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DISCUSSION PAPER No. 74

**CROWDING-OUT AND CROWDING-IN  
EFFECTS OF GOVERNMENT BONDS  
MARKET ON PRIVATE SECTOR  
INVESTMENT  
(JAPANESE CASE STUDY)**

**Dr. Emad M.A. Abdullatif Alani\***

**October 2006**

**Abstract**

This paper reviews the relationship between public sector investment and private sector investment through government expenditures financed by government bonds in the Japanese economy. This study hypothesizes that deficit financing by bond issues does not crowd out private sector investment, and this finance method may crowd in. Thus the government increases bond issues and sells them in the domestic and international financial markets. This method does not affect interest rates because they are insensitive to government expenditures and they depend on interest rates levels in the international financial market more than in the domestic financial market because of globalization and integration among financial markets.

**Keywords:** government debt, budget deficit, government bonds, crowding out/crowding in.

**JEL classification:** E43, E44, E62.

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\* Assistant Professor in Financial Economics, BAGHDAD UNIVERSITY.  
(Visiting Research Fellow, IDE- JETRO, JAPAN).  
[emad\\_alni2000@yahoo.com](mailto:emad_alni2000@yahoo.com) and [emad@ide.go.jp](mailto:emad@ide.go.jp)

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**INSTITUTE OF DEVELOPING ECONOMIES (IDE), JETRO**  
**3-2-2, WAKABA, MIHAMA-KU, CHIBA-SHI**  
**CHIBA 261-8545, JAPAN**

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## **I. Introduction**

The relationship between government debt and their financing and economic performance is a subject of continuing discussion in economics and public policy making. While the *Neoclassical* school advocates *Crowding-out*, increased government involvement in the economy might distort the economic and political environment of business and discourage or crowd out private sector investments.

On the other hand, the *Keynesian* model argues that an increase in the government spending stimulates the domestic economic activity and *Crowds-in* private investment, the government might help lay the ground for the development of private sector through the provision of legal infrastructure that ensures physical and intellectual property rights and by undertaking investments that deepen the physical and human capital infrastructure in the country.

The Japanese economy is very huge, it the second economy after the united states in the world. The Japanese government finance is also very big, and the government expenditures are direction to infrastructure and include investment in public works, education, and health care facilities. As a result, to this expenditure in productive investments, and human capital infrastructure by the state might crowd in, rather than crowd out, private sector investments.

In addition, the Japanese government may use fiscal policy that involves increased spending in infrastructure projects as an aggregate demand management tool. If such policies turn out to be successful, decreased macroeconomic volatility and a more stable level of aggregate demand may provide stimulus for private businesses.

Nevertheless, not all government expenditures are productive in nature and not all aggregate demand management attempts successful in practice.

The rest of the paper is organized as follows:

Section II: discusses the theoretical literature of government expenditure increasing.

Section III: discusses the present trend of budget deficit and government bonds market in Japan.

Section IV: discusses the definition of the determinants of crowding-out or in effect of government bonds market on private sector investment in Japan.

Section V: contains a summary and conclusions.

## **II. The Theoretical literature:**

This section describes the various influences on the multiplier effects of government spending increase which financed by government bond issues in the government bonds market and tax-financed cuts. The intention is to identify the circumstances under which fiscal expansions will tend to be relatively effective or relatively ineffective in stimulating economic activity and to highlight in particular when fiscal contractions might be expansion.

The growth of fiscal deficits and the resulting increase in government debt have attracted the attention of policymakers and financial market analysts. However, the impact of these factors on economic variables remains controversial among economists, the effects of government deficits on the economy particularly on private investment.

There are different views exist on the effects increased government expenditures on private investment<sup>1</sup>:

1. **The Neoclassical** considers individuals planning their consumption over their entire life cycles. By shifting taxes to future generation, budget deficits increase current consumption. By assuming full employment of resources, Neoclassical argue that increased consumption implies a decrease in saving. Interest rates must rise to bring equilibrium to capital markets. High interest rates, in turn, result in a decline in private investment. Thus, budget deficits could "**crowd-out**" private investment. (Aschauer 1989) provides empirical evidence showing that higher public capital spending lowers private investment.
2. There are **Keynesians** who provide a counter argument to the crowding-out effect by making a reference to the expansionary effects of budget deficits. The essence of the Keynesians approach to development financing is that investors may lay claim to real resources in excess and ex ante estimates of

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<sup>1</sup> See: - Yesim KUSTEPEL, "Effectiveness of Fiscal Spending: Crowding out and/or crowding in?" YÖNETİM VE EKONOMİ: 2005 Cit.: 12 Say: 1, Celal Bayar University. B.F. MAN SA, pp 184-185. and also:

- Erdal Atukeren, "Interactions between public and private investment: Evidence from Development countries" Swiss Institute for Business Cycle Research (KOF) Swiss Federal Institute of Technology - Zurich (ETH Zurich) Zurich, September, 2004, pp1-2.

saving, as capital formation creates new capacity and employment. Thus, an initial inflationary impulse may be offset by an increased supply potential, and planned saving (ex ante) may catch up with forced saving (ex post) again<sup>2</sup>.

Whichever they argue that usually budget deficits result in an increase in domestic production, which makes private investors to become more optimistic about the future course of the economy and invest more. This is known as the “crowding-in” effect. Eisner (1989) is an example of this group, who concludes that “The evidence is thus that deficits have not crowded-out investment. There has rather been crowding in.

3. There is the Ricardian equivalence approach advanced by Barro (1989), who argues that an increase in budget deficits, say, due to an increase in government spending must be paid either now or later, with the total present value of receipts fixed by the total present value of spending. Hence, a cut in today's taxes must be matched by an increase in the future taxes, leaving interest rates, thus, private investment unchanged.

In the other words, in anticipation of the future tax increase, consumers save rather than spend the income from the tax cut, and the reduction in tax leads to an equivalent increase in saving. A reduction in tax that simply substitutes debt-finance for tax-finance of unchanged government spending would leave consumer spending unchanged-and would lower it as a share of (now higher) disposable income. If government consumption is increased and financed by debt, private consumption should decline one-to-one with each unit of money of higher permanent government spending<sup>3</sup>.

Whether public and private sector investments are substitutes or complements have been a ground for strong controversy in economic theory and policy. Free markets advocates argue that government intervention in the economy should be minimized. According to this view, state sector activity competes with private sector for scarce resources and drives their prices up. Especially if public sector investments are financed by borrowing, this leads to an increase in market interest rates and thus raises the cost of capital for the private sector. Hence, some private sector projects become unprofitable / infeasible. The end result is the crowding out of private investments by public sector

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<sup>2</sup> See, Dirk J. Wolfson, “**Public Finance and Development Strategy**”, The Johns Hopkins university press, London 1979, pp 38-39.

<sup>3</sup> See, C.W.M. Naastepad, “**The Budget Deficit and Macroeconomic Performance**”, Oxford University Press, New York, 1999, pp26-27.

investments. Since it is generally accepted that private sector investments contribute more to economic growth, an increase in the size of the public sector at the expense of the private sector also hinders economic growth and well-being<sup>4</sup>.

On the other side of the coin, it is argued that public investments may indeed be beneficial for the development of the private sector. The government sector, for example, can afford to invest in *infrastructure* projects that involve large sunk costs and need long lead times to become profitable. The private sector may benefit from the spillovers from such public sector projects during and after the completion of the project. A better developed infrastructure in roads and railways, for example reduces transportation costs, and hence facilitates a better business environment. Furthermore, public investments in education and health care facilities help improve the level and the quality of human capital in an economy. In addition, as an aggregate demand management tool, government investments might be used as a counter-cyclical economic policy measure to smooth the business cycle and revitalize the private sector activity - at least in the short run. Last but not the least, the crowding out arguments explained in the paragraph above are based on the assumption that the economy operates at a point on its production possibilities frontier and that it has well-developed and efficiently functioning financial markets. These conditions are not always fulfilled-especially in developing countries.

Thus, public investments may not necessarily compete with the private sector for scarce resources. Some private sector investments might also not be financed if financial markets are shallow. In such situations, public sector investments might indeed play a catalyst role in providing the economy with much needed and otherwise hard to undertake investments. As a result, the private sector and the economy in general may benefit from public sector investment.

### **III. Present trends of budget deficit and government bonds market in Japan:**

#### **1. Budget Deficit:**

A budget deficit occurs when an entity (often a government) spends more money than it takes in. The opposite is a budget surplus. The size of a government budget deficit is often an important political issue as well as one of economic policy.

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<sup>4</sup> See: - Erdal Atukeren, “**Interactions between public and private investment: Evidence from Development countries**”, Op.Cit, p2.

An accumulated deficit over several years (or centuries) is referred to as the government debt. Often, a certain part of spending is dedicated to paying of debt with certain maturity, which can be refinanced by issuing new government bonds. That is, a fiscal deficit leads to an increase in an entity's debt to others. A deficit is a flow. And a debt is a stock. Debt is essentially an accumulated flow of deficits. Any deficit must, ultimately, be repaid and financing.

The financial deficit can be financed in a variety of ways, some more extremist than others. A brief description of these ways will be useful for our discussion of limits to financing. In order to account for all major sources of financing, the deficit is defined on an accrual basis. I'll distinguish domestic from foreign sources.

