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Further Reforms of the JGB Market for the Promotion of Regional Bond Markets*

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I. Introduction

At the end of 1999, Japanese government bonds (JGBs) issued by the central government reached ¥359 trillion (US\$3.30 trillion), exceeding the United States in outstanding Treasury securities balance of \$3.28 trillion. In fiscal year 2000, Japan's Ministry of Finance (MOF) will raise a gross amount of ¥87.87 trillion through the issuance of JGBs, while the U.S. Treasury paid down \$140 billion in debt over last two years and plans to do so further. The planned issuance of JGBs for fiscal year 2001 is even greater at ¥98.50 trillion. As a result, Japan will remain the largest issuer of government debt in the world in the foreseeable future. As summarized in Table 1, Japan's government debt is expected to reach 137% of GDP in year 2000, whereas the United States and United Kingdom are expected to achieve debt levels of 53% and 61% relative to their respective GDPs.

This is bad news for Japan's economy and future credit rating of JGBs. Moody's Investors Service downgraded the JGB rating to Aa2, two notches below the top-rated Aaa level, in early September 2000. According to the International Monetary Fund's prediction, Japan's fiscal deficit will reach 7.1% of its GDP in year 2000, while the United States will gain a surplus of 2% as presented in Panel B of Table 1. Rudiger Dornbusch believes that Japan's public sector debt is a more serious threat to global financial stabilization than a U.S.

economic hard landing in which the stock market and the dollar would collapse.¹ He argues that exploding debt in a country means higher interest rates and a tendency for savings to look for safety offshore, which may trigger a global financial crisis as domestic savers choose not to hold and roll over JGBs.

[Insert Table 1]

The fact that Japan will remain the largest issuer of government debt securities is important news for further development of the JGB market because the MOF will be forced to heed the cost minimization of government debt. Any reform measures necessary to attain this goal will be adopted more expediently and decisively than ever before.

This paper reviews key steps for further development of the JGB market in aligning its infrastructures with those of the U.S. and U.K. government securities markets. The remainder of this paper is divided into three sections. In Section II, we assess if Japan's MOF is able to minimize the cost of JGBs given the current status of the market. In Section III, we identify numerous reform measures to create a more effective and efficient JGB market. The last section touches upon an urgent policy issues on the regional level for the progression of the JGB market in spearheading regional bond market activities.

II. How to Minimize the Cost of Government Debt Securities?

Schinasi and Smith (1998) recommend three courses of action to minimize the cost of government debt securities: first, tap the pool of global capital; second, grant greater independence to government debt management from

¹ Refer to Rudiger Dornbusch, "A Rendezvous with Bankruptcy," in Personal View Column of *The Financial Times* (December 15, 2000).

monetary policy; and, third, reform primary and secondary market infrastructures to appeal to institutional investors. When the cost minimizing effort is assessed against the above three criteria, Japan's MOF does not earn a good mark.

A. Tapping the Pool of Global Capital

Inonue (1999) reports that non-residents hold approximately 10% of JGBs, while non-resident holdings of U.S. and U.K. government debt amount to 36.9% and 14.4%, respectively. Schinasi and Smith (1998), however, report a smaller percentage in the order of 4%-5% for Japan, citing a Bank for International Settlements source.² This suggests that further internationalization of the yen is necessary to tap the pool of global capital. Although some concerns have been expressed regarding the delay of implementing reform measures in the areas of pension system, bank re-capitalization, and deposit insurance scheme, the MOF should be credited for its Big Bang reforms in internationalizing the yen. The implementation of Big Bang reforms in some areas has been slow. For example, as of April 1999, the withholding tax on redemption gains and interest income from JGBs were exempted for non-residents and foreign corporations. However, no drastic increases are reported in the amount of foreigners' investment in JGBs after April 1999, which contrasts with German experience that the percentage of its government bonds held by foreign investors jumped from 10% in 1984 to 38% in 1988 subsequent to the elimination of withholding taxes on interest income for non-resident investors in October 1984. Two reasons are cited: First, the exemption of

