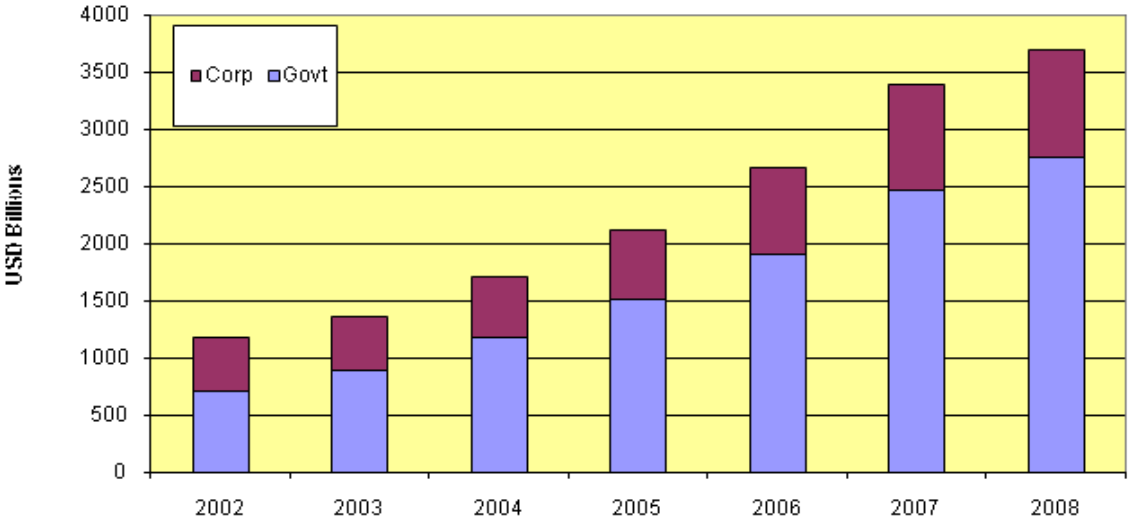
2. Towards Harmonized and Integrated Government Bond Markets in ASEAN+3

2.1. Introduction

As discussed in the introduction, ASEAN+3 countries have reached consensus on the imperative of fostering liquid and efficient bond markets in Asia through the harmonization of bond standards and regulations. Unlike Europe, where adoption of a single currency provided key momentum for harmonization of its bond markets, East Asian countries will require more cooperative and systematic joint efforts to overcome heterogeneity across the region in the state of bond market development. Yet, the market environment for harmonization is improving in the region. As **Figure 2-4** shows, East Asia has seen relatively strong growth in local currency bond markets during the last five years. This momentum is expected to continue, especially in government bond markets as the recent global financial crisis has raised Asian authorities' funding requirements to finance



Note: The region covers People's Republic of China; Hong Kong, China; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Thailand; and Viet Nam.

Notwithstanding the improving market environment, the harmonization of onshore government bond markets is a challenging task. In the absence of strong motives, such as a single currency or economic union, and in the absence of a transnational authority as in Europe, it is difficult to expect sovereign authorities to readily compromise their own regulations and standards in the primary government bond market.

This report has earlier emphasized that a differentiated approach is necessary for the harmonization of government bond markets and corporate bond markets. For government bond markets, a more gradual, bottom-up approach that begins promoting harmonization from secondary market standards and practices is preferred. The bottom-up approach should be predicated on an understanding of national differences in the secondary government bond markets, which requires sufficiently detailed, comprehensive, and extensive studies. In order to alleviate information asymmetry between domestic and foreign market players, it is necessary to share comprehensive, structured, and updated market information among participants. This section focuses on the bond markets of Japan and the Republic of Korea (Korea) to provide a benchmark framework for detailed analyses of

trading in secondary government bond markets and their microstructures. Key lessons from the experiences of Japan and Korea are also discussed.

2.2. Benchmark Studies of Japan and Korea

2.2.1. Government Bond Markets in Japan[6]

2.2.1.1. Government Bond Instruments

A. Types of Government Bonds and Outstanding Amounts in Japan

Japanese government bonds (JGB) comprise two main categories: general bonds and fiscal investment and loan program (FILP) bonds. The government redeems general bonds mainly through tax revenue, while redemption and interest payments on FILP bonds are paid through the recovery of loans to FILP agencies. However, both general and FILP bonds are JGBs. In addition, the Japanese government issues financing bills, which have different features from JGBs, but are among the securities issued by the government.

Table 2-3: Changes in the Outstanding Amount of JGBs, Financing Bills, and Borrowings

(Unit : billion yen)

Category	FY2004	FY2005	FY2006	FY2007	FY2008
Government Bonds (JGBs)	626,363.3	670,579.4	674,122.1	684,327.8	680,448.2
General Bonds	499,013.7	526,927.9	531,701.5	541,458.4	545,935.6
Long-term (10 years or more)	317,244.1	337,279.7	344,735.1	354,365.5	354,237.8
Medium-term (from 2 to 6 years)	135,145.6	138,271.2	145,515.9	154,574.1	161,018.3
Short-term (one year or less)	46,624.0	51,377.0	41,450.5	32,518.7	30,679.5
FILP Bonds	121,553.2	139,353.2	138,906.1	139,754.3	131,050.1
Long-term (10 years or more)	56,796.9	70,333.4	83,483.1	90,881.4	94,737.2
Medium-term (from 2 to 5 years)	64,756.3	69,019.8	55,423.0	48,872.9	36,312.9
Subsidy Bonds	337.5	361.0	568.3	577.3	526.6
Subscription / Contribution Bonds	2,110.2	2,130.0	2,356.3	2,505.7	2,210.5
Government Bonds converted from Japanese National Railways Settlement Corporation Bonds	3,348.8	1,807.2	589.9	32.1	725.4
Borrowings	59,112.2	59,273.7	59,282.4	57,158.9	57,566.1
Long-term (over one year)	7,072.1	6,059.9	5,323.5	21,844.7	22,251.9
Short-term (one year or less)	52,040.1	53,213.8	53,958.9	35,314.2	35,314.2
Financing Bills	96,076.2	97,627.4	100,974.1	107,752.8	108,482.6
Total	781,551.7	827,480.5	834,378.6	849,239.6	846,497.0

Source: Ministry of Finance of Japan. *Debt Management Report 2009*.

1) General Bonds

General bonds consist of construction bonds and special deficit-financing bonds, which are issued as new financial resources, and refunding bonds.

- Construction Bonds

Article 4(1) of the Public Finance Act prescribes that annual government expenditure has to be covered in principle by annual government revenue generated from sources other than

[6] Information in this section is largely based on *Debt Management Report 2009* of the Ministry of Finance of Japan. http://www.mof.go.jp/english/bonds/saimukanri/2009/saimu09.htm

government bonds or borrowings. But as an exception, a proviso of the article allows the government to raise money through bond issuance or borrowings for the purpose of public works, capital subscription, or lending. Bonds governed by this proviso of Article 4(1) are called construction bonds.

The article prescribes that the government can issue construction bonds within the amount approved by the Diet, with the ceiling amount provided under the general provisions of the general account budget. When seeking approval for this ceiling amount, the government is obliged to submit to the Diet for reference a redemption plan that shows the redemption amount, method, and dates for each fiscal year.

- Special Deficit-Financing Bonds

When estimating a shortage of government revenue despite the issuance of construction bonds, the government can issue bonds based on a special act to raise money for purposes other than public works and the like. Given their nature, these bonds are called special deficit- financing bonds.

As is the case with construction bonds, the government can issue special deficit-financing bonds within the amount approved by the Diet and the ceiling amount provided under the general provisions of general account budget. The government is also required to submit a redemption plan to the Diet for reference.

Special deficit-financing bond issuance can only be made in exceptional cases. Therefore, the government has to minimize the issue amount as much as possible within the amount approved by the Diet, while taking into account the state of taxes and other revenues. In this context, the government is allowed to issue special deficit-financing bonds even during the accounting adjustment term. Specifically, the government is allowed to issue special deficit-financing bonds until the end of June in the next fiscal year in order to adjust the issue amount of special deficit-financing bonds until the end of May in the next fiscal year, which is the deadline for collecting tax revenue for the fiscal year. The revenue from their issuance is reported as government revenue under the general account.

- Refunding Bonds

Refunding bonds are the JGBs issued through the Special Account of Government Debt Consolidation Fund (GDCF) to raise funds to redeem matured JGBs. Revenues from refunding bonds are directly posted to the fund.

In the issuance of refunding bonds, the government is not required to seek Diet approval for the maximum issuance amount. This is because unlike issuing new financial resource bonds (i.e., construction bonds and special deficit-financing bonds) refunding bonds do not increase the total amount of outstanding debt.

In addition, in order to mitigate the impact of a redemption rush and to enable flexible issuance in response to financial conditions, the government is also allowed to front-load the issuance of refunding bonds. However, this front-loading must be made within the maximum issuance amount stipulated in the special provisions of the special account budget.

2) Fiscal Investment and Loan Program Bonds (FILP Bonds)

Along with the 2001 reform of the FILP (Fiscal Investment and Loan Program), the government started issuance of the Fiscal Investment and Loan Program Bonds (so-called

FILP bonds) to raise funds for the investment of the Fiscal Loan Fund. As with other types of government bonds, this security is issued against the credit of the government, and its maximum issuance amount requires Diet approval (Article 62(2) of the Act on Special Accounts). Revenues from the FILP bond issuance are allotted to the annual revenue for the Special Account for the Fiscal Investment and Loan Program (FILP Special Account).

However, the FILP bonds are different from construction bonds and special deficit-financing bonds. While future taxes will be used to redeem construction bonds and special deficit-financing bonds, the redemption and the interest payments on the FILP bonds are covered through the recovery of fiscal loan funds, which are loans made to incorporated administrative agencies. Therefore, FILP bonds are not classified as debts of the general government under the System of National Accounts (SNA).

3) Financing Bills

Financing bills are issued on the basis of the Public Finance Act and the Act on Special Accounts to cover temporary shortages of cash in the National Treasury or the special accounts. Since February 2009, the Ministry of Finance has jointly issued Treasury bills (6-month and 1-year) and financing bills (2-month, 3-month, and 6-month) under unified names of Treasury discount bills (T-bills). But their legal status has not changed under the existing fiscal system and they will continue to be handled as Treasury bills and financing bills under the fiscal system.

Financing bills are issued to the market usually on the first business day of the week. If the offer to the market is not fully subscribed or there is unexpected demand for cash in the National Treasury, the Bank of Japan (BOJ) will make an exception to underwrite financing bills. In this case, financing bills underwritten by the BOJ are redeemed as quickly as possible by the cash raised through the issuance of such bills at public offer.

B. Maturities and Reopening Rule

The JGBs currently issued can be classified into six categories:

1) Short-term (6-month and 1-year),
2) Medium-term (2-year and 5-year),
3) Long-term (10-year),
4) Super long-term (15-year floating rate, 20-year, 30-year, and 40-year),
5) JGBs for retailers investors (5-year and 10-year), and
6) Inflation-indexed bond (10-year).

The short-term JGBs are all discount bonds, which means that they are issued at the price lower than face value. No interest payments are made, but at maturity the principal amounts are redeemed at face value.

All medium-, long-, and super long-term (except for 15-year floating rate) and JGBs for retail investors (5-year) are bonds with fixed-rate coupons. With fixed-rate, coupon-bearing bonds, the interest calculated by the coupon rate as determined at the time of issuance is paid on a semi-annual basis until the security matures and the principal is redeemed at face value.

The coupon rate of 15-year floating rate bonds and JGBs for retail investors (10-year) varies along with the market rate specified under the rules.

The inflation-indexed bond is a security in which the principal amount is linked to the consumer price index (CPI). Thus, although the coupon rate is fixed, the interest payment fluctuates.

In order to increase government bond liquidity, the Ministry of Finance also introduced a new immediate re-opening rule in March 2001. When a new issue has the same coupon rate and principal and interest payment dates as the existing issue, the Ministry merges the new issue into the existing one after the new issue comes into the market. Under the new rule, a re-opened issue will generate accrued interest.

Table 2-4: Types of JGBs

Maturity	Short-term	Medium-term	Long-term	Super long-term
	6-months, 1-year	2-year, 5-year	10-year	15-year floating-rate*1
Type of issue	Discount bonds	Coupon-bearing bonds		
Min. face value unit	10,000,000 yen	50,000 yen	50,000 yen	100,000 yen
Issuance method	Public offering /BOJ switch	Public offering/ OTC sales (making offerings and accepting subscriptions)	Public offering/ OTC sales (making offerings and accepting subscriptions)	Public offering
Auction method	Price-competitive auction/ Conventional-style auction	Price-competitive auction/ Conventional-style auction	Price-competitive auction/ Conventional-style auction	Price-competitive auction/ Conventional-style auction
Non-price Competitive Auction	Non-price Competitive Auction Ⅰ	Non-Competitive Auction/ Non-price Competitive Auction Ⅰ / Non-price Competitive Auction Ⅱ	Non-Competitive Auction/ Non-price Competitive Auction Ⅰ / Non-price Competitive Auction Ⅱ	Non-price Competitive Auction Ⅰ / Non-price Competitive Auction Ⅱ
Transfer	Restricted*2	Not restricted	Not restricted	Not restricted
frequency of issue (FY2009 Apr. Revision)	1-year Treasury Discount Bills: Monthly 6-monthTreasury Discount Bills: Total of 0.9 tri. yen	Monthly each	Monthly	Yearly*4

Maturity	Super-long term			JGBs for retail investors	Inflation-Indexed bonds
	20-year	30-year	40-year	10-year floating rate, 5-year fixed-rate	10-year
Type of issue	Coupon-bearing bonds				
Min. face value unit	50,000 yen	50,000 yen	50,000 yen	10,000 yen	100,000 yen
Issuance method	Public offering	Public offering	Public offering	OTC sales (making offerings and accepting subscriptions)	Public offering
Auction method	Price-competitive auction/ Conventional-style auction	Price-competitive auction/ Conventional-style auction	Yield-competitive auction/ Dutch-style auction	-	Yield-competitive auction/ Dutch-style auction
Non-price Competitive Auction	Non-price Competitive Auction Ⅰ / Non-price Competitive Auction Ⅱ	Non-price Competitive Auction Ⅰ / Non-price Competitive Auction Ⅱ	Non-price Competitive Auction Ⅱ	-	Non-price Competitive Auction Ⅱ
Transfer	Not restricted	Not restricted	Not restricted	Restricted*2	Restricted*2
frequency of issue (FY2009 Apr. Revision)	Monthly	Bimonthly*3	Quarterly*3	All quarterly	Yearly*4

*1 The reference rate for 15-year floating-rate bonds is linked to the interest rate on 10-year fixed-rate bonds (the interest rate on 10-year fixed-rate bonds minus α) and is subject to change every six months, but the spread α is determined on the auction date and remains unchanged to maturity.
*2 Short-term bonds are transferable only to corporations (including certain trustees); JGBs for retail investors are transferable only to retail investors; and Inflation-Indexed bonds are transferable only to qualified corporations.
*3 The June and August issues of and the December and February issues of the 30-year bonds will in principle be reopenings of the April and October issues, respectively.
The July, November and January issues of the 40-year bonds will in principle be reopenings of the May issues.
*4 The Issuance could be called off, taking in the market conditions.

