December 5, 2008

5. Effects of the Bank of Japan's Communication Strategy at the Zero Lower Bound

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We present evidence suggesting that during the period of its quantitative easing policy (QEP), the Bank of Japan (BOJ) more effectively committed itself to maintaining highly stimulative monetary policy than had been the case during the earlier period of its zero interest rate policy (ZIRP). Interest rates at a range of maturities appear to have declined during QEP by more than can be explained by macroeconomic developments alone. However, the impact of the BOJ's communication strategy *per se* is hard to disentangle from other factors, such as the rise in current account balances under QEP and the BOJ's purchases of longer-term Japanese government bonds (JGBs) and other assets.

Background

The Japanese economy contracted sharply in 1998, but the BOJ had already decreased its policy rate in first half of the 1990s, leaving the overnight call rate (shown in red in the top panel of Chart 1) at just 50 basis points. The BOJ introduced the ZIRP in February 1999, and in an attempt to manage the market's expectations of future policy actions, Governor Hayami announced later in April that the policy would be continued until "deflationary concerns are dispelled." However, Hayami refused to set more specific conditions, and it was left unclear what the BOJ meant by deflationary concerns.[2] In fact, the BOJ ended the ZIRP by raising its policy rate to 25 basis points in August 2000, even though both headline and core consumer price indexes remained in deflation (the middle panel).

Economic indicators began to point to a slowdown in activity (shown in the bottom panel) almost immediately after exiting ZIRP. The small increase in policy rates was likely not an important contributor to this slowdown, as most of the world was feeling the effects of the aftermath of the high-tech bubble, but the poor timing of the decision may have harmed the BOJ's credibility.[3] The BOJ came under pressure to reverse its decision and, after resisting, surprised markets by cutting rates by 10 basis points in February 2001.

The BOJ introduced QEP in March 2001. As an important element of QEP, the BOJ changed its policy target from the overnight call rate to the current account balances (CAB) held at the BOJ and set a target level for CAB that was calculated to keep overnight rates at zero.[4] In addition, the BOJ was more explicit about the conditions required to end this new policy

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[2] For example, Deputy Governor Yamaguchi indicated that it may not be appropriate to judge deflationary pressures "simply by looking at the decline in the CPI and the GDP deflator alone."
[3] Indeed, the United States entered recession in March 2001 and the Federal Reserve began cutting the federal funds rate target in January 2001.
[4] The BOJ targeted current account balances, which it defined as the monetary base excluding cash in circulation, rather than the monetary base itself because it believed that it would be difficult to control short-run movements of cash in circulation.

framework, stating that quantitative easing would be pursued until "the consumer price index (excluding perishables) registers stably at zero percent or an increase year on year." Toshihiko Fukui replaced Governor Hayami in March 2003, and soon reinforced the BOJ's commitment to QEP. The exit conditions were clarified in October 2003, with a commitment that year-over-year core deflation must have ended for at least a few months and that the BOJ must forecast that it would not return. The target for current account balances was raised several times during the period, reaching a high point of ¥30-35 trillion yen in January 2004.[5] The BOJ took several other extraordinary steps over this period, including expanding its purchases of JGBs, buying asset-backed securities and bank equity, and relaxing its collateral requirements. The Bank of Japan formally ended QEP in March 2006, returning to the overnight call rate as its policy target, although it did not actually raise the call rate until July as it first allowed current account balances to be drained.

At the time that it exited QEP, the BOJ announced that it would move policy to control inflation over a one-to-two year horizon. While it stated that most Board members had definitions of price stability that fell within a range of 0-to-2 percent inflation in the consumer price index, it was careful to note that this did not constitute a target. It is noteworthy that the BOJ resisted the idea of setting a specific target for inflation throughout its battle with deflation, although many outside commentators had recommended doing so. The BOJ frequently downplayed the importance of deflation, leaving it unclear exactly what inflation rate it was seeking to achieve.[6]

The BOJ also frequently sparred with officials at the Ministry of Finance (MOF), as members of the BOJ argued that fiscal policy should take the lead in the economic recovery and MOF officials emphasized the need for the BOJ to do more. Prior to the introduction of quantitative easing, BOJ officials at times publicly questioned the ability of monetary policy to either help the real economy or end deflation.[7] Governor Fukui generally maintained a more positive posture, stressing the role played by QEP in ensuring financial stability and in preventing stronger deflationary pressures from emerging, but tensions with the MOF did not end under his administration – particularly during the period near the end of QEP, when many MOF and other government officials argued publicly that the policy should be maintained.