² Street estimation also suggests that a mere 5% of JGBs is held by foreign investors. Refer to "Japan's Debt Mountain," *The Financial Times* (October 27, 2000).

withholding taxes is not done at the source, which implies that foreigners first pay withholding taxes and then apply for reimbursement with Japanese tax authorities. This reimbursement process is known as cumbersome and time-consuming. Second, foreign investors still have to register their bond holdings with a local custodian bank, but this is unpopular with overseas institutional investors as many prefer to consolidate their custody operations in one place.³

B. Granting Greater Independence to Government Debt Management Program from Monetary Policy

As far as the management of government assets and liabilities is concerned, central banks are responsible for assets management while ministries of finance maintain operational authority over liabilities management. As Cassard and Folkerts-Landau (1997) espouse, such separation of responsibilities is necessary considering the potential conflicts of interest between monetary policy and debt management. In Japan, however, MOF violates the simple rule of separating assets and liabilities management because of the activities of its Trust Fund Bureau (TFB). The TFB is the largest fund manager in the world, managing a total asset of ¥441 trillion, which is known as the Fiscal Investment and Loan Program (FILP).⁴ As presented in Table 2, the primary sources of the FILP fund are comprised of postal savings (58%) and employees' insurance and national pension deposits (32%). On the asset side of the balance sheet, the fund is invested in government-related organizations (26%), general and special accounts (22%), JGBs (19%), municipal governments (16%), special corporations (16%), etc.

³ Refer to "Japan Expand JGB Tax Breaks," *The Financial Times* (August 31, 2000).

⁴ This amount is equivalent to approximately 80% of Japan's GDP.

[Insert Table 2]

Although MOF considers FILP an extension of its fiscal policy, its purchase activities of JGBs are watched carefully by market participants to predict the direction of long-term interest rate movement.⁵ With FILP's holdings accounting for over one-third of JGBs outstanding, the MOF is effectively the largest seller and buyer of JGBs. This dual role executed by MOF is an explicit violation of the rule of separation between government debt management and monetary policy. Commingled management of assets and liabilities, especially FILP's inadvertent influence over monetary policy, not only causes the cost of government-issued debt to increase but also creates serious impediments to the development of the JGB markets as discussed below.

C. Unfinished Primary and Secondary Market Infrastructures

Recognizing the growing importance of capital-market-based financing, the Big Bang program implemented numerous reform measures to improve the primary and secondary markets infrastructure since November 1996. These measures include: (i) deregulation of cross-border transactions and foreign exchange business; (ii) adoption of a competitive auction method to issue financing bills;⁶ (iii) abolition of securities transaction tax; (iv) deregulation of brokerage commissions;

⁵ For example, the TFB announced in the latter part of 1999 that it would suspend ¥200 billion (\$1.91 billion) bond purchases in the open market each month. This announcement triggered the prices of JGBs to decline sharply, raising their yields to as high as 2.7%. After the resumption of the purchase activities by TFB, however, the yield level stabilized to the current level of around 1.8% (10-year JGBs).

⁶ Financing bills are issued on a discount basis like Treasury bills. Because the discount rate remained below prevailing short-term market interest rate, virtually all issues had to be subscribed by the Bank of Japan (BOJ). Under the Big Bang reform programs, Treasury financing bills, food financing bills, and foreign exchange fund bills are all integrated into single financing bills and they are issued under a competitive auction system.

(v) preparation of legal framework for loan/asset securitization; (vi) deregulation of off-exchange trading; (vii) entry by banks, securities companies, and insurance companies into each other's business; (viii) introduction of individual stock options; and (ix) replacement of merit-based licensing system with a disclosure-based registration system for securities companies.⁷

With the aim of identifying the unfinished reform areas for the JGB market, however, Japan may want to consider the U.S. government securities market as a role model. In retrospect, four major developments signify the underlying forces that rapidly expanded the U.S. government securities markets in the 1980s. These developments are: (i) active trading of Treasury securities on a when-issued basis which assisted in minimizing the underwriting risk by reducing price and quantity uncertainties; (ii) introduction of financial futures and options written on Treasury securities which provided necessary vehicles for hedging of interest rate risk; (iii) expansion of REPO and reverse REPO transactions which supported the increase of market liquidity and short-term investment activities; and (iv) introduction of the Separate Trading of Registered Interest and Principal of Securities (STRIPS) which facilitated hedging of reinvestment risk through coupon stripping.