Source: Ministry of Finance of Japan. *Debt Management Report 2009*.

C. Benchmark Issues

In Japan, 10-year bonds are the most liquid bonds. Therefore, the latest issue is regarded as the benchmark.

2.2.1.2 The Primary Market

A. Issuance

Methods of issuing JGBs are basically divided into three: offerings to the market, offerings to retail investors, and offerings to the public sector. JGBs are principally issued in public offerings to the market.

B. JGB Market Special Participants Scheme

In order to promote stable financing and to maintain and improve liquidity in the JGB market, the Ministry introduced the JGB Market Special Participants scheme in 2004. Participants in this scheme are key players in the JGB market and contribute to the planning and operation of JGB management policies with specific responsibilities and entitlements:

1) Responsibilities

- Bidding responsibility. In every auction, Special Participants shall bid for an adequate amount (at least 3% of the planned issue amount) at reasonable prices.
- Purchasing responsibility. The Special Participants shall purchase and underwrite at least a specified share of the planned total issue amount (1% in principle) in each of the super long-, long-, medium-, and short-term zones in auctions for the preceding two quarters.
- Responsibility in the secondary market. The Special Participants shall provide sufficient liquidity to the JGB secondary market.
- Information sharing. The Special Participants shall provide information on JGB markets and related transactions to the Ministry of Finance.

2) Entitlements

- Participation in the meeting of JGB Market Special Participants. The Special Participants can take part in the meeting, held as a rule on a quarterly basis, in order to exchange opinions with the Ministry on debt management policies.
- Participation in buy-back auctions. The Special Participants can take part in buy-back auctions.
- Separation and integration of strips bonds. The Special Participants can apply for the separation and integration of strips bonds.
- Participation in Non-Price Competitive Auctions. The Special Participants can take part in Non-Price Competitive Auction I (held concurrently with normal competitive auctions) and Non-Price Competitive Auction II (held after normal competitive auctions). These auctions enable Special Participants to obtain bonds at the weighed-average accepted price at a competitive price auction, up to a purchasing limit preset for each Special Participant on the basis of past accepted price (Non-Price Competitive Auction I) and past subscriptions (Non-Price Competitive Auction II).
- Participation in Auctions for Enhanced Liquidity. The Special Participants can take part in Auctions for Enhanced Liquidity that are designed to maintain and improve liquidity in the JGB market.
- Preferential participation in interest rate swap transactions. The Special Participants can be preferential counterparties for the interest rate swap transactions implemented by the Ministry of Finance.

2.2.1.3 The Secondary Market

A. Market Structure

The secondary JGB market can be divided into transactions conducted either at exchanges or over-the-counter (OTC). Currently, 2-year, 5-year, 10-year, 20-year, 30-year and 40-year fixed-rate JGBs are listed on the stock exchanges in Tokyo, Osaka, and Nagoya, but the transaction volume is very limited. In Japan, transactions in the OTC market are much more dominant.

While transactions through the exchanges are very small, brokers use a proprietary trading system platform provided by Japan Bond Trading Co., known as “Brokers’ Broker” or “BB,” for their transactions. The system conducts inter-dealer brokerage for bond trading, particularly for JGBs. The system participants are limited to professional securities dealers and bank dealers.

B. Role of Special Participants in the Secondary Market

The JGB Market Special Participants shall provide sufficient liquidity to the JGB, as described in 2.2.1.2.

C. Post-Trading Transparency and Data Dissemination

BB publishes bond prices traded on the trading platform. In particular, the prices of all marketable JGBs as of 3:00 PM are computed as BB’s JGB closing prices and released every trading day. BB provides information of bond prices traded on the BB’s trading platform through information vendors.

In the OTC market, in principle, a price is concluded through a negotiation between the parties concerned. However, in order to ensure fair and smooth OTC bond transactions, the Fair Business Practice Regulations of the Japan Securities Dealers Association (JASDA) require each securities company to maintain the fairness of the transaction by acting at a proper price according to a set of internal rules. Furthermore, to improve the price discovery function of the OTC market, JASDA publishes reference prices for OTC bond transactions on every business day, based on the reports from its member security companies and other financial institutions.

D. Secondary Market Conventions

- Day Count Convention

Actual day is used to calculate accrued interest. Specifically, the “normally actual/365” method is used.

- Settlement Cycle

Most transactions are T+3.

- Price Quotation

The price quoted between brokers is "dirty price," or "full price", which includes accrued interest. Therefore, the reference price published by BB and JASDA is full price. The price that a broker shows to a customer is the "clean price", which includes accrued interest.

- Minimum Transaction Volume

There is no minimum trading volume for OTC transactions.

2.2.1.4. Market Infrastructure for Government Bonds

A. Clearing and Settlement

In Japan, there are three ways to hold government bonds: (i) holding the physical certificate in bearer form; (ii) holding the security via the registration system operated by the BOJ in which JGB holders register their names and addresses, and the security's name and face value; (iii) holding the security via the book-entry transfer system operated by the BOJ in which holders deposit JGBs with financial institutions that re-deposit their customers' JGBs together with their own into their account at the BOJ.

Most JGB transactions are settled through the book-entry system via the BOJ-NET, which is utilized for fund settlements between private financial institutions as well as the settlement of JGBs.

In January 2001, the BOJ-NET fund settlement method was changed from the "designated-time net settlement" method to the "real-time gross settlement (RTGS)" method. At the same time, the fund settlement method for JGB deliveries also shifted to RTGS. Delivery-versus-payment (DVP) was introduced in 1994.

The introduction of RTGS has dramatically increased the number of settlements; hence, the settlement system has incorporated various devices such as fail practice, cut-off times, reversal times, and bilateral netting. In addition, in 2005, the Japan Government Bond Clearing Corporation (JGBCC) was established as the central counterparty in the JGB market. As a result, intraday exposures were reduced significantly.

B. Bond Valuation Agency

As explained at 2.2.1.3, JASDA publishes reference prices for OTC bond transactions on every business day, based on reports from its member security companies and other financial institutions. In addition, BB provides information on bond prices traded on the BB's trading platform through information vendors.

4.2.1.5. Investors

As shown in **Table 2-5**, financial institutions, overseas investors, and the household sector have been increasing their respective shares of the JGB market, while the public sector, including the Fiscal Loan Fund and BOJ, has reduced its share of JGB holdings. The Ministry of Finance has been actively promoting investments by overseas investors and the household sector to diversify the investor base.

Table 2-5: Breakdown of JGB holders

(Unit : trillion, %)

Holders	End of FY2003		End of FY2004		End of FY2005		End of FY2006		End of FY2007		December 2008 (Provisional)	
		Share		Share		Share		Share		Share		Share
General Government (ex Public Pension)	1.4	0.2%	2.0	0.3%	7.3	1.1%	3.5	0.5%	2.5	0.4%	3.0	0.4%
Public Pension	46.8	8.2%	57.6	9.0%	61.5	9.2%	68.2	10.2%	77.8	11.2%	82.2	11.7%
Fiscal Loan Fund	53.5	9.4%	48.8	7.6%	39.4	5.9%	23.9	3.6%	10.9	1.6%	6.8	1.0%
Postal Savings	87.6	15.4%	109.7	17.1%	126.2	18.9%	140.0	20.8%	–	–	–	–
Postal Life Insurance	50.1	8.8%	55.1	8.6%	57.0	8.6%	61.0	9.1%	–	–	–	–
Bank of Japan	83.9	14.7%	92.1	14.3%	86.7	13.0%	71.0	10.6%	63.7	9.2%	58.2	8.3%
Private Financial Institutions	204.9	36.0%	218.7	34.1%	218.1	32.7%	215.8	32.1%	437.9	63.2%	448.6	64.1%
Banks	111.2	19.5%	111.6	17.4%	114.2	17.1%	101.3	15.1%	245.3	35.4%	252.7	36.1%
Life and Nonlife Insurance Companies	46.7	8.2%	54.8	8.5%	58.3	8.7%	61.8	9.2%	128.8	18.6%	133.8	19.1%
Pension Funds	19.9	3.5%	21.3	3.3%	24.0	3.6%	26.2	3.9%	26.7	3.9%	26.9	3.8%
Other Private Financial Institutions (Note1)	27.0	4.7%	31.0	4.8%	21.6	3.2%	26.5	3.9%	37.2	5.4%	35.3	5.0%
Overseas	19.6	3.5%	26.4	4.1%	30.2	4.5%	40.2	6.0%	47.3	6.8%	47.2	6.8%
Households	14.6	2.6%	21.8	3.4%	28.0	4.2%	33.4	5.0%	36.3	5.2%	36.7	5.2%
Others (Note2)	7.0	1.2%	9.6	1.5%	12.3	1.9%	15.0	2.2%	16.1	2.3%	17.0	2.4%
Total	569.5	100.0%	641.9	100.0%	666.7	100.0%	672.0	100.0%	692.4	100.0%	699.6	100.0%

Note 1 : "Other Private Financial Institutions" includes "Securities investment trusts" and "Securities Companies"
Note 2 : "Others"="Nonfinancial corporations"+"Private nonprofit institutions serving households"
Note 3 : From preliminary figures of the end of FY2007, Banks, etc includes Japan Post Bank. Life and Nonlife Insurance includes Japan Post Insurance.
Note 4 : JGBs in this list doesn't include FBs. Refunding bonds include TBs.
Note 5 : The retroactive adjustment of Flow-of-Funds Statistics (BOJ) at Mar.23,2009 is reflected in figures till FY2007.

Source: Ministry of Finance. *Debt Management Report 2009*.

4.2.1.6. Related Markets

A. Repo Market

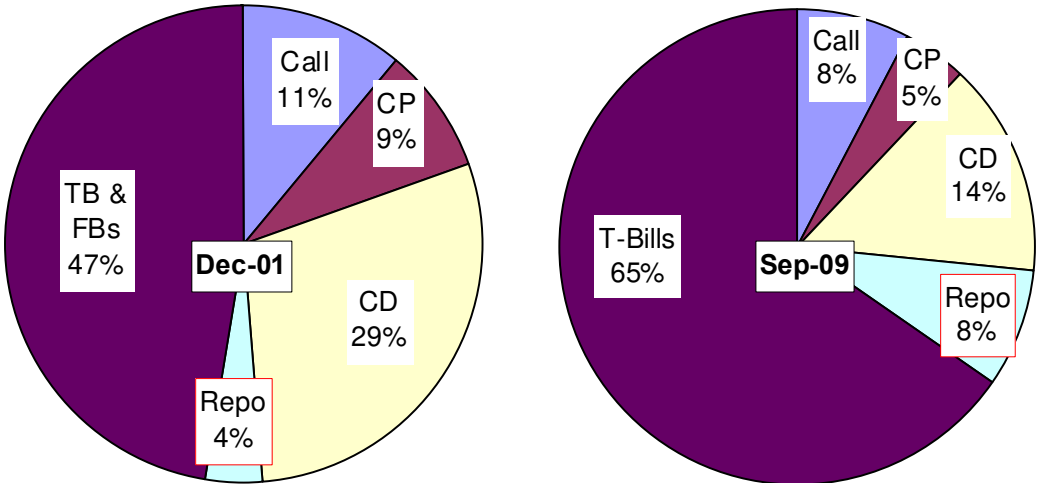
In Japan, the number of repo transactions has grown recently. The history of the repo market is relatively long as *gensaki* (repo) transactions, which are equivalent to US repo transactions, started after the Second World War as the primary market re-opened. However, as *gensaki* transactions were subject to the securities transaction tax levied on sales and purchases of securities, fundraising through the repo was limited.

The change started around 1990. In 1989, to develop the secondary bond market, bond-lending was introduced simultaneously with bond short-selling. Bond-lending is a transaction in which one party lends bonds to the other party and—after a certain period of time—receives bonds of the same type and same amount in return. Therefore, it does not constitute the sale and purchase of securities. Bond-lending was initially restricted to interest-bearing bonds to avoid competition with repurchase transactions. Furthermore, these bonds had to be secured by collateral other than cash (e.g., substitute securities), which made them administratively cumbersome. For these reasons, bond-lending was limited almost exclusively to uncollateralized transactions. However, the credit risk involved in unsecured transactions surfaced as a problem. As a result, the Ministry introduced cash-collateralized bond-lending in 1996. In 1997, the BOJ introduced the repo operation under cash-collateralized bond-lending. As a result, the volume of transactions has grown dramatically.

With abolishment of the securities transaction tax in 1999 and enhancement of credit risk mitigation, a new money market operations using the *gensaki* method was introduced to replace the cash-collateralized repo operation in November 2002.

The size of the repo (*gensaki*) market was JPY18 trillion as of September 2009. The share of the repo market is expected to increase continuously.

Figure 2-5: Share of Short-Term Money Market Instruments



Source: Bank of Japan's *Financial and Economic Statistics Monthly*.

B. Government Bond Futures

In Japan, there are four kinds of futures: 5-year, 10-year, and 20-year JGB futures, and mini 10-year JGB futures, which were introduced in March 2009 to meet the needs of a greater variety of investors and enhance the function of 10-year JGB futures. Among all four types of futures, transactions of 10-year JGB futures are dominant, making them the most liquid.

Table 2-6: Transaction Value of JGB Futures

(JPY trillion)

	Transaction Value	**Open Interest** (end of FY)
FY2003	**693.8**	**9.5**
FY2004	**829.0**	**8.9**
FY2005	**1092.9**	**16.2**
FY2006	**1180.1**	**13.6**
FY2007	**1409.0**	**12.7**
FY2008	**868.1**	**4.1**

Source: Japanese Ministry of Finance's *Debt Management Report 2009*.