Assessing the Impacts

The BOJ's commitment to maintaining ZIRP was perceived by many as weak. In comparison, the BOJ appeared to more effectively convince markets of its commitment to the QEP. As can be seen in the top panel of the second chart, yen Libor rates were about 10 basis points lower and more stable under QEP than under ZIRP. Near-dated three-month euro-yen futures rates, shown in the middle panel, were also about 10 basis points lower under QEP, while

[5] This level was much larger than the level of required reserves, which was roughly ¥6 trillion. The BOJ also announced that it was ready to purchase long-term government bonds to meet the target.

[6] Governor Hayami at one point stated that "Japan's economy is not in the middle of deflation," even as headline and core consumer price indexes were declining, saying instead that price declines were not generalized.

[7] For example, in a speech given in 2000, Governor Hayami minimized the power that monetary policy had in fighting deflation and instead emphasized that "the primary economic policy responses available at this time are inevitably (1) direct demand creation measures centered on fiscal policy, and (2) confidence building measures, including financial system stabilization and structural reforms of the economy."

longer-dated futures were on average 30 basis points lower, although they did rise in the second half of 2003 as the economic recovery appeared to solidify. The reduction in borrowing costs appears to have been fairly uniform across banks. Baba et al. (2005a) document that differences between bank borrowing costs seemed to diminish under QEP. Evidence of this can be seen in the bottom panel, which graphs the standard deviation of one-month borrowing costs reported by Japanese banks in the Libor panel.

Overall, these developments indicate that participants in the interbank market were more convinced that the BOJ would keep interest rates near zero for sustained period under QEP than they had been under ZIRP. While most of the decline in interest rate futures occurred between the end of the ZIRP and the start of the QEP, suggesting that at least initially the weakening economy may have convinced people that the BOJ would keep rates low, it is worth noting that rates remained low even as the economy recovered.

The impacts of QEP and the BOJ's communications strategy on banks' short-term borrowing costs, while discernable, were fairly modest given that most short-term interest rates were already quite low when these policies were put in place. Impacts on longer-term interest rates may have been of greater economic importance. The top panel of the third chart shows two segments of the yield curve for JGBs, graphing the 2-5 year and 5-10 year forward rates. Both rates are lower under QEP. Much of this decline took place during the economic slowdown in 2001-02, but there are several papers that provide empirical support for the view that the Bank of Japan's policies lowered longer-term yields even controlling for the macroeconomic environment.[8] Bernanke, Reinhart and Sack (2004) find that long-term yields were about 35 basis points lower than predicted by a no-arbitrage term structure model under both ZIRP and QEP, which they interpret as evidence that the policies may have been effective, although using an event study they find little evidence that BOJ policy statements *per se* affected yields. Employing a structural term structure model, Baba et al. (2005b) find that while ZIRP and the early stages of QEP had only modest impacts on long-term JGB yields, the commitment to QEP did appear to lower yields by about 20 basis points in 2003 (the end of their sample). Extending a similar methodology to a longer sample, Oda and Ueda (2007) find a slightly larger impact of about 35 basis points. Okina and Shiratsuka (2004) also find an impact on the JGB yield curve, suggesting that the expected time that interest rates would remain at zero increased from six months under ZIRP to about a year under QEP. Overall, these estimated impacts are modest but not negligible. While each of the papers cited does attempt to isolate the impact of the BOJ's policies by controlling for other macroeconomic variables, it is difficult to determine whether the effects they find are the result of the BOJ's communications strategy or the more direct measures taken under QEP.

We conclude by briefly looking for an impact of the BOJ's policies on inflation expectations. The Japanese government did not begin issuing indexed debt until 2004, so there are no direct measures of inflation compensation over most of the period of interest. However, survey measures of inflation, shown in the middle panel, are available and they show that

[8] The sharp rise in forward rates in June 2003 appears to have little to do with BOJ policies. Long-term rates also rose sharply over the same period in the United States and other countries, and this seems related to a sudden reversal in market expectations that the Federal Reserve would reduce its target for the federal funds rate to near zero.

expectations declined over the first half of the QEP period and subsequently picked up as the economic recovery strengthened. Although it is possible that the clarification of exit conditions in 2003 also positively affected inflation expectations, a simple regression (not shown) of inflation expectations on actual inflation and oil prices does not reveal any unusual rise in expectations over this period. The lower panel, which shows the standard deviation of inflation forecasts across participants in the survey, also gives reason to doubt that the clarification helped more firmly anchor inflation expectations. If QEP had helped anchor inflation expectations, then we would expect to see this variable decline, but instead it remained fairly steady over most of the ZIRP and QEP periods.