Presently, when-issued trading is illegal in Japan. STRIPS has yet to be introduced. Although localized variations of REPO markets such as the *Gensaki* market and the *Kashisai* market emerged in Japan, their developments were inhibited by tax-related impediments (*Gensaki* market) and interest rate ceiling on the cash collateral (*Kashisai* market). For example, as *Gensaki* is recognized as a form of bond trading, REPO transactions on the *Gensaki* market were subject to

⁷ Refer to http://www.fsa.go.jp/p_mof/english/big-bang for details of the Big Bang reform programs.

securities transaction tax. Therefore, the majority of *Gensaki* transactions were implemented using Treasury bills and financing bills that were exempted from securities transaction tax. However, stamp duties on bills could not be avoided. In contrast, transactions on the *Kashisai* market have not been subject to securities transaction taxes. Legal and operational modalities of the two markets, however, reflected a hybrid form of American-style classic REPOs and European-style sale-and-buyback contracts. As a result, the two markets could not fully develop. The Japanese futures market (with equity index and long-term bond as underlying assets) has earned an unfortunate reputation of an “over-regulated” market because of stringent regulatory policies including margin requirements and circuit breakers.

III. Post-Big Bang Reform Measures

In terms of GDP, Japan’s economy is about one-half the size of U.S. economy while it is about four times as large as United Kingdom’s economy. As Japan’s capital market development emulates past experiences of the U.S. counterpart, the above four areas should be an interesting point of departure in assessing further reforms for the JGB market. Since the JGB market has matured in its own historical, macroeconomic, and institutional framework, it faces its own unique blend of capital market policy issues. Therefore, this section will introduce some capital market policy issues that are unique to the JGB market as well as the policy issues in light of U.S. market experiences.

A. Lack of the Primary Dealer System

One idiosyncratic feature of the JGB market is the lack of the primary dealer system. This may be attributed in large part to the role played by TFB as a de facto

underwriter in the primary market. With TFB serving as an active buyer of newly issued JGBs (usually under a buy-and-hold investment strategy), purely competitive public auctions must have been difficult to implement. Naturally, underwriting by a syndicate has been the standard in the JGB primary markets, especially for the benchmark 10-year bonds, with a specific goal of absorbing the full amount of new issues. Although competitive auction features were built into the current syndicate underwriting, their utilization has been limited. Public auction systems (based on the multiple-price auctions) were introduced later for the maturities of 2-, 4-, 6-, and 20-year bonds, but syndicate underwriting and non-competitive auctions remain the major vehicle to absorb new issues of JGBs. As a result, a primary dealer system providing competitive bidding at primary market auctions did not find its position in the JGB market.

With respect to international investors' primary concerns regarding low liquidity and large spread between bid and ask prices on the JGB market, the introduction of a primary dealer system is definitely a viable alternative that deserves serious consideration. As reported in Table 3, bid-ask spreads are large on the JGB market with 7 basis points for 10-year bonds, compared with 3 in the U.S. Treasury bond market.

[Insert Table 3]

Primary dealer systems are designed to attain at least three goals in the government securities market: first, efficient price discovery through intense competition among participating dealers; second, provision of liquidity through market-making; and third, distribution of government-issued securities. In addition,

primary dealers serve as the counterparts to central banks in open market operations. Most of the advanced economies adopted the primary dealer system with the exception of Japan and Germany, where both economies are historically known for their bank-based financial systems as opposed to the U.S. and U.K.-style capital-market-based financial system.