1. **Domestic financing**: Borrowing from the public (free sales of bonds, sale of bonds to captive market), building up of domestic arrears, borrowing from the banking system and others<sup>5</sup>.
2. **Foreign financing**: Grants, concessionary loans, commercial loans, external arrears and other<sup>6</sup>.
3. **Mixed financing**: Borrowing from both, the domestic and international financial market by issues international bonds in them. The high savings rate and excess liquidity in the international financial system made it possible for the bulk of the fiscal deficit to be financed through non-inflationary domestic sources in the form of government securities.

The deregulation and liberalization of financial markets are facile the optimal policy mix for financing the budget deficit will consist the international saving in addition to domestic saving. The budget deficit at its present levels should be financed entirely by open-market borrowing, and should decline tax-financing.

### **1) General Government Gross Debt (International Comparison):**

Large and recurring government budget deficits in the industrial countries have push up ratios of government debt to GDP. Table (1) shows this fact, In Japan, it's in the first place, so the ratio of government debt to GDP, increase from (87.1) percent in the (1995), to over (134) percent in the (2000), and continuance to this tends to be over (163) percent in the (2006). So the same thing in the other industrial countries, for example, in united state, this percentage, in the period ( 1995-2006) it was between (60-70) percent as average, and in the GR and FR also (see table 1).

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<sup>5</sup> See, Vito Tanzi, "Public **finance in developing countries**" Edward Elgar publishing limited, London, 1991, PP 91-98.

<sup>6</sup> IBID.

**Table( 1 ) General Government Gross Debt (International Comparison)**

(As a percentage of GDP)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<b>JP</b>	87.1	93.9	100.3	112.2	125.7	134	142.3	149.4	154.6	157.6	161.1	163.1
<b>US</b>	74.2	73.4	70.9	67.7	64.1	58.3	57.9	60.2	62.6	63.4	66.4	69.1
<b>UK</b>	52.7	52.6	53.2	53.8	48.8	45.9	41.2	41.5	42	44.2	46.3	48.3
<b>GR</b>	57.2	60.2	61.8	63.3	61.8	60.9	60.4	62.9	67.	70.1	71.6	72.6
<b>FR</b>	63.9	67.5	69.4	71.1	67.3	66.2	64.9	68.7	71.1	73.2	74.2	74
<b>IT</b>	125.5	131.3	133.3	134.9	129.4	124.7	123.9	122.6	120.1	118.6	120.8	121.8
<b>CA</b>	100.8	100.3	96.2	93.9	89.5	81.8	81.	77.7	73.3	71.5	68.3	65.9

Source: Ministry of finance, "**Highlights of the Budget for FY2006**", Tokyo, Dec.2005, p16.

All of this has forced authorities to think hard about how they could minimize the cost of placing and servicing government debt. And the more they thought about that problem, the more convinced they seemingly became about three conclusions<sup>7</sup>:

***First:*** One could no longer rely almost exclusively on domestic investors. Given the size of the debt, crowding-out factors would push up domestic interest rates too high, and relaxation of capital controls cum the increasingly global competition for saving had rendered domestic investors less captive than before. No, if the debt was to be sold at low cost, government would have to tap the international market. Moreover, in that international market, it would be the institutional investor that would be prime customer for these bonds. The share of public debt of the seven major industrial countries held by non-residents<sup>8</sup> now exceeds (20)

<sup>7</sup> See, IMF, "**International Capital Market**", Washington, D.C., Sep. 1994, pp20-21.

<sup>8</sup> The international debt securities database covers three types of instruments: securities denominated in a currency different from that of the market in which they are issued ("**eurobonds**"); securities denominated in the currency of the market in which they are issued, but issued by non-residents (Japanese's foreign bonds, such as "**yankee**" bonds in the US market); and securities denominated in the currency of the market in which they are issued, issued by residents, but targeted to nonresidents. For this last type of instrument, trenches targeted to domestic investors are sometimes identified separately from those targeted to international investors, in which case the BIS statistics on international securities issues would not necessarily overstate portfolio flows.

percent, and this share is on the increase. For example, during 1993, on the order of one half of all domestic and foreign deutsche mark bonds were purchased by non-residents, and they now hold over (30) percent of all deutsche mark bonds outstanding. Similarly, non-residents now account for approximately (30) percent of the French Government's negotiable debt and for roughly (50) percent of bond positions taken on MATIF (Marche a Term International de France). So to with the trend of institutional holdings, which have generally risen at the expense of the share held by households. Here, the UK figures are instructive. In (1980), households held (16) percent of gilts; by (1992), the household share had fallen to (9) percent.

**Second:** If government debt was to be attractive to the international investor, it would be necessary to institute a series of reform in government bond market. Those reforms, in turn, would be patterned on the standards of liquidity, transparency, issuing and trading efficiency, and tax treatment established in the world's premier government market securities market, namely, the market for US government securities.

**Third:** If government debt management was to be more clearly formulated in terms of cost minimization and if these reforms in government securities market were to be implemented effectively, government debt management would need to gain greater independence form the rest of government, and particularly form monetary and exchange rate policies. While much has been made in recent years of the trend toward increasing independence of central banks, this trend toward increasing independence of debt management has been just, if not more, in evidence. Where this has been done, the underlying assumption is that there are sufficient monetary policy instruments available to sterilize the impact of debt management operations on the monetary base. Under this approach, management of the maturity and currency composition of debt also cease to send signals about future monetary and exchange rate policy.

## **2) Japanese's Government Debt:**

Earlier we emphasized that government debt depends largely on the budget deficit. The Japanese's government Debt Outstanding, increase from (410) trillion yen (equal nearly 3.656 \$) in the (FY1995), to over (646) trillion yen (equal nearly 5.617 \$) in the (FY 2000), and continuance to this tends to be over (775) trillion yen (equal nearly 6.739 \$) in the (FY 2006). (See table 2).

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<b>Table ( 2 ) Long-term Debt Outstanding (FY2006 Budget)</b>					
(Trillion yen)					
	<b>FY1995</b> ( Settlement )	<b>FY2000</b> ( Settlement )	<b>FY2004</b> ( Settlement )	<b>FY2005</b> ( Revised )	<b>FY2006</b> ( Budget )
<b>General Gov</b>	297	491	564	600 ( 570 )	605 ( 580 )
<b>General Bonds</b>	225	368	499	536 ( 506 )	542 ( 517 )
<b>Local Gov.</b>	125	181	201	204	204
<b>Duplication</b>	-12	-26	-33	-34	-34
<b>Total</b>	410	646	733	770 ( 740 )	775 ( 750 )
<b>Percentage of GDP</b>	82.7	128.5	147.6	152.8 ( 146.8 )	150.8 ( 145.9 )

Source: Ministry of finance, “**Highlights of the Budget for FY2006**”, Tokyo, Dec.2005, p11.

Note:

1. GDP for FY2005 : estimates, FY2006: forecast.
2. FY2006 includes redemption by usage of the surplus fund of special account for fiscal loan program fund.
3. Figures in parentheses of FY2005 and FY2006 exclude front-loading issuance of refunding bonds.
4. Government bonds outstanding of special account for fiscal loan program funds are 141 trillion yen.

### 3) The public budget's ingredients in Japan:

Figure (1) provides the amounts of public budget's ingredients in Japan to a period (1983-2006), its divided to two curves, the first one indicator to tax revenues and a second one indicator to total expenditures, in addition to indicator to government bonds issues ( we will discussion subsequently).

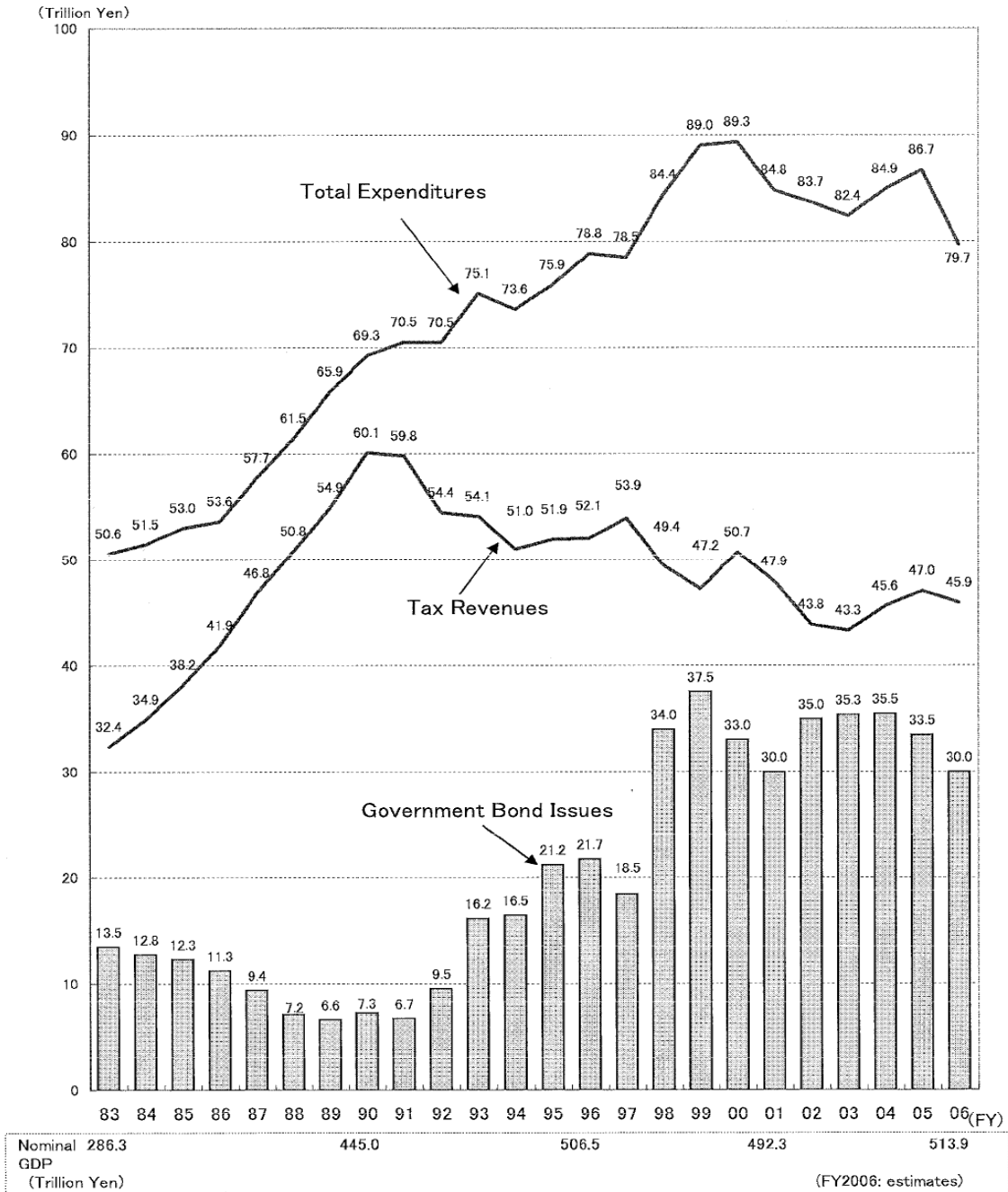
The total expenditures increasing sharply from (50.6) trillion yen in the (1983) to (84.4) trillion yen in the (1998), and it still to keep its rise until now, so its amount (79.7) trillion yen in the (2006), videlicet it was growth increasing an average (36.5) percent yearly during the period. In the (2000) was the biggest amount of total expenditures (89.3) trillion yen. (See figure 1).