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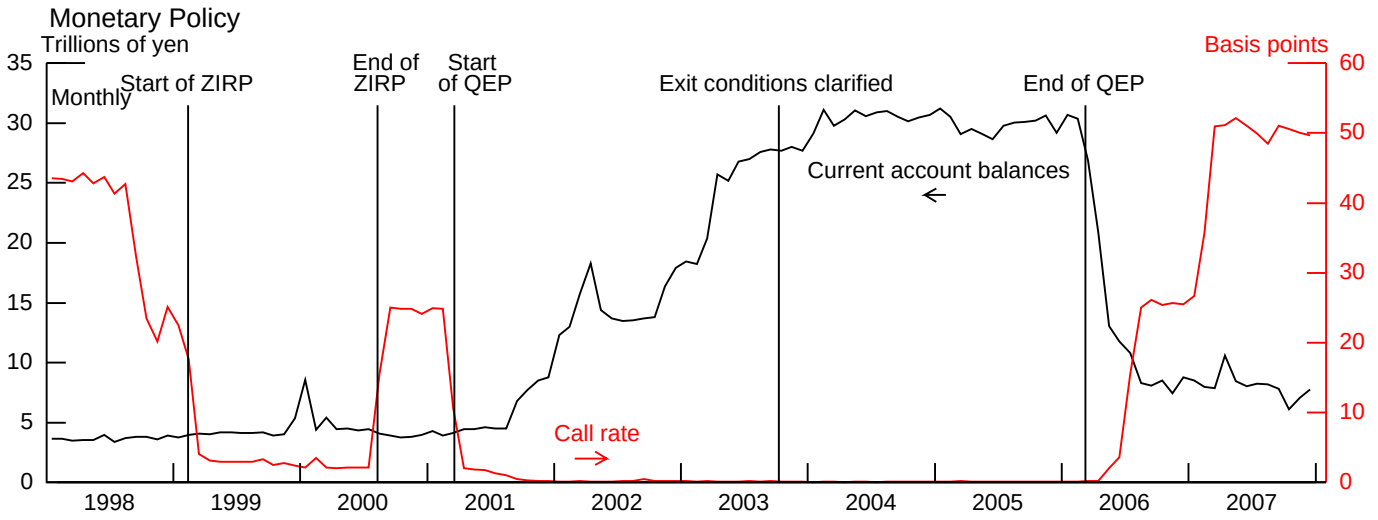
