

## **Why has Fiscal Policy Disappointed in Japan? - Revisiting the Pre-Keynesian View on the Ineffectiveness of Fiscal Policy**

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### **Abstract**

Fiscal policy has been of significant size in Japan since the early 1990s, propelling Japan to the forefront of fiscally-challenged nations. However, the effect of fiscal policy has been disappointing. This paper discusses the various explanations provided by the literature (the argument that fiscal policy was effective; the argument that it was not effective, because of interest rate-based crowding out; and the argument that it was not effective, because of Ricardian equivalence). Their empirical record is evaluated and found to be less than convincing. The paper then discusses an alternative explanation, which is derived from pre-Keynesian views on the effectiveness of fiscal policy. A modified Fisher-equation is proposed, which synthesizes aspects of the early monetarist model with the recent findings in the credit view literature. The alternative explanation is subjected to empirical tests and found supported. Policy implications are discussed, especially ways in which the Japanese government could render fiscal policy more effective.

**Keywords:** credit, crowding out, equation of exchange, fiscal policy, Japan, monetarism, monetary policy, quantity equation

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“Before Keynes, it was commonplace that government spending and taxation were powerless to affect the aggregate levels of spending and employment in the economy; they could only redirect resources from the private to the public sector. ... The Keynesian demonstration ... changed all this. Economists began to stress the macroeconomic effects of government spending and taxation. It became commonplace that not only would a dollar of additional government spending raise national income by the original dollar but that this expenditure would have multiplier effects of perhaps several dollars more. The old view that government spending simply crowded out private spending was banished.”

Alan S. Blinder and Robert M. Solow (1973:319).

## **1. Introduction: Japanese Fiscal Policy in the 1990s**

As in other countries, Japanese fiscal policy has been the exclusive domain of the government, which proposes fiscal spending measures to parliament whose funding is detailed in budgets and supplementary budgets. In principle, the government has been following a balanced budget policy in the postwar era. The Finance Law of 1947 prohibited the issuance of government bonds. As a result of the 1965 recession, it was amended and government bonds were issued for the first time.<sup>1</sup> Oil shock recessions and increased spending programmes produced sizeable deficits in the 1970s.<sup>2</sup> The elimination of fiscal deficits (‘fiscal reconstruction’) has been a priority since the late 1970s, with the Finance Ministry pursuing a ‘zero [growth] ceiling’ on budget requests since 1982. Thanks to some tax rises (including the introduction of the consumption tax in 1989), high nominal GDP growth and asset price rises in the second half of the 1980s, the target of fiscal reconstruction was achieved in 1991.

Since 1992, the government has embarked on a series of fiscal stimulation packages to increase economic growth. Government policy documents stated the view that fiscal spending needed to be increased, in order to boost domestic demand and stimulate the economy.<sup>3</sup> The first fiscal stimulation package was implemented in 1992. This was followed with a string of additional packages in every year, except 1996 and 2000.

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<sup>1</sup> See Werner (2003) for an introduction to the political economy of the decision-making process leading to the issuance of bonds, and the role played by the Bank of Japan in promoting the amendment of the Finance Law.

<sup>2</sup> For an overview of the movement of fiscal deficits in the 1970s and 1980s, see Asako et al. (1991). See also Ihuri et al. (2000).

<sup>3</sup> See the official statements at the announcement of stimulation packages. For instance: ‘Keikyuu keizai taisaku (youshi), 16 November 1999, Economic Planning Agency (available at: [www5.cao.go.jp/98/b/19981116b-taisakuyousi.html](http://www5.cao.go.jp/98/b/19981116b-taisakuyousi.html)).

Table 1 lists the packages and supplementary budgets. As can be seen, ten fiscal stimulation packages amounted to Y146trn. Eighteen supplementary budgets were passed, amounting to Y38.1trn over a decade that often also saw a significant expansion in the regular budgets.

**Table 1.** Fiscal stimulation packages and supplementary budgets in the 1990s

<i>FY</i>		<b>91</b>	<b>92</b>	<b>93</b>	<b>94</b>	<b>95</b>	<b>96</b>	<b>97</b>	<b>98</b>	<b>99</b>	<b>00</b>	<b>Total</b>
Fiscal stimulation packages	No.	0	1	2	1	2	0	2	1	1	0	10
	Size (Ytrn)	0	10.7	19.2	15.3	21.2	0	40.6	24.5	14.9	0	146.4
supplm. budgets	No.	1	1	3	2	3	1	3	2	1	1	18
	Size (trn)	0.3	-0.7	5.1	0.4	7.1	1.1	10.3	7.2	4.8	2.7	38.1

Sources: Cabinet Office, Ministry of Finance.

Since the government may have had political motives to overstate fiscal stimulation packages through double-counting, a more accurate measure of the fiscal stance may be total government expenditures, as calculated by the national income accounts (aggregating government consumption and investment, as well as inventory data). Government spending increased from a total of Y705 trn in the 1980s to Y1,136 trn in the 1990s. As a percentage of nominal GDP, this represented an increase from 20.9% on average in the 1980s to 22.7% in the 1990s. On a growth basis the more positive fiscal stance during the 1990s becomes obvious: Table 2 shows the breakdown by contribution to growth of each GDP component. On average, government spending contributed almost half of growth in the 1990s, while it only contributed a sixth of growth in the 1980s.

**Table 2.** Contribution to nominal GDP growth in the 1990s

CY %	Consumption + Housing	Capex (+Inventories)	Net Exports	Private Demand	Government Consumption	Government Investment (+Inventories)	Total Government	Nominal GDP
<b>1991</b>	2.6	1.6	1.3	4.9	0.8	0.4	1.2	6.2
<b>1992</b>	2.0	-1.6	0.8	0.8	0.8	1.2	2.0	2.6
<b>1993</b>	1.7	-2.1	0.1	-0.6	0.7	1.2	1.8	1.0
<b>1994</b>	2.1	-1.4	-0.2	0.4	0.5	0.2	0.7	1.1
<b>1995</b>	0.3	0.8	-0.4	0.5	0.7	0.0	0.7	1.2
<b>1996</b>	2.0	0.5	-0.3	1.6	0.5	0.5	1.0	2.6
<b>1997</b>	0.2	1.9	1.4	2.6	0.4	-0.7	-0.4	2.2
<b>1998</b>	-0.7	-1.1	1.2	-1.1	0.3	-0.3	0.0	-1.2
<b>1999</b>	0.4	-1.3	-0.2	-1.4	0.4	0.2	0.6	-0.8
<b>2000</b>	-0.2	1.1	-0.1	0.7	0.6	-0.8	-0.3	0.3
<b>1990s ave.</b>	<b>1.0</b>	<b>-0.1</b>	<b>0.4</b>	<b>0.8</b>	<b>0.6</b>	<b>0.2</b>	<b>0.7</b>	<b>1.5</b>
<b>1980s ave.</b>	<b>3.4</b>	<b>1.5</b>	<b>0.3</b>	<b>5.2</b>	<b>0.8</b>	<b>0.2</b>	<b>1.0</b>	<b>6.2</b>

Source: Cabinet Office, December 2001

While the government contribution to growth increased, government revenues fell significantly, as the weaker economy reduced tax revenues.<sup>4</sup> As a result, Japan's government registered the largest budget deficits of any industrial country in the postwar era, averaging over 6% of gross domestic product (GDP) during the period 1993-2000.

Textbooks tell us that there are two options to fund the revenue shortfall: debt-finance or money finance. In the former case, the government borrows from the private sector; in the latter, it either creates money directly, or borrows from the central bank, which pays by creating money.<sup>5</sup> In Japan's case the issuance of legal tender has been delegated to

<sup>4</sup> There were important tax reductions in 1994 and 1998. However, at other times, fiscal policy tightened. Hoshi and Patrick (2000) estimate that the 1997 ending of income tax rebates and the rise of the consumption tax from 3% to 5% increased government revenues by about two percentage points of GDP.