The tax revenues was similar the trend the total expenditures just in (1980's), so it was increasing sharply from (32.4) trillion yen in the (1983) to (60.1) trillion yen in the

(1990) and it was the biggest amount of tax revenues. But the tax revenues trend toward decreasing after the (1990) from (60.1) trillion yen in the (1990) to (45.9) trillion yen in the (2006).

**Figure (1)**

**Trends of General Account Tax Revenues, Total Expenditures, and Government Bond Issues**



(Note) FY1983–2004: settlement, FY2005: revised, and FY2006: budget.

Source: Ministry of finance, “**Highlights of the Budget for FY2006**”, Tokyo, Dec.2005, p12.

As a result for that situation there is a deficit in budget account should be financed, and we noted the increasing in the government bonds issue in the (figure 1) which substituting the decreasing in the tax revenues and will be financing the deficit in it.

## **2. Government Bonds**

Government bonds issues increased in recent years and bonds have become an important financing instrument. Originally these bonds were used to finance construction projects. Lately, a bond to finance government deficits has evolved. Increasing use of these deficits-covering bonds entails the danger of leading to inflation.

### **1) A brief history of postwar government bonds<sup>9</sup>:**

Since the end of World War , the government has undergone dramatic changes in the financing of its expenditure. These changes have been in part, due to cyclical business conditions and due in part to the political pressures both inside and outside government.

During the 1960's and the half of the 1970's, Japan had a high rate of economic growth. The government enjoyed high tax revenues and could finance increased expenditures as well as reduce tax rates. However, in the second half of the 1970's the government could no longer depend on increasing tax revenues? The oil crises resulted in depressed business conditions, and tax revenues in FY1975 fell far below the original budget estimates. The government was in a serious financial situation, and bonds to finance the deficit were issued for the first time.

Some Keynesian economists have advocated a policy of budget deficits to stimulate effective demand. They have strongly recommended the issuance of government bonds to fill the revenue deficit, thus causing an expansionary budget. Since 1975, the government has justified issuing bonds by declaring efficiency and equity in the financing of its investment expenditures.

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<sup>9</sup> See, Masazo Ohkawa, “**Government Bonds**”, Research in the “**Public Finance in Japan**”, Edited by Tokue Shibata, University of Tokyo press, Tokyo, 1986, PP123-124.

Financing deficits by issuing bonds does not necessarily shift the burden of government expenditures to future generations. However, the government has tried to convince the public of the efficient and equitable relations between present and future generations. The future generations which will enjoy the benefits of government investment will also be required to pay the debt-servicing expenditure including interest payment and capital-refunding. If the whole of government investment expenditure is financed by taxes collected from the present generations, an unequal burden is imposed.

**Box (1) The history of Japanese stock exchange:**

The Japanese securities market was founded by the Meiji Government in the (1870's). This "new" government issued public bonds to the former Samuri as a form of pension system. At the same time, the government was establishing new industries, the railways, national banks, trading companies, etc., and as a result, created a need for public exchange where securities could be negotiated. The Meiji government formed the "Stock exchange regulations" but the government found themselves unable to enforce these regulations and a new law was passed in (1878), incorporating older Japanese regulations that covered rice transactions. In the same year. The Tokyo and Osaka exchange were established as profit-making joint stock companies and these grew rapidly during the next ten years or so, along with the growth of business enterprises, though government bonds accounted for most of the transactions.

(See, Willian Duncan," Japanese markets review 1974-75", Gower economic publications, London, 1974, p92).

Until 1974, the total government bond issue did not exceed the total government investment (for construction works) in the general account budget. Thus the government bonds issued were called "**construction**" bonds, the issuance of government bonds for the general account budget were lawful in such special cases as when the revenues raised were used for government investment.

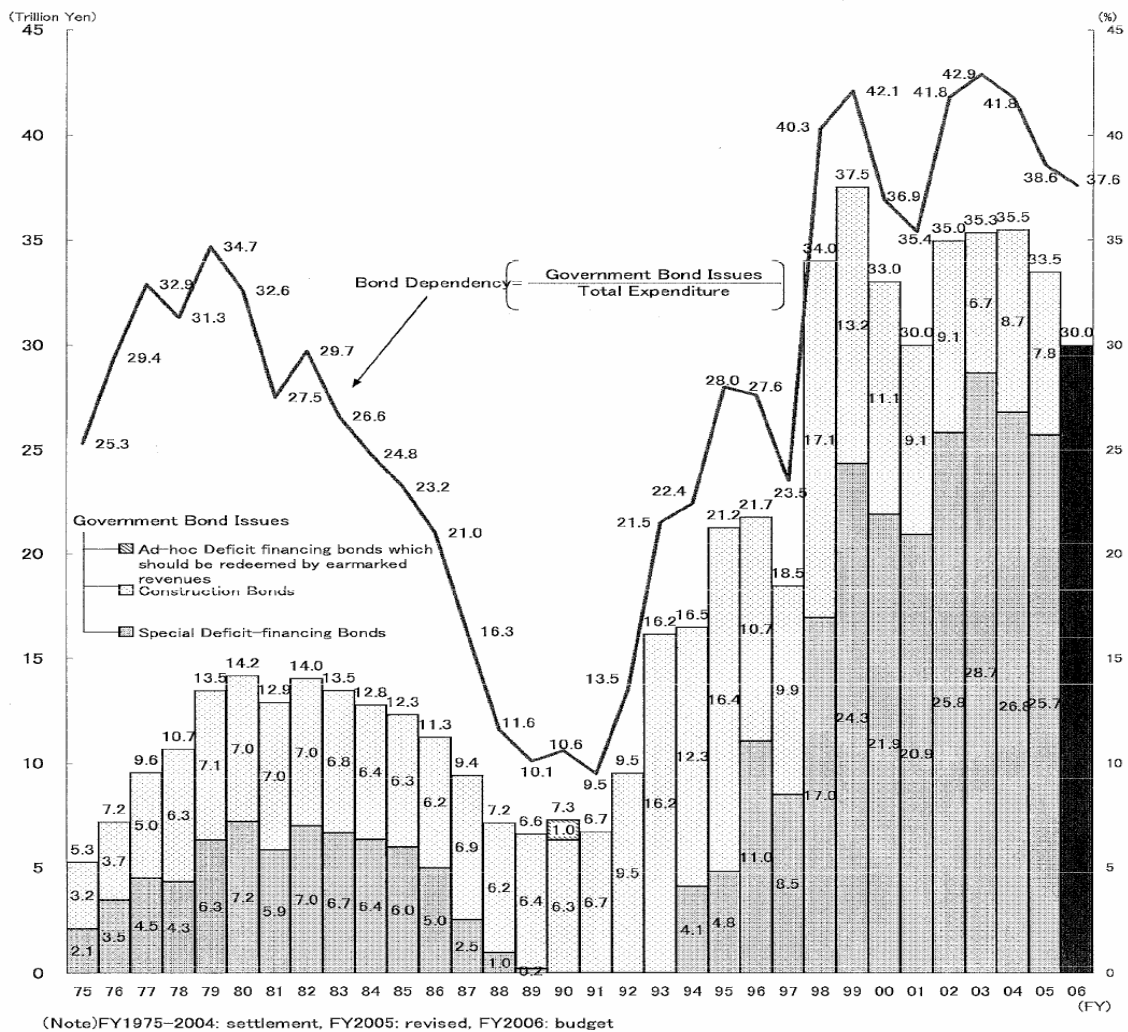
## **2) Present trend of government bonds issue and Bond Dependency Ratio:**

The JGB (Japanese Government Bond) issue amount has been on the increase in recent years. While the JGB issue amount often refers to that of new financial resource bonds (= **construction bonds** + **special deficit-financing bonds**), securities issued by the central government also include refunding bonds and Fiscal Loan Bonds. As the diagram below shows, the total issue amount of these government bonds was increasing at a dramatic pace particularly in the last several years. Although the issue amount of new financial resource bonds had been hovering between (30) and (40) trillion yen since (FY1998), it is reduced to under (30) trillion yen in (FY2006). As for the total issue amount of JGBs including refunding bonds, the figure had increased from

(70) trillion yen to over (80) trillion yen during (FY1998) to (FY2000). Furthermore, launch of Fiscal Loan Bonds in (FY2001) pushed it up to over (130) trillion yen, And since then it was increasing and increasing. In (FY2006), however, the total sum is reduced to approximately (165) trillion yen <sup>10</sup>.

