Evolution of Unconventional Monetary Policy:
Japan’s Experiences

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The views expressed herein are those of the presenter and do not necessarily reflect those of the Bank of Japan.
Plan of Today’s Talk

• Introduction
• Overview of Unconventional Policies
• Japan’s Episodes:
  – Episode-1: F-Crisis Management in 1997-98
  – Episode-2: Forward Guidance under ZIRP & QE
  – Episode-3: Composition Changes under CE
  – Episode-4: QQE and Inflation Expectations
• Future of CB Policy Framework
Nominal Interest Rates

Sources: Bloomberg; Bank of Japan.
Japan’s Deflation

• Mild but Prolonged Deflation:
  – Downward shift in inflation expectations
  – Coexistence w/ low growth:
• Triggered by Burst of AP Bubble:
  – Interaction b/w demand & supply-side factors
  – Not just an amplifying factor of a business cycle
  – But more structural and persistent impacts:
    Downward shift in growth trend
Japan’s Deflation (2)

• Japanese Economic System:
  – Based on long-term (implicit) contracts: main bank system, life-time commitment to a company w/ seniority wage scheme, ....
  – Intertemporal smoothing of risk: A buffer role against short-term shocks
  – A buffer role: Fragile against substantial structural changes
BOJ’s B/S Size

(Ratio to nominal GDP, %)

Average of 1955-94

9.7%

Total

Banknotes

Policy Regimes

• Financial Crisis Management: 1997-98
• Zero Interest Rate Policy (ZIRP): 1999-2000
• Quantitative Monetary Easing (QE): 2001-06
• Comprehensive Monetary Easing (CE): 2010-13
• Quantitative & Qualitative Monetary Easing (QQE): 2013-?
  – w/ Negative Interest Rate: Jan 2016-
  – w/ Yield Curve Control: Sep 2016-

Evolving Nature of Policy Frameworks
CB B/S Size

Sources: Board of Governors of the Federal Reserve System, European Central Bank, Bank of Japan
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• Future of CB Policy Framework
Policy Interest Rates

Sources: Board of Governors of the Federal Reserve System, European Central Bank, Bank of Japan
Unconventional Policies

Effective Lower Bound

Today:

\[ i_t^B = i_t^P + \tau_t \]

Tomorrow:

\[ i_{t+1}^B = i_{t+1}^P + \tau_{t+1} \]

Quantitative Easing

Close linkage

Forward Guidance

Negative Interest Rates
CB B/S under Unconventional Policy

(Observed unconventional monetary policy)

Some Issues for Discussions

• Policy Effectiveness:
  – F-system rescue operation vs. macroeconomic stabilization policy
  – Combinations of Unconventional Tools, given economic, social, and political environments
  – Policy Rule?: Predictability vs. surprises

• Evolving nature:

• Border w/ Fiscal Policy:
  – Intervention to resource allocations
## Conventional vs. Unconventional

<table>
<thead>
<tr>
<th>Policy tools</th>
<th>Conventional</th>
<th>Unconventional</th>
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<tbody>
<tr>
<td>O/N rate control</td>
<td>FG, LSAPs, NIRs</td>
<td></td>
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<tr>
<th>Determinants of CB B/S size</th>
<th>Conventional</th>
<th>Unconventional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt side (demand for CB money) → No excess reserves</td>
<td>Asset side (quantity &amp; variety of unconventional asset purchases) → Massive excess reserves</td>
<td></td>
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<tr>
<th>Interbank transactions</th>
<th>Conventional</th>
<th>Unconventional</th>
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<tr>
<td>Scarce reserves</td>
<td>Arbitrage</td>
<td></td>
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<tr>
<th>Intervention to resource allocations</th>
<th>Conventional</th>
<th>Unconventional</th>
</tr>
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<tbody>
<tr>
<td>Remain neutral</td>
<td>Pre crisis</td>
<td>After crisis</td>
</tr>
<tr>
<td></td>
<td>Limited: market distortions, impaired MP transmission channels</td>
<td>Intentional &amp; massive interventions</td>
</tr>
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<tr>
<th>Policy management</th>
<th>Conventional</th>
<th>Unconventional</th>
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<tr>
<td>Gradualism → High predictability</td>
<td>Gradualism (learning by doing)</td>
<td>Surprise?</td>
</tr>
</tbody>
</table>
Fed’s Balance Sheet

Source: Board of Governors of the Federal Reserve System, Factors Affecting Reserve Balances.
BOJ’s Balance Sheet

Source: Bank of Japan, *Monetary Base and the Bank of Japan’s Transactions*. 
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Japan Premium

Dual Operation

• Simultaneous Operations:
  – Provision of money in relatively long maturities
  – Absorption of money in short maturities

• Impaired MP Transmission Mechanism:
  – Liquidity constraints → Failure of arbitrage
  – Malfunction in transmission b/w O/N & longer maturities
  – Not just adjusting aggregate amounts of liquidity, but allocation of liquidity
BOJ B/S: Jul 96-Mar 99

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Conditional Commitments

• ZIRP (from Feb 1999 to Aug 2000):
  – Commit to zero rate until deflationary concerns are dispelled

