Chapter 5
Japan’s Fiscal and Monetary Policies (including Abenomics)

Hiroshi Shibuya
June 4, 2017

Japan’s Fiscal and Monetary Policies (including Abenomics)

- The Effects of Monetary and Fiscal Policies on GDP (Gross Domestic Product) and the Interest Rate
  1. A Short-Run Macroeconomic Model (The IS-LM Model): An Equilibrium Model of Product Market (IS) and Money Market (LM)
  2. The Mandell-Fleming Model (The IS-LM-BP Model): An Equilibrium Model of Product Market (IS), Money Market (LM), and Balance of Payments (BP)

- Is Japan’s Slow Growth due to a “Liquidity Trap” or “Deflation” or “Secular Stagnation”? Their solutions are fiscal expansion, monetary expansion, and innovation, respectively

- Abenomics and its Consequences
Product Market Equilibrium Condition

- **Product Market Equilibrium Condition** (Aggregate Supply = Aggregate Demand) and **Fiscal Policy (G)**:

  \[ Y = C(Y - T) + I(r) + G + NX(Y, e) \]

  where
  - \( Y \) = GDP (Gross Domestic Product) or national income
  - \( T \) = tax = \( T(Y) = s + tY \)
  - \( r \) = the interest rate
  - \( e \) = the (real effective) exchange rate
  - \( NX \) = net exports = \( (EX(e) - IM(Y, e)) = h + pe - qY \)

Money Market Equilibrium Condition

- **Money Market Equilibrium Condition** (Money Supply = Money Demand) and **Monetary Policy (M)**:

  \[ M/P = L(Y, r) \]

  where
  - \( M \) = money supply
  - \( P \) = price level
  - \( L(Y, r) \) = the (real) money demand function, which is an increasing function of \( Y \) and a decreasing function of \( r \)
1. A Simple Macroeconomic Model

• Macroeconomic Equilibrium Conditions:

\[
\text{(IS)}: \quad Y = C(Y) + I(r) + G = a + bY - c r + G
\]

\[
\text{(LM)}: \quad M/P = L(Y, r) = d + fY - gr
\]

Note: we assume T=0, NX=0 for simplicity and b<1

Policy variables: G and M

Endogenous variables: Y and r

Assumption 1: P is rigid in the short run but flexible in the long run

Assumption 2: Y and r are flexible the short run but given in the long run

Solving the Simple Macroeconomic Model: The IS-LM Model

• We rearrange equation 1 and 2 as follows:

\[
\text{(IS)} \quad r = \alpha - \beta Y + \gamma G
\]

\[
\text{(LM)} \quad r = \delta + \epsilon Y - \zeta (M/P)
\]

which represent a system of the IS and LM equations (curves) as a function of policy variable G and M, respectively
The IS-LM Model

The Effects of Monetary and Fiscal Policy

<table>
<thead>
<tr>
<th>IS/LM ‘MODEL’ “Controversies”</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Keynesian&quot; position:</td>
</tr>
<tr>
<td>LM ‘flat’ - elastic</td>
</tr>
<tr>
<td>IS ‘steep’ - inelastic</td>
</tr>
<tr>
<td>Fiscal Policy Powerful</td>
</tr>
<tr>
<td>Monetary Policy Impotent</td>
</tr>
<tr>
<td>&quot;Monetarist&quot; position:</td>
</tr>
<tr>
<td>LM ‘steep’ - inelastic</td>
</tr>
<tr>
<td>IS ‘flat’ - elastic</td>
</tr>
<tr>
<td>Fiscal Policy Impotent</td>
</tr>
<tr>
<td>Monetary Policy Powerful</td>
</tr>
</tbody>
</table>

NOTE: Here Fiscal Expansion "crowds out" private investment by interest rate rises
The Short-Run Analysis

• In the Short Run, P is fixed

\[ M \uparrow \Rightarrow Y \uparrow \text{ & } r \downarrow \]
\[ G \uparrow \Rightarrow Y \uparrow \text{ & } r \uparrow \]

