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**Sustainability of Public Debt:
Evidence from Pre-World War II Japan**

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Sustainability of Public Debt: Evidence from Pre-World War II Japan

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[Abstract]

Japan defaulted on its public debts only once throughout its modern history, after World War II (WWII). How did Japan lose its ability to sustain its public debts? This paper explores the sustainability of public debts in Japan before and during WWII.

First, this paper reviews the brief history of pre-WWII public finance in Japan with reference to some narrative evidence, data, and previous works.

Second, this paper conducts three stages of econometric analyses. It tests Ricardian neutrality of public debt. It tests the dynamic efficiency of Japanese economy, and it conducts Bohn's tests for the relationship between public debt and primary fiscal balance. The tests indicate that Japanese public debts were sustainable until 1931, and unsustainable in and after 1932.

Third, this paper interprets the results of quantitative analyses with narrative modes of analysis. During the 1930s, Japan lost its fiscal discipline because of the military's effective veto over budgetary processes and because of the absence of pressure for sound fiscal policy from international financial markets.

JEL Classifications: E62, H63, N15

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1. Introduction

Japan defaulted on its public debts only once throughout its modern history, after World War II (WWII). Japanese yen-denominated government debts became worthless during the rampant inflation between 1945 and 1948. How did Japan lose its ability to sustain its public debts? This paper explores the sustainability of public debts in Japan before and during WWII with quantitative and narrative analyses.

First, this paper reviews the brief history of pre-WWII public finance in Japan with reference to some narrative evidence, data, and previous works.

Second, this paper conducts three stages of quantitative analysis. It tests Ricardian neutrality of public debt for the pre-WWII Japan. The result indicates non-neutrality. Then, it tests the dynamic efficiency of the pre-WWII Japanese economy, and confirms it. These results indicate a need for another test for sustainability of public debt, one which is proposed by Bohn [1998].

Bohn's method tests the relationship between public debt and primary fiscal balance. Bohn's basic notion is that if a government improves its primary balance when it sees an increasing public-debt/output ratio, then its public debts are sustainable in the long-run. If not, public debts are not sustainable.

This paper conducts Bohn's tests with a new dataset of the Japanese primary fiscal balance from 1885 to 1943. The tests assuming structural changes within the sample period indicate that Japanese public debts were sustainable until 1931, and unsustainable in and after 1932.

Third, this paper interprets the results of quantitative analysis with narrative modes of analysis. In doing so, it explores the governance of fiscal policy both from the domestic and the international sides. It compares the policy responses during two periods in which Japanese government faced financial difficulties, namely after the Russo-Japanese War (1904-05) and in the early 1930s. The narrative modes of analysis indicate that Japan lost its fiscal discipline during early 1930s because of the military's effective veto over budgetary processes and because of the absence of pressure for sound fiscal policy from international financial markets.

Section 2 reviews Japanese public finance before WWII. Section 3 conducts a quantitative analysis. Section 4 interprets the results in section 3 with a narrative analysis. Section 5 contains some conclusions.

2. Japanese public finance before WWII

a. Some Narrative Evidence

Narrative evidence indicates several turning points in modern Japanese public

finance. First, Japan had established stable modern public finance with reforms before the middle of 1880s. Second, the Russo-Japanese War in 1904-05 imposed a heavy burden on its public finance. Third, rapid economic growth during WWI (1914-18) reinforced Japanese public finance. And fourth, debt-financed fiscal stimulus policy during the Great Depression of the early 1930s marked a drastic change in Japanese public finance.

Japan had established stable modern public finance before the middle of 1880s. After the Meiji Restoration in 1868, the government conducted drastic fiscal reforms during the 1870s. The reforms include *Chiso Kaisei*, the reform of land tax, *Chitsuroku Shobun*, the repeal of stipends for ex-samurai, and the disposal of debts inherited from feudal governments.² Around the time of the Civil War in 1877, the fiscal balance deteriorated and the monetization of the fiscal deficit caused inflation. In the 1880s, Masayoshi Matsukata, the prominent Finance Minister, conducted a tight fiscal policy to restore the fiscal balance, a policy which is often referred to as 'Matsukata's deflationary policy.' Under the leadership of Matsukata, Japan introduced the silver standard in 1885, and moved into the gold standard in 1897.³

The Russo-Japanese War, the first modern total war for Japan, imposed a heavy burden on Japanese public finance. Japan financed the war by borrowing from Western investors through London and other international markets. After the war, the government faced financial difficulty because the investors had doubts about the government's capability to repay the debt.

Rapid economic growth during WWI reinforced Japanese public finance. Growth in nominal terms reduced the burden of previous debts. Japan also accumulated a trade surplus and specie during WWI. Japan used these national assets to deal with bad loan problems and other fiscal demands during 1920s. Meanwhile, Japan suspended gold convertibility in 1917 following the Western countries and resumed it in 1930.

The gold embargo in the end of 1931 and the following debt-financed fiscal stimulus policy marked a drastic change in Japanese public finance. A veteran Finance Minister Korekiyo Takahashi initiated the policies.⁴ The Japanese economy recovered

² Nakamura [1971], Oomori [2001].

³ Matsukata became Finance Minister in 1881 for the first time, served four times as Finance Minister until 1900 and twice as Prime Minister. During his career in public service, he played the central role in building up a modern financial system including the Bank of Japan and the gold standard.

⁴ Korekiyo Takahashi (1854-1936) joined the Bank of Japan (BOJ) in 1892 and served as Governor of the Bank from 1911 to 1913. He then served as Finance Minister seven times from 1913-36, and as Prime Minister once, from 1921-22. He was assassinated by

faster than other economies in the midst of the Great Depression. Many observers appraise Takahashi as a pioneer of the Keynesian counter-cyclical macroeconomic policy (Nakamura [1971]).

Some observers blame Takahashi's strategy for losing fiscal discipline and for paving the way to rampant inflation after WWII because he initiated debt-financed public spending. Ministry of Finance [1965] argues that his strategy resulted in the accumulation of deficit-covering bonds and inflation.⁵ Some blame Takahashi's scheme of the underwriting of government bonds by the Bank of Japan (BOJ). They say that the scheme became an instrument of easy credit to the government by the central bank. Shima [1983] says that "such easy instruments tend to be abused and to become common practice."⁶

Some observers defend Takahashi. Nakamura [1971] emphasizes that Takahashi tried to cut government spending including military expenditures when the recovery became robust, and that Takahashi's trial was cut short when he was assassinated by a group of militarist in 1936. They blame Takahashi's successor, Eiichi Baba, for failing to control military expenditures. Fiscal deficits exploded during Baba's term.

When and how the sustainability of Japanese public debts was lost, is an empirical question. We will explore the question combining quantitative and narrative modes of analyses.

b. Data on Public Finance

Figure 1 shows public-debts for fiscal 1885-1943.⁷ This sample of 58 years includes almost all periods from the establishment of modern Japanese public finance system to the collapse of the system. The solid line indicates the long-term (over 1 year) national debt. We take figures from the statistics of the Ministry of Finance (MOF).

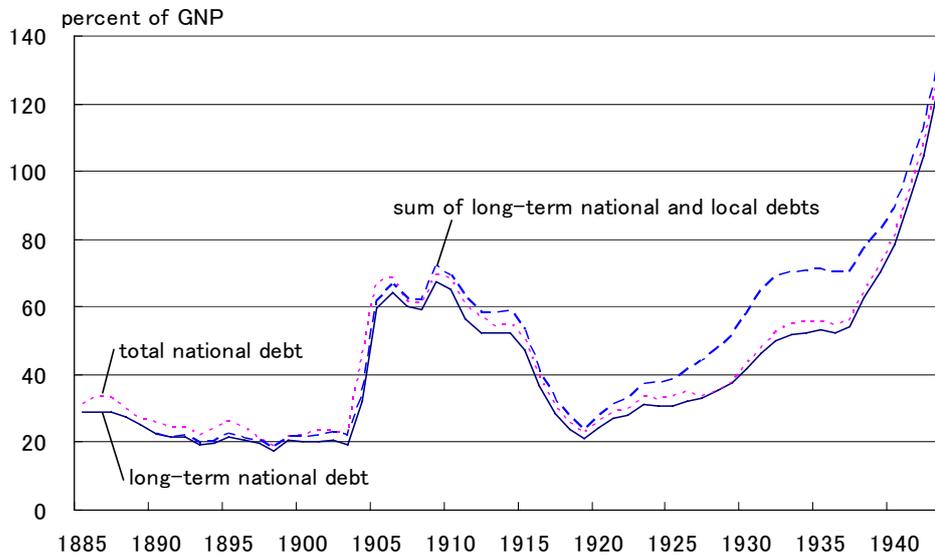
a group of militarists on February 26, 1936. During his career in public service, he played the central role in fundraising in the Western countries during the Russo-Japanese War. He solved a major financial crisis in Japan in 1927, and he conducted a drastic economic stimulus package during the Great Depression. Smethurst [2007].

⁵ Ministry of Finance [1965], pp.129-142.

⁶ Shima [1983], p.119.

⁷ All figures are expressed in ratio to output (gross national products) and fiscal year basis unless otherwise indicated. The output data are taken from *Long-term Economic Statistics* (LTES).