• QE (from Mar 2001 to Mar 2006):
  – Commit to CAB targeting until CPI inflation becomes stably zero or above

• Preciseness of Conditionality
Directive on Feb 12, 1999

The Bank of Japan will provide more ample funds and encourage the uncollateralized overnight call rate to move as low as possible. To avoid excessive volatility in the short-term financial markets, the Bank of Japan will, by paying due consideration to maintaining market function, initially aim to guide the above call rate to move around 0.15%, and subsequently induce further decline in view of the market developments.
O/N Call Rate

Note: Dashed lines indicate the days MPM was held.
Source: Bank of Japan
Excess Reserves

![Graph showing excess reserves and required reserves from 1998 to 2000. The graph indicates a significant increase in excess reserves during the ZIRP period.]
BOJ B/S: Jan 99-Dec 06

Source: Bank of Japan, Monetary Base and the Bank of Japan's Transactions.
Maturity of Short-term Operations

Source: Bank of Japan
Strong Liquidity Effects

Limited Stimulating Effects

Confined Deflationary Expectations


FG and Steady-state Level

(Constant Steady-state)

Policy rate

Borrowing future easing effects in advance

ZLB

History dependence: Keeping zero rates for a longer period than that without considering ZLB.

Policy rate w/o ZLB

(Downward Shift in Steady-state)

Downward shift in a steady-state level

Longer commitment to zero rates
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Comprehensive Monetary Easing

- Asset Purchase Program:
  - Introduced in Sep 2010
  - Expansion of size and variety of assets purchased (JGBs, TBs, CPs, ABCPs, CBs, ETFs, J-RIETs)
  - Fixed-rate funds-supplying operations (initially introduced in Dec 2009)

- Significant Changes in Composition, Not Size:
  - Variety of assets purchased
  - JGB: Conventional asset → Unconventional asset
Banknote Rule for JGB Holdings

- **Outright Purchases of JGBs:**
  - A ceiling at the outstanding amount of banknote issuance

- **Implications:**
  - Consistent with smooth provision of long-term stable funds to accommodate banknote demand
  - Securing the credibility of the monetary policy
    - No intention of providing price support for JGBs
    - No intention of money-financing of government deficit
BOJ B/S: Jan 09 – Dec 12

Source: Bank of Japan, *Monetary Base and the Bank of Japan’s Transactions*. 
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Developments in QQE

• Introduction of QQE (Apr 2013)
• Expansion of QQE (Oct 2014)
• Introduction of QQE w/ a Negative Interest Rate (Jan 2016)
• Introduction of QQE w/ Yield Curve Control (Sep 2016)
Monetary Base and JGB Holdings

Source: Bank of Japan
BOJ’s B/S: Jan 2013-

Source: Bank of Japan, Monetary Base and the Bank of Japan’s Transactions.
Yield Curve Control

Source: Bloomberg.
Inflation-Overshooting Commitment

CPI inflation

P-stability target
2%

time
Escaping from Deflation

Rate of inflation

Inflation target (2%)

Potential GDP $y_p$

Real output (Real GDP)

Phillips curve

Re-anchoring of inflation expectations
Core CPI

(y/y % chg.)

-3
-2
-1
0
1
2
3

Less perishables
Less perishables and energy
Trimmed mean
Median Projection for BMs

FY2016
FY2017
FY2018
FY2019

Source: Ministry of Internal Affairs and Communications, Consumer Price Index.
Long-term Inflation Expectations

(annual average, percent)

United States (10 years ahead)
Japan (6 to 10 years ahead)

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Margins to Reduce Policy Rates

Policy Rate Reductions

-6 -4 -2 0

Switzerland
Euro area
Canada
Australia
Norway
Sweden
USA
UK

Policy responses in the future
Large-scale asset purchase
or
Negative interest rates

Policy effectiveness
Political economy risks

- Tech Bubble
- Global Financial Crisis
Future of CB B/S

Reduce B/S size (Reduce excess reserves)

Conventional assets
Reserves
Cash

Unconventional assets
Reserves

Conventional assets
Cash

Composition of conventional & unconventional assets?
Reserves
Cash

Maintain large B/S (Large excess reserves by paying interests on reserves)
Summary

• Overview of Unconventional Policies:
  – Effectiveness of forward guidance
  – Size & composition of CB B/S

• Japan’s Experiences of Unconventional Policies:
  – Evolving nature & Learning-by-doing
  – Way of thinking on policy interventions

• Future of CB Policy Framework
Extra Charts on Japan’s Deflation

- CPI Inflation
- Growth Path
- Asset Prices
- Demographic Changes
Core CPI

Source: Ministry of Internal Affairs and Communications, "Consumer Price Index."
Downward Shift in Growth Trend

General Prices & Asset Prices

Sources: Cabinet Office, National Accounts; Ministry of Internal Affairs and Communications, Consumer Price Index; Japan Real Estate Institute, Urban Land Price Index; The Nihon Keizai Shimbun, Nikkei 225 Stock Average.
Demographic Changes

Population Size by Age Groups

- Over 65
- 15-64
- 0-14

Population Growth

- Working-age population
- Total population