that that’s not going to work. But if the policy is one in which we essentially try to lower the whole path of long-term interest rates and we enforce that with a package of complementary actions that includes trying to manage expectations along the term structure and taking a series of other actions such as purchasing long-term bonds and other kinds of instruments, I think that’s one of the first things we ought to be doing. I believe that would actually work and would in fact be a good approach.¹⁷

Consistent with Bernanke’s suggestion, the August 2003 FOMC policy statement included the sentence “in these circumstances, the Committee believes that policy

¹⁴ Transcript, March 2003, FOMC meeting, p. 31.

¹⁵ For a description of Rudebusch’s argument and evidence, see Rudebusch (2007).

¹⁶ Transcript, March 2003, FOMC meeting, p.p. 32.

¹⁷ Transcript, June 2003, FOMC meeting, pp. 45-6.

accommodation can be maintained for a considerable period.”¹⁸ Participants had differing opinions about the wisdom of forward guidance. Indeed, the Committee voted on the rest of the statement and then engaged in a lengthy discussion of this sentence. At the end of this discussion Chairman Greenspan suggested that a vote be taken of both voting and non-voting FOMC participants. The vote was eleven to seven in favor of the sentence. Greenspan concluded, “on the basis of that vote it’s right on the margin. But I would say that we have to put in the truncated version of the final sentence.”¹⁹

There was substantial discussion about the meaning and usefulness of the “considerable period” language during the September and October 2003 meetings. At the September meeting Greenspan acknowledged that “I think it was a mistake to include a sentence in our press statement in August indicating that an accommodative policy can be maintained for a considerable period.”²⁰ The Committee considered several alternative actions, including dropping the sentence. Unsure of how to proceed, the sentence appeared unchanged in both the September and October FOMC statements. On a suggestion from Greenspan at the December 2003 meeting the sentence was modified slightly to “however, with inflation quite low and resource use slack, the Committee believes that policy accommodation can be maintained for a considerable period.”²¹ Most participants thought that Greenspan’s rewording made the statement more “conditional.” However, four participants expressed a preference for removing the statement altogether.

The “considerable period” language was further modified at the May 2004 FOMC meeting to read “the Committee believes that policy accommodation can be removed at a pace

¹⁸ FOMC statement, August 12, 2003.

¹⁹ FOMC Transcript, August 12, 2003, p. 95.

²⁰ FOMC Transcript, September 16, 2003, p. 80.

²¹ Board of Governors, *Press Release*, December 9, 2003.

that is likely to be measured,” suggesting the FOMC might start increasing its target for the funds rate at the next meeting.²² When the FOMC began increasing the funds rate from the then-historically low level of 1.0 percent at its June 2004 meeting it continued to use the “measured pace” language to provide forward guidance about the path of the funds rate target. The measured pace language was widely interpreted as a commitment by the FOMC to raise its funds rate target in increments of 25 basis points at the next meeting, with the idea that the FOMC would proceed on this path for an extended period of time. The FOMC followed through on this commitment. The measured pace language appeared in each of the next 12 FOMC statements, as the target was increased from 1.0 percent in June 2004 to 4.25 percent in December 2005. The measured pace language was dropped from the December 2005 statement even though the FOMC increased its funds rate target by 25 basis points at each of the next four meetings. A possible reason for dropping the language is that, with the funds rate at a level that is more consistent with might be considered an equilibrium level, the Committee was less certain about whether it would continue to raise the target and by how much.

In any event, the FOMC’s policy of providing forward guidance appears to have had relatively little effect on long-term rates. Not only did yields on longer-term securities generally increase from August 2003 to June 2004, but the yields across the term structure increased despite the historically low and unchanged target for the funds rate, and the apparent commitment by the FOMC to keep the funds rate low. This is illustrated in Figure 1, which shows that the coupon Treasury yield curve shifted up between August 2003 and June 2004.

The FOMC’s forward guidance about the pace at which the Fed would increase the funds rate target also appears to have had little or no effect on long-term rates. Longer-term rates declined during the first couple of months following the initial target increase and remained

²² Board of Governors, *Press Release*, May 6, 2003.

relatively unchanged thereafter. Indeed, noting that longer-term rates had declined despite the 150-basis-point increase in funds rate target, Chairman Greenspan (2005) termed the aberrant behavior of long-term Treasury yields relative to the funds rate a “conundrum.”²³ The inability of the forward guidance to affect yields on longer-term securities is also illustrated in Figure 1. The increase the funds rate target over the period June 2004 through December 2005 was only reflected in Treasuries at the shorter end of the term structure. Longer-term yields declined and the yield curve flattened.

Governor Bernanke (2005) suggested that Greenspan’s conundrum was the consequence of “a global saving glut.” However, if there is sufficient substitution across the term structure, a global saving glut should be reflected in the level of the term structure and not uniquely in long-term yields. While the global saving glut might explain why interest rates were low, it cannot account for the flat yield curve.

The inability to control long-term rates is also reflected in recent Fed actions. In its March 18, 2009, statement the FOMC announced that “economic conditions are likely to warrant exceptionally low levels of the federal funds rate for an extended period” and that the Fed would purchase “up to \$300 billion of Treasury securities over the next six months.”²⁴ This announcement appears to be an attempt to reduce long-term rates by using the strategy suggested by Eggertsson and Woodford (2003): Bernanke had outlined this strategy at the June 2003 FOMC meeting. Eggertsson and Woodford (2003) suggest that a central bank should purchase long-term Treasuries to demonstrate its commitment to keep short-term rates low in the future. Noting that the “effect [on long-term yields] follows not from the purchases themselves, but

²³ Elsewhere (Thornton, 2007) I show that there was a marked break in the relationship between the overnight funds rate and the 10-year Treasury yield that pre-dates the conundrum period and coincided with the market’s awareness that the FOMC was targeting a specific level of the federal funds rate. I suggest that this change in behavior is not a conundrum, but reflects the fact that the FOMC, and not the market, determined the path for the funds rate.

²⁴ Board of Governors, *Press Release*, March 18, 2009.

from how they are interpreted,” and that the purchase of long-term Treasuries may help overcome “private sector skepticism about whether the history-dependent interest rate policy will actually be followed.”²⁵ Previously, Chairman Bernanke (2008) suggested that the “Fed could purchase longer-term Treasury or agency securities on the open market in substantial quantities and that this approach might influence the yields on these securities, thus helping to spur aggregate demand.”

There was an immediate “announcement effect” associated with the FOMC’s August 18, 2009, statement. Yields on 10-year Treasuries declined by about 50 basis points and yields on most other long-term securities declined by comparable amounts. The marked decline in longer-term Treasury yields is shown in Figure 2. There was a marked flattening of the yield curve on March 18. The effect was short-lived, however. As shown in Figure 2, the announcement effect had vanished by April 3, 2009. Moreover, by May 5, long-term rates were actually higher and shorter-term rates were lower than they were on March 17. Hence, any effect of the FOMC’s announcements or subsequent purchase of long-term Treasuries on the yield curve was ephemeral.²⁶ This experience is consistent with a high degree of substitutability across assets with differing maturities and suggests that the Fed’s ability to influence the behavior of long-term rates is limited at best. If the Fed affects only short-term rates, but it is long-term rates that matter for spending, one must question the efficacy of the interest rate channel of monetary policy.

Finally, it should be noted that the lack of empirical support for the interest rate channel of money policy led some analysts (e.g., Mishkin, 1995; Meltzer, 1995; and Taylor, 1995) to broaden the financial-asset-price channel of monetary policy to include exchange rates, equity

²⁵ Eggertsson and Woodford (2003), p. 200.

²⁶ The Fed purchased \$85.2 billion in longer-term Treasuries between March 17 and May 5, 2009.

prices, and even land prices. There has been relatively little interest in or empirical support for these alternative asset-price channels of monetary policy.

The Role of Money in Monetary Policy

There is little to indicate that the economics profession has significantly altered its view about the effectiveness of changes in monetary and reserve aggregates, independent of their effect on interest rates. Indeed, Svensson (2008) suggests that, during the past 50 years, economists have learned that “monetary aggregates matter little, or even not at all, for monetary policy.”²⁷ The lack of importance of money is reflected in the fact that money is not explicit in the canonical New Keynesian model, which is commonly used to evaluate monetary policy. McCallum (2001) argues that money is implicit because “the central bank’s control over the one-period nominal interest rate ultimately stems from its ability to control the quantity of base money in existence.”²⁸ However, in his analysis of the implications of what he calls a “shortcoming” of these models, McCallum (2001) concludes “that although it is theoretically incorrect to specify a model without money, the magnitude of the error thereby introduced is extremely small.”²⁹ McCallum’s conclusion is not too surprising. Money has no effect in these models, independent of its effect through the interest rate. If the central bank controls the money supply, the interest is endogenous; if it sets the interest rate, the money supply is endogenous. Hence, it is difficult to see how treating money implicitly or explicitly would matter.³⁰

Monetarists argued that it was excessive money growth that caused inflation, and Sargent and Wallace (1975) demonstrated that interest rate targeting could lead to price level indeterminacy. McCallum (1981) subsequently demonstrated that indeterminacy could be

²⁷ Svensson (2008), p. 4.

²⁸ McCallum (2001), p. 146.

²⁹ McCallum (2001), p. 150.

³⁰ Also, see Leahy (2001).

eliminated by using a nominal interest rate operating procedure so long as policymakers had a “nominal anchor,” i.e., policymakers cared about inflation. The monetarists made two attempts to establish a direct link between money and aggregate demand, but the profession found both lacking. One was to suggest that money effects aggregate demand through a “wealth effect”: increases in the supply of money, at the current price level, increase society’s wealth. The wealth increase generates an increase in aggregate demand and, ultimately, in prices. A second link was the buffer-stock model of money demand. The buffer-stock model suggested that, initially, monetary-policy-induced changes in the money supply would accumulate as idle money balances. Consequently, policy-induced changes in the money supply would have no immediate impact on any variable, including interest rates. As individuals acted to restore their money balances to the desired level, aggregate demand would increase and prices would rise. The profession was unconvinced.

3.0 The Evolution to Inflation Targeting

Widespread skepticism about the ability of central banks to control inflation vanished despite essentially unchanged conventional wisdom about interest inelasticity of consumption and investment spending, the preeminence of long-term rates in controlling aggregate demand, the lack of faith in the central bank’s ability to control long-term rates, and the belief that money is unimportant for monetary policy (except for its role in controlling the overnight policy rate). Given this state of affairs, it is reasonable to ask: what caused the dramatic shift to inflation targeting?

It is seldom if ever true that such an event is attributable to a single factor. Indeed, I believe a number of factors, in some way or another, contributed to the shift to inflation targeting. However, three factors or events were critical. The first, and most important, was the

demonstration that central banks can control inflation. The cornerstone event is Chairman Volcker's decision to reduce inflation by focusing on monetary aggregates. U.S. CPI inflation was double digit when Volcker became Chairman in 1979 and about 4 percent when he departed in 1987. This remarkable experience demonstrated beyond a reasonable doubt that central banks could control inflation. My view is shared by others. For example, Goodfriend (2007) suggests that the academic "controversy" about the extent to which central banks could control inflation "would soon be resolved by empirical evidence that Paul Volcker was to provide as leader of the Federal Reserve."³¹

The U.S. experience was dramatic, but it was not the only experience that altered views about the ability of central banks to control inflation. During the period of the great inflation, the German and Swiss central banks were committed to keeping inflation low (Rich and Beguelin, 1985; Kohli and Rich, 1986; and von Hagen, 1999,). Moreover, both central banks paid considerable attention to monetary aggregates in the conduct of monetary policy. Both countries fared much better than their European and Scandinavian counterparts during the Great inflation. This is illustrated in Figure 3. The shaded area denotes the envelope of the lowest and highest monthly year-over-year CPI inflation rates among twelve European and Scandinavian countries and the corresponding year-over-year CPI inflation rates for Germany and Switzerland over the period 1970 through 1985.³² German inflation was low relative to the other countries over the entire period. Swiss inflation was in the middle of the range until the mid-1970s, but from the mid-1970s onward Swiss inflation was at or well below the envelope. Figure 4 extends the data through March 2009 and shows that the Swiss and German experiences were less unique from the early 1990s onward.

³¹ Goodfriend (2007), p. 8.

³² The countries are: Austria, Belgium, Denmark, Finland, France, Italy, Luxembourg, the Netherlands, Norway, Spain, Sweden, and the U.K.

Had the U.S. continued on its high-inflation path, it is possible that the experience of these and perhaps other countries would have led many central banks to adopt inflation-targeting. However, the U.S. experience was pivotal. At a bare minimum, it accelerated the evolution to inflation targeting.

My second event is likely to be controversial. Nevertheless, I believe it to be extremely important. Beginning around 1970 the federal government went from pursuing what could reasonably be called a policy of cyclically balanced budgets, except during wars, to a policy of then historically large and persistent deficits. The practice of running large, persistent deficits was important because it took counter-cyclical fiscal policy out of the policy mix. The view that fiscal policy was the preeminent tool of stabilization policy was under attack, but the fact that the government was running large, persistent deficits meant that not even the proponents of the preeminence of fiscal policy suggested that it could be used as a tool of economic stabilization. Had the government continued to conduct activist counter-cyclical fiscal policy, the relative importance of monetary and fiscal policy for inflation control would have been less clear. With fiscal policy sidelined, reduced inflation and improved economic stability (the Great Moderation) was attributed to monetary policy. Even those who continued to embrace the tenets of the monetary-policy-ineffectiveness proposition conceded that monetary policy was effective, even if they were not exactly sure how it worked.

The conclusion that monetary policy worked was influenced by the experience of the Great Depression. The Great Depression made many economists and policymakers skeptical of the self-equilibrating nature of market economies. The apparent inability of the economy to recover without government intervention suggested that economic stability was a consequence of activist government policy, rather than an inherent feature of market economies. With both

inflation and output more stable and fiscal policy sidelined, those with little or no faith in the self-correcting nature of market economies concluded that monetary policy was much more effective than they had thought previously.³³ The monetary and fiscal response to the most recent financial market turmoil suggests that policymakers remain skeptical of the self-equilibrating nature of market economies and the ability of existing institutions to deal with the current “crisis” (e.g., Miron, 2009).

A third factor that deserves credit for the move to inflation targeting is the insightful “impossibility theorem” known as the Lucas Critique. Lucas’ (1976) work was motivated by the “mysterious transformation” of an “obvious fallacy [a permanent Phillips curve tradeoff] to the cornerstone of the theory of economic policy.” Economists were quick to understand that Lucas’ insight meant that (a) any effort to reduce inflation permanently must be credible and (b) that credible disinflation might be achieved at a lower cost (Sargent, 1983). There is little doubt that credibility played an important role in Volcker’s policy (Goodfriend, 2007; and Lindsey, Orphanides, and Rasche, 2005). Lucas’ insight did not motivate the Volcker disinflation. It did, however, play an important role in the Fed’s decision to announce its intentions. Moreover, the need for a credible commitment undoubtedly influenced the decision of many central banks to announce a specific numerical inflation target.

