

The Impact of the Bank of Japan's News Announcements on the Japanese Yen, U.S. Dollar, and the Euro

Yutaka Kurihara¹

Abstract

This article examines the impact of news about the Bank of Japan monetary policy announcements regarding the Japanese yen, U.S. dollar, and the Euro interest rates. Whether or not the announcements from the monetary authorities impact the domestic markets is related to the success of their policies. In Japan, a zero or low interest rate policy has been in effect under severe economic conditions for almost ten years, so there is some possibility that evident changes in interest rates do not occur, contrary to the usual cases. Moreover, an ongoing strange phenomenon is that Japanese yen appreciates greatly in spite of the recession and huge amount of accumulated debt. It should have been quite difficult to establish monetary policies and obtain good performance. However, the empirical results that employ the theory of market efficiency hypothesis show the recent existence of significant impacts of the Bank of Japan announcements on not only domestic interest rates

¹ Aichi University, Japan, e-mail: kurihara@vega.aichi-u.ac.jp

but also on those of foreign countries. These results have contributed to the recent success of monetary policy in Japan.

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1 Introduction

A large number of studies have been published about the reactions of money market interest rates to monetary policy decisions. The impact of central banks' monetary policies on markets, especially on interest rates, relates to the success and effectiveness of the monetary policies. Rudenbusch [1], Kuttner [2], Poole et al. [3], Beechey [4], Belke and Gros [5], Ehrmann and Fratzscher [6], Hamilton [7], Piazzesi and Swanson [8], Thornton [9, 10], and Valente [11] provide examples.

This article focuses on the impact of the monetary policy news announcements on interest rates in Japan, the United States, and the Euro area. Some articles have been published on this issue about the U.S. and some European countries' markets. Romer and Romer [12] analyzed the case of the United States. Kevin and Auerbach [13] examined the effects of macroeconomic news announcements from the Federal Reserve System (the Fed) and European Central Bank (ECB) on exchange rates. Syed [14] examined the effects of monetary policy actions from macroeconomic news announcements by the FED and ECB on domestic stock prices. However, few studies have examined the case of Japanese monetary policy and its impact on Japanese financial markets.

Woodford [15] proposed the ways to include the implement of monetary policy in the forecasts of interest rates as the FED's communication strategy. Romer and Romer [12] and McCallum [16] examined issues of money market

forecasts related to inflation targeting in the United States. However, there has been no empirical consensus on this issue, and some problems have been identified from both theoretical and empirical views. The considerations of market forecasts are mandatory to the adequate analysis of financial phenomena. Correct empirical, analytical treatments of market forecasts have been becoming more and more important recently. Moreover, Thornton [17] and Monticini et al. [18] showed that estimations of the relationship between interest rates and future rates based on the news from days when central bank announcements are made, as is typically the case of most empirical analyses, leads to bias. These authors indicated that interest rates and market-based measures of monetary policy news respond simultaneously to all news and not just to news in monetary policy announcements. This paper focuses on these issues.

In Japan, a zero or low interest rate policy has been established, which has created a high likelihood that significant changes in interest rates have not occurred on the contrary to the usual cases. Kim and Le [19] and Kurihara [20] examined the effectiveness of intraday monetary policies of the Bank of Japan (BOJ, i.e., the Japanese central bank). Also, after the Lehman shock in 2008, a huge amount of capital has inflowed into the Japanese yen and Swiss franc markets in spite of the fact that the Japanese economy has not been in good condition. Complex and unexpected movements are ongoing in Japanese financial markets. In this situation, it can be expected that it is difficult for monetary policy to overcome recession and achieve economic growth.

This article uses the method of Thornton [17] and Monticini et al. [18] to investigate the impact of news from the BOJ not only on the Japanese yen but also on the U.S. dollar and Euro interest rates. The paper is organized as follows. The next section shows theoretical analysis. Section 3 demonstrates the empirical methods and data used here. Section 4 shows the results and analyzes them. Finally, this article ends with a summary.

2 Theoretical Analysis and Empirical Method

Monetary policy announcements influence financial markets in a short time, for example, at the moment of the announcement or on the same day. Given same-day or short-term effects, however, it becomes a standard approach to measure the response of interest rates to unanticipated monetary policy (Poole et al. [3], Hamilton [7], Piazzesi and Swason [8] and Monticini et al. [18]). Moreover, future forecasts of economic variables are influenced and formed by monetary policy. Rudebusch [1] suggested that the federal futures rate is a natural forecast of the Federal Open Market Committee target for the federal funds rate, and Kuttner [2] used federal futures rates to decompose target changes into their expected and surprise components.

