

Horioka, Charles Yuji; Takaaki Nomoto; Akiko Terada-Hagiwara

**Working Paper**

## Why has Japan's massive government debt not wreaked havoc (yet)?

UPSE Discussion Paper, No. 2013-10

**Provided in Cooperation with:**

University of the Philippines School of Economics (UPSE)

*Suggested Citation:* Horioka, Charles Yuji; Takaaki Nomoto; Akiko Terada-Hagiwara (2013) : Why has Japan's massive government debt not wreaked havoc (yet)?, UPSE Discussion Paper, No. 2013-10, University of the Philippines, School of Economics (UPSE), Quezon City

This Version is available at:

<https://hdl.handle.net/10419/93561>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



## UP School of Economics Discussion Papers

Discussion Paper No. 2013-10

October 2013

### **Why has Japan's Massive Government Debt Not Wreaked Havoc (Yet)?**

by

Charles Yuji Horioka<sup>1</sup>, Takaaki Nomoto<sup>2</sup>, and Akiko Terada-Hagiwara<sup>3</sup>

<sup>1</sup>School of Economics, University of the Philippines; National Bureau of Economic Research; and Institute of Social and Economic Research, Osaka University

<sup>2</sup>Office of Regional and Economic Integration, Asian Development Bank

<sup>3</sup>Economic and Research Department, Asian Development Bank

UPSE Discussion Papers are preliminary versions circulated privately to elicit critical comments. They are protected by Republic Act No. 8293 and are not for quotation or reprinting without prior approval.

# WHY HAS JAPAN'S MASSIVE GOVERNMENT DEBT NOT WREAKED HAVOC (YET)?<sup>1</sup>

Charles Yuji Horioka<sup>2</sup>

School of Economics, University of the Philippines; National Bureau of Economic Research; and Institute of Social and Economic Research, Osaka University

Takaaki Nomoto

Office of Regional and Economic Integration, Asian Development Bank

Akiko Terada-Hagiwara

Economic and Research Department, Asian Development Bank

October 21, 2013

**Abstract:** In this paper, we present data on trends over time in government debt financing in Japan since 2010 with emphasis on the importance of foreign holders and speculate about the determinants of those trends. We find that Japanese government securities were held primarily by domestic holders until recently because robust domestic saving (combined with strong home bias) made it possible for domestic investors to absorb most of the government debt but that foreign holdings of Japanese government securities have increased sharply in recent years, especially in the case of short-term government securities. We show that trends in foreign holdings of Japanese government securities can be explained by conventional economic factors such returns and risks and that the recent surge in foreign holdings of short-term Japanese government securities is attributable to foreign investors in search of a safe haven for their funds in the face of the Global Financial Crisis of 2008-09 precipitated by the Lehman crisis. Our analysis suggests that the surge in foreign holdings of Japanese government securities will subside (in fact, it already has), and this, combined with the projected decline in domestic saving (especially household saving) caused by population aging, will make it necessary for Japan to get its fiscal house in order. Thus, Japan's massive government debt has not wreaked havoc in the past because of robust domestic saving and a temporary inflow of foreign capital caused by the Global Financial Crisis, but it may wreak havoc in the future as both of these factors become less applicable unless the government debt can be brought under control.

*Key words:* Government debt; government securities; government bonds; government bills; government notes; sovereign debt; debt securities; debt financing; government debt financing; debt holdings; government debt holdings; foreign debt; foreign debt holdings; foreign debt investments; foreign investors; capital flows; international capital flows; short-term capital movements; cross-border portfolio investments; safe haven; capital flight; flight to safety; debt rollover; home bias; sovereign debt crisis; eurozone crisis; eurozone; Japan

*JEL Codes:* E21, F32, F34, G15, H63, O53

---

<sup>1</sup> This paper was prepared for Asian Development Bank TA 7859-REG: Asian Development Outlook 2012. The authors are indebted to Maria Socorro Bautista, Iris Claus, Hal Hill, Yoshihiko Kadoya, Masahiro Kawai, Changyong Rhee, T. N. Srinivasan, Bijung Wang, other participants at the *Asian Development Review Conference on Development Issues in Asia*, held at the Asian Development Bank in Manila, The Philippines, on May 15-16, 2012, especially Joseph Lim and Peter Morgan, for their valuable comments and to Shiela Camingue for her superb assistance.

<sup>2</sup> Corresponding author: Charles Yuji Horioka, School of Economics, University of the Philippines, Diliman, Quezon City 1101, The Philippines. Email: [horioaka@iser.osaka-u.ac.jp](mailto:horioaka@iser.osaka-u.ac.jp), telephone: 63-2-927-9686, ext. 222, 223, fax: 63-2-920-5461.

## 1. INTRODUCTION

Arguably the most momentous economic event in the world during the 2010-2012 period was the eurozone sovereign debt crisis. The sovereign debt crises in the PIIGS economies (Portugal, Ireland, Italy, Greece, Spain) and other eurozone economies led to a substantial downgrading in the credit ratings of private and government debt in many eurozone economies. Heightened uncertainty in the eurozone should have led to an adjustment of investor portfolios away from eurozone assets and towards alternative assets including those of Japan, emerging Asia, and other non-eurozone economies.

However, the (potential) sovereign debt crisis in Japan looks even more serious than those in the eurozone economies if one looks only at the gross general government debt-to-GDP ratio. Table 1 shows the gross general government debt-to-GDP ratio for the member countries of the Organisation for Economic Cooperation and Development (OECD) in 2012, and as can be seen from this table, this ratio ranged from 90 to 166 percent in the PIIGS economies in 2012 (“only” 165.6 percent in Greece, 140.2 percent in Italy, 138.8 percent in Portugal, 123.3 percent in Ireland, and 90.5 percent in Spain) but was a full 219.1 percent in Japan in the same year. Thus, Japan’s gross general government debt-to-GDP ratio is more than twice the OECD-wide average (108.8 percent) and by far the highest in the developed world. Moreover, the OECD projects that Japan’s gross general government debt-to-GDP ratio will increase even further to 228.4 percent in 2013 and 233.1 percent in 2014.