4.0 The Success of Inflation Targeting

Recently, Rasche and Williams (2007) reviewed the performance of 21 inflation-targeting central banks through 2004. Their metric is a 2-year leading moving average inflation rate. They found that five countries—New Zealand, Norway, Switzerland, Thailand, and the U.K.—maintained the moving average inflation within the targeted range the since the adoption

³³ For a discussion of alternative theories of the Great Moderation and evidence, see Bernanke (2004), and the references therein).

of inflation targeting and conclude that “inflation-targeting central banks appear to have an admirable record of consistently hitting targets on a medium-run horizon.”³⁴ Figures 5 through 25 update this analysis through early 2009. The results generally support Rasche and Williams’ (2007) conclusion. While a number of countries (Australia, Chile, Czech Republic, Hungary, Israel, Korea, New Zealand, Philipines, Poland, and the U.K) have experienced year-over-year inflation rates above the upper end of the inflation target in recent years, the direction of the year-over-year inflation for most countries suggests that these inflation targeters will either keep their moving average inflation rates within the target range or move it back into the target range. On the negative side, however, many or most have moving average inflation rates that are either above or very near the upper end of their inflation objective. Moreover, five countries (Columbia, Iceland, Mexico, Peru, and South Africa) appear now to be only nominally inflation targeting. Only Brazil, Canada, Israel, Norway, Sweden, Switzerland, Thailand, and the U.K. have successfully maintained the moving average inflation rate below the upper end of the target range since 2004, and Norway appears to be in some danger of having it move above the range if the recent inflation experience is maintained.

5.0 The Dangers to Inflation Targeting

Inflation targeting has been generally successful. Nevertheless, I believe there are a number of dangers that could affect its continuation and proliferation. Perhaps the most serious threat to inflation targeting takes the form of what Meyer (2004) calls the “dual mandate,” a.k.a., “flexible inflation targeting.” Meyer (2004) makes a distinction between a dual mandate—“monetary policy is directed at promoting both full employment and price stability, *with no priority expressed*”—and a “hierarchical mandate”—where “price stability is identified as the principal objective, and central banks are restricted in pursuing other objectives unless price

³⁴ Rasche and Williams (2007), p. 477.

stability has been achieved.”³⁵ Meyer (2004) suggests that many of those who oppose inflation targeting in the U.S., and likely elsewhere, “do so because they identify that practice with the hierarchical mandates and a down-weighting of responsibility of the central bank for promoting full employment.”³⁶ I agree! I disagree, however, about the desirability of giving economic stability and price stability equal weight in the conduct of monetary policy. The reason is simple: While both economic theory and experience suggest that policymakers can achieve price stability, there are at least five reasons to be skeptical of central bankers’ ability to stabilize output around *potential*.

First, obtaining a good, if not precise, measure of potential output is a prerequisite to a successful economic stabilization policy. Yet, it is widely accepted that potential output is difficult if not impossible to measure with much precision (Orphanides, 2003, and references cited therein, and Federal Reserve Bank of St. Louis, 2009). Indeed, Orphanides (2004) suggests that the inability to adequately measure the output gap combined with an activist policy was an important contributing fact to the Great Inflation in the U.S.

Moreover, economic theory suggests that the conventional “steady-state” definition of potential output, which is commonly used by policymakers, is ill-suited for high-frequency economic stabilization policy. The policy-relevant definition is “the rate of output the economy would have if there were no nominal rigidities, but all other (real) frictions and shocks were unchanged.”³⁷ Measures based on this policy-relevant definition of potential output would vary considerably over the business cycle. Moreover, unlike conventional measures, potential output would be affected by aggregate supply shocks, such as oil-price shocks and shocks to financial

³⁵ Meyer (2004), p. 151, emphasis added.

³⁶ Meyer (2004), p. 152.

³⁷ Basu and Fernald (2009), p. 3.

markets.³⁸ Such shocks reduce potential output relative to its steady-state level. Consequently, policymakers who attempt to stabilize output based on conventional measures would be in serious danger of generating higher-than-expected inflation. Consequently, even if the conventional definition of the output gap could be precisely measured, monetary policy actions based on it are likely to be destabilizing.

Unfortunately, the more policy-relevant concept of potential output is no easier to measure than its steady-state counterpart. Consequently, empirical estimates of the output gap based on the policy-relevant definition are unlikely to be useful for conducting economic stabilization policy. Their major advantage would be that estimates would almost certainly be smaller than those based on conventional measures. Consequently, policymakers would be less likely to make large policy errors in pursuit of economic stabilization. None of this should obscure my main point, which is: *if policymakers cannot measure potential output accurately, they cannot stabilize output around it.*

The second argument against a dual mandate comes from noting that the appropriate monetary policy response to aggregate demand shocks is the same whether policymakers care about inflation or stabilizing output.³⁹ Shocks to aggregate demand do not create a tradeoff between price stability and economic stability. As Bernanke (2004) has noted, “the ultimate source of this long-run tradeoff [between the variance of prices and the variance of output] is the existence of shocks to aggregate supply.”⁴⁰ In the case of economic instability caused by shocks to aggregate demand, inflation stabilization and output stabilization are complements, not substitutes. This means that the need for a dual mandate arises only when there are shocks to

³⁸ The idea that aggregate supply shocks reduce potential output relative to its steady-state level is not new. For example, see Rasche and Tatom (1977) and reference therein.

³⁹ Svensson (2008), p. 3.

⁴⁰ Bernanke (2004).

aggregate supply. But what is the optimal monetary policy response to supply shocks? Bernanke (2004) describes the problem:

According to conventional analysis, an increase in the price of oil raises the overall price level (a temporary burst in inflation) while depressing output and employment. Monetary policymakers are therefore faced with a difficult choice. If they choose to tighten policy (raise the short-term interest rate) in order to offset the effects of the oil price shock on the general price level, they may well succeed--but only at the cost of making the decline in output more severe. Likewise, if monetary policymakers choose to ease in order to mitigate the effects of the oil price shock on output, their action will exacerbate the inflationary impact. Hence, in the standard framework, the periodic occurrence of shocks to aggregate supply (such as oil price shocks) forces policymakers to choose between stabilizing output and stabilizing inflation.

Of course, there is a third option. Do nothing! That is, policymakers could simply permit the aggregate supply shock to show through to the price level to whatever extent it might and allow output to fall to the level consistent with the new economic fundamentals and long-run price stability about a somewhat higher price level.

In any event, just how and under what circumstances policymakers should respond to aggregate supply shocks is unclear. More to the point: why should policymakers give equal weight to output stabilization and price stabilization when confronted with an aggregate supply shock? If stabilizing inflation leads to “stabilizing changes in the structure of the economy as well,” as Bernanke (2004) suggests, it would seem that policymakers should be more concerned about stabilizing prices. In a thoughtful analysis of the causes of the Great Moderation, Bernanke (2004) details his “improved-monetary-policy” explanation for the Great Moderation. Specifically, he describes four ways that improved price stability has reduced the volatility of output.⁴¹ It is interesting to note that all ways that monetary policy increased economic stability that Bernanke outlines are the consequence of lower and more stable inflation and not better counter-cyclical monetary policy, per se. If price stability and economic stability are

⁴¹ Also see Taylor (2008a).

complements for reasons that Bernanke indicates, and perhaps others, it would seem to be difficult to argue for a dual mandate. While it may be possible to offset the effects of the supply shock on output variability in the short-run, increased inflation variability would increase output variability in the longer run.

Finally, I find it ironic that those who suggest that a dual mandate is essential for monetary policy rely on a New Keynesian framework, where the only supply shocks are unidentified and imbedded in the residuals of the expectations augmented Phillips curve, i.e., 1970s-style cost-push inflation.

A third argument against a dual mandate is the efficacy of monetary policy. Even if policymakers could obtain reasonably precise real-time measures of the policy-relevant output gap, accurately differentiate between shocks to aggregate demand and aggregate supply, and decide that they wished to stabilize output at the expense of price stability in response to an aggregate supply shock, just how effectively monetary policy can stabilize output remains an issue. It is well known that the effectiveness of economic stabilization policy depends on the extent to which wages and prices are rigid. The flexibility of wages and prices is unclear. Hence, so too is the effectiveness of economic stabilization policy. Beyond wage and price flexibility is that fact that monetary policy actions are thought to work through the interest rate channel. As I have already noted, all of the arguments for the monetary-policy-ineffectiveness proposition apply equally well today.

Then there is the problem of evidence. While economic theory suggests that short-run economic stabilization may be possible, I doubt that anyone can argue that the efficacy of short-run economic stabilization is well established empirically. After a lengthy discussion of the empirical literature, Rasche and Williams (2007) conclude much additional “research is

required...to draw inferences about the effectiveness of monetary policy as a tool for short-run stabilization of the economy.”⁴²

It seems to me that much of the belief in the efficacy of monetary policy stems from a handful of episodic stories that suggests that economic recessions were “caused” by a monetary policy contraction.⁴³ While interesting, such anecdotal stories provide no basis for believing that short-run economic stabilization policy should be or will be successful. Moreover, because they are one sided, such stories provide no basis for concluding that expansionary monetary policy can offset the effects of a supply-shock-induced economic contraction. Hence, they provide no empirical basis for a dual-mandate monetary policy.

A second threat to inflation targeting comes from the fact that the belief in a permanent Phillips curve tradeoff appears to have been replaced by the belief that “a little inflation is good for economic growth.” A permanent Phillips curve tradeoff means that policymakers could achieve a permanently lower unemployment rate (i.e., permanently higher economic growth) by allowing inflation to be a little higher than they would otherwise like it to be. A vertical long-run Phillips curve means that the same long-run results would be achieved with zero inflation as with, say, 2 or 3 percent inflation. Nevertheless, many policymakers, who profess to believe that the long-run Phillips curve is vertical, seem to believe that the “optimal,” “appropriately measured” inflation rate is positive. The theoretical justification for the various hypotheses that motivate the belief that a little inflation is good for economic growth are highly questionable or simply unsound (Marty and Thornton, 1995). Nevertheless, many policymakers believe that “inflation can be too low as well as too high.”^{44,45} Indeed, participants at the FOMC meetings

⁴² Rasche and Williams (2007), p. 474.

⁴³ See Rasche and Williams (2007) for a discussion of these “case studies.”

⁴⁴ Meyer (2004), p. 160.

from May 2003 through December 2003 expressed concerns that, while positive, inflation might be too low. One motivation for the optimal inflation rate to be positive that appears to have credibility with some economists and policymakers is the “greasing the wheels of the labor market” hypothesis.⁴⁶

Whatever the motivation, the fact that all inflation-targeting central banks have a non-zero inflation target suggests that most inflation-targeting central banks believe that the optimal inflation rate is positive. This conclusion is also consistent with the fact that nearly all inflation-targeting central banks have an inflation performance recently that is in the upper end of their target ranges.⁴⁷ Of course, it could be that central bankers might simply believe that the inflation measures they target are biased upward—they overestimate the true, unobservable inflation rate. However, the estimated bias is unlikely to be as large as would be necessary to explain the observed behavior.

A third danger to inflation targeting comes from the seemingly innocuous, hierarchical mandate—the idea that inflation-targeting central banks can pursue other objectives once they have achieved their price stability objective. While this danger is associated with the lack of efficacy of monetary policy and other issues discussed above, the fundamental danger stems from (a) the inability to predict what would have happened if the monetary authority had not attempted to stabilize the economy and (b) the inability of policymakers to predict the longer-run

⁴⁵ In this regard, it is interesting to note at the June 2003 meeting Governor Bernanke stated “I think the May 6 statement left the mistaken impression with some that the Fed was concerned about the threat of imminent deflation as opposed to what really concerned us—namely, the possibility of a decline in inflation to a level that, *while below the desirable range*, would still be greater than zero.” Transcript of FOMC meeting, June 24-25, 2003, p. 131, emphasis added.

⁴⁶ In his discussion of the optimal inflation rate, Bernanke (2005) noted that “studies of the costs of very low inflation (such as the supposed effects of downward nominal wage rigidity on the allocation of labor) have found that these costs are also largely eliminated at inflation rates of about 2 percent.”

⁴⁷ In this regard, it is interesting to note that Meyer (2004) notes that “inflation-targeting countries today have moved away from the initially austere implementation, more in line with the spirit of a hierarchical mandate, and have become flexible inflation targeters, close cousins of dual mandate central banks.” I do not know whether such a shift occurred or the extent to which it might be responsible for longer-run inflation being on the high side of the target ranges.

consequences of their actions. Economic forecasting has always been difficult. It is particularly difficult to forecast economic turning points that are critical to the successful conduct of economic stabilization policy. This is evidenced by the significant lag in dating both the beginning and end of recessions. Moreover, survey forecasts and forecasts from economic models have had considerable difficulty improving upon naïve forecasts. This has been particularly true since the mid-1980s (Atkeson and Ohanian, 2001; Campbell, 2007; d'Agostino, Giannone and Surico, 2006; d'Agostino and Whelan, 2008; Stock and Watson, 2007 and 2008; and Tulip, 2005).

Particularly relevant for the conduct of monetary policy is Reifschneider and Tulip (2007) analysis of the forecasting accuracy of the FOMC, the Greenbook, the Congressional Budget Office, the Administration, the Blue Chip consensus forecast, and the Survey of Professional Forecasters short-run forecasts of GDP growth, the unemployment rate and CPI inflation over the period 1986 to 2006. They find that the forecast errors are large. Indeed, the ratio of the average root mean square error (RMSE) of the six forecasters to the sample standard deviations of the individual series is 90 percent for output growth, 50 percent for the unemployment rate and 80 percent for CPI inflation. These estimates suggest that with the exception of the unemployment rate the forecasts tell us very little beyond the information contained in the historical average.⁴⁸

The inability to make accurate forecast beyond very short horizons, means that, by its very nature, it will be very difficult, if not impossible, for policymakers to anticipate the longer-run consequences of their attempts at economic stabilization. A prime example is the FOMC's behavior between June 2003 and June 2004. The FOMC reduced its funds rate target to the, then, historically low level of 1.0 percent at the June meeting and kept the target at 1.0 percent until

⁴⁸ Reifschneider and Tulip (2007) also find small differences across forecasters.

the June 2004 meeting. The seeds for the June action were sown at the May 2003 meeting. The staff had revised down its forecast for GDP growth for 2003 by nearly a half percent to 2.8 percent and their 2004 forecast for “the level of real GDP is lower and the GDP gap higher, on average,” than at the previous meeting.⁴⁹ At the same time, the staff noted that

Core consumer price inflation has been moving lower in recent quarters, and in our forecast most major measures are expected to move into a range that encompasses zero inflation, once allowance is made for likely measurement error. Any serious delay in the recovery or shortfall in its magnitude would imply a larger output gap, at least for a time, and by our analysis would result in an even lower inflation rate.⁵⁰

Concerns about possible deflation and slower than desired output growth led the Committee to consider reducing the funds rate target at the May meeting. Chairman Greenspan suggested that it would be a mistake to move at this meeting, but suggested “we probably would be wise to move the funds rate lower unless we see a fairly substantial pickup in economic activity.”