<sup>5</sup> Dornbusch and Fischer (1987) emphasise that "the distinction between selling debt to the public and selling it to the

the Bank of Japan, which, since at least the late 1970s, has in practice acted largely independently from the government (see monetary policy, below). Moreover, the Finance Law does not allow the central bank to directly underwrite government bonds.<sup>6</sup> This has left the government no choice but to fund the public sector borrowing requirement from the private sector, mainly via bond and bill issuance (Table 3).<sup>7</sup>

<b>CY</b> <b>¥trn</b>	<b>New</b> <b>borrowing</b>	<b>New</b> <b>borrowing/</b> <b>nGDP</b>	<b>Total</b> <b>Outstanding</b> <b>debt</b>	<b>Total</b> <b>Outstanding</b> <b>debt/ nGDP</b>
<b>1991</b>	4.65	1.0%	226.35	47.7%
<b>1992</b>	14.71	3.0%	241.06	49.9%
<b>1993</b>	17.33	3.6%	258.38	53.0%
<b>1994</b>	27.15	5.5%	285.53	58.0%

**Table 3.** Government Borrowing and Debt in the 1990s

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central bank is essential. The distinction between money and debt financing can be further clarified by noting that Treasury sales of securities to the central bank are referred to as *monetizing the debt*, meaning that the central bank creates (high-powered) money to finance the debt purchases” (p. 584).

<sup>6</sup> The central bank can purchase government bonds in the secondary market one year after issuance. Economically, this is equivalent to primary market purchase. The political circumstances are different, since the government may not be able to determine the extent to which bonds are purchased by the central bank. Despite legal lack of independence, since the 1970s the central bank has independently made this decision. See our discussion of monetary policy below.

<sup>7</sup> Indeed, the government’s borrowing is another measure of the stance of fiscal policy.

<b>1995</b>	27.21	5.4%	312.74	62.3%
<b>1996</b>	30.94	6.0%	343.68	66.7%
<b>1997</b>	24.92	4.8%	368.60	70.9%
<b>1998</b>	58.38	11.4%	426.98	83.2%
<b>1999</b>	50.79	9.9%	477.76	92.9%
<b>2000</b>	44.34	8.6%	522.10	101.8%
<b>Total</b>	<b>300.4</b>	<b>6.0%</b>		

Source: Bank of Japan

New government borrowing increased by Y300.4 trn during the 1990s (58.6% of 2000 nominal GDP). This raised total outstanding debt to Y522.1trn by the end of 2000, amounting to 101.8% of GDP. Adding the new borrowing of Y60.36trn during 2001, the national debt figures recorded a new high of Y 582.46trn, about 120% of GDP, by the end of 2001. The debt continued to rise during 2002 and 2003. At the end of 2003, the government estimated that, with its budgeted new bond issuance of Y30 trillion in fiscal year 2004, the outstanding balance of government debt will reach over Y700 trn by the end of March 2005.

## 2. The Literature on the Effectiveness of Fiscal Policy in the 1990s

### (a) 'Fiscal Policy was Effective'

The question whether fiscal policy has been effective in stimulating Japan's economy has triggered a lively debate. Since many economists in Japan would call themselves Keynesian, fiscal spending has many supporters.<sup>8</sup> The need for and usefulness of fiscal stimulation has, among others, been argued by Nagatani (1996), Yoshitomi (1996), Koo (1995, 1998, 1999), Posen (1998), Ito (2000).

#### *The 'Fiscalist' View*

The extreme position of a pure fiscalist stance is represented by Koo (1998, 1999, 2003) and Ito (2000). Koo argues the general case for fiscal policy effectiveness: While money is neutral, fiscal policy – and only fiscal policy – is highly effective. However, there has

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<sup>8</sup> The ineffectiveness of fiscal stimulation has probably rendered many supporters of fiscal spending less vocal by the late 1990s.

been no empirical support for this view during the 1990s. In particular, the fiscalist view cannot explain why the above significant fiscal stimulation failed to stimulate a significant and lasting economic recovery during the 1990s. As there is no research in support of this view either, we shall not further concern ourselves with it.

### *The Keynesian View*

The special case for fiscal policy effectiveness was made by Ito (2000), when short-term nominal interest rates had started approaching zero. He argued at the time that the economy was in a liquidity trap, the demand for money perfectly interest-elastic and the LM curve horizontal. Since interest reductions had not stimulated investment, he argued that investment was perfectly interest-inelastic and the IS curve vertical. Thus monetary policy would be ineffective and fiscal policy unusually effective, without any crowding out. Hence Ito advocated further fiscal stimulation as being effective in such a zero interest environment.<sup>9</sup> There is a theoretical problem with this argument, as well as an empirical one. By arguing for a horizontal LM curve, describing the case of short-term nominal interest rates that have fallen to such low levels that they do not fall further, Ito restricts his argument to time periods that exclude the entire decade of the 1990s – during this decade interest rates did indeed fall steadily.

An empirical evaluation of the effectiveness of fiscal policy also depends on the size of the expected impact of fiscal expenditures. While the Keynesian model implies a ‘multiplier’, such that Y1trn of fiscal expenditures would result in a rise in economic activity larger than Y1trn, many proponents of fiscal policy effectiveness have adopted a far more cautious approach to fiscal policy effectiveness. Downplaying second and third-round effects entirely, most proponents emphasized the role of the primary impact: To estimate the expected impact of fiscal policy, many government and private sector economists therefore often argued that a public works project worth Y1trn would boost nominal GDP by Y1trn. A spending package amounting to 2% of GDP was commonly expected to boost GDP by 2 percentage points.<sup>10</sup>

Concerning the empirical evidence, Posen (1998) argues that fiscal policy has been effective in Japan during the 1990s. In his view, actual fiscal spending has been smaller

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<sup>9</sup> “So far, a straight Keynesian prescription applies” (Ito, 2000, p. 102).

<sup>10</sup> This was the most common calculation, used by Japanese private sector research institutions, as well as key government agencies. See, for instance, the Economic Planning Agency’s Nagatani (1996), who argued in favour of fiscal stimulation, because “Even when the ripple-on effect is zero, fiscal stimulation policy will still at least have the ‘direct effect’, which is that Y1 trn of increase in public investment will result in a Y 1 trn in GDP increase”.

than the headline figures for the packages. He argues that fiscal spending has not been sufficiently large to stimulate the economy. A suitably sized fiscal expansion would, in his view, have been effective in ending economic stagnation and deflation. When the actual spending reached substantial size – in 1995, according to him – a recovery followed (in 1996).<sup>11</sup> However, actual GDP-based expenditure data or statistics for the government borrowing requirement yield reasonably accurate measures of the fiscal stance. Yet, Posen provides no such empirical test of fiscal policy effectiveness. Using such figures, as cited above, we find that sizeable fiscal stimulation did take place and that it failed to stimulate the economy. Furthermore, there is no evidence that even the first-round effect resulted from the spending.

Ito (2000) also remains convinced of the effectiveness of fiscal policy. While he concedes that the unprecedented six fiscal stimulation packages that were implemented between 1992 and 1994 have had “little impact” (p. 102), he argues that this does not prove fiscal policy ineffectiveness, as defined by him. In principle, two definitions of effectiveness are possible. One is a *mutatis mutandis* requirement for effectiveness, defining it as the ability to create significant positive economic growth. This is the strictest definition, and the one that matters to policy-makers, investors and the population at large. In the first half of the 1990s, most private sector economists, forced to make *mutatis mutandis* forecasts, predicted significant economic recoveries, mainly based on the sizeable fiscal stimulation. However, this did not happen. Thus, by their original definition, fiscal policy was ineffective.

There is another definition of policy effectiveness, which is employed by Ito (2000). It is based on the *ceteris paribus* assumption:

“Without any fiscal stimulus, the economy undoubtedly would have contracted. The underlying economy was so weak that fiscal stimulus did not bring the economy all the way to its potential growth rate but it arguably kept things from becoming worse” (p. 102).

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<sup>11</sup> Posen follows a calculation common in financial markets in Tokyo, namely to distinguish between investment that “adds to demand” – so-called *mamizu* – and that which does not. The *mamizu* is defined as including increased public spending and tax cuts. Loan programmes offered by government-affiliated institutions to the private sector and funded by postal savings deposits investment is deemed not to add to demand, but merely reallocating funding among various projects. The important insight from this distinction is the necessity to distinguish between government spending that increases net purchasing power in the economy, and government spending that merely reallocates existing purchasing power. However, the way this is attempted by the *mamizu* calculation is flawed. A meaningful distinction must focus on the credit creation process and include the central bank and the banking system, rendering true *mamizu* the monetized part of fiscal policy (see below).