The idea employed here is to compute the difference that should capture the news generated by the monetary policy announcement given the assumption of market efficiency. Traditional theory of market efficiency hypothesis is employed as Monticini et al. [18]. Future price (f) at time $t-1$ is the conditional expectation of the spot price (r) at the maturity date (m) based on the information (I) at time $t-1$. From the view of the real world, monetary policy is sometimes said to “buy time.” According to this view, it might be appropriate to employ this method.

$$E[r_m|I_{t-1}] = f_{m,t-1} \quad (1)$$

News generated about monetary policy announcements are given by a one-time change in the conditional expectation.

$$\Delta f_t = E[r_m|I_t] - E[r_m|I_{t-1}] = f_{m,t} - f_{m,t-1} \quad (2)$$

It should be noted that the market-based measures of monetary policy news respond to all news about monetary policy actions as [17], [18]. The next section shows the empirical analysis of the impact of the BOJ monetary policy announcements on the Japanese yen, U.S. dollar, and the Euro interest rates.

3 Empirical Methods and Estimated Results

3.1 Recent Japanese Monetary Policy

In the 1990s, Japan experienced serious economic and financial crises after the bubble economy burst in the late 1980s. Recorded annual economic growth rates were often negative, and several large financial institutions went into bankruptcy. Japan's interest premium increased in the middle of 1990s. The financial system in Japan was unstable at that time. To overcome these severe economic situations, the BOJ adopted the so-called zero interest rate policy from February 1999 to August 2000. That is, the BOJ decided to “flexibly provide ample funds and encourage the uncollateralized overnight call rate to move as low as possible” in February 1999 to avoid a possible intensification of deflationary pressure and to ensure that the economic downturn would come to an end. Subsequently, the BOJ declared its commitment to the zero interest rate until deflationary concerns ended in April 1999.

Introduction of the zero interest rate policy seemed to contribute to an atmosphere of economic recovery. The BOJ stopped the zero interest rate policy. It encouraged the uncollateralized overnight interest call rate to increase. However, the economy again shrank after that. The BOJ conducted a more aggressive monetary easing policy. That is, on March 19, 2001, the BOJ decided to increase the outstanding balance of the current accounts at the Bank. This is called *quantitative easing policy*. The main operating target for money market operations changed from the uncollateralized overnight call rate to the outstanding balance of the current account at the Bank. The target of the current account balance has been increased several times since then.

The outstanding balance of current accounts at the BOJ was reduced toward the level of required reserves on March 9, 2006, when a bright sign occurred in the Japanese economy. Given that financial institutions have managed liquidity against the backdrop of large amounts of current account balances and extensive

funds-supplying operations by the Bank for a prolonged period since the start of the quantitative easing policy, the reduction in current account balance was performed. The policy was managed via short-term money market operations. For the outright purchases of long-term government bonds, purchases were continued at the current amounts and frequency. For the complementary lending facility, the loan rate remained at the current level. To overcome deflation and to help the Japanese economy attain sustainable growth with price stability, the BOJ continues to make contributions by using a three-pronged approach of powerful monetary easing: (1) enact comprehensive monetary easing, (2) ensure financial market stability, and (3) provide support to strengthen the foundations for economic growth.

Since the earthquake in March 11, 2011, the BOJ has been taking measures that focus on three major points: (1) maintaining the functioning of financial and settlement systems, (2) ensuring the stability of financial markets, and (3) supporting economic activity. In addition to such measures, the BOJ decided to take the funds-supplying operation to support financial institutions. The BOJ also decided to expand the range of eligible collateral for market operations to ensure that financial institutions in the disaster areas would have sufficient financing capacity.

3.2 Empirical Methods

Based on this idea, an empirical test was performed using daily data (Nikkei NEEDS). The sample period is from 1999 to 2011. The period is divided into three: (1) before the quantitative easing period (January 1, 1999–March 18, 2001), (2) the quantitative easing period (March 19, 2001–March 9, 2006), and (3) after the quantitative easing period (March 10, 2006–December 31, 2011). Future interest rates is for six months. Lamla and Lein [21] found that the ECB affects financial markets: Communication drives maturities greater than four months. To

estimate the impact of the BOJ announcements on the Japanese yen, U.S. dollar, and the Euro, equations (3)–(5) are used for empirical analysis. Knütter and Wagner [22] urged that globalization makes the strategy for reactive monetary policy the favorable option in the situations, related to inflation targeting in the United States. Berger and Nitsch [23] showed that the membership composition of the monetary policy committee as well as the frequency of the turnover appears to affect economic variables. However, no study has analyzed the case of Japan. The following empirical test was performed with the division of the sample period according to the policy change and globalization.