Table 2-7: Features of JGB Futures

	5-year JGB Futures	10-year JGB Futures	20-year JGB Futures (*2)	mini 10-year JGB Futures
Date launched	Feb. 16, 1996	Oct. 19, 1985	Jul. 8, 1988	Mar. 23, 2009
Trading hours	9:00 - 11:00 am 12:30 - 3:00 pm 3:30 - 6:00 pm		9:00 - 11:00 am 12:30 - 3:00 pm	9:00 - 11:00 am 12:30 - 3:00 pm 3:30 - 6:00 pm
Final Settlement Method	Delivery of JGBs			Cash Settlement based on Final Settlement Price
Contract	Standardized 3%, 5-year JGB	Standardized 6%, 10-year JGB	Standardized 6%, 20-year JGB	Price of standardized 6%, 10-year JGB
Deliverable grade (*1)	Interest-bearing 5-year JGBs with 4 years or more but less than 5.25 years.	Interest-bearing 10-year JGBs with 7 years or more but less than 11 years.	Interest-bearing 20-year JGBs with 15 years or more but less than 21 years.	-
Contract month	March, June, September, December cycle (three contract months traded at any one time)			
Final Settlement day	20th of each contract month			2nd business day following the last trading day
Last trading day	7th business day prior to each delivery date. Trading for the new contract month begins on the business day following the last trading day.			8th business day prior to each delivery date of the 10-year JGB Futures for the same contract month. Trading for the new contract month begins on the business day following the last trading day of 10-year JGB Futures.
Trading unit	100 million yen face value			Multiply 100 thousand yen by the price of 10-year JGB Futures
Minimum fluctuation	1/100 point per 100 yen face value (10,000 yen per contract)			1/200 point (500 yen per contract)
Daily price limit	± 3.00 points (3 million yen per contract)		± 4.50 points (4.5 million yen per contract)	± 3.00 points (3 million yen per contract)
Circuit Brake	In cases of a 2.00 point change from the previous days' settlement price, trading will be halted for 15 min. (*3)		In cases of a 3.00 point change from the previous days' settlement price, trading will be halted for 15 min. (*3)	The circuit breaker is triggered if a circuit breaker is implemented for JGB Futures of the same contract month (*3)
Payment or Receipt as the result of offsetting	The next business day following the offsetting (T+1)			
Delivery of Bonds	The delivery of issues is at the discretion of the seller of the futures contract.			-
Cancellation Policy	TSE may apply the rules for canceling executed transactions in futures/options only when it deems that the market will be significantly disrupted due to smooth performance of settlement of executed transactions pertaining to the erroneous order being extremely difficult and/or other reasons.			

*1 The deliverable grade has to be issued at least 3 months prior to the delivery months.
*2 TSE has decided to halt trading on new contract months for 20-year JGB Futures beginning with the December 2002 contract.
*3 It's not applied after the last 25 min from the market close.

Source: Japanese Ministry of Finance's *Debt Management Report 2009*.

4.2.1.7. Participation of Foreign Investors in the Government Bond Market

A. Restrictions

The Japanese bond market is completely open to foreign investors.

B. Procedure

No procedure is required for foreigners to invest in Japan.

C. Taxation

Taxation of JGBs varies depending on the type of bonds and bondholder (e.g., resident individual, domestic corporation, domestic financial institution, nonresident individual, and foreign corporation.)

Interest on book-entry transfer of JGBs held by nonresident individuals or foreign corporations is exempt from income tax if the nonresident individual or foreign corporation satisfies certain requirements and deposits the JGBs in a transfer account with a JGB book-entry system participant in Japan or in a transfer account with a qualified foreign intermediary (QFI). The exemption is granted only for the portion of interest that corresponds to the JGB holding period. To apply withholding tax exemption measure for JGB or municipal bonds, non-residents must submit an application form to the district tax office of each issuer through the account management institution in advance.

More specific tax treatment for nonresident and foreign corporation is as follows:

- Coupon-Bearing Bonds

Interest income from coupon-bearing bonds held by nonresident individuals or foreign corporations is generally subject to a 15% withholding tax.

If a tax treaty is signed between Japan and the country where a non-resident resides or a foreign corporation is located, and the tax applicable to interest payments is lower than 15%, then tax will be withheld at the lower rate, subject to certain procedures. Furthermore, interest on book-entry transfer JGBs can be tax free.

- Treasury Discount Bills

Only corporations may hold Treasury discount bills. Therefore, redemption profits arising from these bills held by foreign corporations are not subject to withholding tax at the time of issuance. In addition, foreign corporations without a permanent establishment in Japan are further exempt from corporate tax.

- Strips bonds

Only corporations may hold STRIPS. Therefore, corporations, including foreign corporations, are subject to corporate tax on the income from holding or transfer of strips bonds. However, foreign corporations without a permanent establishment in Japan will be exempt from tax, provided that they hold the strips bonds in transfer accounts with JGB book-entry system participants in Japan or with QFIs.

- Repo (*Gensaki*) Transactions by Foreign Financial Institutions

Foreign financial institutions, foreign central banks, and international organizations are exempt from tax on loan interest from repo transactions if the counterparties are (i) financial institutions and financial instruments firms in Japan that are subject to the provisions of the Act on Collective Liquidation of Specified Transaction Conducted by Financial Institutions or (ii) the BOJ, provided that certain requirements have been met.

2.2.2. Government Bond Markets in Korea

2.2.2.1. Government Bond Instruments

A. Types and Outstanding Amounts

Government bonds in Korea consist of Korea Treasury bonds, Treasury bills, and National Housing bonds. Korea Treasury bonds (KTBs) are typical bonds that the Korean government issues to raise funds for public projects or to redeem outstanding KTBs. Treasury bills are issued to finance temporary shortages in the government's cash flow. There are no Treasury bills currently outstanding. National Housing bonds are issued to finance the National Housing Fund that was established to expand the supply of affordable housing. All National Housing bonds are issued on a compulsory underwriting basis.

Until 1996, the size of Korea's government bond market remained negligible as the issuance of government bonds was limited due to the government's policy priority of maintaining healthy budget balances. During this period, government bonds were issued on a compulsory underwriting basis. However, the need to restructure the ailing financial and corporate sectors of the economy in the aftermath of the 1997/98 Asian financial crisis brought about sizable budget deficits that had to be financed through government bond issuance. Consequently, the size of the government bond market in Korea grew rapidly.

Table 2-8 shows the time trend of the size of bond markets in Korea. The total outstanding amount of government bonds, which stood at KRW82.9 trillion, or 12.7% of GDP, at the end of 2001, nearly quadrupled to a record KRW308.3 trillion, or 30.1% of GDP, as of May 2009. Government bonds mainly comprise KTBs, which accounted for almost 85% of total government bonds outstanding as of May 2009.

Table 2-8: Total Outstanding Amount of Listed Bonds

(KRW billion)

	Public	Government	Corporate	Other	Total
1996	102,419	25,657	73,120	76,763	175,540
1997	138,092	28,554	86,024	109,539	224,117
1998	214,600	41,584	119,435	173,015	334,034
1999	253,298	61,180	111,121	192,118	364,419
2000	296,806	71,237	127,878	225,569	424,684
2001	363,506	82,892	141,224	280,614	504,730
2002	353,768	99,038	210,175	254,730	563,944
2003	402,471	136,927	203,582	265,544	606,053
2004	483,331	178,924	176,428	304,407	659,760
2005	552,110	223,182	168,046	328,928	720,156
2006	592,561	257,891	185,202	334,670	777,763
2007	621,076	274,860	207,454	346,216	828,530
2008	635,697	285,032	228,407	350,665	864,104
2009.5	717,736	308,349	248,128	409,387	965,864

Source: *Securities Monthly,* Financial Supervisory Commission of Korea.

B. Maturities, Coupon Payments and Fungibility

KTBs are issued with a range of maturities covering 3, 5, 7, 10, and 20 years.[7] In addition, inflation-indexed KTBs with a 10-year maturity have been issued since 2007. Except for inflation-indexed KTBs, all KTBs are fixed-rate coupon bonds paying interests every 6 months. Inflation-indexed KTBs pay interests that are adjusted based on the CPI inflation rate. The minimum face value for all government bonds is set at KRW10,000.

All KTBs are issued as fungible issues. The re-opening system for fungible issues was introduced in order to increase liquidity in the secondary market for KTBs. Fungible KTBs are issued by unifying the issuing date and the coupon rate at intervals of 6 months and 1 year. **Table 2-9** shows the current schedule of the re-opening system. All government bonds issued are registered at the Korea Securities Depository (KSD) and listed on the Korea Exchange.

Table 2-9: Reopening System

Maturity	Period		Issuing Date
3-year	6 Months	/ June-November, December-May	June 10, Dec. 10
5-year	6 Months	/ March-August, September-February	March 10, Sept. 10
10-year	1 Year	/ June-May	June.10
20-year	1 Year	/ December-November	Dec.10

Note: Starting from 2009, the issuing months for 10- and 20-year KTBs have been changed from September to June and from March to December, respectively.
Source: *A Guide to the Bond Markets in Korea,* Korea Exchange, 2005.

Table 2-10: Types of KTBs

Maturity	Medium-term	Long-term	Super-long-term	Inflation-indexed Bonds
	3-and 5-years	7-and 10-years	20-years	10-years
Type of issue	Coupon bond Fixed rate	Coupon bond Fixed rate	Coupon bond Fixed rate	Coupon bond Inflation indexed
Minimum Face value unit	10,000 KRW	10,000 KRW	10,000 KRW	10,000 KRW
Issuance Method	Auction	Auction	Auction	Auction Underwriting
Auction Method	Dutch	Dutch	Dutch	Dutch
Registered or Bearer Form	Registered	Registered	Registered	Registered

Source: *A Guide to the Bond Markets in Korea,* Korea Exchange, 2005.

C. Benchmark Issues

Currently, bond market participants use the on-the-run issue of the 3-year KTB as the benchmark issue. However, the government is making efforts to lengthen the maturity of the benchmark issue to 5 years.

[7]There are no 7-year KTBs currently outstanding.

2.2.2.2. The Primary Market

A. Issuance

In principle, KTBs are issued through a Dutch auction system. However, when new types of bonds are first issued (e.g., inflation-indexed KTBs and 20-year KTBs), an underwriting system is used as well. All the operational tasks related to issuance, redemption, and interest payment of KTBs are administered by the Bank of Korea (BOK). The KTB auction is performed through the electronic bidding system operated by the BOK-Wire. Only primary dealers are allowed to participate directly in the bidding for KTBs in the primary market.

B. The KTB Primary Dealer System

The KTB Primary Dealer System was first introduced in 1999. Primary dealers (PDs) are elected by the Minister of Strategy and Finance each year. As of the end of May 2009, there were 19 PDs (12 securities firms, and 7 banks) with exclusive privileges to participate in the auction for KTBs or in the syndicate to underwrite KTBs in the primary market. Because of this, PDs are required to fulfill the following obligations, including market making in the secondary market:

1) Obligations in the Primary Market

- PDs are required to underwrite at least 6% of the total issuing amount of each benchmark issue. One hundred percent of the self-underwriting and 50% of the customer account underwriting is counted as the underwriting volume of a primary dealer.

2) Obligations in the Secondary Market

- PDs are required to place and keep bid and ask quotations in the Korea Exchange (KRX) government bond market for at least two thirds of each day's trading hours and 60% of the total trading days in a year.
- PDs are required to make at least 50% of their total transactions of government bonds in the KRX government bond market.
- PDs were previously been required to make all of their transactions of benchmark issues of government bonds in the KRX government bond market. This obligation, however, was eliminated in July 2008.

2.2.2.3. The Secondary Market and Price Discovery System

A. Market Structure

The secondary market for government bonds in Korea consists of two markets: the OTC market and the KRX government bond market. The OTC market refers to a market where transactions are made through bilateral negotiations using telephones or computers. Trading in the OTC market is conducted mainly through securities firms and inter-dealer brokers (IDBs). Securities firms with sell or buy orders from customers execute the orders by locating the counter-side orders. Traders seek and exchange information using the internet messenger or over the telephone. If both sides of traders agree on the trading details, the trading parties concerned confirm the trading over the telephone. In order to facilitate trading

in the OTC market, the inter-dealer broker system has been introduced in 2000. There are two licensed inter-dealer brokers currently in operation: Korea Money Broker and Korea Inter-Dealer Broker. The volume of trading through inter-dealer brokers, however, is all but negligible.

The KRX government bond market is an organized exchange operated by KRX. The KRX market was initially set up exclusively as an inter-dealer market for trading among government bond dealers. Later, brokered trading through securities companies was also allowed. All government bond dealers including the primary dealers are allowed to participate in the KRX market. The KRX government bond market is based on an electronic trading system—the KRX Bond Trading System (KTS). It is a competitive bidding system in which trades are executed by centrally matching the bid and ask orders placed by eligible participants. Thus, the KRX market is an order-driven market. Bonds eligible for trading in the KRX market include KTBs, monetary stabilization bonds (MSB) issued by the BOK, and deposit insurance fund bonds (DIFB) issued by the Korea Deposit Insurance Corporation. The minimum transaction volume in the KRX market is KRW1 billion (approximately USD850,000).

In addition to the government bond market, the KRX operates the KRX ordinary bond market, where convertible corporate bonds, bond warrants, and government bonds (in small amounts) are traded through the electronic trading system. Unlike the government bond market, the participation of individual investors is also allowed.

Table 2-11: Comparison of the KRX and OTC Markets

Class	KTS	OTC
Trading Form	The KRX trading system executes trading between Primary Dealers and financial institutions	Securities firms receive customer orders and act as broker/dealers
Bonds eligible for trading	Among the listed bonds - KTBs - Monetary Stabilization Bonds - Deposit Insurance Fund Bonds	All listed and non-listed bonds
Trading method	Competitive cross-matching (automatic trading system)	Negotiated trades (messenger, phone trades)
Trading time	09:00–15:00	No restriction, but normally during 08:30 ~ 15:30
Trading place	KRX bond market	Bond trading of operations department in Securities firm
Quotation method	Price quotations (with yield)	Yield quotations (with price)
Trading unit	Par value 1 billon won	No limit (usually 10 billion won between institutions)

KTS = KRX Bond Trading System, KRX = Korea Exchange, OTC = over-the-counter.
Source: *A Guide to the Bond Markets in Korea,* Korea Exchange, 2005.

Table 2-12: Trading Volume of KTBs
(KRW trillion)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008
KRX (share,%)	21.6 (7.9)	10.1 (2.2)	42.6 (11.0)	207.9 (31.4)	358.4 (33.5)	337.7 (31.6)	267.4 (28.2)	316.6 (35.7)	321.1 (34.7)
OTC	251.3	443.1	343.2	453.9	707.8	729.3	660.1	570.5	603.0
Total	272.9	453.2	385.8	661.8	1,066.2	1,067.0	927.5	887.1	924.1

KRX = Korea Exchange, OTC = over-the-counter.
Source: *Securities Monthly,* Financial Supervisory Commission of Korea.

Table 2-12 shows the annual trading volume of KTBs in the OTC and KRX markets. As can be seen, most of the secondary market transactions used to be conducted through the OTC market. However, the share of the KRX government bond market has grown rapidly since 2002 when market-making obligations were imposed on KTB primary dealers. Currently, about two thirds of all KTB secondary market transactions are conducted through the OTC market.

