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Knowledge Sharing Program

2021/22 KSP Policy Consultation Report

Mongolia

Policy Measures to Invigorate the Mongolian Economy via the Advancement of Government Bond Market

Ministry of Economy and Finance

KDI Korea Development Institute

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2021/22 KSP Policy Consultation Report

Policy Measures to Invigorate the Mongolian Economy via the Advancement of Government Bond Market

Preface

Knowledge is an essential ingredient in a country's economic growth and social development. Of particular importance is a government's capacity to formulate and implement policies. The global society is focused on implementing the Sustainable Development Goals (SDGs), which promotes knowledge sharing between countries in order to improve their policy capacity and to tackle development issues and enhance global prosperity.

Indeed, knowledge has taken on an ever-greater importance as the world continues to confront countless challenges in the post-Covid-19 era including escalating climate change, global supply chain disruptions, and economic instability. In order to effectively tackle and resolve such global problems, knowledge sharing and capacity building cannot be underestimated.

When it comes to Korea's economic development, knowledge laid the foundation for the unprecedented transformation from a poor agro-based economy into a modern industrialized one with an open and democratic society. Technology transfer from abroad and educational investments helped expand the domestic knowledge stock and made this transformation possible. The Korean government accumulated invaluable practical lessons not found in conventional textbooks through trials and errors in its course of economic development.

Capitalizing on these lessons, Korea's Ministry of Economy and Finance (MOEF) introduced the Knowledge Sharing Program (KSP) in 2004 to share Korea's development experience with the international community through joint research, policy consultations, and capacity-building activities. The program has played a vital role in supporting socio-economic development of partner countries around the world.

Since the program's launch, Korea Development Institute (KDI) has participated in implementing the KSP and has been working with more than eighty foreign countries. KDI, Korea's leading think-tank with an extensive experience in policy research, has provided solutions to the challenges that partner countries face in a variety of fields ranging from industrial development to digital transformation. In the 2021/22 KSP cycle, KDI carried out nineteen policy consultation projects in a variety of areas including digital and green economy.

Among the nineteen 2021/22 KSP projects, one in particular is worth highlighting, which was initiated by Ministry of Finance (MOF) of Mongolia and titled, "Policy Measures to Invigorate the

Mongolian Economy via the Advancement of Government Bond Market." Based on the MOF's request, the MOEF and KDI organized a research team consisting of Mongolian and Korean experts. The team conducted an in-depth analysis of internal and external policy environments, identified Mongolia's key development challenges, and offered policy recommendations and action plans.

On behalf of KDI, I would like to express my deepest appreciation to the Government of Mongolia and the Ministry of Finance for their collaboration in the project. In particular, I would like to extend my profound gratitude to His Excellency Deputy Minister Ms. Mungunchimeg Sanjaa, Director General Mr. Sukh-Ochir Batsukh for their unwavering support. The completion of this project would not have been possible without their devotion. I also wish to thank the KSP consultation team—Senior Advisor Dr. Bumgook Gwak, Principal Investigator Professor Wook Sohn, researchers Mr. Sangtae Baek, and Mr. Jinil Lee, and local consultants Ms. Odontuya Baigalmaa, Ms. Bolormaa Ganbold and Ms. Undraa Nursed—for producing this report.

This project benefited greatly from many others both inside and outside the Mongolian government. I would like to extend my sincere thanks to all who have made valuable contributions to a successful completion of the project. I am also grateful to the Center for International Development of KDI, in particular Executive Director Dr. Jungwook Kim, Project Manager Mr. Taihee Lee, and Project Officer Mr. Sehoon Lee, for their hard work and dedication to the project.

I firmly believe that the KSP will serve as a stepping stone to further elevate mutual learning and economic cooperation between Mongolia and Korea, and hope it will contribute to their sustainable development.

Youngsun Koh
Acting President
Korea Development Institute (KDI)

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2021/22 KSP with Mongolia

Sehoon Lee (Korea Development Institute)

2021/22 KSP with Mongolia

Sehoon Lee (Korea Development Institute)

In 2017, government bond (GB) issuance in Mongolia came to a grinding halt as the country sought to maintain fiscal soundness during its IMF bailout period (2016-2020). Since graduating from the IMF program, Mongolia in the near future plans to resume GB issuance to reduce financial losses and raise public financing. To revive the GB market, reform of the GB issuance and distribution system is needed by lowering issuance costs and enhancing bond liquidity.

Against this backdrop, the Mongolian Ministry of Finance (MOF) submitted a proposal for a KSP project titled “Policy Measures to Invigorate the Mongolian Economy via the Advancement of the Government Bond Market” as a fast-track KSP (early launching), given the critical period of the Mongolian capital market. In the proposal, the MOF requested sharing of the Korean experience including the primary dealer (PD) system, on-exchange and OTC bond markets, and GB-based collateral trading prior to initiating GB issuance.

Through a preliminary meeting in December 2021, the KDI and MOF discussed consultation demand in Mongolia and finalized the subtopics for this year’s KSP. Based on the subtopics, the KDI organized a research team of Korean experts on the GB market. Details on the subtopics and the team are given in the table below.

Sub-topics	Researchers	Local Consultants
1. Advancement of Government Bond Issuance System in Mongolia	Wook Sohn (KDI School of Public Policy and Management)	Odontuya Baigalmaa (Ministry of Finance, Mongolia)
2. Advancement of Government Bond Secondary Market System	Sangtae Baek (KSD)	Bolormaa Ganbold (Ministry of Finance, Mongolia)
3. Building Infrastructure for Collateral-related Government Bond Transactions	Jinil Lee (KSD)	Undraa Nursed (Ministry of Finance, Mongolia)

- Senior Advisor: Bumgook Gwak, Senior Executive Managing Director of Korea Federation of SMEs (KBIZ)
- Project Manager: Taihee Lee, Specialist at CDI of KDI
- Principal Investigator: Wook Sohn, Professor at KDI School of Public Policy and Management

As the first stage of the 2021/22 KSP, the launching seminar kicked off on February 14, 2022 via videoconferencing. Members from the MOF including Vice Minister of Finance Mungunchimec Sanjaa participated in the seminar. Three Korean researchers presented the study's background, purpose, and plans and discussed with Mongolian experts the research development plan. The Korean research team reconfirmed the major constraints of the Mongolian GB system including the cost gap between the wholesale and retail markets, price-fixing attempts on the GB issuance market led by commercial banks, and inefficient infrastructure of the secondary GB market. To overcome these obstacles, both sides confirmed the scope of policy consultation covering the primary and secondary GB markets and discussed the building of infrastructure for GB collateral-related transactions.

To comprehend and analyze the Mongolian GB system, the research team and MOF held In-depth Studies and Policy Seminar from February 15 to May 20. Right after the launching seminar, the research team requested written data from the MOF ranging from statistics on GB balance to the legal frameworks of the primary and secondary markets. Through the study, Korean researchers identified the specific challenges and issues of the Mongolian GB system and designed the outline of policy recommendations based on the data provided by the MOF. To introduce more details on the Mongolian GB system to the research team, a Policy Seminar was held on April 22 and Mongolian consultants gave a presentation about the situation and challenges of their GB market and discussed with Korean researchers the development of research content. Afterwards, the research team held two additional videoconferencing meetings with the Bank of Mongolia (BOM) and Mongolian Central Securities Depository (MCSD) on specific information on GB issuance and distribution and collateral trading. Through the seminar and meetings, Korean and Mongolian experts made adjustments to the interim report.

From June 19 to 25, the KDI invited Mongolian delegations to Korea and held an Interim Reporting and Policy Practitioners' Workshop. For interim reporting, Korean researchers delivered their interim findings and tentative policy recommendations to Mongolian delegations from the MOF, BOM, and Financial Regulatory Commission (FRC). Through the Interim Reporting Workshop, officials from the MOF said they realized the importance of the primary dealer (PD) system on the GB market and pledged to consider introducing the system in Mongolia, reflecting the policy recommendation.

For a detailed look at Korea's development experience and to boost the capacity of the Mongolian delegations, the KDI prepared the Policy Practitioners' Workshop after interim reporting. During the workshop, Mongolian delegations visited the Bank of Korea, Ministry of Economy and Finance (MOEF), KDI, and KSD and listened to lectures on the overall GB issuance and distribution system in Korea. Korean and Mongolian experts shared the major differences in the primary and secondary GB markets of their countries and discussed how to effectively advance the Mongolian GB market.

After completing the final KSP report that reflected feedback from Mongolian experts, the research team visited Mongolia to conduct the Final Reporting and Senior Policy Dialogue from August 8 to 12. A dozen Mongolian stakeholders from the MOF, FRC, and MCSD including MOF Director-general Batsukh Sukh-Ochir participated in the Final Reporting Workshop. The major content of final policy consultations included the establishment of PD system, restructuring of GB market infrastructure, and adaptation of legal mechanisms for securities collateralization and securities financing transaction (SFT); the Korean researchers also received feedback from the Mongolian participants. In addition, Korean delegations led by Bumgook Gwak, senior adviser to the 2021/22 KSP with Mongolia, encouraged Vice Minister Sanjaa to actively utilize the KSP policy recommendations at the Senior Policy Dialogue. The vice minister said the MOF is willing to reflect the major content of KSP policy consultations when her government reissues GBs. The Korean delegations also visited the BOM, FRC, and MCSD, three key institutions of the Mongolian primary and secondary GB markets, and discussed a cooperation plan for a future KSP project.

Considering Mongolia's intent to reissue GBs in the near future, this year's KSP was timely conducted covering overall components of the GB system. After overseas business trips were resumed due to the relaxation of COVID-19 travel restrictions, Korean and Mongolian experts could communicate more actively through in-person interactions. This contributed to improving the quality of policy consultations and capacity building for the Mongolian experts. The KDI sincerely hopes that this year's KSP consultation produces results by being effectively utilized in the planning and implementation of Mongolian financial policy. Another expectation is for the KDI and Mongolian partner organizations to frequently discuss cooperation plans that contribute to the advancement of the Mongolian capital market.

Executive Summary

Wook Sohn (KDI School of Public Policy and Management)

Executive Summary

Wook Sohn (KDI School of Public Policy and Management)

The 2021/22 Knowledge Sharing Program (KSP) with the Mongolian Ministry of Finance (MOF) was conducted under the theme "Policy Measures to Invigorate the Mongolian Economy via the Advancement of the Government Bond Market." Issuing and distributing government bonds (GBs) are pivotal for economic development as GBs play a key financing role in allocating national budgets, reducing business fluctuations, and comprising a key element of financial market development. Mongolia, however, abruptly stopped GB issuance in October 2017 after entering an IMF bailout program, something that consequently led to underdevelopment of both the primary and secondary GB markets.

Korea actively implemented policy toward GBs after paying off its IMF loans and has made tremendous progress in advancing its GB market. So Korea has extensive experience in accurately and appropriately responding to advice in advancing its GB market at this critical time, when Mongolia came out of the IMF program. Three key policy agendas of the KSP were identified as top priorities and the findings and recommendations for each policy area are as follows:

1. Advancement of GB Issuance System

First, a critical task is to change the auction pricing method to single or differential pricing to provide more incentives to attract bidders and raise GB demand. The decision on this proposal, however, must comprehensively consider the scale of GB issuance and opinions of major bidders. A bidding limit per bidder is needed to prevent dominance by select participating institutions and a sufficiently large issuance volume is required at each auction to promote competitive pricing. But as excessive supply could give certain market players high bargaining power at an auction and raise the risk of high cost of issuance or auction failure, auction size needs careful calibration by observing auction results for degree of competition and potential for price distortion. Overly frequent auctions could adversely

affect secondary market development, so the right balance is needed between auction size and frequency in consultation with the market.

Second, the adoption of the primary dealer (PD) system is highly recommended for more market-oriented operations, sufficient demand for Mongolian GBs, and attraction of institutional investors to enter auctions. Eligibility conditions and essential elements of PDs include financial strength, credit rating, degree of participation in the government securities market, management capacity, suitable technological infrastructure, long-term commitment to market development, and good reputation and standing. A design that mixes obligations and privileges is an integral part of this market development strategy. Other issues include choosing between banks only or among banks, brokers, and institutional investors, and between foreign and domestic institutions, optimal number of PDs, and length of PD appointment.

Third, another suggestion is to adopt a system of integrated GB (fungible) issuance to expand issuance volume by GB type and subsequently raise bond liquidity. GBs with high liquidity can be issued at lower interest rates due to liquidity premium and lower GB issuance cost. If a market distortion occurs such as dominance or price fixing by a few institutions, fungible issuance can ensure stability on the GB market and price formation. The debt manager should also maintain flexibility by only providing general information at the beginning of the budget cycle, followed by the exact securities and issuance amounts at the start of each quarter, month, or week before the next auction.

Finally, coordination between the MOF and Bank of Mongolia (BOM) is mutually beneficial for their respective functions. The central bank is an important source of data for debt managers on systemic liquidity conditions and monetary policy operations that affect the implementation of the issuance plan. Furthermore, more and stronger incentives are needed to get market players to participate and improve the order-oriented GB trading system.

2. Advancement of GB Distribution System

An urgent task is to reform GB market infrastructure. Mongolian GBs are issued and traded separately through the BOM or MSE, and this has limited GB distribution and liquidity. The Mongolian government should consider integrating the two markets and decide what is the secondary market—either the interbank OTC market of the BOM or that of the MSE. In addition, Mongolia lacks sufficient demand to boost the secondary GB market, so securities companies should get direct access to the primary GB market as PDs to expand

the spectrum of GB investors and develop the MSE market. And a when-issued market for GBs is needed as well as those for tri-party repos and lending and borrowing for GBs.

Second, improvement of back-office infrastructure is a must. The settlement cycles for GBs are not uniform—T+1 for the MSE and T+2 for the BOM—so unifying both cycles is desirable to promote inter-market linked transactions. The shortening of the cycle to T or T+1 should be considered in line with international trends. Investors must pay the purchase amount before placing a buying order. As a result, institutional investors such as PDs cannot conduct dealing transactions that purchase and sell the same GBs on the same day, which should be fixed to stimulate the secondary GB market. In addition, the introduction of intraday RP can boost the liquidity of the secondary market and expand buy-side demand for GBs.

Third, Mongolia should attract more foreign investors by offering custody services through the BOM to promote the secondary GB market. Investors such as foreign governments and international organizations could prefer custody services from the invested country's central bank rather than commercial banks to benefit from higher credibility and safety. Furthermore, development of infrastructure and institutions is needed to ensure that GBs are priced based on market value. And a GB futures market would attract foreign investors and allow them to avoid risk arising from volatility in foreign exchange and interest rates.

3. Building Infrastructure for GB Collateral-related Transactions

For short-term institutional reform that promotes growth of the security collateral system on the Mongolian capital market, this study proposes the adoption of (1) a legal mechanism similar to the exclusion of avoidance power under the Korean Act on Debtor Rehabilitation and Bankruptcy to ensure the legal stability of securities collateralization and securities financing transactions (SFT); (2) securities collateralization to allow the rehypothecation of collateral securities on the Mongolian securities market, thereby widening GB use; (3) legal basis for corporate income tax laws for substitute payments of interest from collateral securities used in collateralized, SLB, or repo transactions; and (4) infrastructure to facilitate tax treatment of substitute payments such as an account system for collateral securities. To accomplish these tasks, Mongolia might have to expand its securities collateral system to beyond GBs, which have no interest tax, to other bonds and stocks.

This study also proposes the following mid- to long-term policies for the Mongolian SFT market. First, improvement of Mongolia's SFT system is a must to allow the re-use of repo

purchase securities because such securities are only transferred to the buyer's account and cannot be re-used for other re-repo transactions or market sales on Mongolia's securities financing market. Adopting third-party repo services while enhancing the market's brokerage function are key elements for stimulating GB markets. Second, the following related measures must be considered: (1) creation of an SLB market to improve the market-maker function of primary dealers (PDs) on the PD market; (2) permission to short sell bonds on the listed bond market to allow arbitrage transactions on the Mongolian GB futures and spot markets; and (3) launch of securities lending by banks holding large amounts of GBs. Third, for OTC trading abroad and global collateralization of Mongolian GBs, a long-term solution is to outline permission to perform overseas OTC transactions through links with international central securities depositories.

01

CHAPTER

Advancement of Mongolia's Government Bond Issuance System

Wook Sohn (KDI School of Public Policy and Management)
Odontuya Baigalmaa (Ministry of Finance, Mongolia)

1. Introduction
2. Status and Challenges of the Mongolian GB Market
3. Development of the Korean GB Market
4. Policy Suggestions for Development of Mongolia's Primary GB Market
5. Conclusion

Keywords
Government Bond Market, Bond Issuance System, Auction Method, Primary Dealer, Benchmark Interest Rate, Financial Market Development

Advancement of Mongolia's Government Bond Issuance System

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Summary

Issuing and distributing government bonds (GBs) are pivotal for national economic development. The funds that the bonds raise are a vital funding source for national budgets related to the economy, welfare, defense, policymaking, and other sectors. GBs are also important for setting fiscal policy directions to reduce fluctuations in the business cycle and constitute a key element of financial market development.

GB issuance in Mongolia came to a grinding halt in October 2017, which consequently led to underdevelopment of both the primary and secondary markets. Even when such issuance was previously allowed, the primary market suffered a serious blow to its reliability due to interbank price fixing. Mongolia also has no primary dealers that specialize in GB tenders.

Mongolia is now at a critical juncture, as its policy could either push the economy into deep recession or lead an economic rebound. Its GB tender system tends to be swayed by price-fixing attempts by commercial banks, while operational inefficiency often leads to rising issuance costs. In this context, the Mongolian Ministry of Finance (MOF) has designated the advancement of its GB issuance system as a top policy priority.

Korea implemented aggressive policy after repaying its bailout loans from the International Monetary Fund (IMF) and made tremendous progress in advancing its GB market. Measures that Seoul took include diversifying and regularizing issuance periods, establishing the benchmark interest rate on the GB market, streamlining the secondary market, and laying the foundation for repurchase agreements. Korea thus has ample experience in accurately and appropriately responding to advice in advancing its GB market at a time when Mongolia is coming out of its IMF bailout program.

This project primarily aims to provide short- and long-term policy recommendations to the Mongolian government for the modernization of GB primary markets based on the Korean experience and the global standards suggested by international organizations. This study focuses on (1) identifying the optimal auction system to reduce GB issuance cost; (2) fostering institutional investors through the primary dealer system; and (3) diversifying GB maturity and standardizing issuance to form the benchmark interest rate.

The first recommendation is to change the auction pricing method to single or differential pricing to provide more incentives to potential bidders and raise GB demand. This decision, however, should entail comprehensive consideration of the scale of GB issuance and opinions from major bidders. A bidding limit per bidder is needed to prevent dominance by certain institutions. Another key task is to offer sufficiently large issuance volume at each auction to promote competitive price setting. Excessive supply at an auction, however, could give certain market participants high bargaining power and raise the risk of high issuance cost or auction failure. The appropriate size of an auction needs careful calibration based on auction results to assess the degree of competition and potential for price distortion. Overly frequent auctions could adversely affect development of the secondary market, thus the Mongolian government must strike the right balance between auction size and frequency in consultation with the market.

Second, adoption of the primary dealer (PD) system is needed for more market-oriented operation and sufficient demand for Mongolian government bonds (MGBs), as well as to entice institutional investors to participate in auctions. Eligibility conditions and essential elements of PDs include financial strength, credit rating, active role in the government securities market, proper management capacity and technological infrastructure, long-term commitment to market development, and good reputation and standing. A mix of obligations and privileges is an integral part of market development strategy. Other issues include a choice between banks only and that among banks, brokers, and institutional investors, that between foreign and domestic institutions, optimal number of PDs, and appointment length.

Third, an integrated system of GB (fungible) issuance is needed to expand issuance volume by bond type and subsequently raise liquidity for GBs. High liquidity GBs can be issued at lower interest rates due to a liquidity premium and reduced GB issuance cost. If market distortion occurs such as dominance or price fixing by a few institutions, fungible issuance can ensure stability of the GB market and price formation. A debt manager should also remain flexible by only providing general information at the beginning of the budget cycle, followed by the precise amounts of securities and issuance at the start of each quarter, month, or week before the next auction. Finally, coordination between the MOF and Bank

of Mongolia (BOM) is mutually beneficial for the respective functions of both entities. The central bank is an important source of data for debt managers on systemic liquidity conditions and monetary policy operations that affect the implementation of the planned issuance. Furthermore, stronger incentives can prove effective in encouraging market players to participate and continue improving the order-oriented GB trading system.

1. Introduction

Issuing and distributing government bonds (GBs) are pivotal for national economic development. The funds that GBs raise are a vital source of financing for allocating national budget related to the economy, welfare, defense, policymaking, and others as well as for setting fiscal policy direction. In other words, fiscal policy is the cornerstone of the national economy but GBs are what give the policy life. To reinforce GBs' fundraising functions, bond markets need rationalization to strike a balance with GB interest rates on the primary market. A recommended method for this is to consider Mongolian GB interest rates risk-free that serve as rates of reference. As seen in many advanced economies, short-, mid-, and long-term GB interest rates can serve as key benchmarks for developing numerous financial instruments and derivatives.

Owing to their broad scope of utilization, GBs can have a massive ripple effect on economic growth and capital market advancement. Such bonds are especially deemed an effective means of collateral because of their reputation as safe assets. For instance, GBs are often pledged as collateral for securities lending and borrowing because borrowers can use the bonds as cash-equivalent collateral given their extremely low risk. Furthermore, GBs play an essential role in repurchase (repo) trading, one of the most iconic financing techniques on the money market. A repo is a contract that sells securities and repurchases them at a specified price on a certain date. In other words, a repo is a loan deal pledging securities as collateral, and most collateralized securities for repo trading are GBs because of their status as highly safe assets. Since many advanced money markets abroad are focused on repo trading, central banks tend to conduct such trading to perform open market operations and adjust monetary liquidity and interest rates accordingly.

GB issuance in Mongolia, however, in October 2017 came to a grinding halt, consequently leading to underdevelopment of both the primary and secondary GB markets. The primary market has long been silent vis-a-vis GBs. Even when GB issuance was previously allowed, this market's reliability was seriously affected by interbank price fixing. To preclude this cartel-like collusion among banks and adopt an open-bidding quotation system to encourage

the correct prices, effective regulations on debt issuance and post-trade infrastructure are needed. Mongolia also has no primary dealers that specialize in GB tenders.

Mongolia is at a critical juncture as its policy could either push the economy into deep recession or lead an economic rebound. As a result, its economic environment offers both opportunity (e.g., 2020 exit from the IMF bailout program) and risk (e.g., business slowdown and the need for further fiscal spending in the post-COVID-19 era). But the nation's GB tender system is affected by price-fixing attempts by commercial banks, while operational inefficiency often raises issuance costs. In this context, Mongolian financial authorities have set streamlining of the GB issuance system as a top policy objective.[1]

To ensure transparency in the tender process, Mongolia must introduce and develop primary dealers (PDs). Such dealers should receive a preferential right to acquire GBs and serve as market makers by providing quotes for bids and asking prices, as well as for purchasing a certain amount of public debt, to improve the overall transparency of the GB market. Another way to boost market transparency is the adoption of qualified and government-approved institutional investors with proper capacity in risk management and expertise in financial investments, banking, insurance, and other related sectors. With more qualified investors like these, the Mongolian GB market can function better and with greater transparency.

The Mongolian capital market also lacks benchmark interest rates (i.e., reference rates that best represent those of the market). In advanced economies, GB yields are commonly used as benchmark rates but not in Mongolia, however, as most sovereign bonds there are short term and long-term bonds are rarely issued. Unless short-, mid-, and long-term GB issuance is well balanced, setting benchmark interest rates in Mongolia is considered impossible. Thus practical measures are needed to regularly issue a wider diversity of GBs to set benchmark standards.

In the past, the price formation function in Korea was weak on the GB market and the benchmark interest rate was not set properly, but the country implemented aggressive policy after repaying its bailout loans from the IMF and made tremendous progress in advancing its GB market. The measures the government took included diversifying and standardizing issuance periods, setting the benchmark interest rate in the GB market, advancing the secondary market, and laying the foundation for repo. Hence Korea's experience in accurately and properly responding to advice to streamline its GB market can

1 Anderson *et al*. (2010) reviewed the composition of public debt portfolios and improvements in macroeconomic fundamentals in emerging market countries, concluding that government policy and strategy provided a buffer when a crisis hit.

serve as a benchmark for Mongolia, which is about to graduate from its IMF bailout.

This project primarily aims to provide short- and long-term policy recommendations to the Mongolian government for modernization of the primary GB market based on the Korean experience and the global standards suggested by international organizations.[2]

This study used a variety of approaches. First, a close consultation channel was formed with the Mongolian government while preparing an advisory report, and an in-depth analysis of the status and challenges of Mongolian GB issuance and policy priorities was conducted through interviews and close communication with Mongolian policymakers. Second, GB issuance is deeply related to not just the MOF in Mongolia but also its fiscal, monetary, and financial market advancement policies. Thus this study gathered views from the BOM, Mongolian Stock Exchange (MSE), and Mongolian Central Securities Depository (MCSD) as well as institutional investors such as banks and brokerages.

Third, by obtaining literature on the status, challenges, and improvements of Mongolian GB issuance, this study made its policy suggestions more substantial and practical through economic analyses and policy recommendations based on KSP reports and those related to policy advisories by international organizations. Fourth, the study reflected opinions from Korean experts in the field and related ministries and institutions to obtain lessons from Korea's experience and policy suggestions stemming from them. Finally -- and most importantly -- this study before its release provided advice to high-ranking and working-level officials in Mongolia, as researchers discussed in depth the practical suitability and feasibility of recommendations and sought to prepare a "readily applicable" advisory report.

The practical advice in this report is expected to serve as a guide to advance the Mongolian GB market. Its aims are to stimulate discussions on the market's foundation and improve the system and practices such as raising the market function by introducing effective bond competitive bidding, designing a primary dealer system, and laying the groundwork to set the benchmark interest rate.

The remainder of this paper is organized as follows. Section 2 describes the arrangements and problems of the issuance system of Mongolian GBs. Section 3 introduces Korea's system and plan to advance its GB market, with an overview of the Korean primary market. Section 4 presents policy recommendations for Mongolia to design cost-cutting methods

2 The G20 Finance Ministers and Central Bank Governors Meeting in Moscow in February 2013 requested the World Bank and IMF to consider revising the Guidelines. A working group of debt managers was formed to assist World Bank and IMF staff in taking stock of the Guidelines in light of changes in the macro-financial environment and debt management practices over the last decade (World Bank and IMF, 2014).

for GB issuance, adopt a primary dealer system, set benchmark interest rates via regular GB issuance, and other actions. Section 5 as the conclusion proposes other areas for further cooperation.

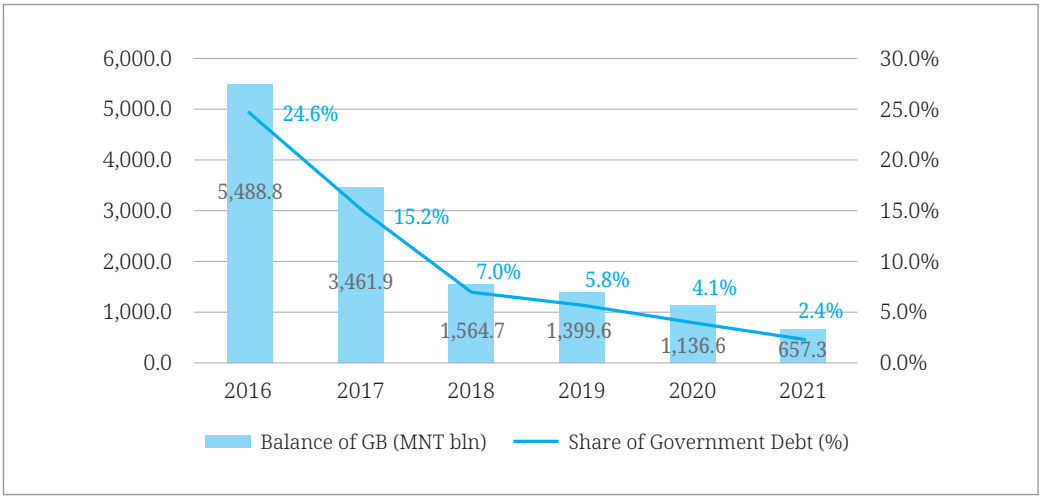
2. Status and Challenges of the Mongolian GB Market

2.1. Overview

Mongolia's government debt consists of Mongolian government bonds (GBs), foreign securities and loans, government debt guarantees, and build–transfer concessions. According to Article 19.3 of the Fiscal Stability Law, the share of government debt as a percentage of GDP was not to exceed 70% in 2021. In the same year, overall government debt accounted for MNT 26,912.7 billion in present value and its share of GDP fell 4.45 percentage points from 2019 to 50.7%, well below its ceiling.

As shown in [Figure 1-1] and <Table 1-1>, the amount of outstanding MGBs decreased MNT 2,804.6 billion from 2017 to MNT 657.3 billion in 2021, accounting for 2.4% of government debt. Meanwhile, foreign securities equaled 30.3% of government debt, 12.6 times higher than the government's domestic securities.

[Figure 1-1] Government Debt and Bond Issuance in Mongolia



Source: Mongolian Ministry of Finance.

<Table 1-1> Mongolian Government Debt during 2019-2021

(Unit: MNT tln)

Debt instruments	2019	2020	2021
1. Gov't domestic debt	1,399.6	1,136.6	657.3
1.1. Securities	1,399.6	1,136.6	657.3
2. Gov't foreign debt	20,728.1	24,851.4	24,693. 3
2.1. Securities	7,927.2	8,354.0	8,175.6
2.2. Loan	12,800.9	16,497.4	16,517.7
3. Other debt	2072.0	1,910.6	1,550.4
3.1. Gov't debt guarantees	1,076.3	1,060.4	876.5
3.2. Concession	995.7	850.2	673.9
3.3. Domestic loans	-	-	17.2
Total gov't debt (1+2+3)	24,199.7	27,898.6	26,918. 16
Debt limit set by budget sustainability law	75%	70%	70%
Gov't debt/GDP	55.1%	62.3%	50.7%

Source: Mongolian Ministry of Finance.

Since 1996, the Mongolian government has issued GBs on the open market with commercial banks, individuals, and companies. These domestic issuances were held irregularly to cover seasonal budget shortfalls and finance projects and programs.

Since December 2012, the Bank of Mongolia (BOM) has regularly held every Wednesday a wholesale GB auction at multiple price auctions. Retail GB auctions were launched in 2014 and conducted by the Mongolia Stock Exchange (MSE), in which securities could be issued to any individual, business, or organization authorized by licensed securities companies. Auctions were typically held every Tuesday. The price for retail bonds through the MSE was determined on a non-competitive basis at a price set at the BOM auction the week before. Banks had the advantage of participating in the MSE auction at a pre-determined price, a free option for banks to place a higher yield bid in the BOM auction with another option to pick up any shortfall in the MSE auctions.

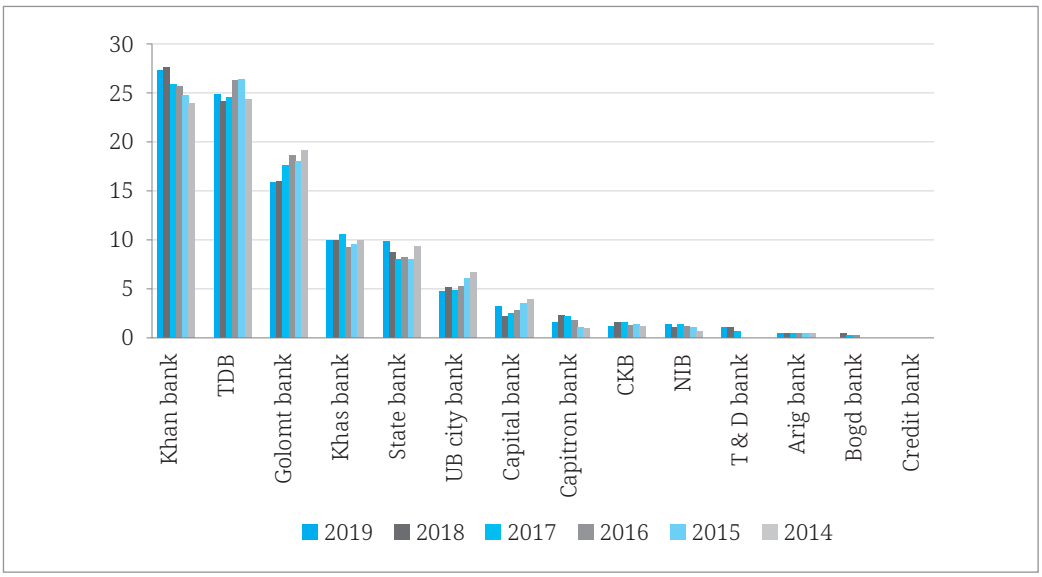
Secondary market trading began in 2014 under the same BOM interbank system, and this led to the adoption of wholesale auctions. Due to the limited number of participants in the interbank system, trading was almost non-existent. The only relevant pricing information available are the BOM policy and repo rates and the prices of central bank bills (CBBs), which are mostly between one- and six-month tenors. Moreover, large commercial banks

offer term deposits at a one-year rate above BOM short-term rates, indicating an abnormally steep yield curve over this range.

As shown in [Figure 1-2] the concentration of market share—the top five banks held over 90% of the market in 2019—complicated the ability of the Ministry of Finance (MOF) to broaden its investor base. Domestic government bond issuance is expected to replace central bank T-bills since government securities are tax-free and more attractive to domestic banks.

[Figure 1-2] Market Share by Bank as % of Assets

(Unit: %)



Note: Merger of UB city bank and TDB not included.
Source: Mongolian Ministry of Finance.

In October 2017, Mongolia suspended the issuance of domestic securities to avoid high financing costs and improve its budget situation. Prior to the suspension, regular issuances with bond maturities ranging from 3 months to 10 years were done with market-based instruments. Yet issuance was fragmented across wholesale and retail-based systems that resulted in two comparably priced but non-fungible instruments.

In 2022, the Mongolian government plans to issue domestic securities up to MNT 1.8 trillion in net value to finance the expected deficit in the year's approved budget. The overall fiscal deficit is projected to reach 5.1% of GDP, in line with the ceiling specified in the Law on Fiscal Stability.

Article 26.2 of the Law on Debt Management deems the MOF as the sole issuer of GBs,

and Article 20.2 of the Law on Procurement of Goods, Works, and Services with State Local Property says such bonds can be used as collateral for tenders. The MOF, Mongolian Central Securities Depository (MSCD), and State Procurement Agency (SPA) are collaborating to adopt an upgraded system to use this opportunity and amend regulations.

2.1.1. Structure and Types of MGBs

Section 26 of Article 26.1 of Mongolia's Law on Debt Management says GBs shall be issued to finance the budget deficit and seasonal budget shortage, support the domestic GB market and refinance debt. GBs have the following types per Subclause 27 of Article 27.1 of the Law on Debt Management: (1) short-term securities (up to a year), namely treasury bills (T-bills); (2) mid-term securities (one to five years), namely treasury notes (T-notes); and (3) long-term securities (over five years), namely treasury bonds (T-bonds).

<Table 1-2> shows the use of Mongolia's GB proceeds and interest rates as of 2016.[3] Most outstanding GBs had interest rates over 15%, while certain securities trading with a private placement to finance specific government measures had rates below 3%. The GBs with the highest coupon rates were mainly used to finance the budget deficit in 2016. Unsurprisingly, this year saw economic hardship with the Mongolian economy shrinking 1.2% and suffering inflation of 1.3%, whereas the BOM policy rate surged to 15%. USD-denominated securities trading for human development funding accounted for 5.9% of outstanding GBs.

<Table 1-2> Outstanding Mongolian GBs in 2016

(Units: MNT mln, MNT/USD rate of 2,489.53)

№	Use of proceeds	Total	Interest rates					
			0% - 3.0%	3.0% - 6.0%	6.0% - 9.0%	9.0% - 12.0%	12.0% - 15.0%	15.0% - 18.0%
Total		5,488.80	1,374.00	179.29	224.06	173.50	369.79	3,168.13
1	MNT	5,165.10	1,374.00	79.71	-	173.50	369.79	3,168.13
1.1	4000 household	1.99	-	-	-	-	1.99	-
1.2	MCS LLC project payment	64.99	-	-	-	-	-	64.99
1.3	Good herder program	79.71	-	79.71	-	-	-	-
1.4	Good stock program	374.00	374.00	-	-	-	-	-
1.5	Budget deficit: 2013	680.60	-	-	-	138.00	20.00	522.60
1.6	Budget deficit: 2014	460.50	-	-	-	35.50	127.50	297.50
1.7	Budget deficit: 2015	450.47	-	-	-	-	-	450.47
1.8	Budget deficit: 2016	1,767.36	-	-	-	-	163.30	1,604.06

3 Data from 2016 is used because this year gives a clear context of active securities trading and captures the latter's comprehensive structure.

<Table 1-2> Continued

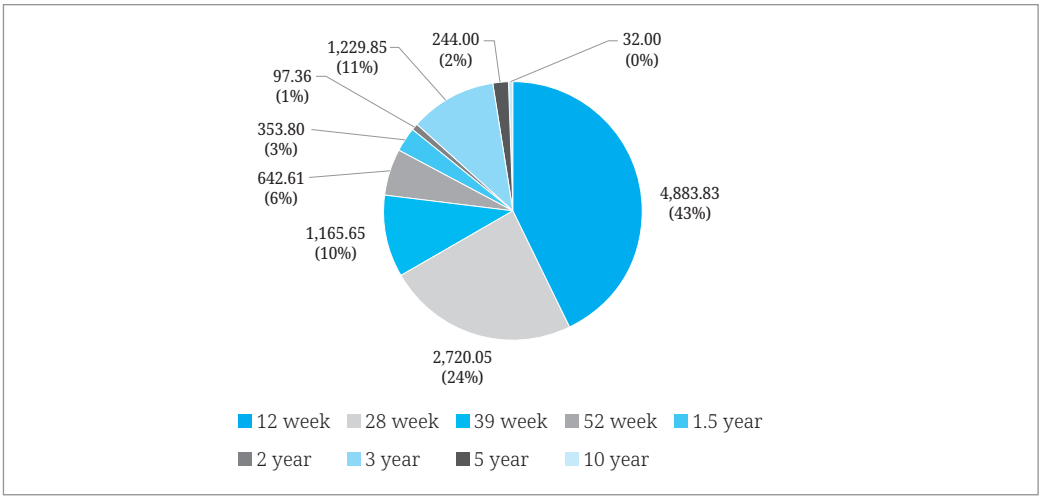
№	Use of proceeds	Total	Interest rates					
			0% - 3.0%	3.0% - 6.0%	6.0% - 9.0%	9.0% - 12.0%	12.0% - 15.0%	15.0% - 18.0%
1.9	Human development fund (HDF): 2016	103.50	-	-	-	-	-	103.50
1.10	HDF: 2012, 2014	182.00	-	-	-	-	57.00	125.00
1.11	DBM equity increase	1,000.00	1,000.00	-	-	-	-	-
2	USD	323.64	-	99.58	224.06	-	-	-
2.1	HDF: 2015	174.27	-		174.27	-	-	-
2.2	HDF: 2016	149.37	-	99.58	49.79	-	-	-

Source: Mongolian Ministry of Finance.

[Figure 1-3] illustrates that 83% of Mongolian GBs issued were T-bills (12-52 weeks), 17% had 1-3 years tenor, and only 0.28% of securities issued had long-term maturity (10 years) between 2012-2017. Also, the most liquid GB had 12 weeks (43%). Mongolia lacks sufficient demand for long-term government securities mainly because of the lack of long-term private savings funds, and the MOF must meet certain conditions to issue long-term securities.[4] The revival of bond issuance on the primary market, however, is expected to boost market confidence, attract more investors, allow the MOF to issue bonds with longer maturities, and extend the yield curve to more long-term maturities.

[Figure 1-3] Mongolian GB Issuance by Maturity (2012-2017)

(Unit: MNT bln)



Source: Mongolian Ministry of Finance.

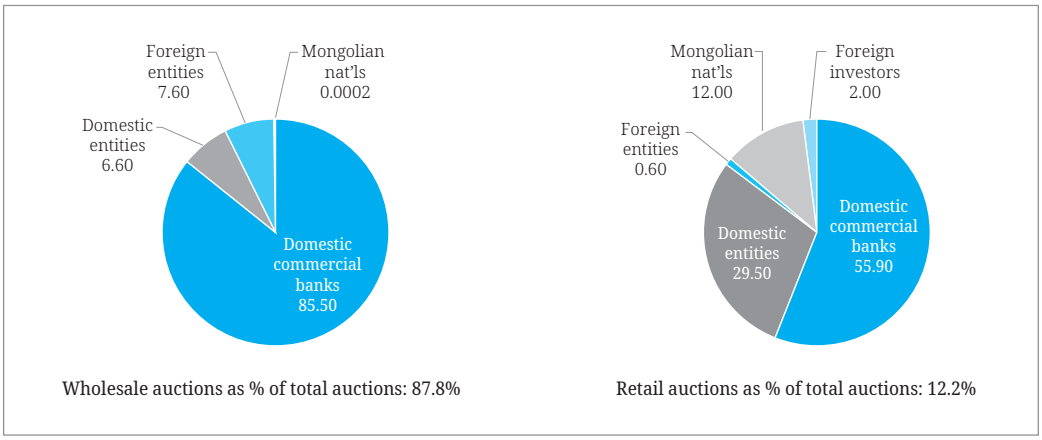
4 Mutual funds and other investment instruments would boost trading in the Mongolian liquidity and secondary markets and insurance and pension funds would raise demand for long-term securities. All of these, however, are at an early stage of development in the country.