Why has Japan been able to avoid the fiscal crises of the magnitude faced by the PIIGS economies even though her gross general government debt-to-GDP ratio is much higher? What is different about Japan? The most commonly given answer is that domestic saving is much higher (relative to domestic investment) and home bias is much stronger in Japan, as a

result of which a much higher proportion of her massive government debt could be absorbed domestically without having to rely on foreign investors.

The objective of this paper is to present data on trends over time in government debt financing in Japan since 2010 with emphasis on the importance of foreign holders and to speculate about the determinants of those trends, thereby shedding light on whether or not the aforementioned conventional wisdom is correct.

To summarize our main findings, we find that Japanese government securities were held primarily by domestic holders until recently because robust domestic saving (combined with strong home bias) made it possible for domestic investors to absorb most of the government debt but that foreign holdings of Japanese government securities have increased sharply in recent years, especially in the case of short-term government securities. We show that trends in foreign holdings of Japanese government securities can be explained by conventional economic factors such returns and risks and that the recent surge in foreign holdings of short-term Japanese government securities is attributable to foreign investors in search of a safe haven for their funds in the face of the Global Financial Crisis of 2008-09 precipitated by the Lehman crisis. Our analysis suggests that the surge in foreign holdings of Japanese government securities will subside (in fact, it already has), and this, combined with the projected decline in domestic saving (especially household saving) caused by population aging, will make it necessary for Japan to get its fiscal house in order. Thus, Japan's massive government debt has not wreaked havoc in the past because of robust domestic saving and a temporary inflow of foreign capital caused by the Global Financial Crisis, but it may wreak havoc in the future as both of these factors become less applicable unless the government debt can be brought under control.

The remainder of this paper is organized as follows: In section 2, we describe the data sources used in this paper; in section 3, we present data on trends over time in government debt financing in Japan since 2000 with emphasis on the importance of foreign holders; in section 4, we explore the reasons for the sharp increase in foreign holdings of short-term Japanese government securities in recent years; and in section 5, we summarize our findings and explore the policy implications of our findings.

## **2. DATA SOURCES**

In this section, we describe the data sources used in this paper.

The data on trends over time in government debt financing in Japan in subsections 3.1, 3.2, and 3.3 are taken from the Bank of Japan's Flow of Funds Accounts (FFA) Statistics (Shikin Junkan Toukei). The FFA records movements of financial assets and liabilities among institutional units called sectors, such as financial institutions, corporations, and households, for various financial instruments called transaction items such as deposits and loans. Thus, the FFA includes data on holdings of government securities by each sector of the economy and hence can shed light on who is financing Japan's government debt. For a more detailed description of the FFA in English, refer to <http://www.boj.or.jp/en/statistics/sj/index.htm/>

The data on foreign debt holdings by economy or region in subsection 3.4 are taken from the Coordinated Portfolio Investment Survey (CPIS) of the International Monetary Fund (IMF), which collects year-end data on portfolio investment holdings (equity and debt securities) from

participating economies. The data on Japan in this survey are taken from, and hence are identical to, the Bank of Japan's Balance of Payments Statistics.

### **3. TRENDS IN GOVERNMENT DEBT FINANCING IN JAPAN, 2000-2011**

In this section, we present data on trends over time in government debt financing in Japan during the 2000-2011 period. Since short-term government securities (government bills or money market instruments with maturities of less than one year) and medium- and long-term government securities (government bonds and notes with maturities of one year or more) show very different patterns and trends over time, we analyze the two categories of government securities separately.

#### **3.1. Trends in Domestic Holdings of Japanese Government Securities, 2000-2011**

In this subsection, we discuss trends over time in domestic holdings of Japanese government securities during the 2000-2011 period.

Figure 1 shows trends over time in the shares of short-term Japanese government securities of each sector during the 2000-2011 period, and as can be seen from this figure, private banks have been by far the dominant holder of short-term government securities throughout the 2000-2011 period, with their share fluctuating in the 50 to 90 percent range and far exceeding the shares of the Bank of Japan, government financial institutions, the general government, foreign holders, and other sectors. However, the share of private banks declined sharply during the 2000-2011 period--from more than 90 percent in 2000 to less than 50 percent in 2011, and the

share of government financial institutions increased between 2000 and 2006 but declined sharply to virtually zero thereafter, presumably due to the Japanese government's policy of relying less on postal savings as a source of funds for financing the government debt.<sup>3</sup>

Figure 2 shows trends over time in the shares of medium- and long-term Japanese government securities of each sector during the 2000-2011 period, and as can be seen from this figure, private banks have been by far the dominant holder of medium- and long-term government securities throughout the 2000-2011 period, as in the case of short-term government securities, but their share (30 to 45 percent) has been far lower than in the case of short-term government securities, and government financial institutions, insurance companies, the Bank of Japan, and public pensions have also held relatively large shares, at least during certain periods. Looking at trends over time, the share of private banks has increased throughout the 2000-2011 period (unlike in the case of short-term government securities) and the shares of private insurance companies and public pensions have also increased, whereas the shares of government financial institutions decreased sharply to virtually zero due to the Japanese government's policy of relying less on postal savings as a source of funds for financing the government debt. (The share of the Bank of Japan increased until 2002, declined until December 2009, and has shown a renewed upturn since then.)