• Expansionary monetary and fiscal policies will increase GDP (national income) and therefore become an effective macroeconomic policy for government to move the economy out of a recession (Keynesian Economics = a short-run economic model)

Liquidity Trap
Liquidity Trap

• In the case of a Liquidity Trap, $\varepsilon=0$ & $\zeta=0$

  $M \uparrow \Rightarrow \Delta Y=0 \ & \ \Delta r=0$

  $G \uparrow \Rightarrow Y \uparrow \ & \ \Delta r=0$

• The interest rate ($r$) is fixed and independent of policy variables $M$ and $G$

• In the liquidity trap, monetary policy is ineffective and fiscal policy is very effective on increasing $Y$ (see Chart)

The Long-Run Analysis

• In the Long Run, $Y$ and $r$ are given but $P$ is flexible (assuming that $Y$ and $r$ are determined by technology and that $M$ and $G$ are neutral with respect to technological progress)

  $M \uparrow \Rightarrow P \uparrow$

Note1: $G \uparrow \Rightarrow I \downarrow$ (Crowding-Out Investment if $Y = Y_{full \ Employment}$) &

  $C \downarrow$ (Crowding-Out consumption if $T \uparrow$ to finance $G \uparrow$)

Note2: If $G \uparrow \Rightarrow I \downarrow \ & \ C \downarrow$ in the long run, then $G \uparrow$ will crowd out private consumption and investment and also reduce the long-run growth rate (??) or $\{r \uparrow(?) \ or \ \downarrow(?)\}$ ---- this is an important question!
2. The Mandell-Fleming Model

- The Mandell-Fleming Model (The IS-LM-BP Model) is an open-economy version of the IS-LM Model:

(IS): \[ Y = C(Y) + I(r) + G + NE(Y, e) = a + bY - cr + dG + he \]

(LM): \[ M/P = L(Y, r) = d + fY - gr \]

(BP): \[ BP(Y, e, r) = CA(Y, e) + KA(r) = j + kY + le + mr \]

\[ = 0 \text{ or } r = r^* \]

https://en.wikipedia.org/wiki/Mundell%E2%80%93Fleming_model
The IS-LM-BP Model: A Small Open Economy Case with Free Capital Flows ($r = r^*$)
(Note: $i \Rightarrow r$ and BB $\Rightarrow$ BP)

A New Transmission Mechanism of Fiscal and Monetary Policy under Financial Liberalization

- **Expansionary Fiscal Policy** ($G \uparrow$) $\Rightarrow$ IS curve shifts to the right, increasing $r$ and $Y$ temporarily $\Rightarrow$ However, $r \uparrow$ will cause an inflow of capital, appreciating the currency $\Rightarrow$ The appreciation of the currency will reduce net exports (NX), reducing the aggregate demand $\Rightarrow$ IS curve shifts back to the left until $r$ equals the world interest rate $r^*$ $\Rightarrow$ $Y$ will move back to the initial level

- **Expansionary Monetary Policy** ($M \uparrow$) $\Rightarrow$ LM curve shifts to the right, reducing $r$ and increasing $Y$ temporarily $\Rightarrow$ However, $r \downarrow$ will cause an outflow of capital, depreciating the currency $\Rightarrow$ The depreciation of the currency will increase net exports (NX), increasing the aggregate demand $\Rightarrow$ IS curve shifts to the right until $r$ equals the world interest rate $r^*$ $\Rightarrow$ $Y$ will increase more
Policy Implications of the IS-LM-BP Model

- In a small open economy with free capital flows under a flexible exchange rate system,
  1. Fiscal policy will have no effect on GDP
  2. Monetary policy will have a significant effect on GDP
- Monetary expansion becomes a very effective policy to move the economy out of “Deflation,” which may be defined as an economic stagnation caused by insufficient monetary expansion
- In short, the financial integration of domestic markets with the international capital market has changed the transmission mechanism of fiscal and monetary policy