2.1.2. Market Participants in Mongolian GB Market

[Figure 1-4] shows that between 2012 and 2017, the Bank of Mongolia (BOM) issued 87.8% of the nation's securities on the wholesale market, while the Mongolian Stock Exchange (MSE) issued the remaining 12.2% on the retail market. By institution, domestic commercial banks bought 82.1% of the securities, domestic entities 9.4%, foreign players 6.7%, Mongolian nationals 1.5%, and foreign investors 0.2%. Given the leading presence of banks on the domestic financial landscape and their liability structure focused on short-term deposits, most demand for GB instruments is skewed toward the short term (up to three years), a lingering structural problem that undermines maturity extension.

[Figure 1-4] Holders of Domestic Government Bonds (2012-2017)

(Unit: %)



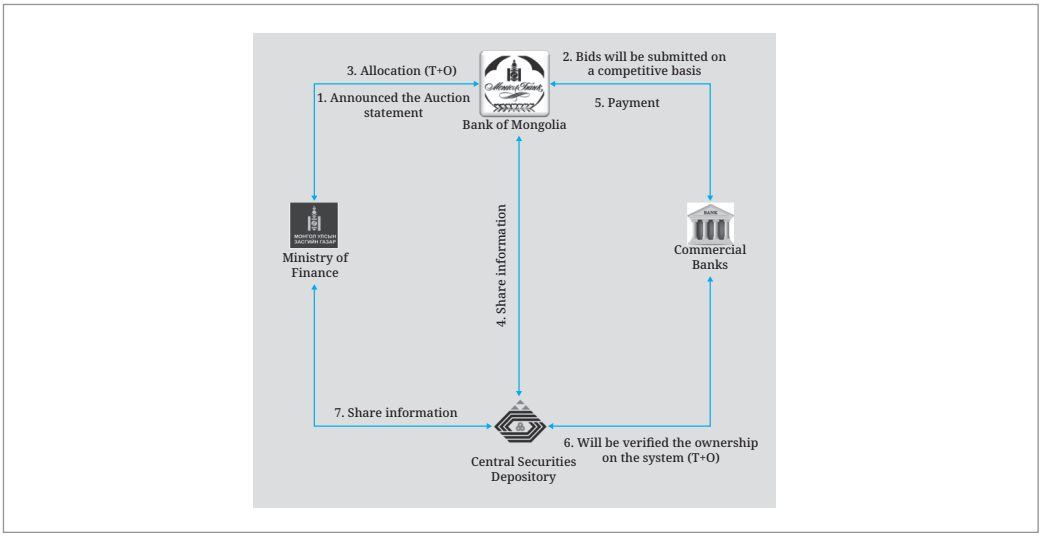
Source: Mongolian Ministry of Finance.

2.1.3. Operational System for Mongolian GB Issuance

The Bank of Mongolia (BOM) is the government's fiscal agent for primary market trading per the schedule of GB trading approved by Ministry of Finance (MOF). This follows the process as shown in [Figure 1-5].

1. The MOF announces the trading schedule of GBs through the BOM.
2. Mongolian nationals and entities who want to buy GBs submit proposals to the BOM through banks with non-competitive bids.
3. The BOM and MOF report the results of GB trading.
4. The MCSD transfers GB payments and maintains a registry of bond holders.

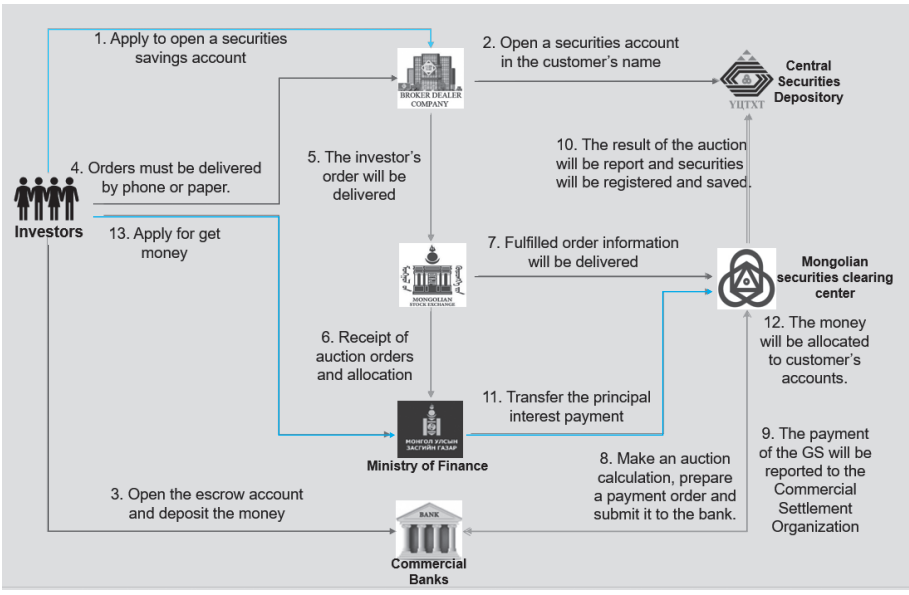
[Figure 1-5] Process of Primary Market Issuance



Source: Mongolian Ministry of Finance.

The Mongolian Stock Exchange (MSE) was opened in 1991 to enforce the privatization of public entities in the early stages of the country's transition from a centrally planned economy to a market-driven one. In the mid-1990s, a secondary market was added and private brokerages started operating on the stock exchange. Retail GB trading in Mongolia is described in [Figure 1-6].

[Figure 1-6] Process of Secondary Market Trading



Source: Mongolian Ministry of Finance.

2.1.4. Infrastructure for Mongolian GB Issuance

A. Wholesale auction system

The Bank of Mongolia (BOM) restricted entities who held accounts with the central bank from accessing the bank's trading platform. Wholesale GBs were issued on the BOM's inter-bank system, which only commercial banks had access to. Settlements were done electronically on the same day (T+0). The BOM used to perform system maintenance free as a fiscal agent of the government and required no prefunding for each auction from commercial banks since it drew the settlements automatically from their accounts. Investors other than banks had the option to try a non-competitive bid at a weighted average yield set on the day.

B. Retail securities systems

The MSE used to hold retail MGB auctions in which participants had to use services from registered and licensed brokers, leaving the platform at the mercy of such brokers. The difference between retail and wholesale trading is that the former requires participants to place funds in advance in bank accounts. So those wishing to bid at retail auctions must confirm and sign transaction documents and deliver them to a broker. Afterwards, the broker needs to submit the documents to the MSE. The settlement was T+1. Commercial banks were not restricted from participating in retail auctions, so they tended to use brokerages as financing intermediaries.

Though the MSE is a government-owned company, the MOF used to pay transaction fees to support the exchange. This platform is technically available for use in both wholesale and retail auctions. The system has the advantage of allowing individuals to participate in auctions but its high intermediary transaction fee might pose limitations. The system has a license from the London Stock Exchange and is built around the real-time gross settlement (RTGS) system, with separate classifications in the MCSD, primary auction systems, and trading platforms. The MSE also has a mobile app for individuals to trade on the exchange.[5]

C. Status of institutional investors

Three government entities in Mongolia have been actively trading GBs since 2012 on both the wholesale and retail markets: the Development Bank of Mongolia, Deposit Insurance

5 The blockchain-based UBX system is in the testing stage as developed by a private company. This platform has the advantage of attracting new clients because of no need for broker companies or for users to pay a fee. The government, however, has no commitment to use this system. Furthermore, UBX can be a tool for conducting retail auctions based on non-competitive bids.

Corporation, and Social Insurance Fund. Sometimes, they used to buy GBs from private placement. The annual budget law specifies the amount of GB purchases required for the fund.

A potential buyer of GBs is a pension fund. As the pension sector is predominantly owned by the government as part of the fiscal budget, the private pension fund needs reform, something that requires a lot of effort from the Ministry of Labor and Social Welfare. The low number of mutual funds means little demand for longer-term GBs.

As of 2020, 15 general insurers held only MNT 281 billion of assets, while the country had just 2 reinsurers and 1 life insurance company. This shows the insignificant scale of GB investment in Mongolia.

2.2. Challenges of Mongolia's GB Market

Mongolia suspended its GB auction from October 24, 2017, mainly due to high interest rates. For instance, the T-bill rate peaked at 18% in 2016 and applied payment pressure for outstanding treasury cash. To reduce the interest cost burden in the fiscal budget, domestic GBs worth MNT 370.5 billion were repurchased before maturity in 2017, decreasing outstanding domestic securities.

The Mongolian government in 2022 plans to initialize domestic securities trading. The MSE system and that of the BOM interbank are available, but optimal infrastructure is required to broaden the investor base and attract as many institutional investors as possible. A historically troubled banking system has dominated Mongolian finance, with patchy efforts to ensure an adequately capitalized and well-regulated banking sector failing to meet goals.

Access to finance has remained stagnant by corporations and small and medium enterprises (SMEs). The financial system suffers from significant structural excess liquidity with few alternative opportunities for investment. The low competition in the wholesale market fueled the rise in domestic financing costs that in turn led to the suspension of securities issuance, while risk premium was likely to play a significant role. The MOF has identified the overwhelming importance of developing the domestic debt market to expand the investor base for GBs beyond commercial banks, which have historically dominated primary auctions.

The MOF has had little interaction with the domestic financial market in debt

management. Given the lack of short-term securities, the BOM has stepped in to issue central bank bills (CBBs) on a significant scale to facilitate enforcement of monetary policy.

2.2.1. Legislation on GB Issuance

The most notable legal framework for the Mongolian GB market is the Law on Debt Management, which regulates GB issuance and government debt ceilings. The other legal bases include the annual borrowing plan, Law on Budget, Law on Fiscal Stability, Law on the Securities Market, and Law on the Central Bank (BOM).

According to the fiscal stability law, outstanding GBs are considered part of government debt subject to the statutory debt limit in the present value of the ratio of government debt to GDP, with a long-term anchor of 60%. The debt management law specifies the purposes of GB issuance for refinancing debt, supporting the domestic debt market, and financing the budget and seasonal budget deficits.

Most importantly, Article 26.4.1 of the Law on Debt Management bans off-budgetary GB trading. The amount of a security should be within the upper limit of the borrowing range specified for the fiscal year and in line with the debt management strategy document. In 2019, the Mongolian government approved the Regulation of Primary and Secondary Market Operations of Domestic GB, which also governed bond issuance on the primary market and its trading on the secondary market.

According to its 2022 borrowing plan, the Mongolian government will issue GBs worth up to MNT 2.1 trillion. The MOF aims to set the benchmark interest rate, support the regular issuance of domestic securities, and meet the government's financing needs. In 2019, the Regulation was approved and in 2021, the laws on the securities market and debt management were amended.

2.2.2. Relationship between MOF and BOM

Section 17 of Article 17.2 of the Law on the Central Bank says, "GBs could be sold to the BOM upon the Government's request if they meet the objectives of monetary policy and market conditions." Article 18.1 says, "The BOM may lend to the Government or purchase short-term GBs on the condition of repayment before the end of the fiscal year to cover the seasonal revenue shortage and meet the expenditure gap." This legal environment assures the BOM's autonomy from the Mongolian government.

Since 2012, the BOM has conducted primary trading of GBs at the request of the MOF. Both organizations cooperated in announcing GB trading declarations, reporting trading results to the public through their websites, and maintaining the interbank securities trading system.

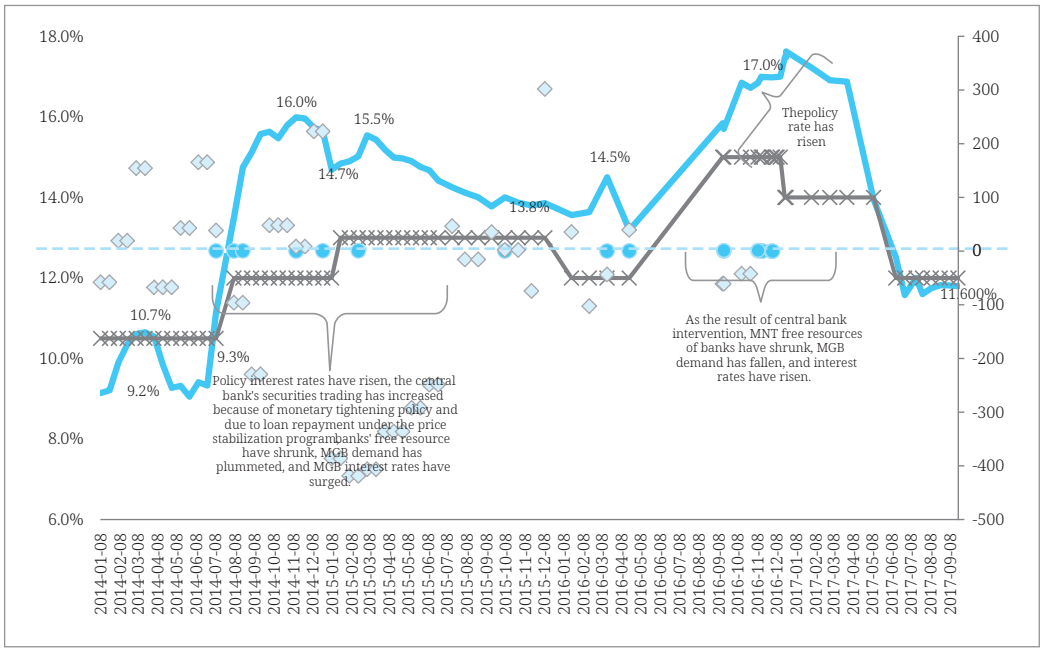
The Mongolian government via the BOM has conducted primary market trading according to the schedule of GB trading approved by the MOF on a quarterly basis. Before, two organizations held meetings with the relevant departments to discuss the schedule.

Prior to 2018, C-bills were issued 3 days a week, but the BOM started issuing them only on Wednesdays at 1, 4, 7, and 28 weeks at an average interest rate of 6%. C-bill trading must follow Mongolian monetary policy to manage excess liquidity at banks. The graph below shows the correlation between the policy and T-bill rates and the impact of monetary policy intervention on the T-bill rate.

[Figure 1-7] shows that the T-bill rate follows the movement of the BOM's policy rate. In select cases, the MOF faced underbidding while tightening monetary policy actions. When excess liquidity at banks falls under 0, the T-bill auction fails when the rate is high, a phenomenon that often occurs during an economic crisis and coincides with a price stabilization program.

The BOM takes money market measures like monetary policy actions and foreign exchange interventions that significantly impact demand and interest rates on short-term GBs. In the first half of 2016, BOM intervention reduced MNT resources and GB trading could not reach its pre-announced level. Soon, the policy rate was raised to 15%, raising interest rates to 14%–17% in six months. The BOM's foreign exchange intervention in the last quarter of 2016 for exchange rate stability also weakened demand for GBs and made it difficult to finance the budget deficit. The central bank's policy rate hike is likely to affect domestic interest rates, which are projected to be issued in 2022, and thus the debacle of 2016 could recur.

[Figure 1-7] Correlation between Policy Rate and T-bills and Impact of Monetary Policy Intervention on T-bill Rate



Source: Mongolian Ministry of Finance.

3. Development of the Korean GB Market

This section examines how the Korean government bond (GB) market has developed in response to economic development and changes in economic structure to draw lessons for the advancement of the Mongolian GB sector. By emphasizing both the positive and negative aspects of the Korean experience, this study seeks to help the Mongolian government take specific and practical measures based on lessons from Korea.

3.1. Brief History of the Korean GB Market[6]

Since its development began in 1950, the Korean GB market can be divided into three stages: beginning, stagnant period, and reform era.

The first stage was between 1950 and 1972 before the nation's listing of corporate bonds. During this period, eight types of GBs were primarily used for post-war reconstruction and industrial development: national foundation, telephone, road construction, land

6 The Ministry of Economy and Finance and Seoul National University (2013) and Park (2008) present a nice chronological summary of the development of the Korean government bond market.

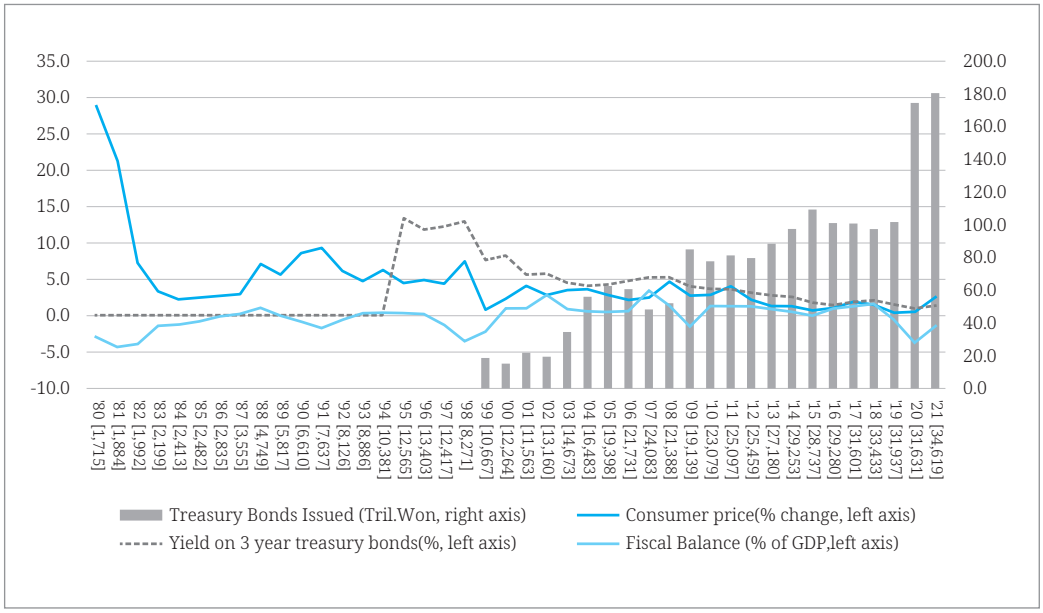
compensation, industrial recovery, treasury bill, treasury bill fund for global institutions, and compensation for requisition.

The second period marked a stagnant era that began in 1972, when corporate bonds were first listed, and continued through the 1997-1998 Asian financial crisis. The GB market shrank during this period while that of corporate bonds expanded rapidly. Yet the GB market was used to raise funds to meet national housing demand and drive economic restructuring, such as the promotion of heavy industries. Twelve types of GBs were issued during this period: National Treasury Bond, National Housing Bond (NHB), National Investment Bond, Foreign Exchange Stabilization Fund Bond, Bond for Private Claims to Japan, Grain Bond, Telegraph and Telephone Bond, Railroad Construction Bond, NHB 2 (I), Public Site Compensation Bond, Korea Treasury Bond, and NHB 2 (II).

Before the Asian financial crisis, Korea's GBs were not sufficiently modernized and had many problems. Most importantly, the small scale of the GB market meant that it played an inadequate role as a pillar of finance. In developed economies, the GB market plays an important role in preserving financial and economic stability and revitalizing the financial market in circumstances with no inflationary pressure. In Korea, the market failed to perform these functions. The Ministry of Economy and Finance and Seoul National University (2013) argued that the Korean government maintained fiscal soundness, such that the need for budget deficit financing was small; this significantly influenced the development process of the GB market. Given this principle of fiscal soundness, the government utilized bond financing for the compulsory procurement of resources needed for specific policies, such as reconstruction after the (Korean War), land reform, industrialization, transformation to heavy-chemical manufacturing, and resolution of excessive housing demand, among others. This essentially resulted in financial repression, as banks were mandated to invest in GBs at administered interest rates.

Moreover, GBs had few types and were mostly mid- or short-term bonds with a maturity of under five years. The overall GB market was thus not functioning and its interest rate could not serve as a benchmark since the market rate was inelastic and held less meaning in the structure of interest rates. [Figure 1-8] illustrates Korea's high and unstable inflation, balanced fiscal health and inelastic interest rates before the Asian financial crisis.

[Figure 1-8] Macroeconomic Conditions and Government Bond Market Development in Korea



Source: Mongolian Ministry of Finance.

The third period of reform refers to the time between the 1997–1998 Asian financial crisis and the present. Recognizing that GB development was crucial for advancement of the financial market, the Korean government devised policy to fundamentally transform the market. Rather than issuing new GBs, the focus was on new tasks like standardizing GB issuance, adopting an integrated bond issuance system, opening a GB secondary market, and changing bidding methods. Other measures included the setup of a primary dealer (PD) system, issuance of long-term GBs, opening of separate trading for registered interest and principal of securities (STRIPS), and inflation-linked GBs. These actions fundamentally differed from those in the past in offering a decisive opportunity to modernize Korea's GB market.

Korea introduced many systems to help revive its GB market so that it did not differ from those of developed countries. As a result, the GB market not only grew rapidly in size but also improved in market structure and operation. The scope of investors also grew much wider to include those abroad, and the price of GBs now reflects market information far better. Moreover, the types of products were diversified and the GB market's infrastructure greatly improved through the adoption of a competitive bidding system, inter-dealer market, and benchmark interest rates. See Appendix 1 for a chronological history of the Korean GB market.

3.2. Implications of the Korean Experience

The Korean experience in GB market development provides important lessons for Mongolia's plans to develop its sector.

First, Mongolia's financial sector development appears weak compared to its overall economy. Korea's experience shows the importance of properly utilizing the GB market for a range of purposes even if its functioning is inadequate. The Korean government has utilized its GB market during the nation's development period when it was difficult to meet funding demand. This suggests that Mongolia must set policy goals for its GB market through its own customized strategy rather than simply utilizing the GB market measures of other developed economies. So for the proper functioning of the GB market, a strategy that best fits Mongolia's stage of economic and financial development is recommended.[7]

Another key point is that the development of financial markets is closely related to the issuance of GBs of varying maturities. In general, demand for long-term GBs is limited when financial markets are less developed and have a bank-centered structure because bank liabilities are short. As seen in Korea, GBs with longer maturities appear with the development of insurance companies and pension funds as the latter have a long liability structure, leading to sufficient demand for long-term GBs. When Korea in May 2000 announced a plan to develop its GB market, three- and five-year bonds were issued and 10-year bonds were added in the same year. The maturity structure of Korean GBs was developed with the adoption of 20-year bonds in 2006, 30-year bonds in 2012, and 50-year bonds in 2016.

Second, Mongolia must maintain the function of its GB market to avoid the latter from deviating from sound fiscal principles. Another premise is that sound economic development requires the pursuit of price stability and streamlining of the financial market. Although the GB market is the core of financial market development, it can operate smoothly only when other financial sectors are developed and with low cost of bond issuance along with price stability. In addition, the proper legal infrastructure for financial transactions and regulations related to GBs will promote more investment incentives and stimulation of the financial and GB markets.

Third, policy toward the development of the GB market can be broadly classified as those for revitalizing the primary and secondary markets and improving the market's structure.

7 In Korea, GBs were mainly used to implement development policy and the government prioritized fiscal soundness. Thus the Monetary Stabilization Bond issued by the Bank of Korea was mainly used to control liquidity or monetary supply.

So the government has additional roles to play when GB market actions are conducted such as expanding the volume of GB issuance, spurring GB competition by applying a market system, diversifying GB terms and instruments, and establishing basic infrastructure. Regardless of how well each policy is designed and implemented, proper functioning is difficult if such policies conflict with each other or are not integrated. So the government should continue efforts to integrate each policy to form a consistent system for the primary and secondary markets and basic infrastructure. After the Asian financial crisis, the Korean government consolidated a wide range of GB market reforms into an integrated system. As a result, the structure of GB market operations shows smooth flow from the primary to the secondary markets and GB infrastructure.

3.3. Overview of the Korean GB Primary Market[8]

Government bonds (GBs) in Korea include Korean Treasury Bonds (KTBs), Treasury Bills, National Housing Bonds (NHBs), and Reimbursement Bonds. The ways in which they are issued and their interest rates differ depending on the bond type. For example, KTBs and Treasury Bills are issued through competitive bidding; NHBs are issued to parties that must purchase them for licenses from the government and for registration applications to the government; and indemnity bonds are issued directly to the parties concerned. KTBs are coupon bonds that pay interest semi-annually, and Treasury Bills are discounted (zero-coupon) bonds. NHBs and Reimbursement Bonds are compound bonds in which both the principal and interest are repaid at maturity (Bank of Korea, 2021a).

KTBs have 6 types of maturity: 3, 5, 10, 20, 30, and 50 years. The volume of issuance and proportion of each maturity type are illustrated in [Figure 1-9]. In 2020, the issuance of new Korean GBs reached KRW 174.5 trillion (except for inflation-linked GBs), and 3-, 5-, 10-, and 30-year bonds accounted for most of them. The number of maturity types in February 2021 increased to seven with the addition of two-year KTBs. At the end of 2021, two-year bonds accounted for 6.9% of the outstanding balance of KTBs, those of 3 years 20%, 5 years 17.6%, 10 years 20.3%, 20 years 5.4%, 30 years 26.5%, and 50 years 2.5%. The most issued Treasury Bills had maturities of three months or less and NHBs (Type 1) five years. Since March 2007, 10-year inflation-linked KTBs have been issued.

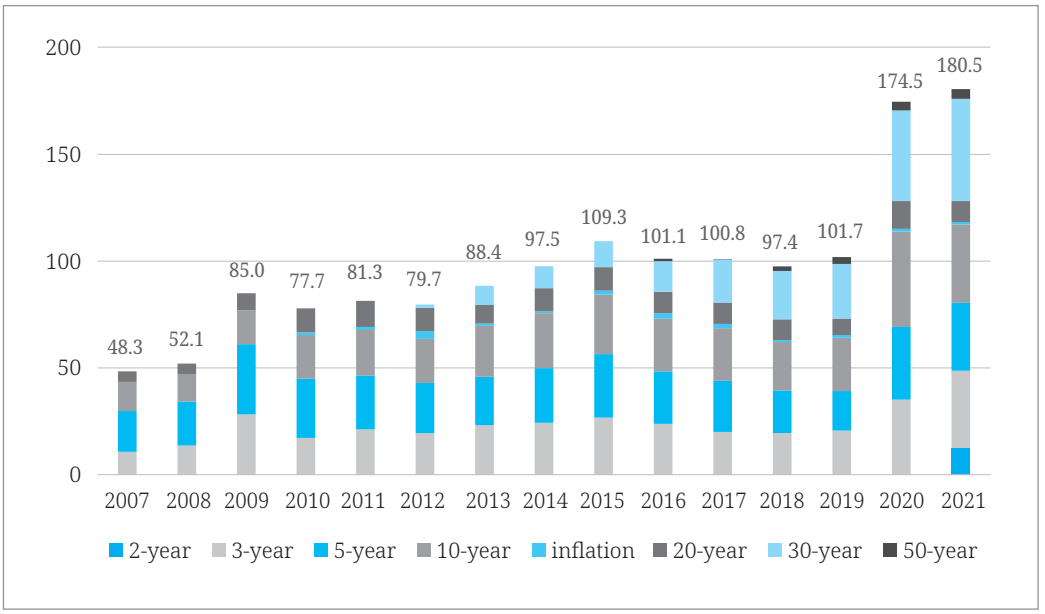
For GBs to be issued, the Minister of Economy and Finance (MOEF) first receives requests for issuance from government ministries and makes a plan for issuance. This plan is then

8 The Asian Development Bank (2018) covered the formation and early development of the Korean bond market, challenges and direction, legal and regulatory framework, and market characteristics. It provided a detailed explanation of the definition of debt securities, bond types, market segmentation, bond-issuing methods, governing laws and jurisdictions, registration of debt securities, bond trading methods, bond pricing, market participants, definition of professional investors and related classification, market features for investor protection, and others.

reviewed and voted on by the National Assembly, and if approved, bonds are issued. The government decides the amount to be issued within the limits set by the National Assembly (Bank of Korea, 2021a).

[Figure 1-9] Trends in Korean GBs by Maturity

(Units: KRW tln, %, year)



Source: Korean Ministry of Economy and Finance (2022).

The Bank of Korea (BOK) issued GBs other than NHBs using BOK-Wire+. KTBs are issued through competitive bidding among KTB primary dealers (PDs). Treasury Bills can be issued to PDs, eligible counterparties for the Monetary Stabilization Bond (MSB), and institutions designated government debt managers. KTBs are generally auctioned every Monday from 10:40 a.m. to 11:00 a.m. and two- and 20-year bonds are sold at the same time Tuesdays and 50-year bonds and KTBs Fridays. Upon receiving payment for auctioned KTBs, the BOK registers them with the Korea Securities Depository (KSD). After the securities are transferred electronically to customer accounts, all issuance and settlement procedures are completed (Bank of Korea, 2021a).

3.3.1. Types of Korean GBs

Since 1950, the Korean government has issued 21 GBs after national bonds debuted to make up for insufficient tax revenues under the aim of meeting fiscal demand. Today four types of bonds are issued: Treasury, Treasury Bills, Foreign Exchange Equalization Fund, and NHBs. <Table 13> shows the issuance method, coupon rate, interest payment method,

and maturity of issued Korean GBs.

(1) Korea Treasury Bond

The Korea Treasury Bond (KTB) is issued by the government to supply the necessary funding for accounting. Since 1993, GB-related laws have been amended to integrate and issue GBs and enhance the government's liquidity, farmland, railways, rural development, grain securities, and KRW-denominated bonds for the Foreign Exchange Equalization Fund. KTBs have the largest issuance volume and are among the most actively traded GBs. The latest KTB issuance serves as an indicator of interest rates in the financial market. Since the end of 2021, KTBs have come as 7 types of fixed-rate bonds spanning 2, 3, 5, 10, 20, 30, and 50 years and 10-year inflation-linked bonds, whose principal and interest fluctuate depending on prices.

(2) Treasury Bills

This bond issued by the government compensates for temporary deficits during the fiscal year (January 1 to December 31), usually for one to three months. If necessary, the government under the National Treasury Management Act raises funds by issuing such bills or temporary borrowing from the Bank of Korea (BOK) up to the limit approved by the National Assembly and repays in full with tax revenue. Financing a Treasury Bill is more difficult than temporary borrowing from the BOK, but has the effect of easing the central bank's monetary management burden by raising short-term funds on the financial market and using them for fiscal spending.[9]

(3) Foreign Exchange Stabilization Fund Bond

The Foreign Exchange Stabilization Fund Bond is issued by the government in the form of a payment guarantee under the Foreign Exchange Transaction Act (with the aim of financing the fund). The bonds help stabilize the value of the KRW and prevent adverse effects of speculative inflow and outflow of foreign currencies. Since 1987, two types of bonds have been issued: foreign currency and KRW denominated. Only foreign currency-denominated bonds have been issued since November 12, 2003, because those denominated in KRW were absorbed into KTBs. Pre-issued KRW-denominated bonds were repaid on July 4, 2008, and there was no balance at the time of this study.[10]

9 In its supplementary conditions, the BOK stipulates that "the government should actively try to raise temporary shortfall funds through market issuance of Treasury Bills rather than borrowing from the BOK."

10 Foreign currency-denominated bonds for the Foreign Exchange Stabilization Fund serve as a benchmark interest rate for foreign currency-denominated Korean bonds when domestic financial institutions borrow funds on the international financial market. Such bonds are also a key gauge of Korea's national creditworthiness.

(4) National Housing Bond

The National Housing Bond (NHB) is issued by the Ministry of Economy and Finance (MOEF) at the request of the Ministry of Land, Infrastructure, and Transport (MOLIT) through the Housing and Urban Fund to raise funding for national housing projects. Financial institutions are designated by MOLIT to handle sales and repayment of NHBs; five commercial banks—Woori, Nonghyup, Shinhan, Industrial, and Kookmin—are the institutions at this time.

<Table 1-3> Details of GB issuance

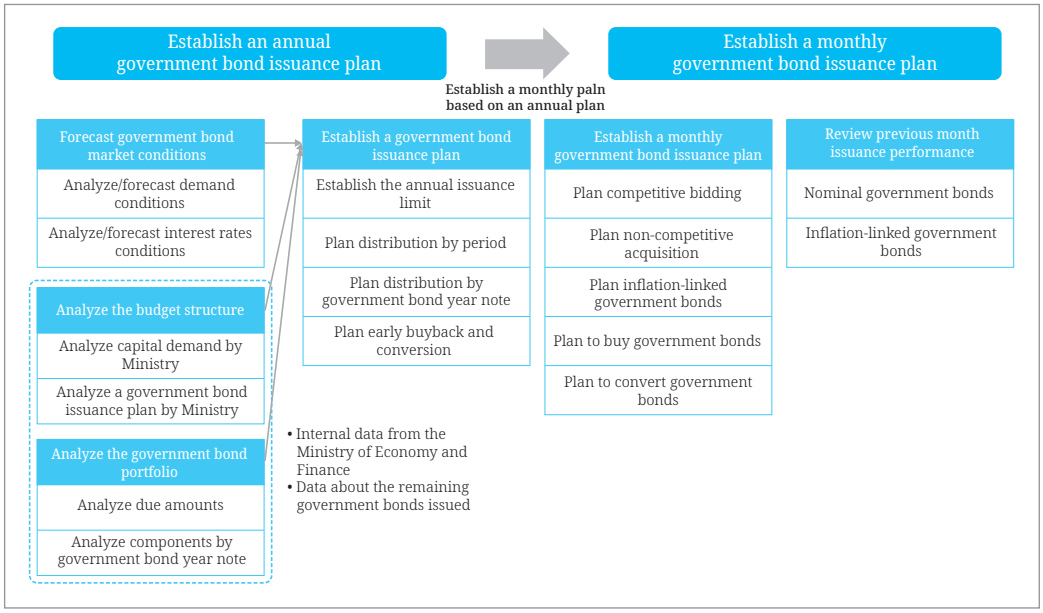
Category	Issuance method	Coupon rate	Interest payment	Maturity
KTBs	Competitive bidding	Determined at bidding	Coupon bond (semi-annually)	2–50 years
Inflation-linked KTBs	-	-	-	10 years
Treasury Bills	-	Winning bid for discount yield	Discount	Under 1 year[2)]
NHBs (Type 1)[3)]	Mandatory placement	1.00%[1)]	Compounded annually	5 years
Reimbursement Bonds	Delivery to landowner & persons concerned	Market rate[4)]	Compounded annually	Under 5 years[5)]

Note: 1) As of June 2022.
2) In general, the issued bills have maturities of less than three months.
3) NHB Type 2 was eliminated in May 2013 and Type 3 in February 2006.
4) This is the three-year maturity time deposit rate of nationwide banks.
5) In practice, indemnity bonds are issued with three-year maturities.
Source: Bank of Korea (2021).

3.3.2. Operation and Process of GB Issuance in Korea

The Ministry of Economy and Finance (MOEF) releases an annual GB issuance plan, on which a monthly plan is based on and GBs issued. This is systematically outlined in [Figure 1-10].

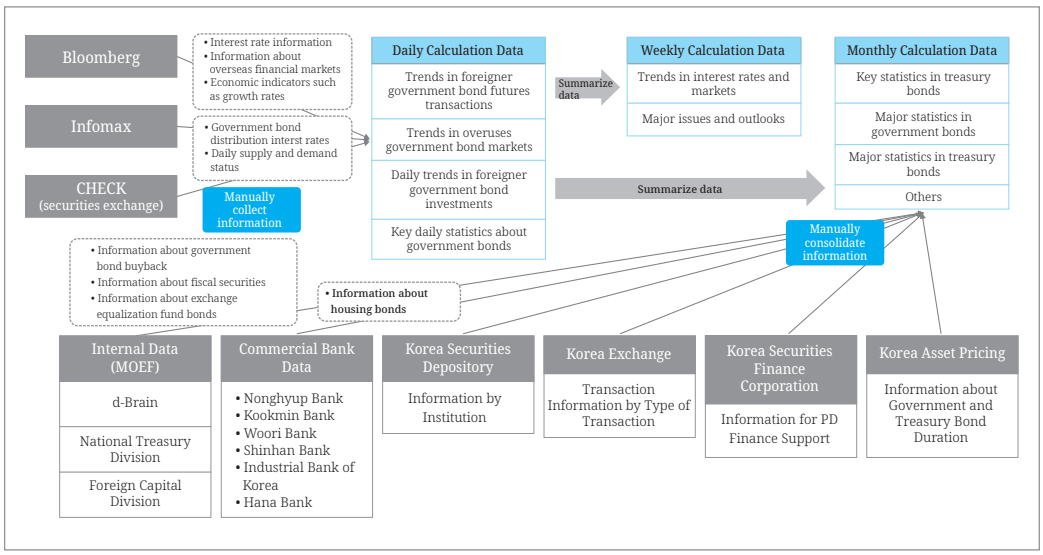
[Figure 1-10] Planning Process of GB Issuance



Source: Korean Ministry of Economy and Finance (2022).

The MOEF collects GB-related data from relevant institutions and terminals; prepares and analyzes daily, monthly, and annual data; and manages the GB market (see [Figure 1-11]).

[Figure 1-11] Data Collection and Management for GB Market



Source: Ministry of Economy and Finance (2022).

The MOEF issues GBs after receiving a request from each ministry to prepare a plan to issue the bonds after deliberation and a resolution by the National Assembly. The BOK supervises the issuance and repayment of KTBs and Treasury Bills under Article 15 of the Government Bond Act and Article 44 of the Treasury Management Act. See <Table 1-4> for the GB issuance process.

<Table 1-4> Process of GB Issuance

Drafted & revised plan for issuance	Each ministry submits a request to the MOEF, which consults with that ministry and drafts a plan for issuance.
Plan submitted to Cabinet for review	The MOEF submits the plan to a Cabinet meeting for review.
Plan submitted to Nat'l Assembly for review	Once the plan is approved by the Cabinet, the President confirms it before its submission to the National Assembly.
Nat'l Assembly votes on plan	The parliamentary standing committee reviews and votes on the plan and notifies the government of the result.
Plan for bond issuance set	The government plans the GB issuance schedule.
GBs issued	Once the plan is confirmed and set, a designated organization conducts issuance.
Revenue collected	The funds raised via sales or underwriting are deposited into the government's account at the BOK.

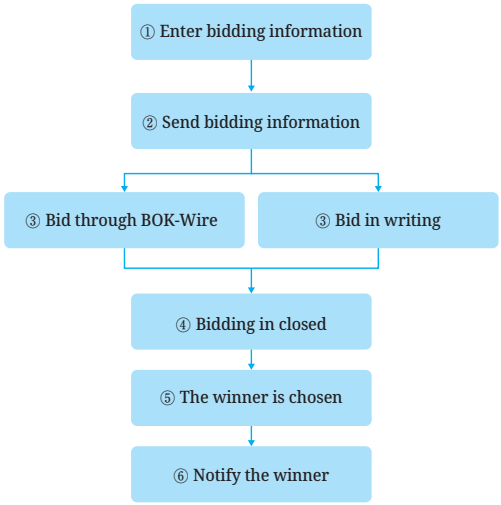
Source: Bank of Korea (2021b).

3.3.3. Issuance Methods for Korean GBs

In Korea, competitive bidding is regularly used for GBs online through electronic bidding on BOK-Wire+. [Figure 1-12] illustrates the competitive bidding process for GBs and [Figure 113] shows a GB bidding and issuance flowchart.

According to the Electronic Registration Act that took effect on September 16, 2019, all securities-related affairs on the primary and secondary markets and the exercising of rights are handled electronically without issuing bills. Accordingly, when issuing GBs, the BOK registers them collectively under the name of the Korea Securities Depository. In-kind issuance is the issuance of securities to the acquirer when issuing GBs, corresponding to compensation bonds. <Table 1-5> summarizes the GB bidding process in Korea.