Supporters of the efficacy of fiscal spending, including Posen (1998), feel that even more fiscal stimulation is the solution for Japan.<sup>12</sup> The difficulty of establishing clear-cut proof is apparent: the *ceteris paribus* condition is invoked, only to claim its violation. The argument relies on counter-factual analysis: things would have been worse without the fiscal spending. Ito indeed relies on unspecified shocks, rendering economic growth exogenous to fiscal and monetary policy.<sup>13</sup> These undefined exogenous shocks cannot be isolated or quantified. What is worse, by invoking a violated *ceteris paribus* assumption, the fiscal policy effectiveness claim cannot be falsified – it leaves the realm testable hypotheses.<sup>14</sup> In science counter-factual analysis is frowned upon. Ito's claim appears to be an attempt at reconciling inconvenient facts with a theory through the use of ad hoc assumptions about exogenous shocks. Even leaving aside whether or not these assumptions are permissible, such an exercise cannot be construed as constituting supportive empirical evidence. Hence the claim that fiscal policy has been effective remains unsubstantiated and without empirical support.

#### **(b) 'Fiscal Policy was Ineffective'**

Several arguments have been proposed over the years why fiscal policy may be ineffective. In the case of the Japanese economy, three types of arguments were made. All three point out that the simple first-round positive effects of fiscal policy may be partially or completely negated by negative effects that result from the need of the government to procure the money in order to fund the fiscal expenditure. The first is based on a Keynesian relationship between interest rates and investment and argues that crowding out of fiscal expenditure may occur via higher interest rates. The second is based on a reduction in consumption and an increase in savings that is induced by increased fiscal spending. It is commonly referred to as 'Ricardian equivalence'. The third is based on a modified credit view and emphasizes the link – or lack thereof – of fiscal and monetary policy. The first two views will be reviewed briefly below, before the third is analysed, applied and tested in greater detail.

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<sup>12</sup> Ito follows Posen's (1998) recommendations and suggests further stimulation in the form of lasting income tax cuts and tax incentives to stimulate private housing investment. Ito (2000), pp. 103ff.

<sup>13</sup> Ito recognizes this, but leaves the questions raised unanswered. "The question remains as to what prevented the economy from getting back on a self-sustained growth path. Was it the series of bad shocks? Or has the dynamic spill-over effect of fiscal packages become smaller in the 1990s? Or was the amount of actual stimulus smaller than generally recognized?" (Ito, 2000, p. 102). No attempts at answers follow.

<sup>14</sup> This line of reasoning falls far short of Popper's methodological principles. It may well be in the tradition of deductivist economics, which takes little interest in empirical evidence and concludes from any gap between theory and reality that the latter needs changing, not the former. However, it defies common sense. Nevertheless, even in the absence of omniscience concerning exogenous shocks, it is possible to test hypotheses concerning the *cause* of potential fiscal policy *ineffectiveness* (see below).

### *Interest Rate-Based Crowding Out*

A number of studies have argued that the effect of increased government expenditure depends on how it is financed. Lerner (1943) emphasized the distinction between money-financed and bond- or tax-financed government deficits. As discussed above, the Japanese government relied almost entirely on bond finance during the 1990s. Lerner rejects tax-financed government deficits (as they would not fulfill the purpose of government deficits, namely to increase overall spending), as well as bond-financed government deficits. The latter would reduce the amount of money available to the private sector, thus increase interest rates and hence reduce private sector investment. This proposition of fiscal policy ineffectiveness is in line with classical theory, which argued that government expenditure would result in an equal reduction in private demand, via an increase in real interest rates. The crowding out effect of increased government expenditure via higher interest rates is reflected in standard Keynesian models and the IS-LM synthesis, but also the mainstream monetarist models (such as Friedman, 1956, Brunner and Meltzer, 1976).<sup>15</sup> While they differ in the size of the net effect of fiscal policy, they agree that the transmission mechanism (and potential crowding out) occurs via interest rates. Indeed, the substantial literature on the possibility and size of crowding out of debt-financed fiscal expenditure has in common that it centers on interest rates as the adjustment mechanism.<sup>16</sup> What all these formulations (classical, Keynesian and post-Keynesian) have in common is that the ineffectiveness of fiscal policy is the result of increased interest rates.

In the case of Japan it was indeed argued by some economists during the first half of the 1990s that increased bond issuance to fund fiscal spending would lower bond prices and push up long-term interest rates. This rise of interest rates would negatively affect investment and economic activity, it was said. A proponent of this interest rate-based crowding out argument is, for instance, Yoshida (1996), who additionally warned that

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<sup>15</sup> While proto-monetarist formulations did not rely on interest rates, but the equation of exchange, as outlined below, and early monetarists (wisely?) said little about the precise transmission mechanism between money and the economy, later monetarist models (such as Friedman, 1956, Brunner and Meltzer, 1976) accepted the Keynesian interest-elasticity of the demand for money and thus argued that the ineffectiveness of fiscal policy relies on perverse wealth effects associated with bond-financed government spending, operating via interest rates (see Blinder and Solow, 1973). Since interest rates failed to rise during the 1990s, such later monetarist models are not suitable to explain the Japanese experience and will not be discussed further.

<sup>16</sup> See Christ (1968), B. Friedman (1978), Blinder and Solow (1973), Ludvigson (1996), Those who argued that 'portfolio crowding in' may offset 'transactions crowding out' and thus produce either a positive or ambiguous effect of debt-funded fiscal stimulation (such as B. Friedman, 1978) do not contribute towards finding an answer to the phenomenon observed in Japan during the 1990s, namely no significant rises in interest rates, but also no significant effect of fiscal stimulation.

the long-term interest rate rises would tend to strengthen the yen and hurt net exports.

The main problem with these interest-rate based arguments for fiscal policy ineffectiveness is that there is no empirical evidence in their support.<sup>17</sup> Despite brief periods of rising long-term nominal rates, nominal short-term (as measured by call rates) and long-term interest rates (as measured by ten-year government bond yields) have trended down during the 1990s. There are only two instances where they rose: from 4.3% on average in 1993, to 4.4% in 1994, and from 1.3% in 1998 to 1.8% in 1999. However, in both cases rates subsequently resumed their decline to new lows (see Figure 1).<sup>18</sup>

Calculating real interest rates as the difference between these nominal interest rates and consumer price inflation (as measured by the CPI), we find that short-term real interest rates fell from 4.2% on average in 1991 to 0.11% on average in 2000, while long-term real interest rates fell from 3.0% on average in 1991 to 0.7% in 1998, though rising again to 2.5% on average in 2000. These real rates were lower than during the 1980s. These facts contradict interest rate crowding out arguments.

Invoking a violated *ceteris paribus* definition of crowding out, the theoretical argument might be conceivable that the fall interest rates happened *despite* the crowding out, and as a result of exogenous shocks, without which interest rates would have risen. Just as with the argument that fiscal policy was effective in Japan during the 1990s, as without it things would probably have been worse, proponents of this view are faced with the difficulty of having to isolate the exogenous shocks needed to justify the absence of interest rate rises.<sup>19</sup> Furthermore, this exercise in attempting to reconcile the contradictory empirical record with the theory through the use of auxiliary assumptions cannot be construed as constituting supportive empirical evidence. Thus the fact remains that the argument of interest rate based crowding out is not supported by the

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<sup>17</sup> Examples of empirical studies of the link between fiscal policy and interest rates in the US are Hutchison and Pyle (1984) and Hoelscher (1986). For examples and reviews of empirical work on the influence of fiscal policy on aggregate demand, see, for instance, Aschauer (1985) and Tatom (1985).

<sup>18</sup> The annual average of the prime lending rate has declined every single year during the 1990s.

<sup>19</sup> McKibbin (1996) engages in this difficult exercise, making use of a multi-country structural model to endogenise shocks to the Japanese economy. Pointing out the anticipated nature of the fiscal spending packages (and their partial overstatement), he concludes: "Rather than stimulating the economy, these fiscal measures acted to further slow economic activity as well as appreciate the real exchange rate" (p. 37). In McKibbin's model, the announcement effect of fiscal stimulation occurs immediately, appreciating the exchange rate and real long-term interest rates, while the positive effect occurs later, or to a lesser extent than announced (due to overstatement of the package). However, only data through 1995 is used, thus missing much of the 400 basis point drop in long-term interest rates over three-and-a-half years, from about 4.7% in February 1995 to 0.7% in October 1998, not to mention the further drop to 0.43 by June 2003.

empirical record. Given the historical and dramatic declines in short, long, nominal and real interest rates, it can be safely said that few, if any observers seriously entertain the interest rate crowding out argument.<sup>20</sup>

### *Ricardian Equivalence*

Another case for a different kind of crowding out has been made by Krugman (1998). Applying his model of inter-temporally optimizing rational representative agents to Japan, he obtains Ricardian equivalence of the type Barro (1974) proposed: Japanese consumers believe that any fiscal spending funded by the issuance of government debt (as most of it has been) will require the debt to be fully paid off in the relevant future by raising taxes on individuals. Then for every yen in government spending, rational consumers would increase savings by one yen - preparing the money to repay the government in the future.

