Public Money vs Debt Money
-Accounting System Dynamics Approach-

Invited Talk at the Statistical, Economic and Social Research and Training Center for Islamic Countries (SESRIC)

Ankara, Turkey
Oct. 5, 2015 (14:00 – 16:00)

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It is necessary to provide an alternative to the zombie economics of market liberalism (2010, p. 240).
Public Debt-GDP Ratio(%) of OECD Countries in 2012
(Wikipedia: CIA’s World Factbook)

<table>
<thead>
<tr>
<th>Country</th>
<th>Ratio(%)</th>
<th>Country</th>
<th>Ratio(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>214.3</td>
<td>Canada</td>
<td>84.1</td>
</tr>
<tr>
<td>Greece</td>
<td>158.3</td>
<td>Germany</td>
<td>81.7</td>
</tr>
<tr>
<td>Italy</td>
<td>126.1</td>
<td>Hungary</td>
<td>78.6</td>
</tr>
<tr>
<td>Portugal</td>
<td>123.6</td>
<td>Austria</td>
<td>74.6</td>
</tr>
<tr>
<td>Iceland</td>
<td>118.9</td>
<td>Israel</td>
<td>74.4</td>
</tr>
<tr>
<td>Ireland</td>
<td>118.0</td>
<td>United States</td>
<td>73.6</td>
</tr>
<tr>
<td>Belgium</td>
<td>99.6</td>
<td>Netherlands</td>
<td>68.7</td>
</tr>
<tr>
<td>France</td>
<td>89.9</td>
<td>Poland</td>
<td>53.8</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>88.7</td>
<td>OECD (18)</td>
<td>100.7 (92.7)</td>
</tr>
<tr>
<td>Spain</td>
<td>85.3</td>
<td>World</td>
<td>64 (58.3)</td>
</tr>
</tbody>
</table>

18 Countries out of 33 OECD countries > 50%!
Monetary and Financial Stability
- Systemic Failures of QE -

Figures by Richard Koo at the Nomura Securities Co. Ltd. Seminar, Tokyo, May 24, 2013
Monetary and Financial Stability
- Systemic Failures of QE -

Figures by Richard Koo at the Nomura Securities Co. Ltd. Seminar, Tokyo, May 24, 2013
Pilot’s Failures?  Debt Money System Works (Airplane)

System Design Failures?  Public Money System (New System Design: Monetary Reform)

Great Depressions 1929, 2008
Limitation of Neoclassical DSGE and Keynesian Econometric Analyses

• Money is **Exogenously** created, not **Endogenously**

Hand-on Introduction to System Dynamics (Fixprice, Monetary and Fiscal Policies)
**Debt Money**: Fractional Reserve Banking System

- Money out of Nothing (Thin Air) -

**What is Debt Money?**

Money Stock (Supply)

1. Currency in Circulation (**Bank Notes** and Coins)
2. Bank Deposits (**Credits**) (A Fractional Reserve System)

<table>
<thead>
<tr>
<th></th>
<th>Value (trillion yen)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coins</td>
<td>4.6</td>
<td>0.78%</td>
</tr>
<tr>
<td>Bank Notes</td>
<td>86.8</td>
<td>14.8%</td>
</tr>
<tr>
<td>Deposits (Reserves)</td>
<td>493.6</td>
<td>84.4%</td>
</tr>
</tbody>
</table>

Money Supply M1 (585.0) (Japan, 2014/08)

**Who create Debt Money?**

1. Government
2. **Bank Notes** by Privately-Owned Central Bank
3. **Credits** Created by Commercial Banks
Fractional Reserve Banking System

Fractional Reserves

Assets | Balance Sheet of Banks | Liabilities

- Investment
- Deposits

Savings
(Households)

(2) Making Loans
(3) Loans Paid

Loans

(b) Repayment

Transaction
Deposits

(c) Withdrawal

(4) Loans Confirmed

Checking
Deposits

(d) Withdrawal
Confirmed

Debts

(a) Loans Repaid

(1) Loans Applied
Accounting System Dynamics

• How to construct a model in which money endogenously created
• Accounting System + System Dynamics
ASD Macroeconomic Model of Japan

List of Sectors on Japan's Flow of Funds Accounts

1. Financial Institutions
   - 1-1. Central Bank
   - 1-2. Depository Corporations
     - 1-2-1. Banks
     - 1-2-2. Postal Savings
   - 1-3. Insurance and Pension Funds
     - 1-3-1. Insurance
     - 1-3-2. Pension Funds
   - 1-4. Other Financial Intermediaries
     - 1-4-1. Securities Investment Trusts
     - 1-4-2. Nonbanks
     - 1-4-3. Public Financial Institutions
     - 1-4-4. Financial Dealers and Brokers
       - 1-4-4-1. Securities Companies
       - 1-4-4-2. Nonbanks