In his staff presentation to the Committee at the June meeting, Mr. Reinhart noted that “the Committee left its May meeting with a strong presumption that it would ease policy today, leaving the burden of proof to those who believed the economy had picked up enough to make such an action unnecessary.”⁵¹ Governor Ferguson summarized the evidence, noting “that the output gap still closes relatively slowly...the unemployment rate hangs up above the NAIRU through next year...core PCE even before the adjustment stays at what I would consider to be the very low end of an acceptable range” and “the staff has lowered its expectations for core PCE over the next eighteen months or so from the estimate they had in January.”⁵² Greenspan concurred with Ferguson’s analysis and recommended a 25-basis-point cut to 1.0 percent.

⁴⁹ FOMC Transcript, May 6, 2003, p. 10.

⁵⁰ FOMC Transcript, May 6, 2003, p. 13.

⁵¹ FOMC Transcript, June 24-25, 2003, p. 134.

⁵² FOMC Transcript, June 24-25, 2003, p. 130.

Several members suggested a preference for a 50-basis-point cut or a willingness to accept a larger cut, but all were content with the Chairman's recommendation. Only President Moskow voiced concern, noting "of course the data we talk about are always looking backward, and the key is the forecast going forward. As we've often said in these meetings, sometimes the last cut or the last increase in the funds rate target is the one that's not needed because we didn't have perfect information at the time we made that cut or increase."⁵³

Despite evidence that the economy was improving, the Committee kept the target at 1.0 percent. By the December 2003 meeting the data suggested the economy grew at a 3.3 percent rate in the second quarter and at an extremely rapid 8.2 percent rate in the third quarter. In summarizing the staff economic forecast, Mr. Stockman observed with "real rates so low, why aren't we projecting a stronger expansion over the next two years—one perhaps that resembles a more normal cyclical recovery?" He noted several reasons, among which was the fact that "our inflation projection is that most or all of this year's slowing in core inflation reflected transitory factors that will be absent or—worse yet—be reversed next year." He noted, however, if this were to occur, "it will be important to bear in mind that this acceleration of prices reflects the unwinding of favorable developments this year and is not the result of an overheating economy capable of generating ongoing increases in inflation."

Greenspan summarized the Committee's situation by noting that

it has almost invariably been the case that the Federal Reserve would tighten under such conditions. Indeed, preemption is something that has filtered its way into the monetary policy lexicon. The issue of preemption implies, of course, that we will adjust our policy ahead of anything that we can readily foresee. In current circumstances, therefore, there is and there will continue to be a lot of pressure on us to move rates higher. We have resisted because of a quite considerable and significant difference in the present economy from what we have observed in the past. In recent decades, the turning point toward accelerating economic activity usually occurred when the inflation rate was 3 percent or 4 percent, sometimes

⁵³ FOMC Transcript, June 24-25, 2003, p. 153.

even higher, and the necessity for preemption was critically obvious. The problem with preemption, though it is something that is very interesting to observe in retrospect, is that it doesn't necessarily follow that we are preempting future developments that will actually occur the way we expect. So, we have to be careful not to try to preempt something that is not fairly likely to happen. There is a risk and indeed a cost to being wrong.⁵⁴

All FOMC participants concurred with Greenspan's assessment. No one expressed concern about the longer-run implications of what was recognized as an excessively easy policy. Indeed, Greenspan noted that "the current federal funds rate is well below any estimate of the equilibrium rate. That is, when we start to raise the rate, we may have the problem of having to return to the equilibrium rate relatively quickly." Nevertheless, even though inflation had increased substantially and by December the FOMC acknowledged that "the probability of an unwelcome fall in inflation has diminished in recent months and now appears almost equal to that of a rise in inflation,"⁵⁵ the FOMC did not increase the target until the June 2004 and, even then, it increased the target at a "measured pace."

The FOMC was effectively pursuing a hierarchical-mandate policy. With inflation in check, presumably because of well-anchored inflation expectations, the FOMC was free to pursue its other objective—keeping output close to potential (pursuing "maximum sustainable economic growth"). The only difference between the Fed and the inflation-targeting central banks was that the FOMC inflation target was implicit, rather than explicit.

Taylor (2008b) and others have suggested that "this extra easy policy was responsible for accelerating the housing boom and thereby ultimately leading to the housing bust."⁵⁶ While there will undoubtedly be much analysis and debate over the role that the Fed's excessively easy monetary policy played, there is little doubt that the decline in housing prices in the U.S. has

⁵⁴ FOMC Transcript, December 9, 2003. pp. 88-89.

⁵⁵ Board of Governors, *Press Release*, December 9, 2003.

⁵⁶ Taylor (2008b), p. 3.

resulted in financial market turmoil that, in turn, generated an unprecedented monetary policy response. Initially, the Fed attempted to ease credit conditions by undertaking an effort to significantly reallocate credit (e.g., Thornton, 2009).⁵⁷ When the Fed was no longer able to sterilize the effects of its credit allocation program on the monetary base, it permitted the base to increase to an unprecedented level. The massive quantitative easing, as it is now called, has generated concerns of future inflation (e.g., Taylor, 2009). I doubt that anyone believes that such a massive increase in the base will not eventually be inflationary. As Al Broaddus noted at the June 2003 FOMC meeting “common sense tells us...that a determined expansion of the monetary base has to be effective against deflation at the zero bound. If that were not the case, we could eliminate all taxes, and the government could permanently finance its operations with money creation alone.”⁵⁸ I suspect that even those who believe that “monetary aggregates are irrelevant for the conduct of monetary policy” are concerned about the potential inflationary consequences of the massive increase in the monetary base engineered by the Fed and by several other central banks. In this regard, it is interesting to note that even Chairman Burns believed that the Fed ultimately bore responsibility for inflation. At the March 18-19, 1974, FOMC meeting, Burns noted while he was “not a monetarist, he found a basic and inescapable truth in the monetarist position that inflation could not have persisted over a long period of time without a highly accommodative monetary policy,” by which he meant quantitative easing.⁵⁹

The danger associated with a hierarchical mandate is exacerbated by political pressures. This is illustrated by Author Burns’ Per Jacobsson Lecture, which was delivered on September 30, 1979, just six days prior to Volcker’s FOMC dramatic change in monetary policy. Burns noted prophetically “viewed in the abstract, the Federal Reserve System had the power to abort

⁵⁷ Taylor (2009) calls this “industrial policy.”

⁵⁸ FOMC Transcript, June 24-25, 2003, p. 35.

⁵⁹ Memorandum of Discussion (1974), pp. 110-12.

the inflation at its incipient stage fifteen years ago or at any later point, and it has the power to end it today. At any time within that period, it could have restricted the money supply and created sufficient strains in the financial and industrial markets to terminate inflation with little delay.”⁶⁰ Burn suggests that the Employment Act’s requirement that the federal government “utilize all its plans, functions, and resources...to promote maximum employment...limited” the “practical scope for restrictive actions.”⁶¹ In other words, political pressure to pursue a policy of full employment and an unwillingness to bear the costs necessary to control inflation led to a policy of ever-increasing inflation. The process was ended only when the costs of ever-increasing inflation were simply too high and it was realized that these costs could not be simply indexed away.

I believe that the Fed is now faced with a similar problem. For the week ending May 20, 2009, the monetary base was \$1.8 trillion, 2.25 times larger than its level for the week ending September 10, 2008. There are now signs that the economy is improving. The Conference Board’s consumer sentiment index shows that consumer confidence jumped in May by the largest amount in six years. Both Macroeconomic Advisors and Blue Chip Economic Indicators are forecasting positive growth for the third quarter of 2009 and beyond. It seems likely, however, that employment will continue to decline, perhaps through year’s end. In any event, with employment low, the Fed will be very reluctant to remove the quantitative easing if inflation begins to accelerate, and there are signs that it will. Bernanke (2009) has characterized the problem of deciding when and how much of the accommodation to remove as “a careful balancing of the risk of withdrawing support before the recovery is firmly established versus the

⁶⁰ Burns (1979), p. 15.

⁶¹ Burns (1979), p. 15.

risk of allowing inflation to rise above its preferred level in the medium term.”⁶² It is my view that a strong belief in monetary policy’s ability to promote economic growth and employment, coupled with the belief that moderate inflation is at least not harmful will cause the Fed to err in the direction of permitting inflation to get too high before it responds. The result will be a loss of faith in the Fed’s ability to control inflation or its commitment to low inflation or both. If this were to happen, the prospects for inflation stabilization (and, thereby, economic stabilization) will be seriously compromised for some time. Credibility is critical to inflation stabilization. Central banks cannot afford to squander it in the pursuit of short-run economic stabilization.

6. Implications for Inflation-Targeting Central Banks

The analyses in the previous sections have implications for evolution of inflation-targeting. First and foremost, inflation-targeting central banks should be dissuaded from the view that they can have a dual mandate or pursue flexible inflation targeting for the reasons I have given.

Second, inflation-targeting central banks should engage in serious a dialogue with their constituents about the optimal rate of inflation and, in particular, whether a little inflation enhances economic growth.

Third, inflation-targeting central banks should carefully and honestly evaluate the extent to which they can effectively stabilize the real economy around potential output. This analysis should provide a realistic assessment of all of the impediments to successful economic stabilization discussed above, and perhaps a few issues that I have not mentioned: for example, lags in the effect of policy actions on the economy. The end product of this analysis should be a statement of the extent to which the inflation-targeting central bank believes that it can and will pursue a hierarchical mandate.

⁶² Bernanke (2009).

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Figure 1

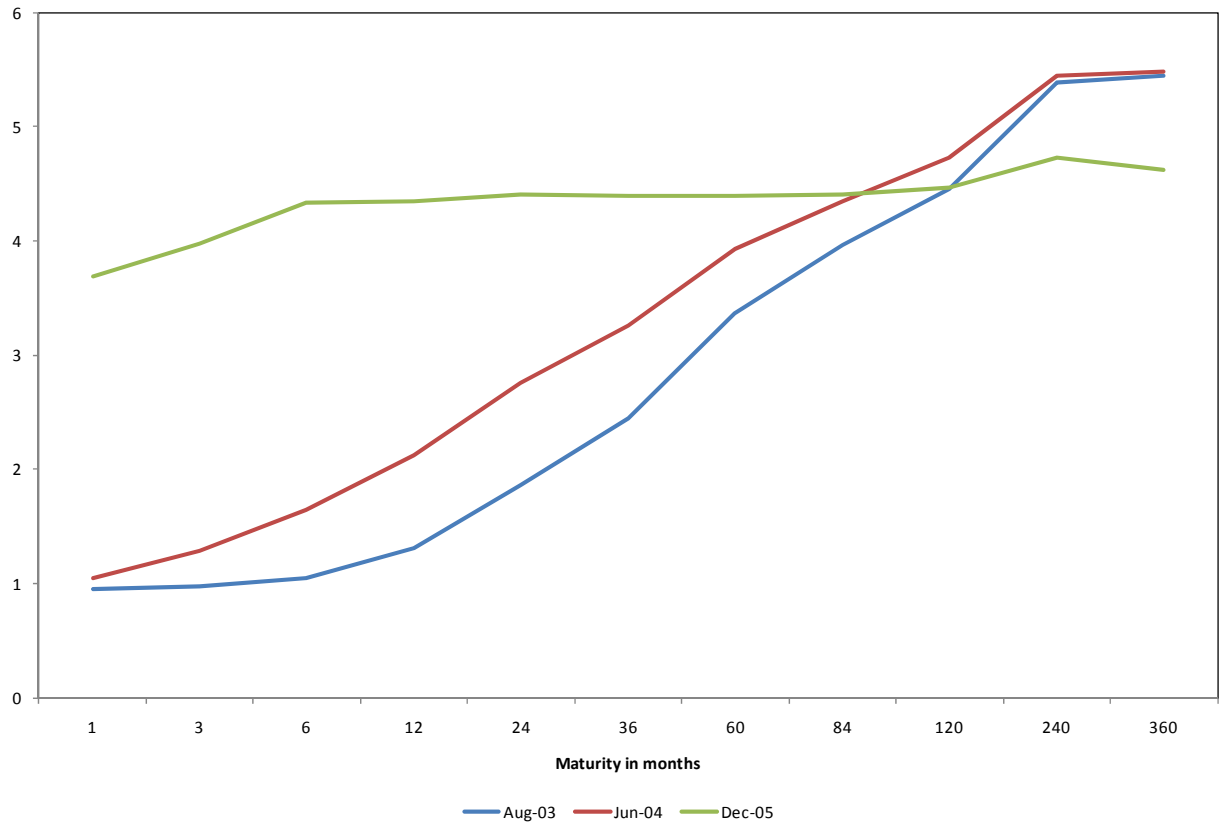


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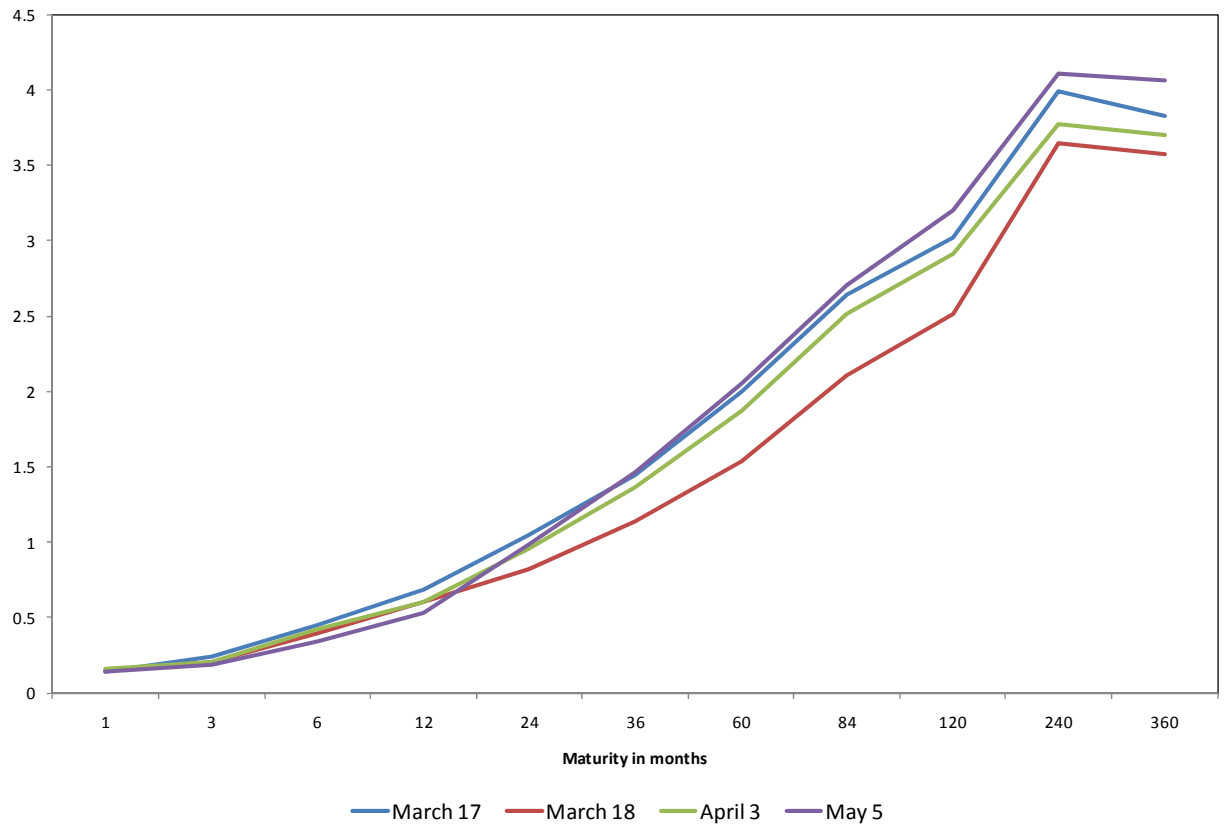