One analytical problem with this model is that it does not allow for the possibility that the debt will be paid off by other means - such as money creation, higher corporate taxes, economic growth that boosts tax revenues without raising individual taxes, or asset sales to foreign investors. It is not clear why rational consumers would not consider these possibilities.<sup>21</sup>

Another problem is that the assumptions on which it is based are restrictive. Thus if there is a simpler explanation (as will be presented below), the fundamental principles of logic suggest that it would be preferable. Meanwhile, the empirical record of the Ricardian equivalence argument remains important to assess its relevance. The most basic test of Ricardian equivalence would be a comparison of the change of household savings and government expenditure or borrowing within a fully specified savings function. Proponents of this explanation of fiscal policy ineffectiveness have not provided such evidence, as far as the author is aware.<sup>22</sup> Indeed, Walker (2002: 286) holds that “It seems

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<sup>20</sup> Walker (2002:286), for instance, says: “The possibility of a crowding-out effect of government spending on investment is dismissed *ex ante*, given Japan’s low real interest rates in recent years”.

<sup>21</sup> The argument that debt could be paid for by non-inflationary money creation cannot be handled by the type of models Krugman refers to, because due to further assumptions, including perfect information, they do not allow for the possibility of less than full employment output. With record-high unemployment and a ten-year recession in Japan, the relevance of such models is not obvious.

<sup>22</sup> If the fiscal stimulus takes the form of tax reductions for individuals and not increased government spending, then savings increase, while consumption remains unchanged - as the higher disposable income is not used for spending. If the fiscal stimulus takes the form of increased government spending on investment projects, incomes will not necessarily rise, thus consumption may not necessarily rise. But savings would rise. Since fiscal stimulation took the form of a combination of government spending and income tax changes (with the emphasis being clearly on government spending, though), the expected movement of consumption would be ambiguous with Barro-Ricardian equivalence. But the

unlikely that anything as austere as full Ricardian equivalence would obtain in the real world.”<sup>23</sup> We therefore proceed to the third possible explanation of why fiscal policy appears to have been ineffective in Japan during the 1990s.

### 3. An Alternative Explanation of Fiscal Policy Ineffectiveness

#### (a) Theory

Since the 1960s, with the rise of the Keynesian paradigm, fiscal policy had been given prominence in policy-making in the US and many European countries. This was justified with the Keynesian government expenditure multiplier analysis. However, in the late 1960s and until the end of the 1970s, a growing body of literature pointed out that such analysis was misguided, as it focused only on the initial-stage multiplier effect. An analysis of the complete multiplier would have to include the question of how the budget deficit is financed, and incorporate the effects of such finance. Christ (1968), Blinder and Solow (1973), Hansen (1973) and others showed that for bond-financed deficit spending, the stimulative effect of fiscal policy is smaller than that derived in traditional Keynesian models that do not take funding into consideration.

This body of literature has largely been neglected in more recent studies of the effect of fiscal policy. Ludvigson (1996) appears representative in his neglect of the possibility of money-financed government expenditure, which appears to have largely disappeared from the policy debate. While this may reflect the changed institutional environment of the past decade or so, where central banks have become independent, this does not

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behaviour of savings would unambiguously have to be counter-directional to the movement of government borrowing.

<sup>23</sup> Walker (2002) also fails to test Ricardian equivalence directly. Instead, noting the low fiscal multipliers for Japan in the 1990s, he proposes a theory according to which the fiscal multiplier declines the larger the *level* of the budget deficit. He argues that government spending does exert a wealth effect on consumption, but one that is “proportionate to the amount of waste in the budget”. Without providing empirical evidence, Walker assumes that “the average quality of public spending decreases with the level of spending”. Walker finds a positive fiscal multiplier, contradicting Ricardian equivalence. Making a number of auxiliary assumptions, Walker defines as a large fiscal deficit one that amounts to more than 6 or 7% of output and finds that “there is a threshold beyond which the effectiveness of fiscal spending falls off sharply” (p. 298). There is no test for robustness of these findings over different time periods or in other countries. Further, Walker says nothing about the mechanism by which the effectiveness of fiscal spending is reduced. Walker really argues that since fiscal policy was ineffective in Japan in the 1990s, and since it was large, it must have been *too large to be effective*. Thus, the main question of concern, namely why steady and significant fiscal stimulation during the 1990s failed to trigger a significant and sustained economic recovery, remains unanswered: by arguing that fiscal policy was too large to be effective, Walker neglects to explain why fiscal policy, when it was not too large (and not too small), also failed to produce the desired results. Finally, Walker fails to address previous literature that discussed the issue of the absolute size of fiscal deficits and government debts. Most previous theories failed to attach much significance to the size of the fiscal deficit or national debt. One early example is Lerner’s (1943: 47) case that “the absolute size of the national debt does not matter at all”.

eliminate the possibility of central bank cooperation with government policy or the need to analyse it. The neglect of the possibility of money-financed fiscal expenditure is all the more surprising as the literature had always agreed unanimously that fiscal policy, if funded this way, will be effective:

“There is no controversy over government spending financed by printing money. Both sides agree that it will be expansionary; but one group likes to call it fiscal policy, while the other prefers to call it monetary policy. Nothing much hinges on this distinction.”  
Blinder and Solow (1973: 323).

Blinder and Solow (1973) also point out that the degree of effectiveness of debt-funded fiscal policy is an empirical matter. The empirical record in Japan's case appears to be that such fiscal policy is not effective. We have seen that standard theories of fiscal policy ineffectiveness have not been able to explain the facts observed in Japan during the 1990s. There is no support for the Ricardian equivalence hypothesis, which does not require a rise in interest rates and argues that consumers spontaneously reduce their spending and increase savings to match any increase in government expenditure. There is also no support for the classical, neo-classical, IS-LM synthesis and monetarist models which argue for crowding out of private demand due to debt-funded fiscal expenditure via a rise in interest rates: interest rates did not rise.

In order to adequately explain the Japanese experience since the early 1990s, a theory is therefore required which allows for crowding out of fiscal expenditure, without the need for interest rates to rise, but also without relying on the empirically implausible Ricardian equivalence argument (of perfectly foresighted savers replacing government expenditure with savings yen by yen). This suggests that an older strand of literature, which in accordance with Blinder and Solow (1973) could be called “pre-Keynesian”, or alternatively “proto-monetarist”, should be reconsidered, namely Irving Fisher's (1911) model, which does not rely on the monetary transmission through interest rates. Instead, it relies on direct quantity-based crowding out of private demand, due to increased claims on limited stocks of money by the government. Later monetarist models adopted the Keynesian argument of an interest-based investment function and thus came to rely on interest-based crowding out of private demand. However, some of Friedman's writings indicate that he continued to sympathize with Fisher's quantity-based crowding out: “I regard the description of our position as “money is all that matters for changes in *nominal* income and for *short-run* changes in real income”

as an exaggeration but one that gives the right flavor of our conclusions”, he said as late as 1970 (Friedman, 1970: 217).

“On the transmission mechanism from money supply changes to income changes, Friedman supported Fisher’s direct transmission mechanism – from money supply changes directly to expenditures changes – over the indirect one – from money supply to interest rates to investment – in Keynesian and IS-LM models”, says Handa (2000: 365).<sup>24</sup>

This direct transmission of money to the economy, and consequent quantity-based crowding out of fiscal expenditure was also supported by the so-called ‘St. Louis monetarists’ (Handa, 2000: 370). They argue that government spending financed by bonds must be ineffective, because the money supply is left unaltered. Empirical evidence in support of this contention have been provided by Andersen and Jordan (1968), Andersen and Carlson (1970) and Keran (1969, 1970). This view was indeed “commonplace” before Keynes (see the introductory quote).

But even Keynes was aware of the importance of the way government expenditure is funded. Before Keynes developed the liquidity preference theory, he was more concerned with Fisher-type quantity equations (see Keynes, 1930). In 1929, he argued that stimulatory fiscal expenditure should be funded by monetary expansion (Klein, 1968). Crucially, Keynes emphasized (in 1929) that the central bank could negate the effect of stimulatory fiscal policy and therefore “ensure that the expenditure financed by the Treasury *was* at the expense of other business enterprise” (Keynes, 1932:126). A simple model emulating the ‘pre-Keynesian’ or ‘proto-monetarist’ conception of the role of fiscal policy is presented below.