Figure1. Japanese Public Debt



Sources: *The Financial History of Meiji-Taisho Era, 11: National Debts; Reference Book of Financial Matters, LTES.*

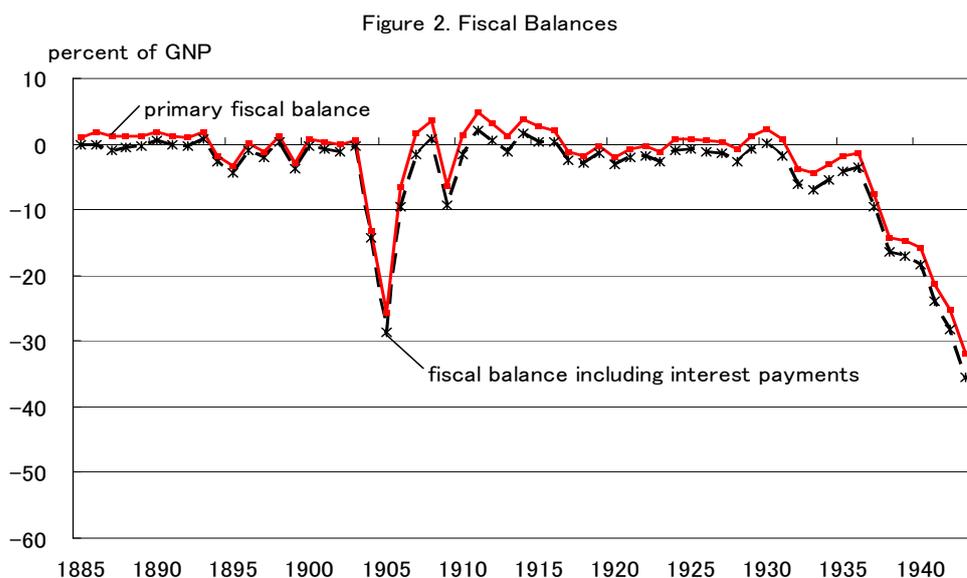
The average of long-term national debt over the sample period is 42 percent of GNP, while the ratio shows some swings. It is stable under 30 percent until the outbreak of the Russo-Japanese War in 1904. It soars during the war up to 65 percent in the end of 1906. It remains at around 60 percent until the outbreak of WWI. It falls during WWI to 21 percent in the end of 1919. It creeps up during the 1920s to 42 percent, the average level of the whole sample period, at the end of 1930. It jumps during the first half of Takahashi's term of 1932-36 and stays at the 50-60 percent level for the rest of his term. It skyrockets after 1936.

Figure 2 shows fiscal-balances for fiscal 1885-1943. The solid line indicates the primary balance, which is total revenue less payments not including interest payments.

Previously available data of fiscal balances in the General Account is misleading because it does not include special accounts. Among others, the biggest problems are related to war expenditures and debt consolidation. The government set Special Accounts for Temporary War Expenditures four times with the Sino-Japanese War in 1894-95 (the fiscal year for the account: June 1894-March 1896), the Russo-Japanese War (October 1903-March 1907), WWI (August 1914-April 1925), and the Asia-Pacific War/WWII (September 1937-February 1946).⁸ These War Expenditures

⁸ On July 7, 1937, Japan and China embarked upon an undeclared war. In this study, we use the term "Asia-pacific War" to describe warfare in 1937-45 because Japanese

make big impacts on the overall fiscal balance without impacting the General Account. The government established a Special Account for Government Debt Consolidation Fund in 1906. The government often stopped or reduced the amount of transfers from the General Account to the fund when it faced financial difficulties.



Sources: *The Financial History of Meiji-Taisho Era, 11: National Debts, Ministry of Finance Yearbook, LTES.*

In this study, we have new estimates of fiscal balances. We calculate the overall fiscal balance by subtracting the previous year's long-term national debt from the present year's. Then we calculate the primary fiscal balance by adding the present year's interest payments for the whole national debt to the overall fiscal balance. In doing so, we count all government revenues and expenditures, including special accounts. One disadvantage of this approach is that we cannot breakdown the developments in fiscal balances into revenues and expenditures.

We see two troughs in the fiscal balance, namely during the Russo-Japanese War and the Asia-Pacific War. During the Russo-Japanese War in 1904-05, the primary-deficit/output ratio records double digit figures. In 1905, the deficit was 26 percent of GNP. The scale of deficit per year is equivalent to 1942. These two wars induced a heavy burden on Japanese public finance. The difference between these two wars is the length of the trough. The trough in the Russo-Japanese War is short, and the trough in the Asia-Pacific War is long. The Sino-Japanese War (1894-95) and WWI

public finance maintained continuity through this period.

(1914-18) were not heavy burdens for Japanese public finance. Takahashi's term in the 1930s also marks deficits while the scale is small compared to the two big wars.

We may interpret the relationship between public debt in Figure 1 and fiscal balances in Figure 2 as a dynamic process. The two factors of determinants of public debts are accumulated fiscal balances as numerator and nominal output growth as denominator. Public debts increase when the government accumulates fiscal deficits. This was the case during the Russo-Japanese War, Takahashi's term, and the Asia-Pacific War. Public debt decreases when the output increases more than fiscal deficit in nominal terms. This was the case during WWI.

Table 1. Revenues and Expenditures in the General and War Accounts
(as percent of GNP)

	Revenues	Expenditures			Events
			Military	Others	
1885-93	8.7	6.1	2.3	3.9	
1894-95	6.4	10.8	8.3	2.5	Sino-Japanese War
1896-1903	9.3	9.4	4.7	4.6	
1904-06	12.2	22.9	18.8	4.1	Russo-Japanese War
1907-13	13.3	10.3	4.7	5.6	
1914-18	10.3	8.1	4.6	3.6	WWI
1919-21	8.7	9.0	5.7	3.3	
1922-31	9.5	9.0	3.2	5.7	Disarmament
1932-36	8.7	10.8	5.4	5.4	Takahashi's term as FM
1931	10.2	9.4	3.4	6.0	
1932	9.5	12.1	5.0	7.2	
1933	9.4	12.2	5.4	6.8	
1934	8.3	10.4	5.5	4.9	
1935	8.1	9.9	5.6	4.3	
1936	8.5	9.5	5.4	4.1	
1937	9.4	18.3	13.8	4.5	
1937-41	10.9	26.1	20.9	5.3	
1885-1941	9.9	11.1	6.5	4.7	

Notes. 1. Revenues exclude debt issues and borrowings, surplus from the previous year, and surplus of Temporary War Expenditure Accounts.

2. Expenditures exclude debt servicing costs.

Sources MOF [1955], *Ministry of Finance Yearbook*.

Table 1 shows fiscal revenues and expenditures for fiscal 1885-1941. We take the revenues from the General Account. We take the expenditures from the General and war expenditure accounts. The military expenditures include war expenditures in the Special Accounts for Temporary War Expenditures, the expenditures of the Army and Navy in the General Account, and expenditures for mobilization in the General Account. Although the figures in Table 1 are not consistent with Figure 2, we have an approximation of the revenue/expenditure breakdown of fiscal balances, correcting some problems of previously available data.

Table 1 confirms that the finance of military spending dominates in public finance in pre-WWII Japan. The military expenditures during the Russo-Japanese War and during the Asia-Pacific War reach 20 percent of GNP while the average over the sample period is 6 percent.

The government intended to finance the Russo-Japanese War mainly by raising taxes and by issuing debt rather than cutting expenditures. The revenues, most of which were taxes, rose from 9 percent of GNP before the war to 12 percent during the war. The revenues further rose to 13 percent after the war while military expenditure and the sum of other expenditures were higher than the pre-war level in 1906-08. The government did not curb expenditures within the pre-war level until 1909.

Disarmament efforts such as the Washington Conference in 1921-22 distributed peace dividends to Japan. The military expenditure decreased to an average of 3 percent of GNP in 1922-31. The government used the peace dividends for public investments (Nakamura [1971], p.147) and bad-loan disposal (Itoh [1989], p.197). The sum of other expenditures than military spending reached a record high of 6 percent of GNP.

The deterioration in fiscal balances during and after Takahashi's term in 1932-36 was mainly due to increase in military spending. Military expenditure soared to 6 percent of GNP during 1932-36, and jumped to 14 percent in 1937. Other expenditure increased to 7 percent in 1932-33, but fell below 5 percent afterwards.