Thus, private investors (especially private banks) have been the dominant holders of Japanese government securities, and their relative importance has increased over time in the case of medium- and long-term government securities. By contrast, the relative importance of public

---

<sup>3</sup> Until 2000, postal savings and pension reserves had to be invested in the Trust Funds Bureau of the Ministry of Finance and provided the source of funds for the Fiscal Loan and Investment Program (FILP), which was initially used for direct government spending and loans to quasi-governmental corporations but was increasingly used for the purchase of government securities. A law enacted in May 2000 put an end to the compulsory deposit of postal savings and pension reserves in the Ministry of Finance's Trust Fund Bureau and required that FILP raise funds, on an as-needed basis, by floating "FILP bonds" (essentially Japanese government bonds) on the market (Tanaka (2010)).



investors (especially government financial institutions, which until the 1990s were the major holders of Japanese government securities and played the important role of ensuring a stable flow of funds from postal savings to government securities) has decreased sharply over time. It should be noted, however, that private investors include Japan Postal Bank and Japan Post Insurance, the privatized versions of the formerly government-owned postal savings and postal life insurance systems. Although Japan Postal Bank and Japan Post Insurance are technically private, their shares are still 100 percent government-owned and the current government has the explicit goal of deprivatizing them. The combined share of Japan Postal Bank and Japan Post Insurance in total government debt was 23 percent in 2011, and the total share of public investors was 43 percent in the same year if Japan Postal Bank and Japan Post Insurance are classified as public investors. Thus, the high and rising share of private investors in total government debt is largely illusory.<sup>4</sup>

As for household holdings of Japanese government securities, the share of direct holdings of government securities by Japanese households has been very low throughout the 2000-2011 period: they have been zero throughout this period in the case of short-term government securities and increased from 2 percent in 2000 to about 5 percent since 2007 in the case of medium- and long-term government securities. Note, however, that holdings of Japanese government securities by government financial institutions, private banks, and insurance companies are financed by the bank and postal deposits, insurance policies, and pension funds of households and hence are *indirectly* held by households. Thus, households have played a crucial albeit indirect role in government debt financing, and the high household saving rate in past years helped make possible the largely domestic absorption of Japanese government securities.

---

<sup>4</sup> We are indebted to Peter Morgan for this point.

### 3.2. Trends in the Share of Short-term Japanese Government Securities, 2000-2011

In this subsection, we discuss trends over time in the share of short-term Japanese government securities in Japanese government securities of all maturities during the 2000-2011 period.

Figure 3 shows trends over time in the share of short-term Japanese government securities in Japanese government securities of all maturities of each sector during the 2000-2011 period, and as can be seen from this figure, the share of short-term Japanese government securities in Japanese government securities of all maturities varies greatly from sector to sector. In recent years, it has been high for government financial institutions and foreign holders, lower for the Bank of Japan and private banks, and lowest for private insurance companies.

Turning to trends over time in the share of short-term Japanese government securities in Japanese government securities of all maturities, this share has increased for most types of holders but increased the most sharply for government financial institutions (until 2009), foreign holders, and the Bank of Japan (until 2009), with private insurance companies and private banks not showing a clear trend one way or the other.

As a result, the share of short-term government securities in government securities of all maturities increased from 10.1 percent in March 2000 to 37.4 percent in September 2011 in the case of foreign holdings, which is much higher than the corresponding figures for the Bank of Japan (25 percent) and private banks (20 percent). This implies greater risk of capital flight since short-term securities are more liquid than medium- and long-term securities. The corresponding figure for all holders increased through the 2000-2011 period (from 10.8 percent in March 2000 to 18.6 percent in September 2011) but is still relatively low because pension

funds invest a significant amount in medium- to long-term securities but almost nothing in short-term securities.

### 3.3. Trends in Foreign Holdings of Japanese Government Securities, 2000-2011 (Aggregate)

In this subsection, we discuss trends over time in foreign holdings of Japanese government securities during the 2000-2011 period.

Figure 4 shows trends over time in foreign holdings of Japanese government securities during the 2000-2011 period for both short-term and medium- and long-term securities, and as can be seen from this figure, the share of foreign holdings of Japanese government securities has been low until recently in the case of both short-term and medium- and long-term government securities, with the share of foreign holders of short-term government securities ranging from 2.4 to 7.3 percent and that of medium- and long-term government securities ranging from 2.7 to 6.7 percent during the March 2000 to September 2007 period.

However, the two shares diverged greatly thereafter: the share of foreign holdings of short-term government securities increased sharply to 14.8 percent in June 2008 before falling to 10.1 percent in December 2008 and increasing anew to 17.0 percent in March 2011 before leveling off, whereas the share of foreign holdings of medium- and long-term government securities has remained low, never exceeding the 7.8 percent level (increasing to 7.8 percent in September 2008 before falling to 4.6 percent in March 2010 and increasing anew to 6.3 percent in September 2011).

Thus, the share of foreign holdings of government securities increased in the case of both short-term and medium- and long-term government securities but increased much more sharply and was often more than twice as high in the case of short-term government securities than in the case of medium- and long-term government securities.

Abundant domestic saving (especially household saving), combined with strong home bias (see, for example, Feldstein and Horioka (1980)), has until recently made it possible for Japan to absorb virtually all of the massive debt of the Japanese government domestically without having to rely on foreign holdings. Japan's household saving rate, which was for many years one of the highest in the world, has shown a steady downtrend since the mid-1970s, but robust corporate saving has more than offset the decline in household saving, as a result of which private saving has remained robust. Nonetheless, the rapid increase in the debt of the Japanese government has made it increasingly difficult for all of it to be absorbed domestically, and this is one factor that has led to increased foreign holdings in recent years.

Moreover, since 2005, the Japanese government has sought to diversify holders of Japanese government securities and to increase the previously low holdings of foreign investors, and this government policy is undoubtedly at least partly responsible for the steady increase in the share of foreign holdings of Japanese government securities since 2005.

However, neither trends in domestic saving nor the Japanese government's policy of encouraging foreign holdings of government securities can explain the divergent trends in the foreign holdings of short-term government securities and those of medium- and long-term government securities and thus other factors must be at play.