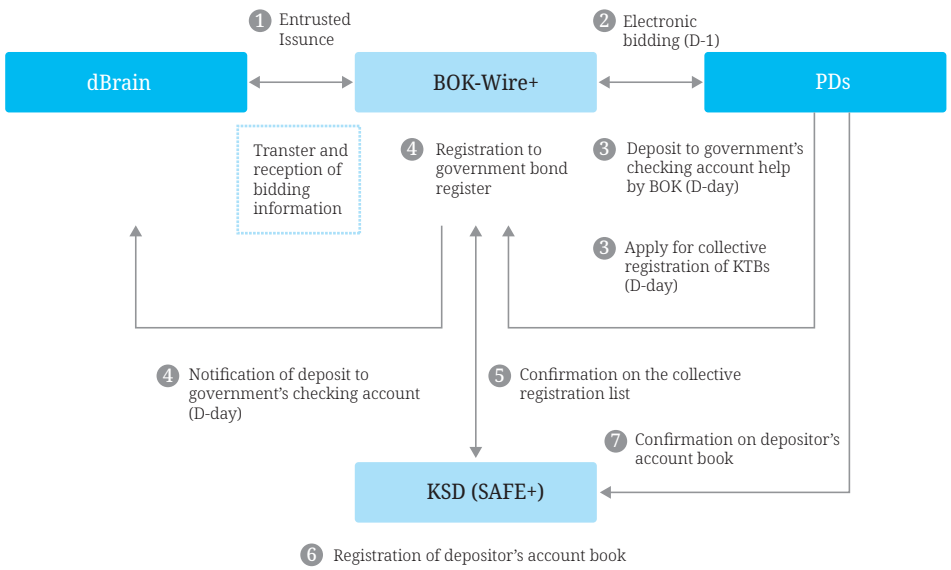
[Figure 1-12] Government Bond Competitive Bidding Process



① After receiving bid notice from MOEF, enter bid info (usually day before bidding).
② Send bid info to primary dealers (PDs) including preliminary ones via BOK-Wire+ (usually day before bidding).
③ PDs (including preliminary) can bid through BOK-Wire+ or in writing if electronic system failure occurs
④ Bidding closed
⑤ Choose winner after receiving auctioned amount and interest rate from MOEF
⑥ Notify PD about winner via BOK-Wire+

Source: Bank of Korea (2021a).

[Figure 1-13] Flowchart of GB Bidding and Issuance



Source: Ministry of Economy and Finance's website (2022).

<Table 1-5> Overview of GB Bidding

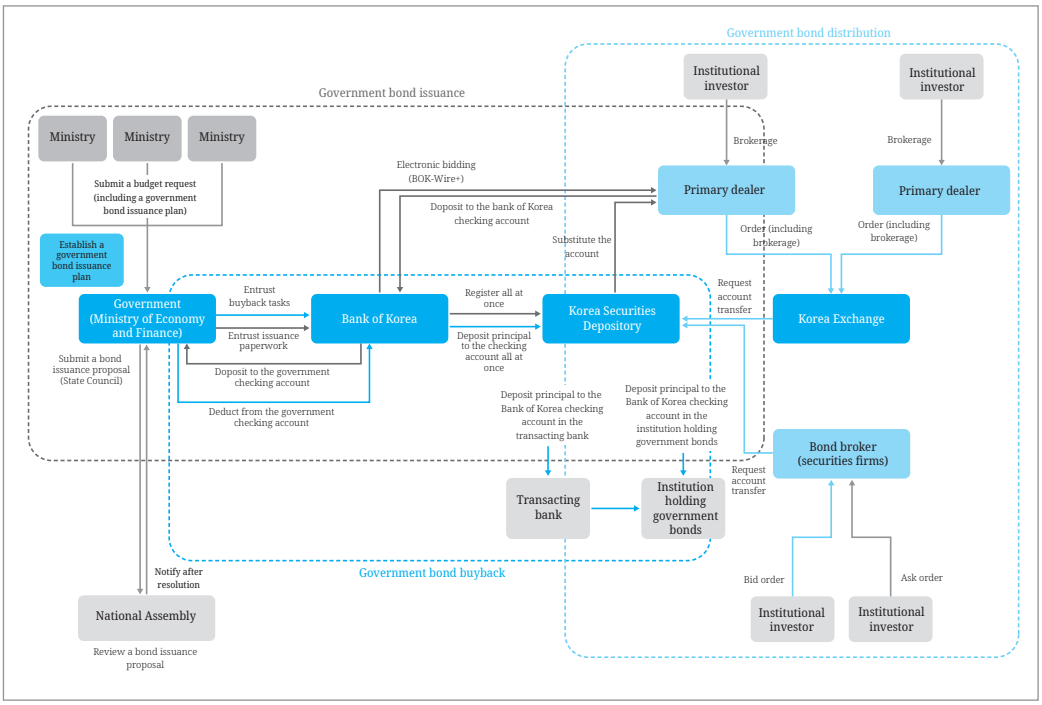
	Bidding information
Time	For 20 minutes from 10:40–11:00 (preliminary bidding: 09:40–10:00) on competitive bidding day
Type	Electronic bidding via BOK-Wire+
Participants	Primary dealers (PD) & preliminary primary dealers (PPD)
Unit	Integer multiples of KRW 1 bln
Bidding	PD: 30% of planned issuance, PPD: 15%
No.	Up to 7 by PDs & PPDs
Method	Differential pricing auction (divided by 5 bp from highest auctioned interest rate into sections, highest rate to be auctioned in each section)

Source: Bank of Korea (2021a).

3.4. Development Plan for Korean GBs

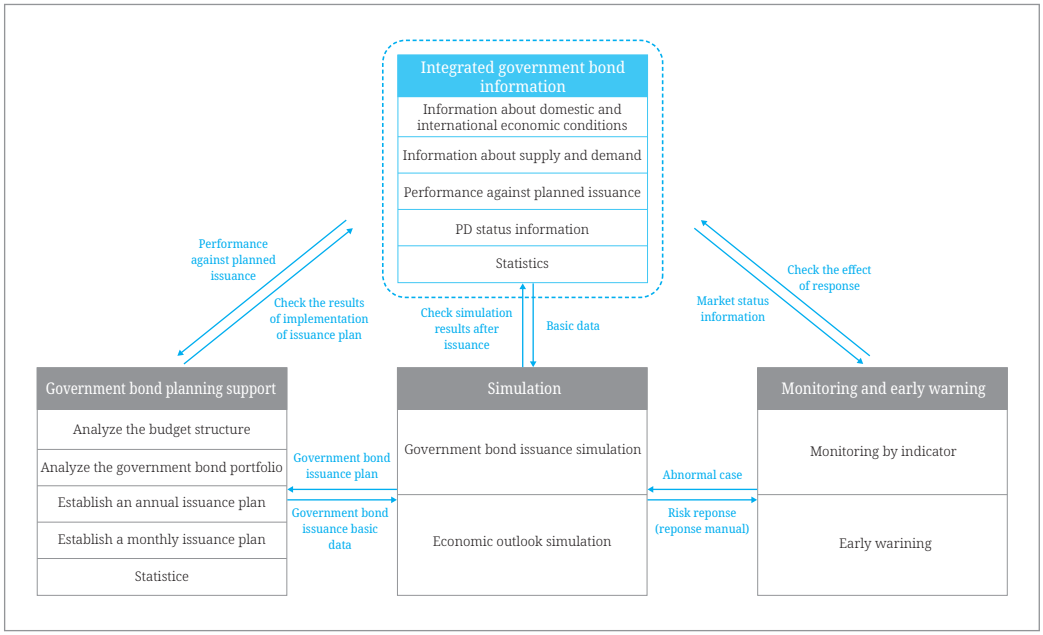
Required GB tasks consist of issuance, distribution, and buyback and relevant institutions assign these tasks to primary dealers and institutional investors. Institutions related to GB issuance and distribution are outlined in [Figure 1-14] and [Figure 1-15].

[Figure 1-14] Overview of GB Tasks



Source: Ministry of Economy and Finance (2022).

[Figure 1-15] Conceptual Diagram of GB Management System



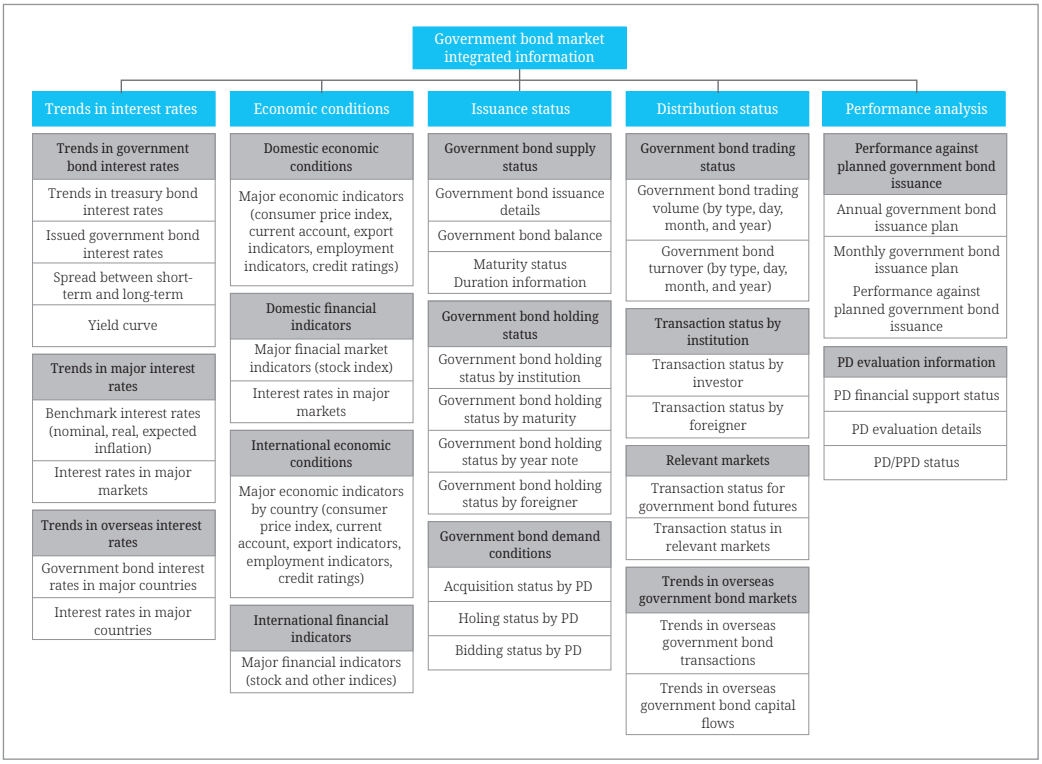
Source: Ministry of Economy and Finance (2022).

Korea is constantly striving to streamline its GB market. Most importantly, it seeks to resolve reduced task efficiency resulting from manual data management on the GB market through a project for building an integrated information system for the market. As manual management of GB issuance simulations lacks quick decision-making, the country is digitizing such simulations and building an integrated information and history system by setting up an integrated GB management database beyond manual operations to compile data on economic trends and relevant institutions in Korea and abroad.

A Korean government project seeks to establish a system to support integrated data on the GB market, with the goal of methodically compiling information as described in the figure. Once established, this system will allow linkage and connection of data from the Korea Fiscal Information Service (dBrain), Financial Supervisory Service, Korea Exchange, Korea Securities Depository, BOK, Korea Securities Finance Corporation, and Korea Financial Investment Association as well as Bloomberg, Yonhap Infomax, and CHECK (Koscom).

The streamlining of the Korean GB market is expected to support stable decision-making. Electronic simulations of GB issuance will support quick and diverse decision-making, and a database of integrated GB information will boast analytic features. Making GB statistics electronic to monitor the GB market is expected to enable quick analysis and boost task efficiency. [Figure 1-16] illustrates the integrated system of GB market information.

[Figure 1-16] Integrated Information System for Government Bond Market



4. Policy Suggestions for Development of Mongolia's Primary GB Market

This section contains policy recommendations to strengthen and sustain low-cost financing for Mongolian government bonds (GBs) based on the assessment of major bottlenecks and policy priorities set by the Mongolian government over the short- to long-term and Korea's experience and global guidelines on public debt management.

The Korean GB market has developed in accordance with the country's macroeconomic conditions and economic development stages [Figure 1-8] in Section 3 shows fiscal deficits, inflation, GB interest rates, and GDP. Korea's GDP per capita was USD 12,264 in 2000 and inflation was stable in the early 2000s, when the domestic GB market began to evolve into a more advanced stage.

Mongolia lacks favorable macroeconomic conditions for issuing low-cost GBs. Annual inflation was 14.2% in February 2022 and the BOM increased its policy interest rate to 9% at its Monetary Policy Committee meeting on March 24, 2022. Per capita GDP rose

from USD 4,000 in 2017 to USD 4,077.74 in 2020, a level similar to Korea's in the late 1980s and suggesting a stagnant period in GB market development. This means the Mongolian government should thoroughly consider the preconditions for a GB development plan to ensure successful implementation.

Mongolia, however, has a policy environment like Korea's, as the latter began reform to advance its GB market after graduating from an IMF bailout. Accordingly, this section presents recommendations on short-term development of the GB market as well as the mid- to long-term challenges Mongolia should tackle based on its financial and economic conditions.

As examined in Section 2, the GB bidding system in Mongolia suffered from massive inefficiency due to price fixing attempts by commercial banks. The ensuing excessive cost in GB issuance led to a reduction in the volume of GBs to be financed. In this context, Mongolian financial authorities need to improve their GB issuance system by reducing cost and raising demand for GB investment mainly by institutional investors. The Ministry of Finance (MOF) also needs to set up a primary dealer (PD) system and encourage PDs to serve as market makers by giving them priority in purchasing GBs and letting them suggest the bid amounts to ensure transparency during bidding. Institutional investors should also develop the ability to manage risk through expertise in professional financial investment.

Furthermore, Mongolia lacks a benchmark interest rate for proper use in the bond market, so practical action is needed to provide GB issuance with short-, mid-, and long-term maturities and standardize and integrate GB issuance with a range of maturities.

To develop the Mongolian GB market, the following three factors are important: (1) macroeconomic conditions; (2) resolution of asymmetrical information between issuers and investors, and (3) institutional foundations to increase supply and demand. So this section offers policy suggestions focused on (1) identifying the optimal auction system to reduce GB issuance cost; (2) developing institutional investors through the PD system; and (3) diversifying GB maturity and regularizing issuance to arrive at a benchmark interest rate. These suggestions are mainly based on the development of the Korean GB market, which is globally recognized as advanced, and World Bank guidelines for developing GB markets in emerging economies.[11]

11 The World Bank (2007) provided insights from its 12-country pilot program on public debt management and development of the government debt market.

4.1. Reducing Costs of Mongolian GB Issuance via Other Auction Methods

This section suggests policy actions to remove and deter price fixing by banks and reduce GB issuance costs. Considering the stage of GB market development, issuance volume, and market conditions, Section 4 includes appropriate and flexible methods of GB market auctions such as single, differential, and multiple pricing and suggestions for issuance frequency and volume to minimize price fixing.

4.1.1. Auction Pricing

GBs are auctioned consecutively from the lowest bidding interest rate (highest bid price) until the planned issuance volume is reached. While all the bonds are auctioned off in principle when the volume bid with the same interest rate exceeds that of issuance, what is needed is auctioning off the partial amount considering the GB issuance plan when bidding volume substantially exceeds that of planned issuance.

Methods of auction pricing can be divided into single (Dutch), multiple (conventional), and differential (mixed form of Dutch and conventional auction models). Single pricing applies the highest interest rate (lowest price) to all winners, while multiple pricing uses bid interest rates on winners. Differential pricing groups interest rates bid below the highest auctioned rate at a certain interval and applies the highest rate auctioned per group. <Table 1-6> shows numerical examples of each method. For instance, if the highest auctioned rate is 5.050% from bidding in the following table, rates bid are grouped into 5.050–5.005%, 5.000–4.955%, and 4.950–4.905% and the highest rate auctioned per group, like 5.050%, 5.000%, and 4.950%, is applied.

Korea used the multiple pricing method from July 1999, shifted to single pricing in August 2000, and applied differential pricing, which combines the advantages of the previous two methods, in September 2009. From March 15, 2021, single pricing was used reflecting market conditions of interest rate hikes in Korea and the US. This method can reduce investor burden and the auctioned interest rate can be reconciled with rates on the secondary market.[12] This way, auction pricing methods need flexible operations based on GB supply and demand and market conditions.

12 When a single-price bid is won, the PD company can cut the cost of underwriting Treasury Bonds at a high price because the winning bid is applied uniformly at the highest interest rate (lowest price). Based on empirical analysis, the average expected realized profit of PD companies increased after the change in the auction system in March 2021, meaning that procurement costs grew. In other words, converting to the single-price winning bid method is unlikely to lower a PD's expected realized profit and bid rates but can provide an incentive to bid more actively.

<Table 1-6> Comparison of Pricing Auction Methods

Bidding status		Single pricing	Differential pricing (in case of 5 bp interval)	Multiple pricing
Bidder	Amount			
A	5.100%, KRW 10 bln	Bid failure	Bid failure	Bid failure
B	5.050%, KRW 20 bln	5.050% (highest interest rate), KRW 70 bln	B, C, D: 5.050%, KRW 50 bln	5.050%, KRW 20 bln
C	5.040%, KRW 20 bln			5.040%, KRW 20 bln
D	5.030%, KRW 10 bln			5.030%, KRW 10 bln
E	4.995%, KRW 20 bln		E: 5.000%, KRW 20 bln	4.995%, KRW 20 bln

Note: The combined issuance amount is assumed to be KRW 70 billion.

Source: Bank of Korea (2021a).

Each pricing auction method has advantages and disadvantages. As multiple pricing applies a range of prices to winners and can differentiate prices, it seems advantageous for the issuer. But if the bidder offers a low interest rate just to win an auction, the potential for a winner's curse looms in which the bidder incurs a relatively high cost of purchase (in <Table 1-6>, the winner offering 4.995% buys GBs at a higher price than the one offering 5.050%). So bidders tend to reduce the bidding scale or offer a higher interest rate than the rate they consider. Consequently, a rise in the auctioned interest rate makes it more likely that GB issuance cost increases for the government. If policy aims to reduce GB issuance costs as in Mongolia, the multiple pricing method, which Mongolia uses now, is not a good option.

Meanwhile, single pricing, which applies the highest yield offered by the winner to all bidders as the auctioned interest rate, is advantageous for the bidder in that the latter can acquire GBs at a higher interest rate than their bidding rate. This factor, however, could fuel excessive demand among bidders, distort interest rate bids, and cause losses for auctioned bidders as the bonds are auctioned at lower interest rates than those of the market (higher price than that on the secondary market). This phenomenon occurred in Korea as interest rate bids for GBs decreased.

Differential pricing has the advantage of grouping interest rate bids offered by each bidder that incentivizes bidding with an appropriate interest rate, applies the highest rate auctioned within the same group, and reduces the burden on bidders acquiring GBs. As the highest rate bid (lowest price) auctioned within the group applies to all bidders, the burden remains, albeit reduced, for bidders when the interest rate rises.

Mongolia has less demand for GBs than the government wants to issue, so consideration of the single or differential pricing method is recommended as a transition to reduce high

issuance cost. This change provides more incentives to potential bidders and can raise GB demand and deter the possibility of price collusion by a few banks in a GB auction in Mongolia.[13] Such a decision should comprehensively reflect the scale of GB issuance and market demand and opinions from major bidders. A bidding limit per bidder is also needed to prevent heavy reliance on the GB market due to dominance by select participating institutions.[14]

Separately from competitive bidding, a certain percentage (20% in Korea) of the planned issuance of GB competitive bidding should be allocated to non-competitive bidding for individuals, financial institutions, and other entities unable to take part in competitive bidding. Those who want to bid should submit a letter mentioning the desired purchase amount to the bidding agent or PD, the latter of which is covered in the next section, from the bid notice date to a day before bidding and pay the security deposit (100% of the desired purchase amount). The PD submits the details of bids by participants to the BOM or MSE before bidding day. To increase demand, application of the highest auctioned interest rate determined by competitive bidding for GBs should be used.

4.1.2. Supply, Frequency, and Organization of Auctions[15]

It is important to offer sufficiently large issued amounts at each auction to promote competitive price formation. Yet excessive supply at an auction could give select market participants high bargaining power and increase the risk of high issuance cost or auction failure. The appropriate auction size needs to be carefully calibrated by observing the auction results for degree of competition and potential for price distortion. In the meantime, a small supply at each auction relative to demand could artificially inflate prices and depress the yield for security when investors have limited alternative opportunities for investment. While investors expect and manage interest rate risk, an artificially depressed yield can reduce the attractiveness of the security.

Overly frequent auctions could adversely affect secondary market development by providing a constant supply of GBs on the primary market and precluding the need for

13 Korea in 2000 changed the auction method of government bonds to that of a single price determination, resulting in a bid rate and phenomena in which the issuance interest rate was lower than the decline of the circulation interest rate. As the same interest rate is applied to a successful bid regardless of the rate bid, PDs have low incentive to present an appropriate rate bid through market analysis, and the rate of the winning bid is often the same or lower than the circulation interest rate. This is because of reduced incentive to participate in the issuance market. Mongolia, however, must observe the effect of rising demand by raising the bid rate and providing an opportunity to purchase government bonds at the lowest price. If its attempts are unsuccessful, the differential pricing action method needs to be considered, which is a compromise between the Dutch and conventional auction methods.

14 For instance, Korea sets the percentage limit for primary dealers within 30% of the planned issuance amount and within 15% for preliminary primary dealers.

15 This section is based on a study by the World Bank and International Monetary Fund (2014).

participants to seek securities on the secondary market. Auction frequency is also affected by the need to quickly build a size or outstanding volume of benchmarks relative to the lifecycle of benchmarks. Building benchmark size quickly supports security liquidity and reduces the liquidity premium demanded by the market. For this reason, countries have sometimes syndicated the launch of benchmarks to issue them in a sufficiently large size and subsequently reopen those using auctions.

Therefore, the government must strike the right balance between the size and frequency of auctions in consultation with the market. At the same time, particularly in emerging market economies (EMEs) where secondary markets are underdeveloped, provision of a regular supply of GBs on the primary market is important for market makers (primary dealers) to satisfy quoting obligations and other investors to execute their planned investment strategies. If an auction's overall size is uncertain, investors are also likely to bid more cautiously or at lower prices in future auctions.

Auction organization refers not only to the pace of issuance but also the sequencing of auctions for bonds of varying maturities. Government debt managers may choose to offer and settle various instruments and tenors on the same day or week or on different days and weeks. Debt managers choose to offer several instruments and tenors at a given auction to simplify administrative processes and retain the flexibility of issued instruments or tenors to increase their attractiveness. But auctioning too many instruments on the same day could fragment market demand for each instrument and inhibit competitive pricing; it also adds an uncertainty that investors could find unattractive. Market consultation ahead of an auction should help gauge demand for specific instruments, tenors, and amounts, reducing the need to retain flexibility by offering several instruments simultaneously.

4.2. Efficiency of Mongolian GB Issuance via the PD System

This section discusses the development of institutional investors for the primary dealer (PD) system. As the key role of PDs varies depending on the development stage of a GB market, this study suggests an effective incentive system to raise GB demand and other measures required to stabilize the primary market for such bonds.

The PD system is used in most member states of the Organisation for Economic Co-operation and Development to facilitate GB issuance, promote the GB secondary market, advance the financial market's structure, set a stable financial foundation within the government, and strengthen communication between policymakers and market participants. PDs are financial institutions that must meet capital and expertise requirements in GB

investment trading. They perform market-making obligations on the GB secondary market such as offering ask-and-bid prices in exchange for authority and financing support to exclusively participate in bidding on the GB primary market.

The selection of the most qualified candidates for PDs requires standardized criteria and procedure for their appointment. The issues in this process include eligibility conditions for PD designation, the appropriate number of PDs, who should appoint them, and length of appointment. Other issues from a strategic perspective include deciding if PDs should serve the needs of the Ministry of Finance (MOF) or the central bank, if foreign institutions are eligible to be.

4.2.1. Selection Criteria for PDs

The most important qualification for a PD is financial strength, which restricts the pool of candidates to the soundest institutions and limits the risk of financial problems. In addition, a minimum credit rating is usually required to allow a PD to be the debt manager's counterpart in transactions. Other essential qualities include active involvement in the government securities market, high management capacity and suitable technological infrastructure, long-term commitment to market development, submission of a business plan, and good reputation and standing.

The Ministry of Finance (MOF) needs to designate as PDs financial institutions authorized to conduct GB investment and trading with a track record of GB transactions and financial soundness. Korea introduced the preliminary PD (PPD) system to make the PD system more market-oriented and now runs a system of PD and PPD promotion and relegation to promote outstanding PPDs to PDs and demote underperforming PDs to PPDs.

Mongolia must also consider adoption of a similar system to minimize trial and error in the early stages and revision of selection criteria to prevent inaccurate evaluations of PD candidates.

The MOF in the early days of the PD-PPD system should ensure that PDs and PPDs meet strict government requirements for categories like fiscal soundness, staffing, and performance. Since PPDs also serve as market makers equivalent to PDs, their designation requirements might need to be similar to those for PDs but slightly looser. <Table 1-7> summarizes PD eligibility in Korea, and Mongolia should consider customizing its own designation system based on its internal standards and conditions.

<Table 1-7> Eligibility Conditions of PDs in Korea

	Criteria	Requirement
1. Fiscal soundness standards		
Banks	Bank for International Settlement (BIS) capital adequacy ratio at end of quarter before quarter that comprises PD designation date (PPD: date of application)	At least 8%
	Total equity in financial statement at end of quarter before quarter with PD designation date (PPD: date of application)	At least KRW 4 tln (minimum KRW 500 bln for foreign bank branches)
Brokerages	Net operating capital ratio at end of quarter before quarter of PD designation date (PPD: date of application)	At least 100%
	Total equity in financial statement at end of quarter before quarter of PD designation date (PPD: date of application)	At least KRW 400 bln
2. Staffing & work experience standards		
Dealing personnel	No. of dealers entirely responsible for KTB dealings with at least 3 years of experience as bond dealers or brokers	At least 5 people
Research staff	No. of economic & financial specialists with at least 3 years of experience in research & analysis	At least 3 people
Back-office staff	No. of KTB & fund settlement specialists with at least 1 year of experience in securities & fund settlement	At least 4 people
Experience in KTB deals	Period from day of authorization as GB dealer to day of application for PPD designation	At least 2 years
3. Performance standards		
Trading volume of benchmark bonds on KRX KTB	Trading volume of benchmark KTBs on KRX KTB compared to dealers' trading volume of benchmark KTBs in last 2 quarters before quarter when PD was designated *PPD designation: 2 quarters before quarter of PD designation date	At least 25% per quarter
Trading volume on secondary market	Trading volume of dealers in KTBs compared to avg. KTB trading volume of banks or brokerages in last 2 quarters before quarter of PD designation (calculated per Clause 2, Article 32) *PPD designation: 2 quarters before quarter of PD designation date	At least 25% per quarter
KTB holdings	Avg. balance of KTBs for own-account transactions (dealing) over last 6 months	At least KRW 200 bln

Source: Ministry of Economy and Finance (2022).

4.2.2. Other Issues in PD Selection[16]

Among issues in setting eligibility requirements, the first is the choice between banks only and that among banks, brokers, and institutional investors. In emerging markets, PD

16 This section is based on a study by the World Bank and International Monetary Fund (2014).

status is sometimes used to entice institutional investors to participate in auctions. The impact can turn negative, however, if they deter banks from applying for PD status. In more mature markets, PDs are usually banks, which are the only entities with the capacity to develop a customer base and actively trade on the secondary market. Banks are also the only entities for which PD status can be used as a marketing tool to reinforce customer relationships. As a result, banks can afford to have a non-profitable operation in government securities (i.e., breaking even or even posting losses). Thus banks have a competitive advantage over other financial intermediaries in eligibility for PD designation.[17]

The second issue is the choice between foreign and domestic institutions. Allowing foreign institutions to become active in the domestic market offers several advantages for emerging markets like greater expertise, competition, and market credibility. They can also expand the scope of financial intermediation with their foreign customer base and boost capital availability. Conversely, foreign institutions are often less loyal to the domestic market as they lack the same vested interest in the well-being of the marketplace as domestic PDs do.

The third issue is the number of PDs. The proper figure is that which allows PDs to adequately fulfill their duties, making this primarily a function of government debt size. The funding size of the government debt manager cannot exceed the absorption capacity of the PDs. The function also entails a PD's customer base, product expertise, and geographical reach. In practice, the number of PDs typically range from 5 to 25, and 5 seems to be the minimum number to ensure competition. The recommendation is to not appoint more than the necessary number of PDs since too many dilutes their motivation through fewer business opportunities. They also receive fewer rewards as the issuer must distribute them to a higher number of well-performing PDs. The benefit to the government debt manager is also lessened as the customer bases of PDs overlap, and the management of the issuer's relationship with PDs turns into an administrative burden.

Korea has 18 PDs (7 banks and 11 brokerages) and 3 PPDs (1 bank and 2 brokerages). The eight banks consist of two special (Korea Development Bank and Industrial Bank of Korea), three commercial (Hana, Kookmin, and Nonghyup) and two foreign (Standard Chartered and Credit Agricole). The 11 securities companies serving as PDs are all Korean while PPDs include two foreign securities companies: BNP Paribas and Yuanta Securities.

17 The Mongolian government may have to consider its regulatory system for banks and other financial institutions, development of the financial industry, and governance structure of banks and brokerages when deciding whether to include securities companies as qualified PDs.

The fourth issue is length of appointment. PDs should be re-selected periodically based on performance and length of term should be enough to allow new PDs to invest in the relationship (i.e., adapt to their new status and justify their startup expenses). The term should also not be so long that PDs feel secure in their status. In practice, the most common period of appointment is one or two years, though certain countries review the status every six months or three years or on an ad hoc basis. Korea receives PPD applications every May and November and decides on PD designations at the end of June and December. Financial institutions seeking PD designation must be appointed a PPD first. PPDs can be promoted to PDs through performance evaluation within six months.

4.2.3. Duties and Privileges of PDs

A mix of obligations and privileges is an integral part of the strategy to develop the GB market. The optimal combination is country-specific, but a few general guidelines can enhance the efficiency of the market-making function (World Bank, 2015).

PDs typically assume six duties. Some tasks are straightforward such as becoming a debt manager's adviser for debt strategy and market organization, assuming the role of a debt manager's counterpart in debt management operations, and reporting on their activity, both among dealers and with customers. To better operate the primary and secondary markets for GBs, Korea gives PDs and PPDs the right to acquire GBs and impose obligations for market making. Nonetheless, the rights and market-making obligations of PPDs are limited compared to those of PDs.

PDs have other rights and privileges granted either by the government debt manager and/or by the central bank. Benefits provided to PDs in Korea include the right to participate in a non-competitive acquisition. In non-competitive bidding, PDs can acquire GBs at a higher interest rate than the rate on the secondary market and get financing support to promote and develop the GB market. Korea provides financing support to the top 10 PDs based on performance evaluation, and such support per dealer is limited to within 15% of the financing support amount overall. The interest rate for such support is the overnight interest rate notified by the BOK times 0.7 for the top five PDs in obligation performance evaluation and the rate times 0.8 for those ranking from 6th to 10th.

<Table 1-8> summarizes the privileges, incentives, and obligations of PDs and PPDs in Korea that Mongolia can refer to when it sets up its own PD system.

<Table 1-8> Privileges, Incentives, and Obligations of PDs and PDDs in Korea

		PD	PPD
Privileges & incentives	Participating auction	- Exclusively participate in competitive auctions for KTBs - Underwrite up to 30% of scheduled issue volume	- Exclusively participate in competitive auctions for KTBs - Underwrite up to 15% of scheduled issue volume
	Non-competitive bidding option	Within 30% of amount auctioned in competitive bidding (20% for top PDs, 15% for 2nd-best, 10% for 3rd best, 5% for others every 6 months, & 10% points for top 5 in previous monthly evaluation and 5% points for 6th to-10)	-
	Financial support	Provide low-interest loans to outstanding PDs	-
Obligations	KTB underwriting	Underwrite at least 10% of amount issued at monthly KTB competitive auctions for each benchmark KTBs	-
	Buyback	Take at least 5% of overall volume in buybacks	-
	Offering bid-ask prices	Submit at least 10 bid-ask prices for each benchmark KTBs (but 5 prices for 30-year KTBs and KTBi) in KRX KTB during trading hours	Same as left

Source: Bank of Korea (2021a).

4.3. Setting Benchmark Interest Rate via Range of Systems

This section is on setting the benchmark interest rate and diversifying GB maturity by integrating and regularizing bond issuance. With high bidding demand for short-term bonds likely only in the early development of the GB market, Mongolia needs a strategy for issuing short-term bonds, identifying GB issuance cost and demand, and gradually expanding into long-term GBs.

4.3.1. Integration and Standardization of GB Issuance

The integrated system of GB (fungible) issuance additionally issues a bond type with the same issuance conditions such as maturity and nominal interest rates for a designated period and expands the trading volume of the same type to promote the GB secondary market. The purpose of integrating GB issuance is to expand issuance volume by bond type and subsequently boost GB liquidity. Bonds with high liquidity can be issued at a lower interest rate due to a liquidity premium and decreased issuance cost. Furthermore, increased GB liquidity not only boosts trading on the secondary market and forms a GB benchmark interest rate but also prevents a rise in issuance interest rates and bid failure due to a one-time mass issuance. If a market distortion such as dominance or price fixing

by a few institutions occurs, fungible issuance can ensure stability on the GB market and in price formation.

Korea has implemented such a system since May 2000. Varying periods of integrated issuance can be set depending on the maturity of issued bonds. Korea sets within 3 months from new bond issuance (2 year GBs), 6 months (3-, 5-, and 10-year bonds), 1 year (20- and 30-year bonds), and 2 years (50-year and inflation-linked bonds). For instance, two-year GBs were bid on February 9, 2021, and issued on March 10, 2021, and additional bids came on March 9, April 13, and May 11, 2021, within three months under the same conditions (e.g., maturity and nominal interest rates).

In addition, bidding and issuance are standardized by GB maturity, which stably finances the funds necessary for the government and improves fund operation predictability among primary market participants. Korea notifies the bidding and issuance dates by GB maturity as shown in <Table 1-9> and regularly issues the bonds.

To alleviate reduced liquidity arising from the replacement of the benchmark bond in the early days of newly issued bonds, a pre-issuance system is needed to issue the benchmark bond with the next benchmark bond one to two months before new issuance. Korea has implemented this system since January 2015, and preliminary bidding can be conducted a month before for 2-year bonds; 2 months before for 3-, 5-, and 10-year bonds; and 1 month before for 20- and 30-year bonds.

<Table 1-9> Bidding and Issuance Days for GB by Maturity in Korea

Category	2-year bonds	3-year bonds	5-year bonds	10-year bonds	Inflation-linked bonds (10-year)	20-year bonds	30-year bonds	50-year bonds
Bidding day	2nd Tuesday	2nd Monday	4th Monday	3rd Monday	1st Friday (even month)	4th Tuesday	1st Monday	2nd Friday
New bond issuance day	Mar. 10 June 10 Sep. 10 Dec. 10	Mar. 10 June 10 Sep. 10 Dec. 10	Mar. 10 Sep. 10	June 10 Dec. 10	June 10	Sep. 10	Mar. 10	Sep. 10

Note: Bidding time is 10:40-11:00 (preliminary bidding: 09:40-10:00).
Source: Bank of Korea (2021a).

The nominal interest rate of GBs is based on multiples of 0.125% from the weighted average auctioned interest rate of newly issued GBs (rounded to three decimal places) but must not exceed the weighted average. For example, if two-year bonds are newly issued

on June 10, 2021, and the weighted average auctioned interest rate is 0.970%, the nominal interest rate is 0.875%.

The GB code consists of 13 digits: the nominal interest rate (5 digits) - maturity year and month (4) - maturity duration, and integrated issuance order (2 + 2). For instance, the code is 01125-2406-0302 if three-year GBs are issued for a second time in May 2021 with maturity in June 2024 and the nominal interest rate is 1.125%. For new issuance, the nominal interest rate is indicated as "00000" in bidding and the code containing the interest rate is assigned after the auctioned interest rate is determined. For instance, 00000-2306-0200 is assigned during bidding for new issuance on May 11, 2021, for two-year bonds due June 10, 2021, and if the auctioned interest rate is determined as 0.970% after bidding, the nominal interest rate of 0.875% is assigned to make the code 00875-2306-0200.

When the Treasury Bond market is normalized to an extent and a yield curve is formed, a model of Treasury Bond issuance is needed to determine optimal GB issuance by maturity. This model is a probabilistic simulation method based on predictions of macroeconomic conditions and the term structure of interest rates and presents the optimal issuance ratio for such bonds by maturity. To this end, forecasts are made for the structure of the interest rate period and macroeconomic conditions and accordingly for government revenue and expenditures. Consequently, the model aims to estimate the minimum cost issuance strategy to maintain risk below a certain level. The Bank of Canada and the Treasury Borrowing Advisory Committee of the US offer good references to determine the optimal issuance of GBs by maturity. Another recommendation is to form an advisory institution or committee for determining standard maturity months and maturity dates of GBs, considering the insufficient number of staff on the MOF's public debt management team.

4.3.2. Buybacks and Exchanges

The principal function of bond buybacks and exchanges is to enhance market liquidity and mitigate refinancing risks, two closely connected tasks. The GB buyback system allows repurchasing of GBs that have yet to mature to distribute maturity or increase liquidity. The GB exchange can temporarily prevent bond maturity from being concentrated all at once, replace off-the-run with low liquidity with on-the-run with high liquidity, and thus increase liquidity in GB trading.[18] Bond buybacks and exchanges have a wide array of potential applications. The availability of additional opportunities for issuance raises the stability and regularity of the issuance calendar (World Bank, 2007).

18 On-the-run refers to a type of government bond being issued through competitive bidding (except for those issued through preliminary bidding), while off-the-run refers to an issued bond that has yet to mature.

Korea has a variety of systems to increase GB liquidity and improve efficiency on the GB market. The GB buyback was introduced in December 2000 to promote the GB secondary market by buying back bonds with shorter maturity from the market and extending the maturity structure for distributed GBs. If GB maturity expires intensively in a short period, market distortions such as a sharp increase in the market interest rate is possible if GB issuance is expanded to refinance them all at once. Early buyback is also intended to prevent refinancing risk that temporarily worsens the fiscal burden by increasing liquidity in off-the-run GBs and distributing maturity.

Adopted by Korea in May 2009, the GB exchange allows off-the-run to be converted into on-the-run especially in a credit crunch, thus effectively limiting a price drop in off-the-run. Such an exchange replaces off-the-run into newly issued GBs, making it similar to buyback, which utilizes GB issuance funds. Yet GB buyback and exchange differ in issuance process, counterpart, and fund flow. <Table 1-10> compares and explains Korea's early buyback and conversion offer for GBs. The Mongolian government is advised to refer to the Korean models of both to devise a plan to operate them based on Mongolia's circumstances.

<Table 1-10> Comparison of GB Buyback and Exchange

Category	Buyback	Exchange
Purpose	Convert bonds with low liquidity into new bonds to increase liquidity Distribute GB maturity by buying back short-term & issuing long-term bonds	Convert low liquidity bonds into new ones to increase liquidity
Procedure	2-step procedure to secure funds through new GB issuance, using same funds to buy back off-the-run	One-step process that directly converts off-the-run into new GBs

Source: Bank of Korea (2021a).

4.3.3. Management of Bond Issuance Data[19]

A system of PDs and market makers provides a formal arrangement to gather market intelligence on liquidity conditions and investor preferences like the best time to launch new benchmarks, benchmark sizes to support secondary market liquidity, profiles of end-investors and potential new investors, and information that the market seeks from the MOF. The PD system, however, is not the only way to achieve this. In the absence of such a system, government debt managers need to periodically interact with key market intermediaries and investors. In either case, such interactions can be through monthly meetings or investor surveys and supplemented with less formal meetings or calls.

19 This section is based on a study by the World Bank and International Monetary Fund (2014).

A debt manager might also need to closely coordinate with the stock exchange or providers of clearing and settlement services if such entities play an active role in the GB market. Data on systemic liquidity conditions and the impact of MOF operations on systemic liquidity is needed for proper coordination with the central bank.

Information provided to the market on the issuance plan should be calibrated with the intention of balancing transparency and predictability by the issuance plan, while also remaining flexible to adjust the plan with changing needs and market conditions. A debt manager must carefully choose the amount and timing of the information disseminated to the market. The objective is to offer a degree of transparency and predictability on GB supply (i.e., instruments, tenors, amounts, and timing) to allow market intermediaries and investors to plan their operations. Simultaneously, the debt manager's credibility depends on adherence to the announced operations, so it must offer as much transparency as it is capable to support and gradually streamline capacity to make operations more predictable.

The debt manager can maintain flexibility by only providing general information at the start of the budget cycle (i.e., global issuance amount, benchmark tenors, purpose of liability management operations, and criteria for choosing securities), followed by the exact securities and issuance amounts at the beginning of each quarter, month, or week before the next auction. Indicating how the issuance plan can change due to a specific event is sometimes possible, for example, if the budgetary outcome differs from what was predicted.

Information on the issuance plan and outstanding debt portfolio may be disseminated bilaterally to market participants during periodic meetings with the MOF, on the ministry's website, and the country's Bloomberg/Reuters page. Dissemination on a wider platform than the website or page has the advantage of providing information not only to participants in the GB market, but also to potential domestic and global investors and market analysts. Certain countries have published meetings with the market to ensure universal access to the same information. Periodic reports on operations offer debt managers the chance to show their progress toward the implementation of the issuance plan and explain the reasons for any deviations from it. This can help market participants evaluate the quality of debt management operations after discounting unexpected changes in fiscal or monetary indicators.