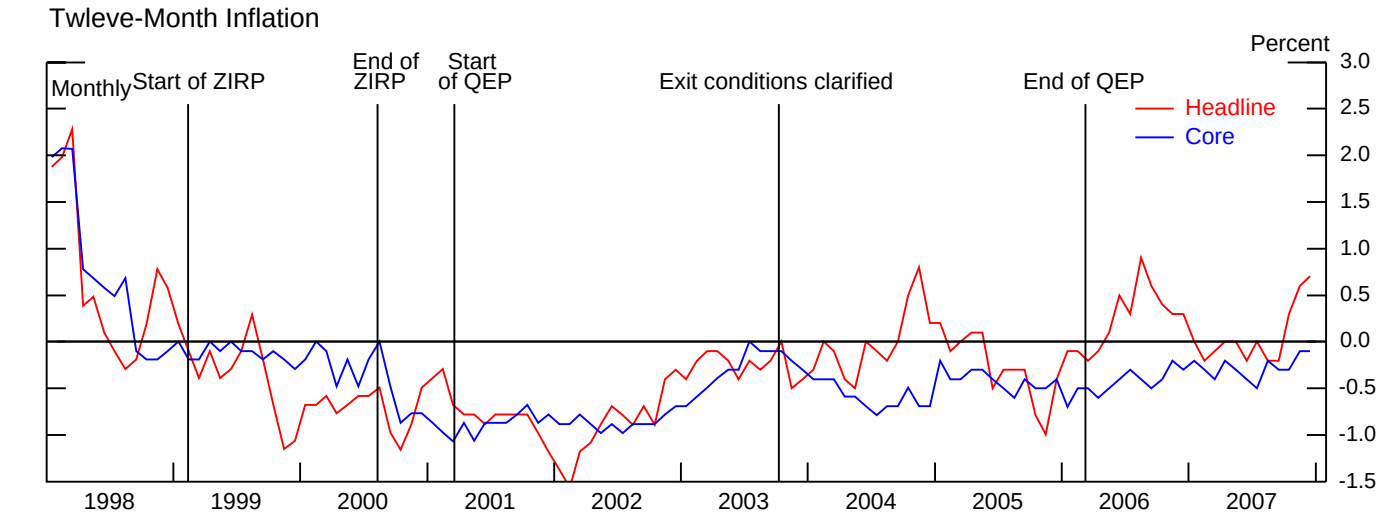
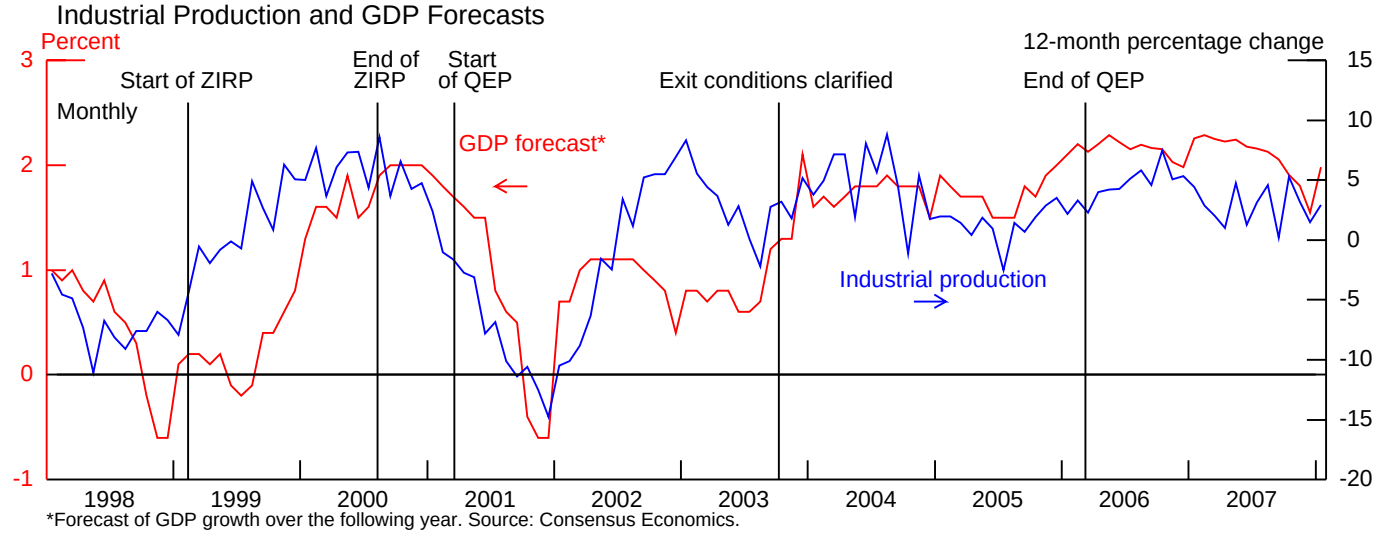
Chart 1 12-05-08