The major impediment to the adoption of the primary dealer system in Japan is MOF's role as a buyer of JGBs. Therefore, it is a blessing in disguise that the MOF expects a large shortfall in FILP funds amounting to approximately ¥35 trillion as fixed 10-year deposits in the national postal savings system mature in 2000 and 2001.⁸ This expected shortfall forces MOF to review structural reforms in the funding method and the management of FILP agencies with the implementation target in 2001. Given the sheer magnitude and scope of FILP activities, the complexity of FILP reforms is beyond comprehension.⁹ However, the overall direction of FILP reform is not difficult to define no matter how complicated the process is. First, FILP agencies should be corporatized to gain complete autonomy, while MOF should adopt a "hands-off" policy. This "hands-off" policy will facilitate the separation between management of government assets and liabilities. Second, the MOF should not meddle with the JGB market as an active buyer. The MOF's direct involvement should be limited to issuer's function in the capacity of the manager of government debt.

B. Introduction of the Uniform-Price Auction Method:

⁸ Refer to "Japanese turn to 'zaito' to boost finances" *The Financial Times* (March 13, 2000).

⁹ Refer to an MOF web site, <http://www.mof.go.jp/english/zaito/zae054a.htm>, for "Fundamental Reform of the Fiscal Investment and Loan Program (FILP)."

In an MOF publication, entitled *Guide to Japanese Government Bond 1998*, the uniform-price auction method is introduced as a “non-competitive” bidding method executed at the average price paid in the competitive auction undertaken concurrently. This is not a generic definition of the uniform-price auction but a Japan-specific interpretation. Under the conventional uniform-price auction (also known as the “Dutch” auction), all bidders whose tenders are accepted pay the same price for a given security. This is either the lowest of the accepted prices or the highest of the accepted yields. Therefore, some of the successful bidders may pay a lower price than they actually bid. In contrast, under the multiple-price auctions (also known as the “discriminatory” auction), participants submit sealed bids and pay the prices they bid. The government accepts the bids at gradually lower prices until the price at which the auction is fully subscribed.¹⁰ As a result, successful bidders for a security may pay different prices for that security. These multiple-price awards result in the “winner’s curse,” which means that the highest bidder wins the auction by paying the highest price, only to find that another bidder pays a lower price. In the presence of this curse, bidders tend to shade their bids below the maximum that they are actually willing to pay.¹¹ Since Salomon’s “short squeeze” scandal uncovered in mid-1991, the multiple-price method has been

¹⁰ In some countries, minimum cut-off prices are imposed by ministries of finance or fiscal agents conducting auctions, which may distort truly competitive bidding process because: (i) the bidders try to second-guess cut-off prices rather than assessing the demand and supply of the securities to be issued; or (ii) the cut-off prices may set the yields higher than market conditions warrant. At the time of writing this report, it is not known to the author whether this practice is used in multiple-price auctions in Japan. Refer to Rhee (2000b) for related practices in primary government bond markets in the Asia-Pacific region.

¹¹ For details, refer to the *Joint Report on the Government Securities Market* (1992) prepared by the Department of the Treasury, the Securities and Exchange Commission, and the Board of Governors of the Federal Reserve System.

criticized for failing to minimize financing costs to the U.S. Treasury and for encouraging manipulative behavior in the marketplace. As an alternative, the “uniform-price, sealed-bid” auction is advocated.¹²

Australia, France, and New Zealand now utilize multiple-price (or multiple-yield) auctions to sell marketable securities, while Canada, Belgium, Italy, and the Netherlands use it for some portions of marketable securities. Uniform-price, sealed-bid auctions are employed in Denmark, Switzerland, and the United Kingdom. Beginning in 1992, the US Treasury experimented with uniform-price auctions for 2-year and 5-year notes. Malvey, Archibald, and Flynn (1995) and Malvey and Archibald (1998) indicated that these auctions produced marginally greater revenue on the average for the US government. Nyborg and Sundaresan (1996) report that when-issued market volume is higher under uniform- as compared to multiple-price auctions, which indicates a higher information release. The information release, in turn, reduces the pre-auction uncertainty, the winner’s curse, and the probability of short squeeze. Feldman and Mehra (1993) report that uniform-price auctions become readily accepted because of their administrative simplicity, economic efficiency, and revenue-enhancing potential. A plethora of academic research papers provide empirical evidence in support of this perception.¹³

As summarized in Table 4, Japan’s MOF never adopted uniform-price auctions, whereas the U.S. and U.K. employ these auctions for index-linked bonds

¹² Refer to Friedman (1991 and 1960), Chari and Weber (1992), and Umlauf (1993).

