The Effects of 'Gesell' (Currency) Taxes in Promoting Japan's Economic Recovery

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"As the owners of goods are always in a hurry for exchange, it is only just and fair that the owners of money, which is the medium of exchange, should also be in a hurry. Supply is under an immediate, inherent constraint; therefore demand must be placed under the same constraint." Silvio Gesell, *The Natural Economic Order*, 1906.

Abstract

The traditional interest rate policy has lost its potency due to the zero-lower bound of nominal interest rates and the gradual accelerating deflation in Japan. Without stopping deflation, the Japanese government may face a rapid erosion of credit worthiness due to the uncontrolled budget deficit. In order to cope with this unusual situation, a non-traditional monetary policy measure is proposed; a negative nominal interest policy by levying tax on all the government-guaranteed yen financial assets. This is a modified version of Guesell's stamp duty on currency for actual implementation in the contemporary context. Its benefits and side effects are also analyzed.

I. Introduction[1]

Since short-term interest rates are already zero, conventional monetary policy tools have lost effectiveness. Usually a potent monetary policy weapon, an open market purchase of short-term government papers by the Bank of Japan (BOJ) is no-longer effective because base money and zero-interest short-term government papers are perfect substitutes under zero-interest rate regime. Long-term bond yields have fallen to extremely low levels. A further injection of base money is not likely to push down long-term rates further. Even a massive open-market purchase of long-term government bonds is no-longer effective to stop deflation unless it can somehow change expectations on future inflation rate. The Ministry of Finance (MOF) has already been issuing massive amounts of zero-interest short-term notes. Since such short-term notes are a perfect substitute for base money under zero interest-rate policy, the MOF is effectively injecting a large amount of near base money without much effect.

Since the spring of 2003, Japanese economy has shown a recovery. As a result, the real GDP grew almost 5 percent in fiscal 2003 and the deflationary gap has shrunk considerably. Corporate profits, private investments and the employment situations have shown a steady recovery. However, the GDP deflator is still falling by about 3 percent per annum and it has not shown any sings of improvement yet at the time of writing (October 2004). Given the estimated potential growth rate of 1.5 percent, the Japanese economy still faces a risk of having a negative nominal growth in the near future again.[2] In such a situation, Japanese government cannot reduce its massive budget deficits and it will gradually lose public confidence on its financial health. The youth unemployment problem is also likely to continue and it will destroy the valuable human capital for the future.

If Japanese economy cannot exit from continuing deflation under the current recovery, it is necessary to implement a very strong expansionary policy to achieve positive inflation rate without increasing budget deficits. In order to get out of this deflationary trap, Japanese government and the Bank of Japan have to implement non-traditional monetary policy. My proposals are as follows. First the government should set and announce to the public a target for price stability (inflation target). The target inflation rate should be about 1.5 percent par annum measured by the core consumer price index and the margin of error should be plus or minus 1 percent per year over a three-year horizon. To achieve this

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[1] The author would like thank helpful comments on an earlier version of the paper by Marvin Goodfriend, Oliver Blanchard and other participants of the BIS conference on "Monetary stability, financial stability and the business cycle," on 28-29 March 2003. Correspondence: fukao@fbc.keio.ac.jp

[2] See Fukao (2003) for an estimation of potential GDP growth rate.

target, laws must be revised to allow the Bank of Japan to buy all securities, not just bonds, for its open market operation, and purchase real assets such as TOPIX based mutual funds and REIT (real estate investment trusts) up to a few trillion yen per month. This should stop the asset price deflation in the short run. However, the effect on the prices of goods and services is not certain. If this open market purchase of real asset does not stop deflation of goods and services, the asset price deflation will restart again. Then the interest rate should be made "negative" by taxing the balance of all government-backed financial assets such as bank deposits, government bonds, postal savings, cash, etc., at the rate that is slightly higher than the deflation rate until deflation is stopped. This policy is similar to Silvio Gesell's stamp duty on currency proposed in Gesell (1906).

In order to levy tax on cash, the Bank of Japan should introduce new banknotes and charge fees for exchange with old notes. In times of deflation, people are increasing their holdings of cash and bank deposits, because doing so is safest and best in portfolio management. We should encourage investments in stocks and real estate by taxing cash and bank deposits. The negative interest rate policy is expected to decrease savings and stimulate investment. The total revenue for the government with 2-percent tax would amount to about 30 trillion yen or six percent of GDP. While such a novel tax might cause some confusion, the government could make use of the tax revenue to reduce its budget deficit, re-capitalize deposit insurance funds or to improve its anti-unemployment policy.

Once deflation is overcome, the nominal interest rate would rise, possibly causing the bankruptcies of corporations with excess debts and the failures of banks and life insurance companies due to sharp falls in bond prices. Therefore, we need to take sufficient precautions for risk management. Without overcoming deflation and experiencing the pain associated with the end of deflation, the Japanese economy will continue to suffer form stagnant economy.

II. Gradually Accelerating Deflation

The deflation in Japan is steadily accelerating. The Chart 1 shows the GDP deflator and core CIP since 1981. We have to note that a 3 percent consumption tax was introduced in April 1989 and the tax rate was raised by 2 points to 5 percent in April 1997. As a result, the two price indices are biased upwards in these tow years. The core CPI started to fall in 1998 and that of GDP deflator started to fall in 1995. The GDP deflator deflation rate has been larger than CPI because the upward bias of CPI is more pronounced than that of the deflator. By the end of 2003, the GDP deflator deflation rate is more than two percent and still accelerating. Chart 2 shows that the general price level measured by the GDP deflator has fallen by about 12 percent

from the peak in early 1994 to mid 2004.

