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Abstract: In this paper, we present data on trends over time in government debt financing in Japan since 2000 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, especially household 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 as 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 reduce its government debt-to-GDP ratio. 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-to-GDP ratio 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

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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 to 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 its 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 its massive government debt could be absorbed domestically without having to rely on foreign investors.

However, Reinhart and Rogoff (2008) have argued that domestic sovereign debt is just as important as external sovereign debt and that it is the total amount of sovereign debt that is of paramount importance.

The objective of this paper is to present data on trends over time in government debt financing in Japan since 2000 with emphasis on the importance of foreign holders and to speculate about the determinants of those trends, thereby shedding light on why Japan's massive government debt has not wreaked havoc—at least not yet.

To summarize our main findings, we find that Japanese government securities were held primarily by domestic holders until recently because robust domestic saving, especially household 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 as 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 reduce its government debt-to-GDP ratio. 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-to-GDP ratio 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.[1]

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.)

[1] 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.

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 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.[2]

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

[2] We are indebted to Peter Morgan for this point.

past years helped make possible the largely domestic absorption of Japanese government securities.

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 (see Horioka (1990) for a comprehensive survey of the possible reasons for Japan's high household saving rate), 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 is now higher in the other Asian economies. For example, it has been higher than in Japan 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 and Horioka, Nomoto, and Terada-Hagiwara (2014) for recent evidence).

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, who face restrictions on purchases of

foreign securities, and that the decision-making calculus of the monetary authorities is likely to be very different from that of private investors.[3]

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 it has been surpassed by international institutions, the ASEAN economies, and the PRC since 2009.

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 (2014) 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

[3] Since it was primarily euruzone government securities that became riskier after the Global Financial Crisis of 2008-09, private investors presumably shifted their funds primarily from Europe to Asia, but the monetary authorities of the PRC diverted funds primarily from the United States (in particular, from United States government securities) to Asia. We are indebted to Peter Morgan for this point.

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, Horioka, Nomoto, and Terada-Hagiwara (2014) conduct an econometric analysis of the determinants of foreign holdings of debt securities in eleven economies including seven developing Asian economies (Hong Kong, Indonesia, Korea, Malaysia, the Philippines, Singapore, and Thailand) and four major industrialized economies (the eurozone, Japan, the United Kingdom, and the United States) using data for the 2001-11 period and find.that risk-adjusted returns are a significant determinant of foreign holdings of debt securities. This finding 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 (such as strategic considerations that might be motivating China's monetary authorities).

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.[4]

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

In this paper, we analyze 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.

To summarize our main points, we find that Japanese government securities were held primarily by domestic holders until recently because robust domestic saving, especially household saving, (combined with strong home bias) made it possible for domestic investors to absorb most of the

[4] We are indebted to an anonymous referee for this point.

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 argue 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 find 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. There is a possibility that there will be a revival of yen carry trade utilizing the interest rate gap between the U.S. and Japan, as was observed around 2007, and this may have the effect of stabilizing foreign holdings of short-term Japanese government securities at a high level, but as of this writing, the share of foreign holdings of short-term Japanese government securities has fallen somewhat since peaking at 30.2 percent in

September 2012, presumably for all of the aforementioned reasons, and was only 28.1 percent in September 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 its 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 faces increasing pressures to reduce its massive government debt-to-GDP ratio. One way of doing so is to reduce the government debt itself by increasing 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 by cutting government expenditures (for example, by reforming the public pension system and other social safety nets). The other way of doing so is by stimulating economic growth, which Prime Minister Shinzo Abe is trying to do using the three arrows of "Abenomics" (massive fiscal stimulus, more aggressive monetary easing, and structural reforms to boost Japan's competitiveness). Prime Minister Abe is trying to accomplish both goals simultaneously but it is a Herculean task to skillfully combine all of the policy levers at his disposal because the two goals are often conflicting (for example, raising the consumption tax will reduce the government debt but may, at the same, put a damper on economic growth).

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 quickly.