¹³ Refer to Umlauf (1993), Nyborg and Sundaresan (1996), and Heller and Lengwiler (1998).

and some bonds with specific maturities (2- and 5-year bonds in the United States).¹⁴ The U.S. Treasury has expanded use of uniform-price auctions for all Treasury issues from November 1998.

[Insert Table 4]

C. Lack of When-Issued Trading

Among the developed government securities markets, Japan represents the only exception that considers when-issued trading illegal. In most of the advanced markets including the United States, however, trading during the period between the time a new issue is announced and the time it is actually issued (ranging from one- to two-weeks) is allowed and the issue is said to trade “when, as, and if issued.”¹⁵ When-issued trading functions like trading in a futures market, in which long and short positions are taken prior to the settlement date which is the issue day of the security traded. Prior to auctions, when-issued securities are quoted for trading on a yield basis because a coupon is not determined until after an auction is completed. Subsequent to auctions, they are quoted on a price basis. The most important benefit of when-issued trading is the minimization of price and quantity uncertainties. As trading on a when-issued basis facilitates the price discovery and distribution, the risk of underwriting becomes smaller and potential revenue from the new issue

¹⁴ Because the uniform-price auction is a legitimate competitive mechanism, the Japanese version of a “non-competitive” uniform-price auction is a misnomer. Non-competitive bids specify quantity only, while competitive bids specify both price (or yield) and quantity. In Japan, the price used for settlement for a non-competitive bid is the weighted average price from the competitive auction conducted concurrently. By design, this “non-competitive” method should be restricted to small transactions intended for small investors and should remain as an insignificant supplement to multiple-price auctions.

¹⁵ Refer to Appendix A “Background on the Treasury Securities Market” in the *Joint Report on the Government Securities Market* (1992), A1-A19.

increases for the government. By not allowing when-issued trading, the MOF foregoes these benefits.

D. REPO Market

A REPO represents the sale of securities by the borrower to the lender (investor) with an agreement to repurchase the securities at a specified date and price. It is a combination of spot sale and forward purchase of the securities. The difference between the selling and repurchasing prices represents the interest on the transaction. The borrower's REPO is the lender's reverse REPO. The REPO market serves numerous purposes. It allows primary dealers to cover their short positions, institutional investors to maximize their investment income by lending their securities, and foreign investors to reduce currency risk through money market hedging.¹⁶ It also facilitates clearing and settlement transactions and enhances market liquidity. Without an active REPO market, the primary and secondary markets cannot develop to their full potentials.

The *Kashisai* market (now patterned after the U.S.-style REPO market) is basically a cash-backed bond lending market with the same effect as that of the *Gensaki* market. However, *Kashisai* transactions differ from *Gensaki* transactions in that they are marked-to-market on a daily basis like the U.S.-style REPOs. *Kashisai* transactions steadily increased since the shift to rolling settlement in October 1996.¹⁷ The *Kashisai* market witnessed a major impediment eliminated

¹⁶ Brossard (1998) reports that the newly developed REPO market in 1991-1993 was essential to foreign participation in the French government securities market. At present, one-third of the French government securities are held by non-residents.

¹⁷ Refer to Executives' Meeting of East Asia and Pacific Central Banks and Monetary Authorities' *Financial Markets and Payment Systems in EMEAP Economies* (1997).

when the upper limit on the interest rate charged on the cash collateral was lifted in 1996. In addition, market participants in the *Gensaki* REPO market are exempted from payment of securities transaction tax in 1999. With these positive developments, one would expect the *Kashisai* market and the *Gensaki* market to take off. No drastic changes in market activities have been reported so far. This puzzle surrounding the *Gensaki* and the *Kashisai* markets warrants a careful review.