While the public discussions on monetary policy and deflation generally focus on CPI, the development of GDP deflator is more important for the health of the Japanese economy. The corporate profit and labor income depend on the nominal GDP that is the product of GDP deflator and real GDP. Tax revenue is also dependent on the nominal GDP. The gap between CPI and GDP deflator has been widening in the 1990s and the average gap is 1.2 percent over the past five years (1999-2003). This means that even if the Bank of Japan can stabilize CPI at zero inflation, GDP deflator will be falling at 1.2 percent. Therefore, in this paper, we look into the development of GDP deflator deflation rate.

The Bank of Japan pointed out that the GDP deflator exaggerates the rate of deflation due to the very rapid fall in computer prices and the Paasche index bias. The private investment deflator seems to overstate the deflation by about 3 percent since the first quarter of 2003 because its trend deflation rate jumped from 2 percent to 5 percent. However, the bias of GDP deflator will be much smaller, at most by about 0.5 percent because the weight of private investment is about 15 percent of total nominal GDP. Thus, even if we removed this downward bias of GDP deflator, the GDP deflator is still falling by about 2 percent instead of 2.5 percent. In this context, we have to note that the Bank of Japan paper does not mention the possible upward bias in the GDP deflator. Because most price indices do not take account of the quality changes in goods and services, the GDP deflator does have some upward bias from this source. Moreover, the Bank of Japan is not disputing the validity of nominal GDP. Therefore, the correction of the downward bias of GDP deflator due to Paasche bias means that the real growth rate will also be adjusted downwards by the same amount.

The deceleration of inflation in the first half of 1990 and the acceleration of deflation rate in the second half of the decade strongly suggest that Japan has maintained a deflationary GDP gap since the collapse of the bubble economy in the late 1980s. I estimated the size of the GDP gap with the Financial Study Group of Japan Center for Economic Research based on the conventional production function approach with an estimated Phillips curve.[3]

Chart 3 shows the estimated GDP gap with GDP deflator inflation rate. Since SAAR (seasonally adjusted annual rate) data are highly erratic, we used a three-quarter moving average of SAAR series. The GDP gap hit the peak of 2.3% in 1990 and started to fall. It became negative in mid 1992 and the deflationary environment continues since then. The gap

[3] See Fukao (2003).

narrowed to zero in early 1997 when the planned increase of the VAT stimulated consumption on consumer durables and housing. However, the gap became very large by mid 1999 due mainly to the financial crisis form the fall of 1997 until early 1999. Although capital injection and the cyclical recovery briefly narrowed the gap in 2000, the Japanese economy fell into a deeper trough in 2002. We can see that the deflationary gap reached 6.9 percent of the natural level of GDP in the first quarter of 2002. Since then, the Japanese economy recovered slowly until mid 2003 and the growth rate was relatively high until early 2004 (Chart 4). By mid 2004, the GDP gap had declined to about 2.8 percent. In spite of this recovery, the GDP deflator deflation rate has not improved yet. This may imply that the accelerationist theory of Phillips curve is right for Japan and we have to keep an inflationary gap for some time to stop deflation.

III. Macro-economic policy under large GDP gap and zero-interest rate

The Bank of Japan is providing a large amount of monetary base but broadly defined money supply is not increasing much (Chart 5). As the short-term interest rates moved close to zero, the monetary base was hoarded by banks and short-term money market dealers and was held as current deposits at the Bank of Japan. Chart 6 shows a phase diagram of monetary base and nominal short-term interest rates since 1980 and it can be regarded as an empirical demand function for monetary base. When the short-term nominal interest rate was between 1 to 12 percent, the monetary base-GDP ratio moved between 7 to 9 percent. However, when the short-term interest rate reached 0.5 percent in the summer of 1995, the demand for monetary base became very elastic. The monetary base-GDP ratio increased to 11 when zero-interest rate policy was adopted in February 1999. From the start of the quantitative easing in March 2001 until the end of 2003, the ratio increased from 12.5 percent to 21 percent. The flat part of the Chart 6 clearly shows that Japanese economy has been in a liquidity trap.

Chart 7 shows the reaction function of the Bank of Japan in the face of falling inflation rate. The overnight call rate was reduced in line with the GDP deflator inflation rate. One point fall in deflation rate induced the Bank of Japan to cut nominal rate by 1.8 points thereby reducing the real interest rate by 0.8 points. The Bank of Japan ran out of the room for maneuver when the deflation rate fell down to minus 1.23 percent (1.23=2.21/1.80). The Bank faced the zero lower bound of nominal interest rate. If the Bank of Japan could have used negative policy interest rate, the Bank would have set its policy interest rate at minus 2 percent under the 2.7 percent GDP deflator deflation rate reached in the first half of 2004.

In spite of the aggressive increase of monetary base by the Bank of Japan, the real interest rates have been on a rising trend since mid 1998. The Chart 8 shows nominal and real interest rates since 1986. This chart shows the average new lending rate of all banks and over-night call rates. The call rate indicates the short-term interest rates for high-quality borrows. On the other hand, the average new lending rate indicates the borrowing costs for small and medium-sized enterprises (SMEs). Nominal rates are shown in dotted lines and the real rates in solid lines. While the real and nominal interest rates fell until 1998, the real rates started to rise because of the acceleration of deflation.