The divergent trends for short-term and medium- and long-term securities suggest that the growth in the appetite of foreign investors for Japanese government securities was much greater in the case of short-term securities than in the case of medium- and long-term securities, which in turn suggests that foreign investors regarded Japan as a “safe haven” (an economy offering safe and stable returns) and Japanese government securities as a temporary (short-term) repository into which to invest their liquid assets in response to increased political and/or economic instability elsewhere (see, for example, Isard and Stekler (1985), Dornbusch (1986), and Habib and Stracca (2011)).

Turning to comparative data for other economies to put the figures for Japan in international perspective, the share of foreign holdings of Italy's government debt was 44 percent in 2010, according to International Monetary Fund estimates, and 47 percent, according to Morgan Stanley estimates. The corresponding figure for the United Kingdom was 32.0 percent in 2010, according to an article in the April 28, 2010, issue of *Keizai Rebyuu* (Bank of Tokyo-Mitsubishi UFJ). Finally, the share of foreign holdings of United States Treasury securities increased sharply from 17 percent in 2001 to 31 percent in 2011, according to United States government data. As shown above, the corresponding figure for Japan has been at most 17 percent for short-term securities and at most 8 percent for medium- and long-term securities. Thus, the share of foreign holdings of government securities is much lower in Japan than in Italy, the United Kingdom, and the United States.

The Asian Bonds Online data base of the Asian Development Bank (Asian Development Bank (2012a)) provides data on trends over time in the share of foreign holdings of local currency government bonds in selected Asian economies since 1996, and as can be seen from this data base, the share of foreign holdings of local currency government bonds used to be higher in Japan than in other Asian economies but has been higher than in Japan (where it was a most

8.6 percent) in Malaysia since 2004 (as high as 27 percent), in Indonesia since 2005 (as high as 34 percent), in Korea in 2007-08 and since 2009 (as high as 11 percent), and in Thailand since 2010 (as high as 13 percent). Thus, Japan has been overtaken by many Asian economies with respect to foreign holdings of government bonds, and the share of foreign holdings of government securities is now much lower in Japan than in both Western as well as Asian economies. This suggests that barriers to international capital mobility are higher in the case of Japan than in the case of other economies, but the fact that capital inflows are non-negligible even in the case of Japan suggests that home bias is not so extreme even in the case of Japan. Our findings are broadly consistent with previous studies (see Obstfeld and Rogoff (2001), Apergis and Tsoumas (2009), and Horioka and Terada-Hagiwara (2013) for surveys of this literature).

#### 3.4. Trends in Foreign Holdings of Japanese Government Securities, 2000-2011 (by Economy or Region)

In the previous subsection, we discussed trends over time in total foreign holdings of Japanese government securities during the 2000-2011 period, but in this subsection, we discuss trends over time in the holdings of Japanese debt (mostly Japanese government securities) by individual economies and regions during the 2000-2011 period. (The figures have been omitted due to space limitations.)

Looking first at short-term debt, western Europe excluding the United Kingdom was the largest foreign holder of short-term Japanese debt in 2003-04 and 2007-09 and international institutions were the largest foreign holder of Japanese debt in the intervening years (viz., 2005-06 and 2010-12). By contrast, the importance of the ASEAN economies as holders of short-term

Japanese debt has increased sharply in recent years, rising to third place in 2009 and to second place in 2010-11.

Turning to medium- and long-term debt, the United Kingdom was the largest foreign holder and western Europe excluding the United Kingdom was the second largest foreign holder of medium- and long-term Japanese debt through 2009, but they were both surpassed by international institutions and the ASEAN economies in 2010-11.

Turning finally to debt of all maturities, the United Kingdom was the largest foreign holder of Japanese debt of all maturities until 2007 before falling to second place in 2008-09 and fifth place in 2010-11, while western Europe excluding the United Kingdom was the second largest foreign holder of Japanese debt of all maturities until 2007 before rising to first place in 2008-09 and falling anew to third place in 2010-11. By contrast, international institutions rose sharply from third place in 2009 to first place in 2010-11, while the ASEAN economies rose sharply from fourth place in 2009 to second place in 2010-11 and the PRC rose sharply from last (eighth) place to fourth place in 2010-11.

Note, however, that in the case of the PRC, the lion's share of holdings of Japanese government securities are held by the monetary authorities (the People's Bank of China) as part of their foreign currency reserves, not by private investors, and that the decision-making calculus of the monetary authorities is likely to be very different from that of private investors and that the PRC diverted funds from the United States (in particular, from United States government securities), not from Europe.<sup>5</sup>

---

<sup>5</sup> We are indebted to Peter Morgan for this point.

In sum, Europe was the largest foreign holder of Japanese debt of all maturities until 2009, suggesting that European investors were the most in need of temporary safe havens for their funds until 2009, but that she has been surpassed by international institutions, the ASEAN economies, and the PRC since 2009.

### 3.5. Summary

In this section, we presented data on trends over time in government debt financing in Japan during the 2000-2011 period and identified the rather dramatic trends that occurred during the past decade. We showed that domestic investors have been the dominant holders of Japanese government securities throughout this period and that the importance of private investors (especially private banks and insurance companies) increased sharply over time (in the case of medium- and long-term government securities), whereas that the importance of government financial institutions declined sharply to virtually zero (since 2006 in the case of short-term government securities and throughout the 2000-2011 period in the case of medium- and long-term government securities) due to the Japanese government's policy of relying less on postal savings as a source of funds for financing the government debt. With respect to foreign investors, we found that their importance has increased since 2000 in the case of both short-term and medium- and long-term government securities and that there was an especially sharp increase in their importance in the case of short-term government securities after 2007 but that their importance is much less than in the West or in emerging Asia.