E. Introduction of STRIPS

At present, Japan does not allow “coupon stripping” which splits bond income streams into coupon interest and principal repayment. The coupon stripping was devised in 1982 by Merrill Lynch and Salomon Brothers to serve bond investors who were concerned about reinvestment risk. Beginning in 1985, the Treasury introduced the Separate Trading of Registered Interest and Principal of Securities (STRIPS) program to formalize the stripping of designated Treasury securities. The main appeal of STRIPS is to provide the market with highly liquid zero-coupon Treasury bonds and notes, thereby expanding the bond investor base. The strip market also generates arbitrage activities. Primary dealers continuously check the price of strippable bonds against the sum of the stripped parts (the “whole” versus the sum of “parts”). The existence of zero-coupon yield curve allows a better pricing of traditional coupon bonds. In developing a very active government securities market from an insignificant and illiquid market, the French authorities, for example, introduced a set of well-sequenced reform measures. As shown below, the introduction of STRIPS and the creation of legal and institutional framework for the REPO market were the last set of reform measures implemented in France:

- Bond futures market (1986)
- Primary dealer system (1987)
- Interdealer broker network (1987)
- Purely competitive auctions (1987)
- REPOs (1991)
- STRIPS (1991)

Given the U.S. experience with STRIPS and more recent experiences in the French government securities market, the MOF should expedite the introduction of STRIPS.

IV. Regionalized Bond Markets: Implications for Further Development of the Japanese Capital Market

At the climax of the Asian financial crisis, the Japanese government introduced the new Miyazawa Initiative for which Japan pledged a total of \$30 billion, of which one-half of was made available for the medium- to long-term financing needs for Asian economies affected by the recent financial crisis. At least three measures under the Initiative were directly related to regional bond market activities. They were: (i) acquisition of sovereign bonds issued by Asian countries by the Japan Bank for International Cooperation, (ii) support for Asian countries in raising funds from international financial markets through the use of guarantee mechanisms; and (iii) possible establishment of an international guarantee institution.

Unfortunately, the Tokyo market failed to capitalize on these measures to promote itself as a global and regional financial center by expanding of the role of the *Gaisai* market.¹⁸ The amount of *Gaisai* bonds issued in last 10 years, 1991-

¹⁸ *Gaisai* is a general term assigned to all foreign- and yen-denominated bonds issued in Japan by non-residents. Yen-denominated bonds are called "*samurai*" bonds while foreign-currency-denominated bonds are known as "*shogun*" bonds.

2000, is far from the original expectation as summarized in Table 5. The issuance of Samurai bonds has not reached the pre-crisis highest level of ¥37.9 trillion reported in 1996, while no Shogun bonds have been issued since 1994. Foreign borrowers are expected to take advantage of the continued deflation in the Japanese price level and extremely low interest rates, but their fund raising activities in Japan has not been so active as expected as shown in Table 5. The question is what went wrong?

[Insert Table 5]

To serve as international as well as regional financial center, the Tokyo market must compete with other financial markets including the eurobond market. As shown in Table 6, the difference in all-in-cost to sovereign borrower of ¥20 billion between *samurai* bonds and euro-yen bonds amounts to 7 basis points or ¥14 million. The difference between time-lengths required for bond issuance in both markets differs substantially (6-7 weeks vs. a few days). With a recording system still in place, the clearing and settlement processes in the *samurai* bond market is far more cumbersome than the eurobond market where Euroclear and Cedel are readily available and utilized. In order for the Tokyo market to serve global and regional customers more efficiently at the least cost, concerted efforts must be made.