Following the income version of Fisher’s quantity equation, this ‘common view’ held that nominal GDP (PY) is endogenous to the money supply (with velocity V being constant) and can be written as in equation (1), where we have followed the convention to place the endogenous variable on the left-hand side:

$$(1) \quad PY = MV$$

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<sup>24</sup> As a result, “Friedman stands out in arguing that fiscal policy does not have strong effects on the economy...” (Dornbusch and Fischer, 1987: 671). “Fisher comes close to asserting that *only* changes in the quantity of money affect the price level; Friedman is more clear in arguing that other factors can affect the price level, but that these other factors are of secondary importance” (Dornbusch and Fischer, 1987:241).

Considering changes (so that the constant velocity drops out), we can rewrite this to state that nominal GDP growth is equal to money supply growth (or proportional in weaker versions):

$$(2) \quad \Delta(PY) = \Delta M$$

It follows that any exogenous increase in a component of nominal GDP (such as in  $G$ ) cannot affect total nominal GDP, if the money supply remains unaltered: with  $\Delta M = 0$ , and breaking down nominal GDP ( $PY$ ) into nominal consumption  $c$ , nominal government expenditure  $g$ , nominal investment  $i$  and nominal net exports  $nx$ , we obtain:

$$(3) \quad \Delta M = 0$$

$$(4) \quad \Delta(PY) = \Delta c + \Delta i + \Delta g + \Delta nx$$

$$(5) \quad \Delta g = -(\Delta c + \Delta i + \Delta nx)$$

Equation (5) indicates that, following Say's Law, each dollar of additional government spending must crowd out exactly one dollar of private spending. The change in government expenditure  $\Delta g$  is countered by a change in private sector expenditure of equal size and opposite sign. Thus the level of aggregate income will be unchanged and the multiplier for bond-financed government spending is zero. Notice that this conclusion is not dependent on the classical assumption of full employment. Instead of the employment constraint, the economy can be held back by a lack of money. Fiscal policy can thus crowd out private demand even in the context of less than full employment. Furthermore, the original formulation of Fisher, favoured also by Friedman, does not include interest rates and thus does not require crowding out via higher interest rates. Instead, the direct quantity effect of the government using up money that will not be available for spending by the private sector is sufficient. Equation (5) shows that without an increase in the money supply, a rise in government expenditure must result in an equal reduction in private demand, leaving nominal GDP unaltered and fiscal policy completely ineffective. As Milton Friedman put it:

“The quantity theory implies that the effect of government deficits or surpluses depends critically on how they are financed. If a deficit is financed by borrowing from the public without an increase in the quantity of money, the direct expansionary effect of the excess of



government spending over receipts will be offset to some extent, and possibly to a very great extent, by the indirect contractionary effect of the transfer of funds to the government through borrowing. ... If a deficit is financed by printing money, there will be no offset, and the enlarged stock of money will continue to exert an effect after the deficit is terminated. What matters most is the behavior of the stock of money, and government deficits are expansionary primarily if they serve as the means of increasing the stock of money; other means of increasing the stock of money will have closely similar effects.’’<sup>25</sup>

However, this explanation suffers from a significant empirical obstacle: it is well-documented that macroeconomic models based on the quantity equation and predicated on the assumption of constant velocity have suffered from “recurring bouts of instability” (Goldfeld and Sichel, 1990: 349): Significant declines in velocity (and hence a “breakdown” in the money demand function) have been observed in a large number of countries since the 1980s, including the UK, the US, Scandinavian countries, and Japan. The previously stable relationship between M and PY “increasingly came apart at the seams during the course of the 1980s” (Goodhart, 1989). As a result, the usefulness of the quantity equation has declined significantly. “Once viewed as a pillar of macro-economic models, it is now widely regarded as one of the weakest stones in the foundation” (Boughton, 1991). The instability of velocity and hence the lack of a stable relationship between monetary aggregates (such as M0, M1, M2 or M3) and nominal GDP has also been recognized in the case of Japan (see, for instance, Ishida (1984), Bank of Japan, 1988, Miyao, 1996, Yamada, 2000, and Kimura, 2001).

A suggestion has been made to solve the puzzle of the apparent velocity decline. It has been pointed out that originally Fisher (1911) referred to a transactions equation, which states that the amount of money changing hands to pay for transactions during a given time period must equal the nominal value of these transactions. Considering growth, this can be written as follows:

$$(6) \quad \Delta(PQ) = \Delta M$$

where M stands for money actually used for transactions and PQ stands for the value of these transactions. Now considering only those transactions constituting GDP (denoted as  $P_R Y$ ), we can write:

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<sup>25</sup> Milton Friedman, in his entry under Money: Quantity Theory in the Encyclopaedia Britannica, p. 476.

$$(7) \quad \Delta(P_R Y) = \Delta M_R$$

where  $M_R$  stands for the money used for transactions that are part of GDP.<sup>26</sup> Thus the value of GDP transactions can only increase, if there is an equal increase in the money used for them. When attempting to employ actual statistics to represent this equation of exchange, we have no difficulty in using nominal GDP, as calculated by the national income accounts, for  $P_R Y$ . However, we find that traditional measures of the ‘money supply’ (such as M1, M2, etc.) do not measure money actually used for transactions, but instead subsets of the stock of savings. Furthermore, in financial systems as they evolved subsequent to the paper money system of the Sung Dynasty in tenth century China, the majority of new money has come about through credit creation of the banking system (and, when relevant, the central bank). The emphasis on credit counterparts, as opposed to deposit aggregates, is in line with the expanding literature on the ‘credit view’ or ‘bank lending school’, which argues that credit should not be neglected in macroeconomic analysis, as it may be at least a supplementary transmission mechanism for monetary policy, if not more.<sup>27</sup> Since bank credit extension creates the deposits that are usually considered in so-called money supply measures, it is also valid to utilize the credit counterparts in the quantity equation. This addresses weaknesses of the previous formulation: Using credit to represent money M in the equation of exchange (6) and (7) allows us to measure the purchasing power actually used for transactions at any moment in time, as well as to disaggregate it into credit used for GDP transactions ( $M_R$ ) and that used for non-GDP transactions (such as real-estate and other speculative transactions).

Using credit creation to measure M, equation (6) indicates that economic growth is only possible, if credit is created either via the banking system or the central bank, and used for transactions that are part of GDP. Interest rates are not part of the model. This feature of Fisher’s (1911) model can today be explained with further reference to the ‘credit view’ literature: Relaxing the assumption of perfect information, it has been shown that the credit market cannot be expected to clear. Markets that do not clear are rationed and hence determined by quantities (following the ‘short-side principle’:

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<sup>26</sup> Following Werner (1997, 2002a).

<sup>27</sup> See, for instance, Bernanke and Blinder (1988), Bernanke (1993), Gertler and Gilchrist (1993), Bernanke and Gertler (1995), Kashyap and Stein (1997). It is noteworthy that most of this literature does however not explicitly address the ability of banks to create credit, and thus considers banks largely as financial intermediaries with the function to transfer funds from A to B, comparable to the capital markets. This is not how banks are considered in this paper, as their ability to create credit, through the well-known credit creation process, should be taken into consideration.

whichever of supply or demand is smaller will determine the market outcome). Since there is always demand for money, the credit market is likely to be determined by its supply (see, for instance, Stiglitz and Weiss, 1981).

This allows a monetarist-creditor synthesis, which describes economic growth as a function of the supply of bank and central bank credit. According to equation (6), the high growth of the 1980s in Japan would be explained as resulting from high credit growth. Since credit was also used for non-GDP transactions (especially speculative loans to the real estate sector), and much of these loans turned into bad debts in the early 1990s, banks increasingly became risk-averse. This restricted the supply of credit, also to borrowers that use the purchasing power for GDP-based transactions (consumption, investment). As a result, economic growth declined. The credit shrinkage also resulted in shrinkage of nominal GDP. While credit creation remains weak, equation (6) tells us that GDP growth cannot recover significantly.