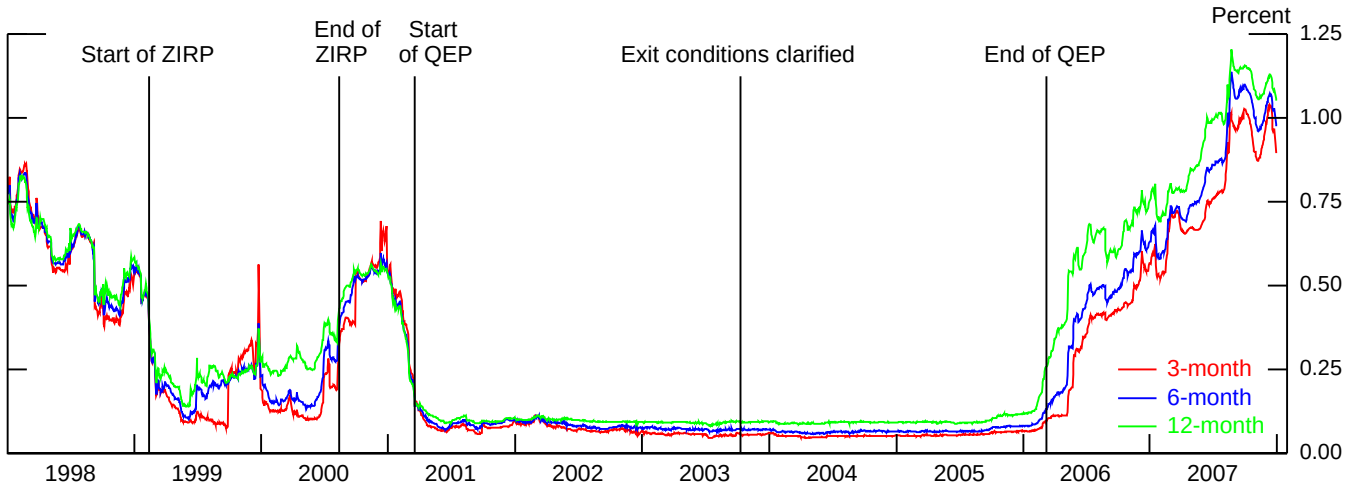




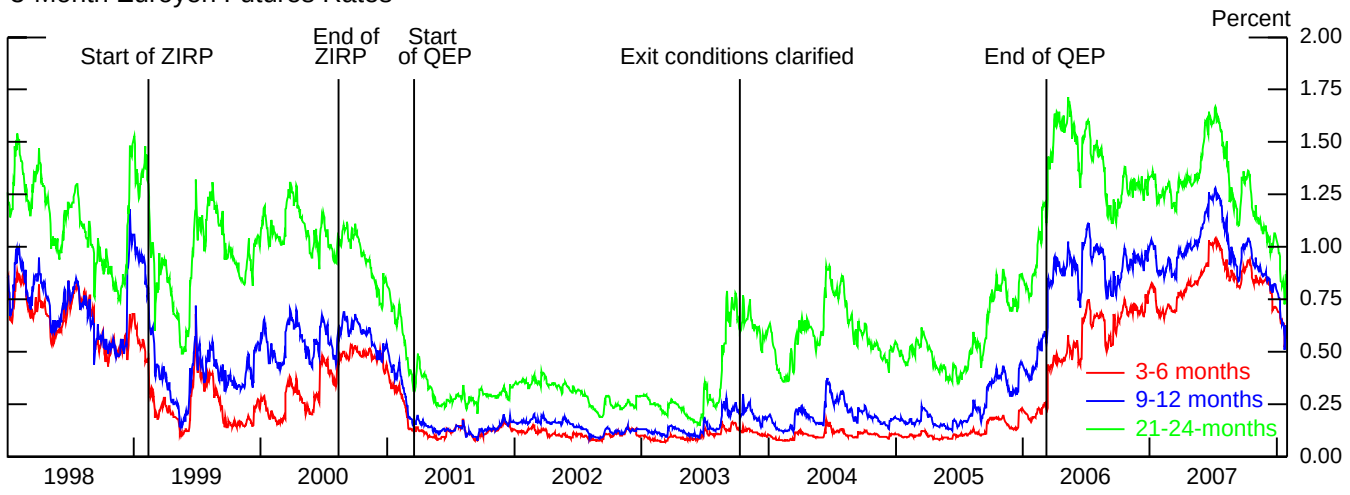
*Forecast of GDP growth over the following year. Source: Consensus Economics.

