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## Abstract

This paper empirically analyses and assesses the impact of the Bank's monetary easing policies on the real economy, exchange rate and financial markets during the Quantitative Easing (QE) [April 2001 - March 2006], Comprehensive Monetary Easing (CME, October 2010 - March 2013) and Quantitative and Qualitative Easing (QQE, April 2013 - March 2020) periods. The analysis based on a Bayesian vector autoregressive model (BVAR) shows that during QE, monetary easing had a clear and positive impact on the real economy and markets including real GDP growth, business indices (Bank of Japan Takan and Business Watchers Survey), industrial production and bank lending. The CME also had a significantly positive impact on the economy including business confidence, the real effective exchange rate and bank lending. The QQE, on the other hand, had little impact on Japan's real economy, except for a rise in stock prices. The analysis in this paper therefore clearly shows that QQE (as a key policy of 'Abenomics') has failed to achieve its original objective of bringing the Japanese economy back from long-term stagnation.

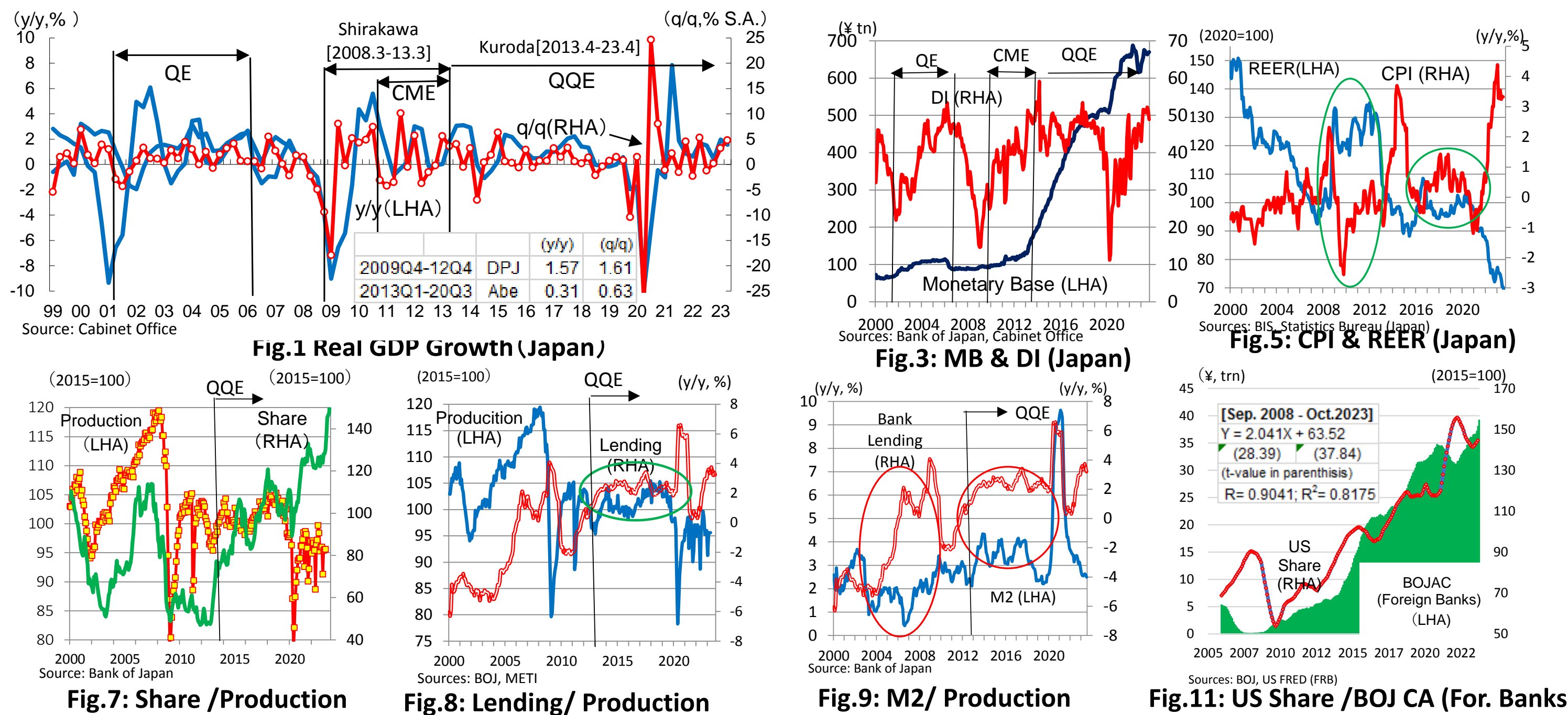
## Introduction

### [Objective]

This paper is to examine the effectiveness of Bank's monetary policy over the period **Apr.2001 to Mar.2020** (Quantitative Easing (QE) [2001.4-2006.3], after the Global Financial Crisis [2008.9-2013.3], Comprehensive Monetary Easing (CME) [2011.10-2013.3], Quantitative and Qualitative Monetary Easing (QQE) [2013.4-], QQE with negative interest rates [2016.2-2020.3] ) under 'Abenomics'

### 1.2 Effectiveness of monetary easing policies (i)

- ▶ The average GDP growth rate of the Abe Adm. (Dec 2012-Sep 2020) was 0.3%, lower than the 1.6% of the DPJ Govt. (Dec 2012-Sep 2020)
- ▶ The increase in MB (during QQE) has not contributed to the expansion of economic activities (real GDP growth, DI) nor Industrial production
- ▶ Under QQE, Bank lending was not linked to an increase in M2 and industrial production did not increase; abundant money invested in property and outflows to overseas markets (e.g. US Stock market).