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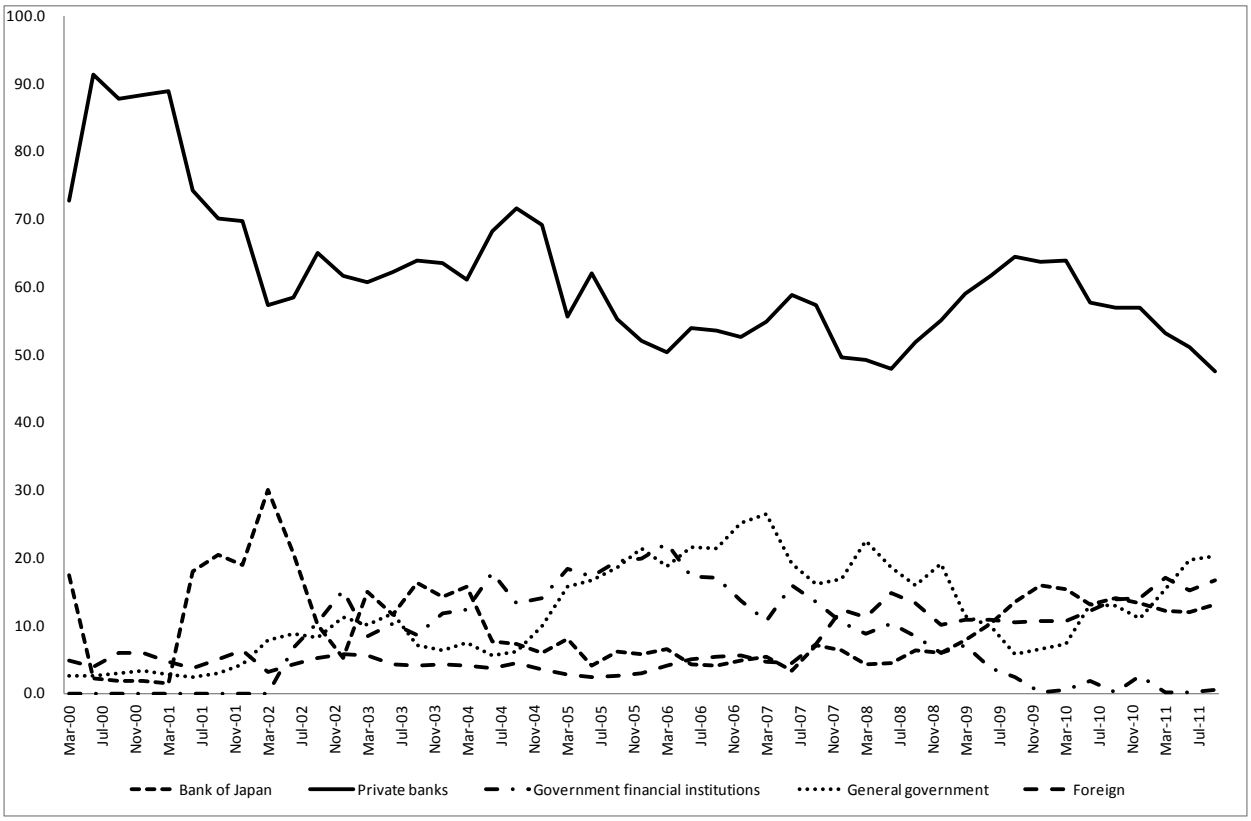
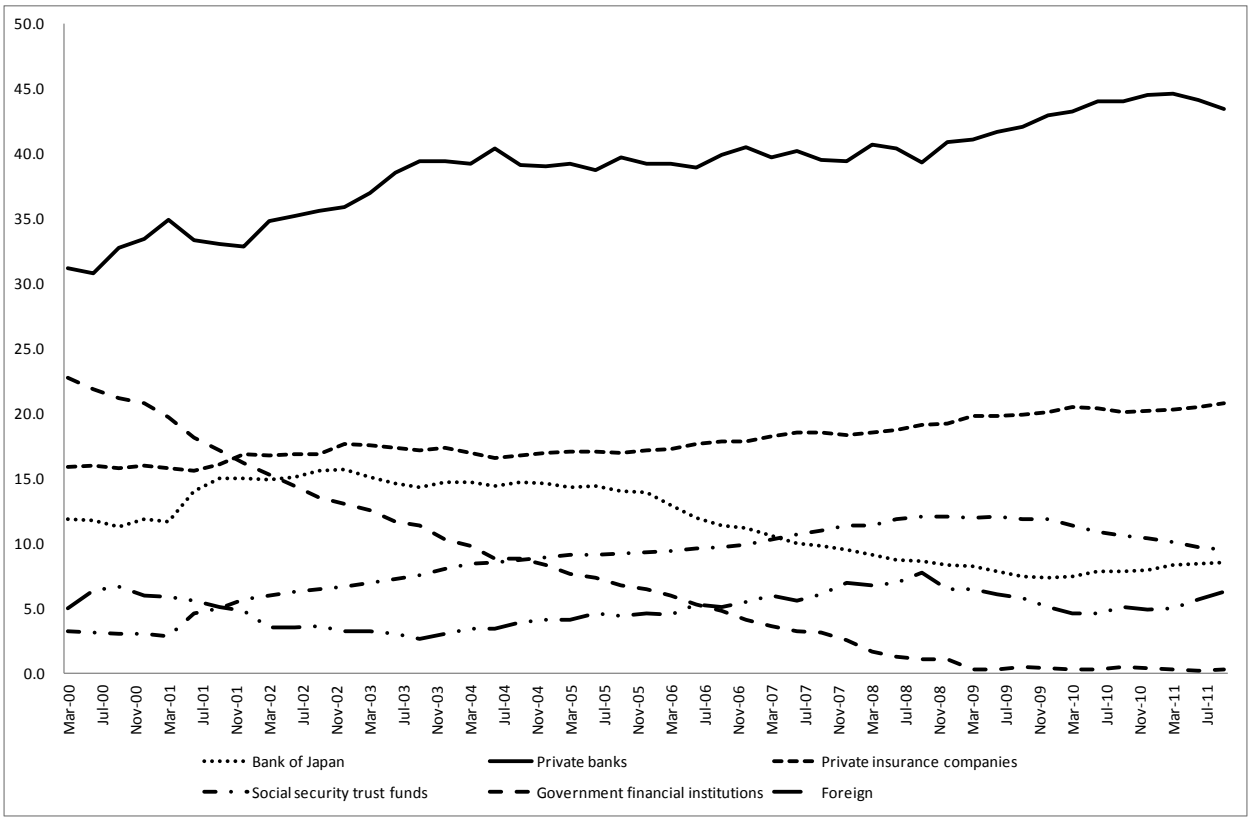
Table 1: General Government Debt as a Percentage of GDP, OECD Countries, 2012	
Country	General Government Debt/GDP
Japan	219.1
Greece	165.6
Italy	140.2
Portugal	138.8
Iceland	131.8
Ireland	123.3
France	109.7
United States	106.3
Belgium	104.1
United Kingdom	103.9
Spain	90.5
Germany	89.2
Hungary	89.0
Canada	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 perrcentage 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)