4.3.4. Coordination with the Central Bank[20]

Coordination between the MOF and BOM is mutually beneficial to their respective

20 This section is based on a study by the World Bank and International Monetary Fund (2014).

functions. Implementation of the issuance plan and associated cash management operations can complement the central bank's liquidity management with sufficient coordination. Operational coordination is also important to avoid competing issuances from the government and central bank at similar tenors (or similar times of the day or week). If the MOF and BOM reach an overarching understanding of these issues, coordination becomes easier.

The central bank is an important source of information for debt managers on systemic liquidity conditions and monetary policy operations that affect the implementation of the issuance plan. For example, a debt manager might wish to launch benchmarks during periods of sufficient systemic liquidity. In return, debt managers can share information on the maturity structure of the government debt portfolio, anticipated timing and size of borrowing, and planned cash management operations that are likely to affect systemic liquidity and monetary policy implementation.

In instances when the central bank issues its own instruments for liquidity management, the MOF and BOM agree to divide the short-term maturity spectrum for their respective securities. For example, the central bank issues bills at maturities of up to one month, whereas the MOF issues Treasury Bills with maturities longer than a month. In other cases, the central bank agrees to use MOF-issued securities to perform open market operations with proceeds stored in a government account at the BOM. Furthermore, MOF securities serve as collateral for the central bank's repo operations.

Proceeds from government debt issuance are typically deposited in the central bank in a treasury single account (TSA). The government should aim to increase the TSA balance if it chooses to maintain a cash buffer. The size of this amount, its remuneration method, impact on the central bank's balance sheet, and cost sharing to maintain this cash buffer between the MOF and BOM are important matters that need close coordination between both entities.

Alternately, macroprudential regulation of financial institutions can raise demand for treasury bonds. Demand for long-term bonds can be expanded depending on the direction of regulations on banks' liquidity coverage ratios and accounting rules for insurers. In other words, the proper level of macroprudential regulation of financial institutions can raise demand in the GB issuance market, so the MOF needs to closely consult with financial authorities.

5. Conclusion

The GB issuance plan generally requires the following steps: (1) identifying what financing needs will be met by GB issuance on the domestic market; (2) selecting instrument types and tenors; (3) organizing auction size and frequency as well as sequencing; (4) deciding on standard maturity months and specific dates; (5) determining securities and timing of buyback and exchange; (6) setting a schedule for each auction and the instrument and amount to be issued there; (7) finalizing the frequency, format, and detail of market communication; and (8) periodically reviewing the issuance plan based on market consultation and updates to gross borrowing requirements and cash flow forecasts (World Bank, 2015).

This study focuses on several of the biggest challenges Mongolia faces in its campaign to devise a GB issuance plan and implement procedures to operate it like auction pricing, pricing auction methods, the PD-PPD system, and improvements to the system of setting the benchmark interest rate. These measures are closely related to mid- and long-term planning to advance the capital market as sought by the MOF and to that end, action plans with a range of stages are needed to advance GB issuance in connection with such planning.

Under Resolution No. 299 announced on October 3, 2017, the Mongolian government approved a national program to develop the financial market by 2025. A working group consisting of the MOF, BOM, and Financial Regulatory Commission (FRC) was set up under the management of the Financial Stability Council of Mongolia (see Appendix 2 for the direction of plans for financial market development of the Mongolian government). This wide-ranging plan for financial market development covers banking, insurance, capital market, tax environment for the financial market, micro financing, market infrastructure, public financing, financial access, savings insurance, and improved governance in the financial market.[21]

Under a mid- to long-term policy strategy for the GB market, foreign investors in Mongolia as well as institutional and individual investors are preparing to participate in GB issuance. The Mongolian government accordingly is developing a blockchain-based application to ensure ease of use and security in GB trading and reduce related costs. Accordingly, policymaking is needed in connection with these moves.[22]

21 The State Great Khural (Mongolian Parliament) approved Sustainable Development Vision 2030 as Resolution No. 19 on February 5, 2016. This plan aims to raise the share of the capital market in the financial sector to 10% by 2020 and 16% by 2030 and reduce the dominance of banks to 90% by 2020 and 82% by 2030 through plans to develop the financial market by 2025.

22 Related consultation projects were held on the establishment of cross-border securities issuance and investment infrastructure for streamlining the Mongolian capital market (Ministry of Economy and Finance and Korea Development Institute, 2020a), economic

What is most important in making policy suggestions in this study is presenting measures that can be applied immediately. Over the short term, the researchers tried to specify policy advice relevant to reality and flexibility as much as possible for use to improve applicable laws and policies related to the GB issuance system. As part of this effort, in-depth analysis of Mongolia was done and solutions were suggested for the challenges identified through consultations with Mongolian experts to improve GB issuance bidding procedures while considering related deregulation and policy support to encourage market participation.

Over the mid to long term, important tasks include updating the operating system of GB markets and developing a state-of-the-art information and communications technology (ICT) system that supports GB-related issuance, registration, trading, and back-office operations. Through collaboration with regulatory authorities such as the MOF, BOM and FRC, Mongolia must overhaul the operational framework for its primary and secondary GB markets, review the roles and responsibilities of capital market infrastructure operators, and apply a more advanced operational model. Other tasks include strengthening incentives to encourage market players to participate and continuing to improve the competitive bidding system for GB issuance, the order-oriented GB trading system, and securities financing support system as a result of GB securitization.

crisis management of Mongolia through securing macroeconomic stability (Ministry of Economy and Finance and Korea Development Institute, 2020b), strengthening economic development planning and project performance assessments in Mongolia (Ministry of Economy and Finance and Korea Development Institute, 2019), and strengthening the infrastructure of financial markets (Ministry of Economy and Finance and Korea Development Institute, 2018).

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Appendix 1

Chronological History of the Korean GB Market

Since Korea in May 2000 announced its plan to advance the bond market structure, the country has made improvements to the system. First, a fungible issuance system was implemented on the issuance market in May 2000 to expand the liquidity of benchmark bonds. In August of the same year, the GB-bidding method was changed from that of a conventional auction to a Dutch auction, and 10-year Korean Treasury Bonds (KTBs) were issued from October. In March 2003, the coupon rate of GBs was raised from 0.01% to 0.25% to ease the identification of stocks and trading. In November 2003, GB types were further simplified by integrating the Foreign Exchange Stabilization Bond with the Treasury Bond.

January 2006 saw the debut of the 20-year Treasury Bond, and from that March, the bidding unit for the bond was changed from KRW 10 billion to KRW 1 billion to enhance market accessibility for small investors. In March 2007, the introduction an inflation-linked Korea Treasury Bond (KTBi) offered a means to terminate the risk of inflation when investing in long-term bonds.

In June 2009, the bidding method of the Treasury Bond was changed to a single interest rate method combining elements of that of the multiple interest rate. In June 2010, the issuance of KTBi was resumed after having been suspended in August 2008. In March 2012, the bidding unit of the Treasury Bond for the public decreased from KRW 1 million to KRW 100,000 and individual investors were allowed to participate in bidding for KTBi. September 2012 saw the nation's first 30-year Treasury Bond.

Previously, the maturity months of three Treasury Bonds (3-, 20-, and 30-year) were concentrated in December, and the maturity months of 5- and 10-year Treasury Bonds, both of which see large issuance volume, overlapped in March and September. To alleviate this burden, the integrated issuance period of long-term bonds (over 20 years) was halved in December 2014 from two years to one, and the issuance month by maturity was changed (March and September for a 5-year bond and June and December for a 10-year bond). In addition, a pre-issuance system was introduced three months before the issuance of new Treasury Bonds to alleviate the sharp drop in issuance balances due to the replacement of benchmark bonds.

In December 2015, a new pre-transaction system allowed pre-trading of newly issued Treasury and next benchmark bonds for three days before issuance. Under this system, the government and issuer can understand demand before issuance, and bidders can search for bid rates in advance, something usable as a risk management tool for bidding. In October 2016, the 50-year Treasury Bond, an ultra-long-term bond, was issued for the first time in Korea and standardized as a bi-monthly issuance in February 2019. The corporate bond issuance limit, which was four times the previous amount of net assets, was abolished in April 2012. A demand forecast system for corporate bonds was introduced in the same month to invigorate investment banks and improve the quality of the market for corporate bond issuance.

On the secondary market, the inter-dealer broker system was introduced in February 2000. The next month saw a system to support acquisition financing and distribution financing for GBs for primary dealers (PDs), and a buy-back system came in September. Data on quotes was distributed on a group basis through Internet messengers; since November 2007, however, this information has been made public and is distributed in real time on the over-the-counter transaction quote information system of the Korea Securities Dealers Association (now Korea Financial Investment Association). And in July 2008, the minimum quote for 10- and 20-year products was drastically lowered from KRW 10 billion to KRW 1 billion.

In May 2009, the Treasury Bond Exchange System was adopted to directly exchange low-liquidity Treasury Bonds as benchmarks. In September of the same year, the minimum quote for three- and five-year bonds was lowered from KRW 10 billion to KRW 1 billion). That October, PDs were required to create a market by maintaining an average holding of KTBs for self-trading of at least KRW 1 trillion. In January 2010, the quote system was reorganized to reduce the number of maximum allowable quotes. That October, the number of maximum allowable quotes were further reduced, and the evaluation of PDs was given high importance for more active in-house transactions. To revitalize the separate trading of registered interest and principal of securities aka STRIPS, its maturity was adjusted in July 2015 from more than five years to more than three and listing on the market followed that December.

Measures were also taken to improve the bond market's infrastructure. Since the bond-price valuation method was launched in July 2000, market rules for credit rating companies have been strengthened through the disclosure of companies and markets in June 2002. In June 2003, the bond payment date was changed from the same day (T+0) to the following day (T+1) to promote the use of delivery versus payment. In March 2006, a system for separating

interest in KTBs for more than five years was also implemented.

Since May 2009, foreign investment in GBs and currency stabilization securities were exempted from withholding interest income and capital gains to promote foreign investment in domestic bonds. Given the possibility of higher volatility in the financial market due to the inflow of hot money, taxation on foreign bond investments resumed in January 2011. From June 2009, foreign investors could use an integrated bond account when investing in bonds.

In March 2011, a preliminary primary dealer (PPD) system was established to promote PD competition, and incentives for PDs were reduced. In April 2012, a plan was announced for a promotion system for PDs and PPDs. From June 2013, the official yield on treasury bonds was expanded from two decimal places to three, and the unit of bidding and winning interest rates was also subdivided from 0.01% to 0.005%.

In October 2015, the KTB Integrated Information System debuted and linked the BOK, Financial Supervisory Service, Korea Exchange, Korea Investment Association, Korea Securities Depository, and Korea Securities Finance Corporation, with their data on KTBs integrated into a single system. In March 2016, 15 PDs were designated dedicated agents for STRIPS.

In 2020, KTB issuance was expected to continue growing due to the expansion of fiscal spending in response to the COVID-19 pandemic, while demand for more fiscal roles rose given Korea's low fertility rate and rapidly aging population. In October, measures were announced to expand the demand base for KTBs focusing on expanding the acquisition capacity of PDs, raising foreign GB investments, and enhancing individual incentives to invest in GBs. In addition, an effective supply strategy for KTBs was released, regular issuance of two-year KTBs debuted in February 2021, and a non-competitive acquisition method was added to KTB issuance. In addition, the issuance method of KTBi changed from non-competitive to competitive bidding to enhance supply predictability.

Appendix 2

Direction for Mongolia's Financial Market Development

In recent years, the Mongolian banking and financial sector has seen rapid growth, but the nation's social and economic development remains heavily dependent on banking. This has caused an uneven market structure while the stock market suffers from a lack of low-cost and low-liquidity financial resources and instruments. As of 2021, the Mongolian Stock Exchange's value was equal to 13.4% of GDP, lower than the figures of other countries and reflecting Mongolia's poorly organized legal framework and weak corporate governance.

Despite government efforts to stimulate the insurance market, the Mongolian public lacks understanding of the importance of insurance and its products and services. The position of non-banking financial institutions and savings and credit cooperatives in finance remains weak due to a poorly designed legal framework, lack of human resources, no new financial products and services, and weak control mechanisms.

The Mongolian government has set the following general objectives to meet by 2025 as part of its policy toward financial sector development. Meeting these goals are important to accelerate the development of Mongolia's GBs and financial market, improve its legal framework, and increase technical capacity.

Banking

- Pursue a policy to increase assets of the banking sector and improve risk tolerance to systemically transform major banks into joint stock companies.
- Introduce international financial supervision, good governance, transparency, equity principles and standards in line with domestic specifics
- Implement international regulatory measures to manage customer accounts, privacy of information, and security risks associated with the development of ICT and systems

Stock market

- Boost multilateral cooperation with foreign regulatory counterparts in securities market regulation, study and cooperate in creating a regulatory environment for emerging products, services, and conduct activities on the market
- Streamline securities trading oversight, set up an effective online supervision system,

and create a unified stock market database

- Release new products and services to the stock market, improve the conditions for attracting financing for small and medium businesses, and offer investment incentives
- Clarify the role of public policymaking and regulatory agencies for the stock market, eliminate duplication, and improve coordination
- Create a regulatory environment to create a favorable climate for small and medium businesses to attract financing while developing online trading systems and attracting foreign and domestic investors
- Produce derivatives based on Mongolian GBs to support the emergence of professional investors on the domestic market
- Develop the secondary market to raise the domestic stock market to international levels and boost participation of foreign and domestic investors, securities trading and liquidity

Insurance

- Provide more public financial education, establish a private pension insurance system, develop affordable insurance and new products and services, increase the types of compulsory insurance, and form a system to protect the interests of the insured
- Improve the legal framework

Non-banking financial institutions

- Ensure transparency and openness of information on non-banking financial institutions and build trust in the financial market
- Reduce the cost of services from non-banking financial institutions, streamline operational efficiency, and make products using information and technological advances
- Raise the standards of the sector's legal framework to global levels

02

CHAPTER

Advancement of Mongolia's Government Bond Distribution System

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1. Introduction
2. Mongolia's Secondary GB Market and Its Challenges
3. Korea's Experience in Developing Its Secondary GB Market
4. Policy Recommendations and Timeline
5. Conclusion

Keywords
Government Bond, Secondary Market, KTS, KRX, Repo, GB,
OTC Government Bond Market, OTC Repo, Inter-bank OTC, MSE, BOM

Advancement of Mongolia's Government Bond Distribution System

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Bolormaa Ganbold (Ministry of Finance, Mongolia)

Summary

This KSP with Mongolia aims to provide effective policy recommendations for developing and advancing the Mongolian government bond (GB) market. Mongolia seeks to fuel economic growth via GB issuance after exiting the Extended Fund Facility (EFF) program of the International Monetary Fund (IMF) in May 2020. Thus the development of both the country's primary and secondary GB markets is crucial for the smooth flow of bond investment from issuance to distribution.

The main obstacles to the development of Mongolia's GB market are summarized as follows. First, the country has no regular and predictable GB issuance, making it difficult to predict and maintain the appropriate level of outstanding balance and hindering the stable growth of the primary and secondary GB markets. Second, the "hold-to-maturity" strategy of commercial banks and restricted access for non-banking financial institutions to the auction at the Bank of Mongolia (BOM) has led to weak GB demand. Finally, financial markets dealing with securities lending and borrowing (SL&B) and repurchase agreements (repo) have not been properly developed. Based on this analysis, this paper proposes policy recommendations mainly in three areas for streamlining the Mongolian GB market.

The first set of recommendations is related to reforming the GB market infrastructure. First, Mongolia issued GBs separately through the BOM or Mongolian Stock Exchange (MSE). Even GBs of the same type and issued on the same day were registered as separate GBs under different ISIN codes on the Mongolian Central Securities Depository (MCSD), leading them to be traded separately on the BOM and MSE markets. This has limited GB distribution and liquidity, so integration of the two primary GB markets is rational. Second, the Mongolian government must choose between the inter-bank OTC market of the BOM and the MSE market as the nation's secondary GB market. For the primary dealer (PD)

system to take root as a market maker, a systematic and more developed market must be chosen. Another option is to set up another GB market like the KRX Trading System (KTS) for Korea Treasury Bonds (KTBs).

Third, Mongolia lacks sufficient demand to boost its secondary GB market. To expand the spectrum of GB investors and develop the MSE market, securities companies must also have direct access to the primary GB market as PDs. In addition, non-banking PDs should also directly participate in the inter-bank OTC market of the BOM. Fourth, if the latter market assumes the role of Korea's KTS for PDs, another OTC market for GBs open to every financial institution could be needed. If the MSE market is designated like Korea's KTS, non-banking financial institutions as well as commercial banks should join the BOM's interbank OTC market to diversify players on the OTC GB market. Finally, Mongolia needs when-issued market, SL&B market and tri-party repo market for GBs.

The second set of recommendations is related to improving back-office infrastructure. First, the settlement cycles for GBs are not uniform: T+1 for the MSE and T+2 for the BOM. Extension of the settlement cycle for the BOM market from T to T+2 sought to improve settlement stability. So after maturation of the secondary GB market, integration of both settlement cycles is advised to promote inter-market transactions. Another suggestion is to consider shortening the settlement cycle to T or T+1 in line with international trends.

Second, investors must pay the full purchase amount before placing a buy order. As a result, institutional investors such as PDs cannot make transaction deals that purchase and sell the same GBs on the same day, meaning slower and insufficient transactions. To stimulate the secondary GB market, practices or regulations requiring pre-funding need revision. The BOM temporarily infuses the secondary market with liquidity so that a GB seller can receive cash early regardless of whether the buyer has sufficient cash. Thus intraday repo (RP) can increase the liquidity of the secondary market and expand buy-side demand for GBs. And since the tri-party repo market simultaneously serves as the capital market for GB trading and a money market for short-term financing, growth of the tri-party repo market is crucial for the quantitative and qualitative growth of the secondary market. So bankruptcy law should exclude the bankruptcy trustee's right to deny repo transactions and reflect a provision allowing close-out netting per the Global Master Repo Agreement (GMRA). Lastly, Mongolia must know that indirect investment through pension funds and other channels will increase with the growth of the capital market, leading to calls for building infrastructure similar to the FundNet system of Korea Securities Depository (KSD).

The third set of recommendations eyes attraction of more foreign investors. First,

Mongolia must provide custody services through the BOM to boost the secondary GB market. Investors such as foreign governments and international organizations need assistance in a range of fields and could prefer such services from the invested country's central bank rather than commercial banks due to higher credibility and safety. Second, Mongolia must develop the infrastructure and institutions required to price GBs based on market value. Foreign investors might prefer an environment in which securities are priced based on market value. Finally, a GB futures market is needed to attract foreign investors since they prioritize avoiding risk arising from volatility in foreign exchange and interest rates.

The aforementioned recommendations are presented in three stages based on urgency and importance and are closely connected to one another. After verifying the successful completion of the first stage and growth of the GB market, the second and third need implementation.

1. Introduction

In 2017, Mongolia received a bailout from the International Monetary Fund (IMF) under a three-year Extended Fund Facility (EFF) program. The ensuing fiscal austerity measures led to the shutdown of GB issuance. But since exiting the program in May 2020, the Mongolian government has sought to fuel economic growth via GB issuance. In addition, Ulaanbaatar is strongly committed to enhancing its primary and secondary markets to accelerate GB issuance and distribution. For the goal of securing much-needed financial resources in a timely manner by distributing all GBs issued, a solid primary GB market is sorely needed as well as ample buy-side demand for GBs. Yet if the secondary GB market is non-existent or barely active, investors will be forced to hold on to their GBs until maturity with little or no room left for profits except interest. This shows the importance of developing both the primary and secondary GB markets so that investment can smoothly flow from issuance to distribution.

Proper understanding of the key functions of the secondary market is crucial. First, GB underwriters have the option to profit from their bonds by selling them on the secondary market without needing to wait for maturity. In addition, investors who sell their GBs early can secure sufficient financial resources to underwrite other GBs under better terms. If investors can underwrite GBs with the capital acquired from a repo market or by positing collateral, far more liquidity will flow into the primary and secondary markets. A more efficient secondary market sees GBs traded at fairer prices, something that induces fair pricing on the primary market. In this setting, governments can finance fiscal spending by

issuing GBs at more reasonable prices and eventually minimize the interest they pay for the bonds.

GB issuance in Mongolia has been suspended for the past few years, stifling the advancement of the nation's primary GB market and inevitably depriving the secondary market of its opportunity to develop as well. Accordingly, the Mongolian GB market faces a host of challenges. First, the country has no regular and predictable GB issuance and the supply of outstanding GBs remains limited due to their short maturity. Next, a couple of commercial banks with high market influence thanks to their rich liquidity preferred to hold on to their GBs until maturity. Non-banking financial institutions had restricted access to the BOM's auction. So the GB demand base in Mongolia is very weak and closed.

Finally, the relatively underdeveloped GB market means the situation is the same for GB-related markets such as SL&B, futures and repo, meaning GB investors go elsewhere for more attractive investment markets or alternative investment instruments. Yet this situation and its relevant problems and challenges date back a few years ago, when Mongolian GBs were still issued and distributed.

This study provided effective policy recommendations for the advancement of the Mongolian secondary GB market. To properly accomplish this goal in a timely manner, the research focused on the roles and responsibilities of relevant stakeholders in the primary and secondary markets to identify obstacles or inefficiency. The focus was on the split in the primary market into the inter-bank OTC market of the BOM and the retail market of the MSE, how GBs issued in each market are deemed completely different, and the problem of GB distribution only on the issued market. To provide industry insights to Mongolian officials interested in developing their GB market, this study concentrated on the structure, features, and implications of Korea's GB market in detail. The on-exchange and OTC markets for GBs and repo are included in this analysis, discussion, and research. Finally, references were sought from international standards and case studies from other countries to harmonize and standardize GB market systems and infrastructure and increase market liquidity in Mongolia.

This report was prepared through a preliminary survey, consultations with Mongolian experts, comparative analysis, and presentation of policy recommendations and timeline. First, the preliminary survey to understand the Mongolian GB market and its challenges was conducted based on data and materials like previous studies, statistical data, and explanatory materials. In addition, a wide-ranging survey was conducted on the Korean GB market and system. For example, the Korean secondary GB market was analyzed by dividing

it into market structure, features, and implications.

Second, a more in-depth study based on the preliminary survey was conducted through on- and offline meetings with Mongolian experts and written questionnaires by email. Talks with experts from the Ministry of Finance (MOF), BOM, and MCSD were a great help in gauging opinions on policy priorities and understanding what improvements the secondary market in Mongolia needs.

Third, the secondary GB markets of Mongolia and Korea were compared and analyzed in detail. In this process, international recommendations and similar case studies from other countries were referenced and studied. The fourth and final step was presentation of policy recommendations from three perspectives for developing the Mongolian GB market. The suggestions are related to reform of the GB market infrastructure, improvement of back-office infrastructure, and attraction of foreign investors. Based on urgency and importance, the timeline is presented in three stages to ensure implementation of the recommendations.

This report is organized as follows. Section 2 explores the Mongolian GB market and its problems or challenges. Section 3 explains in detail the background of the introduction, market structure, features, and implications of the Korean GB and repo markets. The Korean GB market is explained in detail so that Mongolian officials can use it as a reference when developing their own GB market. Section 4 presents policy recommendations from three perspectives to develop the Mongolian GB market. Section 5 concludes this report and explains the need for further in-depth discussions and research to advance Mongolia's GB distribution. This report closes by suggesting a timeline for the implementation of the policy actions recommended.

Finally, Mongolia is advised to refer to Government Bond 2021[1] published by the Korean Ministry of Economy and Finance (MOEF). This publication contains the following content: Korea's history and experience in its GB market development; explanation of the GB issuance and distribution market; GB market infrastructure such as listing, clearing, and settlement; and related markets such as repo, futures, exchange-traded funds (ETF), and separate trading of registered interest and principal securities (STRIPS). This content is thus highly useful to advance the Mongolian system of GB issuance and distribution.

1 The document can be downloaded at https://ktb.moef.go.kr/eng/publications.do.

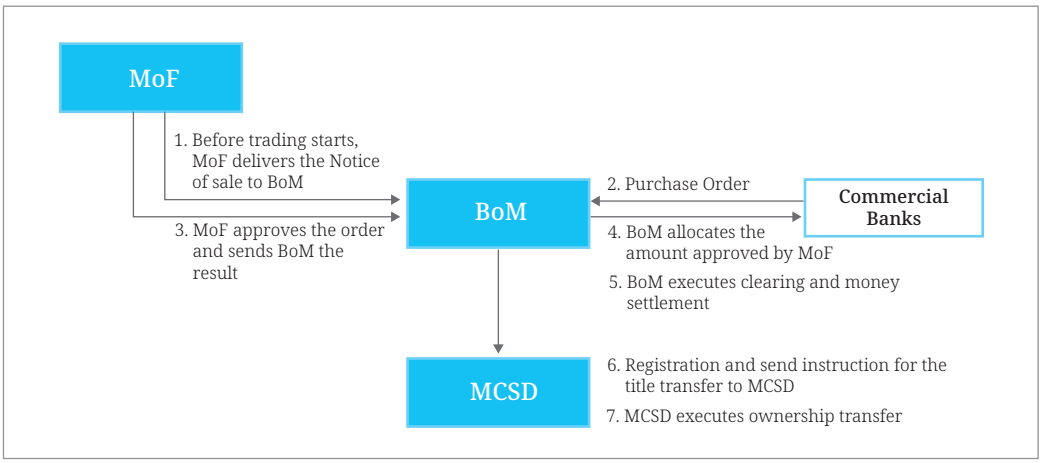
2. Mongolia's Secondary GB Market and Its Challenges

2.1. Status

2.1.1. Off-exchange GB Issuance and Circulation

The Regulation on Issuance and Trading of Government Bonds (Decree No. 217/A-161) approved by the Mongolian Ministry of Finance (MOF) and the Bank of Mongolia (BOM) took effect on October 25, 2012. The Regulation required GB issuance through the BOM's trading system. In addition, GBs issued through the central bank were not listed on the MSE market and traded only on the inter-bank OTC market of the BOM under the off-exchange issuance method. Under the Law on Debt Management enacted on February 18, 2015, the MOF assumed responsibility for GB issuance and circulation, while off-exchange issuance of GBs was made weekly through the auction held by the BOM's inter-bank OTC market. The central bank's primary GB auction was usually held every Wednesday. The issuance process on the BOM market is shown in [Figure 2-1].

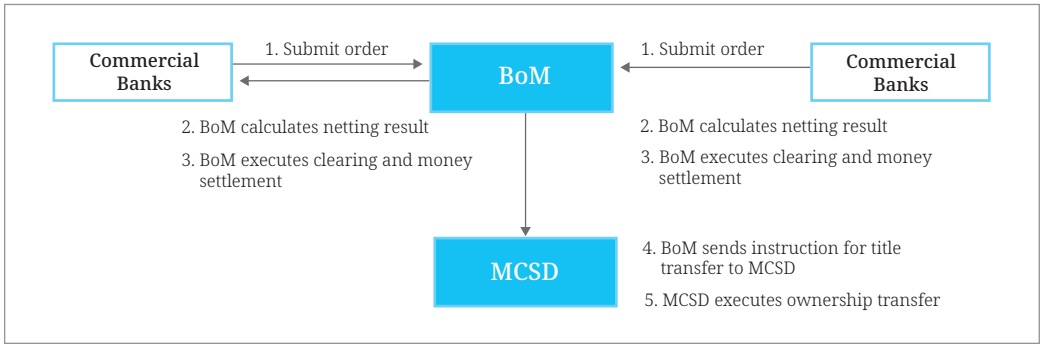
[Figure 2-1] Flow of Inter-bank OTC GB Issuance



Source: ADB, Bond Market Guide for Mongolia, Figure 5.1, 2021.

Trading on the BOM market was solely for commercial banks eligible to take part in primary auctions, making trading primarily an inter-bank affair and relatively limited. Despite this, trading on the BOM market accounted for 87.8% of all GB transactions in Mongolia. While the central bank directly handles cash settlement through the real-time gross settlement (RTGS) system, the MCSD handles the transfer of GB ownership. The trading process on the BOM market is shown in [Figure 2-2].

[Figure 2-2] Flow of Inter-bank OTC GB Trading

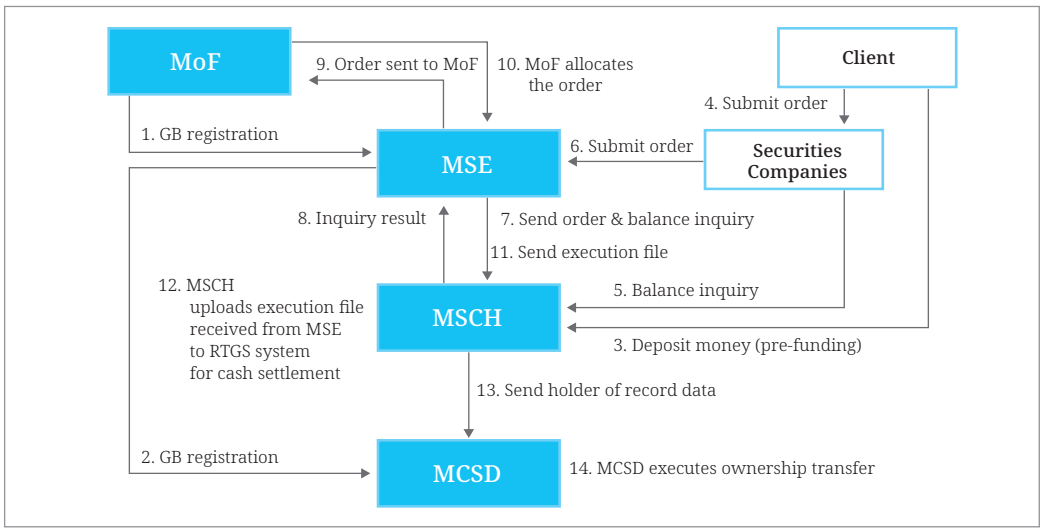


Source: ADB, Bond Market Guide for Mongolia, Figure 5.3, 2021.

2.1.2. Exchange Issuance and Circulation of GBs

The Regulation on Issuance and Trading of Government Securities (Decree No. 371) approved by the Mongolian government took effect on November 26, 2014, allowing GBs to be issued through the MSE's trading system as well as off-exchange issuance. This new method was called public offering or exchange issuance. The MSE's first GB issuance came in November 2014 and the stock exchange continued issuance until its suspension in 2017. To expand the investor base, trading on the MSE market was opened to all investors, not only securities companies but also indirect participants such as banks, individuals, and other non-banking financial institutions. Yet despite efforts to expand the investor base, trading on the MSE market accounted for only 12.2% of all Mongolian GB transactions. The GB issuance process on the MSE market is shown in [Figure 2-3].

[Figure 2-3] Flow of GB Issuance on MSE Market



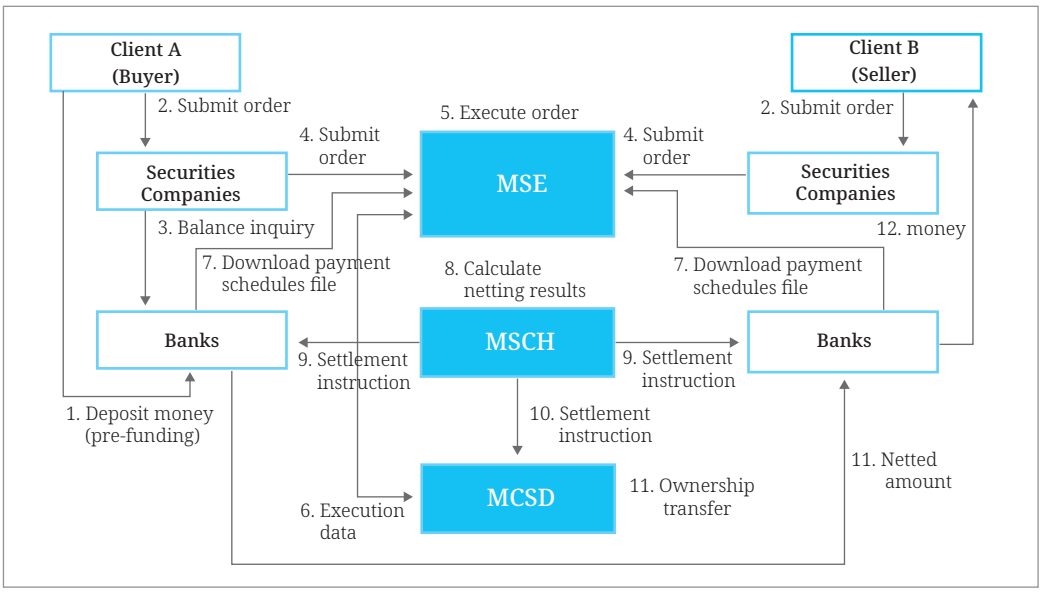
Source: ADB, Bond Market Guide for Mongolia, Figure 5.2, 2021.

On its inter-bank OTC market, the BOM performs clearing and settlement functions, but on the MSE market, the Mongolian Securities Clearing House (MSCH) does so. Buyers must deposit cash in advance in their settling bank to purchase GBs under what is called pre-funding. For cash settlement, the MSCH gives payment instructions to transfer cash from the buyer's settling bank to that of the seller.

Meanwhile, all GBs are registered with the MCSD as electronic securities. To settle the bonds, the MSCH sends settlement instructions to the MCSD, which executes the transfer of ownership from seller to buyer. Unlike the T+2 days settlement cycle on the inter-bank OTC market of the BOM, the GB settlement cycle on the MSE market is T+1 days, and the settlement of GBs and cash is processed by delivery versus payment (DvP). The trading process on the MSE market is shown in [Figure 2-4].

The 2019 passage of the Regulation on Primary and Secondary Market Operations of Domestic Government Securities removed the distinction between off-exchange and exchange issuance. The MOF will choose the issuing venue between the inter-bank OTC trading platform of the BOM and the MSE trading platform and select either auction and negotiation as the pricing method. When GB issuance resumes, the MOF is expected to choose the venue and pricing method pursuant to the Regulation.

[Figure 2-4] Flow of GB Trading on Exchanges



Source: ADB, Bond Market Guide for Mongolia, Figure 5.4, 2021.

2.1.3. Repo Market in Mongolia

The Mongolian repo market is only used by the Bank of Mongolia (BOM) to conduct repo transactions for open market operations (OMO), meaning this market is only open to the BOM and commercial banks. Securities companies and foreign investors are banned from conducting repo transactions. GB-using repo transactions are executed through the BOM trading system and the MCSD processes ownership transfer of GBs from repo seller to buyer. Meanwhile, transactions on the MSE market do not use repurchase agreements, and other than repo transactions for OMO, there are no tri-party repo transactions among financial institutions in the OTC repo market.

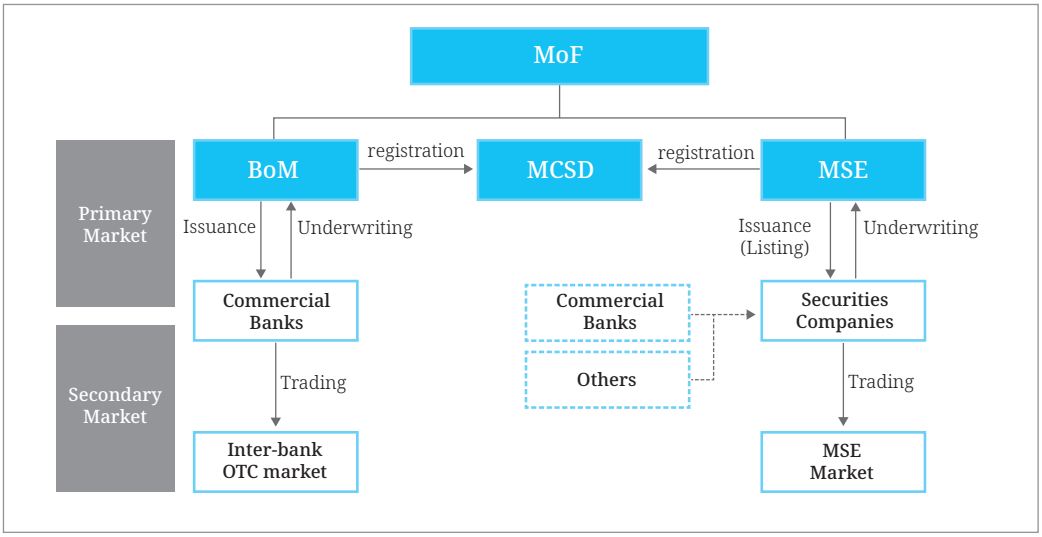
2.2. Challenges of Mongolia's Secondary GB Market

2.2.1. Primary and Secondary GB Markets

As shown in [Figure 2-5] below, Mongolian GBs can be issued and traded in either the inter-bank OTC market of the Bank of Mongolia (BOM) or the market of the Mongolian Stock Exchange (MSE). Only bonds issued by the MSE are listed on the stock exchange, whereas those issued by the BOM are not listed there. All Mongolian GBs issued by the BOM or MSE are registered with the MCSD as separate securities depending on when they were issued and in which market. Accordingly, each new issue is assigned a unique ISIN,[2] and each pair of GBs is recorded in separate accounts at the MCSD as separate and independent instruments. Furthermore, all issued GBs can be traded only at the place of issuance. In other words, GBs issued by the BOM can only be traded on the central bank's inter-bank OTC market, while those issued by the MSE can only be on the latter's market. This indicates the separation of the Mongolian GB and secondary markets, leading to the undermining of secondary market liquidity.

2 The International Securities Identification Number (ISIN) is a 12-digit alphanumeric code that identifies a specific security.

[Figure 2-5] Structure of Mongolia's Primary and Secondary GB Markets



If all GBs are listed on the MSE market, commercial banks can trade their acquired GBs simultaneously on both the MSE and inter-bank OTC markets of the BOM. Yet commercial banks that acquired GBs through the BOM auction cannot trade GBs on the MSE market, only on the inter-bank OTC market of the central bank. This separation of the two markets seems to restrict the distribution and liquidity of GBs, and this limit grows more apparent given how many countries are trying to increase GB liquidity by facilitating bond trading and reducing issuance costs. The separation of the primary and secondary market is also highly likely to undermine the growth of cross-market trading between the on-exchange and OTC markets, capital and short-term money markets, and spot and futures markets.

To increase the liquidity of Mongolian GBs, they must be issued by a single institution or at a single place. In addition, all issued GBs must be listed on the MSE market. GB investors can then trade their bonds on any market including the on-exchange bond, OTC bond, and money markets.

2.2.2. Mongolia's GB Market

Mongolia has two secondary GB markets: the inter-bank OTC market of the Bank of Mongolia (BOM) and the on-exchange market of the Mongolian Stock Exchange (MSE). Only commercial banks can take part in GB issuance by the BOM and trade on the latter's inter-bank OTC market. The MSE market, however, is open to both securities companies and all other financial institutions, but the latter can participate indirectly through securities companies.

In 1996, Mongolia began issuing GBs, and MNT 12.7 trillion worth of the bonds were publicly traded between 2012 and 2017. Of them, 87.8% were traded on the wholesale market[3] by the BOM and the remaining 12.2% on the retail market[4] by the MSE; 82.1% of the GBs were held by a few commercial banks. As the statistics show, the inter-bank OTC market of the BOM far outperformed the MSE market in GB issuance and trading volume. In addition, commercial banks were the dominant players in the Mongolian primary and secondary markets, leaving such bonds at the mercy of a small group of powerful commercial banks.

Commercial banks account for a large portion of the Mongolian economy and enjoy abundant liquidity. By holding 82.1% of issued GBs, such banks have little incentive to conduct other financial transactions with their bonds. Because of high interest rates on GBs compared to other investment instruments, commercial banks instead tend to hold on to their GBs until maturity, a behavior that has hindered the development of alternative investment instruments. The ban on non-banking financial institutions in the BOM GB auction poses an obstacle to the development of both Mongolia's GB market and non-banking financial institutions.

Development of the Mongolian GB market requires consideration of major issues. First, the Mongolian government needs to boost its GB market by adopting the primary dealer (PD) system. To adopt this system, the country needs to decide which is more conducive, the inter-bank OTC market of the BOM or the MSE market. If the system is introduced, why not expand PD eligibility to non-banking financial institutions to expand the GB demand base? Or allow banks that are PDs to directly participate in the MSE market? The next question is how to expand the demand base for the GB market. The growth of the primary and secondary GB markets requires the diversification of bond investors, which means allowing GB underwriting by non-banking financial institutions. By diversifying primary market participants and allowing them to trade underwritten GBs on the secondary market, Mongolia can see further growth on its primary and secondary GB markets.

2.2.3. Repo Markets in Mongolia

GBs, government-guaranteed bonds, and bonds issued by the central bank are widely used in repo transactions. Thus the growth of the repo market is crucial for the quantitative and qualitative development of the secondary GB market. A repo transaction is a form of short-term financing to raise capital by selling GBs to investors, usually on a daily basis. The

3 The whole market refers to the inter-bank OTC market of the BOM.

4 The retail market refers to the MSE market.

repo market can thus simultaneously serve as a capital market for GB trading and a money market for short-term financing.

For this reason, most countries with well-developed GB markets also have highly developed repo markets and active cross-trading between the bond and repo markets. Repo transactions like GB lending and borrowing are methods to procure GBs and enable short selling. So a key task for Mongolia is to build the infrastructure needed for OTC tri-party repo transactions by financial institutions.