[Insert Table 6]

Numerous reform measures were undertaken to internationalize the yen and promote foreign investments in the Tokyo financial markets. A legal framework for the promotion of cross-border transactions is in place with the revision of Foreign

Exchange Law in April 1998; yet, much more has to be done to facilitate actual transactions. For example, clearing and settlement have to be revamped to introduce delivery versus payment (DVP). At present, 67.6% of registered JGBs and 42.7% of book-entry JGBs are settled on the DVP basis, whereas all JGBs processed through the Bank of Japan Financial Network System (BOJ-Net) rely on the DVP settlement. In contrast, the U.S. and U.K. government securities are all settled on the DVP basis. Additionally, JGBs are not eligible for clearing through international clearing houses such as Euroclear and Cedel, whereas U.S. and UK government securities are all eligible.

Furthermore, no regional clearing network has been created to link the Tokyo clearing system with the region's financial centers such as Hong Kong, Singapore, and Sydney. Real-time-gross settlement system (RTGS) was finally introduced as of January 2001 to bring Japan's practices in line with U.S. and U.K. systems. With the implementation of a RTGS, Japan is now in a position to create necessary infrastructures for a U.S. dollar clearing system. Hong Kong is one step ahead in this area. Hong Kong just completed a three-phase approach toward its new U.S. dollar clearing system in December 2000: (i) the U.S. dollar RTGS for interbank payment and DvP settlement for U.S. dollar-denominated stocks were implemented in phase 1; (ii) payment versus payment (PvP) settlement for foreign exchange transactions between US dollars and Hong Kong dollars in phase 2; and (iii) DvP settlement of US dollar-denominated checks and debt securities and automatic intraday REPOs in the RTGS in phase 3. Thus, the foreign exchange risk related to

time zone differences is reduced.¹⁹ No publicly accepted practice exists for failures of deliveries in Japan unlike the U.S. and U.K. markets.²⁰

So much work has yet to be done for the harmonization of cross-border listing, trading, clearing and settlements, securities borrowing and lending, REPO markets, etc. A study of inter- and intra-region portfolio capital flows must precede the implementation of the above cross-border infrastructures. In his own assessment of the Japanese debt market serving the Asia-Pacific region's financing needs, Sakakibara (1999) noted that the JGB market still lagged substantially behind London and New York in terms of market infrastructure. Therefore, in addition to building domestic market infrastructures, Japan should intensify its effort to assume a leadership role in creating regional bond market infrastructures in Tokyo and other financial centers in the region. One of key projects for the regional bond market infrastructures should focus on the creation of a single regional central securities depository (CSD) to perform the safekeeping, clearance, and settlement functions for all securities available in the Asia-Pacific region.²¹

¹⁹ Hong Kong Shanghai Banking Corporation, which was designated as the settlement agent, reported that a total turnover of US\$870 million from 2,771 transactions involving 56 participating institutions during the first day of trading. Refer to HSBC News Release dated August 21, 2000.

²⁰ Refer to Appendix "Table of Questionnaire Results" to Bank for International Settlements, 1999, Market Liquidity: Research Findings and Selected Policy Issues (May).

²¹ For the regional and global level clearing and settlement, refer to Rhee (2000a) and Morgan Guaranty Trust Company (1993).

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Table 1
Government Debt and Fiscal Deficit*

	<u>Japan</u>	<u>United States</u>	<u>United Kingdom</u>
A. Government Debt /GDP(%)			
1997	101.1	65.9	65.8
1998	117.9	62.1	65.8
1999	127.8	57.7	62.6
2000	137.2	53.2	61.0
 B. Fiscal Deficit /GDP(%)			
1997	-3.4	0.4	-2.1
1998	-5.3	1.3	0.3
1999	-7.3	1.6	-0.4
2000	-7.1	2.0	-0.6

***Source: IMF, World Economic Outlook (October 1999)**

Table 2
Fiscal Investment and Loan Program
(As of October 2000)

<u>A. Assets</u>	Unit: ¥Billion	
	Amount	%
Long-term government Bonds	¥82,407	18.7
Treasury and Financial Bills	0	0.0
General Account and Special Accounts	97,102	22.0
Government-related Organizations	115,389	26.3
Local government	69,419	15.8
Special Companies	70,943	16.1
Bank Debentures	648	0.2
Others	1,450	0.3
Cash/Deposits	2,987	0.7
Total	¥440,795	100.0
<u>B. Liabilities</u>	Amount	%
Postal Savings and Postal Transfer Deposits	¥252,778	57.4
Postal Life Insurance Deposits	3,401	0.8
Employee's Pension Deposits	132,214	30.0
National Pension Deposits	11,198	2.5
Other Deposits	34,512	7.8
Others	6,693	1.5
Total	¥440,795	100.0