**Figure (2)**

**Trends of Government Bond Issues (FY2006 Budget)**



Source: Ministry of finance, “**Highlights of the Budget for FY2006**”, Tokyo, Dec.2005, p13

Figure (2) provides information, for (1975-2006) period, for government bond issues and bond dependency. The main objective here is to provide the government

<sup>10</sup> See, Ministry of finance, “**Guide to Japanese Government Bonds 2006**”, Tokyo, [www.mof.go.jp](http://www.mof.go.jp), p8.

bond issues and their percentage to total expenditures in Japan.

The government bond issues changed on three stages during the period (1975-2006), as follow:

**Stage1:** since a second half of the (1970's) to end it, which the stage that toward increasing the government bond issues from (5.3) trillion yen in the (1975) to (14.2) trillion yen in the (1980).

**Stage2:** since beginning of the (1980's) to end it, the government bond issues trend toward decreasing from (14.2) trillion yen in the (1980) to (6.6) trillion yen in the (1989).

**Stage3:** since beginning of the (1990's) to end the period (2006), which the stage that toward increasing shapely in the government bond issues from (7.3) trillion yen in the (1991) to (30) trillion yen in the (2006).

The FY(1975), The bond dependency ratio was (25.3) percent of total expenditure, increasing to (34.7) percent of total expenditure in the FY(1979), and it's the higher percentage in the (1970's), than trend toward decreasing during in the (1980's) to (10.1) percent of total expenditure in the FY(1989), and trend toward increasing total expenditure beginning during the (1990's) from (9.5) percent of total expenditure in the FY(1991) and keeping going to this toward, to (37.6) percent of total expenditure in the FY(2006).(See figure 2).

### **3) Trend of accumulated government bonds outstanding:**

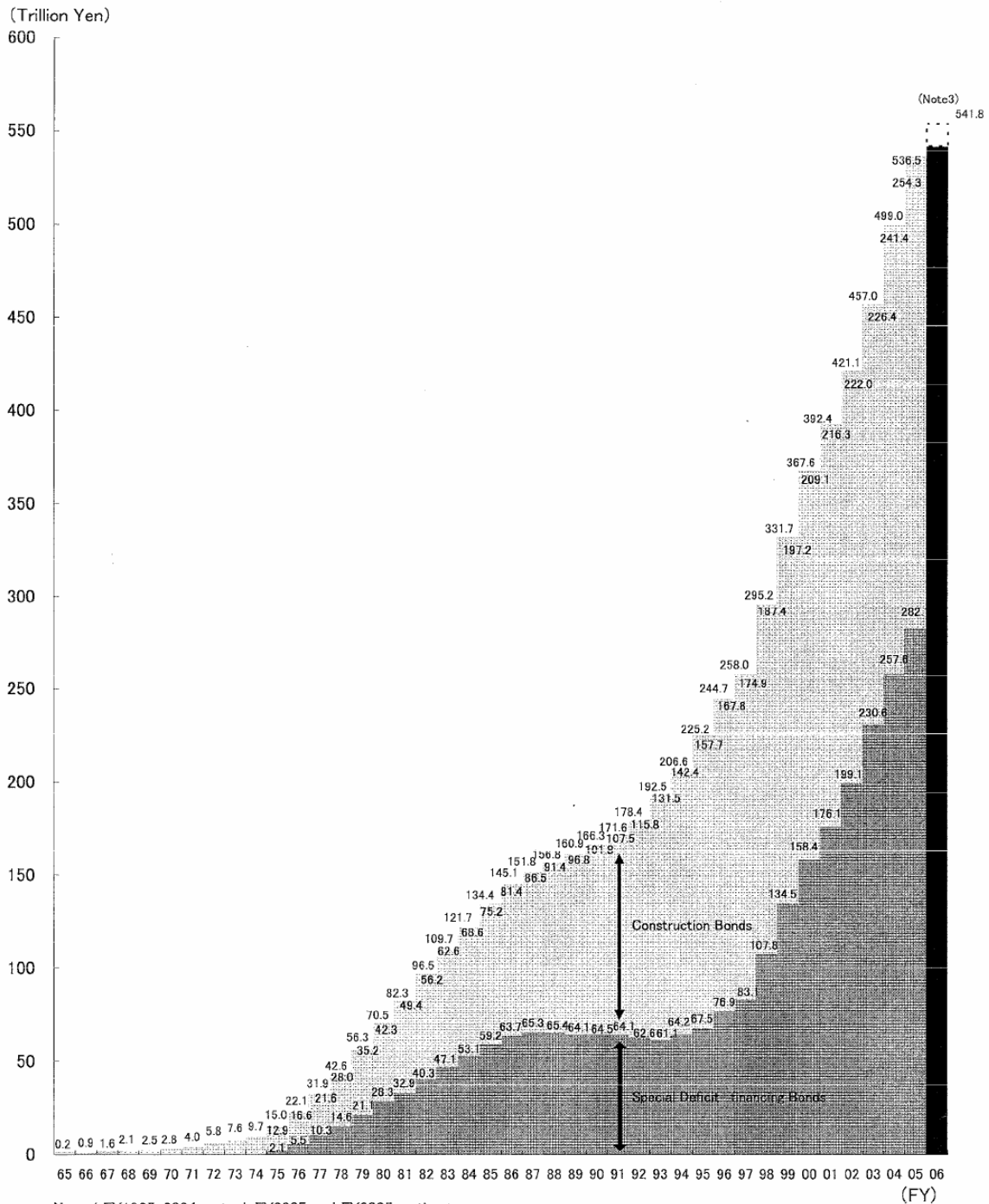
The accumulated government bonds outstanding in the Japanese's government bonds market which refers to (construction bonds and special deficit-financing bonds) changed on two stages during the period (1975-2006), as follow:

**Stage1:** From (1975) to (1990), the accumulated government bonds outstanding spout out sharply, this amount increasing from (15) trillion yen in the (1975) to (166.3) trillion yen in the (1990), videlicet it was growth increasing over ten multiple during this period. (See figure3).

**Stage2:** From (1991) to (2006), the accumulated government bonds outstanding spout out very speedily, this amount increasing from (171.6) trillion yen in the (1991) to (541.8) trillion yen in the (2006); videlicet it was growth increasing over ten multiple during this period.

**Figure (3)**

**Trends of Accumulated Government Bonds Outstanding (FY2006 Budget)**



Note 1. FY1965-2004: actual, FY2005 and FY2006: estimates.  
 2. The special deficit-financing bonds outstanding includes refunding bonds for long term debts transferred from JNR Corp. settlement and National Forest Service, etc.  
 3. FY2006 includes redemption by usage of the surplus funds of Special Account for Fiscal Loan Program Funds.  
 4. The estimates of FY2005 and FY2006 excluding front-loading issuance of refunding bonds is approximately 506 trillion yen, 517 trillion yen, respectively.

Source: Ministry of finance, "Highlights of the Budget for FY2006", Tokyo, Dec.2005, p14.

#### **IV. Effects of government bonds market on private sector investment in Japan:**

In this part of study, analyses the effectiveness of government bonds market in the context of Crowding-out or Crowding-in hypothesis in Japanese economy in the short and long run. I will use the most recent studies to examine my research hypothesize.

In the above discussion about the possible beneficial effects of public sector involvement in the functioning of the economy, we restrict ourselves only to productive investments. This excludes other categories of public spending, such as wages and salaries, subsidies, and unproductive government consumption items. Some of these expenditure items may be used as counter-cyclical policy measures and thus help smooth business cycles, but the effect of such expenditures on private sector investments is another topic to investigate. Another issue is the source of financing the public investments. Or, is tax financing better than borrowing?

On the basis of that, we will give some assumptions to start out our discussions as follow:

1. The higher government expenditures and the resulting increase in government deficit is finance by method which called deficit-covering bonds, not by tax-financed, in general the tax-financed crowding-out private sector investment more than bond-financed<sup>11</sup>.
2. Tax-financed government expenditures which is effect direct on private sector investment, on the other side, bond-financed government expenditures which is effect indirect on private sector investment, from through the reducing the amount of credit and rising the interest rate in the domestic market.
3. The government deficit's effects depend mainly on the structure of the government's financing. When there is an increase in the government's financing needs, and such needs are financed domestically, there will be upward pressure on interest rates, and a crowding-out of private investment. Conversely, if the government finances itself externally by issues amount of government bond in the domestic and international

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<sup>11</sup> See, Habib Ahmed, Stephen M. Miller, “**Crowding-Out and Crowding-In Effects of the Components of Government Expenditure**”, University of Connecticut, Department of Economics Working Paper Series Working Paper 1999-02, July 1999, p 12.

financial market the situation will be opposite.