3. Econometric Analysis for Sustainability of Public Debt

a. Methodology

How we should define sustainability of public debt? Hamilton and Flavin [1986] define this sustainability as that in which the "government budget must be balanced in present-value terms."⁹ Bohn [2005] argues that present-value criteria is

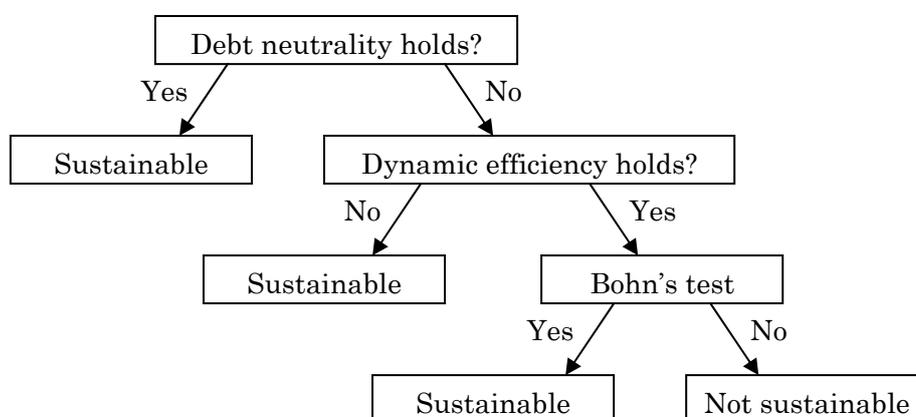
⁹ Hamilton and Flavin [1986], pp.811-812.

based on the assumptions of infinitely-lived optimizing behavior of potential lenders and complete financial markets, which guarantee a common pricing kernel for interest rates. And, Bohn generalizes the conditions for sustainability as those in which “an agent’s ability to borrow is constrained by other agents’ willingness to lend.”¹⁰ Bohn [1998, 2005] derives a simple rule or a government’s reaction function for sustainable public debt by solving intertemporal optimization equations of private agents.

Doi and Nakazato [2004] present a three-stage method for testing sustainability of public debt. Figure 3 presents a flow chart of their method. They propose testing the debt neutrality hypothesis first, to test the dynamic efficiency of the economy second, and to test the Bohn’s criteria third. They test the sustainability of post-WWII Japanese public debt with the method. They conclude that the post-WWII Japanese public debt was sustainable until the beginning of 1990s, and that the debt was not sustainable from the middle of 1990s.¹¹

This study applies the three-stage method for analyzing sustainability of public debt presented by Doi and Nakazato [2004] on pre-WWII Japan.

Figure 3. Methodology for Testing Sustainability of Public Debt



Source: Doi and Nakazato [2004].

b. Debt Neutrality

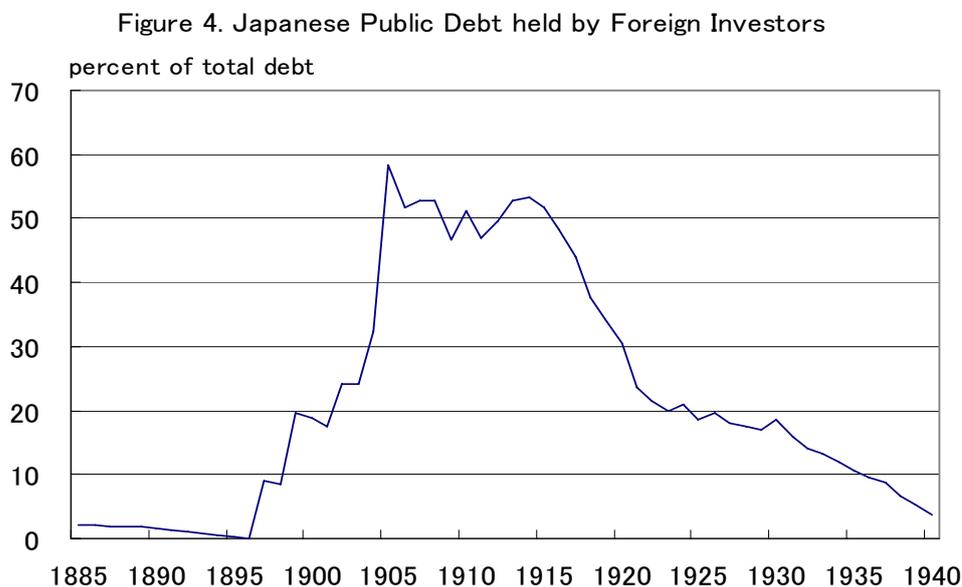
Debt neutrality hypothesis, also referred to as Ricardian equivalence theorem, states that the domestic private agents recognize public debts held by the domestic

¹⁰ Bohn [2005], p.15.

¹¹ There is only one previous study employing quantitative analysis on the sustainability of public debt in pre-WWII Japan. Asako et al. [1993] test if the amount of public debt diverges or not, and if the government’s revenue and expenditure cointegrate or not. They employ the tests for the sample periods of 1885-1944 and 1885-1936. They conclude that pre-WWII Japanese public debt was not sustainable. But, they do not indicate when the public debt became unsustainable.

agents as future tax obligations and not as net wealth.¹² If this hypothesis holds, a government does not have to prepare for future repayments of the public debts held by domestic private agents. In this case, the public debt is sustainable regardless of the government's behavior.

An important prerequisite for debt neutrality hypothesis does not hold for pre-WWII Japan. If the public debt is held by foreign investors, the debt is not neutral. Foreign investors held a substantial part of Japanese public debt. Figure 4 shows the ratio of foreign holdings of the public debt. Foreign investors held more than 50 percent of the debt after the Russo-Japanese War until WWI. They held about 30 percent in 1920s and over 10 percent during the first half of 1930s.



Note: Total of national and local debts.

Source: Fujino and Teranishi [2000], *Nihon Kin'yu no Suryo Bunseki* (Quantitative Analysis of Japanese Finance).

Previous empirical works indicate that the debt neutrality hypothesis does not hold in many cases even when held by domestic agents. Bernheim [1987] reviews previous studies on the U.S. and Canada, and concludes that public debts in these countries are not neutral. Honma [1996] and Ihori et al. [2001] test the hypothesis on post-WWII Japan, and conclude that the hypothesis does not hold.

Bernheim [1987] theoretically interprets the above empirical evidence, arguing

¹² Barro [1974].

that the hypothesis presumes strict conditions.¹³ The conditions are “that (1) successive generations are linked by altruistically motivated transfers; (2) capital markets either are perfect, or fail in specific ways; (3) the postponement of taxes does not redistribute resources within generations; (4) taxes are nondistortionary; (5) the use of deficits cannot create value (that is, through ‘bubbles’); (6) consumers are rational and farsighted; and (7) the availability of deficit financing as a fiscal instrument does not alter the political process.” Shibata [1991] reviews these conditions and concludes that the debt neutrality does not hold when heterogeneous agents exist and when wealth is redistributed among them in some way.

We assume that the debt neutrality hypothesis does not hold in pre-WWII Japan because an important prerequisite does not hold and because previous empirical and theoretical works indicate difficulties in meeting conditions for the hypothesis.

c. Dynamic Efficiency

Abel et al. [1989] state that an economy is dynamically inefficient when the economy is consistently investing more than it is earning in profit.¹⁴ If an economy is dynamically inefficient, borrowers do not have to repay their debts in the macroeconomic sense. In such an economy, the government, typically the biggest borrower, is allowed to run continuous deficits.

Abel et al. [1989] present a method to test the dynamic efficiency of an economy by comparing cash flows going into and coming out of an economy’s production sector. They argue that conventional models comparing growth rate and interest rate are inadequate in a stochastic setting with uncertainty in profitability, the value of capital, and growth rate. They argue that the net cash flow criterion, which they present, is an adequate way to test dynamic efficiency in a stochastic setting.¹⁵

This study applies the net cash flow criterion presented by Abel et al. [1989] to pre-WWII Japan. We estimate gross profit and gross investment from existing data, and compare them. Figure 5 shows them in terms of output-ratio. Gross profit exceeds gross investment for the whole period of 1885-1940, indicating that Japanese economy has been dynamically efficient. The average difference of gross profit and investment for 1885-1940 was 18.8 percent of GNP.¹⁶

We assume dynamic efficiency of the Japanese economy with a large margin of

¹³ Bernheim [1987], pp.264-265.

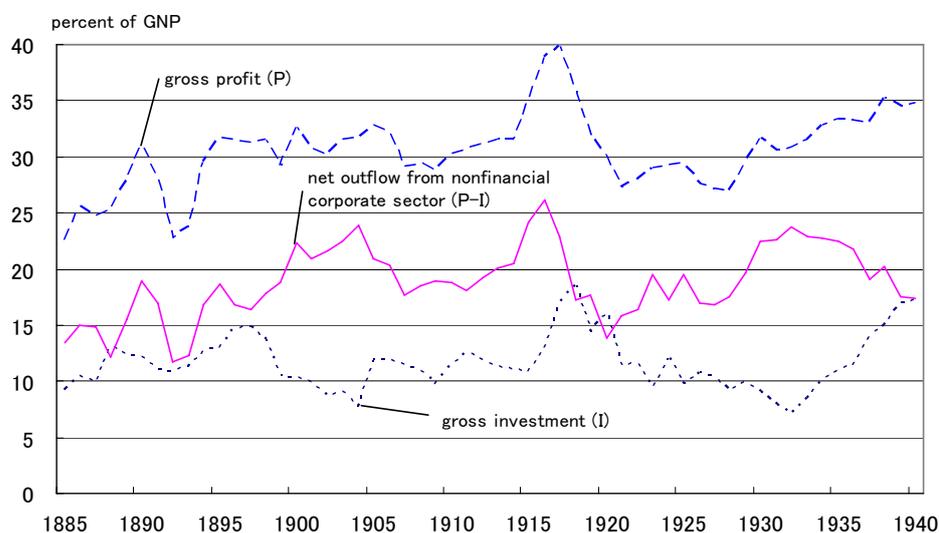
¹⁴ Abel et al. [1989], p.1.