Moreover, we have to pay attention to the fact that the gap between the lending rates and the call rate gradually increased in the 1990s. In the 1980s, the difference between the lending rate and the call rate was very small and less than 50 bps. By the mid 1990s, the gap increased to over 150 bps. The increasing gap is the result of the decontrol on deposit interest rates and the declining market interest rates towards zero. Banks lost regulatory rent from deposit in the early 1990s. As the market rates fell towards zero in the 1990s, banks had to raise loan rates to maintain profit margin. The real new lending rate is close to 4 percent which is close to the booming bubble period in the late 1980s. Even the real call rate is about 2 percent which is much higher than the short-term market rate in United States. The high real cost of funding for SMEs is depressing economic activities.

Japan is probably in a deflationary trap. High real interest rates due to deflation are depressing the economy. The depressed economy, in turn, accelerates the deflation and the real interest rates rise further as a result. Conventional open-market purchase of government notes and bonds is no longer effective. Since interest rates on short-term treasury bills (TBs) are very close to zero, they have become a perfect substitute for monetary base. An open market purchase of TBs has no expansionary effect because it is an exchange of two perfectly substitutable assets. An open market purchase of long-term government bonds is also ineffective because long-term interest rates are extremely low and the Bank of Japan cannot push down long-term rates anymore.

The extremely large budget deficit also makes it very difficult to use fiscal policy to stimulate the economy. Table 1 shows the budgetary situations of the general government of Japan that includes the central government, local government, and the social security fund. The debt-GDP ratio is already 158 percent at the end of 2003. With extremely large budget deficit and declining nominal GDP, this ratio is likely to incase by 8 point a year. The gross debt of general government will reach 200 percent by 2008. Moreover, these figures do not include

off-balance-sheet liabilities such as failing national pension system and loss-making government owned companies.

At the time of writing, the Japanese yen government bond (JGB) is rated AA- by Standard & Poor's and A2 by Moody's and these are the lowest ratings among major countries. If the Japanese government cannot stabilize the macro economy by stopping deflation, the JGB will be downgraded to a speculative grade sooner or later. In that event, the government will have to shift their funding from long-term bonds to short-term notes so as to reduce interest costs. However, the shortening maturity of JGB will increase the funding vulnerability against a sharp rise in interest rates.

Such downgrading of the government bonds would adversely affect the international operations of private financial institutions and corporations. Since sovereign credit rating usually sets the ceiling rate for private companies, they will be deprived of access to international capital markets. Japanese banks will not be able to get finds from foreign banks even with JGBs as collateral.

Furthermore, even a mild capital flight from Japan could lead to fiscal crisis. If Japanese household sector shifts six percent of 1400 trillion yen gross financial asset from the yen to foreign currencies, it would wipeout all of the 820 billion US dollar foreign exchange reserve of Japan. A capital flight from Japan will cure its deflation by a sharp devaluation of the yen. However, the exit of Japan from the deflation may trigger a budgetary crisis if it is too late. Suppose that Japan already has 200 percent gross debt mostly financed by short-term liabilities. Since most of its gross assets are invested in long-term fixed interest assets, the government cannot count on a higher interest income in the short run under increasing interest rates. A 5 percent rise in interest rate will increase the annual net interest payment by 10 percent of GDP or 50 trillion yen in two years. This figure is more the size of the total national government tax revenue excluding social security contributions.[4]

In order to get out form this deflationary trap before too late, it is necessary to apply a very strong policy package. Since short-term interest rates are already zero, conventional monetary policy tools have lost effectiveness. A further injection of base money is not likely to push down long-term rates further. Even a massive open-market purchase of long-term government bonds is no-longer effective to stop deflation unless it can somehow change expectations on future inflation rate. The Ministry of Finance (MOF) has already been issuing massive amounts of zero-interest short-term notes. Since such short-term notes are a perfect substitute for base

[4] See Fukao and Japan Center for Economic Research (2003).

money, the MOF is already injecting a large amount of base money without much effect.

In my view, the current deflation in Japan can be regarded as a negative bubble; people are shifting assets from stock and real estates to cash, deposits, and government bonds. They are blindly buying government-backed financial assets even though the credit worthiness of the government is rapidly deteriorating. This negative bubble is clearly unsustainable. At some point, people will realize that the government cannot honor the massive public debt and a massive shift of asset from cash, deposits and government bonds to foreign currencies and real assets will happen.

One possible scenario is shown in Table 2. As the budget deficits continues, a large amount of short-term government liabilities are accumulated. As the weak links of the government such as some local governments and government sponsored companies fails, Japanese investors will gradually lose confidence in the Japanese government and they start to shift assets to foreign currencies and real assets. Yen starts to fall sharply, beyond 200 yen per US dollar, and other Asian countries may also devalue their currencies against the US dollar and the euro in the face of increased competitive pressures from Japan. With a deep devaluation of the yen the Japanese economy will get out of deflation. The Bank of Japan starts to raise short-term interest rates to stop the acceleration of inflation. However, Japanese government will face a massive increase in its debt service due to shortened liability structure. The Japanese government faces a sharp down-grading of its credit ratings and interest rates rise further. In that event, the Bank of Japan will be forced to print money to sustain the government. In the mean time, the simultaneous devaluation of Asian currencies may even drag the United States into a deep recession.

IV. Monetary Policy to Overcome Deflationary Trap

In order to avoid prolonged stagnation and the rapid deterioration of the budgetary situations of the Japanese government, it is necessary to implement a non-traditional policy measures. My proposals are as follows:

1. Open Market Purchase of Real Assets

First the Bank of Japan sets and announces to the public a target for price stability (inflation target) around 1.5 percent of consumer price inflation plus/minus 1 percent per year for a three-year time horizon. To achieve this target, laws must be amended to allow the Bank of Japan to buy all securities, not just bonds, for its open market operation, and purchase real assets such as TOPIX based ETS (exchange-traded mutual funds) and REIT (real estate

investment trusts) up to a few trillion yen per month. Since the outstanding amount of ETF and REIT is only a few trillion yen, it would be necessary for the Bank to buy exchange-traded TOPIX futures until more funds are supplied. This should stop the asset price deflation at least in the short-run.