In this situation neither lowering interest rates is useful (as it does not increase the supply of credit from risk-averse banks), nor increasing fiscal stimulation (as pure fiscal policy does not create credit): The findings of the proto-monetarist model apply in this testable modification. Thus, without an increase in  $M_R$ , there cannot be an increase in nominal GDP:

$$(8) \quad \Delta M_R = 0$$

$$(9) \quad \Delta(P_R Y) = \Delta c + \Delta i + \Delta g + \Delta n x$$

$$(10) \quad \Delta g = -(\Delta c + \Delta i + \Delta n x)$$

In this framework, just as proposed by the early quantity theory literature, fiscal policy cannot affect nominal GDP growth, if it is not linked to the monetary side of the economy: an increase in credit creation is necessary (and sufficient) for nominal growth.

To test the above framework empirically in the case of Japan in the 1990s, we first note that in practice credit creation used for GDP transactions cannot be expected to have been precisely zero during the 1990s. There were periods of significant credit growth (such as in 1996), but also of credit contraction. Thus the more general formulation of the model, with

$$(11) \quad \Delta M_R > 0$$

is required. Substituting (9) and (10) into equation (7), we obtain the testable proposition:

$$(12) \quad \Delta(c + i + nx) = \Delta M_R - \Delta g$$

whereby the coefficient for  $\Delta g$  is expected to be approximately  $-1$ . In other words, given the amount of credit creation produced by the banking system and the central bank, an autonomous increase in government expenditure  $g$  must result in an equal reduction in private demand. As the government issues bonds to fund increased fiscal stimulation, private sector investors (such as life insurance companies) that purchase the bonds must withdraw purchasing power elsewhere from the economy. The same applies (more visibly) to tax-financed government spending. With unchanged credit creation, every yen in additional government spending reduces private sector activity by one yen.

We observe a different kind of crowding out than postulated by Keynesian or Ricardian models: Unlike the Keynesian interest rate-based crowding out, and like Ricardian equivalence, it is quantity-based and does not require any particular movement in interest rates. It therefore fits the observation of the 1990s that interest rates did not rise. Unlike Ricardian equivalence, it does not depend on restrictive assumptions about unobservable expectations and their formation. Moreover, it does not operate via a change in household savings. Instead, crowding out occurs due to the lack of new purchasing power supplied by the financial system (credit creation).

The policy advice of this model is clear – and uncontroversial. As Blinder and Solow (1973:323) pointed out, there “is no controversy over government spending financed by printing money. Both sides agree that it will be expansionary”. In the terms of our modified pre-Keynesian model: The Japanese authorities need to increase credit creation, in order to stimulate growth. This can be done via fiscal policy that is funded by credit creation or other measures, as will be discussed below.

## **(b) Empirical Evaluation**

*A model of nominal GDP growth*

We proceed to test the above explanation of fiscal policy ineffectiveness. Our empirical evaluation must begin with a general model of nominal GDP growth that also includes the variables suggested by alternative approaches, including the money supply and interest rates. This general model is then sequentially reduced to the parsimonious form, which parsimoniously encompasses the alternative models (see Hendry and Mizon, 1978; Hendry, 2000). We formulate a general ADL model of nominal GDP, based on quarterly statistics:

$$(13) \quad \Delta GDP_t = \alpha_j + \sum \beta_j \Delta GDP_{t-j} + \sum \gamma_j \Delta M_{Rt-j} + \sum \delta_j \Delta WPI_{t-j} + \sum \phi_j \Delta MS_{t-j} \\ + \sum \omega_j \Delta HPM_{t-j} + \sum \rho_j \Delta Short_{t-j} + \sum \tau_j \Delta Long_{t-j} + \sum \varphi_j \Delta ODR_{t-j} + \varepsilon_t$$

All variables are in year-on-year percentage differences, with

GDP = nominal GDP

$M_R$  = Credit used for GDP transactions

WPI = Wholesale Price Index

MS = Money Supply, M2+CD

HPM = High Powered Money

Short = Call Rate

Long = 10 year JGB yield

ODR = Official Discount Rate

Using the PC-Give software, we sequentially drop the insignificant variables, while testing for the validity of these restrictions. The final parsimonious model resulting from this process is (t statistics in parentheses):

$$(14) \quad \Delta GDP_t = 0.004_j + 0.327 \Delta GDP_{t-1} + 0.222 \Delta GDP_{t-3} + 0.407 \Delta M_{Rt} + \varepsilon_t \\ (1.71) \quad (2.53) \quad (2.10) \quad (4.08)$$

The results are reported in Table 4.

**Table 4. Estimation Results of GDP Model**

The estimation sample is: 1990 (1) to 2000 (4); Dependent variable:  $\Delta nGDP$

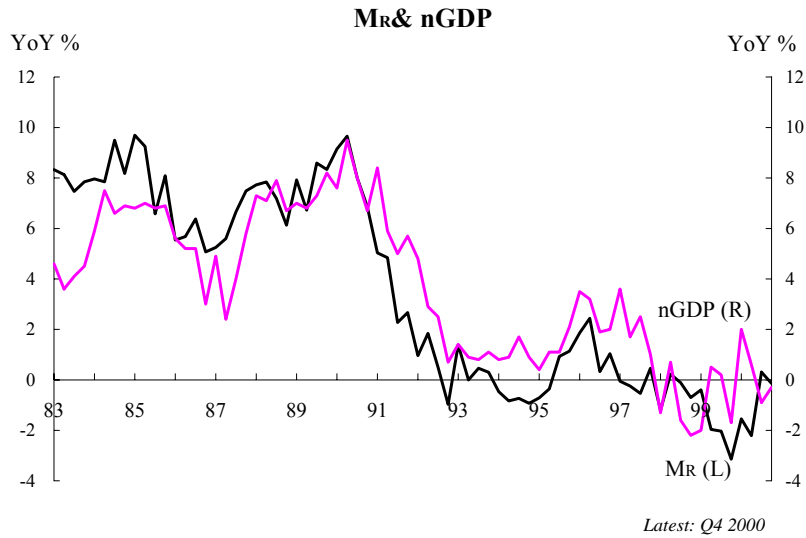
	Coefficient	Std. error	t-value	t-prob.	Part.R <sup>2</sup>
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Constant	0.00381350	0.002228	1.71	0.095	0.0683
$\Delta$ nGDP_1	0.326688	0.1293	2.53	0.016	0.1376
$\Delta$ nGDP_3	0.222120	0.1059	2.10	0.042	0.0991
$\Delta M_R$	0.406689	0.09980	4.08	0.000	0.2934

Sigma	0.00995221	RSS	0.00396186124
R <sup>2</sup>	0.88463	F(3,40) =	102.2 [0.000]**
log-likelihood	142.502	DW	1.87
no. of obsv.	44	no. of parameters	4
mean( $\Delta$ nGDP)	0.0211887	var(nGDPLYoY)	0.000780463

AR 1-3 test:	F(3,37) = 0.45124 [0.7179]	hetero test:	F(6,33) = 0.20716 [0.9721]
ARCH 1-3 test:	F(3,34) = 0.93630 [0.4338]	hetero-X test:	F(9,30) = 0.55406 [0.8229]
Normality test:	Chi <sup>2</sup> (2) = 0.13829 [0.9332]	RESET test:	F(1,39) = 0.000462 [0.9830]

The usual statistical diagnostics show that there are no significant problems with the formulation. Furthermore, cointegration tests confirmed that a spurious correlation could be ruled out. The credit model encompasses alternative theories. In Figure 1 we show the raw data for nominal GDP growth and the key explanatory variable, credit creation used for GDP transactions ( $\Delta C_R$ ). The close correlation of the raw (not fitted) data is visible by eye inspection. Granger causality tests found that credit Granger-causes nominal GDP growth, but not the other way.