4. The development of domestic and international financial markets since the 1990s until now, the governments have become more liquidity and increasing in carrying out fiscal policy and more adept at more the impact of a fiscal policy action, through increasing ability issues securities and sell it in domestic and international financial markets. Cash-based and resource-based which have the government thus increasingly contribute to capture adequately the timing of fiscal policy and their impact on the economy<sup>12</sup>.

In the other word, the high savings rate and excess liquidity in the international financial system made it possible for the bulk of the fiscal deficit to be financed through non-inflationary domestic sources in the form of government securities. The large issuance of these securities was subscribed mainly by provident, pension and insurance funds. As there was sufficient liquidity in the banking system to meet the private sector's financing needs, the government requirements did not result in any crowding-out effects<sup>13</sup>.

5. The government deficit's effects depend mainly on the structure of the government's expenditure, it can be divided into:
  - Spending on productive services (e.g., Building infrastructure).
  - The latter of which includes resources devoted to property-right enhancements (e.g., spending on civil services such as police).
  - Spending on unproductive (consumption) services (e.g., subsidizing food).

The spending on consumption services has a negative effect on growth, while the spending on productive services affects growth positively.

6. And the point more importantly in this place, the fiscal expansion not infinity because it will be created structural imbalance in the economy.

These assumptions give us more point to discussion the deficit-covering bonds and their effect on private sector investment and will be beginning from it.

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<sup>12</sup> Dubravko Mihaljek and Bruno Tissot, “**Fiscal positions in emerging economies: central banks’ perspective**”, BIS Papers No 20, Fiscal issues and central banking in emerging economies, Monetary and Economic Department, October 2003, p 10.

<sup>13</sup> V Vijayaledchumy, “**Fiscal policy in Malaysia**”, BIS Papers No 20, Fiscal issues and central banking in emerging economies, Monetary and Economic Department, October 2003, p 176.

## 1. Interest rates:

The traditional view argues that government expenditure crowds out private investment. Higher government expenditure increases the interest rates making capital more expensive and reducing private investment<sup>14</sup>. Even if the rate of interest were allowed to increase, there is still the set of questions:

1. The investment elasticity with respect to the rate of interest?
2. What a degree of response the private sector investment to changes in the interest rate in domestic financial market?
3. How much a degree of elasticity in interest rate to changes in the government expenditures?
4. Where the role central bank in impact on the interest rate from the demand and supply of money, and its impact on the amount of money which economy needed it?

For example, argue very strongly that the impact of the rate of interest on investment is modest at most. The interest rate is one from a set of parameters that impact on private sector investment, and may be less one from them.

On the other side, there is a very important matter that Interest rates depend on international financial market, more than domestic financial market, is not easy to any economy determining the structure of interest rate without trends the international interest rates in the international financial market, so the international interest rates determining to amount of capital demand and supply, particularly the economies live in situation of globalization and integration among their financial markets.

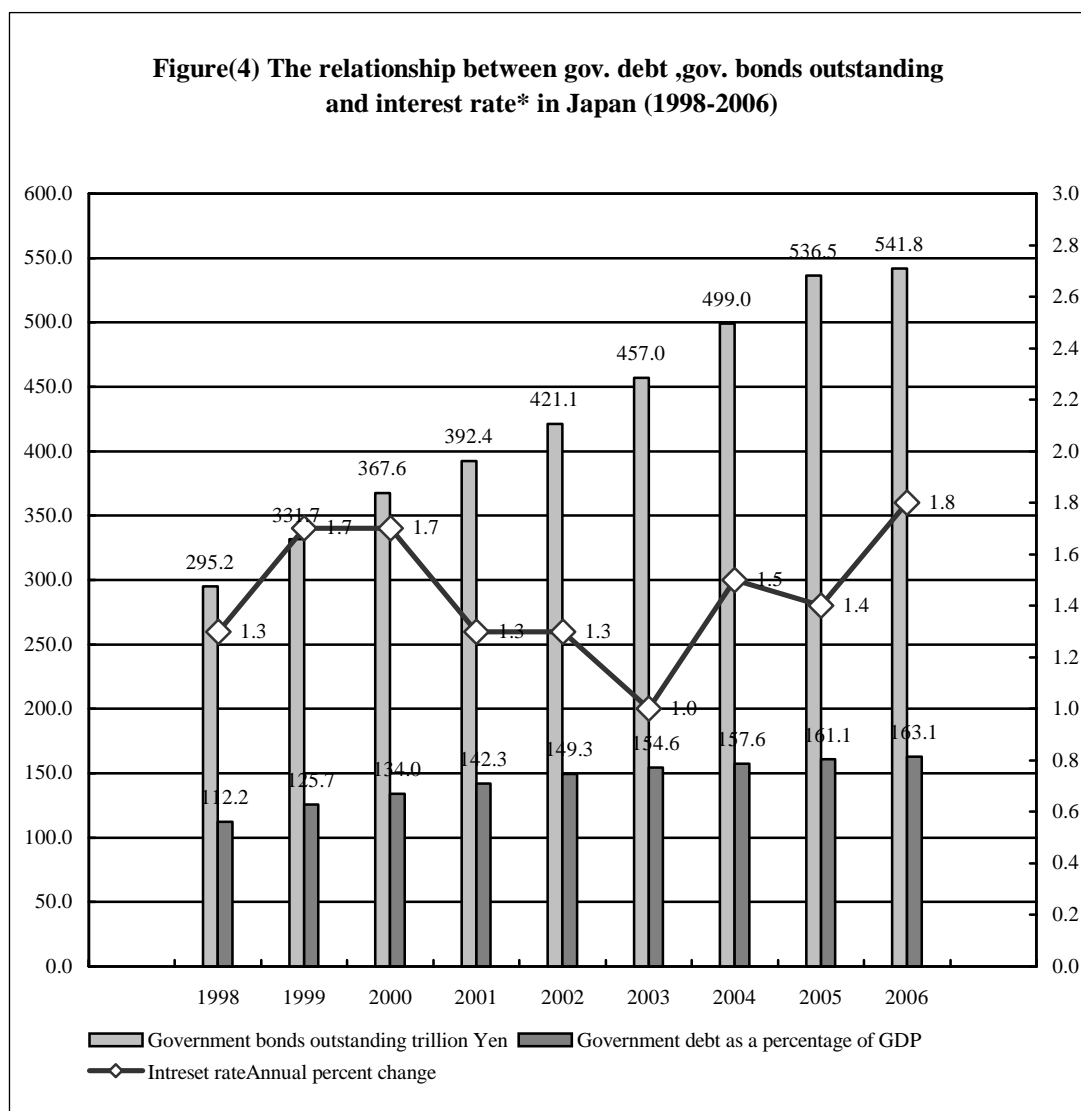
In addition, there are a lot of enterprises and companies (a big) have much liquidity of money and they not need to loan money, so another enterprises have ability to loan from the international financial market.

Now we examines whether higher levels of government debt is associated with higher or lower levels of interest rates in Japan, whichever the relationship between government debt and government bonds outstanding and interest rates in Japanese's economy during the period (1998-2006), thus determinant the impact of government debt and expansion in government bonds market on private sector investment through

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<sup>14</sup> IBID, p3.

interest rates channel, we can get to it through the Figure (4) which provides information, for this relationship we noted the government bonds outstanding and government debt increasing sharply form the year (1998) to (2006), while the interest rate is swung, its trend toward increase form the year (1998) to (2000), after than toward declining form the year (2000) to (2003), and get to increased another once.



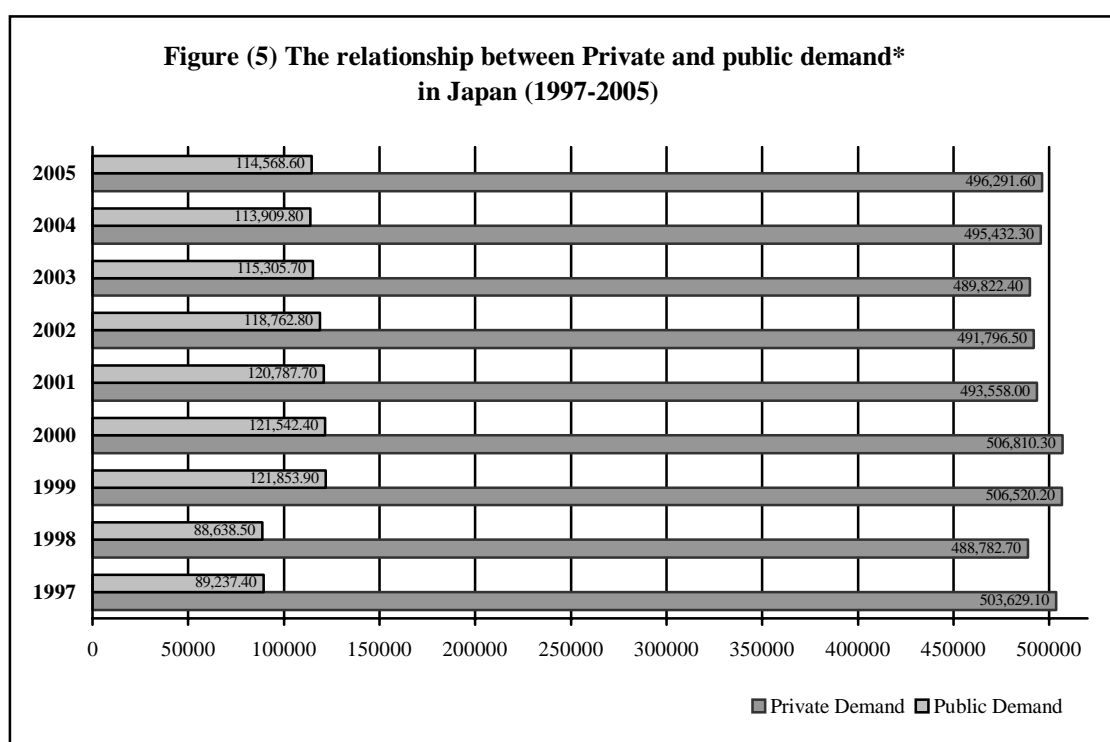
Sources:

1. Ministry of finance, “**Highlights of the Budget for FY2006**”, Tokyo, Dec.2005, p14, p16.
2. International Monetary Fund. “**WORLD ECONOMIC OUTLOOK, Globalization and Inflation**” April 2006, table (7 p188).