¹⁵ Abel et al. [1989], p.2.

¹⁶ Abel et al. [1989] reported post-WWII Japanese data, and the difference in 1960 was 17.6 percent, roughly equivalent to the pre-WWII level.

difference between gross profit and investment.

Figure 5. Gross Profit and Gross Investment



Sources: *LTES*; Ohkawa and Minami eds. [1975], *Kindai Nihon no Keizai Hatten* (Economic Developments of Modern Japan); Emi and Shionoya eds.[1973], *Nihon Keizai Ron* (Japanese Economy).

d. Bohn's Tests

The analyses above indicate a need for another test for sustainability of public debt, one which is proposed by Bohn [1998].

Bohn's method tests the relationship between public debt and primary fiscal balance. Bohn's basic notion is that if a government improves its primary balance when it sees an increasing public-debt-to-output ratio, then its public debts are sustainable in the long-run. If not, public debts are not sustainable. He also notes that the positive relationship between primary balance and debts is not necessary for the sustainability of public debts when the debt-to-output ratio is low.

Bohn's method is becoming a standard for testing sustainability of public debts. Bohn [1998] applies the formula to the United States for 1916-95, and shows that the nation's public debt was sustainable over that period. Bohn [2005] extends the test to the U.S. for the period of 1792-2003, and shows that its public debt was sustainable for more than 200 years. Ihori et al. [2001] apply the method to Japanese national debt for 1956-98. They show that the Japanese national debt was not sustainable in recent years. Doi and Nakazato [2004] extend the test to Japanese public debts including local governments for the period of 1956-2000. They show Japanese public debt was sustainable until the beginning of 1990s, and became unsustainable from the middle of

1990s. Ghatak and Sanchez-Fung [2006] apply the method to test the debt sustainability of developing economies, including Peru, the Philippines, South Africa, Thailand, and Venezuela, for the period of 1970-2000.

We apply Bohn's method to pre-WWII Japan with the new dataset of Japanese primary fiscal balance, which has been presented in Section 2.b. The formula is expressed by equation (1).

$$(1) \quad s_t = \alpha_0 + \rho \cdot d_{t-1} + \alpha_G \cdot GV_t + \alpha_Y YV_t + \varepsilon_t,$$

s_t denotes primary fiscal surplus at time t , d_{t-1} denotes public debt at the end of time $t-1$, GV_t denotes temporary fiscal spending, and YV_t denotes cyclical variables. We have presented s_t and d_{t-1} in Figure 2 and Figure 1, respectively. We take national debt as public debt because of data constraints in local governments' debts and because of similarity in movements of data between national debt and total debts including local governments' debts. We take GV_t , temporary fiscal spending, from direct military spending by MOF estimates.¹⁷ The definition of the MOF estimates is close to temporary parts of military spending in Barro [1986] and Bohn [1998] in a sense that MOF, Barro, and Bohn intend to separate big swings in military spending from other fiscal spending. We derive YV_t , a cyclical variable, by taking a deviation from the trend value in real output (GNP) in logarithm.¹⁸ All variables other than YV_t are normalized by output ratio. YV_t is expressed as ratio to the real trend output. The sample period is 1886-1943.

The sign and the statistical significance of ρ , the coefficient of d_{t-1} , is critical for our purpose. Table 2 shows the regression results. We employ the ordinary least-square method (OLS) in (a1) and (b1) regressions. We employ the two-stage least-square method (2-SLS) with one-period lagged explanatory variables as instrument variables in (a2) and (b2) regressions. We use long-term debt as the public debt in (a1) and (a2) regressions. We use total debt including short-term debts such as treasury bills as the public debt in (b1) and (b2) regressions. Different regressions yield qualitatively the same results. ρ has positive signs as expected in all regressions. ρ is statistically significant by 5 percent level in 2-SLS regressions while ρ is not statistically significant even by 10 percent level in OLS regressions.

¹⁷ Ministry of Finance [1955], pp.4-5.

¹⁸ The trend value is calculated by HP filter ($\lambda=100$) for 1885-1943.

Table 2. Estimation Results (Bohn's Test)

dependent variable: primary fiscal surplus

sample period: 1886-1943

Number of observations: 58

estimation

formula:

$$s_t = \alpha_0 + \rho \cdot d_{t-1} + \alpha_G \cdot GV_t + \alpha_Y YV_t + \varepsilon_t$$

d: long-term debt	a1)			a2)		
α_0	2.647	(3.48)	***	2.101	(2.51)	**
ρ	0.031	(1.41)		0.061	(2.39)	**
α_G	-0.874	(-18.66)	***	-0.962	(-16.13)	***
α_Y	-12.51	(-1.18)		-9.856	(-0.58)	
adj. R ²	0.904			0.897		
DW	1.87			1.75		

d: total debt	b1)			b2)		
α_0	2.816	(3.45)	***	1.835	(1.98)	*
ρ	0.023	(1.04)		0.066	(2.44)	**
α_G	-0.865	(-17.96)	***	-0.975	(-15.47)	***
α_Y	-13.514	(-1.25)		-8.733	(-0.50)	
adj. R ²	0.908			0.892		
DW	1.89			1.75		

- Notes.
1. Figures in parentheses are t-values. * represents 10 percent significance, ** represents 5 percent significance, and *** represents 1 percent significance.
 2. Estimated by the ordinary least-square method (OLS) in (a1) and (b1) regressions. Estimated by the two-stage least-square method (2LS) with one-period lagged explanatory and dependent variables as instrument variables in (a2) and (b2) regressions.

e. Bohn's Tests with Structural Changes

Narrative evidence suggests a structural change or changes in the government's behavior in terms of fiscal policy and debt management within the sample period. Japanese public debt became unsustainable at some point in time and ended with rampant inflation after WWII. Candidates for events incurring such structural changes are the Russo-Japanese War, WWI, and Takahashi's debt-financed spending policy.

We employ Bohn's method with a structural change to explore the timing and

properties of the structural change. First, we employ the stepwise Chow tests to find the timing of the structural change. Second, we employ Bohn’s tests with dummy variables to explore the properties of the structural change. Third, we estimate recursive t-statistics for the coefficient ρ to explore within-sample developments of ρ .

The Chow test is to check if the OLS regression with dummy on constant and coefficient of all explanatory variables is better in terms of explanatory power than the corresponding regression without dummy. A better explanatory power of the regression with dummy indicates the existence of a structural change. The stepwise Chow tests explore if a structural change exists within the sample period, and when, if at all, the structural change occurs, by moving the starting period of dummy.

The result of the stepwise Chow tests on equation (1) indicates a structural change at the 5 percent significance level either in or around 1906, 1917, or 1932 (Figure 6). The result is consistent with narrative evidence. The timings of possible structural changes indicated by the stepwise Chow tests coincided with the events which had a big influence on the Japanese public debt. 1906 is the first year after the Russo-Japanese War. 1917 is the midst of the rapid economic growth during WWI. 1932 is the first year of Takahashi’s debt-financed fiscal policy.

Figure 6. Stepwise Chow Test
dependent variable: primary fiscal balance

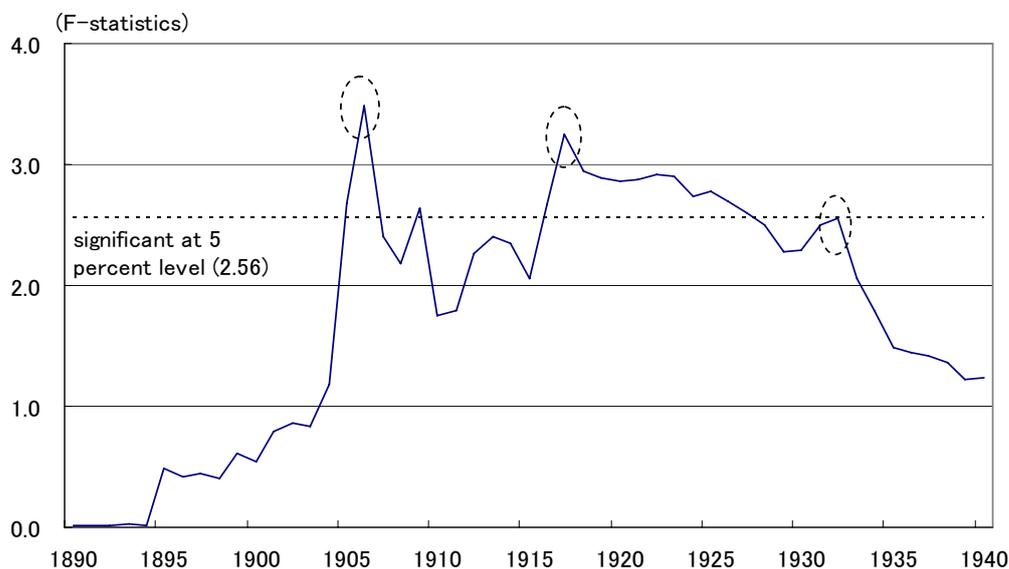


Table 3 shows descriptive statistics of explanatory variables of equation (1) for the full-sample period and for sub-sample periods derived from the stepwise Chow tests. In 1885-1905, the public debt and the primary deficit are lower than the full-sample

average, indicating a stable fiscal position. In 1906-16, the public debt is higher than average while the primary surplus is recorded, indicating a remarkably tight fiscal policy for repaying wartime debts. In 1917-1931, the public debt and the primary deficit are lower than average, indicating a stable fiscal position. During this period, the temporary spending is the lowest among sub-sample periods, indicating the effects of disarmament. In 1932-43, the public debt, the primary deficit, and the temporary spending are the highest among sub-sample periods, indicating deterioration in fiscal position.