2. Producers
   - 2-1. Gross Domestic Products (GDP)

3. General Government
   - 3-1. Central Government
   - 3-2. Local Governments
   - 3-3. Social Security Funds

4. Household
   - 4-1. Wages & Dividends
   - 4-2. Consumption

Original 5 Sectors

10 More Sectors are added
ASD macro model has 1455 symbols

- 179 Levels (Stocks)
- 587 Auxiliaries (Flows and Variables)
- 44 Lookups (Table Functions)
- 244 Data (Variables and References)
- 376 Constants
Five System Design Failures

Quantity Theory of Money:

\[ MV = PT (=GDP) \]
Design Failures of the Debt Money System

(1) M1 needs be supplied by Bank Loans

→ Booms and Depressions (Fisher)
GDP, M0, M1 and Debt (Producers & Government)
Phase Diagrams of Bank Loans and Producer Debt vs M1
Design Failures of the Debt Money System

(2) M1 was compensated by Time Deposits

→ Decrease in Savings

→ Declines of Middle Classes
Phase Diagrams of Time Deposits and Government Debt vs M1

Phase Diagram: Time Deposits $\rightarrow$ M1

Phase Diagram: Government Debt $\rightarrow$ M1
Design Failures of the Debt Money System

(3) M1 needs be supplied by the Government Debt

→ Accumulated Debt (Fisher)

→ Debt Crises
Accumulation Rate = 9%
Doubling Time = 7.7 year

Year | US Debt Forecast
---|---
2012 | 15,674
2014 | 18,733
2016 | 22,389
2018 | 26,759
2020 | 31,981

Nixon Shock 1971
No Convertibility between US dollar and Gold

Mar. 15 2015
Next Ceiling: 17.2 trillion
10/17/2013
Ceiling: 16.4 trillion
8/2/2011
Ceiling: 14.3 trillion

Year 2020 | US Debt Forecast
---|---
Debt | 32 trillion
GDP | 21 trillion

Debt-GDP Ratio | 129%
Design Failures of the Debt Money System

(4) $M_0$ cannot control $M_1$

$\rightarrow$ Quantitative Easing (QE) failed
Super “QE” since Q1, 2013

Monetary Base (M0) = Currency Outstanding + Reserves
Gov't Coins 4.6

Data obtained from the Bank of Japan Statistics (as of 2015.07.06)
Monetary Base
2013: 149.5 (+150.8)
2015: 300.3 (+100.8%)

Bank Notes 89.5
Gov't Coins 4.6
Non-Financial Corporation's Loan (Debt)
2013: 418.5 (+1.9) trillion yen
2015: 420.4 (+0.5%) trillion yen

Household's Loan (Debt)
2013: 305.8 (+4.4)
2015: 310.2 (+1.4%)

Money Stock M1
2013: 560.9 (+57.2)
2015: 618.1 (+10.1%)

Data taken from the Bank of Japan Web site (as of 2015.07.07)
If QE (increase in Monetary Base) were done through printing Bank Notes and distributing them equally, Japanese per capita income would have increased at least by 806,000 yen ($8,000).

The economic impact would have been spontaneous and enormous! Why cannot we do this under the current debt money system?

Data taken from the Bank of Japan Web site (as of 2014.08)
Phase Diagrams of M0 vs M1, and M1 vs GDP
Design Failures of the Debt Money System

(5) M1 failed to increase GDP

→ Prolonged Recessions
ASD Macroeconomic Model of Japan: Data Simulations

GDP, M0, M1 and Debt (Producers & Government)

GDP (Revenues) : JapanData(Ref)
Monetary Base (M0) : JapanData(Ref)
Money Stock (M1) : JapanData(Ref)
Loans (Banks) : JapanData(Ref)
Debt from Banks (Producers) : JapanData(Ref)
Treasury Securities Debt (Government) : JapanData(Ref)
ASD Macroeconomic Model of Japan: What if? Simulation in History

Private Investment

If investment were sustained, GDP would have increased to 900 trillion yen (+80%)!

How to Sustain Investment!