2.2.4. Summary of Mongolian GB Market

Considering the supply side of GB, Mongolia has had no regular and predictable GB issuance. The supply of outstanding GBs was extremely limited due to the bonds' short maturity, three months at the longest. As a result, the primary and secondary markets found it tough to properly develop.

Reflecting the demand side of GBs, just a few investors had excessive liquidity, all of them being commercial banks that exercised the same investment strategy of holding on to the bonds until maturity. With non-banking financial institutions banned from the BOM's GB auction, the GB demand base was inevitably more fragile.

Finally, GB infrastructure or market had no attractive alternative instruments for investment aside from commercial banks in Mongolia, plus other markets such those for as SL&B, futures, and repo were underdeveloped.

3. Korea's Experience in Developing Its Secondary GB Market

3.1. Development of GB Market

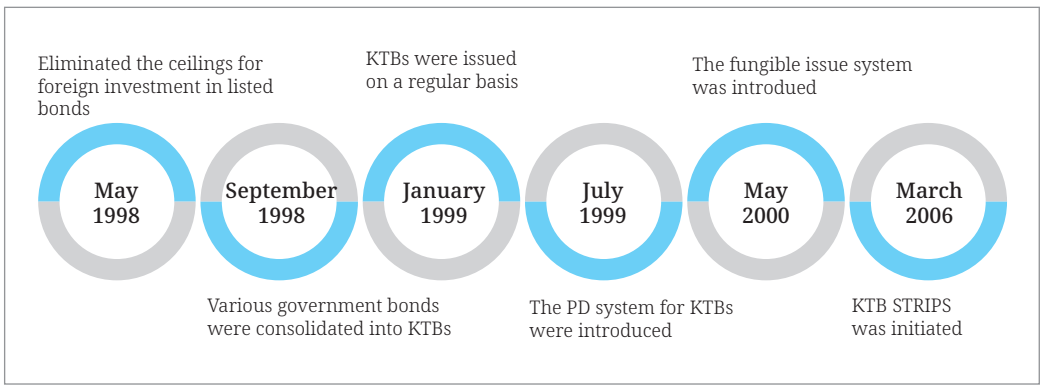
Due to the 1997-1998 Asian financial crisis, Korea's bond market saw two major changes: a slump in the corporate bond market and revival of the GB market. First, the Korean government in December 1997 abolished the monthly underwriting limit of corporate bonds issued by the same company, raising expectations of securities companies and banks underwriting corporate bonds without limit. The crisis, however, caused companies and financial institutions alike go bankrupt, making it hard to find banks that would guarantee corporate bonds.

As a result, banks and securities companies rarely took on corporate bonds, leading to a sharp drop in their issuance on the bond market. Next, the government pushed for more fiscal spending to overcome the crisis. Seoul had no choice but to raise the funds necessary to expand expenditures through GBs, thus their issuance on the bond market surged.

With the increase in GB issuance, the government promoted policy actions to systematically foster the primary and secondary GB markets. Above all, the ceiling for foreign investment in listed bonds on the Korea Exchange (KRX) were lifted to open the bond market to foreign investors. In addition, other measures sought to facilitate GB issuance and distribution, especially to increase their liquidity.

In September 1998, the government began to call bonds for the Public Debt Management Fund as the Korea Treasury Bond (KTB), and gradually consolidated GBs such as those for the Grain Management Fund and Foreign Exchange Stabilization Fund into KTBs. Regular issuance of KTBs began in January 1999, and in July 1999, the primary dealer (PD) system for KTBs was launched. PDs were granted the exclusive right to participate in the primary market for KTBs in return for acting as market makers and providing liquidity on the secondary KTB market. In May 2000, the government introduced the fungible issue system under which newly issued KTBs within a designated term were considered identical KTBs. This system helped raise the issuance volume of a specific KTB. In March 2006, the country introduced KTB STRIPS,[5] which refers to converting coupons to be paid at maturity into a zero coupon bond and trading it.

[Figure 2-6] Key changes in Primary GB Market after Asian Financial Crisis



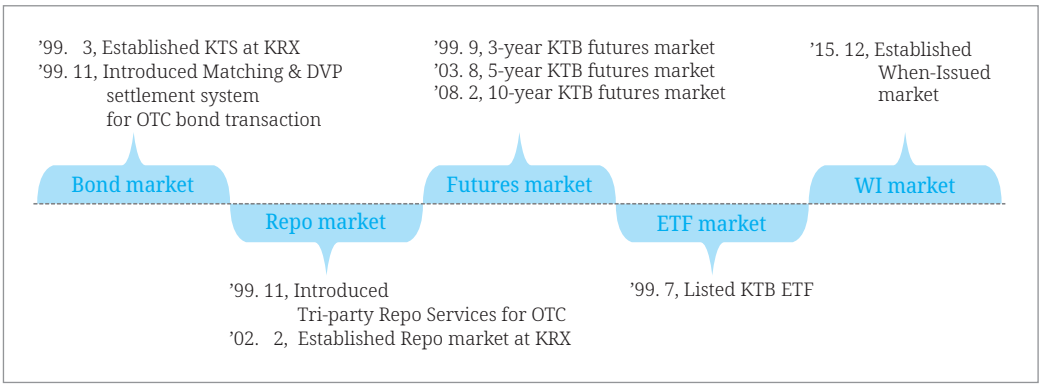
Along with the aforementioned policies or systems, others were adopted to develop the secondary GB market. March 1999 saw the launch of the trading system for government securities on the KRX, and November 1999 the matching and DvP settlement systems for

5 STRIPS stands for "separate trading of registered interest and principal of securities."

OTC bond transactions and tri-party repo services for OTC institutional repo transactions. In February 2002, a repo market was set up at the KRX.

Three-, five-, and ten-year KTB futures markets were established in September 1999, August 2003, and February 2008, respectively. In July 1999, a KTB exchange-traded fund (ETF) was listed on the KRX. And December 2015 saw the debut of the when-issued market where trading can take place for two days, starting from two days before the auction or the day before issuance.

[Figure 2-7] Key changes in secondary GB market after Asian Financial Crisis



More details and explanations are covered in the next section on the on-exchange, OTC GB, KRX, and OTC repo markets.

3.2. On-exchange GB Market

3.2.1. Background

Over the course of the post-crisis recovery, the KRX launched the KRX Trading System (KTS) in March 1999 as a competitive bidding market limited to PDs designated by the government. PDs on this market can sell a large volume of KTBs underwritten by the primary GB market. Incentivized by the Korean government, PDs were assigned to facilitate the sustainable growth of the KTS as market makers, and have facilitated both underwriting and distribution of KTBs to greatly boost liquidity in KTB trading. As described in <Appendix Table 2-1>, the trading volume of on-exchange bonds (KRW 2.5 trillion) in 1996 accounted for just 1% of that of OTC bonds (KRW 246.3 trillion) in the year before the Asian financial crisis.

<Table 2-1> KTB Trading Value on KTS

(Unit: KRW tln)

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
43	211	366	337	269	316	325	440	426	769
2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
1,316	1,270	1,331	1,715	3,163	2,325	2,319	2,148	2,007	1,393

Source: Information data system, KRX website.

Since 2002, however, PDs have been obligated to trade benchmark GBs only through the KTS.[6] As shown in <Table 2-1> above, the combined trading value of KTBs in 2021 was KRW 1,393 trillion, or 2.5 times larger than the annual government budget for the same year. Compared to 1996, on-exchange trading rose to comprise 37.1% (KRW 1,393 trillion) of KTB trading volume, a far cry from the share of OTC trading of 62.9% (KRW 2,365 trillion).

3.2.2. Market Structure

The KRX consists of three bond markets: general, small cap, and KTS. The general bond market trades all bonds listed on the KRX. That of small cap bonds trades GBs and public bonds required for property and vehicle registration. And the KTS sees the trading of KTBs by PDs who have the exclusive right to bid for KTBs on the primary market and must offer bid-and-ask prices on the secondary market. The general and small-cap markets are distinguished from the KTS since the settlement cycle is T, cash settlement is processed through commercial banks, and intraday RP[7] is unavailable. On the other hand, the settlement cycle for the KTS, where KTBs are mostly traded, is T+1. Trading bonds for monetary stabilization and deposit insurance funds is also possible. As shown in <Table 2-2> below, the KTS accounts for most bond market transactions. KTB trading on the KTS occurs in the following stages: trade execution, netting, reception and notification of settlement details, and initial and second DvP settlement.

<Table 2-2> Trading Value of KRX Bond Markets

(Unit: KRW tln)

Bond market category	2017	2018	2019	2020	2021
Small cap	51	52	56	104	51
General	6	4	5	5	4
KTS	2,325	2,319	2,148	2,007	1,393

Source: Information data system, KRX website.

6 This obligation for primary dealers to trade benchmark government bonds only on the KRX was abolished in 2008.

7 Intraday RP refers to repo transaction for funding government bond transactions offered by the BOK. Unlike an ordinary repo transaction, however, it was named "intraday RP" because both the provision and redemption of funds are made on the same day.

A. Trade Execution

In sync with the KRX repo market, the quotation and trading hours for the KTS are the same time as those of the KRX repo market (9 a.m. and 3:30 p.m.). On the KTS, bonds are quoted in units of KRW 10,000. The quotation unit is KRW 1 for KTBs with maturity of 10 years or longer, KRW 0.5 for KTBs of two to under 10 years, and KRW 0.1 for KTBs of under two years. For example, the bond set for trade is a 10-year KTB with a par value of KRW 10,000. In this case, the KTB's bid or ask price will be submitted in units of KRW 1 such as KRW 9,998, KRW 10,001, and KRW 10,223. In addition, bonds are traded in units of KRW 1 billion like KRW 3 billion, KRW 10 billion, and KRW 13 billion.

As market makers, PDs must offer bid-and-ask prices for benchmarks of KTBs with varying maturities (3-, 5-, 10-, 20-, 30-year and inflation-linked bonds). On the KTS, GBs are traded under the complete competitive trading method. In addition, 52 KRX members and 25 participants (23 banks and 2 institutions licensed as GB dealers) are exclusively allowed to participate in KTS trading. Other financial institutions can indirectly take part by using KTS participants as intermediaries.

B. Netting

In KTS trading, bonds and cash are subject to multilateral netting by trading party and bond type, thus befitting the DvP 3 as defined by the Bank for International Settlements (BIS). Certain risks do linger, however. The multilateral-netted amount might not be small enough to leave room for a failed settlement if a trading party cannot deliver the securities or pay cash. So as the central counterparty (CCP) in KTS, the KRX finalizes the settlement amount and quantity by splitting the multilateral-netted bonds and cash to KRW 10 billion or lower.

C. Reception and Notification of Settlement Details

On the trading date after the KTS closes, the KRX notifies the settlement amount and quantity and other key settlement details to Korea Securities Depository (KSD) in an electronic text message. By 9 a.m. on T+1, KSD sends the settlement data to trading parties including the settlement reference number, trade and settlement dates, issue name, and settlement amount and quantity.

D. Initial DvP Settlement

If the trading party's account has the bonds set for delivery, KSD earmarks the bonds while the KRX requests an intraday RP from the Bank of Korea (BOK). If the BOK approves the request, KSD transfers the bonds from the delivering party to the central bank's securities account via KSD's securities account. The BOK then deposits the intraday RP amount to KSD's cash account at the BOK and KSD credits the amount to the delivering party's cash account at the central bank, concluding the initial DvP settlement. In addition, trading parties, KSD, KRX, and BOK are closely connected through a network that processes transactions in a real-time automated setting. Initial DvP settlements are processed between 9 a.m. and 4 p.m.

E. Second DvP Settlement

The second DvP settlement is also processed on T+1 between 9 a.m. and 4 p.m. If the last trading party to receive the bonds has sufficient cash to pay, the amount is paid to the BOK via KSD while the BOK-held bonds are received from KSD. For a trader buying bonds with his or her own assets, an intraday RP can be received from the BOK by collateralizing the bonds. This method is often used by trading parties who seek profits from a back-to-back transaction, or the purchase of bonds from the KTS followed by their sale on the OTC market. In other words, a trading party can sell bonds on the OTC market and use the proceeds to repay the intraday RP from the BOK and deliver the bonds received to the OTC market. As the central securities depository that manages all transactions on the KRX and OTC GB market, KSD can build a securities settlement system (SSS) capable of arbitrage between both markets.

3.2.3. Features and Implications

A. Primary Dealers

Primary dealers (PDs) as market makers are designated by the Ministry of Economy and Finance (MOEF) to offer bid-and-ask prices on the secondary GB market in exchange for their right to bid for KTBs on the primary market. So PDs can alternate between the KTS and the OTC market to purchase and sell KTBs without waiting until maturity. Their activities have helped expand buy-side demand for KTBs and promote fair pricing on the market. With the robust growth of PDs, the trading volume of KTS bonds saw exponential growth from just 1% of OTC trading (prior to Korea's IMF bailout) to around 40% in 2021.

B. Splitting Settlements by KRW 10 Billion

GB settlement involves relatively massive amounts and quantities, so even a slight deficiency can lead to failed trades. For example, if a securities company (seller) must deliver KTBs worth KRW 41 billion and holds only KRW 40 billion in securities, splitting settlements can be helpful. If KRW 41 billion is split into five settlements of KRW 10 billion each, the earlier four rounds will be processed early, leaving only KRW 1 billion subject to follow-up settlement. The trading party who buys bonds worth KRW 40 billion can either immediately sell them on the OTC market or secure more cash through repo transactions.

C. Intraday RP

By providing intraday RPs on the KTS, the BOK functions to temporarily infuse liquidity in the market so that the seller of KTBs can receive cash early, regardless of whether the buyer has sufficient cash. So the intraday RP system is designed to enhance both settlement convenience and efficiency. A buyer of KTBs with its own assets can also obtain cash through the BOK's intraday RP by collateralizing the purchased bonds. In turn, the buyer sells the purchased bonds on the OTC market to repay the intraday RP amount. The BOK thus increases the liquidity of the KTB market, expands buy-side demand for KTBs, and facilitates KTB settlements both on the KRX and the OTC market by providing cash through intraday RPs.

<Table 2-3> Overview of Bond Market and System

	On-exchange bond market	OTC bond market
Participants	77 (securities companies, banks, permitted KRX members only)	148 (securities companies, banks, insurers, pension funds)
Tradable securities	KTBs in general	Bonds (including KTBs), CDs, CPs, etc.
Execution method	Competitive bidding via online trading system	Bilateral negotiation via voice brokerage & K-bond
Trading unit	KRW 1 bln	No limit but KRW 10 bln in general
Trading hours	09:00–15:30	Within biz hours
Settlement cycle	T+1	T+1 to T+30 but T+1 in general (exceptionally T+0)
Clearing	Multilateral netting of securities & cash	Trade for trade, but netting for back-to-back transactions
CCP	KRX	-
Settlement method	DvP 3	DvP 1

3.3. OTC GB Market

3.3.1. Background

In February 1998, the International Bank for Reconstruction and Development (IBRD) recommended that Korea adopt a delivery versus payment (DvP) system for the settlement of securities and cash in OTC bond transactions. The recommendation prompted Korea Securities Depository (KSD) in May of the same year to design a system of confirming OTC trading and DvP of bonds and cash. The finished system was launched in November 1999. The government mandated the use of DvP settlement in OTC trading in December 1999, which improved the stability of OTC settlement and catalyzed the growth of OTC bond transactions.

Unlike the KRX Trading System (KTS), in which bonds are traded through competitive bidding on an electronic system, the OTC bond market sees negotiated trading brokered by securities companies. For this reason, the government required OTC market players to disclose their transactional details through the Korea Financial Investment Association (KOFIA), a self-regulatory organization. KOFIA operates the bond quotation and trading system K-bond.

<Table 2-4> Trading Volume and Settlement Value of OTC Bond market

(Unit: KRW tln)

Category		2017	2018	2019	2020	2021
Trading volume	Entire OTC bonds (a)	4,109	4,257	4,195	4,921	4,800
	KTBs (b)	2,080	2,098	2,073	2,305	2,365
	(b/a)	50.6%	49.3%	49.4%	46.8%	49.3%
Settlement Value	Entire OTC bonds (a)	2,573	2,502	2,596	3,087	3,019
	KTBs (b)	1,226	1,106	1,200	1,407	1,430
	(b/a)	47.6%	44.2%	46.2%	45.6%	47.4%

Source: Internal data, KSD.

3.3.2. Market Structure

KSD operates a real-time gross settlement (RTGS) system to eliminate the principal risk of OTC settlement. The system consists of a matching system for transaction data submission and confirmation by OTC participants and a DvP settlement system that connects the securities settlement system of KSD and the large value transfer system of the BOK called

BOK-Wire+.[8] The settlement cycles of OTC transactions range from T+1 to T+30, during which the trading parties can choose the settlement date. Yet most transactions are settled on T+1, with some parties opting for T.

KSD uses the DvP system to process trade confirmation, settlement affirmation, and DvP settlement of GBs and other bonds, certificate of deposits (CDs), commercial papers (CPs), and short-term bonds. OTC GB trading has the following stages: trade execution, submission and confirmation of transaction data, preparation of settlement data, management instructions and settlement affirmation, and DvP settlement.

A. Submission of Transaction Data

As for OTC transactions, the Regulation on Financial Investment Business mandates DvP settlement under KSD, thereby requiring OTC trading parties to submit transactional details including the trading parties, trade and settlement dates, currencies, bond types, quantities, profit rates, unit prices, taxes, fees, settled amounts, and direct and back-to-back transactions to KSD. When trading parties process transactions using their proprietary system, the transaction data is automatically transferred to the KSD system. Smaller trading parties that do not use electronic messages can directly upload their trading data to the KSD system.

B. Trading Confirmation and Preparation of Settlement Data

In a direct transaction, the transaction data is confirmed with the identical data submitted by the buyer and seller. A back-to-back transaction is confirmed when all trading parties submit their transaction data. If both parties submit identical data, the two sets are finalized as a single set. As OTC bond transactions are processed under the RTGS system, settlement data is generated for each transaction without netting. In a back-to-back transaction, however, the buyer in the initial transaction becomes the seller in the subsequent deal. Such transactions are netted by offsetting the buying and selling positions of the same trading party.

C. Management Instructions and Settlement Affirmation

If one of the two trading parties is an asset management company, the trade is confirmed and settlement data generated when the company enters management instructions based on the counterparty's transaction data. Management instructions refer to allocation of the quantities and amounts of traded bonds per investment fund, whether single or multiple.

8 BOK-Wire+ refers to the large value transfer system operated by the Bank of Korea.

Once the allocation is over, a trustee assigned to take custody of fund assets should handle the settlement of securities and cash, which should be completed only after the trustee bank affirms the settlement.

D. Bond and Cash Settlement

First, DvP is the most common method of settling securities and cash. The Regulation on Financial Investment Business mandates DvP for OTC bonds transactions, so bonds and cash in OTC transactions are settled simultaneously linked with KSD's SSS and BOK-Wire+. As for DvP settlement, KSD earmarks the bonds in the seller's securities account for disposal restriction before sending a cash transfer message to the BOK. When the buyer credits the cash to the seller, the BOK notifies this to KSD, which completes the DvP settlement process by transferring the earmarked bonds from the seller to the buyer.

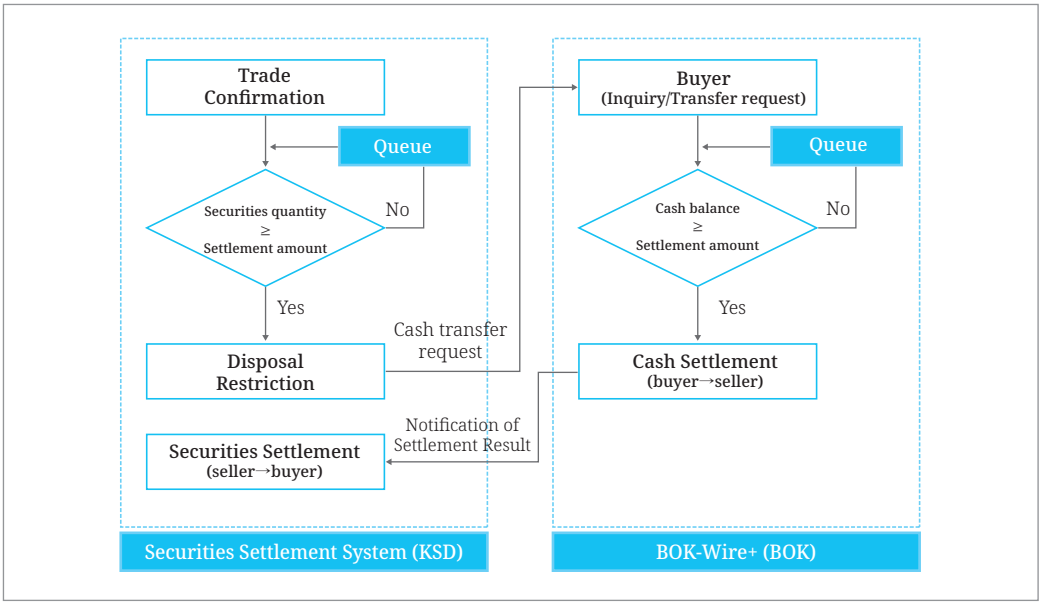
Despite rules mandating DvP settlement, there are exceptions that cannot be processed with the DvP method. If the trading parties have no cash settlement account at the BOK or trade CDs, CPs, or foreign currency-denominated bonds, the bonds and cash are processed via free of payment (FoP) settlement. Meanwhile, the DvP settlement with central bank money is unavailable after 5:20 p.m., the cut-off time of BOK-Wire+. After 5:20 p.m., settlement is automatically switched to FoP mode. As this settlement method is processed through the SSS of KSD without using BOK-Wire+, the buyer and seller must settle their cash payments separately. FoP settlement is completed when the seller confirms receipt of cash to KSD.

3.3.3. Features and Implications

A. Straight-through Processing and DvP Settlement

Players in the OTC bond market in Korea can send and receive electronic messages in a closely connected network between KSD and BOK for the purpose of submitting trade execution details, confirming trades, and processing DvP settlement. This straight-through processing (STP) network effectively removes manual work and ensures smooth real-time processing even in the event of a sudden surge in trading volume. The number of OTC transactions is relatively small, but OTC trading poses a principal risk because each transaction involves a large scale of cash payment obligations. Such risk is prevented via the real-time linkage between the SSS of KSD and BOK-Wire+.

[Figure 2-8] DvP Process of OTC Bond Market



Source: Internal data, KSD.

B. Participants

The OTC bond market is open to all financial institutions such as securities companies, banks, insurers, the National Pension Fund, and asset management companies. Market players can seek arbitrage opportunities by buying and selling between the KTS and the OTC market.

<Table 2-5> Players in OTC Bond Market

Category	Securities co.	Bank	Insurer	Nat'l Pension Fund	Asset Management co.	Others	Total
No. of institutions	51	50	26	5	323	16	471

Note: End of 2021.
Source: Internal data, KSD.

C. Intraday RP

Under the intraday RP system, if a GB buyer lacks liquidity on the settlement date, it can turn to the BOK for temporary liquidity by collateralizing GBs or monetary stabilization or government-guaranteed bonds purchased on the OTC market. To facilitate bond market settlement, the BOK makes up for the cash deficiency by supplying intraday RP, which allows sellers to receive payments early and use the cash for other financial transactions.

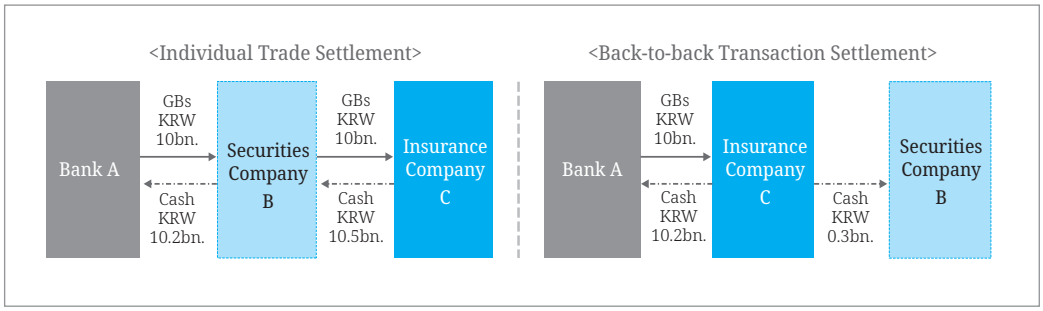
If the seller holds KTBs in an securities account, the buyer can use an intraday RP between 9 a.m. and 4 p.m. and must repay the cash via an intraday RP to the BOK. While the buyer holds the cash from an intraday RP, KSD separately keeps the bonds to be retrieved under the BOK's securities account. The buyer receives the bonds only after repaying the intraday RP amount.

D. Back-to-back Transactions

OTC GB trading is settled in gross amounts per transaction without netting, something that could prove burdensome for back-to-back trading parties to secure securities and cash for each and every transaction. For this reason, securities companies are allowed to conduct back-to-back trading when their purchased KTBs are to be sold consecutively. In this case, settlement is made only between the initial seller and final buyer.

As shown in [Figure 2-9] below, independent settlement requires two book entries and a cash payment of KRW 20.7 billion. A back-to-back transaction can simplify the process, however, with a single book entry from the first seller to the final buyer, and through securing the deal by a cash payment of KRW 10.5 billion by the last buyer. KSD settles in gross amount per each OTC GB transaction, but pushes for the adoption of back-to-back trade settlement to economize the size of settlement amount and quantity.

[Figure 2-9] Back-to-Back GB Transaction



Source: Internal data, KSD.

E. Disclosure of Transaction Information

Bonds are acquired by the KTS via competitive bidding, which requires transparent disclosure of trade execution and quotations. Such data, however, is not publicly available for OTC bond trading, which raises the cost of price searches. To tackle this issue, KOFIA requires securities companies that trade or broker GBs on the OTC market to report data per transaction within 15 minutes after execution. The reported information is published on

KOFIA's bond-specific website (www.kofiabond.or.kr).

KOFIA also runs a web-based bond trading system (k-bond.kofia.or.kr) to help users search for quotation information on OTC trading or brokerage and negotiate transactions with counterparties. Such disclosure sources make the OTC GB market more transparent and reduces the cost of price searches.

3.4. On-exchange Repo Market

3.4.1. Background

After the 1997-1998 Asian financial crisis, Korea sought to move away from bank loans and raise more capital by issuing more KTBs and more actively engaging the securities market. The government also reformed the primary KTB market and fostered KTB-specific PDs. At the time, the secondary KTB market needed reform given the tendency of investors to mostly hold on to their bonds until maturity. For this, the Bond Market Advancement Plan was announced in May 2000. The KRX, which launched the KRX Trading System (KTS) in March 1999, opened a repo market in February 2002 to better finance PDs and allow them to acquire bonds more readily. Despite initial expectations, the KRX repo market has lost a lot of steam in accounting for a mere 1% of OTC institutional repo transactions due to restrictions on eligible securities, limits on participation by asset management companies, and tax treatment of bond interest.

<Table 2-6> Trading Volume and Settlement Value of KRX Repo Market

(Unit: KRW tln)

Category	2017	2018	2019	2020	2021
Trading volume	80	140	196	177	241
Settlement value	55	84	94	126	126

Source: Information data system, KRX website.

3.4.2. Market Structure

The KRX opened a repo market in addition to the KTS to help primary dealers (PDs) secure bonds and cash more readily. On the repo market, the KRX is both a tri-party repo agent and central counterparty (CCP). The KRX repo market is a screen-based competitive trading market governed by GMRA-based KRX regulations. Trading on the KRX repo market consists of the following stages: trade execution, start-leg settlement, trade management, and close-leg settlement.

A. Trade Execution

In sync with the KTS, the repo market uses the same quotation and trading hours as the KTS, or 9 a.m. to 3:30 p.m. On the repo market, prices are quoted as repo rates. The repo rate is the interest rate at which a repo seller borrows money from a buyer with the quotation price unit of a hundredth of a percetnage point. For example, if the previous day's average repo rate was 2.50%, this means that the bid or ask price can be submitted in figures like 2.49% or 2.51%.

The KRX's repo regulation has no price limit, or a designated amount or proportion in which a price can go up or down on a single trading day compared with the previous day's closing price. For example, assuming a closing repo rate on the previous day of 2.50%, the bid or ask price can be submitted as high as 5.50% or as low as 0.50%. Repo trading begins with a match between bid-and-ask prices and is processed in a complete and competitive trading method based on time and price priorities. In addition, repo trading is processed under the assumption that trades are confirmed at the time of execution (locked-in comparison). Thus extra confirmation is not needed and trade cancellation is virtually banned.

B. Transaction Period and Eligible Securities

On the KRX repo market, transaction periods are specifically prescribed for the purpose of standardization. Thus participants must choose from a list of 10 repo transaction periods: 1, 2, 3, 4, 7, 14, 21, 30, 60, and 90 days. Only the following securities are eligible for repo trading on this market: KTB, Treasury Bill, Foreign Exchange Stabilization Fund Bond, National Housing Bond, Monetary Stabilization Bond, Deposit Insurance Fund Bonds, corporate bonds with a credit rating of "AA" or higher, and other special bonds.

In addition, repo trading only involves vanilla bonds with maturity and payment interest rate fixed at the time of issuance with no special options such as early redemption or conversion to shares. For this reason, repo trading is less frequently used on the KRX repo market compared to the OTC repo market.

C. Start-leg Settlement

Start-leg settlement is based on DvP 3,[9] meaning that bonds and cash position are calculated on a netting basis. Transactions included in netting are repo transactions initiated, those with repurchase dates arriving, and bond margins to be paid all on the same day.

9 DvP 3 typically settles both securities and funds on a net basis, with final transfers of both securities and funds occurring at the end of the processing cycle (see BIS glossary).

After the closure of repo transactions at 3:30 p.m., the KRX notifies the settlement details to KSD via electronic text message. KSD notifies the settlement details to securities companies and banks participating in repo transactions and leverages its e-SAFE+[10] to perform the DvP settlement of the bonds and cash linked with BOK-Wire+. Intraday RP is not available in start-leg settlement.

D. Trade Management

As the tri-party repo agent, the KRX manages repo transactions that have not expired. Trade management comprises the tasks of return of profits, mark-to-market of purchased and margin securities, and bond transfer and exchange.

Under return of profits, any interest on bonds sold or received as a margin during a repo transaction period should be returned by the buyer or margin recipient to the repo seller or trading party that paid the margin. Unlike in management of OTC repo trading, bonds with an interest payment date during the repo transaction period must be exchanged for other bonds with no interest payment date.

The task of mark-to-market of purchased and margin securities seeks to guarantee settlement by sellers and buyers in repo transactions with maturities of two days or longer. Mark-to-market compares the repo cash to be returned by a seller (initially procured amount + repo interest) and margins with the bonds and margins to be returned by a buyer under the goal of leveling the positions of both parties by making a margin call when a party's position gets lower than that of the other. When a seller and buyer conduct multiple repo transactions, mark-to-market considers all repo transactions as a single agreement and combines their positions.

The third task of trade management is bond transfer and exchange. Bond transfer means replacing the bonds sold by a repo seller with different issues of the same type with the buyer's consent. A single bond transfer is allowed per contract for non-designated purchase. In addition, bond transfer is allowed from the date following that of the start-leg settlement to that preceding the repurchase. Bond exchange also means exchanging bonds with different issues of the same type when the issuer or guarantor is in a prescribed event such as insolvency. The buyer may request a bond exchange that the seller must honor. Bond exchange is allowed from the date following the start-leg settlement to that preceding the repurchase.

10 e-SAFE+ refers to the computer system for processing all KSD businesses.

E. Close-leg Settlement

A repo transaction is concluded when its repurchase date is reached. At this time, the seller should return the repurchase cash to the buyer comprising the principal procured from the transaction and interest accrued at the repo rate during the transaction period. The buyer should return the purchased bonds to the seller, and any bonds or cash margin exchanged under a margin call should be given back as well. Bonds and cash for close-leg settlement are settled after combining them with the bonds and payments for the start-leg settlement and netting of the bonds and payments.

3.4.3. Features and Implications

A. Risk Management

Korea Securities Depository (KSD) uses a mechanism to manage payment risks while conducting DvP settlements for repo transactions. If a settlement member required to deliver bonds after netting has any bonds remaining in the securities account, KSD immediately transfers them to its securities account. If a settlement member required to take over the bonds after multilateral netting satisfies the following requirements, the settlement is completed even before the official deadline of 4:30 p.m. First, the member taking over the bonds must deliver securities and pay cash for settlement. Second, the appraised value of the settlement securities (bonds) to be received[11] by the member should be within the bonds' receivable limit.[12] The purpose of maintaining this risk management mechanism for DvP settlement is to complete settlement whenever the requirements are met, rather than processing both bond delivery and cash payment at the deadline. This allows settlement members who satisfy the requirements to receive the bonds they purchased and the cash from bond sales early, even if slightly, and use them for other financial transactions.

B. Participants in Repo Transactions

On the KRX repo market, 52 KRX members and 25 participants (23 banks and two 2 institutions approved by the KRX) are allowed to participate in repo trading. This market bars asset management companies or use of GBs or cash held by the fund. The KRX lacks a system to issue management instructions for each repo transaction and let the custodian bank settle bonds and cash. This is a reason for the low popularity of this market.

11 Appraised value of settlement securities to be received = quantity of settlement securities of each issue × closing price on the transaction date immediately preceding the settlement date

12 Receivable limit of bonds = settlement payments paid + compensation fund paid to KRX + settlement facilitation payment + ∑ appraised value of settlement securities delivered – ∑ appraised value of settlement securities received

<Table 2-7> Overview of Repo Market and System

	On-exchange repo market	OTC repo market
No. of participants	77 (securities companies, banks, other institutions approved by KRX)	1,256 (securities companies, banks, insurers, asset managers, pensions, foreign investors)
Tradable securities	Gov't & municipal bonds, MSB, corporate bonds	All securities including KTBs
Execution method	Competitive bidding via online trading system	Bilateral negotiation via brokerages or direct
Transaction type	Term repo (1, 2, 3, 4, 7, 14, 21, 30, 60, 90 days)	Overnight, term & open repo (no term restriction)
Trading unit	KRW 1 bln	No limit
Trading hours	9:00-15:30	Within biz hours
Settlement cycle	T	T
Clearing	Multilateral netting	Trade for trade
Settlement method	DvP 3	DvP 1 (FoP also available)
Legal status	KRX is a CCP and tri-party repo agent	KSD is a tri-party repo agent

3.5. OTC Repo Market

3.5.1. Background

In February 1998, the International Bank for Reconstruction and Development (IBRD) recommended that Korea Securities Depository (KSD) provide tri-party repo services and build a settlement system for repo transactions. KSD obliged by providing such services from November 1999 such as confirmation of OTC repo transactions and settlements, DvP settlement of securities and cash, and management of transactions and risk. In April 2006, the Act on Debtor Rehabilitation and Bankruptcy abolished a bankruptcy trustee's right to deny and select repo transactions, which secured legal stability for such transactions. In 2011, the regulations and KSD's repo system were revamped in alignment with the Global Master Repurchase Agreement (GMRA), which boosted the growth of repo transactions in Korea. After the collapse of Lehman Brothers in the US, the Korean government, to mitigate the system risk caused by non-collateralized transactions on the short-term money market, in 2011 restricted access to the call market by securities companies and other non-banking financial institutions[13] while stimulating securities-based tri-party repo transactions. These

13 The call market sees financial institutions borrow or lend funds in an ultra-short period to temporarily control fund excesses and shortages. In other words, financial institutions subject to the BOK's reserve requirements adjust reserve excess and shortage mainly through call transactions. So the call market is also a market for such requirements.

actions led to the exponential growth of OTC repo transactions. As described in <Appendix Table 2-2>, the OTC repo market began to grow from 2008 (KRW 464.5 trillion), and its trading volume grew an astounding 4,920% between 2008 and 2021 (KRW 23,318.2 trillion).

<Table 2-8> Trading Value of OTC Repo Market

(Unit: KRW tln)

Category		2017	2018	2019	2020	2021
Trading value[1)]		13,331	16,233	20,109	22,148	23,318
Daily avg. amount[2)]	All (a)	62	75	93	106	126
	GBs (b)	31	35	50	58	74
	(b/a)	50.7%	46.9%	54.3%	55.1%	59.1%

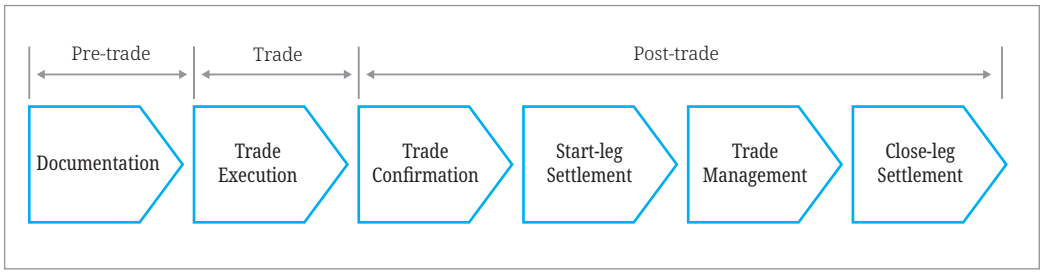
Notes: 1) The trading value refers to the amount of start-leg settlement only.
2) The daily average was calculated based on trading value.

Source: Internal data, KSD.

3.5.2. Market Structure

The repo and reverse repo transactions utilizing KSD's tri-party repo services and system are repo transactions for open market operations (OMO) by the BOK, repo transactions of securities companies to borrow cash, and reverse repo transactions of banks to lend cash. As shown in [Figure 2-10] below, OTC repo transactions consist of the following stages: documentation of trade, trade execution and confirmation, start-leg settlement for securities and cash, trade management, and close-leg settlement for securities and cash.

[Figure 2-10] Life Cycle of Repo Transaction



Source: Internal data, KSD.

A. Documentation

Documentation refers to the stage where a seller and buyer draw up a master contract or agreement for a repo transaction. Documents are drafted under the GMRA or KOFIA master agreement, but other forms may be used for certain non-standardized transactions.

B. Trade Execution

In this stage, the seller and buyer conduct a repo transaction under a written agreement. OTC repo transactions do not use electronic trading systems, instead relying mostly on voice brokerage via phone, email, and online messengers. Most repo transactions are brokered through six money brokerage companies, with certain buyers and sellers using non-brokered transactions. In a brokered transaction, a brokerage executes a transaction and submits the transaction data to KSD's repo system. In a non-brokered transaction, the seller submits the transaction data to KSD's repo system after conducting the transaction.

C. Trade Confirmation

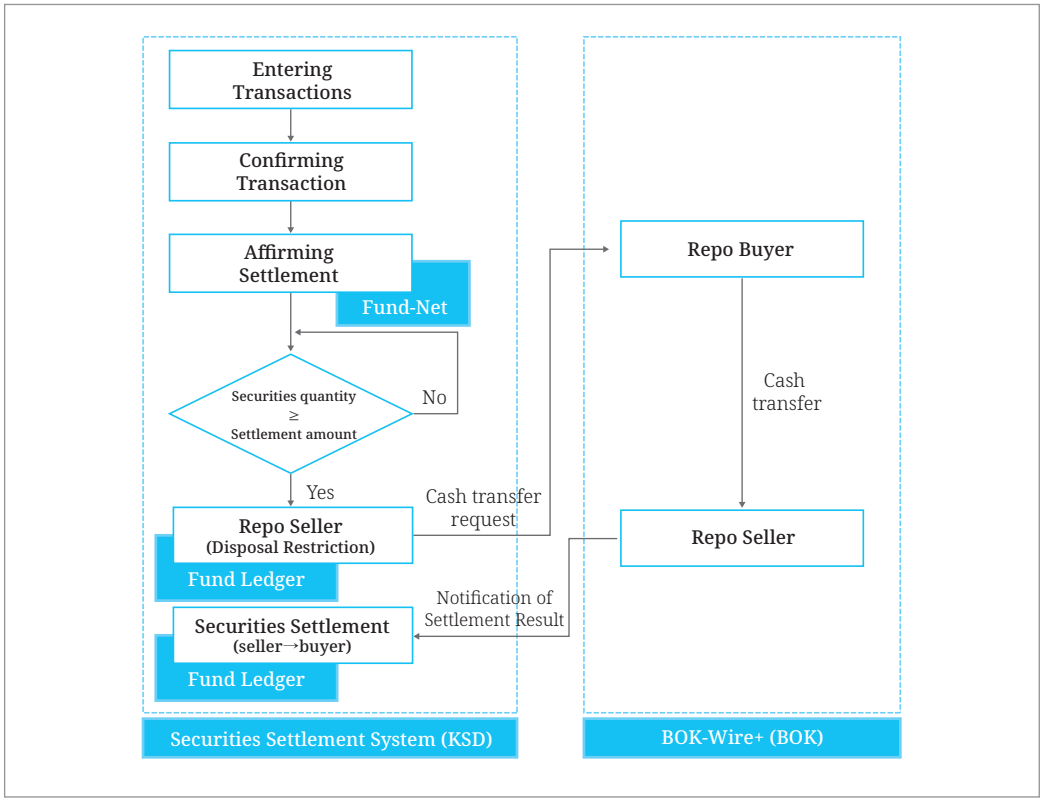
This stage refers to confirming and affirming that a repo transaction was conducted as agreed between the trading parties before settlement. Trade confirmation uses the KSD repo system. In a brokered transaction, the seller and buyer confirm the transaction data provided by the brokerage (two-sided comparison). In a non-brokered transaction, the buyer confirms the transaction data provided by the seller (one-sided comparison).

