Another possible factor which might have brought the estimated small monetary policy effect is the fact that the interest rate continued to be at the historical low level since the reduction of the official discount rate to 0.5% in September 1995. The limited room for further interest rate lowering might have reduced the flexibility of monetary policy and accordingly its effectiveness. Actually, we have seen that the estimated monetary policy stance showed sometimes rather tight stance than the usual policy reaction during the period even though the call rate continued to be below 0.5%. Also, Miyao (1999b) inspected a structural break around 1995 in the Japanese economy and monetary policy\textsuperscript{17}.

To see whether the near-zero interest rate is actually limiting the monetary policy reaction, we implemented the stepwise Chow Breakpoint Test on the monetary policy equation of the block-recursive WPI model. As shown in Figure 11, no structural break is detected during 90s. We also implemented the stepwise Chow Forecast Test to examine possible structural change during the very last period of the sample, but again find no indication of changes. Although it might be true that the lower boundary of interest rate is reducing the degree of freedom of monetary policy, it may have not been too serious thus far\textsuperscript{18}. Actually, limiting sample period up to 95Q2 did not produce much difference (Figures 12-1 through 12-3).

\textsuperscript{17} The issue of structural change is mentioned by Dr. Levin at the workshop in March 2000. He pointed out not only the zero interest boundary but also the possible decline in the potential growth rate in 90s.

\textsuperscript{18} The factor that might have affected the difference in results by us and by Miyao (1999b) other than the model specification itself is that Miyao (1999b) test the structural change of the whole VAR while we tested only the monetary policy equation. We are planning to further investigate in the structural break issue.
Figure 12-1: Impulse Responses of the Block-Recursive VAR [Domestic WPI: ~95Q2]
Log-Difference (4) [R: Level] 4 Lags

Figure 12-2: Variance Decompositions of the Block-Recursive VAR [Domestic WPI: ~95Q2]
Log-Difference (4) [R: Level] 4 Lags
Figure 12-3: Historical Decompositions of the Block-Recursive Structural VAR [Domestic WPI: ~95Q2]

Log-Difference (4) [R: Level] 4 Lags
Conclusion

We estimated a number of structural VARs with different identifying restrictions, using both the quarterly and monthly Japanese data from 1980 through 1999. Five among them are presented in this paper\(^\text{19}\). Most of the employed identifying restrictions assume the call rate targeting by the BOJ; i.e. the call rate equation is specified as the monetary policy reaction function, which does not react to the fluctuation of monetary aggregates (at least within the same period).

We tested the plausibility of the call rate targeting using the bank reserve model by over-identification test, and acquired some support for it. It was not rejected in nine of ten different specifications of data form and lag length. On the other hand, the reserve target was fairly rejected.

The models with the call rate targeting monetary policy, including those not reported in the paper, produce similar impulse responses to a tight monetary policy shock: output $y$ and money $M$ declines, but price $P$ rises (the price puzzle). It is also common that $y$ and $P$ increase unexpectedly in response to a tight LM ($M$) shock. One model that is rather free from the price puzzle is the block-recursive model incorporating domestic WPI as a sensitive price variable. This may suggest that the BOJ is watching domestic WPI carefully to judge the future inflationary pressure when determining its policy.

We analyzed the effect of monetary policy in Japan using this WPI model. It was shown that the monetary policy stance has roughly shifted as: loose in late 80s, tight in early 90s, loose in 1995, and neutral or tight later on. But it was also shown that monetary policy was not a major source of the output fluctuation. The comparison with the results of the bank reserve models suggests that these results are robust if one measure monetary policy by the call rate.

However, it is also suggested that these results may need to be viewed with some reservation, since we also observed some indication that the BOJ may also care about the fluctuation of $M$ (M2+CD) rather than sticking to the complete call rate targeting. The impulse response analysis showed $y$ and $P$ rises rather than supposedly falls after an $M$ shock, which suggests that the innovation contains some information about monetary policy. The variance and historical decomposition results show a large influence of the $M$ shock on the call rate, which should not occur under the perfect call rate targeting. Thus $M$ might be in the BOJ’s policy reaction function in actuality. Considering the large influence of the $M$ shock over output, re-specifying the policy reaction to include monetary aggregate may produce larger estimates of monetary policy effect. Further investigation remains to be done.

\(^{19}\) Models not presented here include five variable AD-AS VARs each of which contains one of the following variables in addition to $\{y, P, M, R\}$: long-term interest rate, exchange rate, stock price, bank loans, and high powered money. We also estimated the block-recursive VARs incorporating these variables in addition to the sensitive price variables examined in Section 2-(3).
As a preliminary step, we replaced M2+CD with M1 and found that the contribution of the M shock to output is greatly reduced. Hence, the risk of underestimating the effects of monetary policy seems to be unlikely.

Lastly, we investigated whether the zero nominal interest rate bound significantly reduced the effectiveness of monetary policy after 1995 by looking for a structural break in the policy reaction function. We did not find such evidence, which indicates that interest rate policy has, thus far, managed to be effective despite very low interest rates.
Bibliography

Literatures in English


and Alan S. Blinder (1992) “The Federal Funds Rate and the Channels of Monetary Transmission” The American Economic Review Vol. 82 No. 4


Miyao, Ryuzo (1999a) “The Effects of Monetary Policy in Japan” Discussion Paper No. 107, Kobe University

(1999b) “The Role of Monetary Policy in Japan: A Break in the 1990s?” Manuscript


Literature in Japanese (Title Translated)