If this policy can crush the negative bubble, the deflation will stop. However, if the Japanese investors continue to buy government backed assets, the flow price deflation will continue. Since the asset prices are determined by underlying cash flows of profits and rents, they will also start to fall again. Therefore, the open-market purchase of stocks and real estates is not a panacea and it may fail to work.

2. Negative Interest Rate Policy by Gesell Tax

If the ETF and REIT operation does not stop deflation, then the interest rate has to be made "negative" by taxing the balance of all government-backed financial assets such as bank deposits, government bonds, postal savings, cash, etc., at the rate that is slightly higher than the deflation rate until deflation is stopped. In times of deflation, people are increasing their holdings of cash and bank deposits, because doing so is safest and best in portfolio management. We should encourage investments in stocks and real estate by taxing cash and bank deposits. In other words, the government has to levy tax on the target of negative bubble. Tax rate should be somewhat higher than the rate of deflation and the government has to declare that the tax will be applied repeatedly as long as deflation continues.

This tax is similar to the famous Silvio Gesell's stamp-duty on currency.[5] Marvin Goodfriend (2000) proposed to levy carry-tax on cash as an effective measure to stop deflation. Details of my proposal are shown in Table 3. While Gesell proposed to levy tax only on cash, I am proposing to levy tax on all the government guaranteed financial assets. Instead of cumbersome stamp duty, I am proposing to charge fees to exchange old bank notes with ones.

The government has to levy tax on the balance of all the government guaranteed financial assets. Taxable assets include all the central and local government liabilities, all the government guaranteed assets such as postal saving deposits and postal life insurance policies, and all the yen liabilities of the banking sector. In order to avoid tax loopholes, yen cash payments on derivative transactions by banks should also be taxed. Finally, the banknotes should be taxed.

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[5] Gesell proposed to levy 0.1 percent stamp duty on bank note every week. The annual tax rate is 5.1 percent of the face value. At the end of the year, the note with 51 stamps will be exchanged with a new note. See Gesell (1906), part IV. This proposal is also described in chapter 23 of the Keynes (1936).

In order to tax cash, the Bank of Japan has to print new bank notes and levy fees for exchange. Alternatively, the government can levy stamp duty on old bank notes.

This tax will have very strong effects on expenditures. Table 4 summaries the effects of this policy. People will shift assets from "safe" assets to risky assets. In other words, people shift asset from taxable assets to all the non-taxable assets. Since stocks, real estates, corporate bonds, foreign bonds, and consumer durables are not taxed, the demand for these assets will increase. The yen exchange rate would also depreciate against foreign currencies. This tax will also stimulate bank lending activities. Banks will shift assets from BOJ deposits and government bonds to loans and corporate bonds. Inter-corporate credit will also expand because receivables are not taxed but cash and deposit will be taxed.

This tax will also generate a large amount of revenue for the government. The total tax revenue of 2 percent tax on the government guaranteed financial assets would amount to about 30 trillion yen (about 6 percent of Japan's GPD). The government could make use of the tax revenue to reduce its budget deficit, re-capitalize deposit insurance funds or to improve its anti-unemployment policy.

There are a number of negative side effects by this policy. Firstly, this tax has a possible adverse effect on the credit rating of Japanese government. For example, Moody's Investors Service states that an imposition of tax on the government liabilities may constitute an event of partial default by the government. However, this is a relatively minor problem because only a small portion of JGB (about 3.6 percent at the end of 2003) is held by foreign investors. Secondly, it will be very difficult to pass a new law to levy this tax. New taxes are always opposed by the public. One way to sweeten this medicine is to distribute cash to all the Japanese people. A cash distributing JPY 50,000 per person will offset the 2 percent tax on JPY 2,500,000. The cost of this cash rebate is about JPY 6 trillion or one-fifth of the tax revenue. Thirdly, many financial institutions such as banks or life-insurance companies face a large amount of tax bill because they hold large amount of government bonds with liabilities of nominally fixed values. One way to compensate these financial institutions is to reduce deposit insurance corporation fees and insurance policyholder protection organization fees. By using a part of the tax revenue to fund these financial safety-net organizations, the government can provide financial relief to banks and life-insurance companies.

Once deflation is overcome, conventional interest rate policy will become useful again. The Bank of Japan can maintain relatively low real interest rates at the shorter end of the term

structure. The environment for new business will improve. The commercial banks can increase profit margin without raising real borrowing costs for customers. Life insurance companies will be able to overcome negative carry from old insurance contracts with high guaranteed rates. The big upward shifts in the expectations on future price path will push up stock and real estate prices. These changes in the financial market will make it much easier to resolve perennial non-performing loan problem in the banking sector.

We also have to take note on the negative side effects of the exit from deflation. The nominal long-term interest rate would rise considerably, causing bankruptcies of corporations with excess debts. A number of weakened banks and life insurance companies may also fail due to the sharp fall in bond prices. Therefore, we need to take sufficient precautions for risk management.