Table 3. Descriptive Statistics

Sample period	1885-1905	1906-16	1917-31	1932-43	1885-1943
Number of obs.	21	11	15	12	59
Long-term debt	24.541	55.739	31.474	70.477	41.463
	(8.992)	(9.053)	(6.715)	(24.581)	(22.579)
Total debt	28.083	58.622	33.032	73.034	44.178
	(10.747)	(8.913)	(6.571)	(24.837)	(22.775)
Primary surplus	-1.546	1.023	-0.111	-12.101	-2.849
	(6.431)	(3.818)	(1.209)	(10.107)	(7.721)
Temp. expenditure	5.742	5.338	3.848	17.894	7.656
	(5.964)	(2.076)	(1.085)	(13.970)	(8.837)

Note. Figures are average as percent of GNP. Figures in parentheses are standard deviations.

The formula of Bohn's tests with dummy variables is expressed by equation (2).

$$(2) \quad s_t = (\alpha_0 + \alpha_\pi \cdot D_\tau) + (\rho_0 \cdot d_{t-1} + \rho_\pi \cdot d_{t-1} \cdot D_\tau) + (\alpha_{G0} \cdot GV_t + \alpha_{G\pi} \cdot GV_t \cdot D_\tau) + \varepsilon_t,$$

D_τ has a value of zero before period τ and a value of one in and after period τ . We run regressions for three cases of $\tau=1906, 1917,$ and 1932 . We excluded YV_t , cyclical variables, from the regressions because YV_t is insignificant for all regressions above and because we want to have as many degrees of freedom as possible.

Table 4 shows the regression results. ρ_π , the coefficient of dummy for public debt is significant in all regressions, implying a structural change at the timing indicated by the stepwise Chow tests.

Table 4. Estimation Results with Dummy Variables: Case 1(Bohn's Test)

dependent variable: primary fiscal surplus

sample period: 1886-1943

Number of observations: 58

estimation

$$s_t = (\alpha_0 + \alpha_\pi \cdot D_\tau) + (\rho_0 \cdot d_{t-1} + \rho_\pi \cdot d_{t-1} \cdot D_\tau) + (\alpha_{G0} \cdot GV_t + \alpha_{G\pi} \cdot GV_t \cdot D_\tau) + \varepsilon_t$$

formula:

d: long-term debt

	Dummy ₁₉₀₆		Dummy ₁₉₁₇		Dummy ₁₉₃₂		No Dummy					
α_0	10.870	(3.75)	***	3.675	(4.38)	***	2.842	(3.16)	***	2.408	(3.28)	***
α_π	-9.576	(-3.05)	***	-			-			-		
ρ_0	-0.290	(-2.32)	**	0.043	(2.14)	**	0.049	(2.26)	**	0.038	(1.86)	*
ρ_π	0.347	(2.70)	***	-0.092	(-3.71)	***	-0.098	(-3.48)	***	-		
α_{G0}	-1.002	(-11.69)	***	-1.030	(-13.29)	***	-0.985	(-12.57)	***	-0.884	(-19.16)	***
$\alpha_{G\pi}$	0.120	(1.16)		0.343	(2.99)	***	0.327	(2.76)	***	-		
adj. R ²	0.916			0.921			0.919			0.904		
DW	1.74			2.15			2.08			1.78		

Notes 1. D_τ takes value of zero before period τ , and value of one in and after period τ .

2. Estimated by OLS. Figures in parentheses are t-values. * represents 10 percent significance, ** represents 5 percent significance, and *** represents 1 percent significance.

In the case of $\tau=1906$, $\rho_0 = -0.29$, and $\rho_\pi=0.35$, implying that the coefficient of d_{t-1} changed from -0.29 to $0.06=-0.29+0.35$ in 1906, the result implies the government changed its attitude to public debt and moved towards a tighter direction, improving the sustainability of public debt. Table 3 reports that the level of public debt is low before 1906 and high afterwards. The regression result is consistent with narrative evidence of tightening fiscal policy in the wake of ballooning public debt during and right after Russo-Japanese War.

In the case of $\tau=1917$, $\rho_0 = 0.04$, and $\rho_\pi=-0.09$, implying that the coefficient of d_{t-1} changed from 0.04 to $-0.05=0.04-0.09$ in 1917, the result implies the government changed its attitude to public debt and became slacker, worsening the sustainability of public debt.

In the case of $\tau=1932$, $\rho_0 = 0.05$, and $\rho_\pi=-0.10$, implying that the coefficient of d_{t-1} changed from 0.05 to $-0.05=0.05-0.10$ in 1932, the result also implies government changed the attitude to public debt to easier direction, worsening the sustainability of

public debt.

In which year, 1917 or 1932, did the sustainability of public debt deteriorate more? In other words, which structural change is more significant? To answer this question, we run the regression below.

$$(3) \quad s_t = \alpha_0 + (\rho_0 \cdot d_{t-1} + \rho_{\pi 1} \cdot d_{t-1} \cdot D_{\tau 1} + \rho_{\pi 2} \cdot d_{t-1} \cdot D_{\tau 2}) + (\alpha_{G0} \cdot GV_t + \alpha_{G\pi 1} \cdot GV_t \cdot D_{\tau 1} + \alpha_{G\pi 2} \cdot GV_t \cdot D_{\tau 2}) + \varepsilon_t,$$

$D_{\tau 1}$ has a value of one in 1917-31 and a value of zero otherwise. $D_{\tau 2}$ has a value of one in 1932-43 and a value of zero otherwise. The sample period is 1906-43. We take the period of 1906-16 as the baseline in which period the government conducted a sound fiscal policy to make public debt sustainable. And we compare the divergence of fiscal policies in 1917-31 and 1932-43 from the baseline period of 1906-16.

Table 5. Estimation Results with Dummy Variables: Case 2 (Bohn's Test)

dependent variable: primary fiscal surplus

sample period: 1906-1943

Number of observations: 38

estimation formula:

$$s_t = \alpha_0 + (\rho_0 \cdot d_{t-1} + \rho_{\pi 1} \cdot d_{t-1} \cdot D_{\tau 1} + \rho_{\pi 2} \cdot d_{t-1} \cdot D_{\tau 2}) + (\alpha_{G0} \cdot GV_t + \alpha_{G\pi 1} \cdot GV_t \cdot D_{\tau 1} + \alpha_{G\pi 2} \cdot GV_t \cdot D_{\tau 2}) + \varepsilon_t$$

d: long-term debt

α_0	2.146	(0.66)	
ρ_0	0.072	(1.14)	
$\rho_{\pi 1}$	-0.056	(-1.03)	
$\rho_{\pi 2}$	-0.105	(-2.33)	**
α_{G0}	-0.995	(-3.07)	***
$\alpha_{G\pi 1}$	0.290	(0.52)	
$\alpha_{G\pi 2}$	0.318	(0.91)	
adj. R ²	0.937		
DW	1.94		

Notes 1. $D_{\tau 1}$ takes value of one in 1918-31, and value of zero otherwise.

$D_{\tau 2}$ takes value of zero in and before 1931, and value of one in and after 1932.

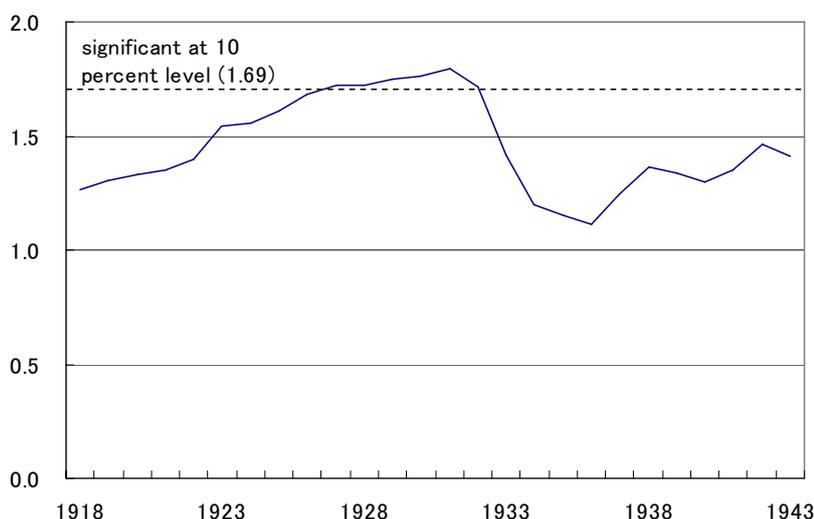
2. Estimated by OLS. Figures in parentheses are t-values. ** represents 5 percent significance, and *** represents 1 percent significance.