D. Start-leg Settlement

Start-leg settlement refers to exchanging the bonds sold by the repo seller and the cash paid by the buyer on T. Start-leg settlement is based on DvP 1,[14] meaning that bonds and cash are exchanged simultaneously on a gross basis for each repo transaction. After BOK-Wire+ closes at 5:20 p.m., bonds and cash are settled under the FoP method.

14 DvP model 1 typically settles securities and funds on a gross and obligation-by-obligation basis, with final (irrevocable and unconditional) transfer of securities from the seller to the buyer (delivery) if and only if final transfer of funds from the buyer to the seller (payment) occurs (see BIS glossary).

[Figure 2-11] DvP Process of OTC Repo Market



Source: Internal data, KSD.

E. Trade Management

Trade management refers to processes during the repo transaction period from start-leg to close-leg settlement, including management of risk and trade and interest payment.

The first process is risk management of repo transactions. To manage the price volatility risk of purchased bonds during a repo transaction period, the market value of the bonds sold on each business day is compared with the margin requirement (repurchase amount times margin ratio) to calculate the risk exposure for each participant. The participants are instructed to pay additional margins corresponding to the net appraisal loss. Meanwhile, buyers and sellers can manage risks for each repo transaction but if engaged in multiple repo transactions under a single agreement at the same time, mark-to-market may be made after combining the positions of all such transactions.

The second process is trade management. Trading terms not affecting the size and period of a repo transaction such as payment method and margin exemption rates can be

modified as long as trading parties agree. If a repo buyer agrees with the seller's request for the type and quantity of replaceable securities, the traded or margin securities can be replaced accordingly. In addition, if the market value of certain securities plummets due to the issuer's insolvency or other reasons or if the principal of the sold securities is scheduled for redemption, the seller is required to exchange the securities at the buyer's request.

The third process is interest payment. If the sold securities are bonds and their interest payment date is during the repo transaction period, all after-tax profits from the bonds are paid to the seller. In addition, after the arrival of the interest payment date for the bonds paid as margin, the interest is paid to the trading party that paid the bonds as margin.

F. Close-leg Settlement

A repo transaction is concluded at maturity or if default occurs as specified between the parties. Close-leg settlement is exchanging the securities purchased and the margin received by the repo buyer with the repurchase price (purchase price + repo interests) and the margin received by the seller. The repo interest, the price for using the cash by the seller, is calculated at the repo rate agreed in advance between the trading parties and is paid by the seller to the buyer. The same method of start-leg settlement applies to close-leg settlement, but the flow of securities and bond in close-leg settlement is opposite that of securities and bonds in start-leg settlement.

G. Taxation of Bond Interest

For each repo transaction on the OTC repo market, KSD assigns a unique identification number and manages the transaction until the time of repurchase. In addition, bonds purchased in repo transactions are managed in a separate "repo purchase securities account" within the repo buyer's securities account. If the buyer keeps the bonds in the repo purchase securities account, KSD ensures that the bond interest is paid to the seller on interest payment dates and collects the interest income tax from the seller. If the buyer transfers the purchased bonds to a general account within its own securities account instead of that for repo purchase securities, KSD pays the bond interest to the buyer after tax deduction. The buyer has to pay the pretax interest to the seller. KSD withholds the interest income tax when paying interest to the seller, meaning double tax withholding for the same bonds used for the repo transaction. Thus the buyer can apply for a refund of the interest income tax from the National Tax Service with the required documents from KSD.

In certain cases, a buyer may sell all of the bonds purchased on the OTC bond market or

use them in another repo transaction. In these cases, the buyer pays an amount equivalent to the pretax interest (manufactured coupon) on the interest payment date to the seller through KSD. A repo transaction involves the transfer of title over the traded bonds and, as such, can pose complex issues in interest payment depending on whether the buyer keeps the bonds. So facilitated taxation of bond interest is another crucial element for stimulation of repo transactions.

3.5.3. Features and Implications

A. Straight-through Processing and Tri-party Repo System

Six money brokerages, KSD, and repo trading parties can exchange electronic text messages in an straight-through processing (STP) environment that removes manual work and facilitates real-time trade management even if repo transaction volume surges. Repo sellers and buyers can use the tri-party repo system within e-SAFE+ to confirm transactions, affirm settlements, and conduct start-leg and close-leg settlements after money brokerages submit the transaction data to KSD via electronic text message.

B. Repo Transaction Period

A key feature of OTC repo trading is that all repo transactions can be conducted during the periods desired by the trading parties. Based on the transaction period, OTC tri-party repo trading can be classified as overnight, term, and open.[15] Financial institutions, however, mostly procure their operating capital from overnight repo transactions, which may not be renewed if a credit crunch hits and could trigger systemic risk across all financial institutions. Since July 2020, the Korean government has required repo sellers to reserve a designated portion of cash assets as indicated in <Appendix Table 2-3>. In the past, overnight transactions comprise over 90% of OTC repo transactions. Due to the new requirement, however, as shown in <Table 2-9>, the percentage of overnight transactions in OTC repo transactions has fallen since 2020 while that of term repo transactions of seven days or longer has slowly increased.

15 An open repo, also known as on demand, terminable on demand or open-ended repo, is a repurchase transaction agreed on without a fixed maturity date. Instead, the repo can be terminated on any business day by either party if notice is given within an agreed period. Open repo is used to invest cash or finance assets when the parties are unsure how long they need to do so (see icmagroup.org FAQs on repo).

<Table 2-9> Repo Transaction Status by Term

(Unit: Trillion KRW)

Year		Category	1 day	2-3 days	4-6 days	7-10 days	Over 10 days	Open
2020		Amount	83.0	3.3	3.2	8.5	6.0	2.3
		Percentage	78.1	3.1	3.0	8.0	5.6	2.2
2021		Amount	86.4	2.8	1.8	18.7	14.4	2.5
		Percentage	68.2	2.2	1.4	14.8	11.4	2.0
	December	Amount	93.9	2.5	2.7	21.9	20.2	2.7
		Percentage	65.2	1.7	1.9	15.2	14.1	1.9

Note: Amount: based on daily average balance / days: no. of business days.

Source: Internal data, KSD.

C. Participants in Repo Transactions

Unlike repo transactions within the KRX, all financial institutions may participate in OTC repo transactions without restriction. Securities and asset management companies secure capital as sellers, while domestic banks, trust unit of banks, and asset management companies manage capital as buyers.

<Table 2-10> 2021 Repo Transaction Status by Participant Type

(Unit: KRW tln)

Category	Bank	Trust unit of bank	Foreign bank branch	Securities co.	Trust unit of Securities co.	Asset management co.	Non-resident	Others	Total
Sales	3.2	0.0	4.1	57.1	9.8	45.0	3.5	3.7	126.4
Purchase	19.4	33.4	3.4	7.1	4.7	38.3	7.8	12.3	126.4

Note: Amounts based on daily average sales or purchase balance.

Source: Internal data, KSD.

As of the end of 2021, asset management companies accounted for the most repo transaction participants while nonresidents and branches of foreign banks conducted such transactions without restriction.

<Table 2-11> Participants in OTC repo transactions in 2021

Category	Bank	Trust unit of bank	Foreign bank branch	Securities co.	Trrst unit of Securities co.	Asset management co.	Non-resident	Others	Total
No. of institutions	21	11	16	36	20	136	22	11	273

Source: Internal data, KSD.

D. Eligible Securities and Transaction Currency

All securities under the Act on Financial Investment Services and Capital Markets are eligible for repo transactions, meaning GBs and other bonds, stocks, and exchange-traded funds (ETFs) are also eligible for OTC repo trading. While most such transactions are used to secure cash in KRW, others are used to obtain cash in USD, EUR, and JPY. In other words, Korean financial institutions use repo transactions to procure foreign currencies.

E. Automated Interest Payment

Repo transactions constitute OTC securities trading under the Act on Financial Investment Services and Capital Markets. From the perspective of taxation or accounting, however, such transactions are considered secured loans. So if the interest payment date is due during a repo transaction period, the repo buyer is required to return the pretax interest from the bonds to the seller. KSD manages the securities account of sellers and buyers, running a tri-party repo system so that a seller can receive the after-tax interest from the buyer holding the bonds. If the buyer receives the post-tax bond interest, it complicates the repo transaction as the buyer must return the pretax interest to the seller and apply for the return of the interest income tax from tax authorities. KSD has automated these taxation and payment processes so to avoid hampering the growth of OTC repo transactions.

F. Calculation and Release of Risk-free Reference Rates[16]

The US and Switzerland calculate and release new risk-free reference rates (RFRs), which replace the London Inter-Bank Offered Rate (LIBOR), and the underlying transactions for calculating RFRs are repo transactions. Korea also calculates and publishes RFRs and the underlying transactions are overnight repo transactions with GBs and Monetary Stabilization Bonds as collateral. The Korea Overnight Financing Repo Rate (KOFR) is the country's RFR. KSD was named RFR administrator on November 25, 2021, and began to calculate and publish RFRs the next day. KOFR is released twice a day on its official website (kofr.kr); the first[17] is at 8 a.m. for investor reference and the second at 11 a.m. as an official announcement.

16 A risk-free reference rate (RFR) is the minimum theoretical rate of return an investor can obtain without any credit risk over a given period. This is an alternative interest rate benchmark developed in response to the deteriorating reliability of benchmarks due to instances such as the 2012 Libor scandal.

17 Demand has increased for the early release of KOFR data as financial products referencing the rate have or are expected to appear on the Korean financial market. To meet such demand, KSD started releasing a provisional result of KOFR prior to its official posting.

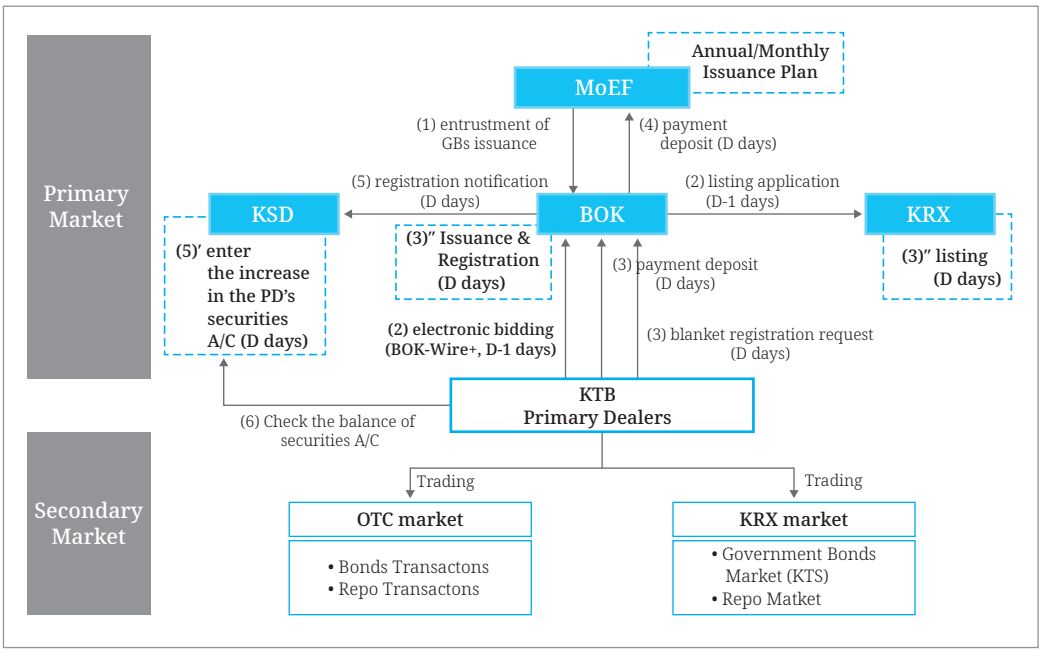
4. Policy Recommendations and Timeline

4.1. Recommendations

After the Asian financial crisis broke out in late 1997, the Korean government began to introduce many systems on the primary and secondary GB markets. The introduction of the following systems greatly contributed to the development of the domestic GB market: competitive bidding through the BOK-Wire+, fungible GB issuance, primary dealer (PD) system for GBs, specialized secondary market for Korea Treasury Bonds on the KRX Trading System (KTS), matching and DvP systems for OTC GB transactions, and the tri-party repo agent system.

Based on the experiences of Korea and other Asian countries as shown in [Appendix 2], the following policy recommendations are from three perspectives: reform of the GB market infrastructure, improvement of back-office infrastructure, and attraction of more foreign investors. These three are closely connected to one another and need implementation in three stages after a plan and timeline are devised.

[Figure 2-12] Structure of Korea's Primary and Secondary GB markets



Source: Bank of Korea, Securities Work Process at the Bank of Korea, Figure I-2, July 2021.

4.1.1. Reform of GB Market Infrastructure

A. Integration of Primary GB Markets

As shown in [Figure 2-12] above, GBs in Korea are issued under the monthly and annual plans of the Ministry of Economy and Finance (MOEF).[18] The Bank of Korea (BOK), entrusted by MOEF, is in charge of GB issuance. Every GB issued is listed on the KRX at the BOK's request and tradeable on the KTS. A GB issued by the BOK is first registered with the central bank, and its detailed content is sent to KSD, which manages the content sent by booking them in the securities accounts of primary dealers (PDs).

Mongolia issues GBs through the Bank of Mongolia (BOM) or Mongolian Stock Exchange (MSE). Though the same kinds of GBs are issued on the same date, those done through the BOM are classified as separate from those processed by the MSE according to ISIN codes of the Mongolian Central Securities Depository (MCSD). The GBs are traded either on the inter-bank OTC market of the BOM or the MSE market. In other words, only part of the GBs issued by the MSE is listed on the stock exchange for trade, and the majority is only tradeable on the inter-bank OTC market of the BOM. This way, the separation of both markets and GBs is a major limit to the liquidity and distribution of Mongolian GBs.

So the recommendation is to integrate the two primary GB markets. Improving such markets involves a feedback cycle of the government implementing new measures on bidding, registration, issuance, and listing of GBs, monitoring of their effects, and correction of the defects. Failure to unify the markets will greatly hinder Mongolia's plan to stimulate the market and raise GB liquidity. Considering Korea's experience and the central bank's role, the suggestion is to reserve GB issuance for the BOM.

B. Designating Secondary GB Market for PDs

The KRX Trading System (KTS) was launched in March 1999 to stimulate the Korean GB market and improve transaction transparency. This market can reduce transaction costs because it is a competitive market based on an electronic trading system and does not use the brokerage services of securities companies. Furthermore, the market provides real-time interest rates that serve as reference rates and improves market transparency by offering real bid-and-ask prices. While most on-exchange markets permit securities companies only as direct participants, the KTS allows bank PDs to participate in trading with KRX approval.

18 The Ministry of Economy and Finance at the end of this year will release its annual government bond issuance plan for next year and its monthly government bond issuance plan for next month on the last day of this month.

So not only securities companies but also bank PDs can trade GBs with other financial companies through the KTS. PDs can sell GBs at the right price when they want instead of holding on to them until maturity.

In Mongolia's case, BOM-issued GBs can only be traded between commercial banks on the inter-bank OTC market of the central bank. Despite the option to trade, commercial banks usually hold on to their GBs until maturity due to their high interest rates compared to those of other investment instruments. Furthermore, GBs issued on the Mongolian Stock Exchange (MSE) can only be traded on the exchange's market, and commercial banks, despite their status as indirect participants, hold the majority of MSE-issued GBs.

The Mongolian government must choose either the inter-bank OTC market of the BOM or the MSE market as the secondary GB market. Another bond market like Korea's KTS is also an option. PDs assume responsibility for market making through mandatory trading on the market. They need a systematic and more developed market to effectively uphold this requirement. PDs that took over GBs should be allowed to directly participate as traders on the selected market.

C. Adoption of PD System for GB Market

In its 2019 report Good Practices for Developing a Local Currency Bond Market, the Asian Development Bank said Korea's primary dealer (PD) system made significant quantitative and qualitative contributions to the growth of the Korea Treasury Bond (KTB) market. The PD system is considered a major factor behind the growth of the Korean GB market. PDs in Korea have incentives such as preferential underwriting rights for newly issued GBs and low-interest loans from the government. In return, PDs must purchase a set amount of newly issued GBs, offer bid-and-ask prices on the secondary market as market makers, and trade a set volume of GBs. Failure to meet their obligations will result in disqualification as PDs. Korea also has a sophisticated system to evaluate whether PDs fulfill their obligations.

Since exiting from its IMF bailout program, the Mongolian government is trying to resume GB issuance and revive its GB market, but lacks sufficient demand to boost the market. Only commercial banks can access the primary GB market run by the BOM. To expand the GB investor base and promote the development of the MSE market, securities companies must also gain direct access to the primary GB market as PDs. In addition, non-banking PDs should also be direct participants in the secondary GB market of the BOM. Evaluation criteria are needed to designate PDs on their qualifications and fulfillment of their obligations. PDs that fail to meet these criteria will lose their status. And any securities

company that meets these qualifications can be selected as a PD.

D. New OTC Market for GBs

In most cases, GBs are traded on a considerable scale on the OTC market instead of the on-exchange market. On the OTC market, GBs can be traded via electronic or voice brokerage platforms like phone, email, and online messengers. Furthermore, OTC trade has no restrictions on participants. In Korea's case, both a web-based system of bond trading and voice brokerage platforms are in use for OTC GB transactions. In either case, such transactions require confirmation through KSD's matching system and must undergo DvP settlement.

If the inter-bank OTC market of the BOM assumes the role of the KTS for PDs in Mongolia, this could require another OTC GB market open to any financial institution to trade GBs. The Mongolian OTC market operated by the Mongolian Association of Securities Dealers (MASD) could also serve as an alternative market for OTC GBs. Another option is to open a new OTC market for GBs. Of course, the Mongolian Central Securities Depository (MCSD), which has a record of every securities holding, must provide a matching system.

If the MSE market is like the KTS of Korea's KRX, non-banking financial institutions and commercial banks should join the inter-bank OTC market of the BOM to broaden the spectrum of participants on the OTC GB market.

E. Opening When-issued GB Market

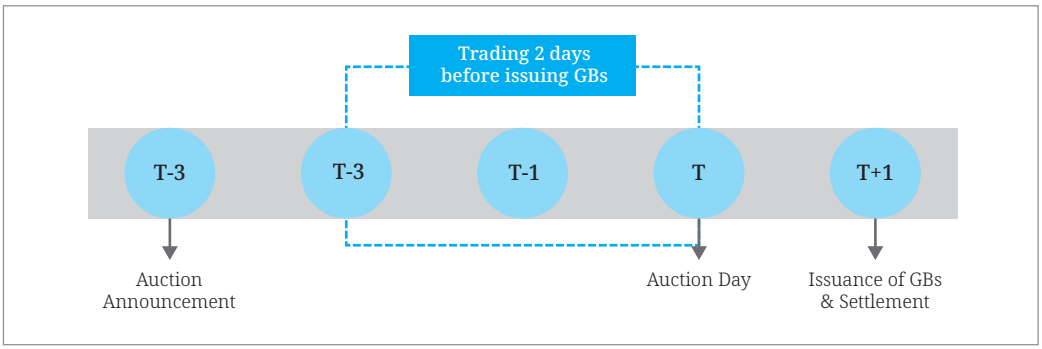
The when-issued market is where GBs can be traded before their issuance. Korea in December 2015 began when-issued trading with new five-year KTBs. As shown in [Figure 2-13] below, when-issued trading is conducted over two days before the bid date and settlements are made on the date after the bid.

The when-issued market provides a useful tool for the government to predict GB demand. In other words, if such demand is expected to plunge, the government can prevent failed bids by issuing fewer GBs. In addition, PDs can check interest rates before submitting their bids and secure buyers for bonds in advance. They can thus hedge against interest rate fluctuations and prevent the risk of holding on to GBs too long or until maturity. Based on demand for and price levels of GBs via when-issued transactions, PDs can submit more aggressive bids at an auction. This PD bidding behavior will help lower the interest the government has to pay.

Though Korea has no published data, based on Treasury TRACE transactions data of the US, when-issued trading volume averaged USD 80 billion per day between July 1, 2019, and June 30, 2020, accounting for 12% of the USD 651 billion traded daily across all Treasury securities.[19]

In this sense, once Mongolia opens a when-issued market, its government and PDs can respond more flexibly to market conditions. So the country must set up a when-issued market for GBs after the primary and secondary markets mature to a certain level.

[Figure 2-13] Process of When-ssued Trading



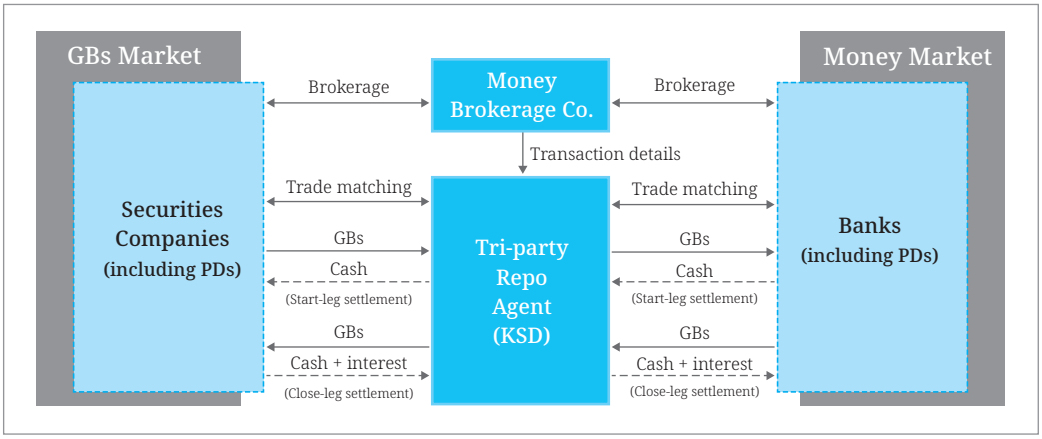
F. Introducion of Tri-party Repo Agent System

The general use of repo and reverse repo transactions is as follows. Repo transactions provide GB investors with a method to raise cash in the short term with their bonds as collateral. Reverse repo transactions provide an opportunity for cash owners (buyers) to earn interest by lending cash during repo transaction periods. Buyers can earn profits by selling GBs and repurchasing the same ones before the repurchase date.

As shown in [Figure 2-14] below, the repo market serves as a capital market for GB trading and a money market for short-term financing by collateralizing GB.

19 Michael Fleming, Or Shachar, and Peter Van Tassel, "Treasury Market When-Issued Trading Activity," *Liberty Street Economies*, November 30, 2020.

[Figure 2-14] Tri-party Repo Agent Services and System



Meanwhile, hedge funds in Korea make leverage investments in connection with the tri-party repo, derivatives, and bond markets. The first method is an arbitrage transaction in which hedge funds sell GB futures and buy GBs with cash raised through tri-party repo transactions. The second uses a yield spread in which hedge funds purchase mid- or long-term GBs with cash raised by selling short-term GBs through tri-party repo transactions. The third uses credit spread where hedge funds purchase low credit bonds with cash raised by selling GBs through tri-party repo transactions.

So if Mongolia adopts tri-party repo agent services and system, this will greatly help the emergence of fair pricing for GBs and invigorate the secondary and government bond-related markets.

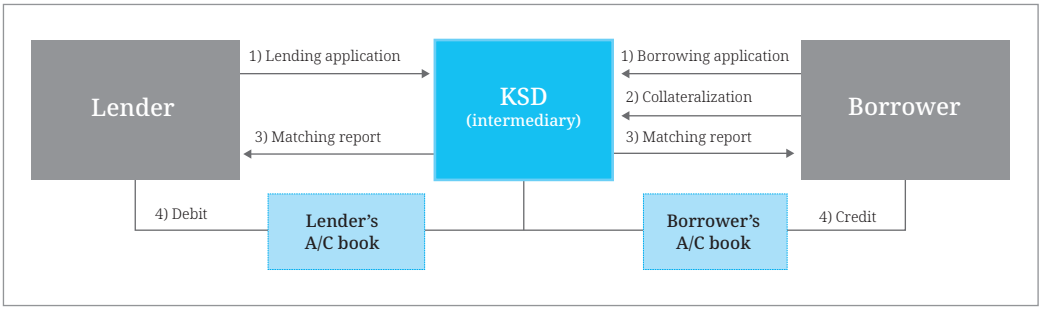
G. Lending and Borrowing System for GBs

Transactions of securities lending and borrowing (SL&B) can help prevent settlement failure with borrowed securities for those selling GBs on the secondary market. Such transactions also allow a range of investment strategies that take advantage of price disparities among markets and products, as well as improve market efficiency by raising liquidity on the secondary market. Since SL&B transactions are used to borrow GBs and sell them in advance, this transaction type is also attractive to foreign investors.

As shown in [Figure 2-15] below, KSD established the SL&B intermediary services and system in Korea and launched the SL&B business[20] in 1996. To expand the use of secondary GBs market, an SL&B market for GBs needs to be established and developed in Mongolia.

20 See the [Appendix 3] for more details regarding SL&B business in Korea

[Figure 2-15] SL&B Service and System



Source: Internal data, KSD.

4.1.2. Improvement of Back-office Infrastructure

A. Coordination of GB Settlement Cycle

A longer settlement cycle means that the open position is exposed to risk over longer periods, which in turn increases settlement risk. In other words, the shorter a settlement cycle, the better. Yet such a cycle can only be shortened when the huge and complex pile of related back-office business is organized efficiently and time difference issues in cross-border trading are settled.

The settlement cycle for stock trading is T+2 in most countries, with some attempting to adopt T+1. Most countries use the T or T+1 settlement cycle for GB transactions. The settlement cycle for securities in Korea is shown in the following table. Whether on-exchange or OTC, the settlement cycle for GBs in Korea is T+1.

<Table 2-12> Securities Settlement Cycle in Korea

On-exchange market				OTC market		
Stocks	Gov't bonds	Other bonds	Repo	Institutional settlement[1)]	All bonds	Repo
T+2	T+1	T	T	T+2	T+1[2)]	T

Note: 1) Settlement of stocks trading between KRX members and indirect participants like custodians.
2) Participants can choose between T+1 and T+30 for settlement cycle of bonds.

The settlement cycle for Mongolian GBs is T+1 for the MSE market and T+2 for the inter-bank OTC market of the BOM. For trading GBs over the counter, the settlement cycle was extended from T to T+2 to raise settlement stability. Thus a shortening of the settlement cycle should be considered after GB trading is resumed. Furthermore, integration of the settlement cycles of on-exchange and OTC trading is preferable to promote inter-market linked transactions. Additionally, reducing the settlement cycle to T or T+1 following international

trends is advisable after the maturation of the GB market and relevant infrastructure.

B. Improvment of Pre-funding Practices

In Korea, individual investors must pay the full purchase amount in advance before placing a buy order, just like in Mongolia. Yet most institutional investors can place orders without paying in advance, as payment is not due until the settlement deadline. Consequently, most securities companies practice trade dealing.

GBs are bought and sold on the same day, leaving a profit. Because buys and sells are made simultaneously without the need to hold GBs, no amount of GBs is left to settle on the settlement date. Despite the absence of a GB settlement amount, securities companies still profit from the difference between buying and selling prices. They act as market makers who increase liquidity on the GB market by trading GBs via the on-exchange and OTC markets.

If Mongolia wants to stimulate its secondary GB market, it must revise related practices and regulations that require pre-funding. Especially for dealing transactions, institutional investors such as securities companies must be further involved to raise the liquidity of the secondary GB market. Furthermore, if the inter-dealer broker system to perform the dealing function settles in the market, trading on the on-exchange, OTC, and repo GB markets will surge and lead to the further development of the secondary GB market.

C. Intraday RP by BOM

To provide PDs with financial support on the primary GB market, the Korean government offers low-interest loans as an incentive to encourage PDs to more actively participate in GB issuance and redemption. The BOK has also provided PDs with financial support on the secondary GB market. As described in Section 3 of this report, the central bank has provided intraday RPs to dealers since 2011 so that sellers of GBs can receive cash before the settlement deadline of noon and use the money for other financial transactions.

Meanwhile, the buyer first sells the GBs scheduled to be acquired through repo transaction. Through this, intraday RP is repaid to the BOK with the cash raised by the transaction. And after getting GBs from the BOK, the buyer can deliver the bonds to buyers.

Intraday RPs make the secondary GB market more appealing to dealers, leading to more bonds traded on the on-exchange, OTC, and repo markets. If the BOM adopts the intraday

RP system, it can increase liquidity on the GB market, expand buy-side demand for GBs, and facilitate GB settlement on the BOM and MSE markets.

D. Protection of Repo Transactions under Law on Bankruptcy

In a repo transaction, GB ownership is transferred from sellers to buyers during the transaction term. The seller can use the cash raised to make other financial transactions like purchasing other GBs. The buyer can conduct financial transactions such as selling GBs on the market, lending them on the SL&B market, or using them as collateral. Thus repo transactions can play a crucial role in creating liquidity on the secondary GB and money markets.

During the term of a repo transaction, the GBs of buyers and cash of sellers become mutual collateral between the parties to the transaction. So GBs should be evaluated for their market value every business day, and margin calls are needed when the market price of a GB falls under the required margin. To manage repo transactions, the tri-party repo system is needed. In addition, legal protection of repo transactions should be ensured even if one of the parties to a transaction goes bankrupt. In other words, bankruptcy law should exclude the bankruptcy trustee's right to deny repo transactions and reflect a provision that enables close-out netting[21] under the GMRA. Under the Act on Debtor Rehabilitation and Bankruptcy[22] of Korea, even if bankruptcy or rehabilitation procedures commence for either of the parties to a repo transaction on the basis of a single contract, completion and settlement of the transaction shall become effective under the contract. Especially, a repo transaction shall not be subject to cancellation, termination, revocation, and avoidance of bankruptcy trustees.

As of 2021, the volume of tri-party repo transactions using GBs in Korea has jumped 3.7 times than GB transactions on the on-exchange and OTC markets. If tri-party repo agent services and system are adopted in Mongolia, it will greatly help the formation of fair pricing for GBs and invigorate the secondary GB market.

21 Close-out netting is a technique to determine the net obligations of a defaulted counterparty in a derivatives transaction. The counterparty's remaining contractual obligations are terminated, and the final positive and negative replacement values of its positions are combined into a single net payable or receivable. Several countries have carve-outs from their bankruptcy laws to allow close-out netting. Without them, insolvency administrators could immediately trigger contracts where the defaulted party is owed money but would require counterparties with opposite contracts to get in line with other creditors, which could take years and result in a smaller payout (see Risk.net glossary).

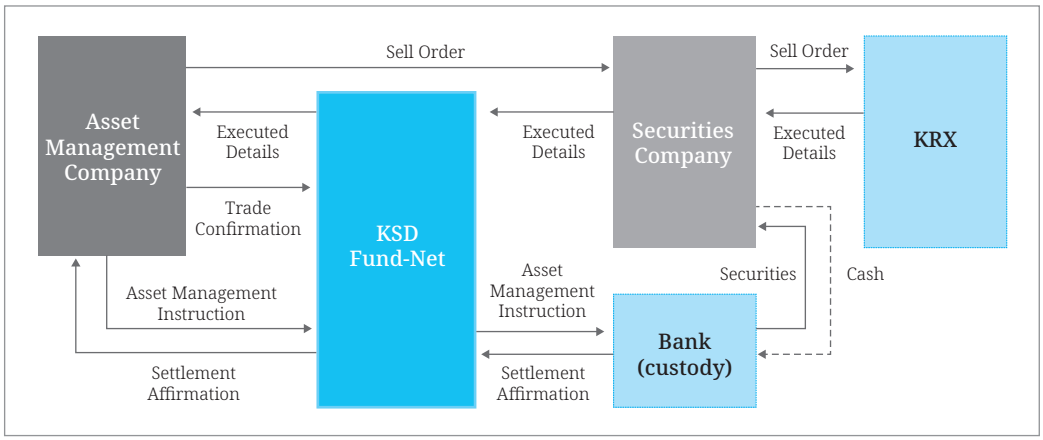
22 The Debtor Rehabilitation and Bankruptcy Act, Article 120 (Special Rules concerning Payment and Settlement System)

E. Post-trade System for Asset Management

As the capital market develops, the number of asset management companies and transactions that indirectly invest GBs via funds will increase accordingly. Such a company places orders indirectly through a securities company, but the invested GBs and investor cash are kept by the trustee banks. This requires a complex back-office process of allocating acquired assets by funds and settling GBs and cash between trustee banks and securities companies.

Korea Securities Depository (KSD) in 2004 established the FundNet system. As shown in [Figure 2-16] below, the system processes "trade confirmation" between asset management and securities companies, "asset management instruction" between an asset management company and a trustee bank, and "settlement of securities and cash" between a securities company and a trustee bank. In addition, FundNet processes fund-related operation from creation to expiration including subscription and redemption, deposit and settlement, and management of beneficiary rosters. In this manner, the system has greatly improved the efficiency and transparency of the asset management industry.

[Figure 2-16] Post-trade System of Asset Management



Indirect investments through pension funds and other channels will increase with the growth of the Mongolian capital market, and this will necessitate infrastructure similar to the Fund-Net system.

4.1.3. Attraction of Foreign Investors

Based on in-depth research and analysis of Mongolia's GB market size, mining-oriented economic structure, and foreign investment policy, recommendations to increase foreign

investment in Mongolian GBs seems more appropriate. Because this KSP project aims to improve the Mongolian infrastructure for GB issuance and distribution, the focus of recommendations is on infrastructure improvement. From this perspective, the following three recommendations were derived: custody services by the BOM, mark-to-market evaluation system, and GB futures market.

A. Custody Services by BOM

When investing in the GBs of other countries, investors need assistance in a range of fields including conversion to the invested country's currency, money deposit and withdrawal, transaction-related reports and affirmations, safekeeping of GB, investment-related tax payment, and notification of foreign exchange and investments to supervisory authorities.

These custody services are usually provided by standing proxies in the invested country, mostly global commercial banks. Yet foreign investors could prefer receiving such services from the invested country's central bank to benefit from higher credibility. Especially, the services provided by the central bank can reduce the counterparty risk of commercial banks. In addition, the invested country's government can also monitor the inflow and outflow of investments by foreign governments and international organizations.

For this reason, the BOK began to provide custody services in 2015. As of the end of 2021, memorandums of understanding were signed with the central banks of six countries and one international organization. The Mongolian government also needs to consider providing these services through the BOM to boost its secondary GB market.

B. Mark-to-market Valuation System

When the value of GBs is based on their book value, the evaluation does not account for changes in interest rates and bond prices. The value of GBs traded in repo and futures transactions and those paid as margins must be assessed based on their market value. If the value of GBs fails to meet a certain standard after daily mark-to-market valuation, additional margins should be paid. In this sense, the mark-to-market valuation system facilitates the secondary GB market by forming fair pricing, helping investors obtain information on GB prices and risk, and expanding buy-side demand for GBs by attracting foreign investors to the secondary GB market.

Korea in July 2007 began mark-to-market valuation, a move that facilitated the secondary

bond market by forming fair bond prices and expanding buy-side demand for bonds by attracting foreign investors to the market. Foreign investors are familiar with an investment environment where shares, bonds, and other securities are priced based on fair market value. So to attract more foreign investment, the Mongolian government must develop the infrastructure and institutions required to price bonds based on market value.

C. Opening GB Futures Market

For foreign investors investing in a country, avoiding risk arising from volatility of currency exchange and interest rates is a key priority. For that, a GB futures market can effectively hedge against the risk of interest rate volatility. In addition, this market allows an arbitrage opportunity between the secondary GB market and that of futures, and can further contribute to the fair price formation of GBs and higher bond liquidity.

<Table 2-13> Bonds Held by Foreign Investors (Cumulative Holdings by Bond Type)

(Unit: KRW bln)

Category	2021		March 2022	
Korea Treasury Bonds	164,086	76.7%	175,443	78.8%
Agency bonds[1)]	14,150	6.6%	13,163	5.9%
Monetary stabilization bonds[2)]	35,728	16.7%	33,264	15.0%
Corporate bonds	51	0.0%	679	0.3%
Municipal bonds[3)]	0	0.0%	0	0.0%
Total	214,015	100%	222,549	100%

Note: 1) Issued by qualified government-affiliated enterprises
2) Issued by Bank of Korea
3) Issued by the local government authorities

Source: Financial Supervisory Service.

As of the end of 2021, foreign investors held 17.7% (KRW 164.1 trillion) of Korean GBs listed on the KRX. Foreign investors held KRW 214 trillion worth of bonds, 76.7% of which were invested in GBs. So the conclusion is that foreign investors play a role in facilitating GB distribution. The KRX has a GB futures market with 3, 5, and 10-year bonds. The daily average contract amount of the market is shown in <Table 2-14> below. If the Mongolian government hopes to attract more foreign investors, it needs a GB futures market.

<Table 2-14> Daily Average Contract Amount of GB Futures Market

(Unit: KRW tln)

Category	2017	2018	2019	2020	2021
3-year futures	9.9	10.2	12.0	13.6	16.3
10-year futures	16.1	17.8	21.4	23.0	24.9

Source: MOEF's website (https://ktb.moef.go.kr).

4.2. Timeline

The policy recommendations presented in Stages 1, 2, and 3 are based on urgency and importance. A detailed timeline is shown in <Table 2-15> below. Completion of the first stage is crucial for laying the foundation for the Mongolian primary and secondary GB markets. After verifying the completion of the first stage and growth of the GB market, the second and third stages should be conducted.

<Table 2-15> Recommended Timeline for Policy Implementation

Recommended policy	Timeline		
	Stage 1	Stage 2	Stage 3
I. Reform of GB Market Infrastructure			
A. Integration of Primary GB Markets	○	-	-
B. Designating Secondary GB Market for PDs	○	-	-
C. Adoption of PD System for GB Market	○	-	-
D. New OTC Market for GBs	○	-	-
E. Opening When-issued GB Market	-	◑	-
F. Introducion of Tri-party Repo Agent System	-	-	●
G. Lending and Borrowing System for GBs	-	-	●
II. Improvement of Back-office Infrastructure			
A. Coordination of GB Settlement Cycle	○	-	-
B. Improvment of Pre-funding Practices	○	-	-
C. Intraday RP by BOM	-	◑	-
D. Protection of Repo Transactions under Law on Bankruptcy	-	◑	-
E. Post-trade System for Asset Management	-	-	●
III. Attraction of Foreign Investors			
A. Custody Services by BOM	○	-	-
B. Mark-to-market Valuation System	-	◑	-
C. Opening GB Futures Market	-	-	●

5. Conclusion

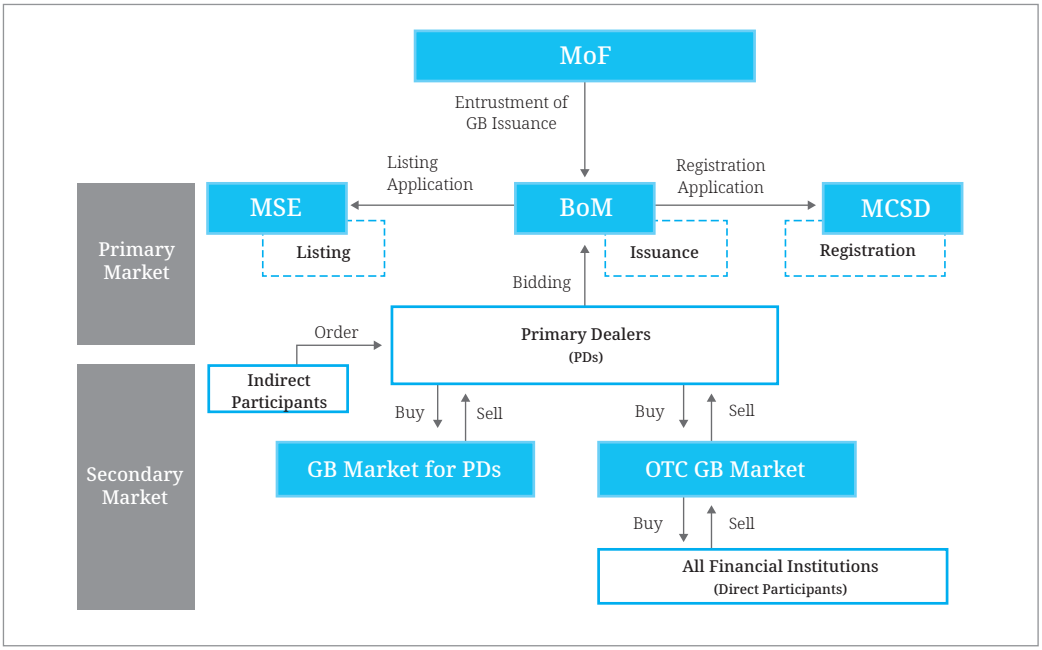
Mongolia's primary and secondary GB markets strongly resemble those of Korea in the early 1990s. As GB issuance in Mongolia has been suspended for the past few years, the primary markets for the bonds have not matured, depriving the opportunity for the secondary GB market to mature as well. So policy recommendations focus on fostering Mongolia's GB market based on the status and infrastructure of its primary and secondary GB markets from when the bonds were still issued and distributed. As a complementary measure, this study presents unforeseen problems caused by insufficient issuance and distribution of GBs, and a detailed explanation of policy recommendations is in the section 4.1.1. on reform of GB market infrastructure (A–D).