IV. Concluding Remarks

In this paper, we analyzed the cases of the persistent deflation in Japan. We found that the deflation has been accelerating gradually since mid 1990s. Because of the acceleration of deflation, the real interest rates are rising and conventional monetary policy tool has lost effectiveness. I proposed that the Bank of Japan should buy large amount of ETF and REIT to fight against deflation. If this measure is not effective, the government should introduce negative interest rate by levying tax on all the government guaranteed financial assets.

However, I did not propose a massive open market purchase of long-term government bonds. This is because an excessive amount of open market purchase may cripple the soundness of the Bank of Japan. Table 5 illustrates this problem. Suppose the Bank bought one-half of the outstanding long-term government bonds held by the private sector, 150 trillion yen of JGBs, on top of the portfolio of March 2004 and it increased the current deposits held by banks. Suppose further that Japan finally gets out of deflation and the long-term market rates rose to 5 percent. Four percentage points rise in the long-term rate will reduce the market value of 10-year JGB by almost 30 percent. Once the deflation ends, the Bank of Japan has to raise short-term interest rates by mopping up excess liquidity in the short-term money market. As we have seen in Chart 6, the demand for monetary base is about 8 percent of GDP when nominal rates are about 3 to 4 percent and the Bank has to reduce the monetary base to this level. However, the Bank of Japan will run out of sellable assets due to the capital loss in its long-term bonds. As is shown in this Table 5, the Bank will be forced to issue interest-bearing promissory notes to raise short-term rates from zero. The Bank of Japan has to ask the government to provide subsidy to cover its operating costs.

Chart 1 GDP Deflator and CPI (Yearly Change)

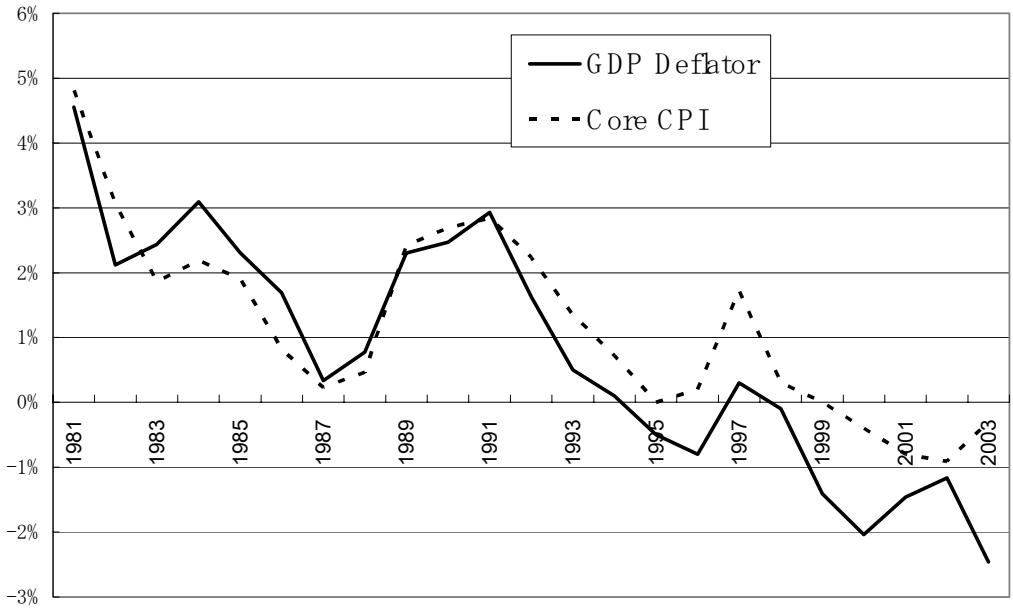
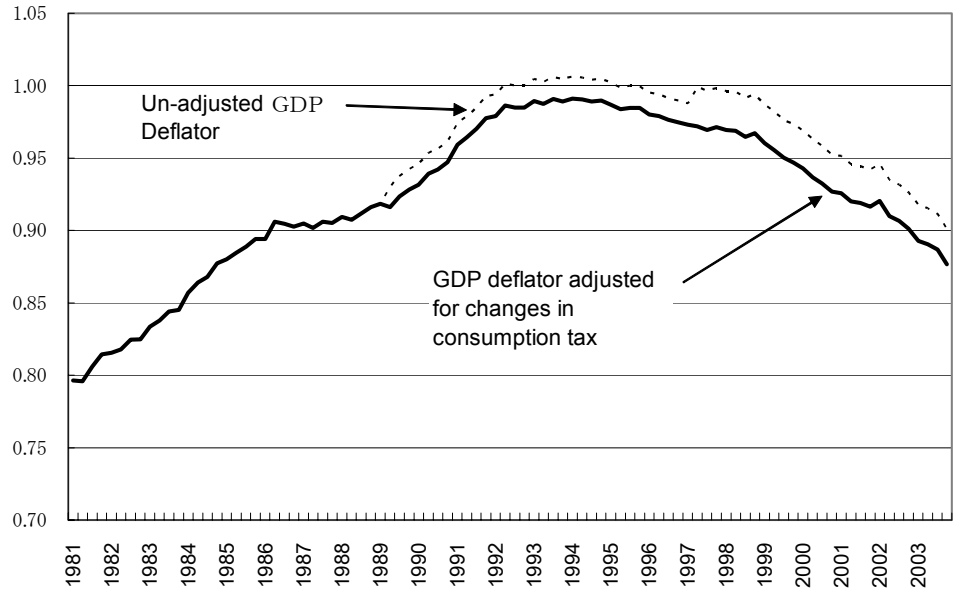


Chart 2 GDP Deflator Price Level
(Unadjusted 1995=1.0)



Note: Adjusted for changes in consumption tax in April 1989 and April 1997.