The regression result shows that the structural change in 1932 is more robust than in 1917 and that the Japanese public debt become unsustainable in around 1932 (Table 5). ρ_{π_2} , the coefficient of the dummy for 1932-43 is statistically significant, while ρ_{π_1} , one for 1917-31 is not. The absolute value of ρ_{π_2} is greater than ρ_{π_1} . The central estimate of the coefficient of d_{t-1} is 0.07 for the period of 1906-16, 0.02 for 1917-31, and -0.03 for 1932-43, implying that the coefficient changes from positive to negative in 1932.

Ghatak and Sanchez-Fung [2006] employ the recursive t-statistics approach to explore within-sample developments of the debt sustainability of the post-WWII developing economies. Bohn's method tests if the sign of coefficient of public debt is significantly positive or not. They fix the starting period and test Bohn's method, extending the ending period year by year from late 1970s to 2000. They report changes in signs and absolute values of t-statistics for the coefficient of public debt in different sample periods.

We fix the starting period in 1886 and run the regression for equation (1), extending the ending period year by year from 1918 to 1943.

Figure 7. t-statistics for the Coefficient of Public Debt



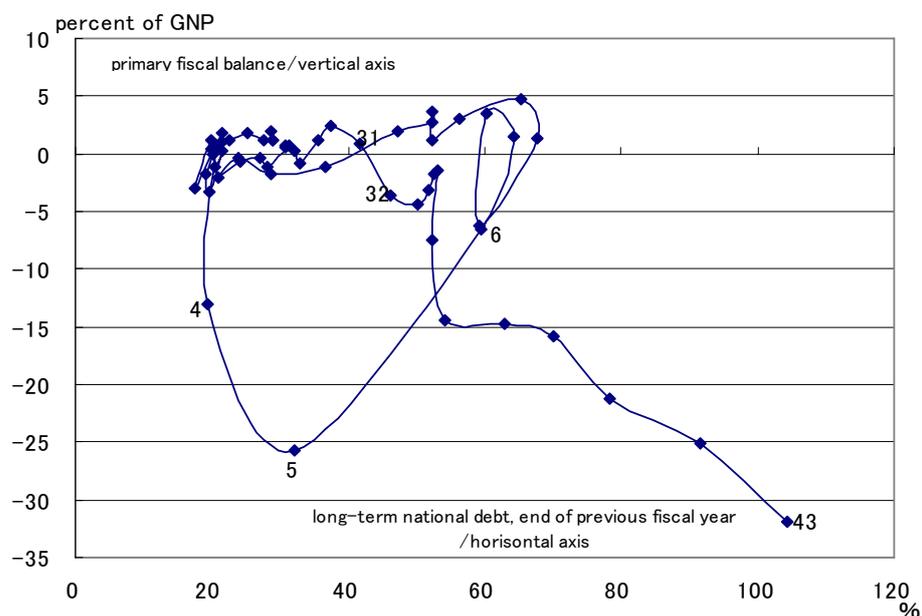
The regression results suggest that Japanese fiscal policy become less sound during Takahashi's term of 1932-36 (Figure 7). The inclusion of data from the 1920s and 1931 makes ρ statistically more significant. The inclusion of data of 1932-36 makes ρ statistically less significant. ρ is statistically different to zero by a 10 percent significance level for the sample period of 1886-1926 through 1886-1932. ρ is not

statistically different to zero by a 10 percent significance level for the sample period of 1886-1933 through 1886-1943.

f. A Review of Quantitative Analysis

The Bohn's tests assuming a structural change within the sample period indicate that Japanese public debts were sustainable until 1931, and unsustainable in and after 1932.

Figure 8. Public Debt and Primary Fiscal Balance



Sources: See footnotes of Figure 1 and 2.

We review the results of Bohn's tests with a scatter diagram of public debt in the horizontal axis and primary fiscal balance in the vertical axis (Figure 8). The bottom line of Bohn's argument is that an upward-sloping relationship between these two variables indicates sustainability of the public debt. A government manipulates primary fiscal balance, seeing the level of public debt in the end of previous fiscal year. The rule of thumb for sustainable public debt is that if the government sees an increase in public debt, it tightens the budget. If it sees a decrease in public debt, it loosens the budget. The results of quantitative analysis indicate that Japanese public debt and primary fiscal balance kept an upward-sloping relationship until 1931, and moved into a downward-sloping relationship from 1932. We see a small reversal in 1934-36 toward an upward-sloping, but the reversal is not statistically significant.

The quantitative analysis above supports the view that Japan lost its

sustainability of public debt in the first half of 1930s, or in the beginning of Takahashi's term. This is consistent with views presented by the Ministry of Finance [1965] and Shima [1983].

Why did Japan's public debt become unsustainable in the first half of the 1930s? The quantitative analysis above says very little about it. We should not conclude that Takahashi's strategy of debt-financed fiscal spending resulted in "accumulation of deficit-covering bonds and inflation" only with the quantitative analysis. Narrative modes of analysis shed light on this question.

4. Narrative Analysis of Developments in Fiscal Policy

We explore the developments which drove Japanese public debt unsustainable in the first half of 1930s. We focus on the governance of fiscal policy, both from domestic and international sides. From the domestic side, we focus on the coordination problem of political institutions under the Meiji Constitution. From the international side, we focus on the fiscal discipline associated with the international financial markets under the gold standard system. We explore the cases after the Russo-Japanese War, during the 1920s, and on the eve of Takahashi's debt-financed fiscal spending policy. And, we explore the logic and the reality of Takahashi's debt-financed spending policy. We review previous works and look at new archives to employ the case study.

a. The Political Institutions under the Meiji Constitution

The conduct of fiscal policy is different from other macroeconomic policy, i.e. monetary policy, from the viewpoint of political economy. Historically, fiscal policy has not been decided by a single entity, e.g. MOF and/or the Cabinet, which is primarily responsible for public finance. Fiscal policy has been decided by negotiations on budget among various political players, including MOF, the Cabinet, political parties, and other various interested groups. In contrast, monetary authority has been concentrated in a small group, either in the central bank and/or in MOF even if pressures from outsiders are harsh. The crucial element of monetary policy is the relationship with the participants in the financial markets in a broad sense.

The political institutions under the Meiji Constitution of 1889 conditioned the budgetary process of pre-WWII Japan. The Cabinet had a very limited capacity to coordinate political players. Under the Meiji Constitution, various entities with authorities were directly linked to the Emperor. Such authorized entities include the House of Lords, the House of Representatives and political parties, bureaucrats, the

Privy Council, Army, Navy, and the Cabinet.¹⁹ The Cabinet had to make any decision by unanimity. If a single member of the Cabinet, e.g. Army Minister or Navy Minister, disagreed with other members, the Cabinet had to resign. The Senators, who were appointed by the Emperor as informal advisers with no provision in the Constitution, acted as the behind-the-curtain coordinators from time to time. But, the Senators' capacity for policy coordination was also limited.²⁰

The Army and Navy had an effective veto in the budgetary process. The Army and Navy served under the supreme command of the Emperor, and had the authority to decide the long-term national defense plan and day-to-day military operations independent of the Cabinet. A Prime Minister was allowed to look at the national defense plan only after ratification by the Emperor. The Cabinet and MOF devoted their efforts to negotiations with the Army and Navy in the annual budgetary process. Sometimes they reached compromises with the military. Sometimes they failed to do so, and the Cabinet resigned.

b. The Case after the Russo-Japanese War: Maintaining Sustainability (1)

We explore the political economy of the sustainability of Japanese public debt after the Russo-Japanese War. Participation in the international financial markets under the gold standard worked as a governance mechanism for keeping the sustainability of Japanese public debt while coordination problems under the Meiji constitution put the sustainability in question.

Joining the gold standard was a choice of policy regime. Under the gold standard regime, a country enjoyed easy access to international financial markets when it needed to borrow large amounts of money, for example, during wartime. In return, the government sacrificed the needs of the domestic economy in order to maintain an external balance and gold parity in ordinary times. Sound fiscal policy was prerequisite for joining the gold standard. In this regard, Bordo and Rockoff [1996] argue that adherence to the rules of the gold standard signaled prudent fiscal and monetary policies of the country, and provided improved access to capital from the core Western countries.

The late 19th and early 20th centuries were the heyday of the international gold standard. Japan adhered to the principles of sound fiscal policy even before joining the

¹⁹ Nakamura [1993], pp.10-13; *Muramatsu and Ito* [2001], p.82.

²⁰ Emperor Mutsuhito the Great, on the throne in 1867-1912, appointed nine Senators during his reign. His successors appointed no one. As a standard practice, the Emperor appointed a Prime Minister in accordance with the Senators' advice. Nakamura [1993], pp.12-13.

gold standard, and joined the gold standard in 1897. Before joining it, there was a great deal of opposition from the business community, which argued that staying on silver would make Japanese products more competitive in the international markets than moving into gold. The then Prime Minister and Finance Minister Matsukata went ahead with joining the gold standard.