Japan’s Fiscal and Monetary Policies in 1990-2016

- **Question 1**: Why has the Japanese government kept using fiscal expansion since 1990?
  - Perhaps because they believed in Krugman’s story of a “liquidity trap” as the explanation of Japan’s stagnation
- **Question 2**: Why has the Japanese government started using monetary expansion since 2012 under “Abenomics”?
  - Perhaps because, after 20 years of fiscal expansion with no success, they began to believe in the open economy IS-LM-BP model, which implies that monetary expansion is very effective for moving the economy out of “deflation”
The Short-Run versus Long-Run Problem

- The IS-LM (-BP) model is useful only for analyzing the short-run effects of monetary and fiscal policies.
- But Japan is facing a long-run growth problem, not a short-run business cycle problem.
- Thus the IS-LM (-BP) model is not very useful for solving the Japan’s slow growth problem.
- Question: Will continuous fiscal and monetary expansion reduce the long-run growth rate?
- Maybe yes because continuous fiscal and monetary expansion will distort the efficient allocation of resources, thus reducing the growth rate (cf. F. Hayek).

What Determines the Long-Run Growth Rate?

- Production Function: \( Y = Y(L, K) = A \ L^a \ K^b \)
- The long-run (potential) growth rate is determined by the growth rate of Labor Input (L), Capital Input (K), and Total Factor Productivity (A).
- If L is growing slow or falling, then K and/or A have to grow faster to achieve a high Y (GDP) growth.
- How? By creating more investment opportunities through innovation.

Note: Does a Production Function Exhibit Increasing, Decreasing or Constant Returns to Scale? [Link](https://www.youtube.com/watch?v=gPyPvWxJoIc)
Low Growth, Low Wages, and Low Productivity

- Low wages are both a cause and a consequence of low productivity.
  [Link to article](http://www.economist.com/node/21695071?fsrc=scn/fb/te/pe/ed/doinglesswithmore)

- Orthodox explanations for the problem of low productivity growth tend to fall into one of three categories: The first, championed by Robert Gordon, suggests humanity has run out of big ideas.

- Some optimists argue instead that the problem is one of measurement: Technological progress often raises productivity in ways that statistical agencies struggle to detect.

- A third, more worrying possibility, is that ossifying rich economies are getting worse at shifting people from obsolete firms and stagnant towns to more productive ones due to politics with vested interests.

---

Labor Productivity Growth

[Chart showing labor productivity growth for various countries from 1960 to 2015]
Paul Krugman’s “Liquidity Trap” and “Rethinking Japan”

• Is Japan in a short-run “liquidity trap” or a long-run “secular stagnation”?


• Paul Krugman’s “Rethinking Japan” (2015)
  http://krugman.blogs.nytimes.com/2015/10/20/rethinking-japan/?_r=0

Lawrence Summers’ “Secular Stagnation”

• Secular Stagnation in Graphics from The Economist (Nov. 19th, 2014)

• Lawrence Summers web on “Secular Stagnation”
  http://larrysummers.com/category/secular-stagnation/

What is “Secular Stagnation”?

• The idea of "SECULAR stagnation" was first popularised by Alvin Hansen, an economist and disciple of John Maynard Keynes, in the stagnant 1930s

• Hansen thought a slowing of both population growth and technological progress would reduce opportunities for investment

• Savings would then pile up unused, he reasoned, and growth would slump unless governments borrowed and spent to prop up demand

• The theory is now popular again, thanks in large part to a 2013 speech by Larry Summers, an economist at Harvard University, in which he suggested that the rich world might be suffering from “secular stagnation”

• Even as asset bubbles inflated before the 2008 global financial crisis, growth in the rich world’s economies was slowing down, suggesting a lack of productive investment opportunities.
Aging Population

Working-age population
% of total

Source: World Bank

Economist.com/graphicdetail
June 4, 2017
Copyright © 2017 Hiroshi Shibuya All Rights Reserved