## **4. REASONS FOR THE SHARP INCREASE IN FOREIGN HOLDINGS OF SHORT-TERM JAPANESE GOVERNMENT SECURITIES**



One of the most striking findings of the previous section is that there has been a sharp increase in foreign holdings of short-term Japanese government securities in recent years. Horioka, Nomoto, and Terada-Hagiwara (2013a) search for the reasons why foreign investors have increased their holdings of short-term Japanese government securities so sharply in recent years and find that it can be largely explained by the fact that (1) their yields increased relative to the yields on the government securities of other economies and regions because yields elsewhere fell sharply in 2008-09 due to monetary easing in response to the Lehman crisis and that (2) the gap between risk levels on Japanese government securities and those on the government securities of other economies and regions widened dramatically from late 2008 until early 2010 not because risk levels in Japan declined but because risk levels elsewhere increased sharply due to the advent of the eurozone crisis. Both factors caused risk-adjusted hedged returns on government securities in other economies and regions to converge to Japanese levels in 2008-09 and remain below Japanese levels thereafter as well in some cases, which in turn induced foreign investors to at least temporarily shift their portfolios from the government securities of other economies and regions to Japanese government securities and caused foreign holdings of short-term Japanese government securities to increase sharply in recent years.

Moreover, the finding of Horioka, Nomoto, and Terada-Hagiwara's (2013a) econometric analysis that risk-adjusted returns are a significant determinant of foreign holdings of debt securities corroborates our contention that the fact that risk-adjusted returns elsewhere converged to Japanese levels in 2008-09 was responsible for the sharp increase in foreign holdings of short-term Japanese government securities after 2007 and suggests that conventional economic factors such as returns and risks can explain the behavior of foreign investors without having to resort to non-economic explanations.

It should be noted, however, that the sharp increase in foreign holdings of short-term Japanese government securities was largely attributable to central banks, especially the People's Bank of China, and that central banks may have very different motivations from those of private investors. For example, these central banks wanted to diversify away from U.S. government securities for various reasons and chose to shift into short-term Japanese government securities since they are more liquid than longer-term securities and hence more suitable for holding as foreign exchange reserves.<sup>6</sup>

Unfortunately, a breakdown of foreign holdings of Japanese government securities by type of holder is not available and hence we cannot ascertain the importance of the “central bank hypothesis” directly. However a breakdown of foreign holdings of Japanese government securities by economy and region is available, and in the case of short-term debt, Europe excluding the United Kingdom was the largest foreign holder of short-term Japanese debt in 2003-04 and 2007-09 and international institutions were the largest foreign holder of Japanese debt in the intervening years (viz., 2005-06 and 2010-12). By contrast, the importance of the ASEAN economies as holders of short-term Japanese debt has increased sharply in recent years, rising to third place in 2009 and to second place in 2010-11. Thus, China has not held a dominant share of short-term Japanese debt until recently, suggesting that the “central bank hypothesis” has not been of dominant importance, at least until recently.

## **5. SUMMARY OF FINDINGS AND POLICY IMPLICATIONS**

---

<sup>6</sup> We are indebted to an anonymous referee for this point.

In this paper, we analyzed data on trends over time in government debt financing in Japan since 2010 with emphasis on the importance of foreign holders and speculated about the determinants of those trends.

To summarize our main findings, we found that Japanese government securities were held primarily by domestic holders until recently because robust domestic saving (combined with strong home bias) made it possible for domestic investors to absorb most of the government debt but that foreign holdings of Japanese government securities have increased sharply in recent years, especially in the case of short-term government securities. We showed that trends in foreign holdings of Japanese government securities can be explained by conventional economic factors such returns and risks and that the recent surge in foreign holdings of short-term Japanese government securities is attributable to foreign investors in search of a safe haven for their funds in the face of the Global Financial Crisis of 2008-09 precipitated by the Lehman crisis.

Thus, we found that Japan (in particular, the Japanese government) benefited greatly from the eurozone crisis even though Japan's fiscal situation continues to be wobbly because it prompted at least a temporary shift in the portfolios of foreign investors towards relatively safe Japanese government securities, especially short-term Japanese government securities, which in turn has kept yields thereon lower than they would have been otherwise.

However, the surge in foreign holdings of Japanese government securities will not continue indefinitely because risks in the rest of the world will eventually decline (in fact, risk levels on government securities in economies and regions other than Japan had already declined sharply by early 2010), because investors' appetite for risk will eventually return as the eurozone crisis subsides, and because bond markets are developing in emerging Asia and creating increasing

competition for Japanese bonds, especially since they offer higher yields and the possibility of currency appreciation. In fact, foreign holdings of short-term Japanese government securities have been falling sharply since peaking at 30.2 percent in September 2012, presumably for all of these reasons, and was only 26.8 percent in December 2012 and 28.6 percent in March 2013.

Moreover, the current situation is even more tenuous than appears at first blush because the increasing share of foreign holdings and the shortening of maturities on Japanese government securities, especially on foreign holdings thereof, increase the difficulty of rollover and the risk of capital flight and because household and private saving rates in Japan can be expected to decline even further due to the continuing aging of her population (see, for example, Horioka, 1989, 1991, 1992, and 1997), meaning that domestic banks and insurance companies will not continue to have sufficient bank and postal deposits, insurance policies, and pension funds from the household sector to invest in Japanese government securities.

The policy implication of these findings is that, although Japan was able to “buy time” by inducing foreign investors to invest temporarily in Japanese government securities, the Japanese government still needs to get its fiscal house in order, preferably sooner rather than later. And the most obvious ways of doing so are to increase tax revenues (for example, by raising the consumption tax, which is very low by international standards, as the Japanese government is in the process of doing), and/or to cut government expenditures (for example, by reforming the public pension system and other social safety nets). The problem is that it is hard to implement such reforms in a country in which the economy is stagnant and still recovering from the earthquake, tsunami, and nuclear power plant accident of March 2011 and in which the government has lacked the political will to implement necessary fiscal and other reforms for many years.