**Figure 1.** Credit creation used for GDP transactions ( $M_R$ ) and nominal GDP growth in Japan. Source: Cabinet Office, Government of Japan, and Bank of Japan

*Testing the fiscal policy ineffectiveness proposition*

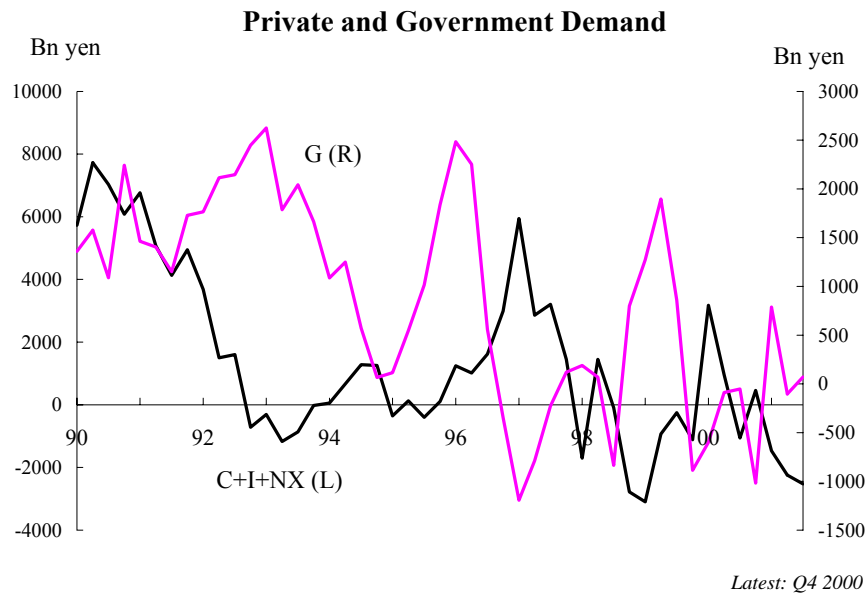
We now proceed to test the fiscal policy ineffectiveness proposition of our model. Substituting the empirical formulation of nominal GDP, as shown in equation (14) into equation (9) and solving for non-government demand, we obtain:

$$(15) \quad \Delta(c_t+i_t+nx_t) = \beta_1 + \beta_2\Delta GDP_{t-1} + \beta_3\Delta GDP_{t-1} + \beta_4\Delta M_{Rt} + \beta_5\Delta g_t + \varepsilon_t$$

If we have found suitable empirical proxies for our model, a regression would yield the following coefficient for government expenditure:

$$(16) \quad \beta_5 = -1$$

We use year-on-year changes of all variables. Figure 2 shows changes in government spending and private demand. Eye inspection indicates that there is some form of negative correlation. The results of our regression are shown in Table 5.



**Figure 2.** Nominal private demand and government expenditure, absolute growth rates. Source: Cabinet Office, Government of Japan

**Table 5. Estimation Results of Private Demand Model**

The estimation sample is: 1990 (1) to 2000 (4); Dependent variable:  $\Delta$ private

	Coefficient	Std. error	t-value	t-prob.	Part.R <sup>2</sup>
Constant	430.797	323.8	1.33	0.191	0.0434
$\Delta$ nGDP_1	0.369348	0.1275	2.90	0.006	0.1770
$\Delta$ nGDP_3	0.203399	0.1110	1.83	0.075	0.0792
$\Delta M_R$	0.0151281	0.004390	3.45	0.001	0.2334
$\Delta G$	<b>-0.956970</b>	0.2057	-4.65	0.000	0.3570

Sigma                    1233.28                    RSS                    59317732.9  
R<sup>2</sup>                    0.823256                    F(3,40) =                    45.41 [0.000]\*\*  
log-likelihood                    -372.946                    DW                    1.77  
no. of obsv.                    44                    no. of parameters                    5  
mean ( $\Delta$ private)                    1406.38                    var ( $\Delta$ private)                    1406.38

Solved static long-run equation for  $\Delta$ private:

	Coefficient	Std. error	t-value	t-prob.
Constant	430.797	323.8	1.33	0.191
$\Delta$ nGDP	0.572747	0.1048	5.46	0.000



$\Delta M_R$	0.0151281	0.004390	3.45	0.001
$\Delta G$	<b>-0.956970</b>	0.2057	-4.65	0.000

Long-run sigma = 1233.28

ECM =  $\Delta$ private - 430.797 + 0.95697\* $\Delta G$  - 0.572747\* $\Delta$ nGDP - 0.0151281\* $\Delta M_R$ ;

WALD test:  $\text{Chi}^2(3) = 179.476$  [0.0000] \*\*

AIC	14.3415	SC	14.5443
HQ	14.4167	FPE	1.69380e+006

When the log-likelihood constant is included:

AIC	17.1794	SC	17.3821
HQ	17.2546	FPE	2.89293e+007

AR 1-3 test:	F-form F(3,36)	=	0.58896 [0.6262]
ARCH 1-3 test:	F(3,33)	=	1.4770 [0.2387]
Normality test:	$\text{Chi}^2(2)$	=	0.68778 [0.7090]
hetero test:	(8,30)	=	1.5833 [0.1717]
hetero-X test:	F(14,24)	=	1.7418 [0.1123]
RESET test:	F(1,38)	=	0.056661 [0.8131]
Skewness			-0.17285
Excess Kurtosis			-0.025167
Asymptotic test:	$\text{Chi}^2(2)$	=	0.22026 [0.8957]

The coefficient for government expenditure ( $\beta_5$ ) is  $-0.95697$ . Rounding to one digit, we obtain:

$$\beta_5 = -1.0.$$

### *Evaluation*

The test suggests that for every yen in government spending that is not monetised (i.e. not supported by credit creation), private demand must shrink by one yen. The empirical evidence supports the contention of the pre-Keynesian economists that an economic recovery requires monetary expansion, here defined as credit creation. The pre-Keynesian model, in modified form, appears to fit the Japanese experience of the 1990s, in preference to alternative explanations.

### *Possible objection*

There is a possible objection to this empirical finding: causality may run from private demand to government spending, not the other way round. In other words, while it is suggested here that increased government expenditure has crowded out private expenditure through laying claim on the limited amount of credit available, the government expenditure may have *responded* perfectly to declines or rises in private demand, *in order* to maintain stable growth. However, there are a number of serious problems with this argument: In this case, the government would have to have perfect knowledge of current gross domestic expenditure, and be able to react simultaneously, during the same quarter, by adjusting government expenditure. However, GDP statistics are only available long after the end of the current quarter. Furthermore, government expenditure is the result of a somewhat complex bureaucratic procedure, which involves budgets drawn up by the Ministry of Finance and the government, which are approved by the Diet. There is no empirical evidence that this process has been fast enough to accommodate potential current-quarter changes in spending needs. More often than not, politicians appear happy if they can respond within the same fiscal year to perceived changes in public spending needs. Thirdly, and perhaps most damaging to this alternative explanation, if the government expenditure did not in fact crowd out private demand, as suggested by our credit model, but instead the government counteracted changes in private demand perfectly, then this argument would imply that government expenditure was, after all, effective in changing total output and employment. If that was the case, then why did the government, apparently well-informed and infinitely quick in its short-term spending policies, not use its allegedly highly stimulatory fiscal policy to achieve the declared government policy goal of stimulating an economic recovery? Surely, if fiscal policy had the desired effects, as this argument suggest, and could counteract any change in private demand, then why did the government use it to create negative nominal GDP in 1998, 1999, 2001 and 2002? Why did the government implement a contraction of nominal GDP by over 1% in those years? Alternatively, if the argument accepts the credit constraint case presented by this model, then why did the government, if so well informed and fast-acting, not simply increase credit creation? It is clear that a large number of auxiliary assumptions – most of them highly implausible – are required to rescue this counter-argument. The fundamental logical principle of parsimony suggests that our proposed explanation should be considered preferable.

### **(c) Policy Implications**

The finding suggests that fiscal policy has been ineffective during the 1990s, because it was not supported by monetary policy. The central bank could act to increase credit creation, and hence stimulate the economy, by raising its net open market purchase operations. For instance, the Bank of Japan could have sufficiently increased its bond purchases.<sup>28</sup> Policies to stimulate bank credit creation could also have been adopted. Here, the central bank could have been more helpful, for instance by utilizing its unique status to solve the bad debt problem at zero cost to the tax payer or society (by purchasing the bad debts at face value from all banks). Given these findings, it appears central bank policy has not been as helpful as it could have been. The lack of incentives to coordinate monetary policy with the government's fiscal policy may be one of the disadvantages of central bank independence.<sup>29</sup>

Werner (1998, 1999, 2000) has suggested a policy for governments to monetise fiscal policy even without cooperation from the central bank. The method renders fiscal policy effective. So far, the majority of the borrowing requirement was covered through bond issuance. Without the cooperation of the central bank, money-financed fiscal policy is not an option. However, credit-financed fiscal policy is possible: the Ministry of Finance could cover the public sector borrowing requirement by borrowing from the private sector commercial banks. This would increase credit creation and stimulate the economy.