Chart 3 GDP Gap and Deflation Rate

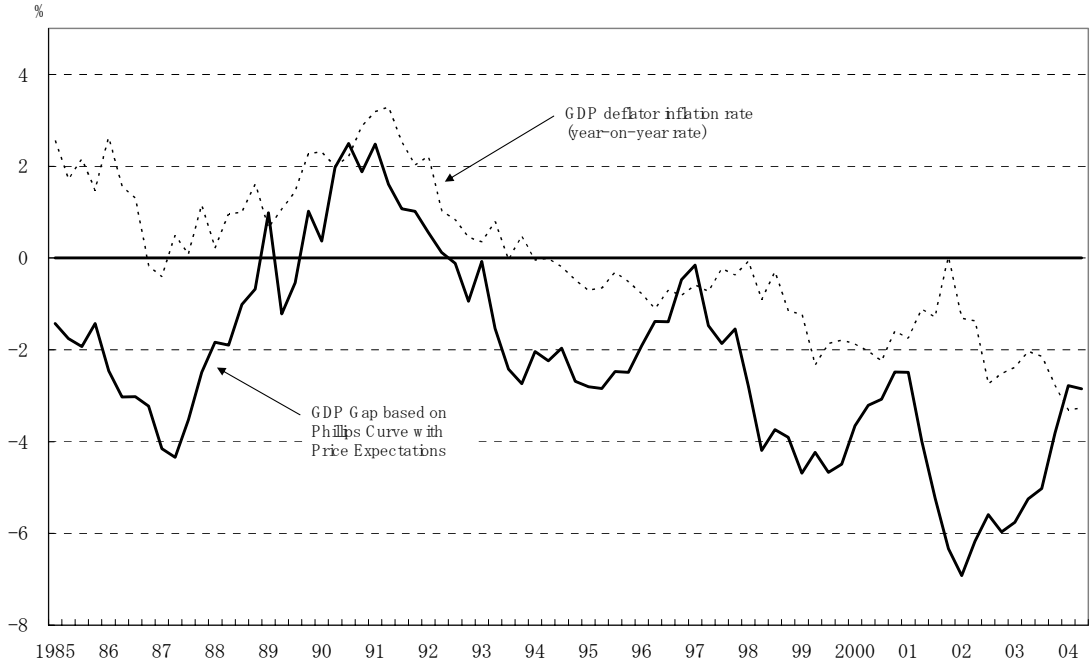


Chart 4 GDP Growth Rate

Annual Rate after 3-Quarter Moving Average

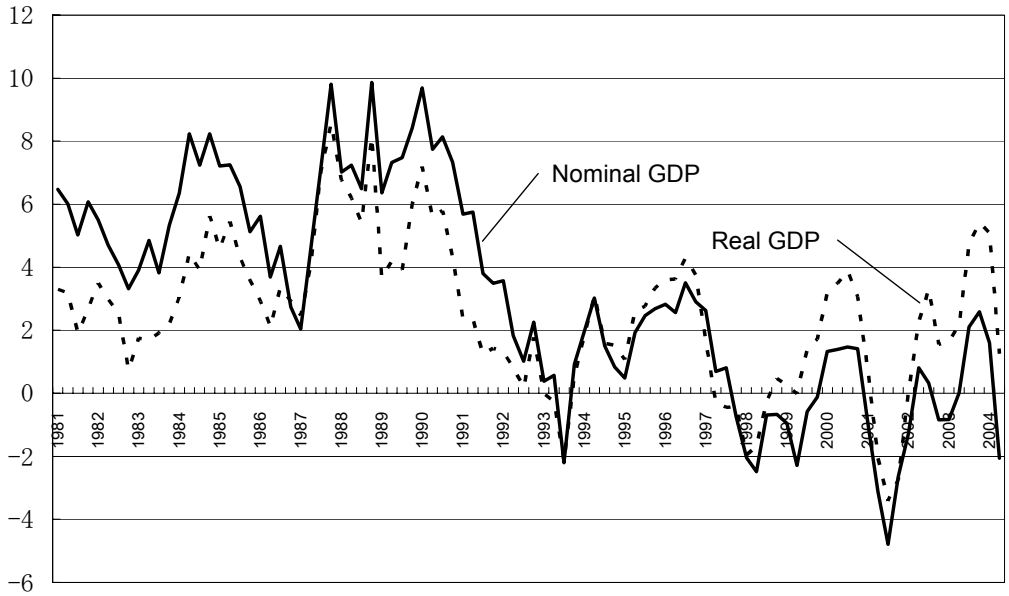
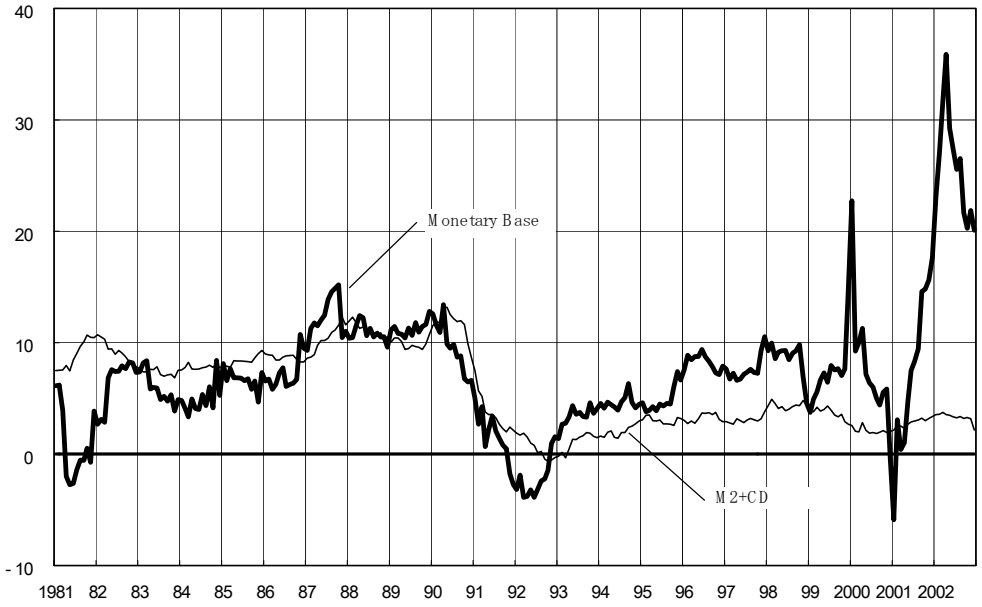