The following problems limit the development of Mongolia's primary and secondary GB markets and must be promptly dealt with. First, two primary markets classify identical GBs issued by the BOM and MSE as separate bonds, lowering their potential distribution and liquidity. Second, the spectrum of investors is limited to a few commercial banks. Finally, the secondary GB market faces constraints, as the BOM market bans securities companies and the MSE market prohibits commercial banks. Thus policy recommendations to tackle these problems are divided into three stages. [Figure 2-17] presents a new blueprint for the issuance and distribution market structure of Mongolian GBs that reflects the recommendations so far. This study sincerely hopes to see the final stage carried out, inspecting how the GB market matures and checking each stage.

Additionally, the study has provided a detailed explanation on Korea's secondary GB market as a reference for Mongolian authorities. Though the KSP tried its best to explain the structure, features, and implications of the Korean GB market in Section 3 on Korea's development experience in the secondary GB market, explaining the details of each market and the lessons learned from such development required more space than was available. Thus the Mongolian government, while working on its secondary GB market, will need more consulting if it wishes to learn more from Korea's on-exchange and OTC secondary GB markets, on-exchange and OTC tri-party repo markets, and relevant policies and systems. For this, experts running such markets and systems should take part in in-depth discussions and research.

In conclusion, the study's author sincerely hopes that these policy recommendations contribute to upgrading and constant development of the Mongolian GB market.

[Figure 2-17] Refined version of Mongolia's GB Market Structure



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Appendix 1

<Appendix Table 2-1> Bond Transactions (1990-1996)

(Unit: KRW 100 mln, %)

Year	On-exchange transactions		OTC transactions		Total
	Volume	Pct.	Volume	Pct.	
1990	64,333	15.3	356,232	84.7	420,565
1991	43,137	6.8	591,960	93.2	635,097
1992	11,669	1.3	904,102	98.7	915,771
1993	125	0.01	1,339,365	99.99	1,339,490
1994	23,617	1.4	1,620,848	98.6	1,644,465
1995	30,532	1.3	2,281,521	98.7	2,312,053
1996	25,263	1.0	2,463,280	99.0	2,488,543

Note: Volume represents the sum of purchases and sales.

Source: Financial Supervisory Service, Monthly Securities Review, March 1997.

<Appendix Table 2-2> OTC Repo Transactions (2000–2021)

(Unit: KRW tln)

Year	Trading volume	Daily avg. balance	Year	Trading volume	Daily avg. balance
2000	2.7	0.6	2011	2,076.0	15.6
2001	5.2	1.9	2012	3,763.9	23.4
2002	11.7	2.4	2013	4,463.6	24.7
2003	13.6	2.5	2014	5,619.8	29.5
2004	15.0	2.2	2015	8,068.5	38.8
2005	14.0	2.0	2016	11,276.6	51.9
2006	7.8	1.4	2017	13,331.3	61.5
2007	41.0	1.1	2018	16,223.4	75.4
2008	464.5	4.0	2019	20,109.0	92.6
2009	625.3	7.0	2020	22,148.1	106.4
2010	965.5	11.0	2021	23,318.2	126.4

Note: Trading volume and daily average balance based on start-leg settlement amounts.

Source: Internal data, KSD.

<Appendix Table 2-3> Cash Asset Percentage Requirements by Repo Maturity

(Unit: %)

Category	Overnight	Term		
	1 day	2–3 days	4–6 days	7 days or longer
Phase 1 (July 1-31, 2020)	1	0	0	0
Phase 2 (Aug. 1, 2020-April 30, 2021)	10	5	3	0
Phase 3 (May 1, 2021-present)	20	10	5	0

Note: Repo transactions of two to three days include open transactions with no prescribed repurchase date.

Appendix 2

Experiences of Other Asian Countries[23]

1. Key Policy Measures and Plans of Thailand

- 2000-2004, Ministry of Finance developed 1st Domestic Bond Market Development Plan

  - Issuance schedule released
  - Secondary market's interest rate yield curve established
  - Delivery-versus-payment system introduced
  - Real-time gross settlement system (RTGS) run via Bank of Thailand's (BOT) BAHTNET system
  - Primary dealer (PD) system launched
  - Private repo markets introduced

- 2005-2014, Ministry of Finance implemented 2nd Domestic Bond Market Development Plan

  - BOT established bond lending and collateral management units to maintain market confidence in short-sale transactions
  - BOT upgraded BAHTNET system to BATHNET Ⅱ, which supports both large value inter-bank payments via RTGS and registration and transfer of government securities.
  - Thai Bond Dealing Center, which operates an electric bond trading system, changed to ThaiBMA, responsible for market monitoring and surveillance
  - Bond trading system installed at Stock Exchange of Thailand

2. Key Policy Measures and Plans of Vietnam

- In 2005, the Vietnamese Ministry of Finance started regularly issuing domestic GBs while consolidating the functions of domestic and external debt management. It also started regularly publishing an issuance calendar and public debt statistics.

- 2006 saw the debut of the Vietnam Bond Market Forum, which was turned into the

23 ADB, Good Practices for Developing a Local Currency Bond Market, 2019.

Vietnam Bond Market Association in 2009.

- Vietnam in 2009 designated the Hanoi Stock Exchange as the central trading venue for domestic GBs with approximately 30 market participants.

- In 2013, the Hanoi Stock Exchange started setting a benchmark yield curve.

Appendix 3

<Appendix Table 2-4> Types of SL&B Transactions by KSD

Transaction type	Settlement	Bid-offer	Arranged	Bridge	Customized	Collateral
Purpose	Compensates settlement deficits	Investment management strategy				Provision of collateral
Duration	Within 3 biz days	Mutually agreed				
Fee	Competitive bids in mark		Mutually agreed			N/A
Collateral ratio	Stock: 105% / bond: 102%				Mutually agreed	N/A
Pledgee	KSD				Lenders	N/A
Early return	Allowed only for Borrowers	- Allowed both borrowers & lenders - Securities must be returned within T+2 biz days if lender requests recall. (within T+3 biz days if recall made after noon) - In collateral transaction, borrower can reject recall request from lender				
Rollover	- In bid-offer and bridge transactions, rollover is available upon borrower's request 3 biz days before maturity date & lender approval. - In settlement, arranged, customized, & collateral transactions, rollover request can be made and approved by maturity date - Fee rates and collateral ratios (in case of customized transactions) adjustable					
Partial returns	Allowed					

Source: KSD, KSD SLB Services, 2020.

03

CHAPTER

Building Infrastructure for GB Collateral-related Transactions

Jinil Lee (Korea Securities Depository)
Undraa Nursed (Ministry of Finance, Mongolia)

1. Introduction
2. Analysis of Securities Collateral-related Transactions on the Mongolian Capital Market
3. Securities Collateralization on the Korean Capital Market
4. Evolution of Securities Financing Transactions on the Korean Capital Market
5. Permission for OTC Trading of Korean GBs Abroad and Global Collateralization
6. Policy Recommendations for the Mongolian Securities Collateral System

Keywords
Government bond, GB, Collateral, Pledge, Rehypothecation, Securities financing transaction, SLB, Mongolia, Capital market

Building Infrastructure for GB Collateral-related Transactions

Jinil Lee (Korea Securities Depository)
Undraa Nursed (Ministry of Finance, Mongolia)

Summary

This study shares with Mongolia Korea's capital market experience for improving the infrastructure of the government bond (GB) collateral system and help Mongolian financial authorities apply Korean know-how to their GB market. To that end, an overview is provided of the Mongolian capital market's framework and evolution of the infrastructure of the Korean GB collateral system.

The study compares Korea's experience in securities collateral, securities financing transactions (SFTs), and global collateralization of GBs with security-backed transactions on the Mongolian capital market as reported by experts in Mongolia. Building on earlier discussions, short- and long-term policy measures for the varying stages of Mongolia's capital market development are presented.

To promote short-term institutional reform that spurs the growth of the security collateral system on the Mongolian capital market, the first recommendation is a legal mechanism similar to the exclusion of avoidance power under Korea's Act on Debtor Rehabilitation and Bankruptcy to ensure the legal stability of securities collateralization and SFTs. Second, securities collateralization is needed to allow the rehypothecation of collateral securities on the Mongolian securities market including repo transactions to widen the use of GBs. Third, a legal basis for corporate income tax laws is required for substitute payments of interest from collateral securities used in collateralized transactions, securities lending and borrowing (SLB), or repo transactions, and the proper infrastructure is needed to facilitate tax treatment of substitute payments such as an account system dedicated to collateral securities. To do so, the Mongolian system of securities collateral might be extended from GBs, which have no interest tax, to other bonds and stocks.

The following mid- to long-term policy recommendations are for the relatively new Mongolian SFT market. First, third-party repo services should be adopted at the same time the market's brokerage function is enhanced, depending on the level of market revitalization. Second, an SLB market is needed to improve the market-maker function of primary dealers (PDs) on the PD market; permit the short selling of bonds on the listed bond market to allow arbitrage transactions on the Mongolian GB futures and spot markets; and allow securities lending by banks with large GB volumes. Third, it might be premature to discuss the globalization of Mongolian GBs, but outlining the permission of overseas OTC transactions through links with international central securities depositories (ICSDs) will be beneficial over the long term for overseas OTC GB transactions and global collateralization of Mongolian GBs. As such, Section 6 discusses the two countries' experiences to help Mongolia pursue similar measures at the proper time.

Finally, this study does not cover the exchange of margins for risk reduction on the market for non-centrally cleared OTC derivatives, though it briefly mentions this topic in relation to Korea's status. But the recommendation is for Mongolian financial authorities to consider the measure in the near future and as a topic for further study.

1. Introduction

1.1. Background and Necessity

Mongolia in 2020 exited the International Monetary Fund (IMF) bailout program, but the COVID-19 pandemic weakened its economy and exacerbated its fiscal deficiency. Mongolian financial authorities are trying to overcome this deficiency and secure financial resources for national projects by resuming the issuance of government bonds (GBs), which was stopped in 2016 during the IMF program.

Ulaanbaatar seems to focus on improving its GB issuance system and revitalizing its secondary GB market. But the country needs several improvements along with reform and development of its primary and secondary GB markets, including its securities collateral system, and the creation and development of an SFT market. The securities collateral system is related to the provision and use of securities as collateral. Among the array of securities, GBs are most widely used as collateral. SFTs are subject to collateral maintenance agreements in which a transaction's value is determined by its market value. Types of SFTs include repo, SLB, buyback, and sellback. This report uses the term "security-backed transaction" as a broad concept encompassing both collateral securities and SFTs.

Reform of the securities collateral system and buoyancy of collateralized transactions affect the growth of both the primary and secondary GB markets. So in addition to improving those markets, Mongolia needs to boost its GB market infrastructure and the systems needed for security-backed transactions, preceded by accurate recognition of the economic impact. In typical cases, higher demand for GB collateral and other factors raise the use of GBs and drives GB demand on the secondary market, which in turn boosts bond prices and lowers their yield to maturity. The lower yield reduces their issuance interest rates and consequently drives down the interest payments of GBs in government finance. The reduced interest ultimately allows the diversion of fiscal resources to welfare and education, contributing to sound fiscal policy.

The adoption and utilization of an SFT market allows businesses and financial institutions to use their long-term holding treasury bonds as eligible securities for SLB or repo transactions, which boosts the liquidity of such securities on the secondary GB market. An SFT market also generates immediate economic benefits through reduced financing costs from financial institutions and additional earnings through SFT-generated trading fees.

SFTs also offer a significant means to stimulating the GB market by attracting foreign investment. If foreign investors are allowed to purchase and hold GBs, Mongolia must open its markets to allow the hedging of interest risk including a GB futures market and one for SFTs to allow SLB and repo transactions for arbitrage deals between the futures and spot markets. Korea opened its secondary and GB futures market in 1999, but in the prior year, it opened an SLB market to facilitate arbitrage transactions on the spot market and short sales required to ensure the market-making role of primary dealers (PDs) on the secondary market.

Over the long term, development is required of the domestic collateral system and SFT market infrastructure for GBs to be globally accepted collateral. Through the setup of a domestic securities collateral system and linking it with global financial institutions, GBs can be used as globally accepted collateral through overseas OTC and repo transactions. By allowing overseas OTC trading of GBs, a country can lower its GB issuance interest rate through the market mechanism explained above to ensure efficient GB redistribution.

An empirical study on this issue done in partnership with the ICSD Euroclear found that six countries reported a decline in GB issuance costs by 14 to 42 bps, which diverted financial resources from interest costs to public welfare sectors such as education and infrastructure in boosting sound fiscal spending.[1] See Section 6 for further details. The global

1 PwC Strategy&, *Impact of Euroclearability*, Euroclear, April 2019, pp. 1-3.

linking of GBs can also help procure foreign currencies during a financial crisis by using GBs as collateral, improve the risk response capacity of the financial market, and stabilize the financial system.[2]

For the development of its primary and secondary GB markets, Mongolia needs to meet the short-term need of improving the securities collateral system by adopting and stimulating an SFT market. Over the long term, a comprehensive review of development plans is needed, focusing on using GBs as global collateral through overseas OTC trading with global financial institutions.

1.2. Purpose and Structure

This study aims to share Korea's experience in improving the infrastructure for the government bond (GB) collateral system and help Mongolian financial authorities apply Korean know-how to their own GB policy. First comes an overview of the framework of the Mongolian capital market followed by Korea's experience in capital market development.

Specifically, this study first outlines Korea's pledge system, which is widely used for securities collateralization, then covers reform attempts for rehypothecation of collateral and alternatives and the laws and tax systems to facilitate securities collateralization. To raise understanding of the Korean market for securities financing trading to help Mongolia open a similar market, the history of Korea's capital market evolution is covered by looking at the GB, repo, and SLB markets. The conclusion focuses on Korea's experience in cooperation with ICSDs in 2009 to allow GB trading on overseas OTC markets. A brief discussion also covers Japan's experience in global collateralization of GBs to predict how Mongolia's GB collateral can be utilized by connecting the domestic GB market with that of the world.

The study identifies the agenda for developing the infrastructure of the Mongolian capital market and proposes short- and long-term policy measures in stages to build the infrastructure of the country's securities-backed collateral.

2 Gongpil Choi, Federico Ortega, and Manmohan Singh, *Emerging Market Securities Access to Global Plumbing*, IMF Working Paper WP/21/94, 2021, pp. 4–6.

2. Analysis of Securities Collateral-related Transactions on the Mongolian Capital Market

2.1. Overview

Mongolia's stock market began in the early 1990s with the country's transition to a socialist system and the emergence of privatization. The first Law on Securities passed in 1994 stipulated the setup of the Securities Commission, a regulatory agency for the market, and laid the foundation for the emergence of professional stock market participants.

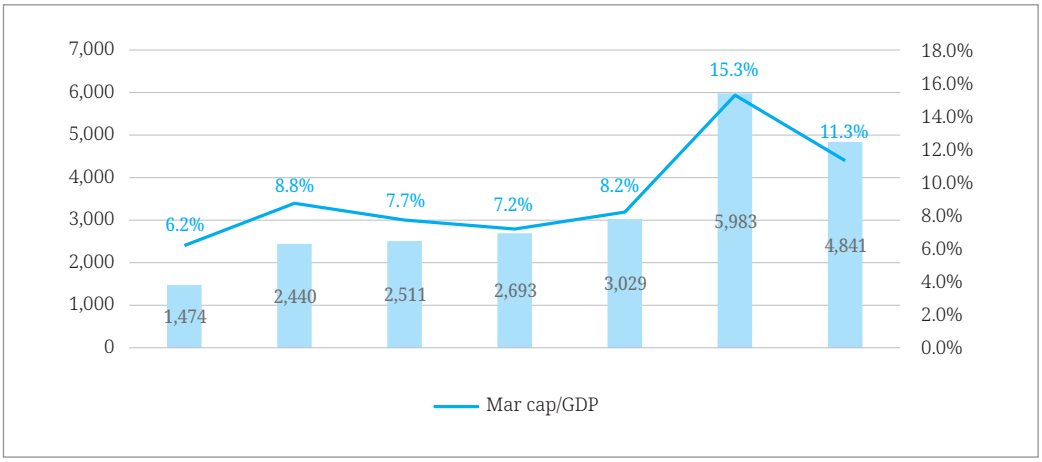
The Mongolian Stock Exchange (MSE) was established in 1991, shortly after the country's shift toward a free market economy to facilitate the privatization of public assets. Within the framework of privatization policy, 475 public businesses were transformed into joint stock companies between 1992 and 1995 and 96.1 million shares worth MNT 8.2 billion were issued to individuals through the MSE with investment vouchers.

The MSE's main duties include listing of securities, organizing stock trading, enrolling securities companies as members, monitoring member operations, fostering capital market development, introducing new investment products and services, promoting information transparency, and improving public financial literacy. The exchange is 100% owned by the government, and the Ministry of Finance (MOF) exercises ownership rights. As such, the MOF appointes the MSE's management, which directly reports to the MOF. The MSE is also regulated by the Financial Regulatory Commission (FRC) as a market participant with licenses to organize securities trading granted by the FRC under the Law on the Securities Market. As a self-regulating organization, the MSE has the fundamental purpose of protecting its members' interests, establishing common procedures for professional activities and codes of conduct, raising member capacity, and developing and ensuring stability of the securities market.

Listings of corporate debt instruments on the MSE is synonymous with approving issuances of corporate debt instruments and allowing them to trade on an exchange. The FRC holds the listing authority function. As of 2021, Mongolia had 179 listed public companies with a combined market capitalization of MNT 5.9 trillion listed on the MSE and 55 securities companies with trading membership on the exchange.

[Figure 3-1] Market Capitalization to GDP Ratio

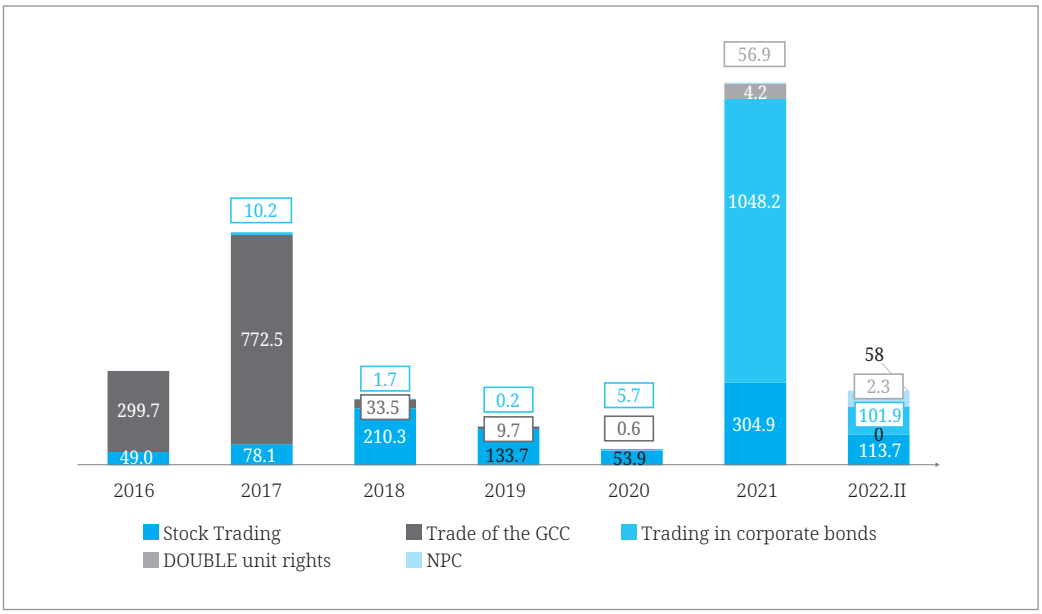
(Unit: MNT bln)



Source: FRC of Mongolia.

Mongolia's main stock index is the MSE Index, comprised of the weighted average of market value listed on the exchange. As of 2021, 55 MSE members were trading companies with FRC-provided licenses to operate on the securities market.

[Figure 3-2] Trade Performance



Source: MOF of Mongolia.

2.2. Legal Framework of Securities Collateral System

The Mongolian legal system, based on the Mongolian Constitution, is a civil law system primarily based on the Romanic-Germanic tradition. The Civil Code is modeled on major European legal codes especially Germany's. Several multilateral and development agencies and academics from abroad helped draft this legislation.

The main sources of law in Mongolia are (i) the Constitution; (ii) laws known as statutes in common law jurisdictions; (iii) international treaties to which Mongolia is a party; and (iv) other types of legislative acts within the framework of laws.

In Mongolia, legislative acts include the following adopted at the central government level: (i) parliamentary resolutions; (ii) presidential decrees; (iii) government resolutions and ordinances; (iv) ministerial orders and instructions; and (v) orders and instructions of public agencies. Such acts also include those adopted at the regional level, namely resolutions issued by councils and ordinances issued by governors of varying levels that include the capital Ulaanbaatar, aimag (province), soum (county), and district.

Securities collateral-related transactions are regulated by the following major laws and regulations.

2.2.1. Law on Securities Market

The first Law on the Securities Market passed in 1994 helped open the Securities Commission, a public body that regulates and supervises the market, and laid the foundation for the emergence of professional players on the capital market. The first purpose of the law was to create a system for redistributing property to the public and further privatization of SOE agencies. Mongolian society and its economy have been growing steadily, with companies offering their shares to the public and new products and services emerging on the market. Based on the principles and recommendations of the International Organization for Standardization (IOSCO), a revised Law on the Securities Market was adopted in 2013.

The law and its previous versions regulate the stock market, including that for companies, in connection with the historical development of the market according to an assessment report by the European Bank for Reconstruction and Development. The focus of the legal environment has shifted to stock market regulation, excluding other important financial instruments that should be developed on the market like corporate bonds, derivatives, and long-term investment funds.

The law regulates the activities of licensed entities but has no detailed legal provisions related to securities collateral.

2.2.2. Law on Debt Management

On February 18, 2015, the Mongolian legislature State Great Khural approved the Law on Debt Management, which provides procedural guidance on how the government incurs and manages internal and external debt. The law redefined external public and government debt and GB debt guarantees so that only debt incurred by the government, aimag (provinces) and the capital Ulaanbaatar, and payments under GB guarantees under law or contract would be included when calculating the revised debt ceilings under the Law on Fiscal Stability. The debt law also clarified the grounds on which the government can incur debt as follows:

- Financing the budget deficit
- Financing quarterly budget deficits
- Supporting the domestic GB market
- Re-financing debt
- Financing public investment programs
- Boosting the official net foreign reserves of the Bank of Mongolia for facilitating balance of payments.

The Law on Debt Management says that if the government-guaranteed obligor holds domestic GBs, a government debt guarantee may be provided up to the equivalent amount of domestic GBs held by the obligor.

2.2.3. Law on Central Bank

The Law on the Central Bank, enacted on September 3, 1996, and amended on October 20, 2011, established the legal framework for operations of the Bank of Mongolia (BOM). Established in 1924, the BOM has as its main objective ensuring the stability of the national currency. Its primary activities are (i) issuing and regulating the MND; (ii) formulating and implementing monetary policy; (iii) setting the amount and proportion of compulsory bank reserves; (iv) granting credit to banks; (v) issuing banking licenses; (vi) supervising the operations of domestic commercial banks; (vii) holding and managing BOM reserves of foreign currencies; (viii) facilitating interbank settlements; and (ix) regulating foreign currencies.

Open market operations by the BOM include the issuance, purchase and sale of central

bank bills (CBBs), and sale and purchase of GBs, asset-backed securities and other issues the central bank is permitted to handle on the monetary market. Furthermore, the BOM may provide short-term loans to the government payable within the same fiscal year and purchase short-term, government-issued securities.

The BOM uses CBBs, repurchase and reverse repurchase transactions, and overnight facilities to achieve policy targets.

2.2.4. Civil Code

The Civil Code of Mongolia was amended in 2002 and its purpose is to regulate the relationship between material and non-material wealth arising between legal persons. The code contains detailed provisions on collateral. For example, Chapter 13 stipulates general regulations on pledge including pledge, pledge item, pledge agreement, rights and obligations of the parties, pledge of movable and immovable property, and registration of pledge in the government registry.

2.2.5. Law on Pledges of Movable Property and Intangible Property

Mongolia approved the draft Law on Pledges of Movable Property and Intangible Property on July 2, 2015, to regulate the pledge of movable and intangible property to ensure the performance of contractual and non-contractual obligations, registration of the right to pledge, and enforcement of pledge requirements. The law provides an opportunity to increase the turnover and financial availability of intangible assets that are transferable to others such as shares, securities, claims or receivables, and intellectual property.

2.3. Regulations and Procedures for Securities Collateral

2.3.1. Regulations of Securities Collateralization

Resolution No. 382 of the Financial Regulatory Commission of 2018 approved the Regulation on Securities Pledge in accordance with the Law on Pledge of Movable Property and Non-Movable Property. The regulation governs the relationship between the pledger, pledgee, and third party in connection with the performance of the obligation, covering the pledge of limited liability and closed joint stock companies and other types of securities not regulated by the Law on the Securities Market, as well as securities of the BOM and repo and margin trading. The regulation does not apply to relations arising in connection with securities lending.

2.3.2. Collateral Loan Process for Banks

Under the Law on the Central Bank, the BOM regulates the provision of collateral to banks to support the central bank's liquidity. The BOM receives a mortgage loan with a term of up to 90 days and can pledge government securities, CBBs, and mortgage-backed securities as collateral.

2.3.3. Regulations for Repo Transactions

The repo trading procedure is a regulation on the provision of such trading to banks to implement monetary policy and conduct open market activities per the Law on the Central Bank. In repo trading, the BOM repurchases government securities, CBBs, and mortgage-backed securities held by the bank at pre-agreed prices at the end of the open market period.

2.3.4. Process of Special Registration of Government Securities

This regulation governs relations arising in connection with the issuance of tender, performance, and advance payment guarantees specified by the Law on the Procurement of Goods and Services by Government Securities registered with Central Securities Depository LLC. According to this regulation, government securities of over three months are usable as payment guarantees.

2.3.5. Asset Guaranteed Securities Depository and Securities Registration of OTC Transactions

This regulation governs relations arising in connection with the storage of bonds secured by the assets registered with Central Securities Depository LLC and registration of ownership rights through OTC trading and obligations imposed on these rights. This regulation covers the separation and pledge of asset-backed securities (ABS).

2.3.6. Registration of Property Rights Certified by Securities Procedure by Activity

This regulation covers relations related to the registration of the transfer of ownership rights certified by securities with Securities Central Depository Center LLC. An arrangement says a holder of securities may be separated from the loan collateral to secure the performance of an obligation whose ownership right is certified by the holder's securities.

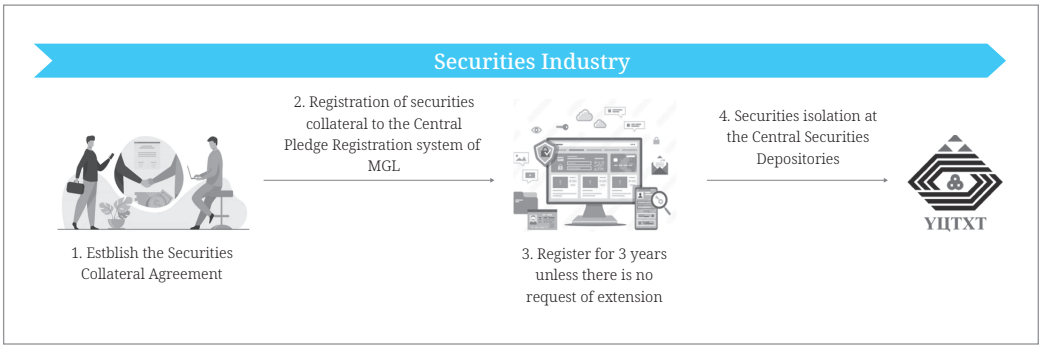
2.3.7. Procedures for Registration of Pledges of Movable and Intangible Assets

This regulation seeks to establish an electronic database for registration of pledge notices of movable and immovable property, process, provide, and exchange information, register and assign pledge notices, be open to the public, and determine the type of statistical information. Registration of pledge declaration of movable and immovable property in the database informs the public about a pledge's secured rights and information on third parties interested in securing the performance of the obligation by pledging movable and intangible property.

2.4. Market Structure and Process of Securities Collateral-related Transactions

Mongolia regulates securities collateral activity through the Law on Pledge of Movable and Intangible Assets. Under the procedure for registration of pledge declarations of movable and immovable property, all types of movable property in Mongolia are registered with the electronic pledge registration database of the State Registry. Because securities are considered movable property per the above law, information on pledge of securities must be entered into the aforementioned database based on concluding a pledge agreement under relevant regulations.

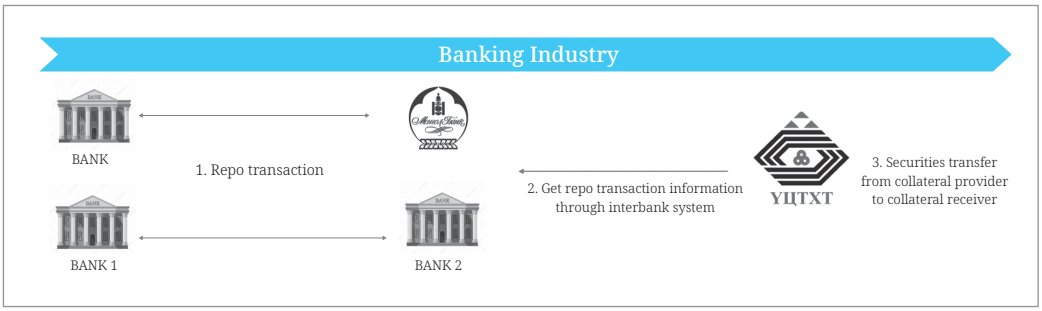
[Figure 3-3] Market Structure and Process of Securities Collateral-related Transactions (Securities Industry)



Source: MOF of Mongolia.

In the banking sector, government securities and ABS are pledged in accordance with the Law on the Central Bank and repo trading regulations approved by the BOM. So on the day of repo trading, the central securities depository receives trading information through the BOM's interbank system and transfers the securities from the pledger to the pledgee. The right to access collateral does not arise until the securities are pledged.

[Figure 3-4] Market Structure and Process of Securities Collateral-related Transactions (Banking Industry)

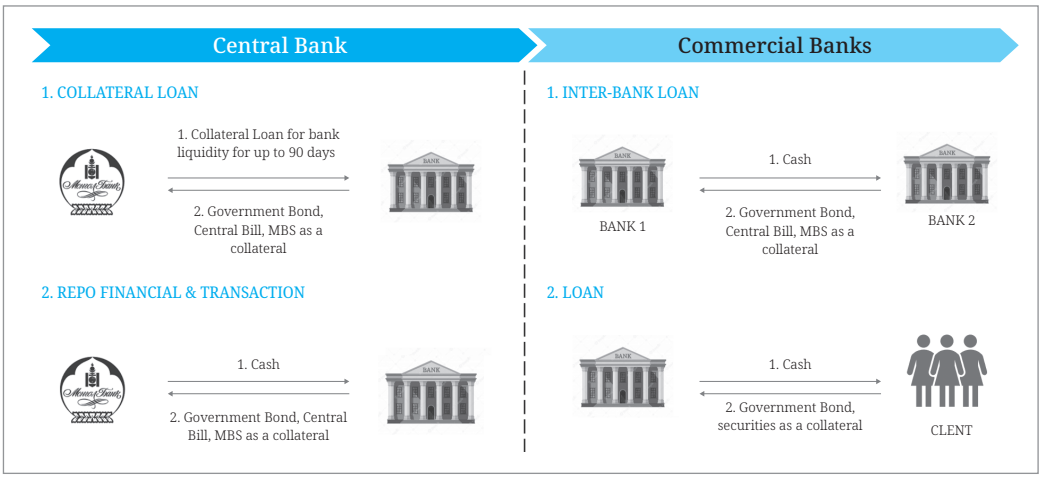


Source: MOF of Mongolia.

2.5. Assessment of Market Status and Demand

In Mongolia, securities collateral is more prevalent in the banking sector than on the securities market. Government securities, CBBs, and ABS are accepted as collateral for collateral loans and repo financing from the central bank.

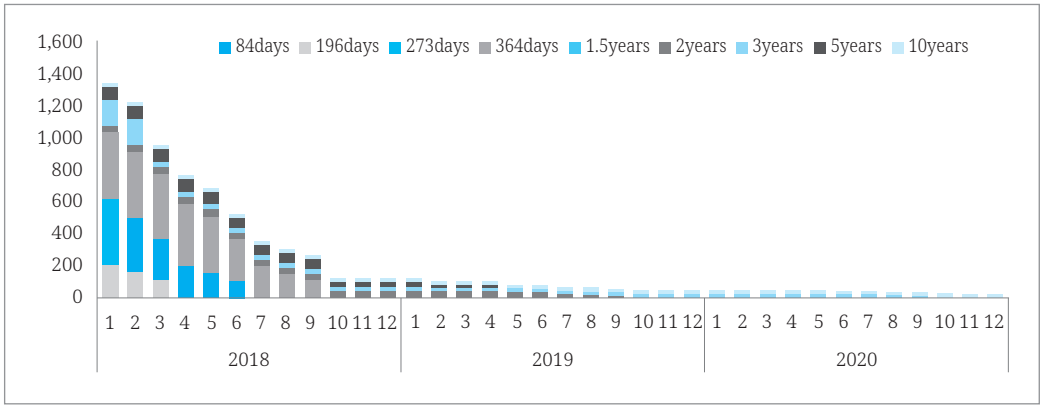
[Figure 3-5] Market Structure and Process of Securities Collateral-related Transactions (GBs)



Source: MOF of Mongolia.

Between 2012 and 2017, government securities were traded in bulk on the central bank's interbank system, accounting for 88% of all government securities issued. Their issuance was stopped in 2017, however, as government interest rates reached a record high and the burden of public debt servicing increased. Banks hold small securities with maturities of 5and 10 years.

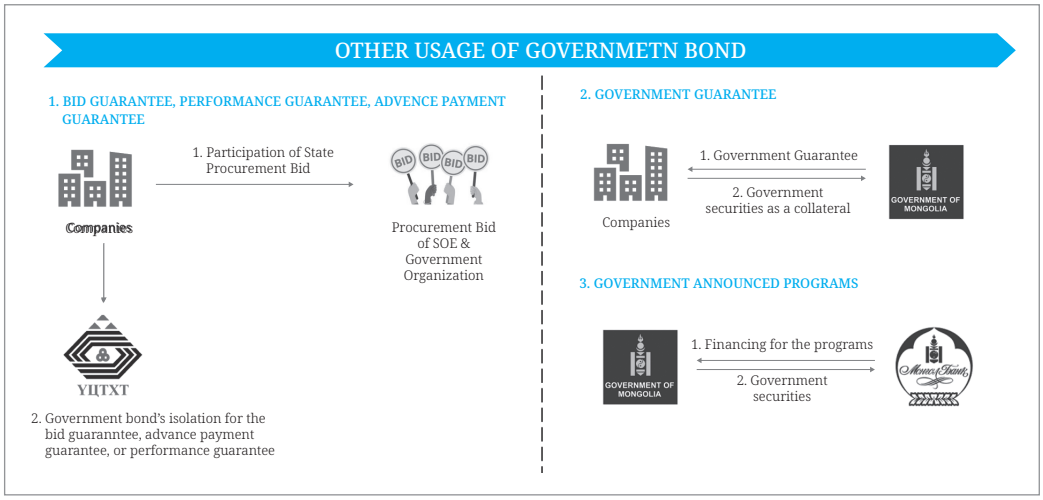
[Figure 3-6] Outstanding GBs (Wholesale)



Source: MOF of Mongolia.

Other uses for collateralizing government securities are: 1) bid security and advance payment and performance guarantees; 2) government debt guarantee; and 3) government securities issued by the central bank to finance select public programs.

[Figure 3-7] Other Usage of GBs

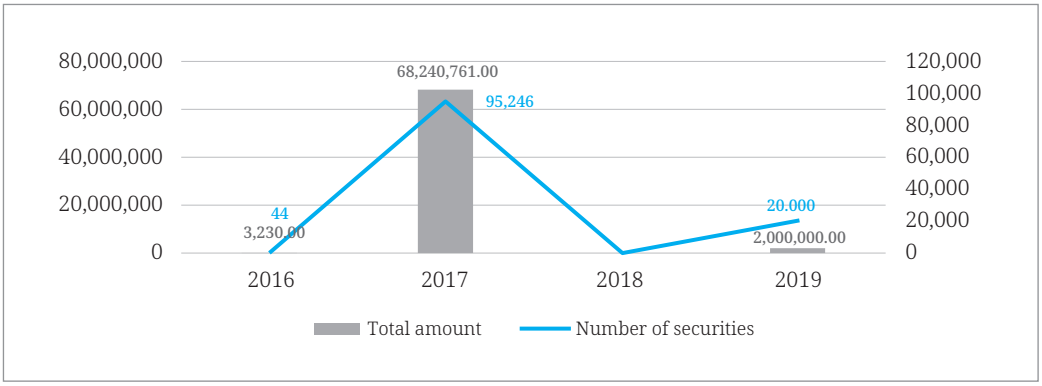


Source: MOF of Mongolia.

Under the Law on the Procurement of Goods, Works and Services by State and Local Property, companies participate in tenders by separating government securities at the central securities depository and issuing tender guarantees.

The following is a study of past separation of tender guarantees by pledging government securities. Such securities were segregated for an average of 183 days.

[Figure 3-8] Bid, Performance, and Advance Payment Guarantees



Source: MOF of Mongolia.

The Law on Debt Management, on the other hand, provides a five-year government debt guarantee only once under the provision that government securities can be used as collateral for such guarantees.

3. Securities Collateralization on the Korean Capital Market

3.1. Present and Projected Use of Collateral Securities

In Korea, collateral securities for all transactions other than that of repo, which is a type of sale, are managed under the pledge system that pledges collateral securities on the collateral provider's account.

At the end of 2021, securities used as collateral in Korea had a combined worth of KRW 480.6 trillion, up a whopping 229% from KRW 146 trillion at the end of 2012 and posting annual growth of 25.4%.

The securities consist of those used for pledges held by the Bank of Korea (BOK), Korea Exchange (KRX), commercial banks, and other financial institutions (KRW 240.7 trillion); collateral securities used as collateral for SLBs, OTC derivative–backed transactions, and futures margins (KRW 70.1 trillion); securities sold in repo trading (KRW 169.9 trillion); and those used for collateral-purpose SLBs (KRW 4.9 trillion).

<Table 3-1> Collateral Securities by Financial Transaction Type in Korea (End of 2021)

(Unit: KRW tln)

Collateral type	Pledge	SLB, futures, OTC derivatives	Repo	Collateral -SLB	Total
Qualified collateral	240.7	70.1	164.9	4.9	480.6

Source: KSD internal data.

Among securities used as collateral, KTBs and Monetary Stabilization Bonds (MSBs), the latter being mainly used for derivatives trading and credit loans, account for 46.2% and general bonds 41.3%. Together, they represent 87.5% of all collateral securities. In contrast, the percentage of collateral stocks is merely 6.8%, while others (commercial paper and currency) comprise 5.7%. KTBs and MSBs used as collateral are worth a combined KRW 221.9 trillion and account for 20.8% of the outstanding amount of KTBs and MSBs worth KRW 1,066.1 trillion.[3]

<Table 3-2> Collateral Securities on Korean Financial Market (End of 2021)

(Units: KRW tln, %)

Security type	Shares	KTBs & MSBs	Other bonds	CP	Other securities	Currency	Total
Amount	32.6	221.9	198.4	16.1	8.1	3.5	480.6
Pct.	6.8	46.2	41.3	3.4	1.6	0.7	100.0

Source: KSD internal data.

Meanwhile, stricter regulations to guard against OTC derivatives risk adopted following the 2008 global financial crisis increased demand for qualified collateral on the world financial market, and this is expected to cause a qualified collateral shortage. After the crisis, G20 members agreed to impose margins on OTC derivative trading not cleared by central counterparties (CCPs) as part of systemic improvement to reduce risk on the OTC derivatives market. To implement the agreement, the Basel Committee on Banking Supervision (BCBS) and International Organization of Securities Commissions (IOSCO) announced a recommendation for margins exchange for non-centrally cleared OTC derivative trading. The recommendation required the provision of initial (IMs) and variation margins to reduce the risk of OTC derivative transactions not cleared by CCPs.