\* Long-run interest rates, annual data are period average.

## 2. The relationship Between Public sector and sector Private Investment:

A more difficult relationship to discern is that between public sector and private sector investment. Crowding-in of private sector investment by public sector investment is defined to occur when increased public sector investment is associated with increased private sector investment. This may arise because public infrastructure provision affects returns on private investment positively, hence enhancing the incentive to carry out such private investment.



Source: Ministry of finance, "MONTHLY FINANCE REVIEW", in the web side [www.mof.go.jp/english/mf\\_review/](http://www.mof.go.jp/english/mf_review/), various issues: August 2000(No.325), January2003 (no.354), January2006 (no.390) and april2006 (no.393). (Billion of Yen).

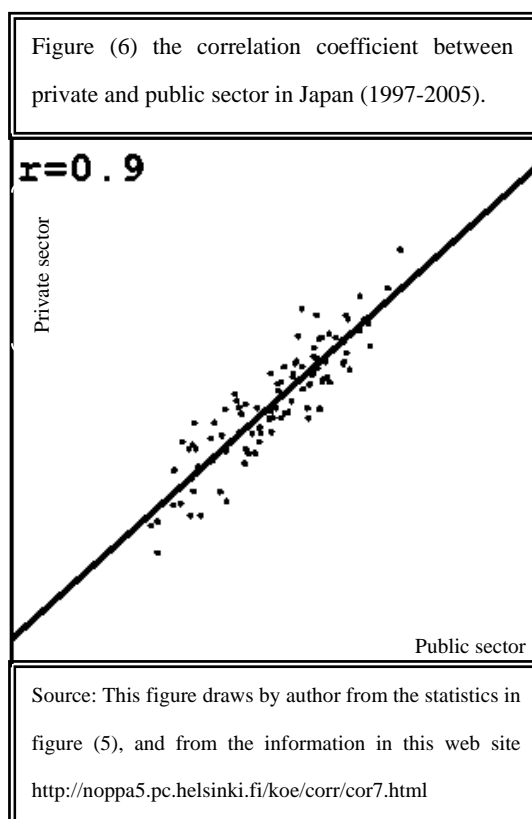
\* The private demand contains (s private consumption, Residential investment, Non-residential investment and private inventory). The public demand contains (public consumption, public investment and public inventory).

From through investigation of the relationship between public sector and private sector investment is presented in (Appendix table A-1), where the within-country correlations between public sector and private sector investment for all 63 countries in

sample are presented by (Stephen and Mariusz)<sup>15</sup>. The table shows that there is sometimes crowding out and sometimes crowding in, with an almost even split between the two. This may explain the contradictory findings in literature (The studies summarized Appendix table A-2). And it is also important to note that in addition to there are numerous studies (14) have shown that certain types of infrastructure and public investment facilitate both growth and private investment.<sup>16</sup>

In Japanese economy, the relationship between private and public investment are complements, If we look carefully to figure (5), we'll note there is a sharp a complement between them, and there are same important another notes as follows:

- 1) The public sector investment did not crowd-out the private sector investment, thus the private investment is still keep to average in level about (488782-506810) billion Yen to all the period (1998-2006).
- 2) There is same identicalness between them, when the public investment increasing, the private investment increasing also.
- 3) The correlation between private sector and public sector is very high, the correlation coefficient (99.4)<sup>17</sup> percent in the period (1998-2006). (See figure 6).



<sup>15</sup> Periods for the correlations vary by country, ranging from the entire sample period of 1970-2000, to as brief as 1995-2000.

<sup>16</sup> Stephen S. Everhart and Mariusz A. Sumlinski, “**Trends in Private Investment in Developing Countries Statistics for 1970-2000 and the Impact on Private Investment of Corruption and the Quality of Public Investment**”, IFC, International finance corporation, discussion paper number44.p17.

<sup>17</sup> This percentage extract by author from the statistics in figure (5), and to depend on this equation:  

$$r^2 = \frac{\sum xy}{\sqrt{\sum x^2} * \sqrt{\sum y^2}}$$

Thus, the public sector investment is crowd-in the private sector investment in the economy, and its glades area in front the private sector to investment, whichever this is complements between them.

### **3. The structure of the government expenditures:**

The crowding-out is not inevitable, when the government deficit, which financed by deficit-covering bonds, its effect on private sector investment, depend on the structure of the government expenditures, if their expenditures on the productive services particularly in infrastructure and re-construction.

As reviewed earlier, productive government investments might help enhance economic performance and growth potential especially in a developing country framework. The improved infrastructure, for example, should also be beneficial for the private sector activity and reflect itself as increased private sector investments. Thus, one can argue that productive government investments are more likely to crowd in, rather than crowd out, private investments especially at earlier stages of development. Therefore, differences in the (initial) level of development should be taken into account<sup>18</sup>.

Furthermore, our investigation of the determinants of the crowding-in effects of public investments can indeed be seen as a special case of the determinants of private investments in developing countries. That is, for public investments to enhance private sector investments, the economic and political conditions, and the institutional environment should be right (or, at least, not hostile) in the first place. This relates to the economic, political, and institutional environment of private business. Macroeconomic stability, sound economic policies, or improvements in economic conduct should promote private sector activity. In addition, the availability of domestic credit is an important factor in developing countries since borrowing constraints may impede the private sector development<sup>19</sup>. Also, a reduction in the government size through cuts in the unproductive government consumption items and transfer payments should lead to an improvement in the private business environment.

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18 Erdal Atukeren, “**Economic and Institutional Determinants of the Crowding-in Effects of Public Investments in Developing Countries**”. Swiss Institute for Business Cycle Research (KOF / ETH Zürich) WEH - ETH Zentrum, CH-8092 Zurich, Switzerland.(This version: 14 October 2005) p5

19 IBID,p5

We emphasize the role of two institutional variables regarding the political and legal environment of business<sup>20</sup>:

**First**: we consider the improvements in the rule of law and the protection of property rights lead to higher levels of economic freedom, which should be positively affecting the private business environment.

**Second**: the proxy to capture the level of checks and balances in the political system, or rather in the use of political power. Regardless of whether they are productive or not in essence, government investments are prone to misuse for political purposes or for the benefit of interest groups. As such, they may not fulfill their original purpose in practice and may indeed hinder private sector activity due to the possible presence of uncertainty and lack of accountability in policy making.

In addition, economic reforms, which are represented by the changes in the economic freedom indices, also necessitate a good degree of checks and balances and accountability in the political system to be effective and sustainable.

For example, if an increase in private investments also necessitate an increase in public works and infrastructure. A new factory, for example, would increase the need for public infrastructure and services near that facility. In this case, public and private investment goes hand in hand to enhance the productive capacity of an economy, this point to a complementary effect from public to private investments.

Public investment and capital in infrastructure may also affect private capital formation indirectly, through changes in output and relative prices. Public capital in infrastructure may increase the marginal productivity of existing factor inputs (both capital and labor), thereby lowering marginal production costs and increasing the level of private production. In turn, this scale effect on output may lead, through the standard accelerator effect, to higher private investment. Moreover, if there are externalities associated with the use of some production factors (for instance, learning-by-doing effects resulting from a high degree of complementarity between physical capital and skilled labor), a positive growth effect may also result. An improvement in the stock of public capital in infrastructure may therefore affect the rate of total factor productivity

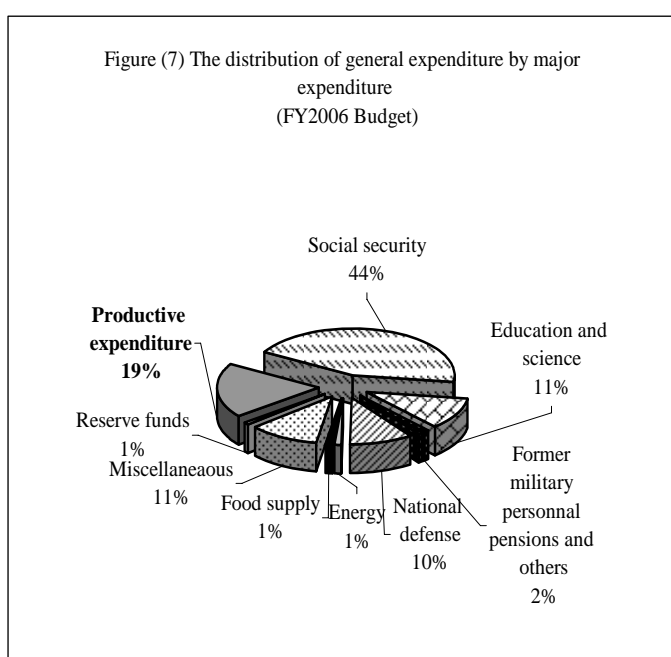
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<sup>20</sup> Erdal Atukeren, “**Economic and Institutional Determinants of the Crowding-in Effects of Public Investments in Developing Countries**”, Op.Cit., p8.

growth, independently of its effect on private capital accumulation<sup>21</sup>.