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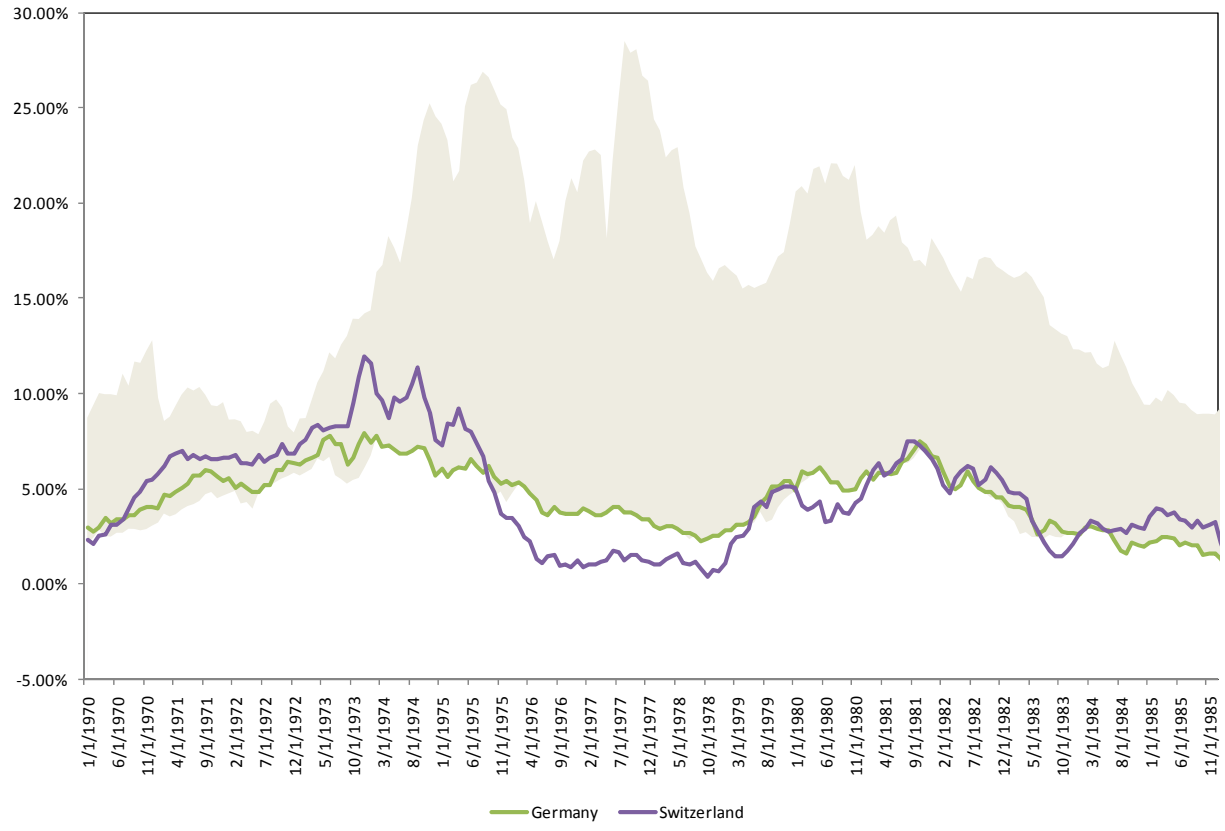


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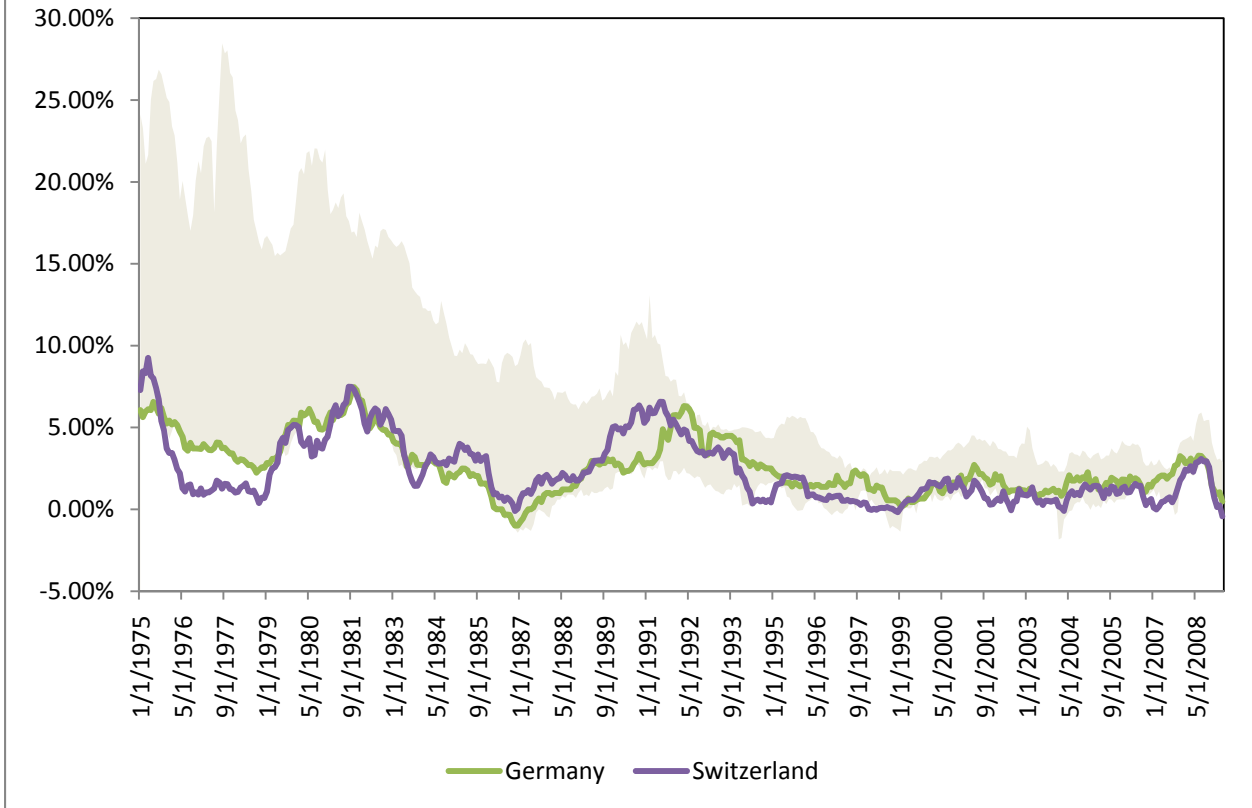


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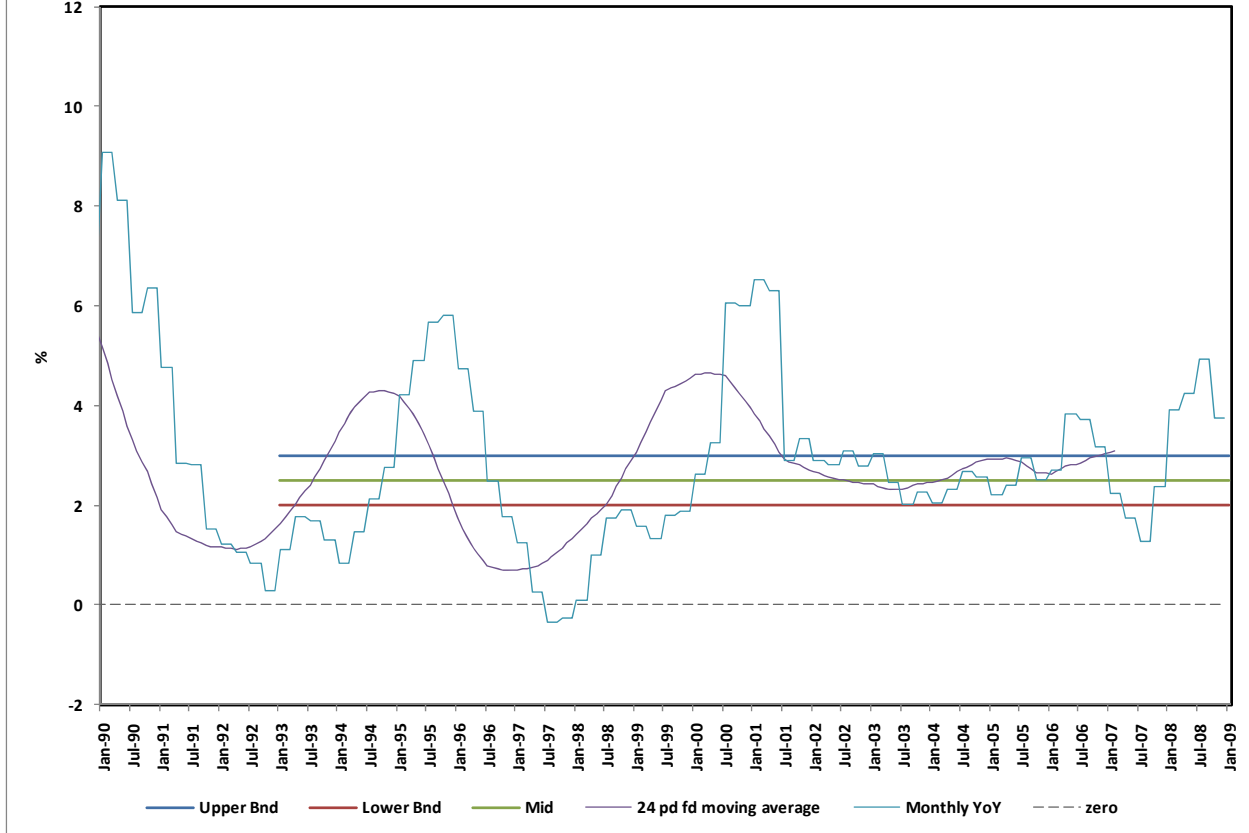


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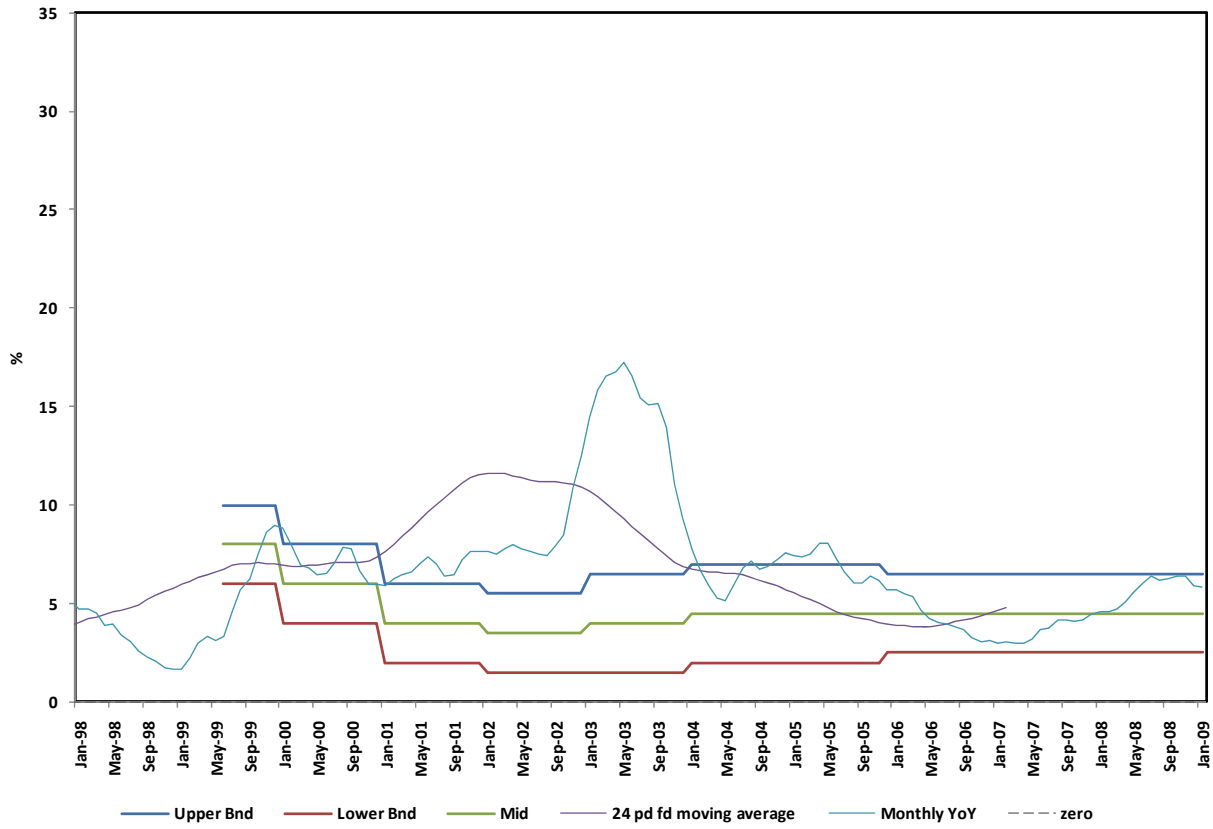