Chart 2 12-05-08

Yen Libor



3-Month Euroyen Futures Rates



Standard Deviations of Borrowing Costs Across Banks in Yen Libor Panel

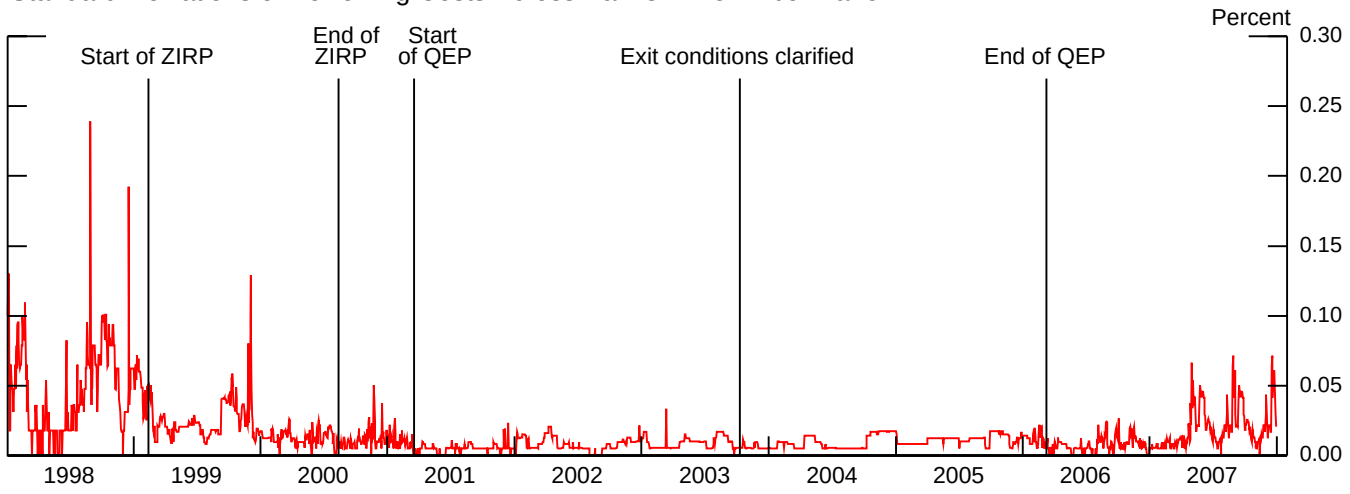
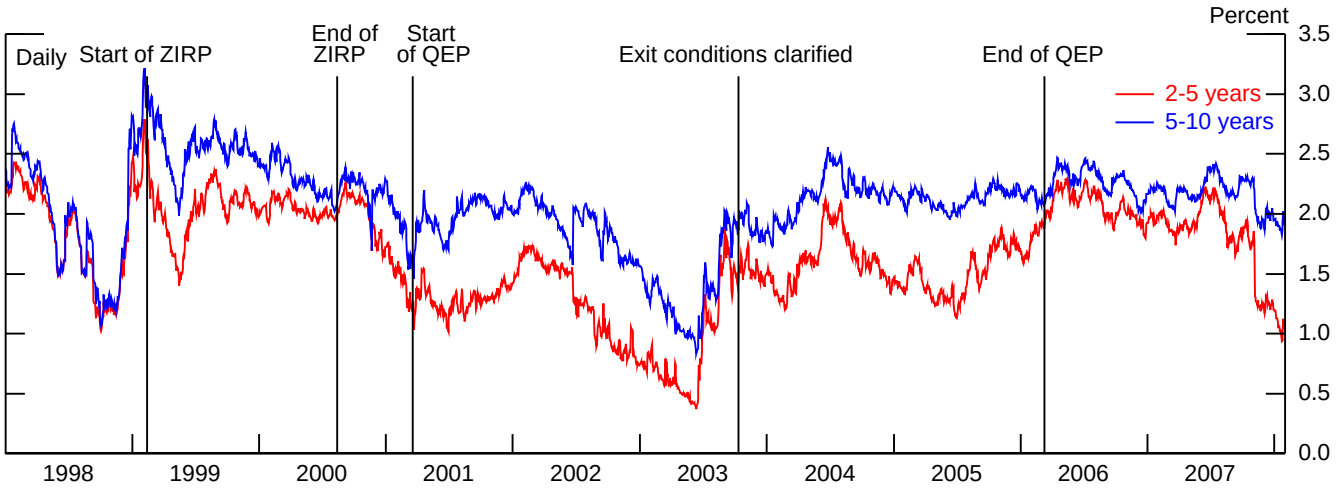
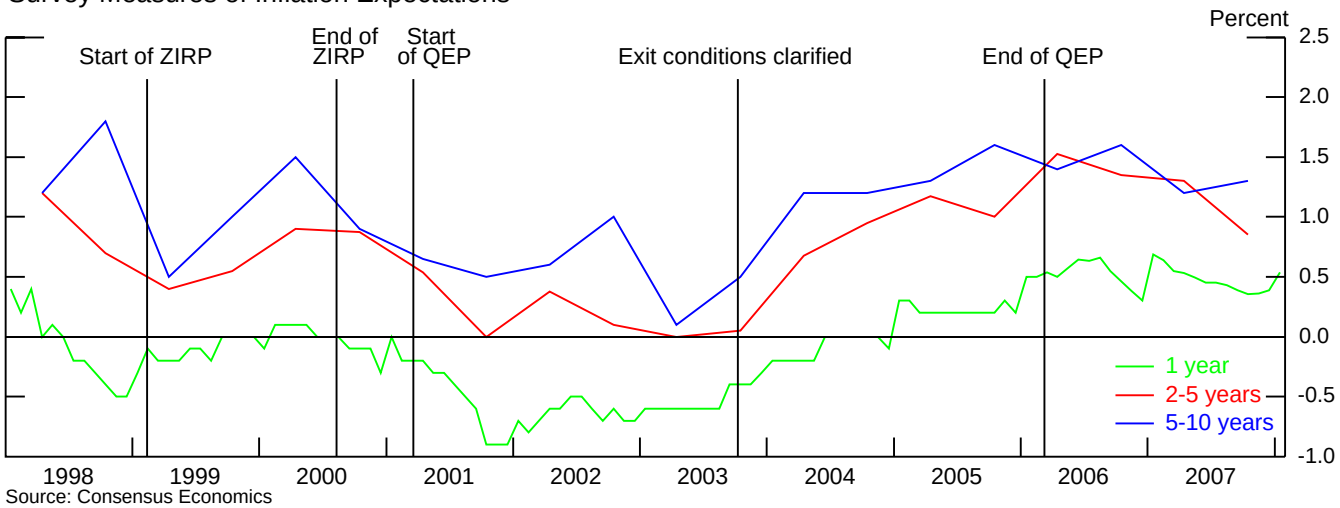