B. The Role of Primary Dealers in the Secondary Market

Primary dealers are required to perform certain market-making obligations in the OTC market as well as in the KRX market. The obligations of PDs in the KRX government bond market were described above. In addition to these obligations, the trading volume of each PD's KTBs in both the OTC and the KRX markets should exceed 5% of the total secondary market trading volume of all KTBs.

C. Post-Trading Transparency and Data Dissemination

1) Reporting Duties of the Dealers

In order to facilitate price discovery and enhance post-trading transparency in the OTC market, the Korean government introduced the Bond Trade Report and Information System in 2000. Under this system, licensed bond dealers are required to report the specifics of each transaction to the Korea Financial Investment Association (KOFIA) through computer terminals within 15 minutes after the transaction has been conducted. KOFIA is then required to post the trading details. Since the regulation allows exceptions to the 15-minute reporting requirement, however, a number of transactions in the OTC market are reported after 3:00 PM even if the transactions were conducted between 9:00 AM and 3:00 PM.

2) Collection and Reporting of the Transactions Data

The transactions data, including the price and the trading volume in the KRX government bond market, are available on a real time basis to eligible participants. For transactions in the OTC market, KOFIA collects trading data reported by licensed bond dealers and reports them on the website on a real time basis. The trading data are also provided to various data vendors.

D. Secondary Market Conventions

- Day Count Convention

Actual number of elapsed days (Actual/Actual) is used to calculate the amount of accrued interest.

- Settlement Cycle

The settlement cycle in the KRX market is set to be T+1, with an exception of T+2 when the settlement day coincides with the reserve maintenance closing day. There is no rule for the settlement cycle in the OTC market. However, by market convention, transactions are settled on T+1.

- Price Quotation

The KRX Government Bond Market uses price quotation. The price quotes are made in units of KRX1 for the face value of KRW10,000. All price quotes are "dirty price".[8] In the OTC market, prices are quoted in terms of yields-to-maturity, which are quoted in decimal points rather than fractions.

- Minimum Transaction Volume

There is no regulation about the minimum trading volume in the OTC market. Major market participants, however, use KRW10 billion (approximately USD8.5 million) as the minimum trading unit. The minimum trading volume in the KRX government bond market is KRW1 billion.

2.2.2.4. Market Infrastructure for Government Bonds

A. Clearing and Settlement

The Securities and Exchange Act is the basic law governing bond issuance, trading, clearance, settlement and access to systems and risk control arrangements. Practical operation of the Act is delegated to self-regulatory organizations and settlements system operators, such as KRX through its Stock Market Division, KOFIA, and KSD. Under the Act, KSD is given the sole right of settling securities on a book-entry transfer basis.

Transactions of bonds through the OTC market are settled by the KSD either on a delivery-versus-payment or on a free-of-payment delivery basis. The delivery-versus-payment system functions on a direct link between the securities settlement system of the KSD and the BOK-Wire. This allows real time and simultaneous settlement on a gross trade-by-trade basis. Under the free-of-payment delivery scheme, the securities leg is settled through the KSD book-entry and the cash leg through the BOK or commercial banks. The structure of the bond clearing and settlement system in Korea is provided in **Table 2-13**.

The KSD plays a major role in the clearing and settlement of bond transactions. The KSD's major services include centralized deposit of securities, book-entry transfer, cross-border clearing and settlement, and custody. Bond trades in the KRX market are cleared by the KRX on the multilateral netting basis. In this process, the KRX acts as the central counterparty, with bond trades settled by the KSD on the delivery-versus-payment basis.

[8] "Dirty price" includes accrued interest while "clean price" does not.

Table 2-13: Clearing and Settlement System

Market	KTS	OTC
Settlement Method	- T+1 (one day after the trade) - T+2 (if the trading day is the reserve maintenance closing day) - Multi-netting and centralized settlement method	- Within 30 days (usually on T+1) - Settled by total amount per trade
Settlement System	- In the case of the buyer, cash transfer precedes the delivery of bonds - In the case of the seller, bond delivery precedes cash transfer - The exchange acts as the central counterparty	- Delivery-versus-payment between trading parties - Trading among trading parties

B. Bond Valuation Agency

Just like stock prices, bond prices change every day. Accordingly, collective investment schemes and financial institutions that evaluate their assets on a mark-to-market basis need to calculate the values of the bonds they hold. When available, the market price can be used as the value of a bond. When the market price is not available, however, a fair value has to be calculated. In order to ensure transparency and credibility in the operation of collective investment schemes, and to improve the asset quality of financial institutions, the Korean government introduced a bond valuation (pricing) system in November 1998. Under the system, collective investment schemes and financial institutions must use the values of securities calculated by the licensed bond valuation agencies. Currently, three licensed private bond valuation agencies are in operation providing pricing information for about 15,000 bonds and equity-linked securities.

2.2.2.5. Investors

Table 2-14 shows the profile of KTB investors as of end-2008. While the holdings of banks and asset management firms have decreased over time, those of long-term investors (e.g., pension funds and insurance firms) have increased. Currently, banks and pension funds are the largest investors in KTBs with a combined share of 72.4% of all KTBs outstanding. Insurance companies and securities firms are the next largest investors.

The share of foreigners in domestic bond holdings grew only marginally from 0.29% in 1998 to 0.59% in 2006. Starting from 2007, however, foreign investment in domestic bonds grew rapidly. In 2007 alone, the amount of foreigners' domestic bond holdings rose almost eightfold to approximately KRW37 trillion. As a result, the share of foreigners' holdings at the end of 2007 jumped to 4.44%. The sudden increase in domestic bond investment by foreigners can be explained by the arbitrage opportunities created by the sharp increase in dollar supply in the forward exchange market in Korea.

Compared to foreign participation in the domestic stock market, foreign participation in the domestic bond market still remains weak. As of the end of April 2009, the share of foreign holdings of domestic bonds stood at 3.85%, while that of domestic stocks stood at 28.0%.

Table 2-14: Breakdown of KTB Investors

Year	Banks	Pension Funds	Insurance	Securities Firms	Asset Management	Others
1999	50.8%	10.1%	1.1%	6.4%	27.9%	3.7%
2000	53.7%	6.5%	2.9%	6.1%	27.6%	3.3%
2001	50.7%	8.3%	7.0%	6.7%	24.1%	3.2%
2002	43.8%	19.0%	14.3%	5.9%	14.8%	2.2%
2003	36.3%	25.6%	15.4%	6.6%	14.2%	1.9%
2004	31.3%	30.0%	14.3%	5.9%	16.4%	2.1%
2005	33.0%	33.4%	15.5%	6.3%	10.3%	1.6%
2006	36.5%	31.1%	16.5%	5.6%	9.0%	1.3%
2007	45.9%	26.9%	16.2%	5.2%	4.7%	1.1%
2008	43.4%	29.0%	15.5%	7.2%	3.7%	1.3%

KTB = Korean Treasury bonds.
Source: *Securities Monthly,* Financial Supervisory Commission of Korea.

2.2.2.6. Related Markets

A. Repo Market

Repo refers to the sale (or purchase) of bonds with a commitment to repurchase (or resell) them at a specific future date. Repo transactions in Korea comprise retail repo (transaction between retail investors and financial institutions) and inter-institution repo. Inter-institution repos can be traded over-the-counter. In order to facilitate repo transactions among institutional investors, the KRX established a repo market based in February 2002 on an electronic trading platform.

The size of the domestic repo market is about KRW62.4 trillion as of the end of April 2009 with the retail repo taking up 98% of total transactions. The main reason why the inter-institution repo market is not very active is the wide use of the call market—the interbank loan market in Korea. Unlike the US and other countries where only qualified institutions such as commercial banks are allowed to participate in the federal funds market, a wide variety of institutions—commercial banks, brokerage firms, insurance companies, and some government enterprises—are allowed to participate in the call market in Korea. As a result, the institutions that have access to the call market do not need to find it necessary to use the repo market.

B. KTB Futures Market

The KTB futures market was launched in the KRX in 1999 to provide investors with the tools of risk management against the volatility of market interest rates. Currently, three kinds of KTB futures—3-year, 5-year, and 10-year—and MSB interest rate futures are listed on the KRX. Only those financial companies that have obtained a license to engage in the financial investment business for exchange-traded derivatives in accordance with the Capital Market Act can participate in the KTB futures market. Other financial institutions, nonfinancial firms, and individuals can participate in the KTB futures market by consigning their trading to member firms. The member firms serve their clients in a fiduciary capacity by placing orders for the customers. Investors in KTB futures are subject to various margin

requirements including the prior margin, net risk margin, and the maintenance margin. Margins can be paid with the Korean won, substitute securities, or foreign currencies.

Table 2-15 shows trends in the trading activities of KTB futures in terms of the annual trading value. The trading of 3-year KTB futures dominates trading in the KTB futures market as the 3-year KTB plays the role of the benchmark issue in the KTB cash market.

Table 2-15: KTB Futures Trading Value
(KRW billion)

	3 Year-KTB	5 Year-KTB	10 Year-KTB	Total
2001	981,176	-	-	981,176
2002	1,342,955	-	-	1,342,955
2003	1,124,052	19,497	-	1,143,550
2004	813,023	7	-	813,030
2005	1,234,152	66	-	1,234,218
2006	1,122,370	375	-	1,122,745
2007	1,455,094	11	-	1,455,105
2008	1,702,638	-	454	1,703,092
2009	1,655,906	-	-	1,655,906

KTB = Korean Treasury bonds.
Note: Year 2009 value covers from January to September.

Source: Korea Exchange homepage

2.2.2.7. Participation of Foreign Investors in the Government Bond Market

A. Restrictions

In principle, foreign investors have been able to freely invest in Korean domestic bonds since 1998. The acquisition of Korean won to purchase domestic bonds, conversion of the won into foreign currencies, and repatriation of the interest and the principal are allowed. However, the funding of the Korean won by foreigners through borrowing, repo, or security lending is subject to the ceiling of KRW30 billion to prevent speculative attack on the won.

To make investments, foreign investors are required to have a foreign investor identification number and their own account at designated financial institutions to settle transactions. In addition, OTC transactions of listed bonds between foreigners are prohibited. As a result, foreign investors must trade listed bonds with Korean brokers as an OTC counterpart.

In 2007, however, the Korean government decided to allow omnibus accounts of Euroclear and Clearstream at the KSD for Korean government bond and MSB transactions. This enabled foreign investors to trade through the omnibus accounts without needing a foreign investor identification number or their own accounts. Also, it allows direct OTC transactions among themselves.

B. Procedure

By the Korean financial supervisory regulation, foreigners who want to invest in listed securities in Korea must register with the Financial Supervisory Service, obtain a foreign investor identification number, and open individual bank accounts with the identification number they acquired. Since foreign investors in general reside outside of Korea, they usually have to appoint a representative agent to process foreign investor registration and open bank accounts. It usually takes 3–4 days to complete the registration process.

C. Taxation

Korea withholds tax on interest income as a rule. Including the inhabitant tax surcharge, the withholding tax rate currently is set at 15.4%. Beginning in January 2009, however, Korea exempted qualified non-resident investors from withholding tax on interest income earned from all government bonds and MSBs. In order to qualify for the withholding tax exemption, non-residents should hold Korean domestic bonds through local custodians that have acquired qualified financial Intermediary (QFI) status. This restriction was introduced to prevent domestic residents from evading interest income tax by posing as a non-resident. In order to qualify as a QFI, a financial institution is required to assess the customer adequacy of non-resident investors for tax exemption and keep track of the bond transaction and holding records of non-resident investors so that they can report to Korea's National Tax Service when demanded.

Withholding tax is also charged on capital gains. Sales of fixed income securities between a non-resident and a resident are subject to a capital gains tax. For such trades a capital gains tax is levied regardless of whether the bond is traded on the exchange or over-the-counter. Sales of fixed income securities between two non-residents are exempt from the capital gains tax. For exchange transactions, non-resident investors are exempt from capital gains tax on listed securities, regardless of the period of time they have held the security.

For transactions executed on the OTC market, non-resident investors are taxed at 11% (or the treaty rate) of the sale proceeds or 22% of the capital gains, net of transaction charges, whichever is lower. These rates include the 10% inhabitant's tax surcharge. Thus, the effective rate of capital gains tax is between 11% and 22%. Whenever a bond transaction is made, the selling party broker needs to calculate and withhold the CGT. The tax deduction is included in the net price of the transaction.

Korea operates a "pro-rata temporis" system. The amount of tax (both interest and capital gains) will depend on the time period the seller has held the bond.

The rates of withholding tax (on interest and capital gains) may be reduced under applicable double taxation agreements, provided that appropriate documentation is submitted. Certain double taxation agreements may also eliminate the 10% inhabitant's tax surcharge. The tax domicile of the investor is established during the investor registration process. Double tax treaties are in place with 70 countries. There is no officially recognized tax reclaim procedure. Taxes can be reclaimed on a case-by-case basis, although the reclaim is not always guaranteed.

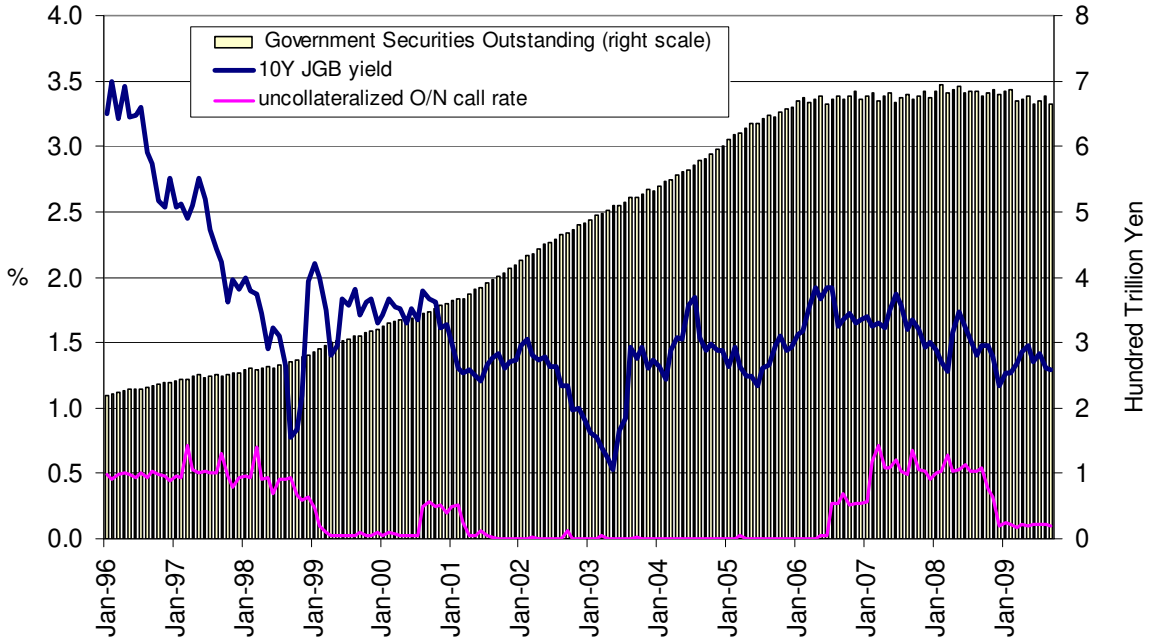
In addition to income and capital gains taxes, a 0.3% securities transaction tax is applied to sales on KRX and a 0.5% securities transaction tax is applied to OTC sales.