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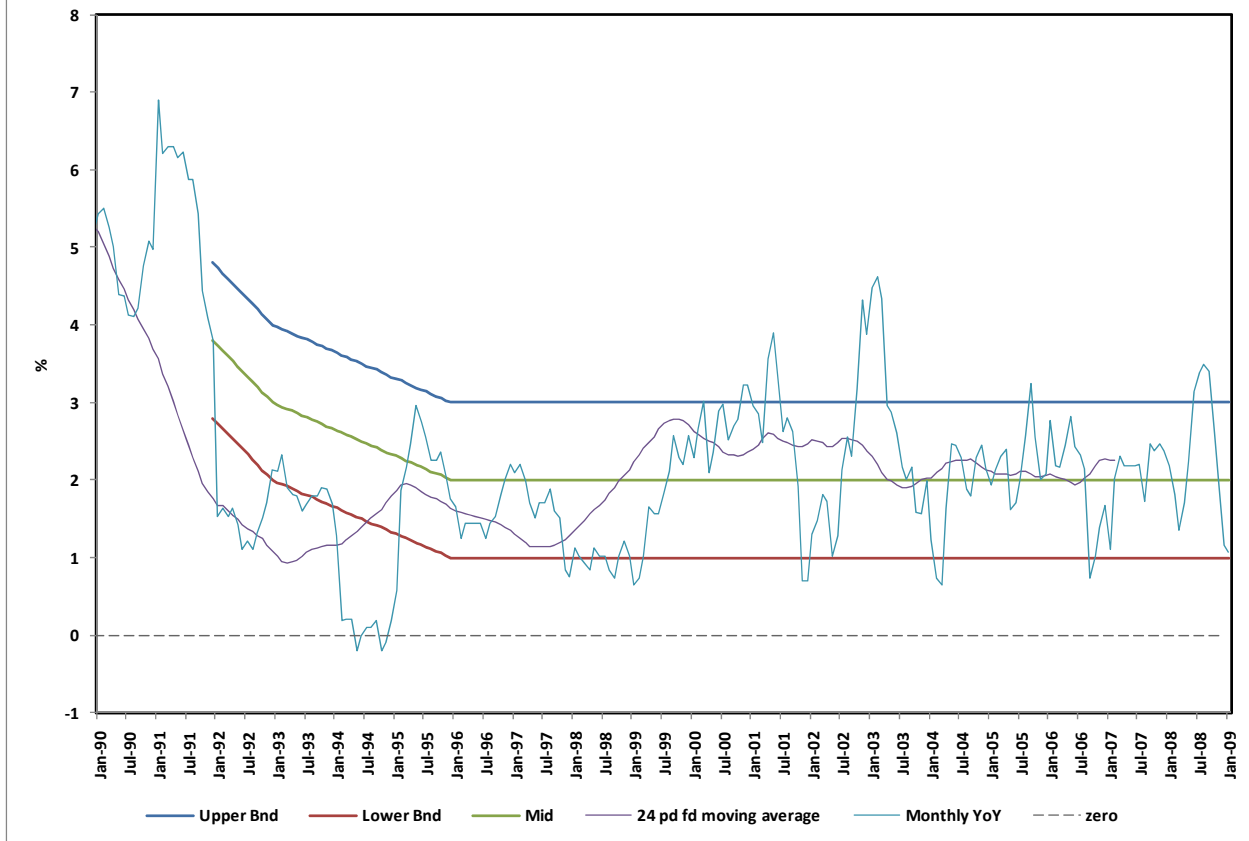


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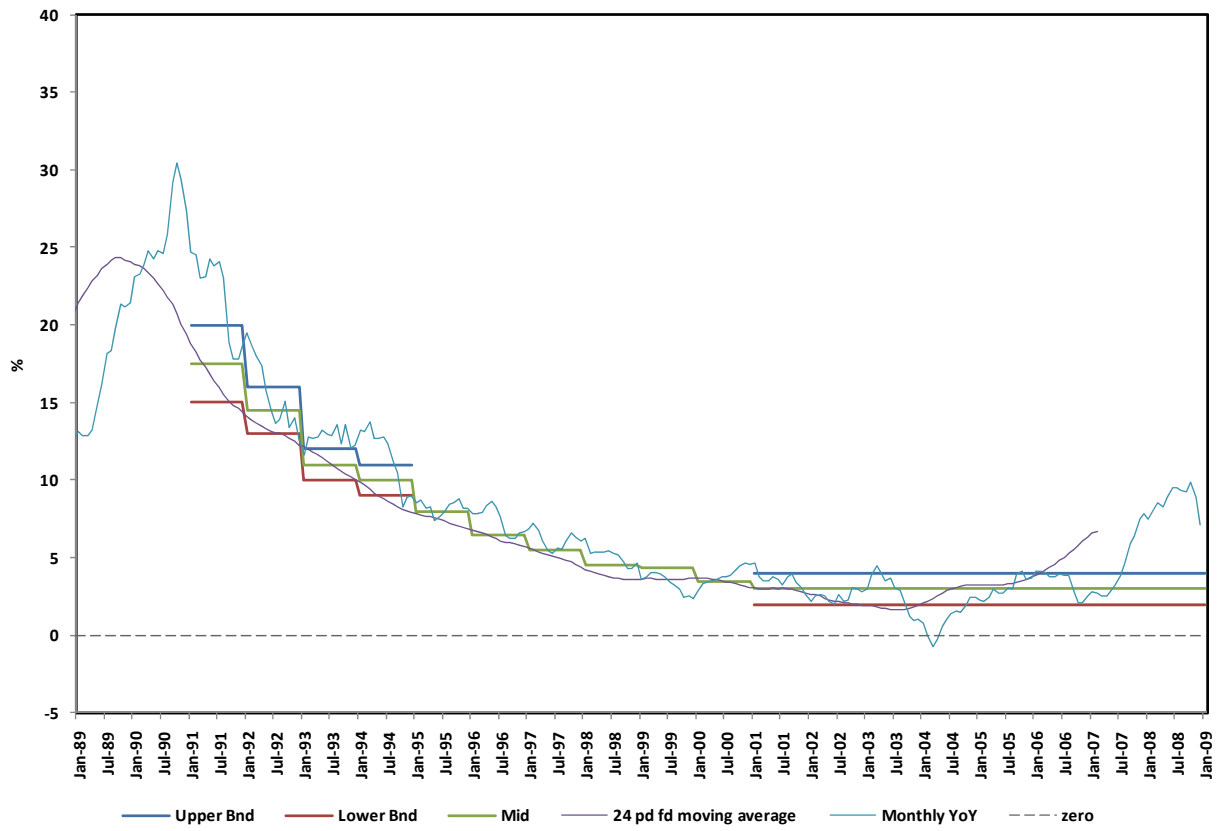


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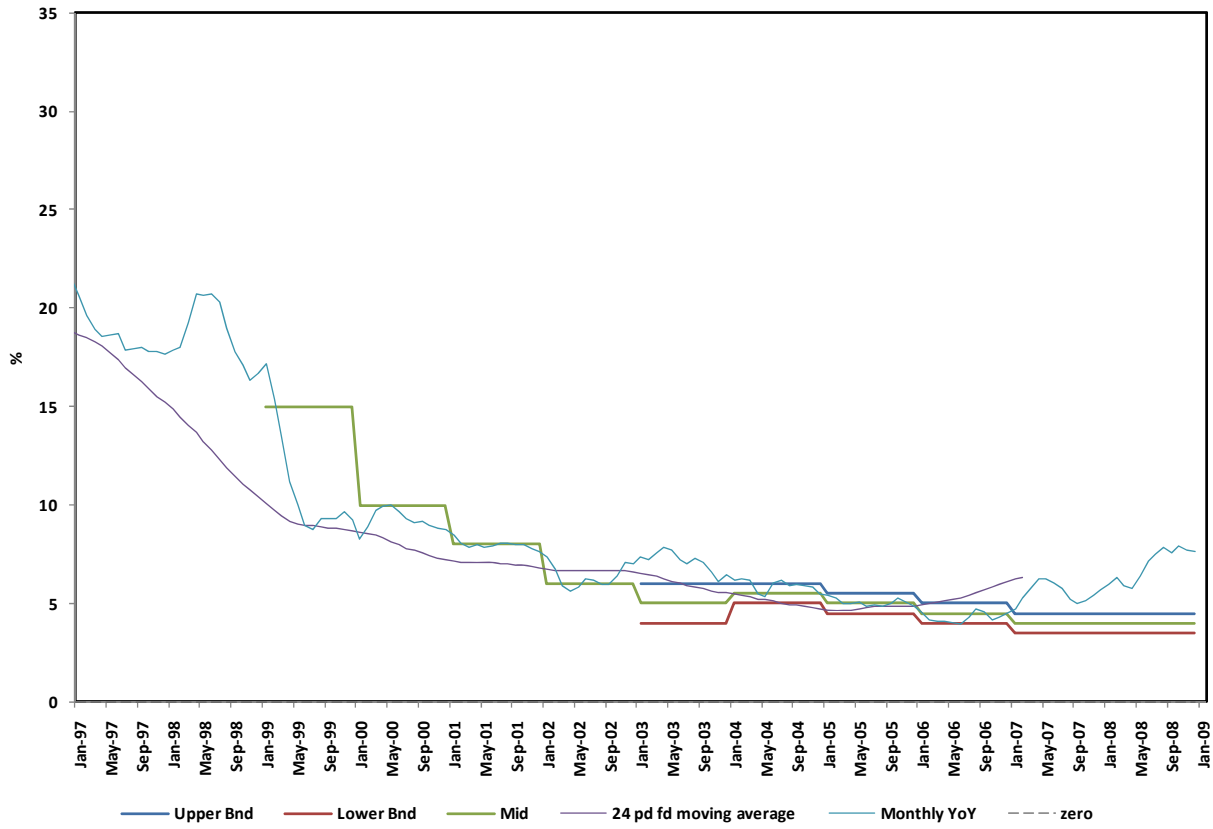


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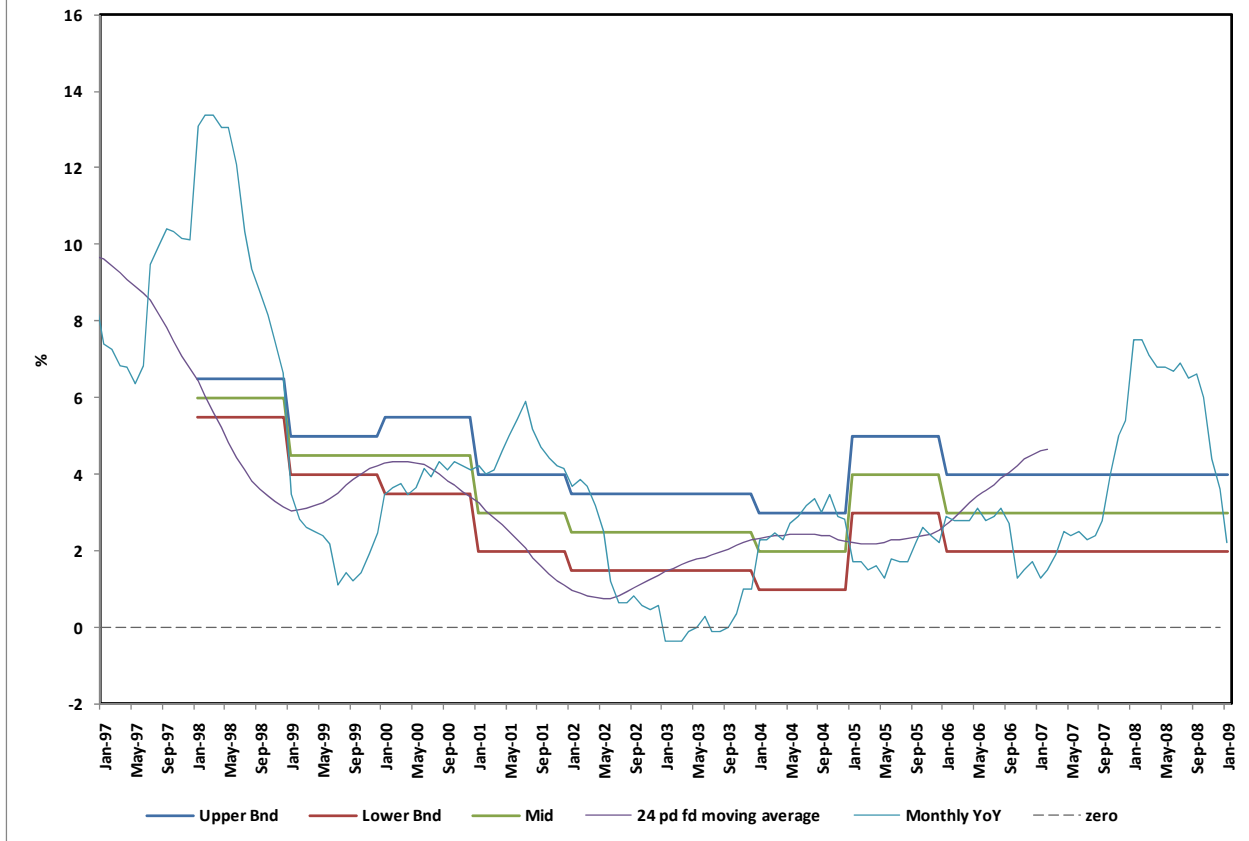


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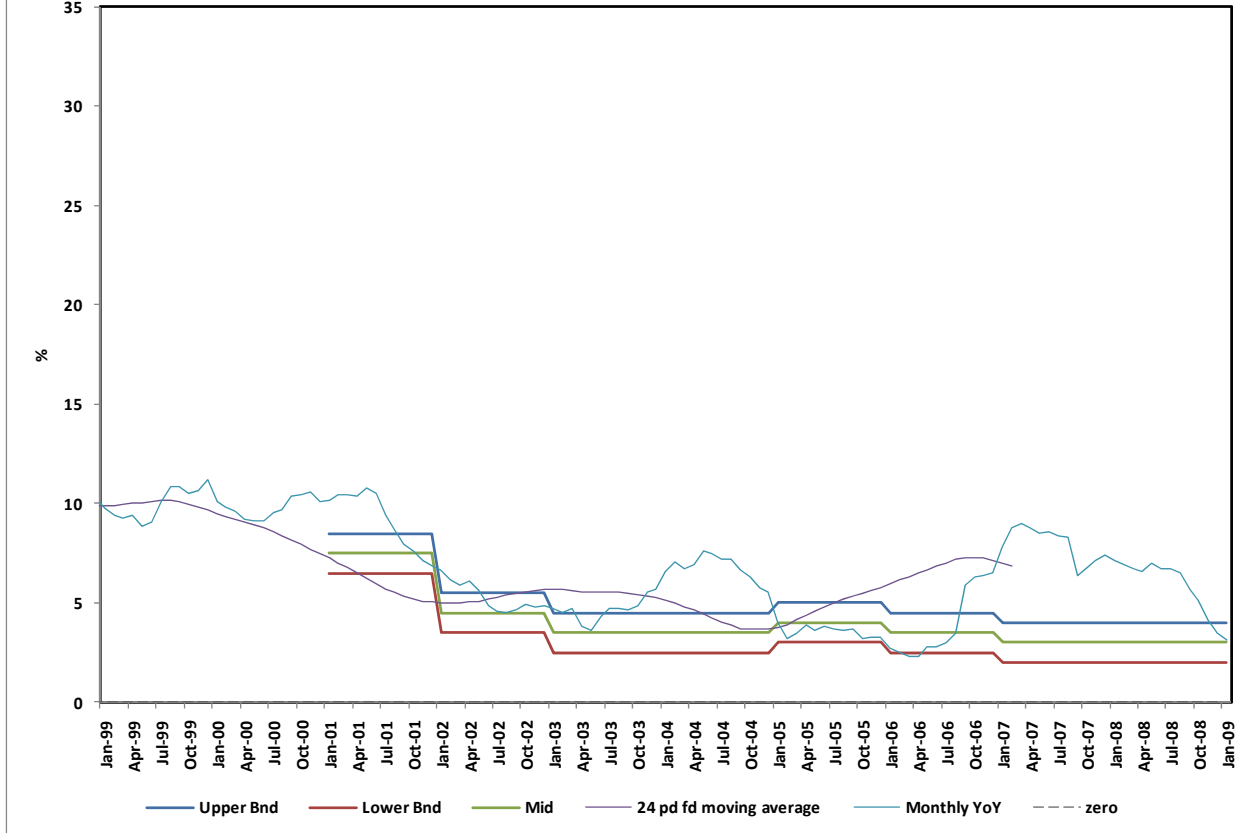