Stagnant Real Wages

Real average wages
2010=100

Source: OECD
Economist.com/graphicdetail
June 4, 2017
Copyright © 2017 Hiroshi Shibuya All Rights Reserved
Increasing Inequality and Slow Growth

• Joseph Stiglitz argues that increasing inequality has caused slow growth (see the inequality and growth charts above), and therefore that income redistribution from the rich to the poor will produce faster growth

• Given that the propensity to consume out of income is high for the poor and low for the rich,

  Increasing Inequality => Decreasing Consumption
  => Decreasing Aggregate Demand
  => Decreasing GDP (Slow Growth)

https://www.bostonglobe.com/opinion/2015/12/10/joseph-stiglitz-how-fix-inequality/TTkPkJKNXruJc2iOviB8gN/story.html
Falling Real Interest Rates (Potential Growth Rates)

Ten-year real government-bond yields

![Graph showing falling real interest rates for different countries including the World*, United States, Britain, Japan, Italy, France, and Germany.](Economist.com/graphicdetail)

Source: "Measuring the "world" real interest rate", by M. King and D. Low, Feb 2014

*Excludes Italy

---

Japanese Government Bond Yield (10 year)

![Graph showing the Japanese government bond yield over time.](www.tradingeconomics.com/japan)

Source: www.tradingeconomics.com | Japan Department of Treasury

June 4, 2017

Copyright © 2017 Hiroshi Shibuya All Rights Reserved
The Interest Rate and The Long-Run Growth Rate

• In the long run, a simple growth model implies

\[ \text{The Interest Rate} = \text{Potential Growth Rate} + \text{Risk Premium} \]

where the interest rate is the rate of return on government bond

• If the risk premium is zero, then the interest rate is equal to the long-run potential growth rate

• Normally, the government bond is the safest financial asset and therefore its risk premium is zero.

• The chart shows that the risk premium is very high for Italy!

Abenomics

• The (official) objective of Abenomics is to stop “deflation” (a prolonged slow growth called the “lost decades” since 1990 due to conservative monetary policy) and restart Japan’s growth by very expansionary monetary policy)

• The means of Abenomics are the following “three arrows”:
  1. Expansionary Fiscal Policy (nothing new about this)
  2. Expansionary Monetary Policy (QE1, QE2, QQE, ⋅⋅⋅, etc.)
  3. Growth Strategy (to stimulate private investment and raise the long-run growth rate)
What is the “End” of Abenomics?

• What is Abenomics? See https://en.wikipedia.org/wiki/Abenomics

• What is the end of Abenomics?: to move out of “deflation” or to achieve high long-run “growth” or to achieve “political goals” by creating a temporary boom through higher stock prices and a weaker yen or to reduce “government debt”

• Three ways to reduce government debt: (1) higher taxes or (2) lower government expenditure or (3) hyperinflation (inflation tax)?

• What is the real “end” (objective or consequence) of Abenomics?

Monetization of Public Debt and Hyper Inflation

• The monetization of public debt (財政ファイナンス) will give rise to high (hyper) inflation, which reduces the real value of the nominally-denominated debt

• The monetization of public debt was used only during and after wars: it was never used as a means of reducing public debt in a peace time

• Is Abenomics a preparation for hyperinflation, freezing bank deposits, and the taxation of financial assets (cf. My Number System)---all aimed at reducing the real value of government debt by means of the “inflation tax”?
Real Value = Nominal Value – Inflation Rate

• When the nominal value is fixed, the real value will be reduced by inflation
• This is the case of government bonds
• Therefore one way to reduce the real value of government debts is high inflation (or hyperinflation)
• This method is often (always?) used by government during and after a war in order to reduce the real value of government debts
• Example: Japan’s war and post-war period
Japan’s Hyper Inflation during and after WWII

- retail price
- black market price
- official discount rate

The Balance Sheet (BS) of Japanese Government

- **Japan’s government debt** is more than 200% of GDP
- However, there is an interesting argument (by Yoichi Takahashi) that Japan’s government debt is not a serious problem because its **net debt is less than 100% of GDP** (85% in FY2014): the Japanese government holds huge assets, half of which are financial assets (securities and loans)