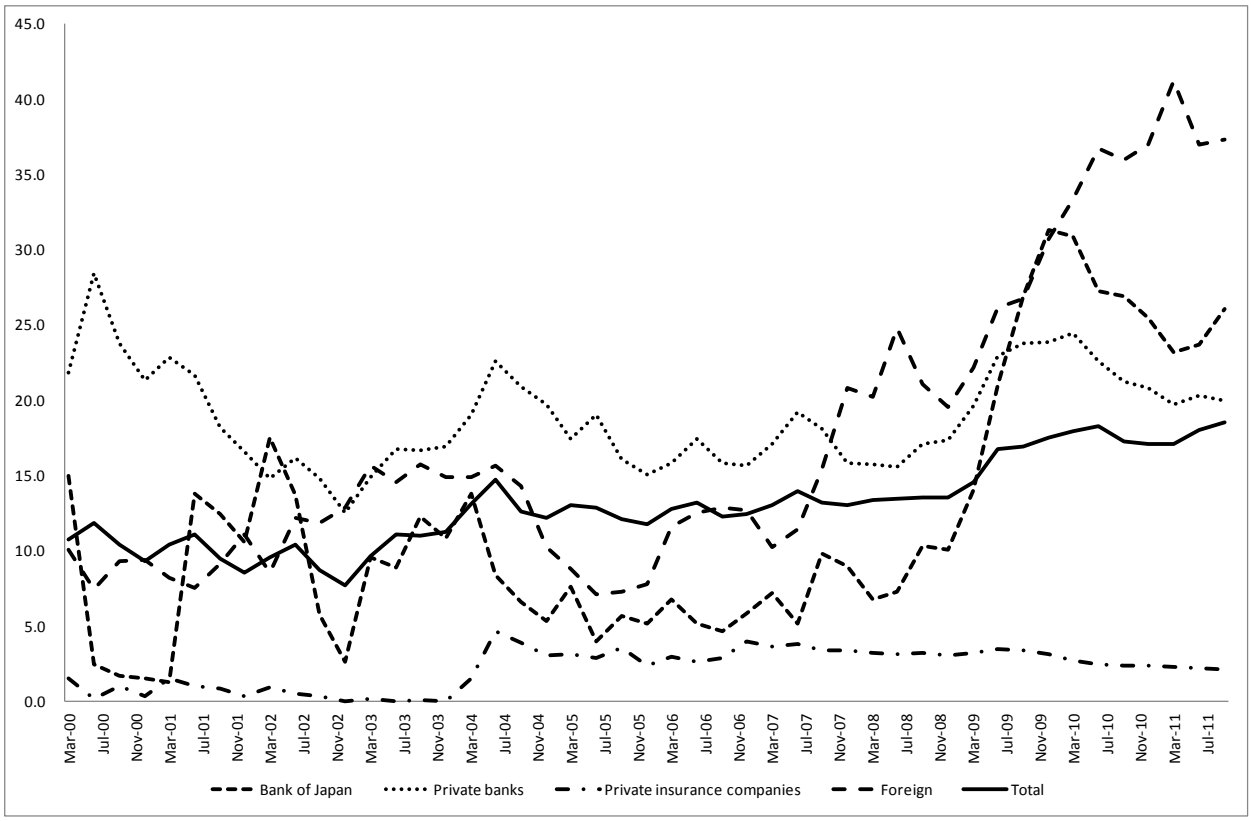
Source: Bank of Japan's Flow of Funds Accounts Statistics