2.3. Lessons from Japan and the Republic of Korea (Korea)

2.3.1. Lessons from Japan: Improved Dialogue and Communication with Market Participants

The amount of Japanese government bonds (JGBs) outstanding is more than JPY650 trillion in 2009. According to the Organisation for Economic Co-operation and Development (OECD), Japan's central government debt amounted to 162.9% of gross domestic product (GDP) in 2007, which is the highest among all OECD countries.[9] The Japanese government accelerated its accumulation of debt beginning in the mid-1990s through the early 2000s. Over the period 1996–2006, the outstanding amount of government bonds tripled. In spite of the significant increase in bond issuance, the yields for JGBs have remained very low. This development is a reflection of weaknesses in the Japanese economy. In addition, there have been various commitments by the Ministry of Finance to facilitate bond issuance and improve investor relations, particularly by increasing communication on market developments and policy implementation through institutionalized forums with the private sector. Of course, emerging Asian bond markets are still small and the region's levels of public debt are not a major concern. However, it is still worth looking at the Japanese experience of how authorities can utilize communication channels with the private sector to improve and develop a bond market.

Figure 2-6: Outstanding JGBs and Yields



JGBs = Japanese government bonds.
Source: Bank of Japan

The Japanese economy has shown only modest growth since the bursting of the asset bubble in the early 1990s. The 10-year JGB benchmark yield fell below 2.0% and remained at very low levels for the last 10 years. Two subsequent events pushed the

[9] OECD StatExtracts. http://stats.oecd.org/Index.aspx?datasetcode=GOV_DEBT

Ministry of Finance establish much closer communication with market participants: the “Trust Fund Bureau Shock” in December 1998 and the "VaR shock" in 2003.

The Trust Fund Bureau Shock occurred in late 1998 and early 1999. The benchmark yield, which bottomed at 0.6% in September 1998, rose to over 2.0% in February 1999. The rise was especially sharp in December 1998 due to speculation that the Ministry of Finance would stop buying government bonds (through the Ministry’s Trust Fund Bureau) to finance a fiscal stimulus package worth JPY23.9 trillion.[10] The reversal of the market was a demonstration of investor concern over the government’s policy and the lack of communication surrounding it. After the shock, the Ministry established two regular meetings—the JGB market meeting in 2000 and the meeting of JGB investors in 2002—to improve the JGB market, ensure stable and smooth financing, and provide follow-up to market trends and needs.

Table 2-16: Milestones to Enhance Dialogue with Market Participants

Mar 2000	First issue of the Ministry of Finance’s quarterly newsletter for investors, *Japanese Government Bond Quarterly*
Sep 2000	Meeting on JGB market started
Apr 2002	Meeting of JGB investors started
Dec 2003	New debt management policy-related measures released
Jul 2004	The first issue of *Debt Management Report*
Oct 2004	Formal introduction of the JGB Market Special Participant Scheme
Nov 2004	The first meeting of the Advisory Council on Government Debt Management
Jan 2005	First investor relations seminar for overseas investors in New York and London
Jun 2007	Meeting of JGB top retailers started

Source: Ministry of Finance of Japan.[11]

The Value-at-Risk (VaR) shock occurred in 2003 when financial institutions increased their long positions of JGBs and extended their duration through June 2003 at a time when JGB yields were low. However, as the view on global disinflation was revised and US yields rose, many financial institutions that had adopted the VaR method judged that their unrealized losses exceeded their risk limits and started to reduce their positions in JGB markets. This resulted in a sharp rise in 10-year JGB yields from 0.4% to 1.5% between June and August 2003.[12]

The response from the Ministry was relatively quick compared to the previous shock. In December 2003, the Ministry announced new debt management policy-related measures to provide an outline of needed reforms. The proposed measures included the introduction of a JGB Market Special Participant Scheme,[13] which is a kind of primary dealer system;

[10] Y. Shigemi, S. Kato, Y. Soejima, and T. Shimizu. 2001. Market Participants' Behavior and Pricing Mechanisms in the JGB Markets- Analysis of Market Developments from the End of 1998 to 1999-. *BOJ Financial Markets Department Working Paper.* 01-E-1. Tokyo: Bank of Japan. P.2

[11] Ministry of Finance of Japan. *Sengo no Kokusai Kanri Seisaku no Suii* (Transformation of debt management since the War). http://www.mof.go.jp/jouhou/kokusai/policy/history.htm

[12] Bank of Japan. 2008. *Financial Markets Report.* September 2008.Tokyo: Bank of Japan. p56.

[13] In Japan, a syndicate underwriting system, which guaranteed the issuance of the entire planned issue amount under certain contract, served as a framework for stable issuance since 1965 until March 2005.

measures to increase liquidity; changes in organizational structure of the debt management office; and enhancement of disclosure and investor relations. A report produced by the Study Group for Public Debt Management Policy in November 2003 also stressed the importance of accountability and enhanced dialogue with market participants.[14]

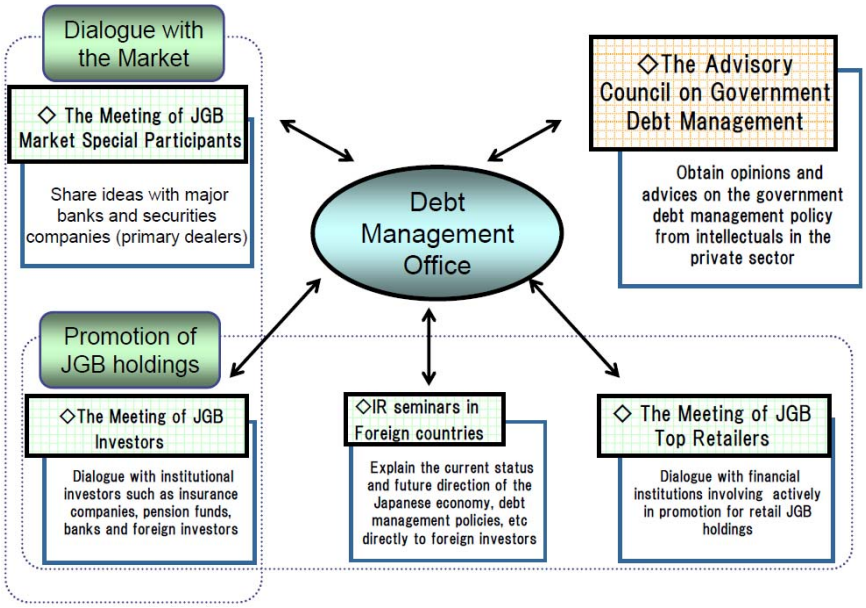
In subsequent years, a number of additional measures were introduced. In July 2004, the first Debt Management Report was issued; a new post of Deputy Director-General for Government Bonds was created; and two new divisions, the Government Debt Planning Division and the Government Debt Operations Division, were established under the Financial Bureau to reinforce debt planning capabilities. In addition, a Special Officer for Market Analysis was recruited from the private sector to provide more sophisticated sovereign debt management and market analysis. In October 2004, the JGB Market Special Participant Scheme was formally introduced. In November, an Advisory Council on Government Debt Management comprising market experts and academics was established to provide high-level insight into the JGB market and public debt management with a medium- to long-term perspective. In January 2005, the first investor relations seminars for overseas investors were held in New York and London.

The Ministry continued to improve its debt management practices by focusing on three main areas: (i) improvement of infrastructure, (ii) diversification of products, and (iii) better investor relations and increased dialogue with market participants. In 2007, the meeting of JGB top retailers was established to promote more individual investors holding JGBs by facilitating communication between top-selling agencies and the Ministry on increasing JGB sales to retail investors.

The Advisory Council and the various regular meetings are considered to be effective channels of communication for market participants to contribute their viewpoints into policy discussions with the Ministry. The JGB market meeting was held four times in 2000, ten times in 2001, nine times in 2002, eight times in 2003, and four times in 2004. This meeting was subsequently replaced by the meeting of JGB market special participants, which is held 5–7 per year. The meeting of JGB investors has been held 3 – 4 times per year since April 2002. The meeting of JGB top retailers has been held twice a year since 2007. The Advisory Council meets 3–4 times per year for a total of 21 meetings since its establishment in November 20004. The Ministry considers frequent communication at various levels as necessary to gain market confidence and credibility.

[14] Ministry of finance of Japan, Study Group for Public Debt Management Policy. 2003. *Study Group Report*. http://www.mof.go.jp/singikai/saimukanri/top.htm.

Figure 2-7: Dialogue with the Markets



Source: Ministry of Finance of Japan.[15]

Discussions taking place at these various meetings and among the Advisory Council are very open. Minutes of the meeting are released in both Japanese and English so that market participants can understand what is being considered. This ensures both accountability and transparency. The Ministry is also committed to timely information disclosure in both Japanese and English.

Table 2-17: Publications at the Website

Main Publications on JGBs	Frequency	Availability in English
Auction announcements and results	Each auction	Real-time both in Japanese and English
Auction calendar	Monthly	
Outstanding Government bonds and Borrowing	Quarterly	
Newsletter		
Debt Management Report	Yearly	ASAP, with delay due to English translation
Minutes of the Meetings and the Council	Each meeting	

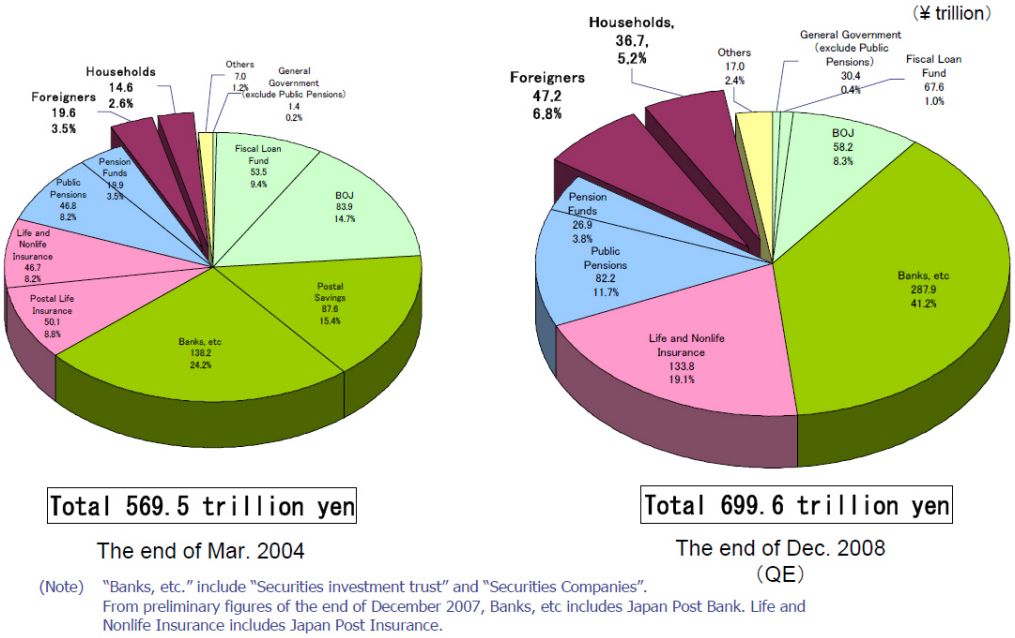
JGB = Japanese government bonds.
Source: Ministry of Finance of Japan.

The respective shares of foreign investors and the household sector in the JGB market are increasing, although these levels are still less than foreign investor and household sector shares in the US Treasury and German Bund markets. Although market opinions may not always reflect market information and the process of cooperation between market and the public sector may involve trial and error, close communication and

[15] Ministry of Finance of Japan. 2009. JGB-IR presentation in Scandinavian Tour 2009. http://www.mof.go.jp/english/bonds/presentation.htm

cooperation with market players is indispensable. It is useful to institutionalize the process of communication so both the government and market participants share responsibility and act in a coordinated manner with respect to market developments.

Figure 2-8: Ownership Structure of JGBs



(Note) "Banks, etc." include "Securities investment trust" and "Securities Companies".
From preliminary figures of the end of December 2007, Banks, etc includes Japan Post Bank. Life and Nonlife Insurance includes Japan Post Insurance.

Source: Ministry of Finance of Japan.

2.3.2. Lessons from Korea

2.3.2.1. Growth of the Government Bond Market in Korea

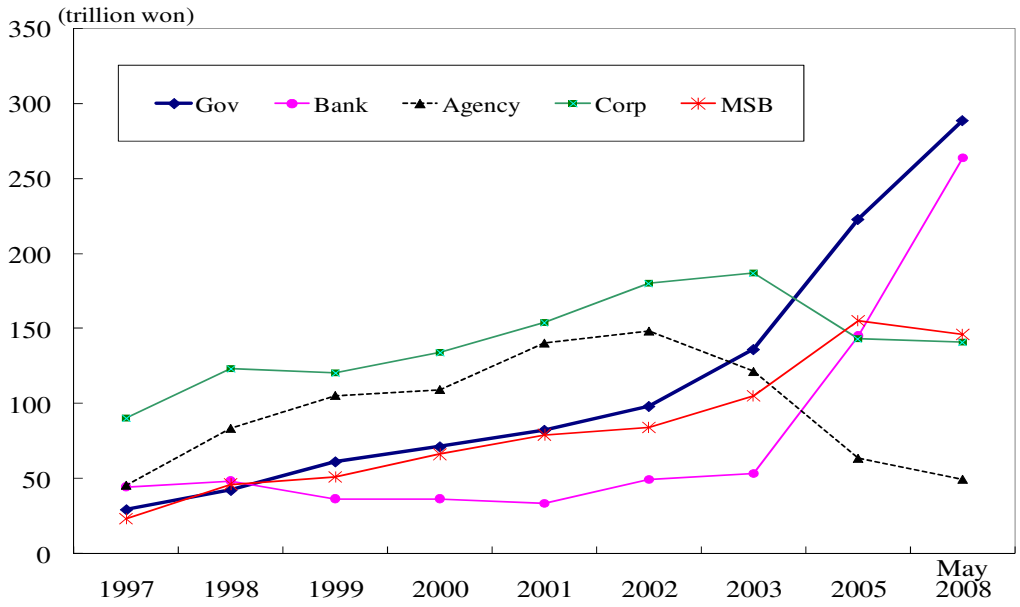
Before the 1997/98 Asian financial crisis, the government bond market in the Republic of Korea (Korea) was small and underdeveloped. Because of an emphasis on fiscal soundness, the volume of government bond issuances fell far short of the amount necessary for an active secondary market to develop. The old regime of compulsory underwriting, under which government bonds were issued at yields-to-maturity that were lower than the market interest rate, also worked as an obstacle to the development of an active secondary market.