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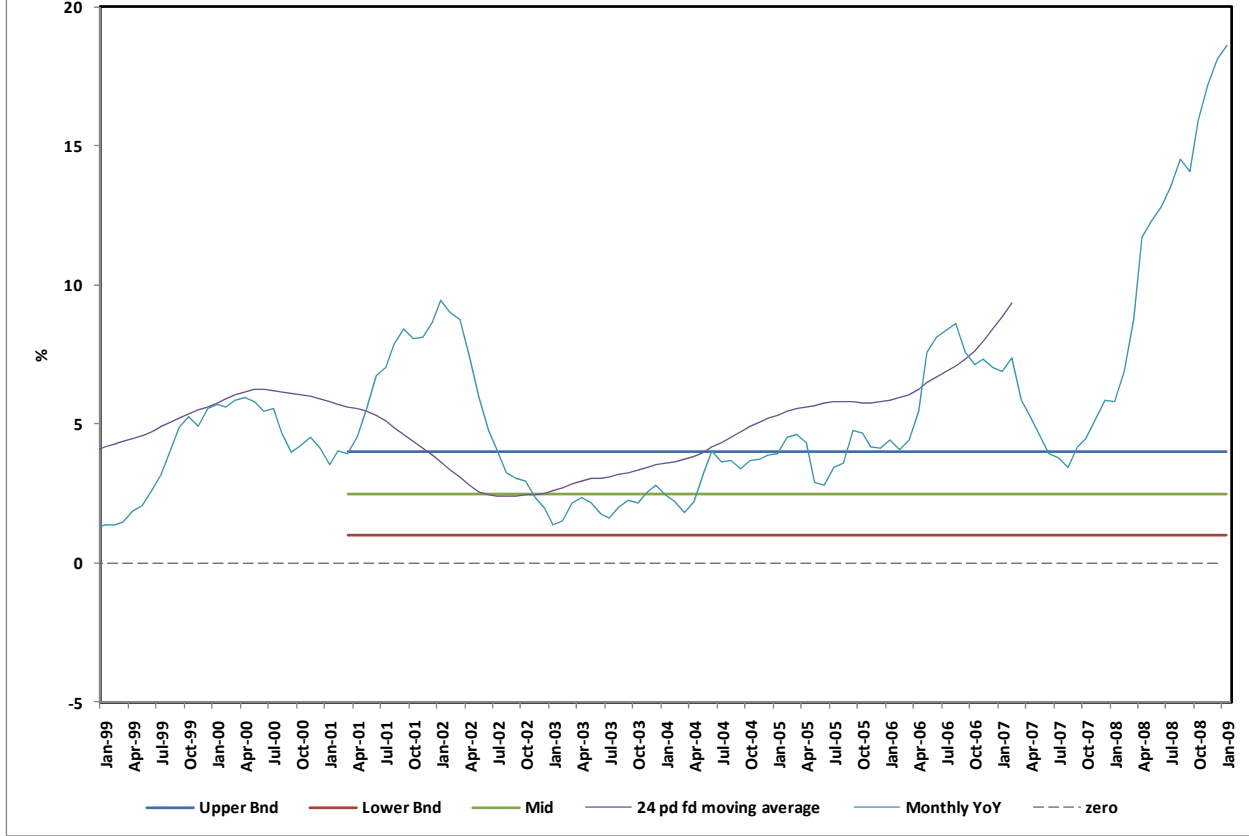


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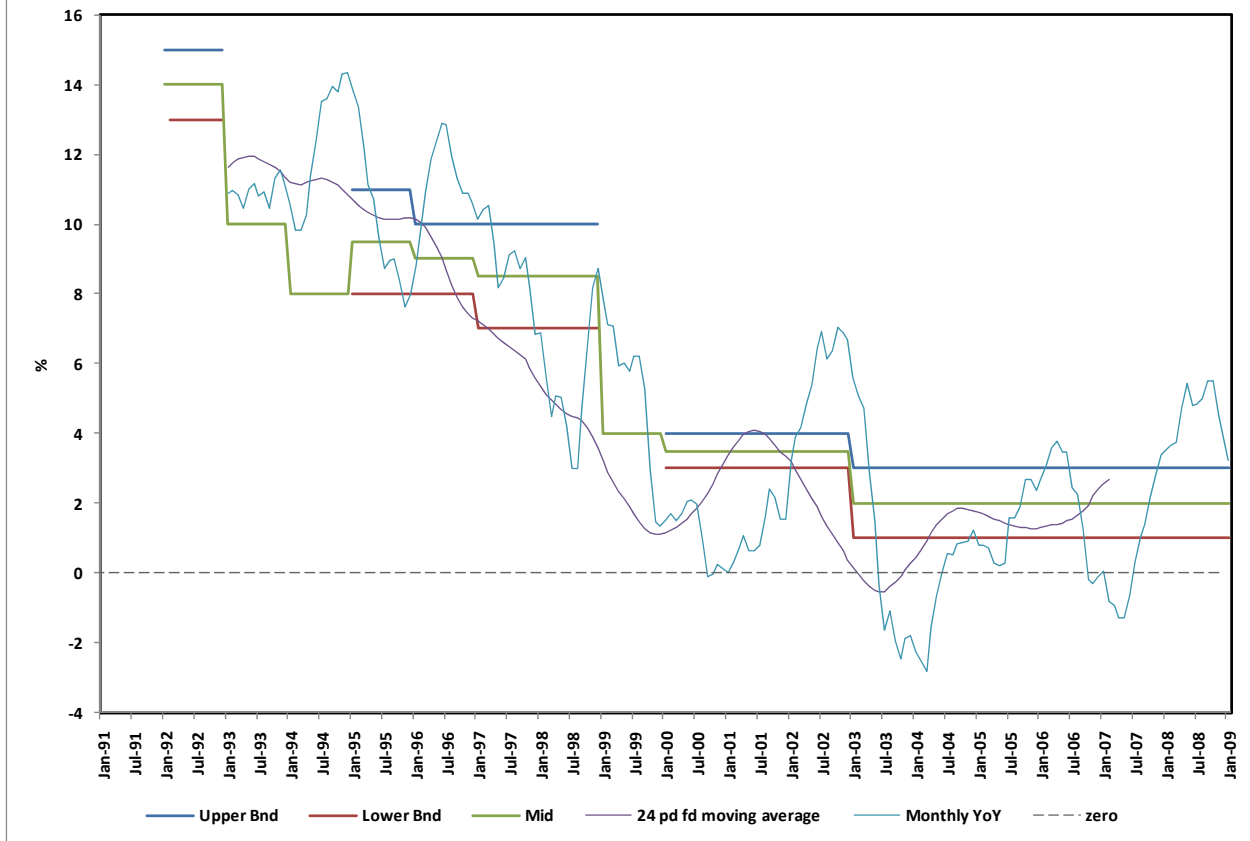


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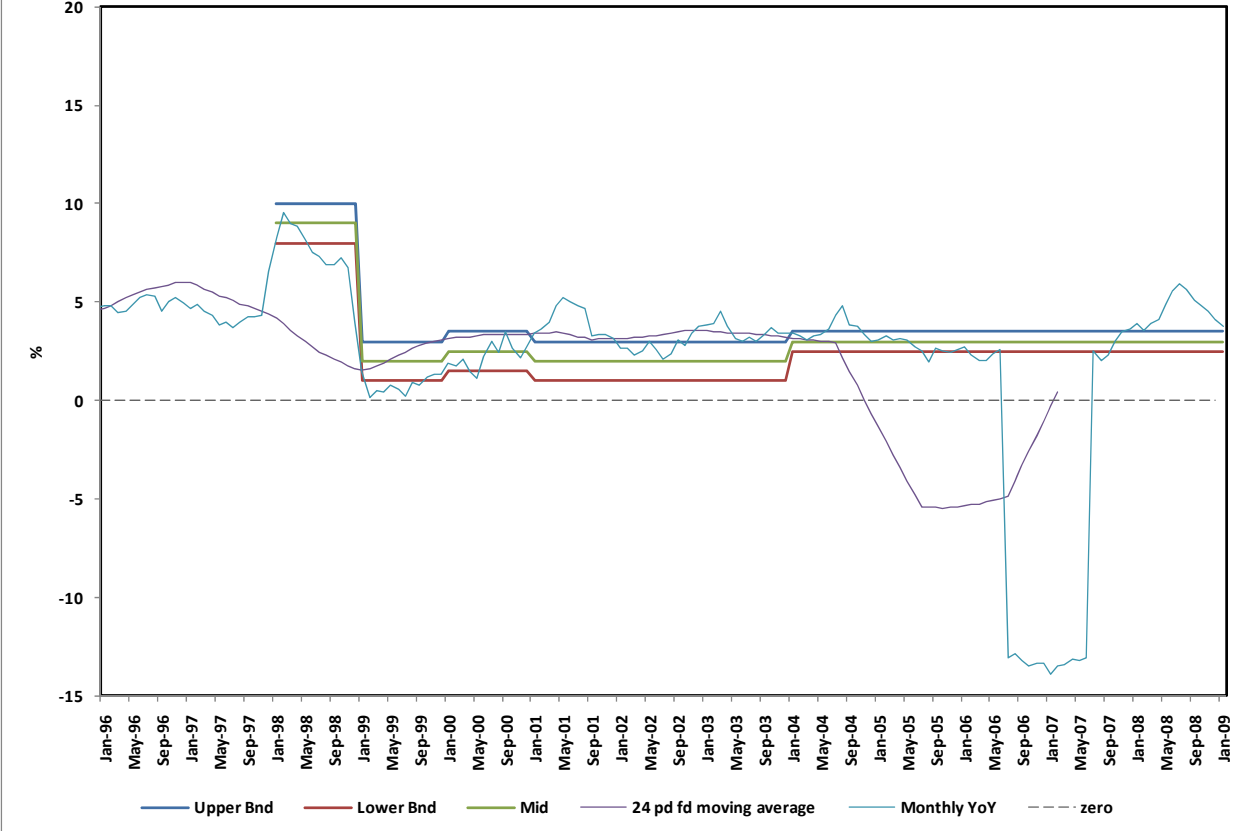


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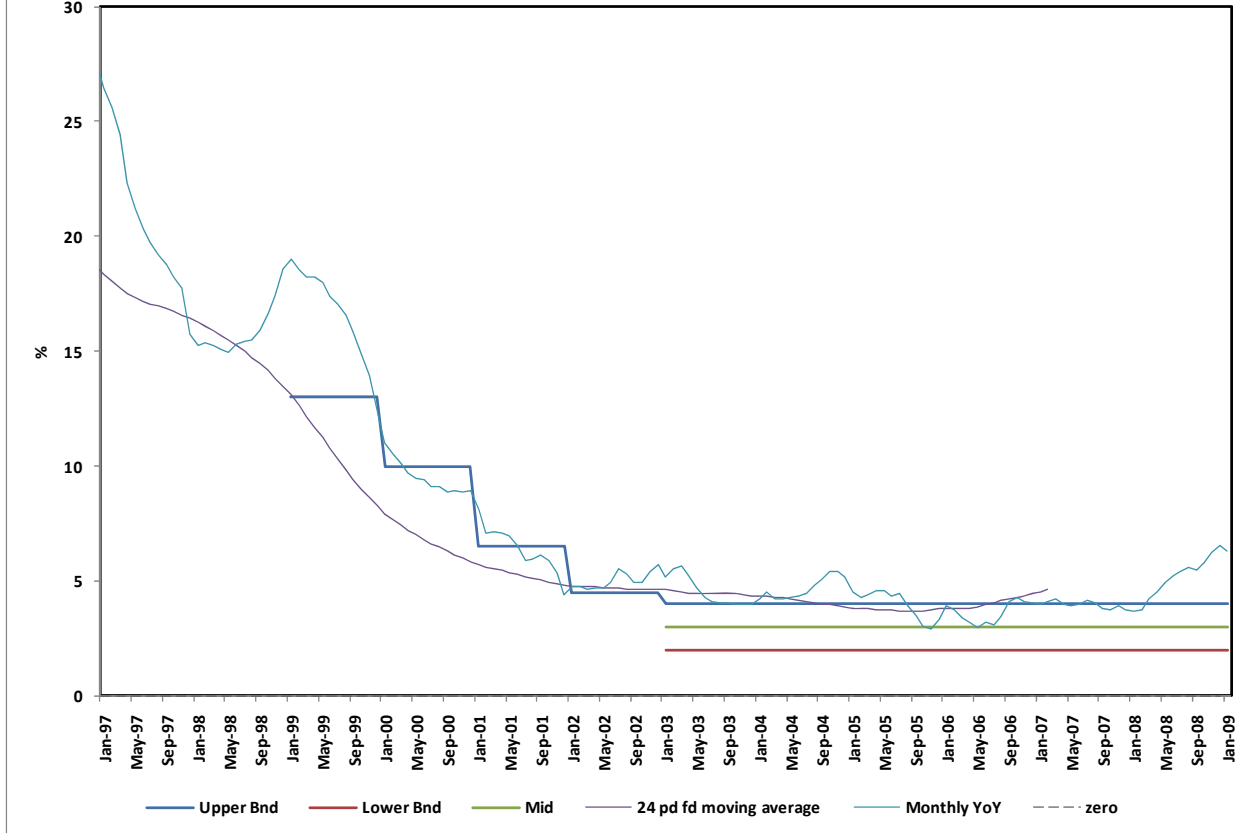