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



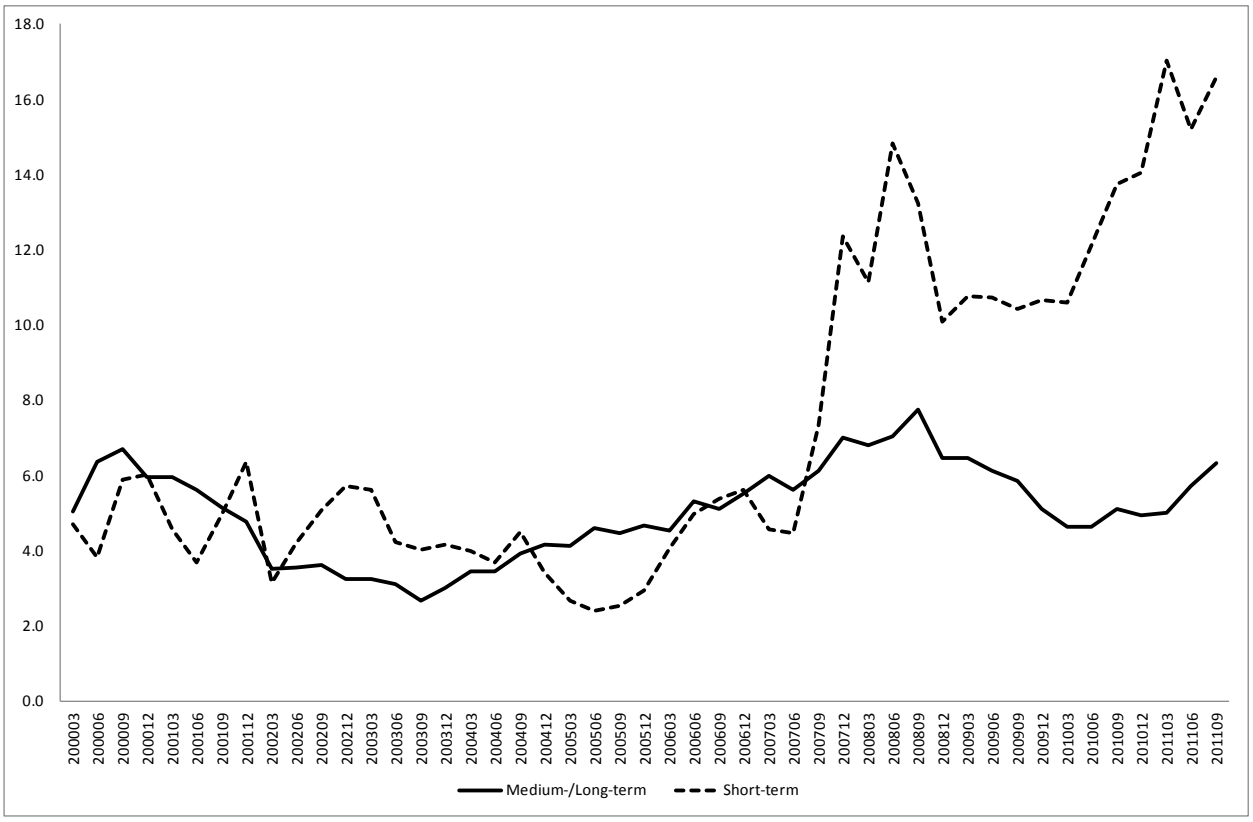
Source: Bank of Japan's Flow of Funds Accounts Statistics

Figure 3: The Share of Short-term Securities in Japanese Government Securities of All Maturities by Sector, 2000-2011



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

Figure 4: The Share of Foreign Holdings of Japanese Government Securities, 2000-2011



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