After the 1997/98 Asian financial crisis, however, the issuance of government bonds increased dramatically to finance public funds required for post-crisis financial and corporate sector restructuring, and to boost economic recovery. As **Figure 2-9** shows, the outstanding amount of government bonds,[16] which stood at KRW29 trillion at the end of 1997, had increased almost tenfold to KRW289 trillion as of May 2008. Prior to the 1997/98 financial crisis, the size of the government bond market was much smaller than that of the corporate

[16] Although 21 kinds of government bonds have been issued since 1949, only 3 are currently being issued, including Korea Treasury bonds, Korea Treasury bills, and National Housing Bonds. The Foreign Exchange Stabilization Fund bond was consolidated into the Korea Treasury bond in November 2003.

bond market, with the outstanding volume of government bonds amounting to approximately one third that of corporate bonds. After the crisis, however, the outstanding amount of government bonds grew continuously and surpassed that of corporate bonds in 2003. Today, the outstanding volume of government bonds is almost double the volume of corporate bonds.

Figure 2-9: Trends in the Outstanding Volume of Bonds by Type in Korea



Source: Bank of Korea.

Alongside its quantitative growth, the qualitative aspect of the government bond market also improved significantly through a series of institutional reforms and infrastructure build-up. The efforts to develop the government bond market have been driven by the imperative to reduce the cost of issuing and servicing government bonds whose amount has grown dramatically. **Table 2-18** summarizes major policy measures implemented by the government in an attempt to develop efficient and liquid government bond markets in Korea.

Table 2-18: Policy Measures to Develop the Government Bond Market in Korea

Time	Policy Measure
August 1998	Announcement of the Government Bond Market Stimulus Plan
March 1999	Establishment of the inter-dealer market (IDM)
July 1999	Enactment of the primary dealer system
September 1999	Introduction of government bond futures
November 1999	Introduction of the delivery-versus-payment (DVP) system
February 2000	Introduction of inter-dealer brokers (IDB)
March 2000	Securities financing facilities for primary dealers
May 2000	Introduction of the reopening system (fungible issues)
August 2000	Switch from multiple price auction to Dutch auction
October 2002	Introduction of exchange trading requirements for benchmark issues
January 2003	Strengthening obligations of primary dealers
January 2006	Introduction of Korean Treasury bond strips bond and 20-year government bonds
January 2007	Introduction of inflation indexed government bonds

Source: Bank of Korea

2.3.2.2. Introduction of the Korea Exchange Government Bond Market to Enhance Liquidity

To develop the secondary market for government bonds, the Korean government took a unique strategy of introducing a centralized exchange market in addition to the over-the-counter (OTC) market. The Korea Exchange (KRX) Government Bond Market, which was established in 1999, adopted an electronic trading platform named the KTS(Korea Trading System) in which trades take place through competitive cross matching of price orders. The KRX Government Bond Market was initially set up exclusively for trading among government bond dealers. Later, brokered trading through securities companies was also allowed.

In general, secondary markets for bonds have developed in the form of an OTC market rather than an organized exchange. In the OTC market, investors seeking to trade bonds search for the best price quote by making calls to several dealers and then make a deal through bilateral negotiation with the dealer who offers the best price. The inefficiencies and opaqueness that arise from the typical search process in the OTC market have led to the recent trend in developed markets of bond transactions that are increasingly being executed through electronic trading systems. A successful case of the electronic trading platform for bond trading can be found in the Mercato dei Titoli di Stato (MTS) system of individual European countries and the EuroMTS. Electronic trading systems can enhance efficiency of secondary bond markets by reducing transaction costs and making the trading process transparent. For instance, Christodoulopoulos and Grigoratou (2005) argue that the HDAT, which is an electronic secondary market for securities introduced in 1998 in Greece, was successful in promoting efficiency of the government bond market. According to their findings, although the OTC market retains a significant share of total market trading activity in Greece where OTC trading volume remains several times that of the Greek electronic secondary securities market (HDAT), the bulk of transactions in the OTC market are carried out at prices formed in the HDAT.

Efficiency and transparency are precisely the reasons that the Korean government launched the KRX Government Bond Market. When it was first established in 1999, trading in the KRX Government Bond Market was so sluggish that it was unable to perform its price discovery function properly. In an effort to stimulate trading, the Korean government imposed trading requirements in October 2002 making it compulsory for the primary dealers of government bonds to make all trades of benchmark issues and at least 20% of trades of government bonds in the government bond market. The mandatory trading requirements were further strengthened when the minimum trading proportion was raised to 40% in January 2003 and again to 50% in June 2004.[17]

The imposition of the mandatory trading requirements was intended to boost trading activities in the KRX Government Bond Market to enhance the transparency and efficiency of overall government bond markets in Korea. On the other hand, however, the introduction of the KRX Government Bond Market and imposition of mandatory trading requirements may have served to undermine efficiency by restricting the trading activities of primary dealers and dividing market liquidity between the OTC and KRX markets. Thus, whether or not the imposition of the exchange trading requirements has been beneficial to the government bond market in Korea is an empirical question requiring study.

[17] The 100% mandatory trading requirement for benchmark issues was abolished in July 2008.

A. Effects of Introducing Electronic Trading Platform and Mandatory Trading Requirements

The imposition of the mandatory exchange trading requirements has been effective in increasing transactions in the KRX Government Bond Market. As **Table 2-19** shows, the trading volume of government bonds in the KRX market, which had been almost negligible before October 2002, increased substantially after the imposition of the mandatory trading requirements as did the share of the KRX Government Bond Market as a portion of all secondary market transactions of government bonds. The share of the KRX market in total secondary KTB trading increased to 34.7% in 2008 from 8.6% in 2000.

Table 2-19 also demonstrates that the increase in the trading activity in the KRX Government Bond Market did not come at the expense of lower trading activity in the OTC market. The fact that the transaction volume of government bonds increased both the KRX and OTC markets after the imposition of the trading requirements supports the argument that the electronic trading system and trading requirements have enhanced trading activities across secondary markets for government bonds.

Table 2-19: Trading Volume of KTBs (KRW trillion)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009 (April)
KRX	21.6	10.1	42.6	207.9	358.4	337.7	267.4	316.6	321.1	156.7
OTC	251.3	443.1	343.2	453.9	707.8	729.3	660.1	570.5	603.0	319.1
Total	272.9	453.2	385.8	661.8	1,066.2	1,067.0	927.5	887.1	924.1	475.8

KRX = Korea Exchange, KTB = Korean Treasury bonds, OTC = over-the-counter.
Source: Korea Exchange.

Table 2-20: Bid–Ask Spread on Benchmark KTBs in the KRX Market (%)

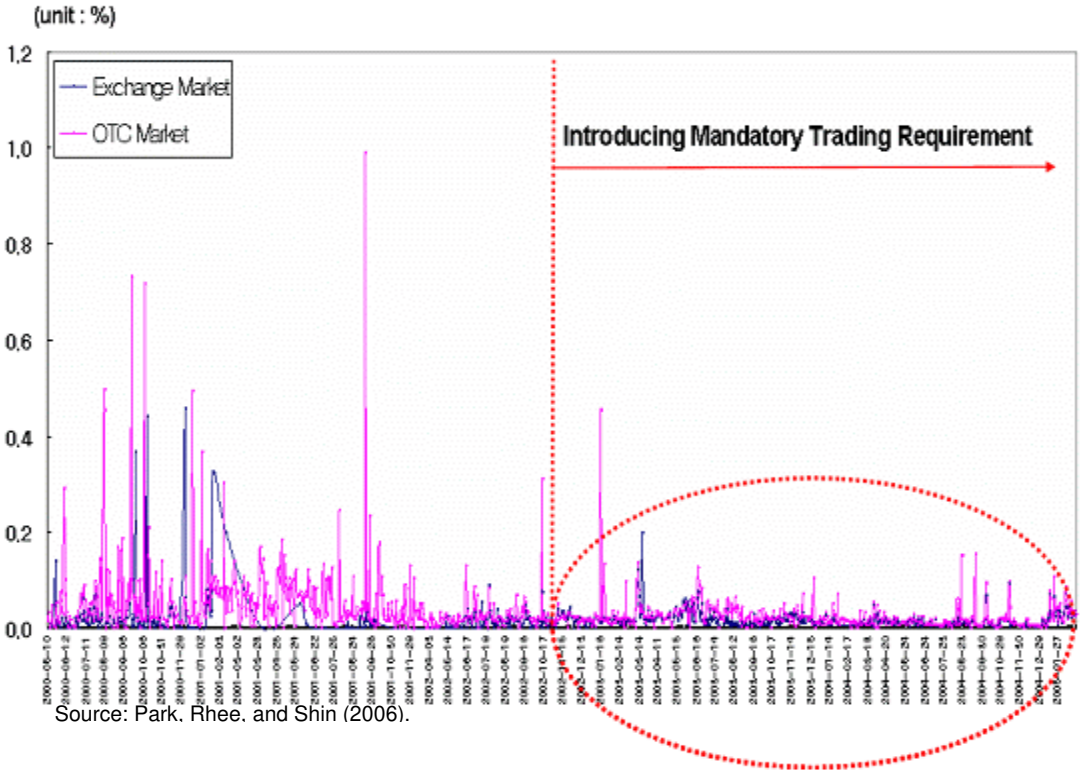
	2002	2003	2004	2005	2006	2007	2008
3-year KTB	0.43	0.20	0.09	0.13	0.06	0.08	0.09
5-year KTB	0.83	0.54	0.21	0.26	0.13	0.15	0.16

KRX = Korea Exchange, KTB = Korean Treasury bonds.
Source: Korea Exchange.

Along with expanding trading volume and increasing market turnover, the introduction of the KRX Government Bond Market and imposition of trading requirements have been instrumental in improving the overall quality of the entire secondary government bond market in Korea. First, the transaction cost in government bond trading has decreased significantly as market liquidity has improved as evident by the bid–ask spreads in the secondary market. In **Table 2-20**, the bid–ask spread on 3-year KTBs in the KRX Government Bond Market was 43 basis points in 2002. However, after the imposition of the trading requirements, the bid–ask spread declined to less than 10 basis points in recent years. The 5-year KTBs demonstrate an even more drastic decrease in the bid–ask spread.

Second, volatility in both the OTC and KRX markets has decreased significantly since the introduction of the mandatory trading requirements. **Figure 2-10** shows the daily standard deviations of transaction prices quoted in terms of yields-to-maturity for 3-year KTBs before and after the introduction of trading requirements. There is a clear difference in the volatility of transaction prices in the KRX Government Bond Market between the two periods. The volatility of the KRX market, as measured by the standard deviation of the transaction prices, fell precipitously after the trading requirements came into effect. In addition, the volatility of transaction prices in the OTC market decreased after the imposition of the trading requirements.

Figure 2-10: Standard Deviation of Transaction Prices (May 2000–February 2005)



Source: Park, Rhee, and Shin (2006).

Third, the efficiency of both the OTC market and the KRX Government Bond Market, as measured by the market efficiency coefficient (MEC), has increased significantly since the introduction of the KRX market and the mandatory trading requirements. The MEC developed by Hasbrouck and Schwarz (1988) can be applied to estimate the execution cost in the bond market and evaluate the effect of introducing the KRX market on the liquidity of the secondary market for government bonds in Korea.

The MEC is defined as the ratio between the variance of the long-run rate of return and the time-adjusted variance of the short-run rate of return. Specifically, the MEC is defined as:

$$MEC = \frac{\text{var}(R_L)}{q \times \text{var}(R_S)}, \qquad (1)$$

where R_L and R_S denote the long-run rate of return and the short-run rate of return,

respectively, and q stands for the number of short-run periods comprising the long-run period.

In general, if the market is information efficient, the short-run rates of return will follow a random walk process with an independent and identical probability distribution. As a result, the value of the MEC will be equal to one. However, as Roll (1984) shows, if there exist some execution costs, successive price changes will have a negative serial correlation. As a result, the MEC will be smaller than one, even if the market is information efficient. Therefore, assuming that the market has information efficiency, we can evaluate the size of the execution cost by calculating the value of MEC. In practice, Hasbrouck and Schwarz (1988) show that the execution cost can be derived from the MEC using the following equations:

$$C = [0.5 \times \mathrm{var}(R_S) \times (1 - MEC)]^{1/2}, \text{ if } MEC \leq 1 \text{ and} \quad (2)$$

$$C = -[0.5 \times \mathrm{var}(R_S) \times (MEC - 1)]^{1/2}, \text{ otherwise}$$

The intraday trading data from the KRX Government Bond Market and the OTC market can be used to estimate the MEC and the execution cost in each market on the condition that respective bond markets are efficient. In order to calculate the MEC, one hour was chosen as the length of the short-run period and the closing transaction price of each one-hour interval was taken as the transaction price of that period.

Table 2-21 and **Table 2-22** compare the averages of the MEC and the execution cost for the periods before and after the imposition of trading requirements. As we can see from these tables, the KRX Government Bond Market had MEC values lower than those of the OTC market and execution costs higher than the OTC market before the imposition of trading requirements. After the imposition of trading requirements, however, the MEC values in the KRX market rose to become larger than those of the OTC market, while the execution costs fell to become less than those of the OTC market. Therefore, the mandatory trading requirements appeared to be effective in enhancing the liquidity and efficiency of the KRX Government Bond Market. Tables 21 and 22 also demonstrate that the introduction of the mandatory trading requirements in the KRX market was effective in improving the efficiency and liquidity of the OTC market as the MEC values of the OTC market rose significantly after the imposition of the trading requirements in the KRX market.

Table 2-21: Average MEC and Execution Cost of 3-Year KTBs

Period	Variable	Entire Market	Exchange Market	OTC Market
Before imposing the trading requirement	MEC	0.235	0.193	0.277
		(0.153)	(0.187)	(0.109)
	C(%)	0.135	0.165	0.106
		(0.085)	(0.093)	(0.070)
After imposing the trading requirement	MEC	0.693	0.782	0.604
		(0.144)	(0.107)	(0.124)
	C(%)	0.033	0.026	0.040
		(0.010)	(0.006)	(0.007)

KTB = Korean Treasury bonds, MEC = market efficiency coefficient, OTC =over-the-counter.
Source: Park, Rhee and Shin(2006)

These findings confirm the proposition that the mandatory trading requirements introduced in 2002 have contributed to enhancing the liquidity and transparency of the KRX Government Bond Market, as well as the liquidity and transparency of the OTC market. Namely, the imposition of the trading requirements enabled transaction prices in the KRX market to reflect the supply and demand conditions of the government bond market more accurately, and thus contributed to enhancing the liquidity and transparency of the OTC market as the participants began relying upon the transaction prices set in the KRX market as reference prices for their own deals.