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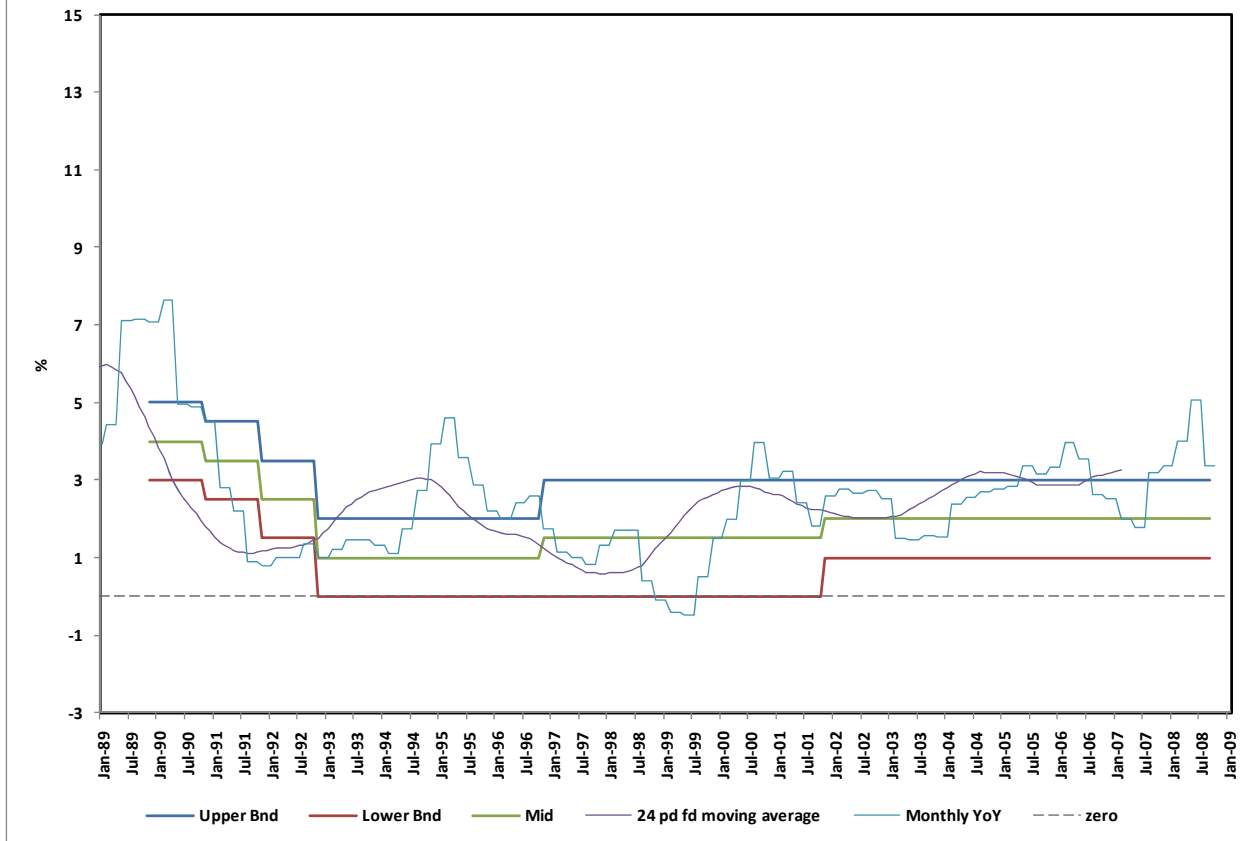


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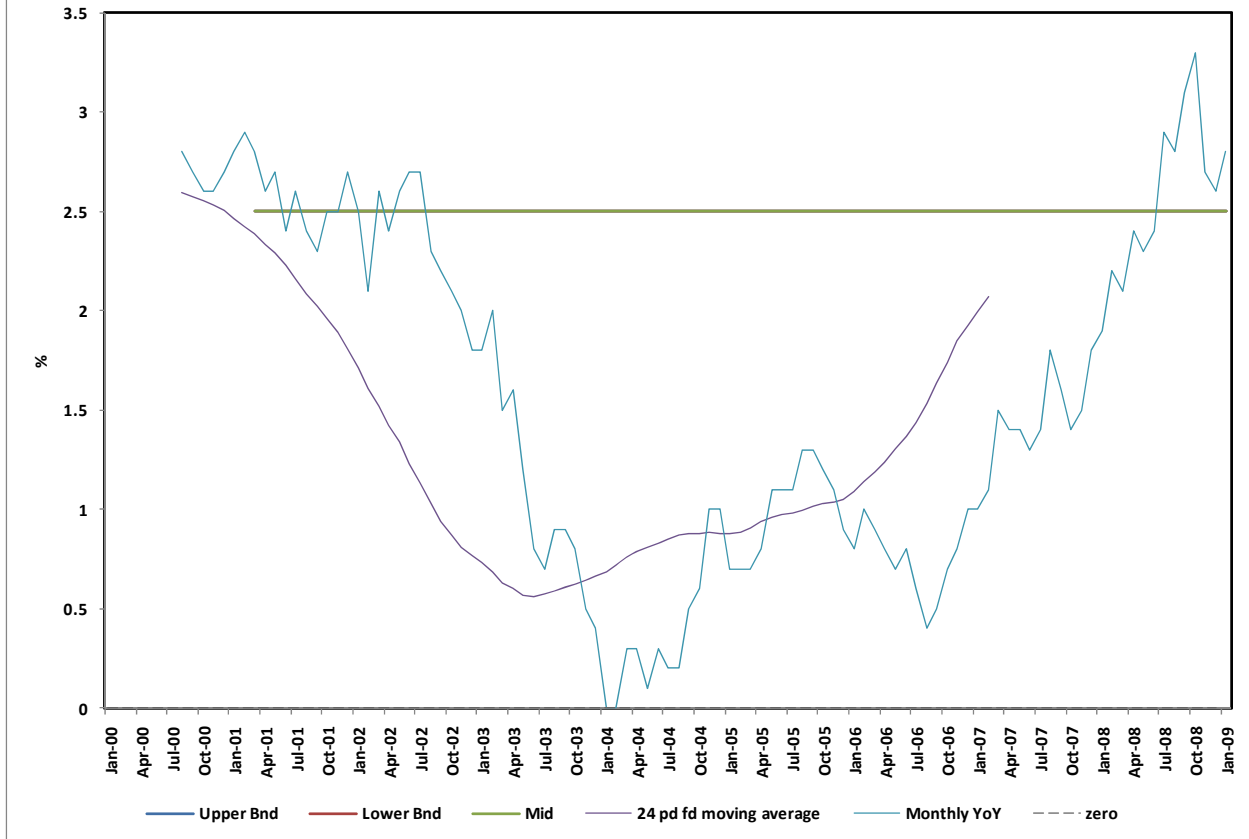


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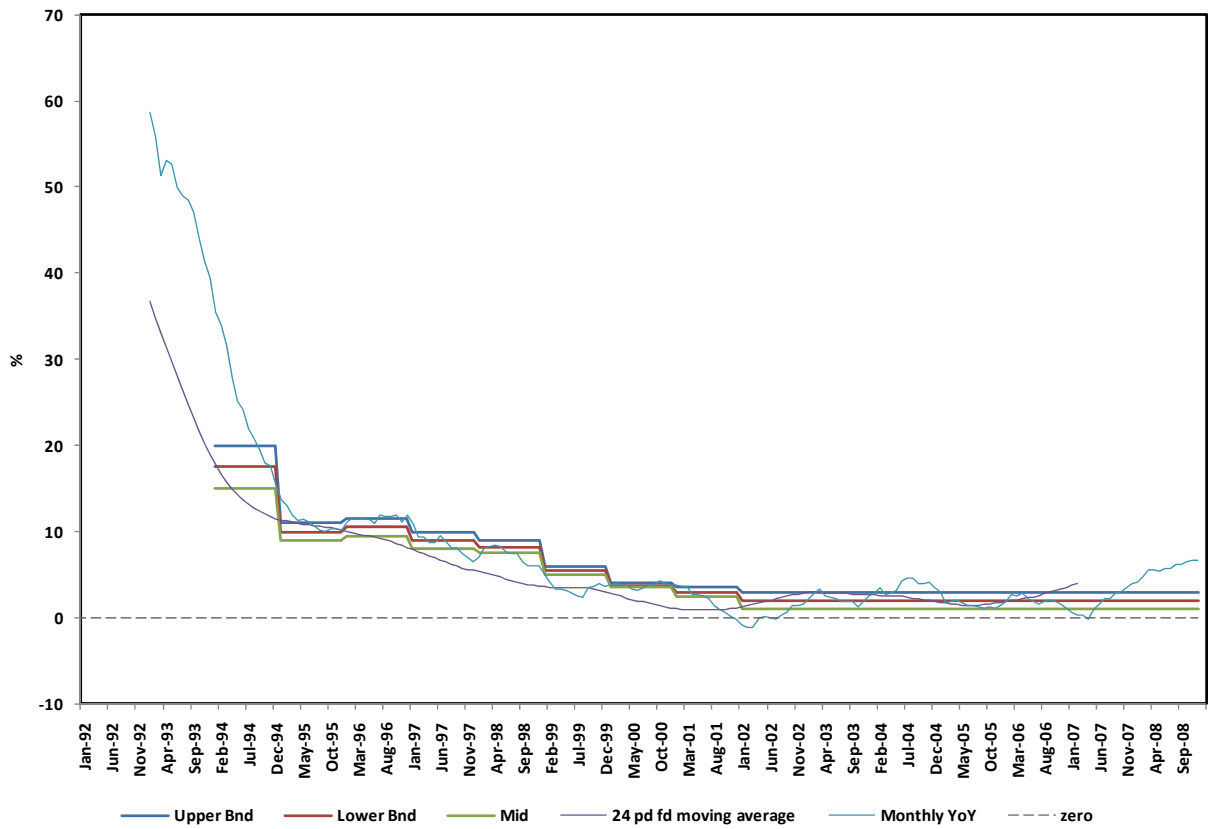


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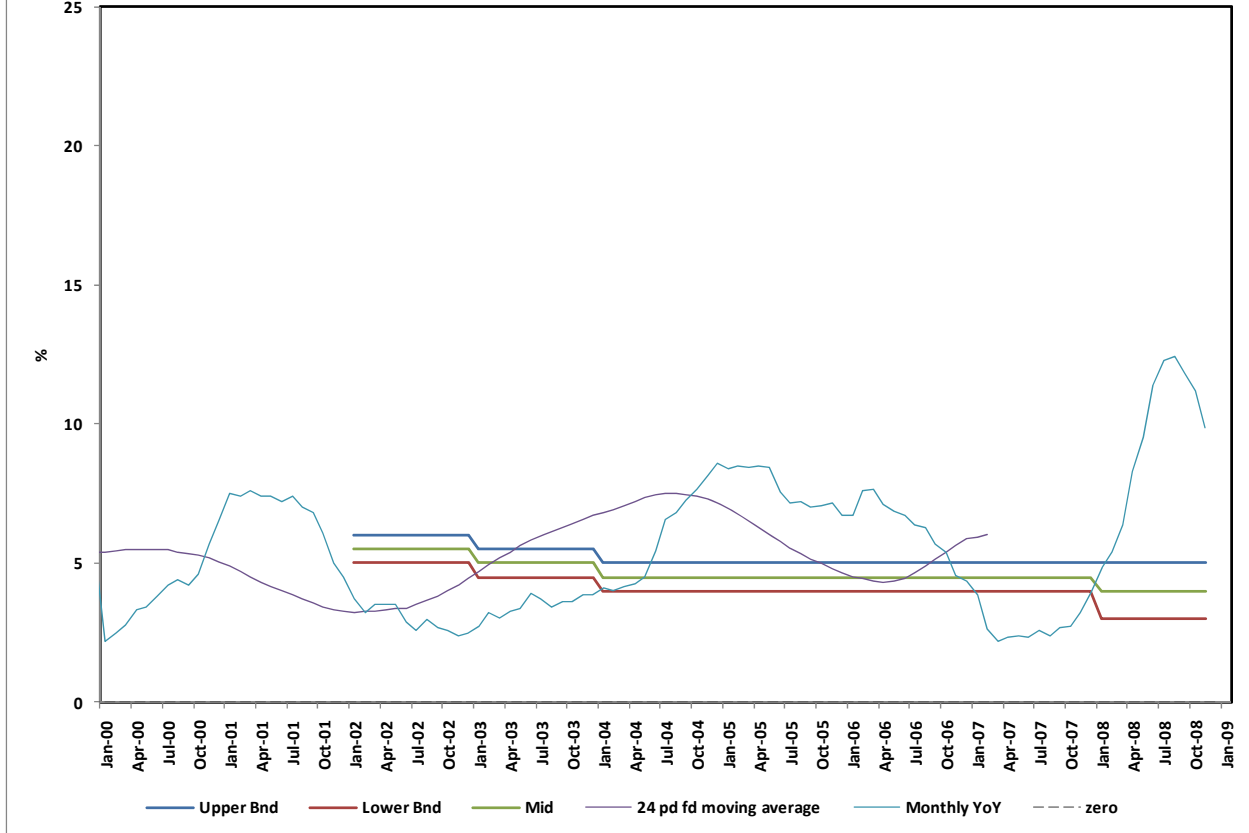