To answer the question in the title of this paper, Japan's massive government debt has not wreaked havoc in the past because of robust domestic saving and a temporary inflow of foreign capital caused by the Global Financial Crisis, but it may wreak havoc in the future as both of these factors become less applicable unless the government debt can be brought under control.

## REFERENCES

Apergis, Nicholas, and Tsoumas, Chris (2009), "A Survey on the Feldstein-Horioka Puzzle: What Has Been Done and Where We Stand, *Research in Economics*, vol. 63, no. 2 (June), pp. 64-76.

Asian Development Bank (2012a), *AsianBondsOnline Data Base*, available at: [http://asianbondsonline.adb.org/regional/data/bondmarket.php?code=Foreign\\_Holdings](http://asianbondsonline.adb.org/regional/data/bondmarket.php?code=Foreign_Holdings)

Asian Development Bank (2012b), *Asian Development Outlook 2012* (Manila, Philippines: Asian Development Bank).

Asian Development Bank (2012c), "Bond Market Developments in the Fourth Quarter of 2011," *Asian Bond Monitor*, April 2012, pp. 8-36.

Asian Development Bank (2012d), "Box: Determinants of Cross-Border Debt Securities Holdings in Asia," *Asian Bond Monitor*, April 2012, p. 45.

Asian Development Bank (2012e), "Intraregional Portfolio Debt Investment," *Asian Bond Monitor*, April 2012, pp. 41-51.

Brooks, Robin; Edison, Hali; Kumar, Manmohan; and Slok, Torsten (2001), "Exchange Rates and Capital Flows," IMF Working Paper No. WP/01/190, International Monetary Fund, Washington, D.C., U.S.A.

Cho, Sungwon (2011), "Foreign Bond Ownership in Korea: Changing Trends and Implications," *Korean Capital Market Institute*, vol. 3, no. 2, pp. 56-65.

Dornbusch, Rudiger (1986), "Flexible Exchange Rates and Excess Capital Mobility," *Bookings Papers on Economic Activity*, vol. 1986, no. 1, pp. 209-226.

European Central Bank (2012), *The International Role of the Euro* (Frankfurt, Germany: European Central Bank).

Feldstein, Martin, and Horioka, Charles Yuji (1980), "Domestic Saving and International Capital Flows." *Economic Journal*, vol. 90, no. 358 (June), pp. 314-329.

Ferrarini, Benno, and Ramayandi, Arief (forthcoming), "Public Debt Sustainability Assessments for Developing Asia," in Benno Ferrarini, Raghendra Jha, and Arief Ramayandi, eds., *Public Debt Sustainability in Developing Asia* (Abingdon, U.K.: Routledge).

Forbes, Kristin J., and Warnock, Francis E. (2012), "Debt- and Equity-led Capital Flow Episodes," NBER Working Paper Series no. 18329, National Bureau of Economic Research, Cambridge, Massachusetts, U.S.A. (August).

Habib, Maurizio Michael, and Stracca, Livio (2011), "Getting Beyond Carry Trade: What Makes a Safe Haven Currency?" Working Paper Series No. 1288 (January), European Central Bank, Frankfurt, Germany.

Horioka, Charles Yuji (1989), "Why Is Japan's Private Saving Rate So High?" in Ryuzo Sato and Takashi Negishi, eds., *Developments in Japanese Economics* (Tokyo: Academic Press/Harcourt Brace Jovanovich, Publishers), pp. 145-178.

Horioka, Charles Yuji (1991), "The Determinants of Japan's Saving Rate: The Impact of the Age Structure of the Population and Other Factors," *Economic Studies Quarterly*, vol. 42, no. 3 (September), pp. 237-253.

Horioka, Charles Yuji (1992), "Future Trends in Japan's Saving Rate and the Implications Thereof for Japan's External Imbalance," *Japan and the World Economy*, vol. 3, no. 4 (April), pp. 307-330.

Horioka, Charles Yuji (1997), "A Cointegration Analysis of the Impact of the Age Structure of the Population on the Household Saving Rate in Japan," *Review of Economics and Statistics*, vol. 79, no. 3 (August), pp. 511-516.

Horioka, Charles Yuji, and Terada-Hagiwara, Akiko (2012), "The Determinants and Long-term Projections of Saving Rates in Developing Asia" *Japan and the World Economy*, vol. 24, no. 2 (March 2012), pp. 128-137.

Horioka, Charles Yuji, and Terada-Hagiwara, Akiko (2013a), "Foreign Debt Holdings in Japan and Emerging Asia," mimeo., Asian Development Bank, Manila, The Philippines

Horioka, Charles Yuji, and Terada-Hagiwara (2013b), "Savings and Investment," in Maria Socorro Bautista and Hal Hill, eds., *Asia Rising: Growth and Resilience in an Uncertain Global Economy* (Cheltenham, Gloucestershire, United Kingdom: Edward Elgar Publishing), pp. 137-152 .

Isard, Peter, and Stekler, Lois (1985), "U.S. International Capital Flows and the Dollar," *Brookings Papers on Economic Activity*, vol. 1985, no. 1, pp. 219-236.

Obstfeld, Maurice, and Rogoff, Kenneth (2001), "The Six Major Puzzles in International Macroeconomics: Is There a Common Cause?" in *NBER Macroeconomics Annual 2000*, vol. 15 (Cambridge, U.S.A.: National Bureau of Economic Research, Inc.), pp. 339-412.