Table 2-22: Average MEC and Execution Cost of 5-year KTBs

Period	Variable	Entire Market	Exchange Market	OTC Market
Before imposing the trading requirement	MEC	0.206	0.118	0.294
		(0.173)	(0.079)	(0.201)
	C(%)	0.300	0.433	0.167
		(0.243)	(0.289)	(0.064)
After imposing the trading requirement	MEC	0.567	0.755	0.379
		(0.372)	(0.426)	(0.196)
	C(%)	0.074	0.030	0.117
		(0.071)	(0.065)	(0.049)

KTB = Korean Treasury bonds, MEC = market efficiency coefficient, OTC =over-the-counter.
Source: Park, Rhee and Shin(2006)

The above analyses indicate that the introduction of the KRX Government Bond Market—including the electronic trading platform and multilateral competitive price bidding, as well as the imposition of mandatory trading requirements—have been effective in improving the overall quality of the secondary government bond market in Korea. A fundamental factor in the development of this market in Korea was the relatively rapid expansion of bond issuance volume and the introduction of fungible issues. Since each of these developments is capable of enhancing market liquidity, they could also have contributed to the enhancement of liquidity and efficiency in the secondary government bond market that has been observed in Korea.

It is difficult to disentangle the effect of the mandatory trading requirements from the effect of the increase in volume. Existing research gives no definitive conclusion on the relationship between volume and price volatility in bond markets. However, the KRX Government Bond Market shows more significant improvement than the OTC market with respect to MEC values. If the results were driven by the volume effect only, then there would be no reason to have these differential effects across the two markets since the trading requirements were imposed only in the KRX market. Hence, the mandatory trading requirements in the KRX market produced a significant positive effect for the overall secondary markets in Korea and this effect is independent from the volume effect.

The observed efficiency of the KRX electronic trading platform does not imply that all bond trading should be executed on the KRX market. Unlike stocks, most of the bonds issued are rarely traded. However, the OTC market remains a better place to trade these bonds. Bond dealers, especially those who trade in large volumes, opt for a negotiated deal rather than an order-driven trade. A majority of bond dealers in Korea tend to prefer the OTC market to the order-driven KRX market. To these dealers, imposition of the mandatory trading requirements can act as a severe constraint. To overcome these shortcomings, the

Korean government should make an effort to gradually replace the mandatory trading requirements with benefit-based incentives. In addition, the government should seek to enhance the efficiency and transparency of the price discovery process within the OTC market.

In line with this endeavor, the Korean government implemented the Bond Trade Report and Information System and the Bond Quotation System in 2000 and 2007, respectively. The government is also in the process of approving the adoption of an alternative trading system in the OTC market. According to the Bond Trade Report and Information System, securities companies and bond dealers should report trading details to the Korean Financial Investment Association (KOFIA) within 30 minutes of each trade execution. KOFIA is required to post the trading details via a bond information service and data vendors.

The Bond Quotation System is aimed at ensuring transparency of bond price information in the OTC market and promoting market liquidity by requiring (i) bond dealers, including securities companies, to report the bid and ask price quotes to KOFIA in real-time; and (ii) KOFIA to post the quote information to the market in real-time. The alternative trading system under consideration will extend the Bond Quotation System that provides price quotes by supplementing functions such as trade negotiation and confirmation. Eventually, this system will provide participants in the OTC market a one-stop trade service covering the entire process from trade search to trade confirmation.

B. Implications for Asian Countries

The secondary markets for bonds have developed in the form of an OTC market rather than an organized exchange. However, exchange markets, in which transactions are made by the competitive matching of price orders and transactions that are closely monitored, can lead to a more efficient and transparent price discovery process. Given these advantages and as seen in the success of the MTS in Europe, the exchange market based on an electronic trading platform is gradually assuming a greater role in organizing secondary government bond markets. While the introduction of a new exchange market may potentially risk splitting market liquidity in countries where OTC markets have already developed, the Korean experience shows that the introduction of an exchange market can contribute to the improvement of the quality and performance of secondary markets, including the OTC market. Hence, the exchange market and OTC market can be complementary, with each one mutually reinforcing the efficiency and functioning of the other.

Despite the advantages of exchange markets in terms of market efficiency and information transparency, it may be difficult to introduce an exchange market in a country where the OTC market has already matured. Imposing obligations on bond dealers, who are accustomed to making transactions through bilateral negotiations in the OTC market, to use exchange markets would restrict and distort bond transactions. In that sense, introducing an exchange market based on an electronic trading platform to establish the secondary market for bonds would be suitable for countries where the secondary market has not yet developed.

The fact that secondary government bond markets in most ASEAN countries need to develop further implies that Asian countries can adopt a strategy of introducing and developing the exchange market based on an electronic trading platform. Such a strategy is worth taking only if the benefit of greater transparency in the exchange market would more than offset the potential cost of splitting liquidity between two markets. This strategy would be beneficial to countries where the OTC market is not well developed yet. Given the diversity and heterogeneity of bond market instruments, it is not realistic to expect that all

types of bonds are being traded in the exchange market. In particular, corporate bonds that are of diverse composition and traded infrequently may not be appropriate for trading in the exchange market. However, government bonds, especially those that are continuously traded such as the benchmark and on-the-run issues, can be traded more efficiently in the exchange market. Given that these government bonds provide benchmark prices for overall bond markets, the efficiency and price discovery function of the entire bond market can be substantially improved by concentrating their trade at the exchange market.

Yet, the introduction of an exchange market is not a panacea for the successful development of the secondary government bond market. Korea's experience shows that there are other crucial factors in improving the quality of the secondary bond market, such as a sufficiently large issuance volume, introduction of the reopening system, and active futures and swap markets, among others. However, the Korean case suggests that along with those other measures the strategy of creating exchange markets for a few critical government benchmark issues can be more effective, especially when overall secondary bond markets are relatively underdeveloped.

2.3.2.3. Opening of Domestic Bond Markets in Korea

A. Opening of Domestic Bond Markets to Foreign Investors

Korea began opening its domestic bond market to foreigners in 1994 by allowing foreign investment in unsecured convertible bonds issued by small and medium-sized enterprises (SMEs). Since then, the opening of the domestic bond market has proceeded gradually by expanding the list of domestic bonds that foreigners can invest in. In the middle of the 1997/98 Asian financial crisis, the Korean government advanced its own schedule for bond market liberalization and completely opened its domestic bond market by allowing foreign investment in all kinds of domestic bonds.

Despite the opening of the bond market, however, foreign investment in domestic bonds remained inactive for a long time. As shown in **Table 2-23**, the share as well as the absolute amount of domestic bond holdings by foreigners stayed at very low levels until 2006. At the end of 2006, the domestic bond holdings of foreigners amounted to only about 0.6% of the total amount of bonds outstanding in Korea. This is in clear contrast with the holdings of equities by foreigners, which amounted to 37.3% of the total market value of all equities listed on the KRX and KOSDAQ at the end of 2006. The low participation rate of foreigners in the cash bond market is also in contrast with the level of foreign participation in the KTB futures market. According to **Table 2-15**, trading by foreigners accounted for 14.3% of the total trading in the KTB futures market in 2006.

Table 2-23: Holdings of Korean Stocks and Bonds by Foreigners (KRW billion)

	Market Value		**Foreigners' Holdings**		**Foreigners' Share** (%)	
	Stocks	**Bonds**	**Stocks**	**Bonds**	**Stocks**	**Bonds**
1998	137,796	334,034	25,633	968	18.60	0.29
1999	349,728	364,419	76,591	1157	21.90	0.32
2000	187,902	424,684	56,559	692	30.10	0.16
2001	256,006	504,730	93,698	429	36.60	0.09

2002	258,780	563,944	97,161	647	37.55	0.11
2003	355,447	607,294	142,534	1,768	41.10	0.29
2004	412,280	659,760	173,158	3,175	42.00	0.48
2005	655,573	720,156	260,263	3,346	39.70	0.46
2006	703,843	777,763	262,534	4,618	37.30	0.59
2007	950,762	830,838	308,047	36,958	32.40	4.44
2008	577,622	864,104	166,933	37,458	28.90	4.33
2009 (April)	710,511	948,292	198,943	36,508	28.00	3.85

Source: Financial Supervisory Service, *Monthly Financial Statistics.*

Table 2-24: Foreigners' Share of the KTB Futures Market (KRW billion)

	Sell	**Share(A)** (%)	**Buy**	**Share(B)** (%)	**Average**[1]
2001	27,401	2.79	27,553	2.81	2.80
2002	67,911	5.06	69,515	5.18	5.12
2003	90,942	8.09	89,964	8.00	8.05
2004	96,774	11.90	101,311	12.46	12.18
2005	123,238	9.99	120,917	9.80	9.90
2006	161,141	14.36	159,652	14.22	14.29
2007	170,697	11.73	171,761	11.80	11.77
2008	150,923	8.86	155,994	9.16	9.01

[1] (A+B)/2
Source: KRX website.

Foreign investment in domestic bonds began rising dramatically in 2007, when the amount of domestic bond holdings of foreigners increased almost eightfold to approximately KRW37 trillion in a single year. This resulted from investor efforts to take advantage of the arbitrage opportunities created by the sharp increase in the US dollar supply in the forward exchange market. Compared to foreign participation in the domestic stock market, however, foreign participation in the domestic bond market is still very weak. At the end of 2007, the share of foreign holdings of domestic bonds was only 4.44% compared foreigners' 32.40% share of domestic stocks.

Why have foreigners not actively invested in domestic bonds despite the complete opening up of the domestic bond market in Korea? The reasons can be classified into two categories: (i) return and risk, and (ii) institutional factors. As is the case with every portfolio investment, decisions about cross-border investment in bonds are made based on the expected rate of return and risk. Foreign investors who invest in Korean domestic bonds have to assume various risks, including credit risk, exchange rate risk, and liquidity risk. If the expected rate of return from Korean bonds is not high enough to cover these risks, foreign investors will stay away from Korean domestic bonds.

However, given that foreign investors remained inactive in the Korean domestic bond market at the same time they actively participated in the KTB futures market implies that

there are other factors in addition to return and risk considerations. In its efforts to develop and internationalize domestic bond markets, the Korean government has tried to identify institutional impediments and implement appropriate reform measures in response. Examples of such reform measures include the exemption of withholding tax on interest income earned by foreigners from investment in government bonds and monetary stabilization bonds (MSBs) if the bonds are held at the omnibus accounts of international central securities depositories (ICSDs). The following section discusses in detail these institutional impediments and the reform measures taken by the Korean government in response.

B. Institutional Impediments and Recent Reform Measures

1) Withholding Tax on Interest Income

Korea withholds tax on interest income as a rule, with different rates applied depending on the investor's residency. For residents, a 15% withholding tax is levied on interest income from bonds. For nonresidents, a 10%–15% tax is levied for residents of countries with a tax treaty and a 25% tax is levied for residents of countries without a tax treaty.

Tax withholding on interest income affects the after-tax rate of return. Even if the host country does not withhold tax on interest income, foreign investors must pay tax in their home country. In addition, if the host country does levy withholding tax and if it exceeds the tax amount that foreigners have to pay to their home country, they can receive reimbursement for the difference. Accordingly, tax withholding does not necessarily lead to a lower after-tax rate of return. Nonetheless, the inconvenience arising from processing tax returns and adjusting tax based on the holding period make bond trading complicated. Thus, international bond investors, including bond funds that invest in bonds in different countries, tend to avoid countries where withholding tax is imposed.

For this reason, some countries, including developed countries, seek bond investments from foreigners by abolishing withholding tax or exempting nonresidents from withholding tax on interest income. The Working Group 2 organized under the Asian Bond Market Initiative (ABMI) recommended abolishing or lowering withholding tax on interest income for foreign investors to attract increased foreign investment in domestic bonds. Following this ABMI recommendation, Thailand and Malaysia abolished their respective withholding taxes on interest income for foreign investors.

In January 2009, in the middle of the currency crisis caused by the global financial crisis, the Korean government decided to exempt nonresidents from withholding tax on interest income from all government bonds and MSBs.[18] This policy was intended to encourage foreign investment in domestic bonds, however, its effect on foreign investment has yet to be determined.

2) Registration Requirement for Foreign Investors

Korean financial regulations require that foreigners who want to invest in listed securities in Korea register as an investor and open bank accounts for KRW deposit and foreign currency deposit. It usually takes 3–4 days to complete the registration process, including the simplified paper work. However, nonresident investors need to appoint a representative agent to complete the registration process on their behalf, which involves additional costs.

[18] MSBs are issued by the Bank of Korea to control the supply of money.

Furthermore, for those investors who intend to take advantage of an immediate investment opportunity that might remain available for a short time only, waiting 3– 4 days can be too long.

3) Restrictions on OTC Transactions by Nonresidents

The Securities Exchange Act of Korea prohibits OTC transactions of listed securities between nonresidents. Nonresident investors can make transactions of listed securities through the KRX by making orders to the securities companies that are members of the KRX. If a nonresident investor wants to trade listed bonds over-the-counter, the trade should be conducted through the intermediation of Korean securities companies. This regulation applies to almost all bonds issued in Korea since most publicly-issued domestic bonds are listed on the exchange market for tax purposes.

In many countries, bonds are generally traded in the OTC market. When foreign financial companies want to trade Korean bonds owned by them or their clients, they naturally try to find counterparties in the OTC market with whom terms can be negotiated. If a transaction in the OTC market has to be made through a Korean securities firm, it is possible that foreign investors will have to pay additional costs or lose the possibility of finding an advantageous trading opportunity. Such possibilities may keep foreign financial companies from investing in Korean bonds or recommending Korean bonds to their customers.

4) Prohibition on the Use of Omnibus Accounts for Settlement of Securities Transactions

Foreigners who invest in Korean domestic bonds normally depend on local or global custodians to settle their transactions and keep the bonds they have acquired. In making settlement for securities transactions, custodians usually use omnibus accounts through which they consolidate all of their clients' transactions into a single account and make payments and deliveries using that account.