Adherence to the Gold Standard enabled Japan to finance the Russo-Japanese War by borrowing money in Europe and North America. The war expenditure amounted to 1,826 million yen or 187 million pound, 60 percent of Japanese GNP in 1904. Japan issued bonds of 1,045 million yen or 107 million pound (in face value) in London and other overseas markets in 1904-05 to finance the war. Eiichi Shibusawa, a distinguished business leader and a principal opponent against the gold standard before joining it, later said, "I realized several years later (of joining the gold standard) that it was crucial for Japan. And, I sincerely admired Lord Matsukata for rejecting my opinion."²¹

Participating in the international financial markets was consistent with other national goals. Japan intended to expand in Asia in cooperation with the Anglo-American alliance.²² Foreign Minister Jutarō Komura asked for the support of the British and American governments when the war with Russia became inevitable. He emphasized that the purpose of war was to liberate Manchuria from Russia, and that the war met the national interests of Britain and the United States. Komura asked President Theodore Roosevelt to mediate for peace. Korekiyo Takahashi, then Vice Governor of BOJ, cooperated with the British and American financial leaders to sell Japanese public bonds to the Western investors.

The sustainability of Japanese public debt was put into question after the Russo-Japanese War. Both international and domestic investors were worried about the country risk of Japanese government bonds. They were concerned with the burdens of Japan's wartime debt and increasing fiscal spending for promoting Japanese strategic and economic interests in China and Korea. Prices of Japanese government bonds (JGBs) in secondary markets dropped and new issues of JGBs suffered from a slump in sales.²³

Japan restored the credibility of its bonds by tightening its fiscal policy. The

²¹ "Speech at the Dinner of 20th Anniversary of the Gold Standard in Japan," November 1, 1917, reprinted in BOJ [1958], p.703.

²² Metzler [2006] and Smethurst [2007] provide extensive narrative evidence that Japanese political leaders recognized the importance of cooperation with Anglo-American alliance and pursued it.

²³ Kamiyama [2000], p.48.

Japanese policymakers, including the military, agreed to limit government spending within the range of maintaining gold parity. The first Saionji Cabinet (1906-08) committed to reduce new bond issues in 1906 with the request of Takahashi, who was negotiating with Western financial leaders on the refinancing of war bonds.²⁴ The second Katsura Cabinet (1908-11) announced the principle of a balanced budget in 1908. These two Cabinets increased taxes and postponed military and other spending.²⁵ And, the prices of JGBs recovered in 1908.²⁶

Political players, including the military, reached a consensus on tight fiscal policy because they recognized the importance of the credibility of public debt for achieving national goals. In the early stages of negotiation, MOF pursued a balanced budget while the military insisted strengthening their potential for promoting Japanese strategic interests. The Army insisted on an increase of divisions, and the Navy insisted on an increase in fleet size. A Senator, Kaoru Inoue, insisted on tighter fiscal policy to restore the credibility of Japanese bonds.²⁷ Kinmochi Saionji and Taro Katsura persuaded the military and reduced their budget requests.²⁸

The case after the Russo-Japanese War indicates a kind of governance mechanism worked through the international financial markets under the gold standard. Japan's case during this period is a perfect example of Bordo and Rockoff's argument. The Japanese government proved their commitment to the gold standard. And they were rewarded by the cheaper cost of fundraising in the international markets.

c. The Case during 1920s: Maintaining Sustainability (2)

The participation in the international financial markets worked as a governance mechanism for keeping the sustainability of Japanese public debt even when Japan had suspended the gold standard during 1920s.

Japan suspended the gold standard in September 1917, following the Western countries, and tried to return to the gold standard in the 1920s. Incidents such as the Great Kanto Earthquake in September 1923 and the Financial Panics in the spring of 1927 hindered the government's final decision. Japan finally returned to the gold standard in January 1930.

²⁴ Kamiyama [2000], pp.42-43.

²⁵ The principle of the second Katsura Cabinet is called *hibosai-shugi*, literally "the principle of no new bond issue." Kamiyama [2000], p.56.

²⁶ Kamiyama [2000], p.57.

²⁷ Kamiyama [2000], pp.54-55.

²⁸ Masumi [1988], pp.140-172.

When Japan was off gold, Japan once issued foreign bonds in February 1924 in London and New York, with expensive servicing costs. The yield was 7 percent.²⁹ The purpose of the issue was to refinance a part of the Russo-Japanese War bonds due on 1926 and to finance the earthquake reconstruction. People called the bonds “the bonds of national disgrace” because the terms were against Japan.³⁰

The Hamaguchi Cabinet (1929-31) committed to returning to the gold standard and to disarmament. Tight fiscal policy was consistent with these goals. Prime Minister Hamaguchi declared that, “We will take decisive actions for fiscal austerity of the central and local governments. We will restrict the budget of the Army and Navy to an extent that will not to affect national defense. By doing so, we will promote business restructuring and thrift to the people.”³¹ Japan returned to the gold standard in January 1930, and concluded the London Naval Treaty in April. Japan ratified the treaty in October though hardliners in the Navy were opposed to the ratification. In November, MOF and the Navy reached agreements on budgetary treatment on this issue.

Hamaguchi gained political support from the public and from the Senator Kinmochi Saionji.³² Hamaguchi dissolved the House of Representatives in January 21, 1930, the opening day of the London Naval Conference and one week after returning to the gold standard. The Ruling Minsei-To Party overwhelmingly won the general election. Senator Saionji publicly supported Hamaguchi’s policy of cooperation with the United States and Britain.³³

Eigo Fukai was a distinguished economist, served as Vice Governor of BOJ(1928-35) and Governor (1935-37), and became one of primary policy advisers to Korekiyo Takahashi during Takahashi’s term in 1932-36. Fukai argued thus for the political economy of macroeconomic policy in favor of the gold standard in his book in 1928:

“It is generally difficult to establish adequate standards for monetary control. And even if established, it is difficult to maintain them. The gold standard defines a currency to be exchanged with a certain amount of gold. This constraint set the extent and the direction of monetary control naturally though

²⁹ The coupon for Sterling bonds was 6 percent and the issue price was 87.5 pounds for the face value of 100 pounds. The coupon for dollar bonds was 6.5 percent and issue price was 92.5 dollars for the face value of 100 dollars. MOF [1940], p.450.

³⁰ Nakamura [1993], p.75.

³¹ “Statement by Prime Minister Osachi Hamaguchi,” Government Gazette, July 10, 1929, reprinted in BOJ [1968], p.394.

³² In the late 1920s and early 1930s, Saionji was the only Senator alive.

³³ Masumi [1988b], p.10.

not automatically. Even if the discretion of policymakers is defective, the adverse effects will not go too far under the gold standard.

Recently, policymakers need the consent of the public in order to conduct monetary policy. From the perspective of immediate benefits, an abundant money supply may be the best bet both for fiscal and macroeconomic policy objectives; nonetheless, the money supply needs to be properly controlled to avoid future setbacks. It is, however, difficult to persuade the public simply by explaining monetary theories or standards for monetary control. The explanation that money should not be issued excessively because it must be backed by a certain amount of gold would immediately convince the public. With the restrictions under the gold standard, policymakers could keep sound and secure money.”³⁴

Returning to the gold standard paid off in a sense even though the domestic economy fell into depression. Japan issued foreign bonds in May 1930 in London and New York with the yield of 6.2 percent, a substantial reduction in servicing costs compared to the 1924 issues. Again, the purpose of the issue was to refinance a part of the Russo-Japanese War bonds due in January 1931. Juichi Tsushima, Vice Minister of Finance for International Affairs, later told about the importance of returning to the gold standard for issuing bonds in the international markets. He said, “Before returning to the gold standard, bankers in Britain and the United States insisted with one voice that issuing bonds in the international markets was difficult with the unstable exchange rate of the yen. They insisted that Japan should stabilize the currency first, and issue bonds in the international markets next.”³⁵ Itoh [1989] argues that the Hamaguchi Cabinet hurried to return to the gold standard partly because they needed to refinance the war bond before its redemption.³⁶

The case during the 1920s indicates the enduring governance mechanism through the international financial markets under the gold standard. The Japanese government restored the commitment to the gold standard, and was paid off with cheaper cost of fundraising in the international markets.

d. The Turning Point: Losing Sustainability, September 1931

Two events in September 1931 were critical for the governance of Japanese

³⁴ Fukai [1928], pp.302-303.

³⁵ Tsushima [1965], p.65.

³⁶ Itoh [1989], p.213.

fiscal policy. The first is the Mukden Incident, or Manchuria Incident, which began on September 18. Another one is the British departure from the gold standard on September 21. The Mukden Incident heightened the domestic coordination problems among political players under the Meiji Constitution, and the British departure from the gold standard eroded the governance mechanism through the international financial markets.

The Japanese government lost the ability to govern military spending during the Mukden Incident. The Kwantung Army³⁷ escalated the operation without the consent of Tokyo. The commander of the Unit of the Imperial Japanese Army in Korea sent his troops to Manchuria without permission. Although the government originally said that it would not expand the military operation, the military undermined this by extending operations. The government later confirmed that it would pay the costs for sending troops from Korea. Heightened military tensions with China provoked tensions with the United States, and the military demanded a larger budget for dealing with these tensions.