✓ Japanese Government BS (at the end of FY2014)

✓ Japanese Government BS at end-FY2001 in English (no newer BS in English seems to be available)
  [http://www.mof.go.jp/english/budget/others/bs/zai005e.pdf](http://www.mof.go.jp/english/budget/others/bs/zai005e.pdf)
### The BS of Japanese Government (end-FY2014)

#### 資産状態表（平成26年度末）

<table>
<thead>
<tr>
<th></th>
<th>25年度末</th>
<th>26年度末</th>
<th>増減</th>
<th>25年度末</th>
<th>26年度末</th>
<th>増減</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;資産の部&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>現金・預金</td>
<td>49.4</td>
<td>73.0</td>
<td>23.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>有価証券</td>
<td>309.3</td>
<td>348.5</td>
<td>39.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>たな卸資産</td>
<td>5.6</td>
<td>5.3</td>
<td>▲ 0.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>未収金等</td>
<td>13.9</td>
<td>13.8</td>
<td>▲ 0.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>貸付金</td>
<td>183.3</td>
<td>184.1</td>
<td>0.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>貯備引当金等</td>
<td>▲ 4.6</td>
<td>▲ 4.0</td>
<td>0.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>有形固定資産</td>
<td>266.0</td>
<td>268.1</td>
<td>2.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>無形固定資産</td>
<td>1.2</td>
<td>1.2</td>
<td>0.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>出資金</td>
<td>14.6</td>
<td>15.9</td>
<td>1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>支払承認見返等</td>
<td>2.7</td>
<td>2.9</td>
<td>0.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>その他の資産</td>
<td>21.7</td>
<td>23.3</td>
<td>1.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>資産合計</td>
<td>863.1</td>
<td>932.1</td>
<td>68.9</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>25年度末</th>
<th>26年度末</th>
<th>増減</th>
<th>25年度末</th>
<th>26年度末</th>
<th>増減</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;負債の部&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>未払金等</td>
<td>16.4</td>
<td>18.4</td>
<td>2.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>政府短期証券</td>
<td>99.1</td>
<td>96.5</td>
<td>▲ 2.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>公債</td>
<td>661.8</td>
<td>716.0</td>
<td>54.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>独立行政法人等債券</td>
<td>48.5</td>
<td>49.0</td>
<td>0.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>借入金</td>
<td>36.6</td>
<td>36.0</td>
<td>▲ 0.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>預託金</td>
<td>4.1</td>
<td>4.0</td>
<td>▲ 0.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>郵便貯金</td>
<td>175.3</td>
<td>175.7</td>
<td>0.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>責任準備金</td>
<td>105.4</td>
<td>103.3</td>
<td>▲ 2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>公的年金預け金</td>
<td>115.8</td>
<td>117.3</td>
<td>1.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>退職給付引当金等</td>
<td>15.4</td>
<td>13.8</td>
<td>▲ 1.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>支払承認等</td>
<td>2.7</td>
<td>2.9</td>
<td>0.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>その他の負債</td>
<td>33.1</td>
<td>38.5</td>
<td>5.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>負債合計</td>
<td>1,314.2</td>
<td>1,371.5</td>
<td>57.3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>25年度末</th>
<th>26年度末</th>
<th>増減</th>
<th>25年度末</th>
<th>26年度末</th>
<th>増減</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;資産・負債差額の部&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>資産・負債差額</td>
<td>▲ 451.0</td>
<td>▲ 439.4</td>
<td>11.6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>25年度末</th>
<th>26年度末</th>
<th>増減</th>
<th>25年度末</th>
<th>26年度末</th>
<th>増減</th>
</tr>
</thead>
<tbody>
<tr>
<td>資産及び負債差額合計</td>
<td>863.1</td>
<td>932.1</td>
<td>68.9</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>