The foreign exchange regulation in Korea, however, requires that payments to settle securities transactions by foreigners must be processed through the individual account of each foreign investor. Since omnibus accounts for payments are not allowed for foreign investors, the custodian banks in charge of settling the bond transactions of foreign investors have to make payments through the individual account of each foreign investor. This leads to added costs and inconvenience.
Despite the higher costs and added inconvenience, foreign investors can still get settlement service for their transactions of Korean domestic bonds from local or global custodians. The real problem caused by the prohibition on the use of omnibus accounts lies with the fact that ICSDs, such as Euroclear and ClearStream, which usually provide settlement service for local bonds as well as international bonds, do not provide settlement service for local bonds of the countries where omnibus accounts are not allowed. Since ICSDs provide settlement services as well as depository services for bonds in many countries, international bond investors tend to use ICSDs to settle their international bond transactions. It is likely that these investors stay away from countries where ICSDs do not provide settlement services since investing in such countries requires the hiring of an additional custodian bank instead of relying upon the convenience of a single custodian taking care of all of their international transactions.

Prior to 2007, ICSDs did not provide settlement service for Korean bonds because the use of omnibus accounts by foreign investors was prohibited. As a consequence, it is plausible that

Korea may have been losing potential foreign investments from those who would have invested in Korean bonds had they been able to settle their transactions through ICSDs.

To address this shortcoming, the Korean government allowed ICSDs to use omnibus accounts to settle transactions of domestic bonds by foreign investors. The revised regulation stipulates that Clearstream and Euroclear can provide settlement services for the country's government bonds and MSBs through their omnibus accounts set up at the Korea Securities Depository (KSD).

Allowing omnibus accounts not only provides foreign investors with the benefit of lower cost and convenience in settlement, but also enables them to avoid significant institutional impediments. First, foreign investors do not have to register with the Financial Supervisory Service and get an investment registration certificate in advance if they settle their transactions of Korean domestic bonds through an ICSD. They can simply hold Korean domestic bonds at the representative omnibus account under the title of an ICSD. In addition, the new regulation enables OTC transactions of Korean domestic bonds when these are deposited in and settled through the omnibus accounts of an ICSD. As a result, a foreign investor may now sell Korean government bonds to another foreign investor through a direct OTC transaction when both parties engage in the transaction via financial institutions that have settlement accounts at an ICSD.

Allowing ICSDs to make settlements using a representative omnibus account, however, may cause some problems in relation to the income tax exemption for foreigners. As was mentioned earlier, the Korean government decided to give foreign investors exemption from withholding tax on interest income from government bonds and MSBs in January 2009. Since foreign investors no longer need an investment registration certificate if they settle their transactions through the omnibus account of an ICSD, a domestic investor can easily disguise himself as a foreign investor by making settlement through an ICSD to gain a tax exemption on interest income.

In order to address the potential for tax evasion, the Korean government has introduced the Qualified Financial Intermediary (QFI) system. Under this system, the settling members of ICSDs that acquire QFI status are allowed to make settlement of Korean domestic bond transactions for their customers through the omnibus accounts of ICSDs. In order to qualify as a QFI, a financial institution is required to assess customer adequacy of foreign investors for tax exemption and keep track of the bond transactions and holding records of foreign investors so that they can report to Korea's National Tax Service as necessary.
In spite of the clear benefits, the use of omnibus accounts is an exception rather than a rule. It is only the ICSDs that are allowed to use omnibus accounts. Therefore, foreign investors who do not settle their domestic bond transactions through ICSDs are still subject to restrictions such as registration requirements, prohibition of direct OTC transactions between foreign investors, and prohibition on the use of omnibus accounts.

5) Availability of Information in English

As Korean is used as the working language in domestic bond markets, there is a language barrier for foreign investors and traders. In addition, the supply of English-language documents on investment analyses of domestic bond markets for foreign investors is insufficient.

6) Limited Opportunities to Utilize Bond Holdings

Bond investors in general make active use of their bond holdings to enhance returns from their investment. For instance, bonds can be used as collateral to cover counterparty risk in OTC derivative transactions. They can be utilized for lending and borrowing transactions, as well as repo transactions. In Korea, however, such opportunities are quite limited because neither the inter-institution repo trading nor the lending and borrowing transactions of bonds are active. Moreover, there exists a limitation on the maximum amount of Korean won that foreigners can borrow through repo transactions or lending and borrowing transactions. These restrictions deprive foreigners of the opportunity to enhance the returns from their investment in Korean bonds, rendering investment in Korean bonds less attractive.

7) Lack of Liquidity in the Secondary Market

Liquidity in the secondary market for bonds is relatively low in Korea, making investors in domestic bonds exposed to a higher liquidity risk. Various factors are responsible for the relatively low liquidity. First, most large domestic investors, including pension funds and insurance companies, tend to be buy-and-hold investors. Second, the market-making ability of bond dealers is quite limited. Finally, based on market convention, the minimum trading unit in the OTC market is set at KRD10 billion, which is extraordinarily high compared to minimums in other countries.

C. Assessment of the Recent Surge in Bond Investment by Foreigners

The institutional impediments pointed out so far do not by themselves prohibit foreigners from investing in Korean domestic bonds. These impediments, however, might have deterred some foreign investment in domestic bonds by imposing additional costs. Nevertheless, when the expected rate of return from Korean bonds is high enough to cover these costs, foreigners may find it attractive to invest in Korean domestic bonds. **Table 2-25** demonstrates this principle. According to the table, foreign holdings of Korean domestic bonds increased sharply starting in 2007. The share of domestic bonds being held by foreigners jumped from 0.59% in 2006 to 4.44% in 2007. Nonetheless, all of the barriers mentioned above were still in place in 2007. Hence, the sharp increase in foreigners' share of the domestic bond market must have resulted from a change in return and risk factors, rather than any change in institutional factors.

The primary reason behind the large increase in foreign investment in Korean domestic bonds in 2007 was the widening of arbitrage opportunities beginning in the second half of the year, when the foreign exchange (FX) swap rate declined sharply until the gap between the domestic and the U.S. interest rates became larger than the FX swap rate. In this case, an investor could make a profit without taking any risk by making the following arbitrage trades:

- raise US dollars at the interest rate of i^*;
- convert the dollars into Korean won through an FX swap trade selling US dollar spot at *S* KRW per USD and buying US dollar forward at *F* KRW per USD in the FX swap market;
- buy Korean bonds with the won acquired through the FX swap at the interest rate of i; and
- realize an arbitrage profit of $i - i^* - (F - S)/S$.

In principle, any investor, including domestic financial institutions, could engage in this kind of arbitrage trading. In reality, however, most of the arbitrage transactions were performed by foreign financial institutions and their domestic branches or subsidiaries because their higher credit ratings afforded them an advantage over domestic financial institutions in raising dollar funds.

Table 2-25 shows the difference between the interest rate in Korea as measured by the yield on a 3-month certificate of deposit and the cost of borrowing dollars as measured by the 3-month LIBOR from 1Q07 through 2Q09. It also shows the FX swap rate for 3-month KRW–USD swaps. The difference between these two indicates arbitrage trading opportunities. When the arbitrage opportunity has a large positive value, one can make a profit by engaging in the transaction described above. That means foreign holdings of domestic bonds are expected to increase when the value of the trading opportunity is larger.

Figure 2-11 shows the monthly movement of the arbitrage opportunity and the change in foreign holdings of KTBs from January 2007 to June 2009. The arbitrage trading opportunity was not big enough until the first half of 2007. From the second half of 2007, however, the opportunity grew larger, reaching a peak of 3.61% in November 2007. As a result, investment in Korean bonds by foreigners increased drastically as foreign financial institutions tried to take advantage of the arbitrage opportunities.

Table 2-25: Arbitrage Opportunity and Foreign Holdings of Domestic Bonds

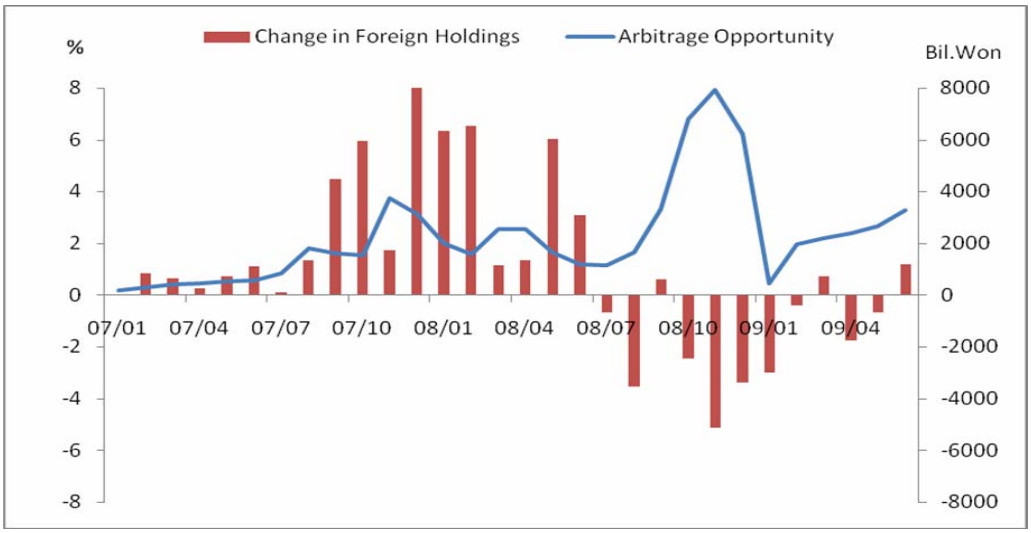
(%, KRW billion)

	2007				2008				2009	
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q
$i - i^{*}$ [1]	-0.42	-0.35	-0.25	0.47	2.19	2.62	2.79	2.72	1.55	1.57
Swap Rate [2]	-0.70	-0.87	-1.67	-2.32	0.15	0.83	0.76	-4.27	-0.77	-1.20
Arbitrage [3]	0.28	0.52	1.42	2.79	2.04	1.79	2.03	6.99	2.32	2.77
ΔForeign Holdings	586	644	3,908	5,642	3,009	2,809	-1,800	-3,851	-478	1,716

[1] 3-month certificate of deposit (CD) rate in Korea minus 3-month dollar LIBOR
[2] (F-S)/S where S is the won/dollar spot exchange rate and F is the 3-month won/dollar forward exchange rate
[3] $i - i^{*}$ - (F-S)/S
Source: Bloomberg, Bank of Korea

Investment in domestic bonds by foreigners faltered somewhat amid the subprime mortgage crisis, but maintained strong momentum in the first half of 2008 amid continued arbitrage opportunities. As seen in **Table 2-16**, the large arbitrage opportunities during this period arose because the FX swap rate fell more sharply than the interest rate differential. The fall in the FX swap rate can be accounted for by the fall in the forward exchange rate, which evidently resulted from an increased dollar supply in the forward exchange market due to the hedging demand of exporting firms and foreign investment funds. Korean shipbuilding companies typically sell dollars forward to hedge currency risks on their orders. During the first half of 2008, an increase in ship orders resulting from higher freight demand contributed to the increased supply of dollars in the forward exchange market. In addition to the contribution by shipbuilding companies, onshore funds that invest in foreign securities increased the US dollar supply in the forward exchange market as their trading volume increased due to new tax incentives.

Figure 2-11: Arbitrage Opportunities and Changes in Foreign Holdings of Domestic Bonds



Investment in Korean bonds motivated by arbitrage trading opportunities continued until 2Q08, although the amount of bond investment was not as large as that in the second half of 2007. Investment in bonds by foreigners rapidly increased, specifically from countries such as France and Ireland. Investors from these countries receive a substantial tax benefit such as exemption from interest income tax through tax treaties. In addition, the main offices of foreign banks increased their investment in Korean domestic bonds as they engaged in the arbitrage trading instead of their branches that were affected by tax reinforcement devices, such as the thin capitalization tax, which restricted affiliates ability to expand their investments.

In the second half of 2008, however, investment in Korean bonds by foreigners fell sharply even though the arbitrage trading opportunities widened further. The dollar shortage in international financial markets and the downgrading of Korea's credit prospect triggered by the collapse of Lehman Brothers suddenly made it a risky trading opportunity rather than an arbitrage opportunity. Ironically, the arbitrage trading during the second half of 2007 and the first half of 2008 was responsible for the worsening of Korea's credit prospect in the second half of 2008. As discussed above, the transactions available to take advantage of the arbitrage opportunities involve raising dollar funds. When these transactions are performed by domestic residents, including domestic financial institutions and domestic branches or subsidiaries of foreign financial institutions, the dollar borrowings are counted as the external debt of Korea. The arbitrage opportunities that emerged beginning in the second half of 2007 resulted in large simultaneous increases in foreign holdings of Korean domestic bonds and Korea's short-term external debt.

Normally, most of this short-term external debt is matched by the dollar payment to be received by exporters in the future, and hence, differs from traditional external debt. Nevertheless, as Korea had previously experienced a currency crisis because of short-term external debt, the increase of short-term external debt appeared daunting in the eyes of international investors. In addition to the negative effect of the expanding short-term external debt, the large foreign holdings of Korean domestic bonds were regarded as a potential source of capital outflow, creating disorder in the FX market. Hence, instead of attracting foreign investment with arbitrage opportunities, Korea should focus on fostering domestic

financial markets as well as resolving policy impediments to elicit and sustain foreign holdings of domestic bonds over the long run.

D. Implications for Asian Countries

There are several ways to develop and foster an integrated Asian bond market. An ideal way to achieve this goal is for each Asian country to develop and open its own bond market so that foreign investors can freely trade local bonds. Korea's experience, however, shows that allowing foreign investment alone does not necessarily lead to the active participation of foreign investors in the domestic bond market. Above all, many institutional and systemic obstacles may still remain even if investment by foreigners is allowed in principle. The examples of institutional impediments in Korea include withholding tax on interest income, prohibition of OTC trading between foreigners, disallowance of cash omnibus accounts, limitation on repo market participation by foreigners, and the registration requirement for foreign investors. Even though these institutional obstacles do not outright prohibit foreign investment, by imposing additional costs and inconvenience these measures tend to make foreigners hesitate in making investments.

Some of these institutional barriers have their own rationales. As a result, removing such institutional impediments can become a question of political economy that involves a choice between the interests of the domestic economy and foreign investors. The Korean experience shows that this may not always be the case. For instance, the registration requirement for foreign investors and the prohibition of the use of omnibus accounts serve the purpose of enabling the government to monitor the transactions of foreign investors so that it can identify illegal or abnormal transactions that may destabilize domestic financial markets or the FX market in Korea. However, the Korean experience shows that these regulations could be superseded by the QFI system in which only the financial intermediaries that stand willing to keep the transaction records of their customers and report them when requested by the government authorities are allowed to make settlement through the omnibus accounts of ICSDs. The new system provides foreign investors with the benefit of convenience and cost reduction, while also allowing the government to collect information needed to identify illegal or abnormal trading activities.

The lesson from the Korean experience of liberalizing domestic bond markets is that to achieve complete integration of domestic bond markets with global bond markets it is necessary to identify and remove institutional obstacles, and develop and internationalize the trading environment.