The British departure from the gold standard eroded the rationale for staying on the gold standard. For peripheral countries, including Japan, sound fiscal policy and adherence to the gold standard did not ensure easy access to the international financial markets any more. Fukai later wrote in his memoirs, “In retrospect, it would have been sensible for Japan to have departed from the gold standard immediately because the British departure was a change in the global situation.” BOJ first tried to suppress capital outflows to support the gold standard, raising the official discount rate twice in October and in November. Market participants anticipated that Japan would follow Britain as with other countries row, inducing massive capital outflows. Japan departed from the gold standard on December 13, 1931, under the leadership of Korekiyo Takahashi, who returned to the position of Finance Minister on the day.

Two events in September 1931, the Mukden Incident and the British departure from the gold standard, indicate that the governance mechanism for sustainable public debt was already lost when Takahashi returned as Finance Minister in December of the year.

e. The Logic and the Reality of Takahashi’s Debt-Financed Spending Policy

We explore the logic and reality of Takahashi’s debt-financed spending policy

³⁷ The Kwantung Army was a unit of the Japanese Imperial Army based in Kwantung Peninsula, northern China.

with his addresses at the Diet and other archive materials.³⁸

Takahashi emphasized the temporary nature of the increasing fiscal deficit and justified the increased public debt with the logic of intertemporal tax smoothing. He said, “We will finance the whole fiscal gap in 1933 with debt. This is because primary factors of increase in expenditures are temporary, too large to finance with increase in taxes and other revenues, and because increase in taxes and other revenues would break the budding economic recovery. This is not yet the right time for tax increase.”³⁹

Takahashi mentioned that if public debt becomes unsustainable, the symptoms appear in the financial markets. He said, “How should we measure the limit of public debt? If a government tries to issue more bonds and print more money than that the private sector is able to manage, bad inflation would follow. The other possibility is that people would not credit the currency. In this case, symptoms would appear in the exchange rates.”⁴⁰

Takahashi was worried about depreciation in the exchange rates rather than inflation. He said, “How much has the government had BOJ underwrite public debt? It is about 1.7 or 1.8 billion yen. Now, BOJ only holds 0.2 billion yen. This indicates that bad inflation is remote at this time. I am worried about [the depreciation of] the exchange rates, which would hurt the public reputation of the Japanese currency.”⁴¹

Eigo Fukai, then the Vice Governor of BOJ and one of the primary policy advisers to Takahashi, handed a short memo to Takahashi on the sustainability of public debt in September 1934.⁴² It is likely that Takahashi consulted Fukai about public-debt management, and that Takahashi’s talks in the Diet in the beginning of 1935 were based on the opinion of Fukai. The logic of Takahashi’s talks in the Diet was almost the same as Fukai’s memo. Presumably, Fukai explained monetary theories and their application to debt management to Takahashi by the memo.

Fukai regarded the policy instruments of the underwritings of government

³⁸ Among others, Ide [2006] provides extensive narrative evidence on this issue.

³⁹ “Speech by Finance Minister on Debt Management in Fiscal 1933 Budget, An Explanatory Session, General Meeting of House of Representative, 64th Assembly, January 21, 1933,” reprinted in MOF [1954], p.575.

⁴⁰ “Rejoinder by Finance Minister to the Question by Gotaro Ogawa, Budget Committee, House of Representative, 67th Assembly, January 31, 1935,” reprinted in MOF [1954], p.583.

⁴¹ Ibid. p.583.

⁴² A copy of the memo, “An Opinion of the Vice Governor on the Capacity of Government Bond Issue,” is included in “Documents on Capacity of Government Bond Issue, January 1933-August 1935,” BOJ Archive No. 1895. The document is written on business stationery of Research Department of BOJ. On the top of the document, a note says, “This is copied by staff personally.”

bonds and the selling operations of these bonds by BOJ as convenient facilities for extending the capacity of the government to finance debt. Fukai wrote, “Public issues of government bonds induce a tightening of financial markets. If BOJ underwrites government bonds, fiscal spending precedes the selling operations of BOJ, inducing an easing of the money markets and a decrease in interest rates.” He continued, “The limit of public debt under the facilities [underwritings of government bonds and the selling operations of these bonds by BOJ] depends on how far we can continue these kinds of operations.”

Fukai concluded the memo by emphasizing two dangers for the sustainability of public debt. He emphasized the dangers of suspicion about future repayment of the public debt by market participants and of anticipation about the declining value of the currency by them. Fukai wrote, “The most alarming thing would be incapacity of government bond issue either from suspicion about future repayment of the public debt or from anticipation about declining value of the currency. If this happens, it would cause problems in fiscal policy, and at the same time, it would have disturbing consequences on economic and social institutions. If people anticipate the declining value of the currency, interest rates will soar. The incapacity of government bond issue is the result of the anticipation, and at the same time, it foments the anticipation. That is a vicious circle. One would say that I am worrying over nothing because we see no such symptoms up to now. But, we should watch out for the danger because if we once get into a vicious circle, we will be swept away too fast to deal with it. Though our policy objective [the management of public debt] is a part of the national strategies for supreme national goals, we should look at it in the most prudent manner in terms of fiscal, monetary and exchange rate policies. I dare to mention exchange rate policy because anticipation of the declining value of the currency often appears in the exchange rate markets.”

Fukai intuitively understood Bohn’s notion that “an agent’s ability to borrow is constrained by other agents’ willingness to lend.” Fukai argued that symptoms appeared in the financial markets as soaring interest rates on government bonds and/or falling exchange rates when investors had doubts about the sustainability of public debt. He insisted on policies avoiding these situations in the financial markets. Fukai learned from the experience of hyperinflation in Central Europe after WWI.⁴³

MOF tried to reduce fiscal deficit under Takahashi’s leadership. They negotiated with the military and other ministries about the postponement of

⁴³ Fukai wrote a number of articles on the hyperinflation in Central Europe. Fukai [1929], pp.1-64, Fukai [1938], pp.317-325, Fukai [1941], pp.250-255.

expenditures and transfers from special accounts to the General Account. They achieved some reduction in the amount of new issues of government bonds in fiscal 1936, but the reduction was far from enough. The negotiation increased tensions with the military, paving the way to the assassination of Takahashi on February 26, 1936 by a group of militarists.

MOF also introduced regulations to prevent free falls of the exchange rates. The Foreign Exchange Control Law was proclaimed on March 1933 and came into effect on May. Under the law, the regulations on foreign exchange transactions were substantially extended and tightened. Almost all the transactions related to international capital flows were subject to regulation. At the same time, speculations on foreign exchange were forbidden by finance ministry ordinance.

f. Sustainability of Public Debt: After the Russo-Japanese War and during the Early 1930s

In both periods, the sustainability of government debts was in question. The government accumulated foreign and domestic debts during the Russo-Japanese War, and the government faced new needs for fiscal expenditures after the War. In the early 1930s, Japan departed from the gold standard, and initiated debt-financed fiscal spending in the midst of the Great Depression.

On the domestic side, the political institutions under the system of the Meiji Constitution of 1889 made governance of fiscal policy difficult. This was the case both after the Russo-Japanese War and in the 1930s. The cabinet's political power was limited when it came to coordination among various political entities.

The political institutions gave the military an effective veto in the budgetary processes. The military had authority to create their own spending plan without consulting with other cabinet members or with the budgetary branch, and then to negotiate with the Ministry of Finance to finalize the annual budget. If the military disagreed with cuts in military spending, they could reject the budget at the cabinet meeting.

On the international side, financial constraints under the international gold standard enforced fiscal discipline after the Russo-Japanese War. This mechanism lasted until the 1920s. This was not the case when the international gold standard was in trouble during the early 1930s.

In the 1930s, the military did not agree to limit military spending within the limits necessary to maintain gold parity. The international gold standard was falling into chaos after the departure of Britain in September 1931. Japan could not expect

easy access to the international financial markets, even if it adhered to the principles of the gold standard. Rather, the adherence to the gold standard worsened economic conditions. Japan departed from the gold standard in December 1931, following Britain, and initiated debt-financed fiscal spending.

During the 1930s, Japan lost fiscal discipline because of the military's effective veto over budgetary processes, and because of the absence of pressure for sound fiscal policy from international financial markets. The budgetary process during the 1930s failed to restrict fiscal expenditures. And no monitoring mechanism of Japanese public finance existed any more.

When Japan was losing the ability to sustain its public debts, fiscal and monetary authorities introduced a new method for financing public debts, the underwriting of government bonds by the Bank of Japan. Though trying to prevent the collapse of the securities markets, they were only able to delay the collapse. And they were forced to depend on this method more and more in the absence of fiscal discipline.

5. Concluding Remarks

In this study, quantitative analysis shows that Japan lost the sustainability of its public debt in around 1932. Narrative analysis indicates that Japan lost its fiscal discipline because of the military's effective veto over budgetary processes, and because of the absence of pressure for sound fiscal policy from international financial markets. The turning point was September 1931.

In this study, we have explored some aspects of the governance of the fiscal policy of Japan by focusing on the domestic political institutions and the international financial markets. We need more research on related topics to draw complete pictures. Future topics include the impact of domestic socio-economic conditions such as depressions in rural areas, developments in financial markets which enabled debt-financed fiscal policy, and the impact of international geopolitical conditions such as growing tensions in Asia-Pacific region induced by Japanese expansion.

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