Chart 5 Money Supply Developments



Source: Japan Center for Economic Reserach (2003)

Chart 6 Demand for Monetary Base

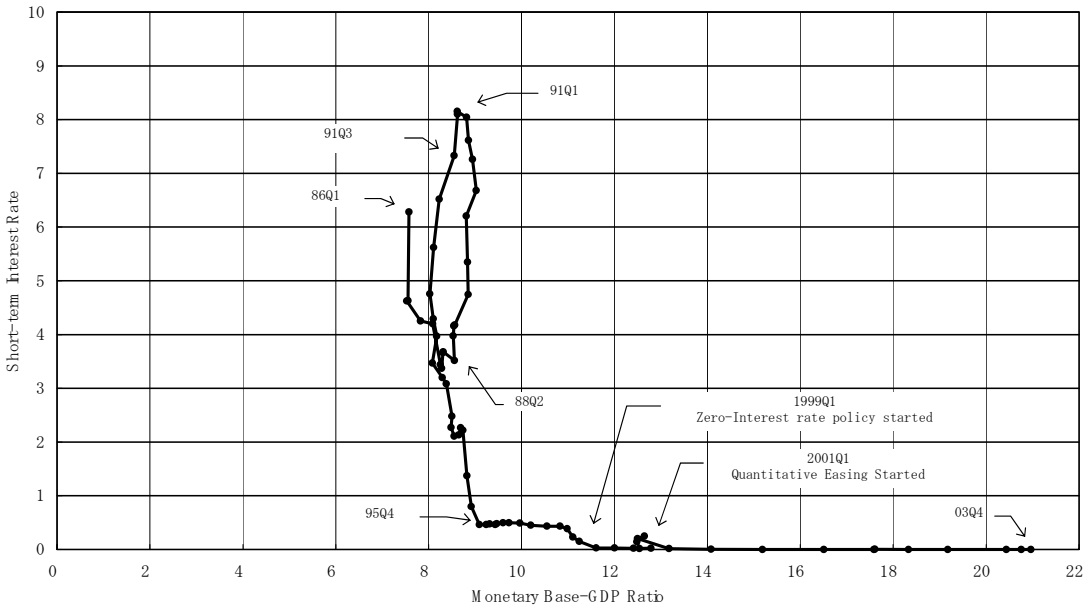
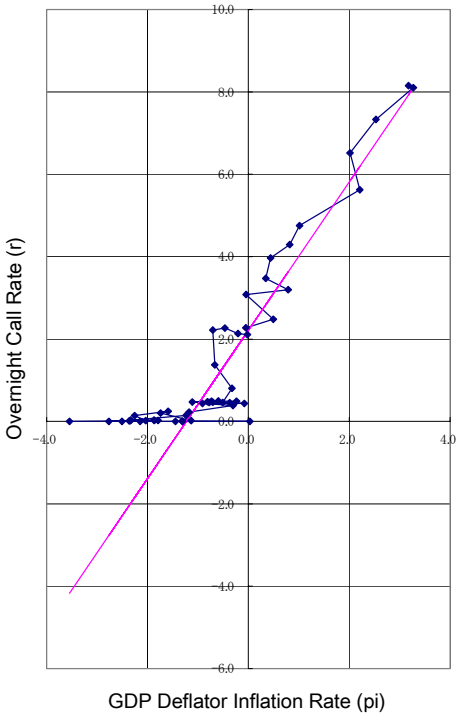


Chart 7 Inflation and Short-term Money Rate (1981-2003)



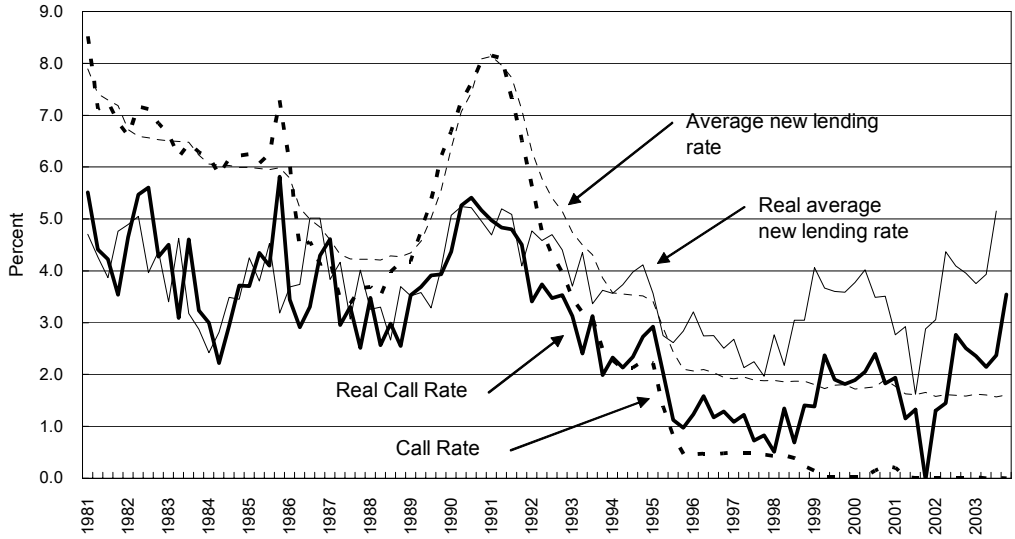
OLS regression 1991/1-1999/1
Period: before zero-interest rate policy