Tanaka, Hideaki (2010), "Postal Reform and the Fiscal Investment and Loan Program: Toward Democratic Control of Government Finances (2)," The Tokyo Foundation, Tokyo, Japan  
<http://www.tokyofoundation.org/en/articles/2010/postal-reform-and-the-fiscal-investment-and-loan-program-toward-democratic-control-of-government-finances-2>

**Table 1: General Government Debt as a Percentage of GDP, OECD Countries, 2012**

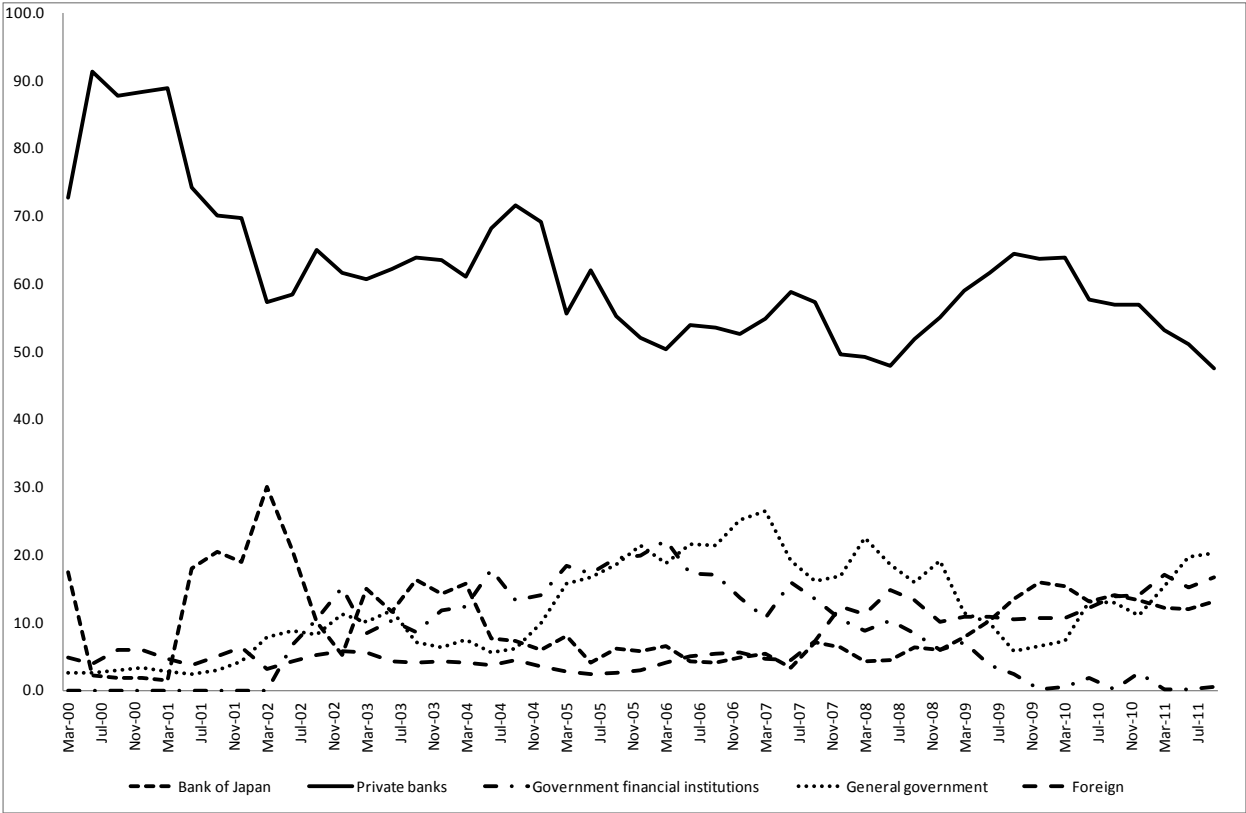
Country	General Government Debt/GDP
Japan	219.1
Greece	165.6
Italy	140.2
Portugal	138.8
Iceland	131.8
Ireland	123.3
France	109.7
United States	106.3
Belgium	104.1
United Kingdom	103.9
Spain	90.5
Germany	89.2
Hungary	89.0
Canada	85.5
Austria	84.9
Netherlands	82.6
Israel	72.9
Finland	63.3
Poland	62.6
Slovenia	61.0
Denmark	58.9
Slovak Republic	56.6
Czech Republic	55.9
Sweden	48.7
New Zealand	44.3
Switzerland	43.8
Korea	35.1
Norway	34.6
Australia	32.4
Luxembourg	28.4
Estonia	14.2
Euro area (15 countries)	103.9
OECD – Total	108.8

Note: The figures show the ratio of general government gross financial liabilities as a percentage of Gross Domestic Product (GDP) (in percent).

Source: Organisation for Economic Co-operation and Development (OECD), *OECD Economic Outlook*, no. 93 (May 2013).