No possible way under the current Debt Money System.
ASD Macroeconomic Model of Japan: Partial Optimization

Consumption

<table>
<thead>
<tr>
<th>Year</th>
<th>Billion Yen/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>360,000</td>
</tr>
<tr>
<td>1985</td>
<td>270,000</td>
</tr>
<tr>
<td>1990</td>
<td>180,000</td>
</tr>
<tr>
<td>1995</td>
<td>90,000</td>
</tr>
<tr>
<td>2000</td>
<td>0</td>
</tr>
</tbody>
</table>

Private Investment

<table>
<thead>
<tr>
<th>Year</th>
<th>Billion Yen/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>160,000</td>
</tr>
<tr>
<td>1985</td>
<td>120,000</td>
</tr>
<tr>
<td>1990</td>
<td>80,000</td>
</tr>
<tr>
<td>1995</td>
<td>40,000</td>
</tr>
<tr>
<td>2000</td>
<td>0</td>
</tr>
</tbody>
</table>

Population and Employed Labor

<table>
<thead>
<tr>
<th>Year</th>
<th>Thousand Persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>90,000</td>
</tr>
<tr>
<td>1985</td>
<td>80,000</td>
</tr>
<tr>
<td>1990</td>
<td>70,000</td>
</tr>
<tr>
<td>1995</td>
<td>60,000</td>
</tr>
<tr>
<td>2000</td>
<td>50,000</td>
</tr>
</tbody>
</table>

Unemployed Labor

<table>
<thead>
<tr>
<th>Year</th>
<th>Thousand Persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>5000</td>
</tr>
<tr>
<td>1985</td>
<td>3750</td>
</tr>
<tr>
<td>1990</td>
<td>2500</td>
</tr>
<tr>
<td>1995</td>
<td>1250</td>
</tr>
<tr>
<td>2000</td>
<td>0</td>
</tr>
</tbody>
</table>

Structural Change (Government Spending) in 1999.87
ASD Macroeconomic Model
6 Stages of Development

1. Construction of a model that reflects transactions of real and financial economic sectors.
2. Incorporation of real economic and financial data.
4. Construction of detailed interdependent feedback relations among all sectors.
5. Simulation analyses to figure out the structural causes of QE policy failures.
6. Comparative analyses for the workings of debt money and public money systems.
Creating a Better System Design of Macroeconomy
(9) Fractional reserves give our thousands of commercial banks the power to increase or decrease the volume of our circulating medium by increasing or decreasing bank loans and investments.  ................

This situation is a most important factor in booms and depressions.

(17a) Under the present fractional reserve system, the only way to provide the nation with circulating medium for its growing needs is to add continually to our Government’s huge bonded debt
I have come to believe that the plan, properly worked out and applied, is incomparably the best proposal ever offered for speedily and permanently solving the problem of depressions; for it would remove the chief cause of both booms and depressions, namely the instability of demand deposits, tied as they are now, to bank loans. (p.8)

Yale University, March, 1935
(Preface to the First Edition)
(Second Ed. 1936, Third Ed. 1945)
A Monetary Reform: Chicago Plan → American Monetary (NEED) Act

**A Debt Money System**
- Money out of Nothing -

1. Privately-Owned Central Bank issues Money (Notes)

2. Credit Creation by Commercial Banks (A Fractional Reserve System)

3. Monetary Control by (and for) the International Bankers

**A Public Money System**
- American Monetary (NEED) Act -

1. Government Issues Money (Nationalization of the Central Bank)

2. 100% Reserve (Abolishment of the Credit Creation)

It is necessary to provide an alternative to the zombie economics of market liberalism (2010, p. 240).
Contents

I. Accounting System Dynamics

II. Macroeconomic Systems of Debt Money

III. Open Macroeconomic Systems of Debt Money

IV. Macroeconomic Systems of Public Money

Chap. 12 Designing A Public Money System
AMI Conf. 2010

Chap. 13 Workings of A Public Money System
AMI Conf. 2011

Chap. 14 Monetary and Financial Stability
AMI Conf. 2012

Chap. 15 Public Money and Sustainability
AMI Conf. 2013

Chap. 16 A Transition to the Public Money System
AMI Conf. 2014
Fractional Reserves

Assets                  Balance Sheet of Banks                  Liabilities

Investment Deposits
Savings (Households)

Transaction Deposits

Loans
(2) Making Loans
(3) Loans Paid

(b) Repayment

(c) Withdrawal

Checking Deposits
(4) Loans Confirmed

(1) Loans Applied

(a) Loans Repaid

(d) Withdrawal Confirmed

Debts
Public Money Act of Japan (Bank Deposits)

