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Policy commitment and market expectations: Lessons learned from survey based evidence under Japan's quantitative easing policy

Yoshiyuki Nakazono [a,*], Kozo Ueda [b,1]

[a] Graduate School of Finance, Accounting and Law, Waseda University, Japan
[b] School of Political Science and Economics, Waseda University, Japan

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ABSTRACT

The Bank of Japan conducted its quantitative easing policy (QEP) from 2001 to 2006, with the policy commitment to maintaining its QEP until the CPI inflation rate became stably zero or higher. We evaluate its effects by using individual survey data on inflation expectations as well as interest rate expectations. Our analysis reveals a kinked relationship between interest rate expectations and inflation rate expectations at around the 0% threshold level of inflation expectations, in tune with this policy commitment. In addition, we evaluate the effects of the policy commitment on market expectations for the future path of short-term interest rates after the termination of the QEP. We find that, even when inflation expectations exceeded the threshold, interest rate expectations responded only gradually to inflation rate expectations.

1. Introduction

The Bank of Japan (BOJ) conducted its quantitative easing policy (QEP), with a policy commitment, from March 2001 to March 2006 under the zero lower bound (ZLB) on nominal interest rates. The BOJ promised to maintain the QEP until the core CPI inflation rate became stably zero or higher. Moreover, from 2005, the BOJ announced that, after its exit from the QEP, monetary policy would continue to maintain very low short-term interest rates, with gradual adjustments in their level in view of economic and financial developments. Although this type of policy commitment was unprecedented at that time, other central banks such as Bank of Canada and Riksbank introduced similar policy commitment in response to the recent global financial crisis.[2]

In this paper, we evaluate the effects of the BOJ's policy commitment on market participants' interest rate expectations. To this end, we use a rich individual survey source, QSS (QUICK survey system), provided by QUICK corporation. The survey asks market

* Corresponding author. Tel.: +81 332726782.
E-mail addresses: nakazono@aoni.waseda.jp (Y. Nakazono), kozo.ueda@waseda.jp (K. Ueda).

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[2] In April 2009, Bank of Canada introduced a conditional commitment, stating "Conditional on the outlook for inflation, the target overnight rate can be expected to remain at its current level until the end of the second quarter of 2010 in order to achieve the inflation target. The Bank will continue to provide such guidance in its scheduled interest rate announcements as long as the overnight rate is at the effective lower bound."

Riksbank regularly announces their inflation and policy rate forecasts. By showing low levels of inflation and policy rate forecasts, it helped lower expectations on the future path of interest rates.

Although their commitment is less clear, the Federal Reserve stated "the Committee believes that policy accommodation can be maintained for a considerable period" in August 2003. The Federal Reserve also announced that they would maintain "exceptionally low levels for the federal funds rate for some time (or an extended period)" from 2008 to 2011.

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participants about their views on the future course of interest rates and inflation rates. The effects of the policy commitment need to be examined against developments in expectations regarding not just interest rates but also inflation rates. In particular, the latter data are valuable, because otherwise it is difficult to identify whether low interest rate expectations are due to the policy commitment or simply due to low inflation expectations. In that respect, the QSS provides useful information to analyze the role of the policy commitment.

Our analysis reveals a kinked relationship between interest rate expectations and inflation rate expectations at the threshold level of inflation rate expectations, in tune with the necessary condition for the termination of the QEP. We evaluate the effects of the policy commitment on market expectations not just for the timing of the termination of the QEP but also for the future path of short-term interest rates after the termination of the QEP. Two empirical findings emerge.

First, when inflation expectations remained below the threshold, interest rate expectations did not respond to changes in inflation rate expectations. Market participants anticipated the continuation of the QEP and the unchanged low interest rate. The threshold was estimated at around 0% for three-month TIBOR and two- and five-year government bonds. That level was consistent with the BOJ's policy commitment to continuing the QEP until the CPI inflation rate became stably zero or higher. For long-term interest rates, the kink was unclear.

Second, when inflation expectations exceeded the threshold, interest rate expectations responded to inflation rate expectations, but only modestly. Above the threshold, market participants anticipated an exit from the QEP and rises in the call rate. At the same time, they also anticipated that such adjustments in the call rate would be carried out in a very gradual manner. More precisely, for three-month TIBOR, the estimated size of the jump in the call rate at the threshold was insignificantly small. In addition, the estimated slope of interest rate expectations with respect to inflation expectations was smaller than one. Such responses were consistent with the BOJ's announcement that monetary policy would continue to maintain very low short-term interest rates for some time after the exit from the QEP. For two- and five-year government bonds, the estimated size of the jump in the call rate became about 0.2% point and significant, suggesting that market participants took rises in the call rate as a more likely event over 2–5-year horizons.