Source: Ministry of Finance, <http://www.mof.go.jp/english/mr-tfb/e1c014ao.htm>

Table 3
Government Securities Markets

	<u>Japan</u>	<u>United States</u>	<u>United Kingdom</u>
Turnover Ratio	6.9	22.0	7.0
Bid-Ask Spread			
10-Year On-the-Run Issues	7.0	3.1	4.0
10-Year Off-the-Run Issues	7.0	6.3	4.0
Maturity Distribution			
< 1 Year	5%	21%	7%
1-5 Year	8%	62%	29%
5-10 Year	78%	0%	34%
>10 Year	9%	17%	30%
Average Issue Size (\$Billion)	8.2	13.9	5.6
Government/Central Bank Holding (%)	46.3	13.1	3.6
Non-Resident Holding (%)	10.0	36.9	14.4
Settlement	T+3	T+1	T+1
DVP-Basis Settlement	<ul style="list-style-type: none"> • 67.6% of registered JGBs and 42.7% of book-entry JGBs • All JGBs through BOJ-NET 	100%	100%
No. of Primary Dealers	None	37	16
No. of Dealers	501	1,700	16

Source: Inoue (1999)

Table 4
Auction Methods for Government-Issued Securities

	<u>Japan</u>	<u>United States</u>	<u>United Kingdom</u>
Uniform-Price Auction	None	All Treasury Securities	<ul style="list-style-type: none"> • Index-linked Bonds
Multiple-Price Auction	All JGBs <ul style="list-style-type: none"> • 20-Year Bond: Competitive Auction Only • 2-, 4- and 6-Year Bond: Both Competitive and Non-competitive Auction • 5- and 10-Year Bond: Syndicated Underwriting 	None	<ul style="list-style-type: none"> • All Securities other than Index-linked Bonds

Source: Asia-Pacific Financial Markets (FIMA) Research Center, University of Hawaii

Table 5
***Gaisai* Bond Issuance**

Unit: ¥ trillion

<u>Year</u>	<u>No. of Issues</u>	<u>Samurai Bonds</u>	<u>No. of Issues</u>	<u>Shogun Bonds</u>
1991	27	7.11	1	0.41
1992	37	15.69	0	0
1993	49	12.30	1	0.59
1994	60	12.59	0	0
1995	85	21.09	0	0
1996	154	37.90	0	0
1997	66	15.82	0	0
1998	10	1.53	0	0
1999	24	8.67	0	0
2000*	41	7.74	0	0

* From March to October.

Source: The Bond Underwriters Association of Japan, *Bond Review*, and The Japan Securities Dealers Association, *Shokengyoho*

Table 6
Cost Differential between *Samurai* and Euroyen Bonds

Assumptions

Issuer: Sovereign Borrower
Issue Amount: ¥20 billion
Term: 5 years

	<u><i>Samurai</i> Bonds</u>	<u>Euro-Yen Bonds</u>
Underwriting Fee	40 bp (upfront)	25 bp (upfront)
Commissioned Bank Fee/ Recording Fee	3 bp (upfront)	n.a.
Interest Payment Commission	20 bp (of each payment)	nil
Principal Payment Commission	10 bp (at maturity)	nil
Out-of-Pocket Expenses	¥15 million (upfront)	¥8 million (upfront)
All-in-Cost to Issuer	2.03% (s.a.)	1.961% (s.a.)
Time-Length of Launch Clearing and Settlement	6 to 7 weeks Recording System	A few days Euroclear and Cedel

Notes: a. bp = basis point
b. s.a. = semi-annual basis

Source: Industrial Bank of Japan Securities Co. (1998)