The empirical method is generalized method of moments (GMM), which is a robust estimator in that, unlike maximum likelihood estimation, GMM does not require information about the exact distribution of the disturbances. Hansen's J statistics also were performed. This test checks whether or not the model's moment matches the data. In a GMM context, when there are more moment conditions than parameters to be estimated, this chi-square test can be used to test the over-identifying restrictions [24].

$$\Delta R^{Yen}_t = \alpha_0 + \alpha_1 announcement + \alpha_2 announcement * \Delta f_t + \alpha_3 \Delta f_t + \alpha_4 \Delta R^{Yen}_{t-1} + \varepsilon_t \quad (3)$$

$$\Delta R^{USD}_t = \alpha_0 + \alpha_1 announcement + \alpha_2 announcement * \Delta f_t + \alpha_3 \Delta f_t + \alpha_4 \Delta R^{Yen}_{t-1} + \varepsilon_t \quad (4)$$

$$\Delta R^{Euro}_t = \alpha_0 + \alpha_1 announcement + \alpha_2 announcement * \Delta f_t + \alpha_3 \Delta f_t + \alpha_4 \Delta R^{Yen}_{t-1} + \varepsilon_t \quad (5)$$

where ΔR^{Yen}_t , ΔR^{USD}_t , and ΔR^{Euro}_t are the change in each currency's interest rates (interbank rates). By (2) $\Delta f_t = E[r_m|I_t] - E[r_m|I_{t-1}] = f_{m,t} - f_{m,t-1}$ is the futures measure of news announcement in these equations is a 1 or 0 dummy variable that is equal to one on days of the BOJ's announcements and zero otherwise. It should be noted that the measure of news, Δf_t , occurred on all days to avoid possible bias in estimates of the BOJ news as well as an intercept shift on the

announcement days (see [16], [18]). Finally, ε_t is the error term.

3.3 Results

The results are reported in Table 1. For equations (4) and (5), I only report the results for the recent period.

Table 1: Estimated Results for Equations (3), (4), and (5)

Equation	α_0	α_1	α_2	α_3	α_4	J-test	D.W.	Adj.R ²
Before								
(3)	-0.0002 (0.79)	-0.003 (0.78)	-0.77 (0.76)	-0.005 (0.11)	-0.24 (3.38E-08)	3.60	1.75	0.28
During								
(3)	-0.0001 (0.53)	-0.004 (0.12)	-0.13 (0.95)	0.03 (0.06)	-0.35 (2.92E-34)	3.21	1.46	0.35
After								
(3)	0.0001 (0.83)	-0.008 (0.29)	-16.71 (0.006)	0.04 (0.07)	-0.19 (1.08E-10)	4.05	1.80	0.40
(4)	-0.0005 (0.86)	-0.17 (1.28E-07)	258.09 (1.61E-18)	0.05 (0.07)	0.42 (0.01)	3.32	1.65	0.53
(5)	-0.001 (0.04)	-0.01 (0.15)	41.54 (4.85E-07)	0.006 (0.07)	-0.03 (0.48)	3.18	1.60	0.51

Note: Numbers in parentheses are p -values. The Chow test rejects the null of no structural break at the 5% level.

The results are not very conclusive; however, a large number of them are clear. The BOJ's recent news announcements are significant in spite of the fact that interest rates have been quite low. The existence of a statistically significant

response of money market (interbank) interest rate appears to be a result of the predictability of the interest rate change. It is interesting that Thornton [17], employing a future measure of news, found no significant response of the U.S. treasury rates to the Fed monetary policy announcements. On the other hand, before the quantitative policy period, it would appear that BOJ news announcements had no significant effect on either U.S. or Euro interest rates. Of course, the Bank of Japan did not intend to influence interest rates in other countries. It is beyond the scope of the Bank of Japan's role. However, considering the greater integration of financial markets internationally, the results are predictable and important.

4 Conclusions

I have provided evidence that the BOJ's recent news announcements have significant impacts on interest rates. Regardless of the low or almost zero interest rates in Japan and the strange phenomenon that the yen appreciates greatly in spite of the recession and the large accumulated debt in Japan, monetary markets have responded to the BOJ's policy announcements. From this perspective, monetary policy in Japan has been successful and effective.

However, other analyses are necessary. Kuttner [2] noted that changes in the overnight rate affect longer term rates only to the extent that they lead to revisions in expectations of future overnight rates; the more persistent the change, the larger the effect on expectations, and mean revision in the short-term interest rate provides smaller responses for bonds that are longer out of the yield curve. Moreover, as suggested by Beechey [4], empirically, monetary policy announcements can change real interest rates, inflation expectations, and inflation risk premium, and the effects can cancel out.

Recently, Silvia and Iqbal [25] suggested that monetary and fiscal policies

have a stable, short- and long-run relationship with economic confidence and real GDP. Siregar and Lim [26] showed that counter-cyclical and macro-prudential regulations are needed to attain sound economic growth. These facts may have to be taken into account. Further research is needed in this field.

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