Using different samples, we deepen analyses on the effects of this policy commitment. We find that market expectations for interest rates during the QEP were lower than those after the QEP, after controlling the level of inflation expectations. This difference amounted to about 0.7% point for three-month TIBOR. Expectations for interest rates were more closely linked to expectations for inflation rates during the QEP than after the QEP. That suggests that market participants paid more attention to the developments in inflation rates during the QEP, compared with the period after the QEP. Dividing samples during the QEP, we find that, as the actual CPI inflation increased to the threshold, market participants became more mindful of the termination of the QEP, making their expectations for interest rates more closely linked to expectations for inflation rates. That suggests that the policy commitment effect on market expectations becomes stronger as the economy recovers, which is consistent with views expressed by Shirakawa (2010).[3]

A number of empirical studies exist regarding the effects of policy commitment. As for Japan's QEP, Ugai (2007) provides a survey and concludes that this policy commitment has a clear effect on reducing the future path of interest rates at short- to medium-term maturities.[4] For example, Baba et al. (2005) develop a macro-finance model to calculate the difference of the future path of interest rates with and without the policy commitment. The difference is as much as 0.4–0.5% point for three- and five-year government bonds, suggesting a reduction in the yield curve by the policy commitment. The difference is not as large for 10-year government bonds. Baba et al. (2005) and Oda and Ueda (2007) search for the CPI inflation threshold that the BOJ judges as necessary to terminate the QEP. They report that the threshold inflation rate was about 1%; market participants expected that as long the CPI inflation rate was below 1%, the BOJ would continue its QEP. Those results are not remote from ours, but the estimated threshold is higher, suggesting longer persistence of the QEP. Such a difference is attributed to the identification of inflation expectations. As stated above, the low yield curve can arise from low inflation expectations, leading to overestimation of the effects of the policy commitment unless we control inflation expectations. Thanks to the QSS, we overcome such a difficulty, and in turn, obtain relatively smaller effects on the threshold.

As for the policy commitment by the Bank of Canada, Chehal and Trehan (2009) and He (2010) report opposing results. Chehal and Trehan (2009) argue that the policy commitment did not have persistent effects on interest rates. He (2010) argues that the policy commitment lowered the interest rate for 2-, 5-, and 10-year government bonds, although his result is not statistically strong. Similar to Japan's existing studies, those two studies use aggregate variables only. Changes in inflation expectations are not sufficiently taken into account to identify policy effects.

This paper is structured as follows. In Section 2, we provide the simple model of the policy commitment and discuss our estimation strategy. In Section 3, we explain the QSS and estimate the effects of the policy commitment. In Section 4, we provide concluding remarks.

2. Model

2.1. Overview of the policy commitment

Facing the prolonged stagnation following the burst of the asset price bubble in the early 1990s, the BOJ lowered its policy rates to reach the zero lower bound (ZLB) of nominal interest rates (Fig. 1) and adopted a series of unprecedented policies. Among many, one notable policy adopted in March 2001 was the QEP. The QEP consists mainly of three pillars (see Ugai (2007) for details). First, the BOJ changed the main operating target for money market operations from the uncollateralized overnight call rate to the outstanding current account balances held by financial institutions at the BOJ. Second, the BOJ increased the amount of outright purchases of long-term Japanese government bonds, up to a ceiling of the outstanding balance of banknotes issued.

Third, the BOJ introduced the policy commitment (Table 1), which is the focus of this paper. The BOJ committed itself to continuing the QEP until the year-on-year rate of change in the CPI (excluding perishables)[5] registered 0% or higher on a sustainable basis. In October 2003, the BOJ clarified its commitment by specifying necessary conditions for the termination of the QEP. In

[3] Shirakawa (2010) argues "the policy duration effect could exert significant easing effects, especially when economic recovery progresses and corporate profits improve."

[4] Regarding other aspects in the QEP, Ugai argues, first, that there were phases in which the increase in the current account balances held by financial institutions at the BOJ bolstered people's expectations. Second, mixed results exist as to whether expansion of the monetary base and a change in the composition of the BOJ's balance sheet led to portfolio rebalancing. Third, the QEP created an accommodative environment in terms of corporate financing. Fourth, the QEP's effect on the real economy was limited.

[5] In Japan, it is often called the core CPI.