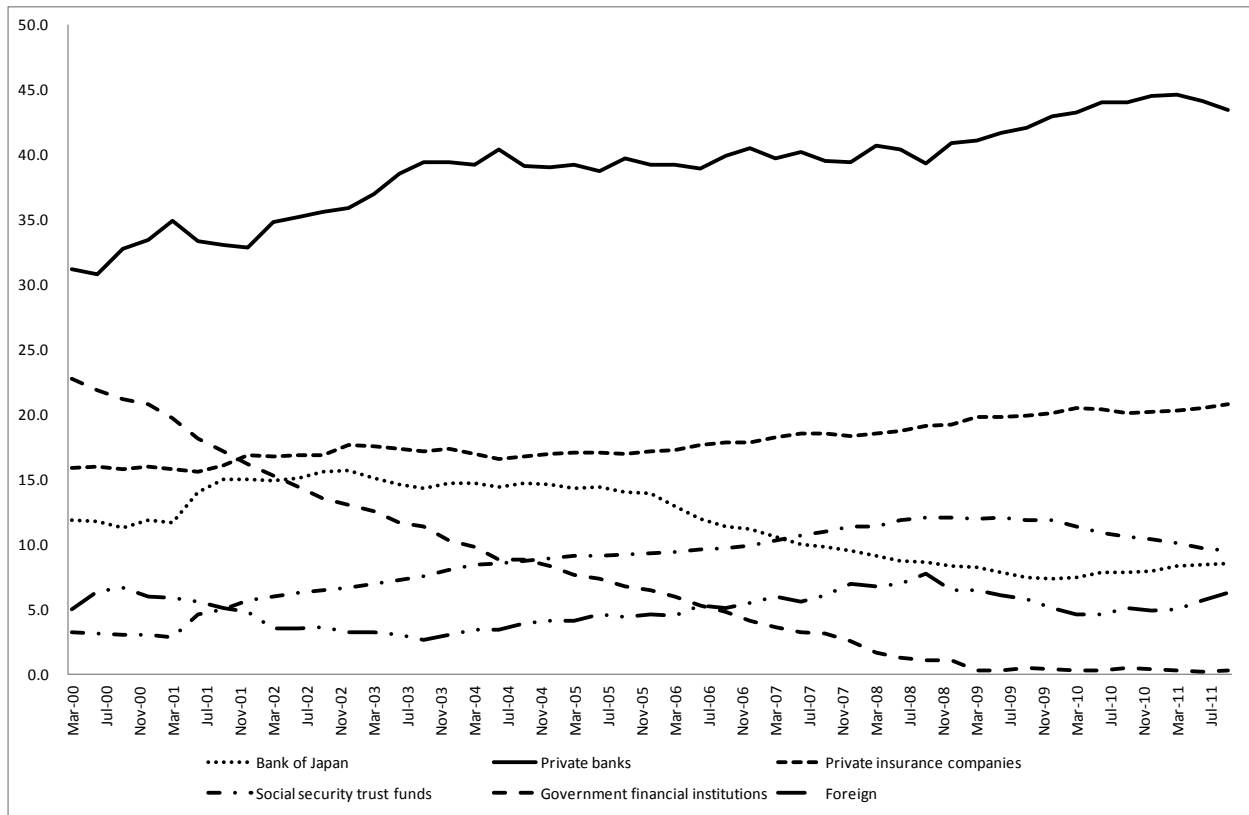


**Figure 1: Holdings of Short-term Japanese Government Securities by Sector, 2000-11 (Shares)**



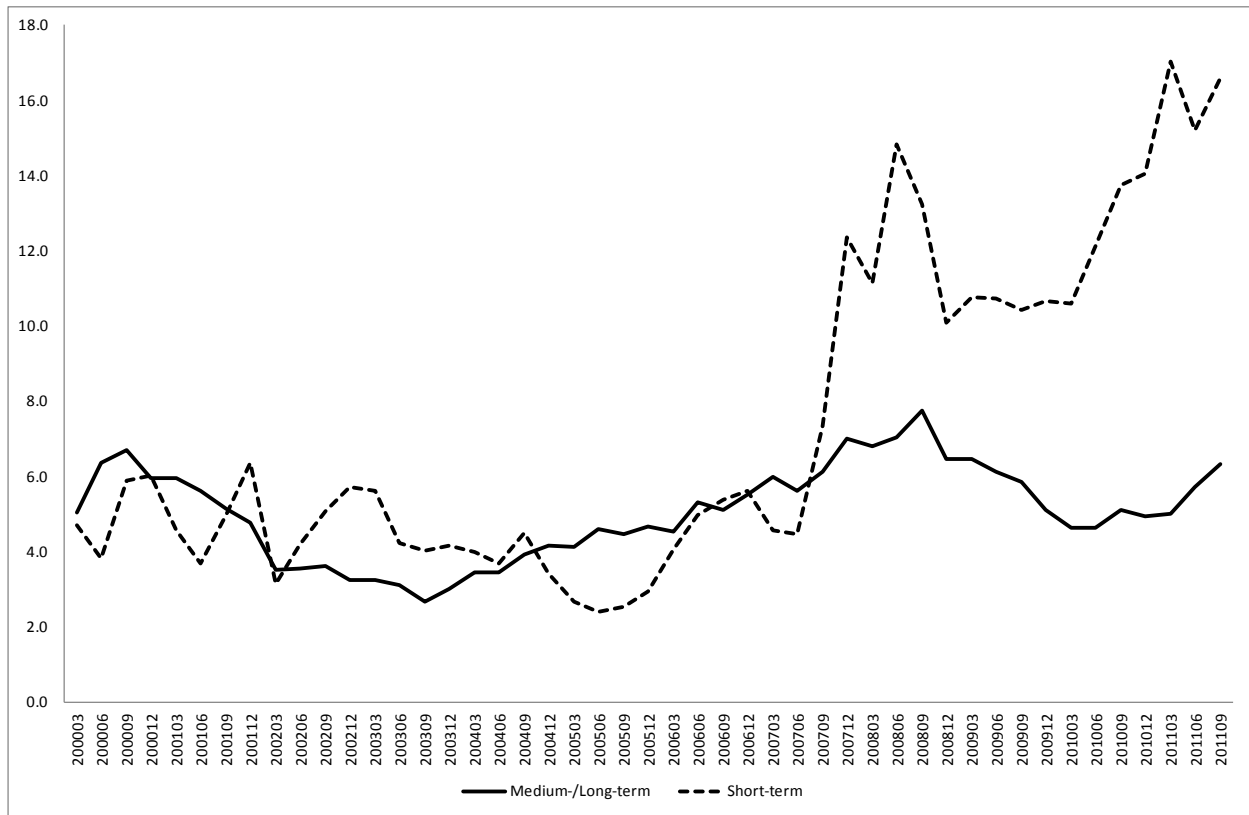
Source: Bank of Japan's Flow of Funds Accounts Statistics

**Figure 2: Holdings of Medium- and Long-term Japanese Government Securities by Sector, 2000-11 (Shares)**



Source: Bank of Japan's Flow of Funds Accounts Statistics

**Figure 3: The Share of Foreign Holdings of Japanese Government Securities, 2000-2011**



Source: Bank of Japan's Flow of Funds Accounts Statistics

**Figure 4: The Share of Short-term Securities in Japanese Government Securities of All Maturities by Sector, 2000-2011**



Source: Bank of Japan's Flow of Funds Accounts Statistics