r = 2.210 + 1.800 x pi + e R2 = 0.89
(15.8) (16.2) F = 261.4
SE = 0.82

r: Overnight call rate
pi: GDP deflator inflation rate
e: Error term

Real interest rate reaction function
r - pi = 2.210 + 0.800 x pi

Chart 8 Real and Nominal Interest Rates



Note: Real Interest Rates are estimated with 3Q moving average of GDP deflator inflation rate (SAAR).

Table 1

Projection on General Government Budget Deficits

Year	Nominal GDP Growth Rate	Primary Balance/ GDP Ratio	General Governmen/ Gross Debt GDP Ratio	General Governmer Net Debt GDP Ratio	Effective Interest Rate on Net Debt	Net Interest Cost GDP Ratio
1999	-1.4	-5.8	120.4	36.0	3.5	1.3
2000	0.8	-6.1	130.7	43.5	3.1	1.3
2001	-1.1	-4.7	142.0	51.0	2.8	1.4
2002	-1.5	-6.0	150.2	59.2	2.1	1.2
2003	0.1	-6.3	157.6	66.6	2.1	1.4
2004	0.0	-6.3	165.3	74.3	2.1	1.6
2005	0.0	-6.3	173.2	82.2	2.3	1.9
2006	0.0	-6.3	181.4	90.4	2.7	2.4
2007	0.0	-6.3	190.1	99.1	3.0	3.0
2008	0.0	-6.3	199.4	108.4	4.0	4.3
2009	0.0	-6.3	210.0	119.0	4.0	4.8

Note: Figures until 2003 are based on IMF, *World Economic Outlook* and OECD, *Economic Outlook*.
General government gross asset is assumed to be constant after 2002.
Sharp downgradings of JGB are assumed after 2006.

Table 2 Capital Flight Scenario

1 Large amount of short-term government liabilities are accumulated.

2 Japanese investors lose confidence in the Japanese government

3 Investors start to shift assets to foreign currencies.

4 Yen starts to fall sharply and other Asian countries start to devalue their currencies against the US dollar and the euro.

5 Japanese economy gets out of deflation. and the Bank of Japan tries to raise interest rates to stop the acceleration of inflation.

6 Japanese government will face a massive increase in its debt service due to shortened liability structure.

7 Japanese government will face a sharp down-grading of credit ratings and interest rates will rise further.

8 The Bank of Japan will be forced to print money to sustain the government.

Table 3 Proposed Gesell Tax on Government Guaranteed Assets

1 Levy tax on all the government guaranteed financial assets.
Tax is levied on the balance of the asset.
Tax rate should be somewhat higher than the rate of deflation.
Tax has to be levied repeatedly as long as deflation continues.

2 Taxable assets are as follows:
All the central and local government liabilities.
Central and local government bonds and other liabilities.
All the yen liabilities of the banking sector.
Yen cash payments on derivative transactions are taxable.
Postal saving and postal life-insurance policies.
Cash (BOJ notes)

3 Taxation on cash
The Bank of Japan has to print new bank notes and levy fees for exchange.
Alternatively, levy stamp duty on old bank notes.

Table 4 Effects of Gesell Tax

1 Asset substitution
People shift assets from "safe" assets to risky assets.
From taxable assets to all the non-taxable assets:
Non taxable assets includes:
Stocks, real estate, corporate bonds, foreign bonds, and consumer durables.
Stock and real estate prices will rise.
The yen will depreciate against foreign currencies.

2 Credit expansion
Banks will shift assets from BOJ deposits and government bonds to loans and corporate bonds.
Inter-corporate credit will also expand because cash will be taxed.

3 Expectations effects
The expected real return on cash and government guaranteed deposit will decline because of the cost of taxation.

Table 5

Massive Long-Term Bond Purchase and the Bank of Japan Balance Sheet

Before the Exit from Deflation

The Bank purchases 150 trillion yen of 10 year JGB

150 trillion yen of long-term bonds and the same amout of current deposits are added on March 2004 figures

Long-term bonds	216	Bank notes	71
Short-term notes	62	Current deposits	186
Other assets	21	Other liabilities	39
		Net asset	3
Total	299	Total	299

After the Exit from Deflation

The long-term interest rate rises by 5 points and long-term bonds lose 30% of the value

Long-term bonds	151	Bank notes	71
Short-term notes	62	Current deposits	186
Other assets	35	Other liabilities	39
		Net asset	-48
Total	248	Total	248

The Bank of Japan absorbed the excess liquidity by open market sales of its assets.

Long-term bonds	0	Bank notes	35
Short-term notes	0	Current deposits	5
Other assets		Other liabilities	
Gold, real estates		Bills sold	13
and foreign assets	5	Net asset	-48
Total	5	Total	5

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