The investment in Japan especially that for infrastructure is mostly undertaken by public sector, which finances either through loan from international financial market or through borrowing from the domestic market. While the former implies insensitiveness to market incentives (for example, interest rate), However, Japan economy has a developed, in this sense, public and private investments probably act as complements, fiscal spending having a stimulating effect on private investment.

Figure (7), gives us the information about the distribution of general expenditure by major expenditure, the productive government expenditure amount over (19) percent of general expenditure in (FY2006 Budget). It contains (Public Works, Economic Assistance, Official Development Assistance ODA, Small and Medium Size Businesses, and Transfer to the industrial investment special account).



Source: This figure draws by author from the statistics in Appendix table (A-3).

#### 4. The government's financing:

As reviewed earlier, the financial deficit should be financed. Whenever go back to our assumptions, in general there are two methods, the first is which called deficit-covering bonds, and the second is tax-financed, generally the tax-financed crowding-out private sector investment more than bond-financed, because Tax-financed

<sup>21</sup> Pierre-Richard Agénor, Mustapha K. Nabli, and Tarik M. Yousef, "Public Infrastructure and Private Investment in the Middle East and North Africa," WPS3661, pp7-8).

government expenditures which is effect direct on private sector investment, on the other side, bond-financed government expenditures which is effect indirect on private sector investment, from through the reducing the amount of credit and rising the interest rate in the domestic market.

Indeed, to the extent that any differential effect on private capital accumulation, it would more likely be due to the way in which the government chooses to finance its spending rather than to the composition of the expenditure itself. There, a bond-financed (as opposed to tax-financed) government purchase of goods and services induces an ex post crowding out of private investment via a rise in real interest rates<sup>22</sup>.

Debt-financed government expenditure has a positive effect on private sector investment, while tax-financed has a negative effect on it, because an increase in taxes holding the private sector investment more carries cost. For example, the public investment in infrastructure displaces or crowds out private investment, its net positive impact on private capital formation can be highly mitigated. Such crowding-out effects tend to occur if the public sector finances the increase in public investment through an increase in distortion taxes- which may increase incentives for private agents to evade taxation, or reduce the expected net rate of return to private capital<sup>23</sup>.

In Japanese's economy, the debt-financed government expenditure has very high in the recent years, the bond dependency ratio attain (37.6) percent of total expenditure in the (2006)<sup>24</sup>.

## **5. The degree of development of financial market:**

Government bonds and government bonds markets have several characteristics that, together, distinguish them from private securities. These characteristics may include<sup>25</sup>:

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<sup>22</sup> David Alan ASCHAUER, "DOES PUBLIC CAPITAL CROWD OUT PRIVATE CAPITAL?", Federal Reserve Bank of Chicago, Chicago, IL 60604, USA, Received May 1988. Final version received April 1989, p 175.

<sup>23</sup> Pierre-Richard Agénor, Mustapha K. Nabli, and Tarik M. Yousef, "**Public Infrastructure and Private Investment in the Middle East and North Africa**, op.cit, pp6-7).

<sup>24</sup> See figure (2) page (12) in this study.

<sup>25</sup> IBID, pp 12-13.

1. Minimal credit risk—due to taxation authority and/or the power to monetize debt.
2. Well-developed market infrastructure—due to broad investor bases for government securities, efforts by issuing governments to minimize the cost of the public debt, and the use of government securities for implementing monetary policy.
3. Dense and broad yield curve—government securities are issued in a fairly small number of maturities (to maximize liquidity) but spaced out to cover a fairly wide range of maturities.
4. Supporting repo and derivatives markets.

Not all of these characteristics are present, or present to the same degree, in all government securities markets. Central governments in some European countries have, for example, not issued shorter-term debt securities, thus effectively “truncating” government yield curves in these countries. The U.S. Treasury market exhibits all of these characteristics.

The government bond markets have become a large fraction of financial markets in many countries, through the benefits of government bond markets as bonds can provide an alternative, non-inflationary source of financing for governments, foster a healthy capital market, and improve the functioning of the financial system. Moreover, active government bond markets can have indirect benefits through better monetary management, enhanced transparency, a widening of investment opportunities, easier benchmarking of corporate sector claims, and a more efficient determination of the time value of money<sup>26</sup>.

The Japan's government bonds issues was huge in the recent years, lead to expansions in the financial market as well as its increasing in private financial investment, thus the government bonds issues crowding-in the private sector investment in the financial market through the financial instruments (Equity and cooperated and government bonds)<sup>27</sup>. In addition to allow to non-residents to investment in the Japan's

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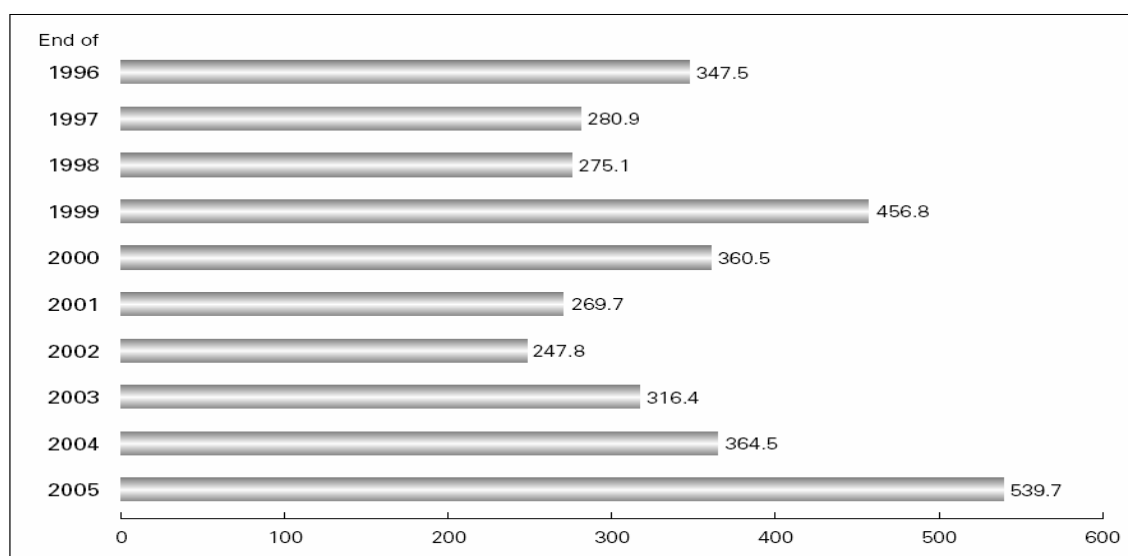
<sup>26</sup> Stijn Claessens, Daniela Klingebiel, and Sergio Schmukler, " **Government Bonds in Domestic and Foreign Currency: The Role of Macroeconomic and Institutional Factors**", Stanford University, Working Paper No. 169, June 2003, pp3-4.

<sup>27</sup> The Japan's government bonds issue lead to expansion in financial market since (FY1974-1975), See, Sera Eken, "**Integration of Domestic and International Financial Market: The Japanese experience**", IMF Staff Paper, Vol. 31, No. 3, Washington D.C., Sep. 1984, pp 500-516.

financial market, this operation is crowding-in the international private sector in it, inflow international capital to Japan's financial market.

Figure (8), provide us information about total market value in the Tokyo stock exchange (TSE), we noted the amount of total market value was increasing from (247.8) trillions yen in the (2002) to (539.7) trillions yen in the (2005).

Figure (8) Total Market Value for Tokyo Stock Exchange (1996-2005) (Trillions Yen)



Source: Tokyo Stock Exchange, “**Fact Book 2006**”, Tokyo, 2006, p34.

In the other side, the increasing in Japan's government bonds issues motivates the non-residents private sector to investment in Japan’s financial market. For example, the trading value in the foreign stock in Tokyo Stock Exchange (TSE) increasing from (24.386) billions yen in the (2003) to (312.796) billions yen in the (2005)<sup>28</sup>.

The government bonds have come to play the following roles in both domestic and international financial markets<sup>29</sup>:

1. Benchmarks for pricing and quotation in domestic and international bond markets.

<sup>28</sup> See, Tokyo Stock Exchange, “**Fact Book 2006**”, Tokyo, 2006, p6.

<sup>29</sup> Garry J. Schinasi, Charles F. Kramer and R. Todd Smith, “**Financial Implications of the Shrinking Supply of U.S. Treasury Securities**”, IMF, Washington DC., March 20, 2001, p7.

2. Important component of global bond indexes used by portfolio managers.
3. Major instrument for hedging fixed-income positions in international currencies and international markets.
4. Collateral for domestic and international financial transactions.
5. Main tool for liquidity management by private sector, especially by banks.
6. Large share of foreign exchange reserves held by other governments.
7. Main monetary intervention vehicle used by the central banks.
8. Domestic and international safe-haven.