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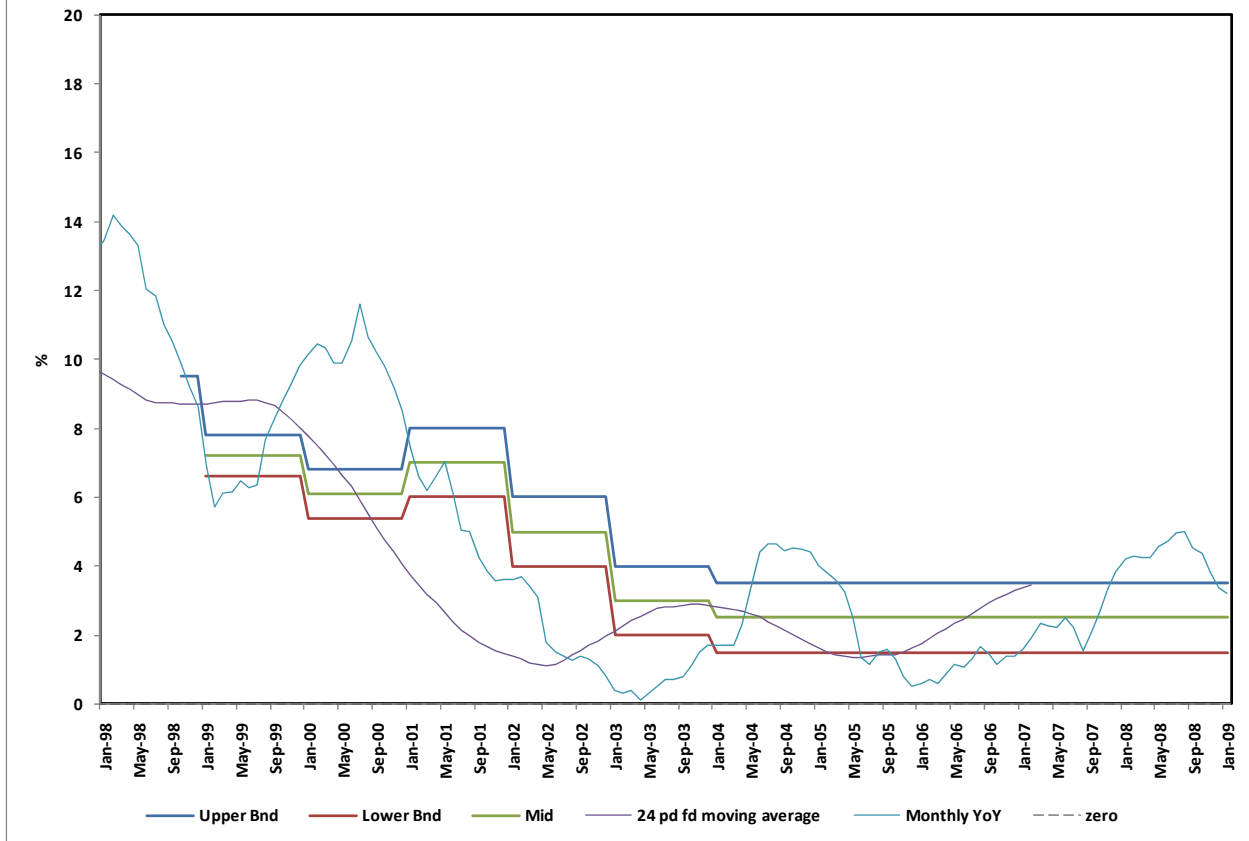


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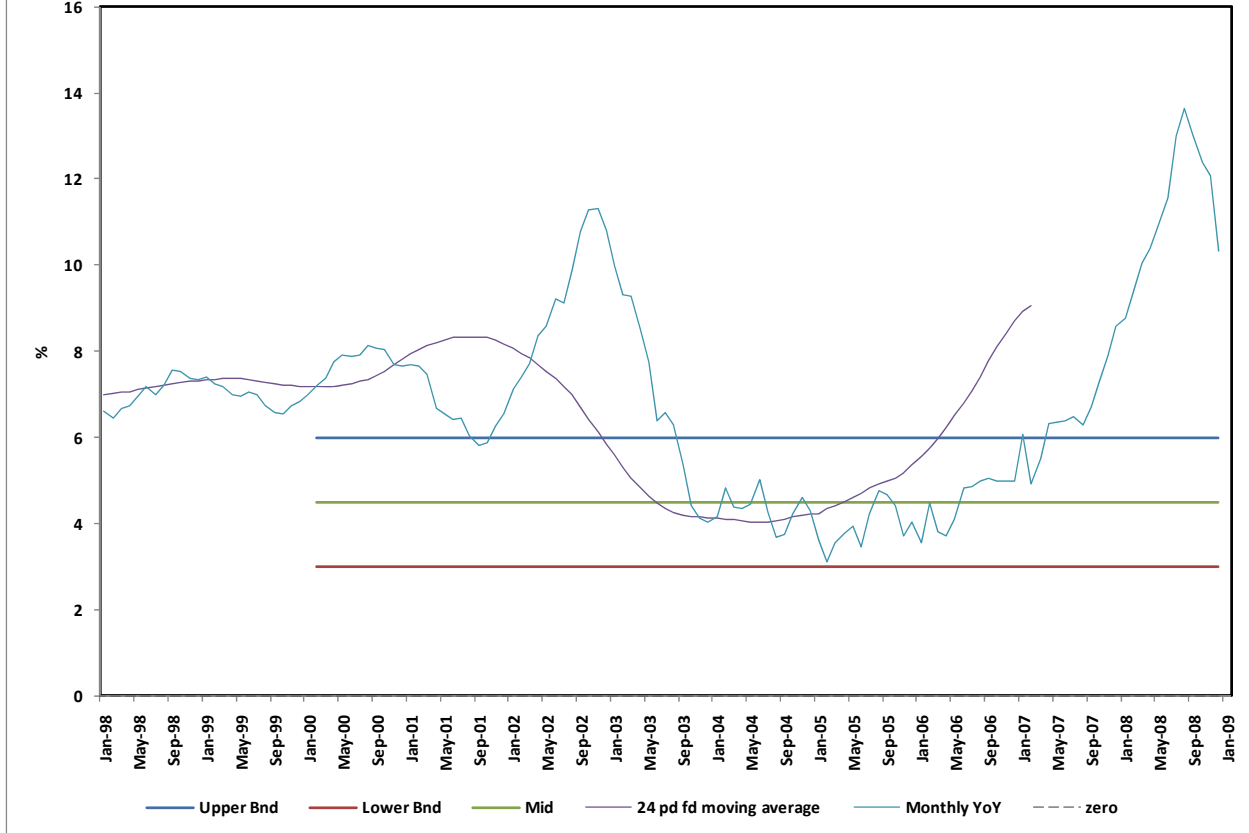


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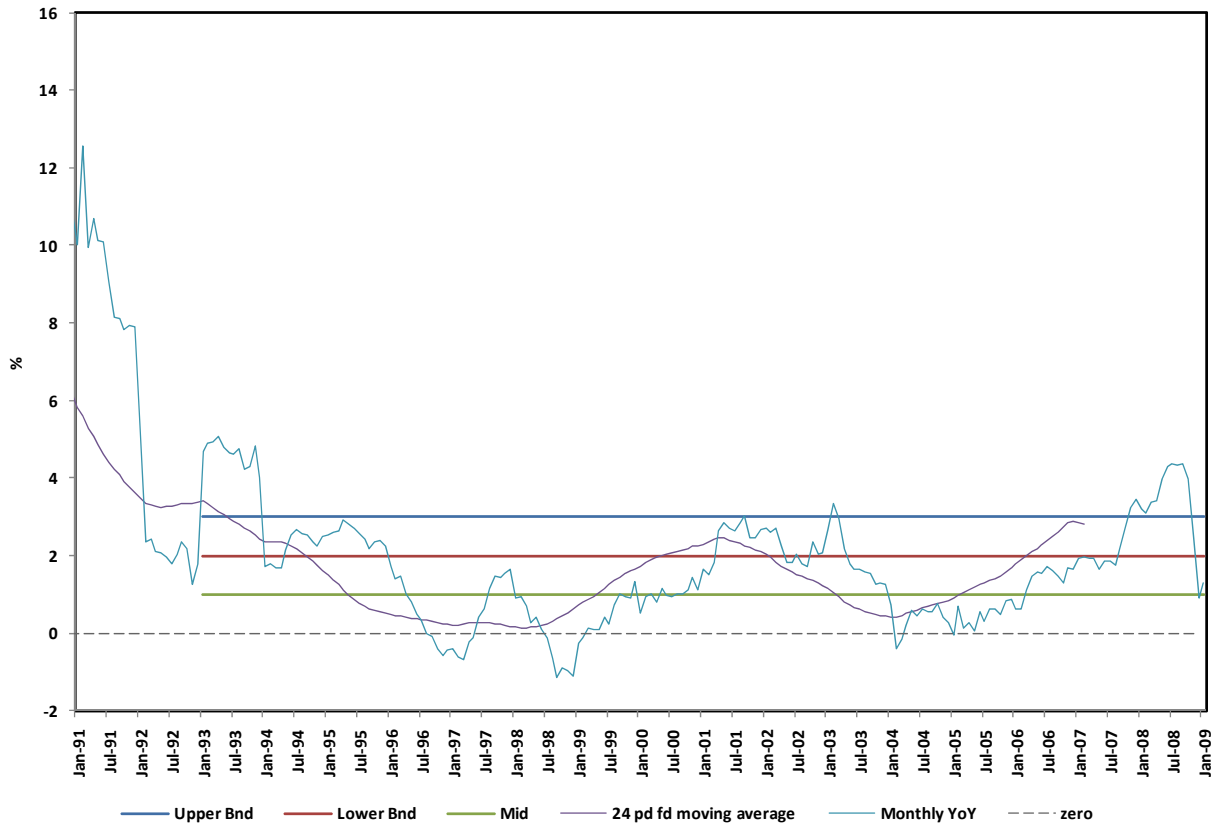


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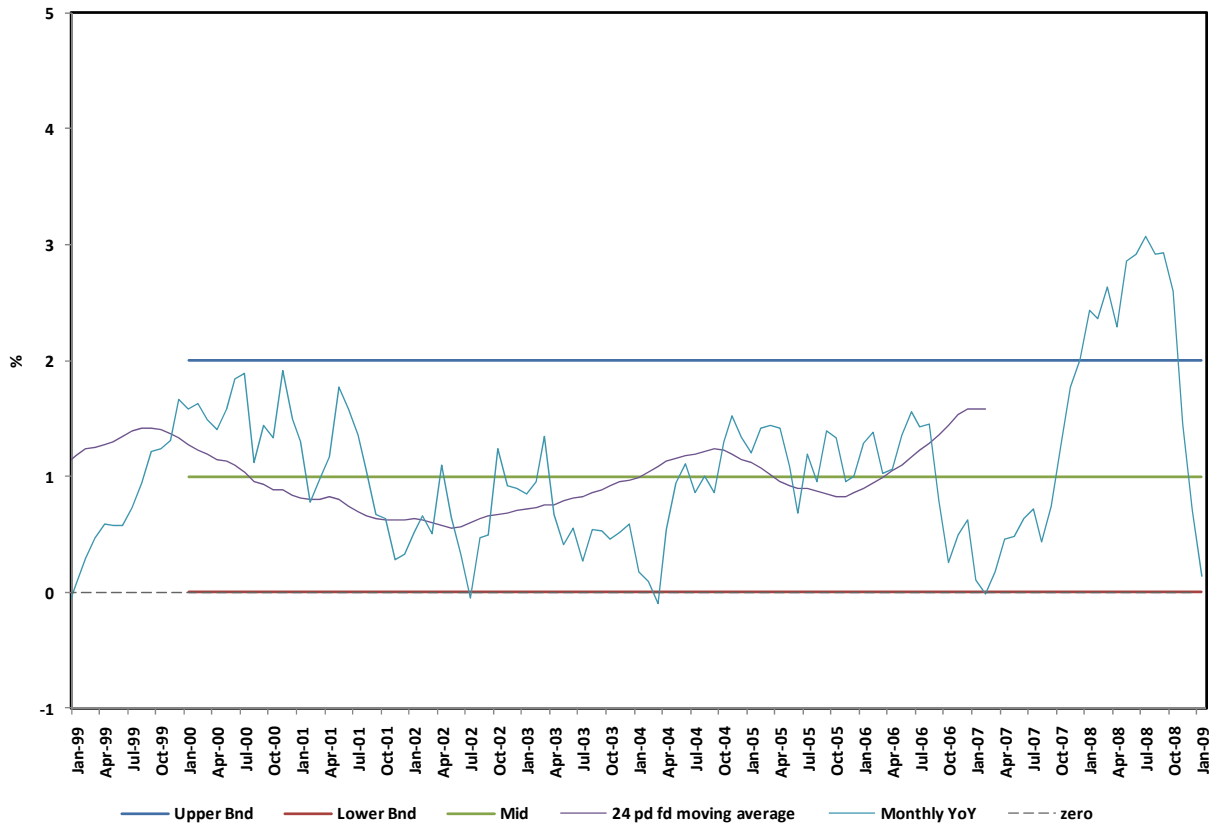


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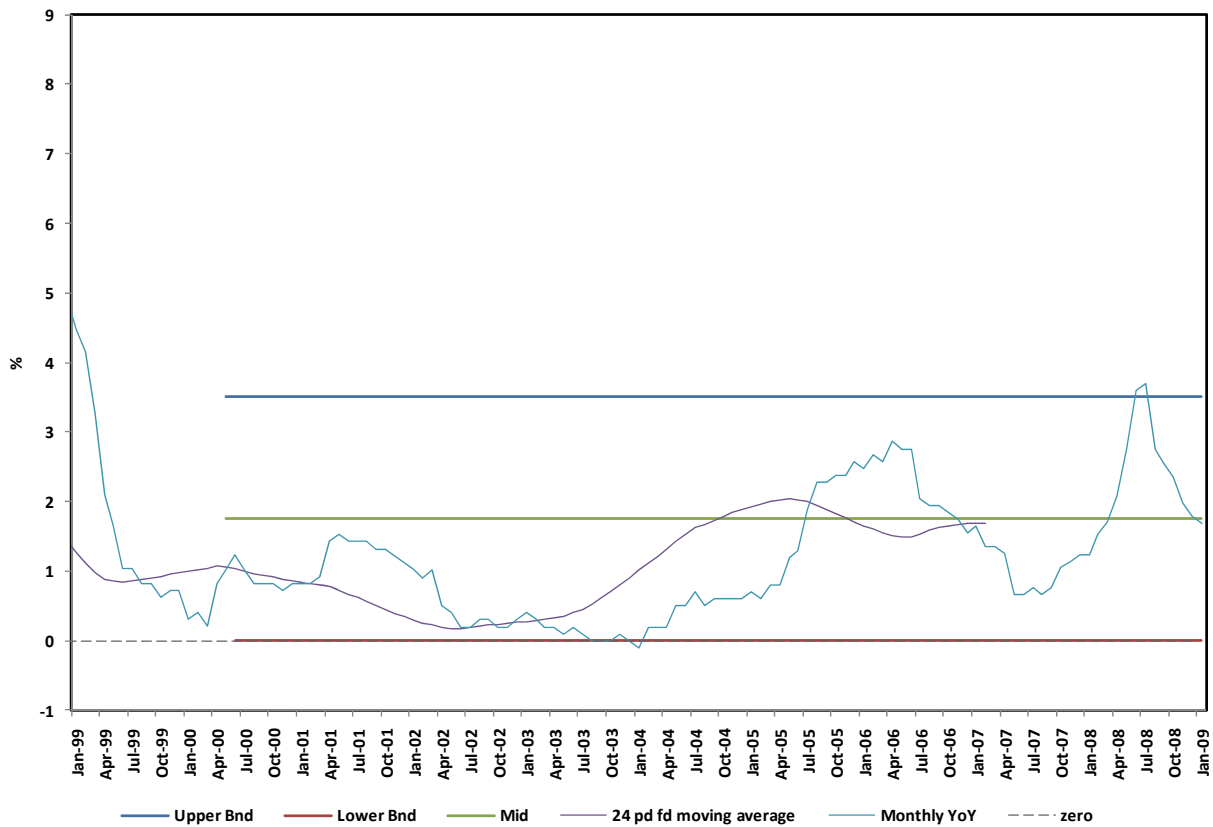


Figure 25: UK