Chart 3 12-04-08

Forward Rates Derived From Nominal JGB Yield Curves

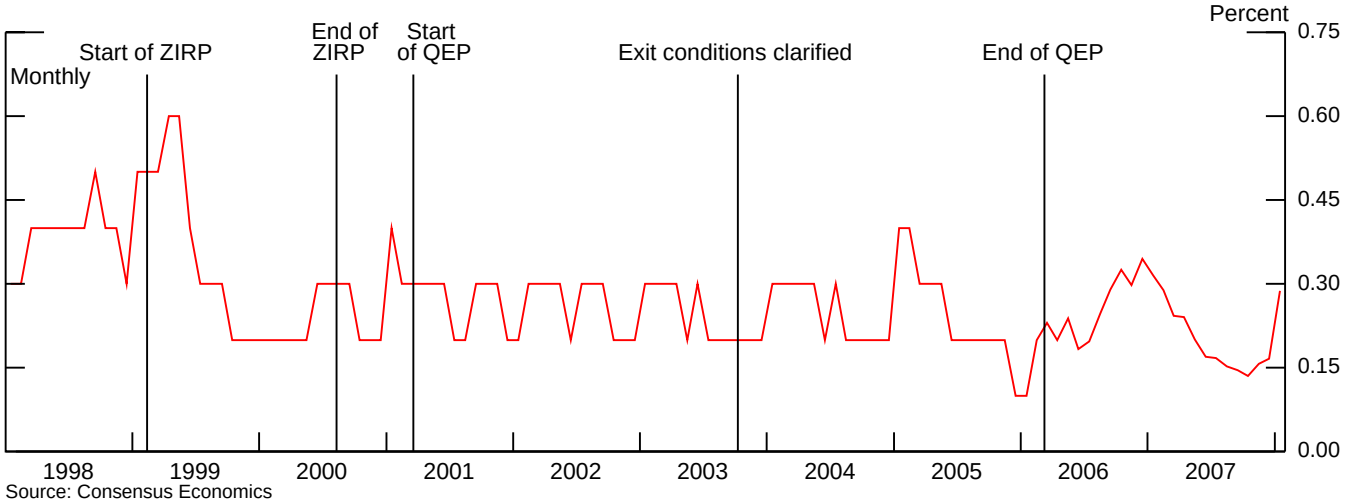


Survey Measures of Inflation Expectations



Source: Consensus Economics

Standard Deviation of CPI Forecasts Across Forecasters



Source: Consensus Economics