## Methods and Materials

### 3. Methods of analysis

#### 3.1 Description of the analysis

- ▶ Bayesian Vector-Autoregressive Autoregressive (BVAR) model
- ▶ Period covered (April 2001 - March 2020); (i) QE period (Apr.2001-Mar.2006) (ii) Post global financial crisis (Sep.2008-Mar.2013); (iii) CME period (Oct.2010-Mar.2013) (iv) Quantitative and Qualitative Easing (QQE) (2013.4-2020.3); (v) QQE II : Negative interest rates (2016.2-2020.3)

#### 3.2 Bayesian Vector Autoregressive (BVAR) Model

- ▶ Litterman-Minnesota prior model, which is a simple model in macroeconomics.
- ▶ Due to variable constraints in the model setup, the lag order is set to 2 in the quarterly model (Model 1), while it is set to 4 in the monthly Model 2 and 3.

#### 4.1 Order of variables

##### (1) Model 1 (quarterly)

Monetary base (MB)/BOJ current account (BOJAC)/Money stock (M2), Real GDP growth rate, BOJ Takan Large firms (BOJTLmf[Manufacturing], BOJTLN[Non]Mfg), Medium-sized firms (BOJTMmf, BOJTMNmf) SMEs(BOJTSMEMmf, BOJTSMENmf)

##### (2) Model 2: Real economy (monthly)

MB/BOJAC/M2, Real effective exchange rate (REER), Bank Lending (Lend) Industrial Production Index (Prod), Business Watchers Survey Index (DI)

##### (3) Model 3: Financial markets (monthly)

MB/BOJAC/M2, REER, CPI rate (CPI), 10-year JGB yield(JGB10Y), Share

## Results

[Impulse Response and Variance decomposition results] (Model 1, 2 and 3)

- (i) QE period (Q2/Apr.2001-Q1/Mar.2006) [Model 1, 2, 3]
    - ▶ Significant impact of MB/M2 on BOJ Takan (BOJT), Production, DI, REER, Share prices
  - (ii) Post Global Financial Crisis (Q3/Sep.2008-Q1/Mar.2013) [Model 1, 2, 3]
    - ▶ Limited MB/M2's impact on GDP Growth, BOJT, DI, REER; Significant impact on Bank Lending, JGB yield (10Y)
  - (iii) CME period (Oct.2010-Mar.13) [Model 1, 2]
    - ▶ Significant MB's impact on DI, Bank Lending, JGB10Y yield and Share prices
  - (iv) QQE period (Q2/Apr.2013-Q1/Mar.2020) [Model 1,2,3]
    - ▶ MB had little impact on GDP growth, DI, Production, REER, lending
  - (v) QQE II (Feb.2016-Mar.2020) [Model 1, 2]
    - ▶ MB had little impact on DI, production, REER, lending
- \*The impulse response function and variance decomposition results are consistent.

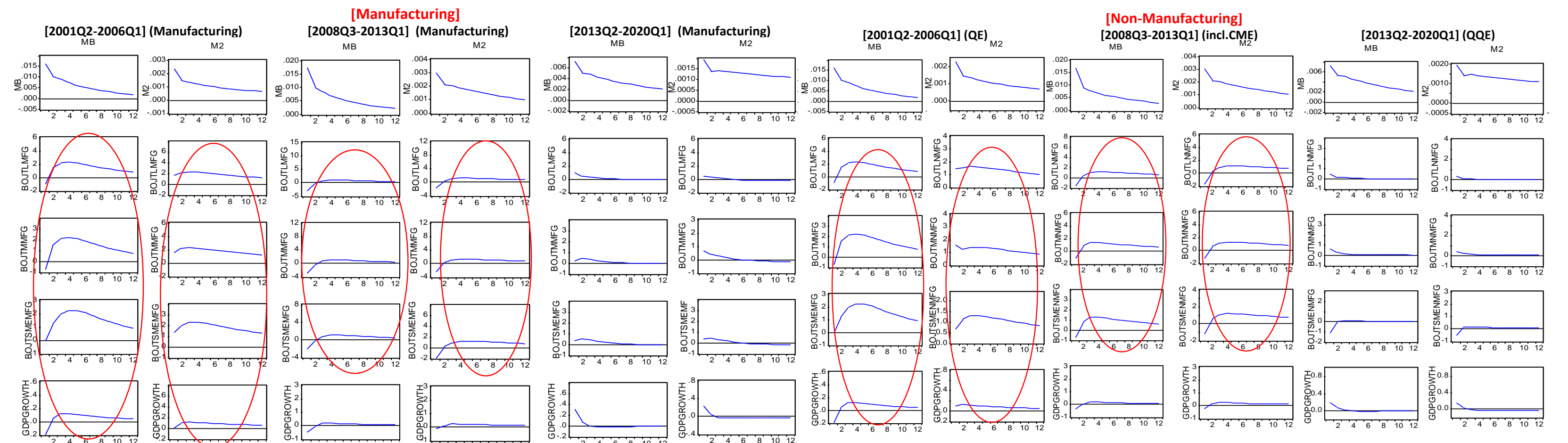


Fig.12: Impulse Response Function (MB/M2/BOJ Takan/GDP growth)