For these reasons, the possibility that the supply of government bonds might increase in domestic and international financial markets.

#### **IV. Conclusions:**

This study analyses the effectiveness of fiscal policy in the context of crowding out or in hypothesis in Japan in the period (1998-2006). The relationship between government debt and the government bonds market and private sector investment. The results show that there is a positive relationship between public sector investment and private sector investment.

The government budget deficit has become an important policy form of the fiscal policy to effect on the macroeconomic variables, particularly when it's financed by government bonds issue, so it clearly through the big bond dependency ratio.

The government budget deficit which is financed by bonds, crowding-out is not inevitable, there are many reasons as follows:

1. The interest rates are insensitive to budget deficit.
2. The relationship between private sector and public sector investment are complements
3. The government expenditures are productive.
4. The level of development of financial market and the degree of integration with international financial market, it's very high, so the government and private enterprises can be lending from domestic and international financial markets.

For these reasons, the government bonds market is crowding-in the private sector investment in Japan's economy during the period (1998-2006).

Finally, there are some notes as follow:

1. If output and resources are fixed and fully employed, government can spend only at the expense of the private sector
2. If government spending stimulated investment in productive capacity, then prices may fall and investment increase:
  - –“Crowding in” (perhaps from scale economies)
  - –Investment responds to demand (not interest): accelerator process
3. Financial crowding out
  - Related to money demand and wealth effects on portfolios
  - Results from debt finance
4. Debt-financed deficits need not crowd out any private investment, indeed such deficits may “crowd in”

## Appendix:

Table (A-1) Selected literature review, Crowding-in, Crowding-out

CITATION	SAMPLE COUNTRIES	FINDINGS
Oshikoya (1994)	African	For most countries in this sample, public investment in infrastructure is complementary to private sector investment
de Oliveira Cruz and Teixeira (1999)	Brazil	Private investment is crowded out by public investment in the short term, but in the long term these two variables are complements
Clements and Levy (1994)	Caribbean	Crowding out
Blejer and Khan (1984)	Developing	Government investment in infrastructure is complementary to private investment, other types of government investment are not
Balassa (1988)	Developing	Crowding out
Greene and Villanueva (1991)	Developing	Crowding in
Heng (1997)	Developing	Shows that public capital can crowd in private capital by raising the marginal productivity of labor and savings
Ghura and Goodwin (2000)	Developing	- Overall sample suggests crowding in - Public investment crowds in private investment in SSAFR, but crowds out in Asia and LAC
Shafik (1992)	Egypt	Effects of government policy on private investment are mixed, evidence of crowding out in credit markets and crowding in as a result of government investment in infrastructure
Sobhee (1999)	Mauritius	Empirics suggest expenditures on health and infrastructure stimulate private investment, expenditure on education does not
Nazmi and Ramirez (1997)	Mexico	Crowding out
Musalem (1989)	Mexico	Crowding in
Looney and Frederiken (1997)	Pakistan	Crowding in
Sakr (1993)	Pakistan	When government investment is disaggregated into infrastructure and non-infrastructure components, the latter crowds out private investment
Ahmed and Miller (2000)	OECD and Developing	- Government expenditure crowds out for both samples, plus pooled sample - For developing countries, government expenditure on transport and communication crowds in
Argimon, Gonzalez-Paramo, Alegre (1997)	OECD	Crowding in effect of private investment by public investment through the positive impact of infrastructure on private investment productivity
Monadjemi and Huh (1998)	OECD (Australia, UK, USA)	Empirics provide limited support for crowding out effects of government investment on private investment
Pereira and Flores de Frutos (1999)	USA	Crowding in
Pereira (2000)	USA	Crowding in
Pereira (2001)	USA	- At the aggregate level, public investment crowds in private investment - Disaggregating private investment shows that the crowding in effect of public investment is strong for equipment and only marginal for structures - Public investment marginally crowds out private investment in information equipment

Source: Stephen S. Everhart and Mariusz A. Sumlinski, “Trends in Private Investment in Developing Countries Statistics for 1970-2000 and the Impact on Private Investment of Corruption and the Quality of Public Investment”, IFC, International finance corporation, discussion paper number44.P11.

Table (A-2) Investment Correlations \*(denotes significance at 5% level)

Region	Income	Country	Private vs. Public	
ECA	Lower middle	Bulgaria	-88%	*
ECA	Lower middle	Lithuania	-83%	
SSAFR	Low	Mauritania	-77%	*
ECA	Upper middle	Turkey	-76%	*
LAC	Lower middle	Bolivia	-74%	*
ECA	Low	Azerbaijan	-70%	
ECA	Upper middle	Poland	-70%	*
LAC	Upper middle	Grenada	-68%	*
LAC	Lower middle	St. Vincent	-66%	*
East Asia	Low	Indonesia	-62%	*
East Asia	Low	Cambodia	-61%	*
LAC	Upper middle	Mexico	-57%	*
ECA	Lower middle	Romania	-55%	
LAC	Upper middle	Chile	-55%	*
SSAFR	Low	Benin	-40%	
LAC	Lower middle	Belize	-39%	*
South Asia	Low	Pakistan	-36%	*
MENA	Lower middle	Morocco	-35%	
LAC	Lower middle	Paraguay	-34%	
ECA	Upper middle	Estonia	-32%	
LAC	Upper middle	Argentina	-31%	
SSAFR	Upper middle	Seychelles	-25%	
LAC	Upper middle	Dominica	-24%	
LAC	Upper middle	St. Lucia	-23%	
SSAFR	Lower middle	Namibia	-22%	
LAC	Upper middle	Brazil	-21%	
LAC	Lower middle	Colombia	-17%	
SSAFR	Low	Comoros	-17%	
LAC	Upper middle	Barbados	-17%	
LAC	Upper middle	Venezuela, R. B.	-15%	
LAC	Lower middle	Costa Rica	-14%	
LAC	Lower middle	Dominican Republic	-12%	
ECA	Lower middle	Kazakhstan	-5%	
SSAFR	Low	Madagascar	-4%	
South Asia	Low	India	-2%	
LAC	Lower middle	Ecuador	-2%	
LAC	Lower middle	El Salvador	1%	
MENA	Lower middle	Tunisia	4%	
East Asia	Upper middle	Korea, Rep. of	6%	
LAC	Upper middle	Uruguay	6%	
SSAFR	Low	Cote d'Ivoire	8%	
LAC	Lower middle	Guatemala	9%	
East Asia	Lower middle	Thailand	9%	
East Asia	Lower middle	Papua New Guinea	11%	
ECA	Low	Uzbekistan	15%	
MENA	Lower middle	Egypt	17%	
LAC	Upper middle	Trinidad & Tobago	20%	
LAC	Lower middle	Peru	23%	
East Asia	Lower middle	Philippines	24%	
SSAFR	Upper middle	Mauritius	25%	
East Asia	Upper middle	Malaysia	27%	
LAC	Lower middle	Guyana	37%	
SSAFR	Low	Kenya	38%	*
SSAFR	Low	Malawi	50%	*
LAC	Low	Haiti	51%	*
MENA	Lower middle	Iran	52%	*
SSAFR	Low	Guinea-Bissau	56%	*
East Asia	Low	China	59%	*
South Asia	Low	Bangladesh	64%	*
LAC	Lower middle	Panama	64%	*
LAC	Low	Nicaragua	67%	*
SSAFR	Upper middle	South Africa	78%	*
ECA	Lower middle	Yugoslavia, Fed. Rep.	97%	

Source: Stephen S. Everhart and Mariusz A. Sumlinski, "Trends in Private Investment in Developing Countries Statistics for 1970-2000 and the Impact on Private Investment of Corruption and the Quality of Public Investment", IFC, International finance corporation, discussion paper number 44.p13.

Table (A-3)

Outline of General Expenditures by Major Expenditure Programs (FY2006 Budget)						
(Unit : Billion Yen)						
	FY2005 Budget			FY2006 Budget		
		FY2004→FY2005	% change		FY2005→FY2006	% change
Social Security	20,380.8	583.8	2.9	20,573.9	193.1	0.9
Education and Science	5,723.0	-409.6	-6.7	5,267.1	-455.9	-8.0
(Science only)	1,317.0	32.9	2.6	1,331.2	14.2	1.1
Former Military Personnel Pensions and Others	1,069.3	-62.8	-5.5	998.9	-70.4	-6.6
National Defense	4,856.4	-46.6	-1.0	4,813.9	-42.5	-0.9
Public Works	7,531.0	-284.9	-3.6	7,201.5	-329.5	-4.4
Economic Assistance	740.4	-28.2	-3.7	721.8	-18.6	-2.5
ODA (reference only)	786.2	-30.7	-3.8	759.7	-26.5	-3.4
Small and Medium Size Businesses	173.0	-0.8	-0.5	161.6	-11.4	-6.6
Energy	495.4	-11.1	-2.2	470.9	-24.5	-4.9
Food Supply	675.5	-7.0	-1.0	636.1	-39.4	-5.8
Transfer to the Industrial Investment Special Account	71.0	-27.8	-28.1	48.1	-22.9	-32.3
Miscellaneous	5,217.1	-54.1	-1.0	5,122.2	-94.9	-1.8
Reserve Funds	350.0	0.0	0.0	350.0	0.0	0.0
Total	47,282.9	-349.1	-0.7	46,366.0	-916.9	-1.9

Source: Ministry of finance, "Highlights of the Budget for FY2006", Tokyo, Dec.2005, p2.

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