There are objections to this proposal. Hawtrey, before the Macmillan Committee of 1930, "considered the 'radical' idea of government spending out of new bank credit, but predicted that the result of such a policy would be inflationary, and a threat to the gold standard, thus forcing up the bank rate of interest and causing credit contraction. [It]... would mean the end of cheap money for free enterprise."<sup>30</sup> However, Hawtrey's objection is predicated on the assumptions that (a) the market for credit is in equilibrium,

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<sup>28</sup> Werner (1995, 1996). Hayashi (1998) argues that the central bank is essentially an agency that certain functions have been delegated to by the government. In this case it does not make sense for the government to issue bonds and pay interest for its borrowing, if it could instead ask the central bank to print money and pay for fiscal policy through costless, interest free money creation. Hence the government could "exchange interest-bearing government bonds with interest free reserves through the central bank's purchase of government bonds", as paraphrased by Okina (1999, p. 172).

<sup>29</sup> Independence is not necessarily an obstacle, since a central bank can voluntarily cooperate to support the government's policy. As Bernanke (2000) pointed out, "Cooperation with the fiscal authorities in pursuit of a common goal is not the same as subservience" (p. 163). Unfortunately, there are few examples of such cooperation by independent central banks.

<sup>30</sup> Klein (1968), as quoted by Spencer and Yohe (1970:15). It is not made explicit who had launched this 'radical idea'. However, there is some evidence that it may have emerged from the German credit school of economists. It is noteworthy that this 'radical' idea was successfully implemented in Germany in the 1930s. On this, see Werner (2004).

so that interest rates respond proportionately to an increase in the demand for credit; and/or (b) that banks are merely financial intermediaries that cannot create new credit, so that any extension of bank loans to the government must be at the expense of bank lending to alternative uses. However, both assumptions are unlikely to hold: the theoretical literature has provided ample arguments for the case of a rationed credit market, whereby interest rates do not respond proportionately to changes in the demand for money. Furthermore, the institutional reality of banking systems allows banks to create new purchasing power without withdrawing existing purchasing power from other parts of the economy. Empirically, the Japanese example has also disproved Hawtrey's assumptions: Using Japanese data, no evidence can be found that interest rates are in an inverse relationship with the quantity of bank loans extended. Furthermore, Japanese banks currently have excess reserves of over Y30 trn with the central bank, and they continue to reduce bank lending. They have ample opportunity to increase lending without withdrawing loans from current borrowers.

Thus the argument stands that funding of fiscal expenditure by borrowing from banks would increase credit creation and hence the total amount of purchasing power in the economy. As a result,  $M_R$  in equation (7) above would rise, which would, in turn, boost nominal GDP. By shifting government funding away from bond finance and replacing it with borrowing from the commercial banks via simple loan contracts, credit creation will be stimulated.<sup>31</sup> Unlike bond markets, banks create new purchasing power when they lend. This means that overall economic activity can be boosted (via fiscal policy), without any quantity crowding out that rendered fiscal policy ineffective during the 1990s.<sup>32</sup>

Figures 3 and 4 are used to illustrate the difference between stimulatory fiscal policy – here the example of a fiscal spending package – funded via bond issuance taken up by investors, such as life insurers, and stimulatory fiscal policy that is backed by credit creation.

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<sup>31</sup> This is effectively the policy combination adopted by the Reichsbank from 1933 to 1937. Its President, Hjalmar Schacht, appeared to have been well aware of the quantity crowding out problem of unmonetised fiscal policy. In addition to stepping up the credit creation of the Reichsbank (by purchasing various forms of assets, including government bonds and bonds of other government institutions), Schacht instructed the establishment of government institutions that implemented fiscal spending programmes and were funded by the issuance of bills of exchange that were purchased by the banks and the central bank. Funding fiscal expenditure with money creation, as opposed to public bond auctions is called 'silent funding' (*geraeuschlose Finanzierung*) in the German tradition. See Werner (2002b).

<sup>32</sup> This proposal has found several supporters since, such as Congdon (2001), Smithers (2001) and the Financial Times' Martin Wolf (2002).

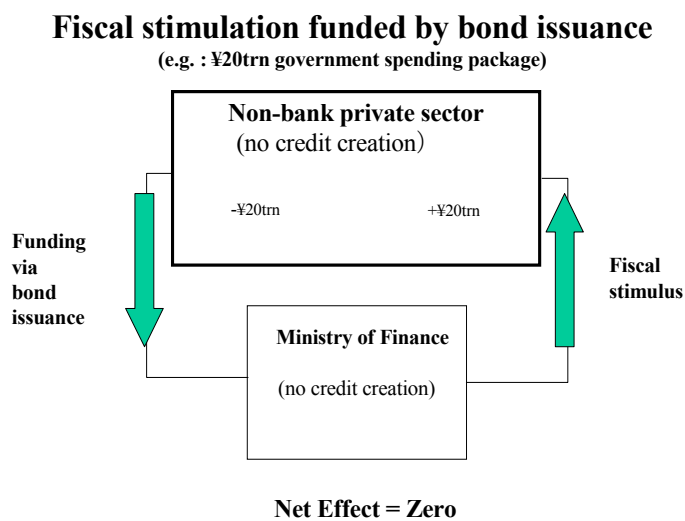


Figure 3.

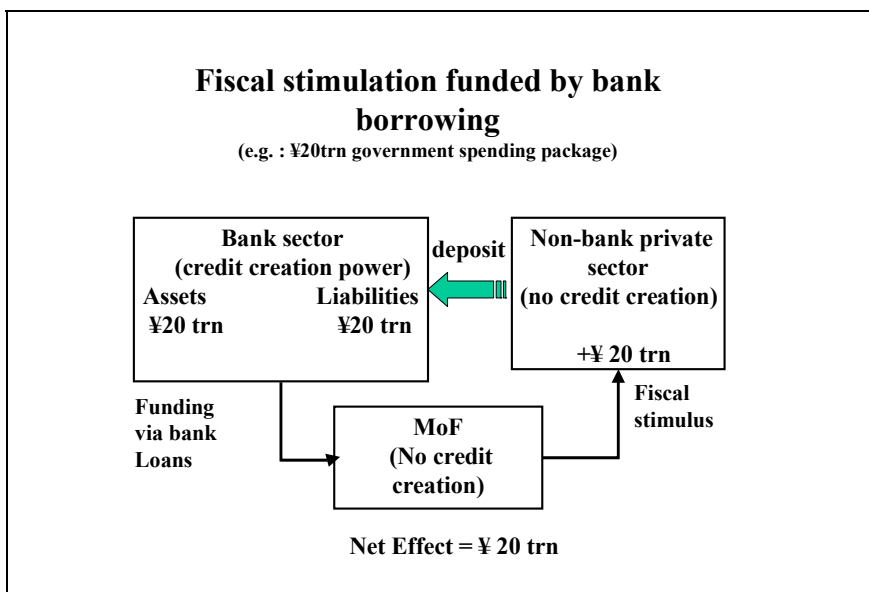


Figure 4.

Although the central government funded parts of the 1998 budget from banks, this has remained negligible. With the majority of bond issuance taken up by the non-bank private sector (which does not have the power to create credit), fiscal spending had to

crowd out private activity.

#### **4. Conclusion**

The proposed alternative model has provided an answer to the question why fiscal policy has appeared ineffective during the 1990s. It indicated that the cause of Japan's recession has been the reduction in credit creation that began in 1992. We have also found that this problem could have been addressed through monetary policy. Even without bank lending, the central bank could have created a recovery, by significantly increasing its own credit creation. Bad debts could have been taken off the banks' balance sheets without costs by the central bank. In other words, Japan's recession of the 1990s has been the result of the Bank of Japan's policies.<sup>33</sup> However, the government has also not adopted suitable policies to counter the lack of cooperation from the central bank. It could have (and still can) increase credit creation, and hence render fiscal policy effective, by switching its funding from bond issuance to loan contracts from commercial banks.

Our research also raises new questions. If the solution to Japan's problems has been relatively straight-forward and virtually costless, why has the responsible authority not implemented such or similar policies? The Bank of Japan's Sawamoto and Ichikawa (1994) do not deny that the central bank could have acted, but they argue that "the basic principle is that overall monetary policy should not be turned into a bank rescue operation, except in very dire circumstances. At present, Japan is certainly not in such a situation" (p. 99). The assessment of whether circumstances are "dire" enough to warrant more aggressive monetary stimulation depends on the goal of monetary policy. This, then, becomes another important area of future research: what precisely is or has been the goal of monetary policy in Japan?

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<sup>33</sup> This finding is also consistent with other empirical work. Bernanke (2000) attributes "much of Japan's current dilemma to exceptionally poor monetary policymaking" (p. 150).

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