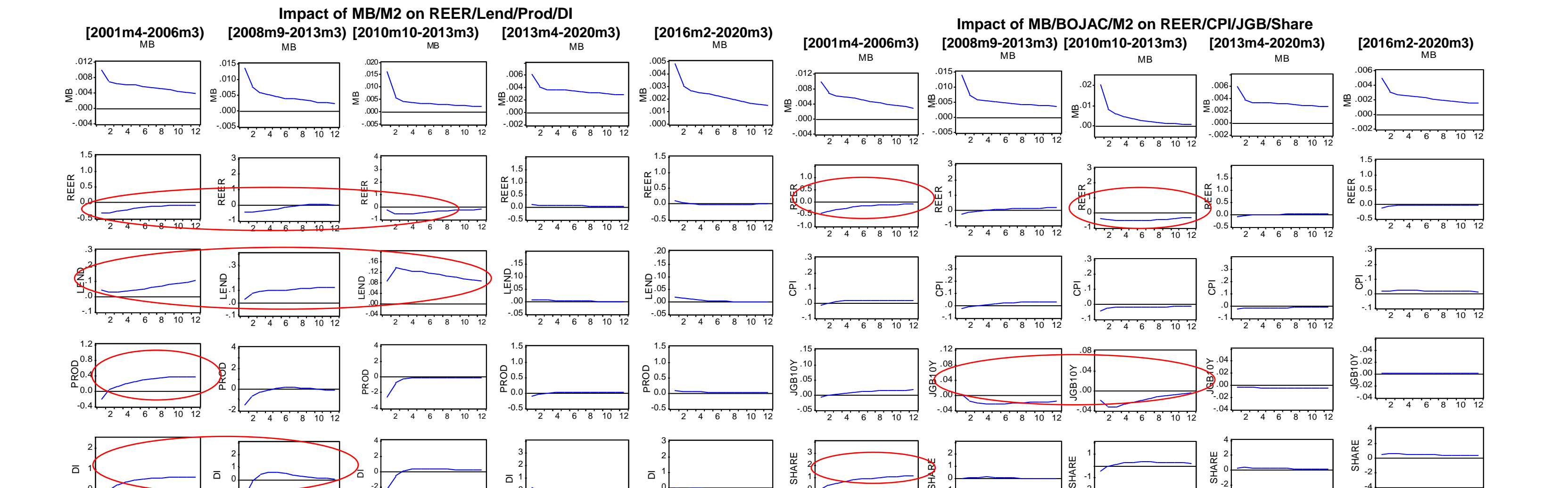


Fig.13: BVAR Impulse Response to MB/BOJAC/M2 (April 2001-March 2020)

Table 2 Variance Decomposition of MB (BOJ Takan, DI, Prod, REER, Lend, Share, JGB10Y)

Table 2-1: Impact of MB on BOJ Takan (Manufacturing)		Table 2-1-2: Impact of MB on BOJ Takan (Non-Manufacturing)		Table 2-2: Impact of BOJ Monetary Easing (DI)							
Period	S.E.	MB	BOJTL	MB	BOJTL	BOJTL	BOJTL	BOJTL	BOJTL	BOJTL	BOJTL
April 2001	1	4.634	4.614	95.386	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mar 2006	1	7.351	7.298	95.835	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sep 2008	10	12.376	5.633	94.987	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mar 2013	10	14.133	6.861	91.590	0.384	0.019	1.147	0.004	2.108	0.000	0.000
April 2013	1	4.264	4.745	95.254	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mar 2020	10	5.975	3.485	93.872	1.024	0.615	1.004	0.205	2.278	0.000	0.000

## Discussion / Conclusion

The results of the econometric (BVAR) model analysis in this study show that monetary easing in the early years of QE (April 2001 - March 2006) had a significant impact on the real economy, exchange rates and financial indicators, despite the BOJ's current account target being small (30 trillion yen). Monetary policy after the Global Financial Crisis (September 2008 - March 2013) including CME (Oct. 2010-Mar.2013) was also shown to have significantly increased bank lending and reduced government bond yield. However, the analysis of this study clearly showed that the Quantitative and Qualitative Monetary Easing (QQE; April 2013 - March 2020) introduced under the Abe administration had little impact on Japan's real economy and financial markets, despite the implementation of extreme monetary easing.

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\* Written in Japanese

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