**Assets**

- **Balance Sheet of Banks**
  - 100% Reserves
  - Deposits Transfer
  - Making Loans
  - Repayment
  - Withdrawal

**Liabilities**

- **Investment Deposits**
- Savings (Households)
- Transaction Deposits

**100% Reserves**

*(<3 Loans Paid)\(\rightarrow\) Deposits Transfer \(\rightarrow\) 100% Reserves \(\rightarrow\) (2) Making Loans \(\rightarrow\) Loans \(\rightarrow\) (b) Repayment \(\rightarrow\) (c) Withdrawal \(\rightarrow\) (3 Loans Paid)*

**Assets**

- **Balance Sheet of Producers**
  - Checking Deposits
  - Withdrawal Confirmed

**Liabilities**

- **Debts**

*(4 Loans Confirmed \(\rightarrow\) Checking Deposits \(\rightarrow\) (d) Withdrawal Confirmed \(\rightarrow\) (a) Loans Repaid \(\rightarrow\) (1 Loans Applied)*
# Public Money vs Debt Money System Structures

<table>
<thead>
<tr>
<th></th>
<th>Public Money System (New System Design)</th>
<th>Debt Money System (System Design Failure)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money Issuer Its Owner</td>
<td>Public Money Administration Government</td>
<td>Central Bank Private Banks and Financiers</td>
</tr>
<tr>
<td>Bank Reserves</td>
<td>100% Reserve</td>
<td>Fractional Reserves</td>
</tr>
<tr>
<td>Interest</td>
<td>Interest-free</td>
<td>Interest-bearing Debt</td>
</tr>
</tbody>
</table>

Chapter 15: Table 15.1 (available at www.muratopia.org)
# Public Money vs Debt Money System Behaviors

<table>
<thead>
<tr>
<th></th>
<th>Public Money System (New System Design)</th>
<th>Debt Money System (System Design Failure)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monetary Stability</td>
<td>Stable Money Supply Stable Price Level</td>
<td>Bubbles and Credit Crunches Inflation &amp; Deflation</td>
</tr>
<tr>
<td>Financial Stability</td>
<td>No Bank-runs</td>
<td>Business Cycles (Booms and Busts)</td>
</tr>
<tr>
<td>Employment</td>
<td>Full Employment is Possible</td>
<td>Involuntary Unemployment</td>
</tr>
<tr>
<td>Government Debt</td>
<td>No Government Debt</td>
<td>Built-in Debt Accumulation Recession &amp; Unemployment</td>
</tr>
<tr>
<td>Inequality</td>
<td>Income Inequality between Workers and Capitalists</td>
<td>Income Inequality between Financiers and Non-financiers</td>
</tr>
<tr>
<td>Sustainability</td>
<td>Sustainability is Possible</td>
<td>Accumulated Debt Forced Growth Environmental Destruction</td>
</tr>
</tbody>
</table>

Chapter 15: Table 15.2 (available at [www.muratopia.org](http://www.muratopia.org))
Money and Macroeconomic Dynamics (488 pages), one of the most innovative macroeconomic books, was published in 2013.

PUBLIC MONEY is its simplified Japanese version (352 pages) to introduce the concept of the Monetary Reform to the Japanese readers. Public money economy is a new economic system in place of the finished Capitalism which was proved to have built-in system design failures. This new Japanese book focuses on the liquidation of national debts which Japanese economy as well as US and EU economies such as Greece are seriously facing now.
### Part 1: Debt Money system

1. What is economics?
2. What is money?
3. Do we need the Bank of Japan?
4. Why is money created out of nothing?
5. Why does money become means of control?
6. Why do national debts continue to increase?
7. Our debt money system is Debt-end!

### Part II: Public Money System

8. What is the Chicago Plan?
9. Birth of the Public Money System
10. We can liquidate national debts
11. Public money system creates happy futures to All

### Part III: A Transition

12. Modeling a transition to the Public Money System
13. The Public Money Act of Japan

Published on Sept. 10, 2015 by Toyo Keizai, Tokyo, 352 pp.
Public Money Act of Japan (Ch.13)
Global Monetary Reform in Action

- UK: House of Commons Debate, Nov. 20, 2014 “Money Creation and Society” since 1844 (170 years ago)
- Netherlands: Dutch Parliament Monetary Reform Debate
- Switzerland: Monetary Modernization (MoMo) Initiative
- Iceland: Commissioned by the Prime Minister of Iceland March 2015 “Monetary Reform – A better Monetary System for Iceland”
Thank You for your Attention!