Losses are made up for by previously collected margins, thereby preventing risk from spreading to other markets. As such, the phased application of Basel III from 2019 was expected to create a collateral shortage worth EUR 2.78 trillion.[4] As of the end of 2020, IMs

3 By the end of 2021, the outstanding amount of KTBs was KRW 925.8 trillion and that of MSBs KRW 140.3 trillion.

4 Strate, "Liquidity Alliance Launched to Address Global Collateral Crunch," *The South African Financial Markets Journal* 17th edition, May 2013. http://financialmarketsjournal.co.za/oldsite/17thedition/liquidityalliance.htm.

collected by 32 companies with the highest outstanding amount of OTC derivative trading on the global market amounted to KRW 250.5 trillion (USD 217.8 billion), and their variation margins were estimated at KRW 1,495 trillion (USD 1.3 trillion).[5]

Demand for qualified collateral is expected to rise in Korea along with trends on the global financial market due to stricter standards for credit risk management by financial institutions. In 2002, Korea permitted OTC derivative trading by securities companies, and its Financial Supervisory Service (FSS) in March 2017 implemented guidelines for margins for non-centrally cleared transactions of OTC derivatives. Under the guidelines, Korea gradually adopted IM exchange for transactions for non-centrally cleared OTC derivatives. In response to the economic downturn caused by the COVID-19 pandemic in early 2020, the BCBS and IOSCO postponed the schedule by a year to April 3, 2020. Korea's IM amount is expected to reach KRW 59.2 trillion.[6]

<Table 3-3> Implementation Schedule for VM and IM Requirements

Margin	Start date	Targets
Variation	Mar. 1, 2017	Institutions with KRW 10 tln or more in outstanding amount of non-centrally cleared OTC derivative transactions
	Sept. 1, 2017	Institutions with KRW 3 tln or more in outstanding amount of non-centrally cleared OTC derivative transactions
Initial	Sept. 1, 2017	Institutions with KRW 3,000 tln or more in outstanding amount of non-centrally cleared OTC derivative transactions
	Sept. 1, 2018	Institutions with KRW 2,000 tln or more in outstanding amount of non-centrally cleared OTC derivative transactions
	Sept. 1, 2019	Institutions with KRW 1,000 tln or more in outstanding amount of non-centrally cleared OTC derivative transactions
	Sept. 1, 2021	Institutions with KRW 70 tln or more in outstanding amount of non-centrally cleared OTC derivative transactions
	Sept. 1, 2022	Institutions with KRW 10 tln or more in outstanding amount of non-centrally cleared OTC derivative transactions

Source: Financial Services Commission, press release, December 3, 2020.

In line with these global regulatory trends, Korea has tightened collateral-related regulations on domestic financial transactions. One of the best examples of tighter regulations is enhanced collateral management under the BOK's net-settlement system to ensure the settlement of monetary transactions between financial institutions.

In 2001, the BOK launched the Korea Financial Telecommunications and Clearings

5 ISDA Margin Survey Year-End 2020, isda.org

6 Financial Services Commission, news release, December 3, 2020

Institute Network (KFTC), a small-amount settlement system for internet banking transactions that allows banks to process money transfers for customers around the clock. Within the network, however, the proceeds of net settlement between banks resulting from bank-to-customer transactions appear on the next business day (at 11 a.m.), which means the banks (which paid the amounts to customers) are exposed to credit risk. Banks manage such risk by providing the BOK with collateral for net settlement. To comply with the recommendations under the Principles for Financial Market Infrastructures enacted by the Bank for International Settlements (BIS), the Committee on Payments and Market Infrastructures, and IOSCO (April 2012), the BOK will raise the ratio of collateral securities provided by participating banks for net settlement to 100% by August 2024.[7] The scope of securities usable as qualified collateral (which now mostly comprises GBs) will also be widened to offset the higher collateralization burden driven by the growing collateral ratio.

<Table 3-4> BOK Schedule for Raising Ratio of Collateral Securities for Net Settlement

Year	April 2020	Aug. 1, 2020	Aug. 1, 2021	Aug. 1, 2022	Aug. 1, 2023	Aug. 1, 2024
Collateral ratio	50%	50%	70%	80%	90%	100%

Source: BOK, press release, March 31, 2020.

<Table 3-5> BOK's Scope of Qualified Collateral Securities for Net Settlement

Current	Revised	Effective date
• Bonds issued by gov't, those securing payment of principal & interest • BOK MSBs	(same as on left)	-
• Mortgage-backed securities issued by Korea Housing Finance Corp. (temporarily allowed through 2018)	• Mortgage-backed securities issued by Korea Housing Finance Corp. (permanently allowed)	Dec. 20, 2018
<Newly added>	• Industrial financial bonds issued by Korea Development Bank • Financial bonds issued by Industrial Bank of Korea • Export-import financial bonds issued by Export-Import Bank of Korea • Securities temporarily designated by BOK	Aug. 1, 2019

Source: BOK, press release, March 31, 2020.

Reflecting the rise in qualified collateral demand in Korea, the required collateral amount is expected to reach KRW 1,096.5 trillion by 2025, which means an additional KRW 615.9 trillion in collateral will be required compared to the amount in 2021. As such, demand for qualified collateral is expected to grow including that for bonds from domestic and global financial institutions.

7 The BOK originally planned to increase the collateral ratio to 100% by August 2022, but postponed it to August 2024 due to COVID-19.

<Table 3-6> Expected Demand for Qualified Collateral

(Unit: KRW tln)

Category	2020	2021	2022	2023	2024	2025
OTC derivative IMs[1)]	-	-	14.8	29.6	44.4	59.2
BOK net settlement[2)]	30.8	38.1	47.1	58.3	72.1	89.2
Natural increase of collateral[3)]	362.6	442.5	535.2	647.6	783.6	948.1
Total	393.4	480.6	597.1	735.5	900.1	1,096.5

Note: 1) As of the end of Mar. 2020, the outstanding amount of non-centrally cleared OTC derivatives trading subject to margin exchange was KRW 6,582 trillion, and IMs accounted for 0.9% of the nominal trading amount (FSC press release on December 3, 2020). Applied proportionally for four years.

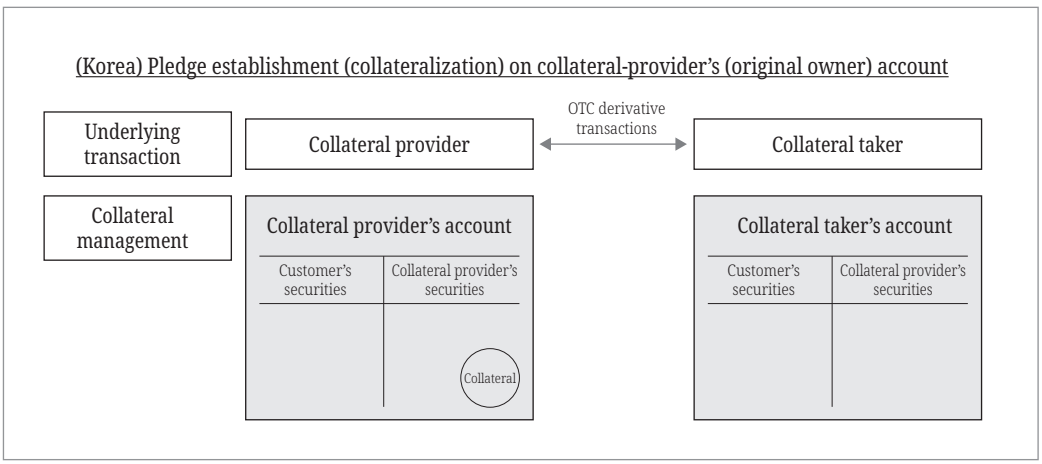
2) As of Dec. 31, 2020, the amount of BOK net settlement collateral was KRW 30.85 trillion and KRW 38.1 trillion as of Dec. 31, 2021 (BOK, Payment and Settlement Report 2021, p. 67).

3) The annual growth of collateral amount between 2012 and 2020 was applied at 21%. The BOK's net settlement collateral was excluded from the collateral amount in 2021 (KSD internal data).

3.2. Securities Collateralization Types

Securities have property value, which means they can serve as collateral for financing or other transactions. Methods to collateralize securities include pledge, title transfer, repo, and securities lending and borrowing (SLB).[8] Among these methods, title transfer, repo, and SLB allow for the rehypothecation of collateral. In Korea, the holding and transfer of securities are managed on Korean Securities Depository's (KSD) account book. In most cases, securities are collateralized by registering them as pledged in the account book.

[Figure 3-9] Collateral Management through Pledge in Korea



Source: KSD internal data.

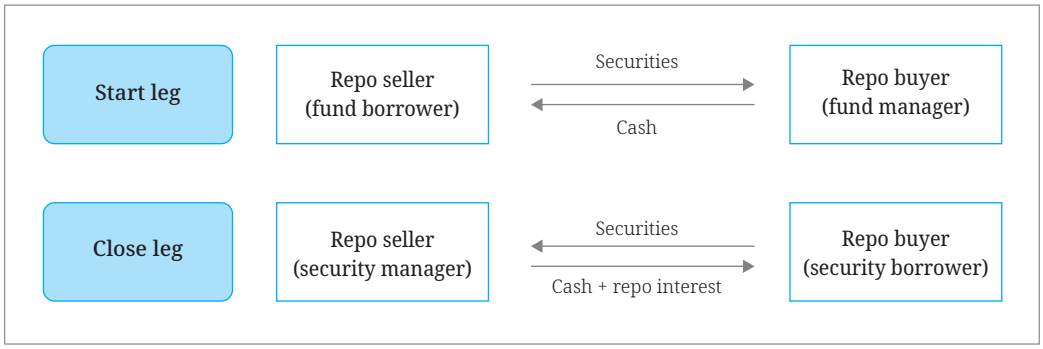
Title transfer is not utilized, however, because of legal and tax-related restrictions in

8 Jon Woo Jung, "Limitations of Current Korean Law on Collateralization of Securities and Suggested Ways to Facilitate Collateralization," The Korean Journal of Securities Law, 16(2), 2015, p. 53.

Korea. Lack of recognition of title transfer is a major complaint about the Korean GB market from foreign investors familiar with the title transfer system and an obstacle to stimulating GB trading in the country. So the two ways to collateralize and reuse securities are repo and SLB transactions.

A repo transaction is the sale of securities conditioned on repurchase for the original sale price plus the interest amount (conditional sale) or a purchase conditioned on resale of the securities for the original purchase price plus the interest amount. Under the Korean legal framework, this is the easiest way to collateralize and reuse collateral securities. From a legal perspective, a repo transaction is a sale of securities but from an economic perspective, it is a security-backed loan transaction in which the seller uses repo securities as collateral to borrow money from the buyer. The buyer can reuse the purchased repo securities as collateral by selling them on the market or re-collateralizing them.

[Figure 3-10] Securities Collateralization via Repo Transactions



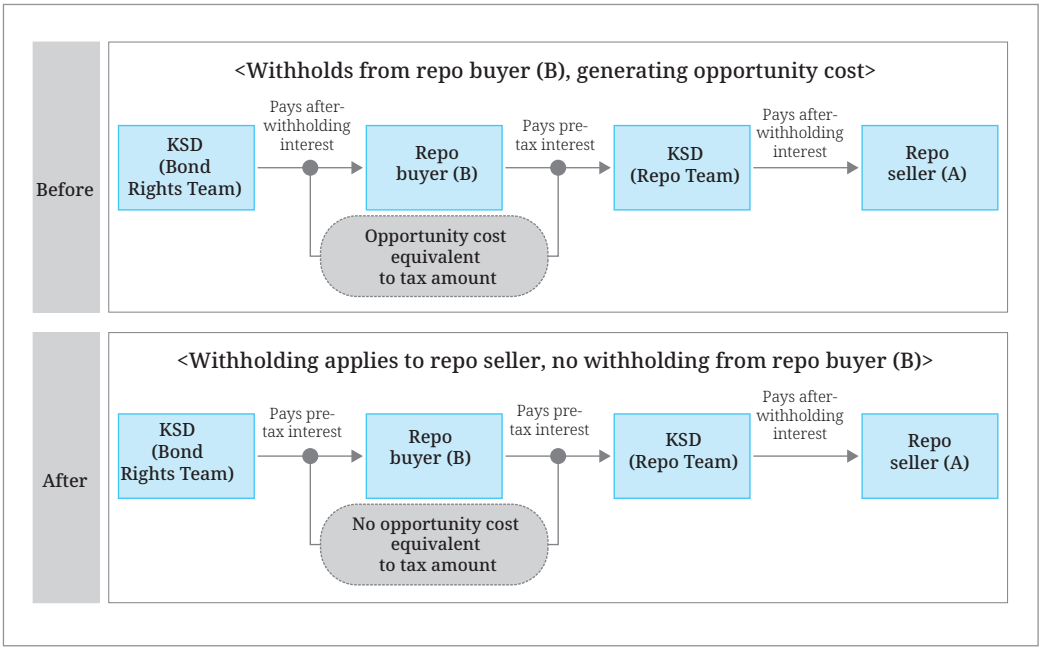
Source: KSD internal data.

Korea has numerous systems and programs to stimulate repo transactions. First, to ensure stable repo transactions under master agreements, the Act on Debtor Rehabilitation and Bankruptcy ensures the legal effect of close-out netting,[9] a concept to be discussed later. Second, the Enforcement Decree of the Corporate Tax Act covers substitute payments, in which the coupon payments from collateral securities are paid to the final repo seller in recognizing a repo transaction as a security-backed loan for consumption.[10] Third, KSD offers re-repo dedicated accounts separate from others to allow customers to separately manage their repo securities, thus offering supporting materials for the substitute payment of coupons. A re-repo dedicated account is a special purpose account used by a repo buyer to resell purchased collateral securities, plus it is not subject to withholding of coupon payments.

9 Debtor Rehabilitation Act, Article 123 (3).

10 Enforcement Decree of Corporate Tax Act, Article 138-3 (2) 1.

[Figure 3-11] Before and After Use of Re-repo Dedicated Accounts

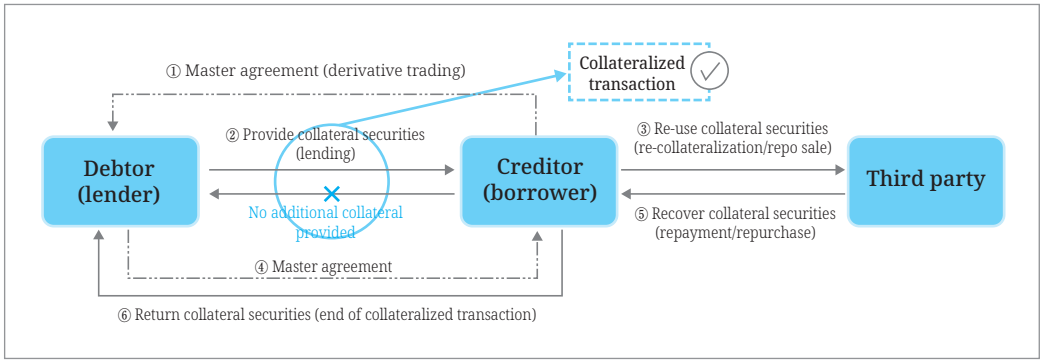


Source: KSD internal data.

Lastly, foreign investors are allowed to trade listed securities on the OTC market under certain conditions, meaning they can purchase collateral securities in the form of repo transactions on the OTC market. In addition, the interest incomes of foreign corporations are withheld in proportion to the held periods, though an exception is granted for repo transactions for the purpose of substitute payment.

Securities lending and borrowing (SLB) are intended for consumption in which a lender agrees to transfer the title to a borrower and the latter seeks to return the securities of the same issue and quantity. In most cases, the loan is secured to prevent losses caused by possible borrower default. When collateralized securities are transferred in the form of SLB transactions, the borrowed securities are provided as collateral in the opposite direction to the flow of money. When collateral securities are borrowed by a creditor, this constitutes an SLB transaction, meaning the creditor takes the title to the securities and can reuse them received in the form of an SLB transaction. If the debtor goes bankrupt and cannot fulfill its obligations, the SLB transaction is terminated and the creditor can freely dispose of the borrowed collateral securities. In 2016, Korea approved SLB transactions for collateralization, thus allowing the rehypothecation of collateral.

[Figure 3-12] Securities Collateralization Using SLBs



Source: KSD internal data.

Like repo transactions, the exception to avoidance power under the Act on Debtor Rehabilitation and Bankruptcy also applies to substitute payments of SLB transactions. In addition, tax withholding of the interest income of foreign companies based on held periods[11] and the ban on OTC trading of listed securities by foreign investors do not apply to SLB transactions, which means foreign investors can lend and borrow securities on the OTC market.[12]

Like repo transactions, title transfer collateral involves transferring the title to the collateral to a creditor. Korean tax authorities do not recognize title transfer of securities,[13] and in the case of using title transfer, they deem the securities as sold to a creditor, ostensibly the owner of collateral securities, and withhold the interest income and capital gain taxes from the creditor. Despite that title transfer shares the same economic characteristics as those of SLB or repo transactions, the authorities' approach makes it difficult to apply the exceptions applicable to SLB or repo transactions[14] or the exceptions to tax withholding for foreign investors,[15] which are applied for paying interest from the assigned securities to the collateral provider, who is the original owner of the securities. Second, unlike repo and SLB transactions, the ban on OTC trading of listed securities[16] applies to title transfer,

11 Enforcement Decree of Corporate Tax Act, Article 138-3 (2) 2.

12 Financial Investment Business Regulation, Article 6-7 (1) 13.

13 A reported transaction satisfying the three requirements under Article 151 (1) of the Korean Income Tax Act is not considered a transfer and thus not subject to the transfer income tax.
1. The parties' representation that the securities are transferred to secure repayment of the obligations
2. The parties' representation that the debtor uses and profits from the assets
3. Agreement on the principal, interest rate, due date, and repayment method
Tax authorities claim that title transfer does not apply to securities because of the second condition, which appears to correspond to de facto possession of real property. In a title transfer, the title to the securities is transferred from the debtor to the creditor. So the authorities maintain that the parties cannot make representations that the debtor uses and profits from the assets (KSD internal data, 2021, p. 1, Choi Geuk-jin, Choi Ji-woong, and Lee Jin-il).

14 Enforcement Decree of Corporate Tax Act, Article 114-2 (2).

15 Enforcement Decree of Corporate Tax Act, Article 138-3 (2) 1 and 2.

16 Enforcement Decree of Financial Investment Services and Capital Markets Act, Article 188 (2) 1, item A; Financial Investment Business Regulation, Article 6-7 (1) each subparagraph.

which restricts the use of title transfer by foreign investors. In addition, Article 141 of the debtor rehabilitation law provides that under a rehabilitation procedure for an assignor in a title transfer, the title to the securities is not transferred to the creditor but belongs to the bankruptcy estate of the assignor, which makes it difficult for the creditor to transfer the securities to a third party (Jung, 2015). So to allow title transfer for the rehypothecation of securities, Korea needs to revise its debtor rehabilitation law to apply preferential tax treatment and grant an exception to the held period-based taxation policy for foreign investors.

<Table 3-7> Comparison of Securities Collateralization

Category	Pledge	Repo transaction	SLB	Title transfer type
Availability in Korea	Available	Available	Available	Not available
Title transfer	Not allowed	Available	Available	Available
Rehypothecaiton of collaterals	Not allowed	Available	Available	Available
Collateral provider's recovery right if collateral taker goes bankrupt	Non-applicable	Not allowed	Not allowed	Available
Substitute entry in account book	Collateral provider's account	Repo buyer account	Borrower account	Collateral assignee account
Exception to tax withholding for foreign investors	Non-applicable	Applicable (repo seller)	Applicable (lender)	Non-applicable (collateral assignee)
Foreign investors' OTC trading	Non-applicable	Allowed	Allowed	Not allowed

Source: Ibid., except for pledge category.

3.3. Limitations of the Korean Pledge System and Alternatives

3.3.1. Pledge System for Collateral Securities

In Korea, securities are collateralized by establishing a pledge in the KSD account book. In other words, the securities are pledged and unpledged instead of being transferred to the collateral taker's account by marking them restricted for disposal on the account book.

The Korean security depository system considers the parties identified in the investor or participant account book to hold relevant securities. If an account book says the securities have been pledged as collateral along with the name of the collateral taker, the securities

are considered to have been presented.[17] Ownership is presumed for securities listed in the account book despite the adoption of the e-registration system in September 2019. So a pledge right is designated for all legal purposes by registering the pledge establishment in the account book.[18]

Under the pledge system, the rehypothecation of collateral securities is restricted after pledge establishment, which means the collateral taker cannot use collateral securities for investment through methods like re-pledging them as collateral or conducting repo purchases. Foreign investors are not familiar with the restriction on reusing collateral, as they mostly operate under a system in which collateral can be reused. On account of the non-reusability of collateral securities under the pledge system, any additional collateral required by regulations (such as margins for OTC derivatives that are not centrally cleared) immediately raises demand for and cost of collateral. If the volume of securities is insufficient to use as collateral, this could result in a liquidity shortage for collateralized transactions and disrupt financial transactions. As more foreign investors access the Korean GB market and demand for qualified collateral increases, market participants are increasingly demanding reshaping of the pledge system to allow the rehypothecation of collateral.

3.3.2. Korea's Attempts to Permit Title Transfer of Securities

Korea attempted to permit the rehypothecation of collateral through title transfer when it introduced the prime brokerage sector in 2013. Financial authorities adopted a title transfer system to promote prime brokers and hedge funds, which provided investors in Korea and abroad with opportunities to utilize title transfer type. The system, however, was not used because assigned securities were not recognized as collateral under domestic tax law.[19]

The following paragraphs provide more specific cases of Korea's attempts to permit title transfer. To stimulate hedge funds, financial authorities in 2013 enacted regulations on reusing collateral securities entrusted to prime brokers by hedge funds for title transfer type. Prime brokers provide a full range of services for hedge funds including credit extension, securities lending, and property custody and management.[20] Prime brokers use the collateral provided by hedge funds to secure investment funds as leverage for securities trading or borrowing; they earn profits and lower financing costs by acquiring titles to collateral securities from hedge funds and reusing them.

17 Article 311 (1) and (2), Financial Investment Services and Capital Markets Act.

18 Articles 31 and 35, Electronic Securities Act.

19 KSD internal paper, 2021, p. 1, Choi Geuk-jin, Choi Ji-woong, and Lee Jin-il.

20 KSD, *Securities Deposit and Settlement*, 3rd edition, 2014, p. 661.

When the system was launched, a simple revision to the Regulation on Financial Investment Business was expected to facilitate title transfer type by allowing prime brokers to transfer and reuse securities assigned as collateral. But tax authorities failed to recognize title transfer of securities when applying relevant tax laws and treated the designation as sales rather than collateralization. The capital gain tax was thus imposed on securities assigned as collateral and the lack of substitute payment rendered title transfer non-viable.

Korea has the systems required to adopt title transfer type, but is unlikely to adopt title transfer unless relevant laws are revised to recognize the assigned securities as collateral.

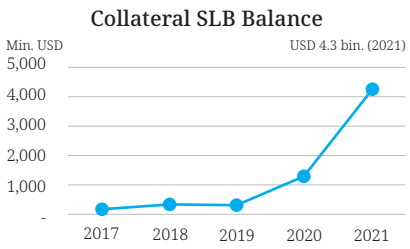
3.3.3. Adoption of Collateral-related SLBs to Promote Rehypothecation

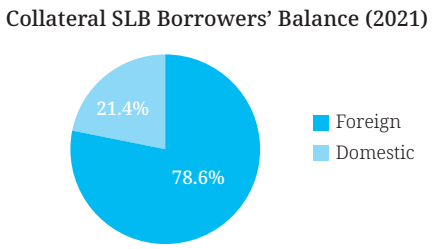
Because of Korea's restriction on title transfer, the rehypothecation of collateral has seen higher demand from foreign institutions seeking to reuse government and public bonds. So financial authorities in Korea pushed to increase the market utility of collateral through rehypothecation. In 2016, Korea Securities Depository (KSD) adopted SLB for collateralization (collateral-purpose SLB) to allow parties to reuse collateral securities.

Collateral-purpose SLB means securities lending and borrowing in which a collateral provider presents collateral securities to a collateral taker for an underlying transaction (e.g., derivative transaction under the master agreement) in the form of SLB, and the taker returns the securities upon the provider's fulfillment of its obligations. In these SLB transactions, collateral securities are provided and transferred in the form of SLB so that takers can reuse the collateral to secure funds (repo sale) or generate profits through additional collateralized transactions.

The balance of collateral-purpose SLB was a combined KRW 4.9 trillion as of the end of 2021, 78.6% (KRW 3.9 trillion) of which was owned by foreign investors. In May 2022, the balance reached KRW 7.1 trillion.

[Figure 3-13] Collateral-related Securities Lending and Borrowing

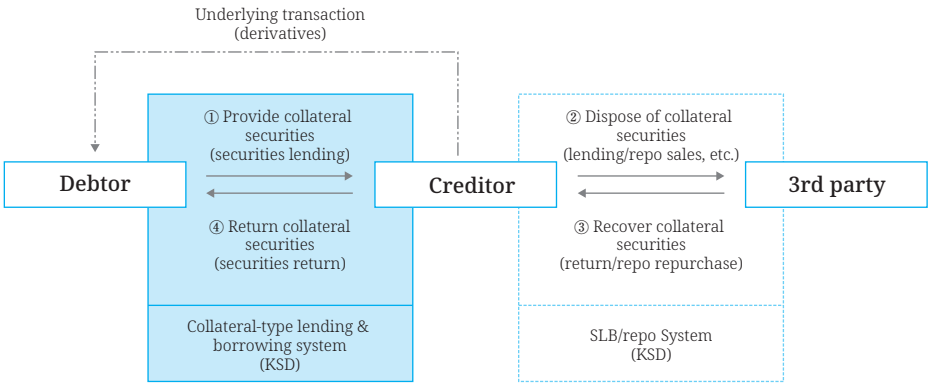




Year	2017	2018	2019	2020	2021	May 2022
Balance (KRW 100 mln)	2,316	3,953	3,686	15,394	49,334	71,389

Source: KSD internal data.

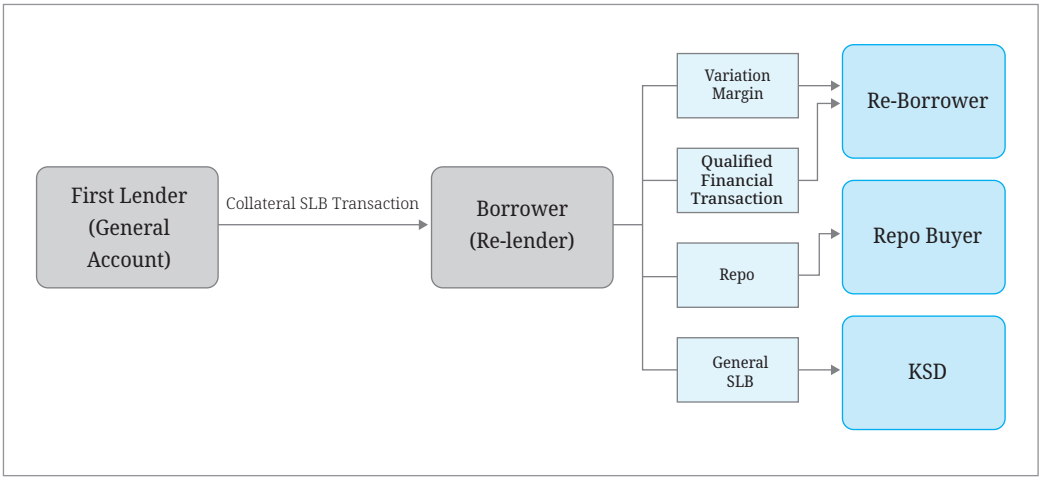
[Figure 3-14] Workflow of Collateral-purpose SLB



Source: KSD internal data.

The collateral-purpose SLB system is designed so that the creditor is not required to pay the collateral required for other lending and borrowing transactions, and the provided securities are set off against the debtor's obligations if the latter are not fulfilled. Qualified collateral is confined to GBs and MSBs for risk management purposes (e.g., price stability and liquidity), and the system is tailored to the rehypothecation of collateral for OTC derivative and repo transactions. Owing to these characteristics, collateral-purpose SLB in Korea is used as an alternative means of rehypothecation through the transfer of titles to collateral securities.

[Figure 3-15] Rehypothecation of Collateral

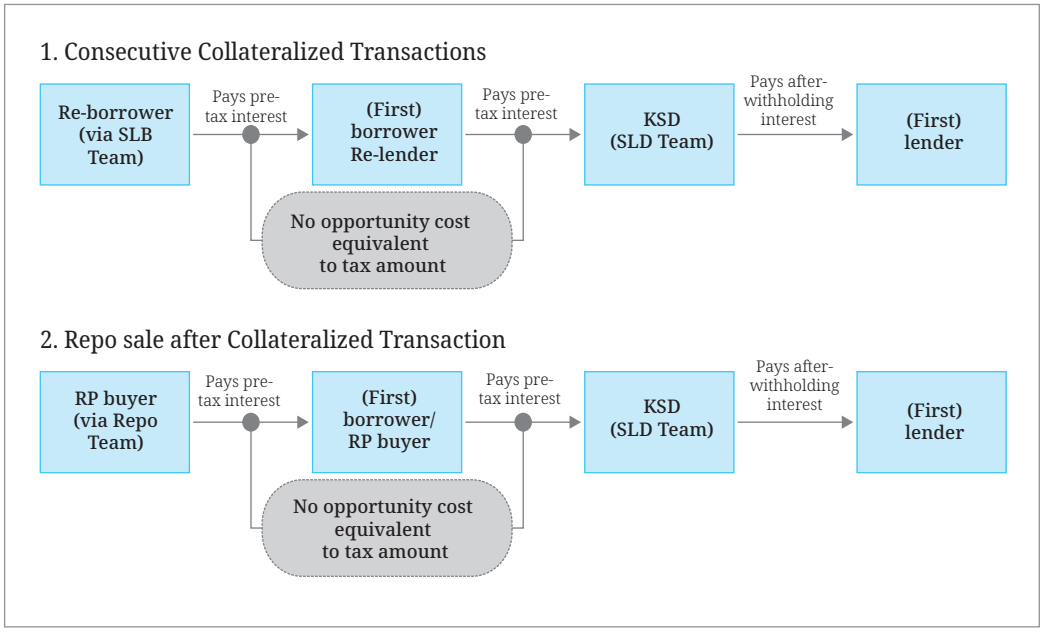


Source: KSD internal data.

Korea Securities Depository (KSD) manages the collateral-purpose SLB system to process substitute payments of coupon from the rehypothecation of collateral securities. For these transactions, KSD offers the same type of non-taxable dedicated accounts as re-repo accounts for repo transactions. The non-taxable dedicated account is a special-purpose dedicated account not subject to tax withholding and only available for collateralized and re-repo transactions.[21] The account simplifies the withholding process by allowing the depository to return pre-tax interest other than withholding taxes to the first lender. In other words, when a borrower who reused the borrowed securities for collateral-purpose SLB or repo transactions receives (pre-tax) interest from the counterparty and deposits the amount to the SLB team of KSD, the team as an SLB broker pays the post-tax (post-withholding) interest to the lender.

21 Interest accrued during lending and borrowing under Article 114-2 (2) of the Enforcement Decree of the Corporate Tax Act belongs to the lender. Use of a non-taxable account by the borrower is not subject to withholding taxes.

[Figure 3-16] Withholding Taxes from Collateralized Transactions



Source: KSD internal data.

So the lending and borrowing of collateral allows participant who reuse collateral to lower the latter's cost and use the reused securities to support their investment strategies. In countries where the collateral system prevents recognition of title transfer of securities, the collateral-purpose SLB is a model allowing the rehypothecation of collateral.[22]

3.4. Legal and Institutional Mechanisms to Facilitate Securities Collateralization

As discussed above, the use of securities as collateral has quite a few methods, and the rehypothecation of collateral securities, if possible, offer a range of economic benefits. Stable management of the securities collateral system, however, requires numerous legal and tax-related adjustments including a mechanism to exclude the application of the avoidance power under the debtor rehabilitation law (to legally guarantee close-out netting specified in contracts for security-backed transactions), tax treatment of substitute payments for collateral securities, and permission of OTC security-backed transactions by foreign investors. Risk management is also needed to guard against the spread of financial shock through collateral securities trading.

22 KSD internal paper, 2021, p. 10, Choi Geuk-jin, Choi Ji-woong, and Lee Jin-il

3.4.1. Exclusion of Avoidance Power under the Act on Debtor Rehabilitation and Bankruptcy

To ensure the stability of security-backed financial transactions including OTC derivative trading and SLB, legal assurance is needed that the close-out netting provision in the master agreement remains effective even when the counterparty of the transaction goes bankrupt. In a securities financing transaction, when one of the parties is declared bankrupt or the credit risk is realized, all claims and obligations between the transactional parties are accelerated and become payable. These obligations and rights are settled as a single exposure. In this case, the amount to be settled is the net -- not gross -- amount to be received from the counterparty after subtracting what the latter must pay in a settlement method called close-out netting.[23]

In an SFT, collateral is provided to prevent credit and system risk arising from the transaction by securing the claim over the outstanding amount after close-out netting. So to secure security-backed transactions, close-out netting needs recognition under law. In Korea, Article 120 (3) of the Act on Debtor Rehabilitation and Bankruptcy promotes SLB and repo and collateralized transactions aligned with global practices and enhances the stability of these transactions. If a party to a qualified financial transaction falls under an event specified in the law including bankruptcy, the provision ensures the continued implementation of master agreement provisions on the disposal and appraisal of collateral by preventing managers and administrators from terminating, canceling, or denying eligible financial transactions and excluding such transactions from stay orders and general prohibitions issued by courts. This allows close-out netting for security-backed transactions such as SLB, repo, and OTC derivative transactions.

The debtor rehabilitation law also includes provisions that grant exceptions to the avoidance power rule under the Act for SLB and repo and OTC derivative transactions governed by standardized master agreements such as the Global Master Securities Lending Agreement (GMSLA) and Global Master Repurchase Agreement (GMRA).[24] Collateral management for transactions conducted under master agreements constitute eligible financial transactions as well.[25] So even if the debtor goes bankrupt in a transaction, the above provision under law still applies and the transaction remains effective regardless of whether collateral was provided as pledge or title transfer or the debtor is a counter- or third party.

23 KSD, *Securities Deposit and Settlement*, 3rd edition, 2014, p. 743.

24 Article 120 (3) 2, Debtor Rehabilitation and Bankruptcy Act.

25 Article 120 (3) 4, Debtor Rehabilitation and Bankruptcy Act.

<Box 3-1> Article 120 (3), Debtor Rehabilitation and Bankruptcy Act

Article 120 (Special Rules concerning Payment and Settlement System)
Where rehabilitation procedures commence with respect to either of the parties who perform each of the following transactions (hereafter referred to as "eligible financial transaction") on the basis of a single contract ("master agreement") that provides fundamental matters concerning certain financial transactions, the completion and settlement of the eligible financial transaction shall become effective, notwithstanding the provisions of this Act, as determined by the parties in the master agreement, and shall not be subject to cancellation, termination, revocation, and avoidance, and transactions falling under Subparagraph 4 shall not be subject to a stay order or general prohibition order: Provided, that the same shall not apply where the debtor performs any eligible financial transaction in conspiracy with the counterpart, with the aim of causing harm to any rehabilitation or rehabilitation-secured creditor:

1. Transactions prescribed by Presidential Decree, which are financial derivative transactions such as forward deliveries, options, and swaps, the objects of which are the prices or interest rates of currencies, securities, contributed shares, general goods, credit risk, energy, weather conditions, freight, frequencies, and environment, or any indexes or indicators based on such prices or interest rates
2. Spot exchange, secruities repurchase, security lending, and secured call transactions
3. Any transaction that is a mix of transactions falling under Subparagraphs 1 and 2
4. The offer, disposal, and appropriation of any security accompanying transactions falling under Subparagraphs 1 through 3

3.4.2. Preferential Tax Treatment of Substitute Payment of Collateral Securities

SLB and repo transactions are two of the most common transactions for security-backed loans for consumption. Both types can be economically characterized as security-backed loan transactions for consumption. Though the borrower or buyer takes over the ownership of the securities, the proceeds from them belong to the lender or seller. For this reason, economic profit from collateral securities under tax law reverts to the first lender or repo seller, allowing substitute payments of interest and dividends. If the taxation system fails to account for these substitute payments, the transfer of GBs in security-backed transactions will be considered sales under law, which makes it difficult to process them vis-a-vis accounting and tax treatment. To tackle the substitute payment issue, tax law includes provisions on preferential tax treatment of substitute payments to foreign investors and exceptions to taxation on held periods. Per tax law, participants in repo and SLB transactions can apply for redundant taxes, and brokers and other institutions managing the market can build and utilize infrastructure to facilitate substitute payments such as dedicated accounts.

<Box 3-2> Preferential Tax Treatment under Enforcement Decree of Corporate Tax Act

Article 114-2 (Tax Withheld at Source and Refund in Bond Transactions with Repurchase Agreement) (2) Article 73 (Withholding) of the Act shall apply to the transactions provided for in Paragraph (1), deeming that the amount equivalent to the interest income accruing from the bonds during the period beginning on the date of selling or lending such bonds and ending on the date such bonds are repurchased or returned belongs to the seller or lender.

Article 138-3 (Special Cases concerning Withholding from Interest on Bonds of Foreign Corporations) (3) Article 98-3 of the Act shall apply to the transactions provided for in Paragraph (2), deeming that the amount equivalent to the interest or dividend income accruing from the bonds during the period beginning on the date of selling or lending such bonds and ending on the date such bonds are repurchased or returned belongs to the seller or lender.

※ Article 98-3 (Special Cases concerning Withholding from Bonds subject to Withholding Tax of Foreign Corporations)

3.4.3. Dedicated Account System for Collateral Securities

To facilitate tax treatment of substitute payments, Korea has developed relevant infrastructure including exclusive accounts for repo transactions and collateral-purpose SLB. The need for substitute payments also rises when utilizing title transfer to reuse collateral. The adoption of title transfer for the rehypothecation of collateral thus requires supporting infrastructure such as a dedicated account system. In Korea, KSD managing the relevant market as a brokage institution and account operators are in a better position to build such infrastructure to support substitute payments. Further details are in the previous section on repo transactions, and the description of dedicated accounts used for collateral-purpose SLB comes later in this paper.

3.4.4. Permission to Conduct OTC Collateral Securities Trading by Foreign Investors

Foreign investors are key stakeholders in collateral-related transactions, so legal adjustment is required to ease their access to collateralized transactions. In Korea, foreign investors or corporations should trade listed securities through the securities market unless otherwise notified by the Financial Supervisory Commission.[26] The Regulation on Financial Investment Business[27] exhaustively lists the cases in which foreign investors can conduct OTC transactions of listed securities. The regulation also permits them to do OTC repo and SLB transactions. Yet the above exceptions do not apply to acquiring an official title to listed securities through title transfer type, so recognizing title transfer requires the revision of statutory provisions to recognize OTC acquisition of listed securities.

26 Article 188 (2) 1, Item A, Enforcement Decree of Debtor Rehabilitation and Bankruptcy Act.

27 Financial Investment Business Regulation, Article 6-7 (1) 10 and 13.

3.4.5. Risk Management for the Rehypothecation of Collateral

In title transfer or repo transactions, a financial institution can reuse securities provided as collateral by selling, lending, or using them as collateral in other transactions. This practice increases market liquidity and reduces price volatility, thus allowing investors to trade securities at reasonable prices. On the other hand, rehypothecation of collateral poses a significant risk of maximization of market liquidity. If the market is hit by a shock such as the 2008 Lehman Brothers collapse in the US, the risk can spread throughout the market and result in its collapse.[28] To guard against this threat, the US government bans brokers and dealers from reusing a customer's securities exceeding 140% of the amount borrowed by the client (SEC Rule 15c3-3).[29] Measures to control risk from collateralized transactions in Korea include mark-to-market settlement of collateral securities, application of a haircut, or a reduction applied to the value of an asset, to collateral valuation ratios and collateral, restriction of qualified collateral to that of high quality, application of transaction limits based on credit ratings, and regular stress tests.

4. Evolution of Securities Financing Transactions on the Korean Capital Market

4.1. Government Bond and Securities Financing Transaction Markets

Development of the GB market requires liquidity growth through the repo and SLB markets. As such, the SLB and GB markets support each other's growth. The Korean bond market went through significant changes before and after the 1997 Asian financial crisis. Before the crisis, the Korean bond market was led by secured corporate bonds, whose roles dwindled as the financial institutions securing them suffered financial distress. The Korean government launched full-fledged efforts to develop the GB market through measures like issuing more treasury bonds to finance its efforts to overcome the crisis and launched the primary dealer (PD) system in 1999 to lower the consumption burden on the market.

The adoption of the PD system required enhancement of the market-maker function of PDs by stimulation of repo and bond lending and borrowing transactions to alleviate dealer bond holdings and cut financing costs. So financial authorities standardized repo

28 KSD internal paper, 2021, p. 1, Choi Geuk-jin, Choi Ji-woong, and Lee Jin-il.

29 Gongpil Choi, Federico Ortega, and Manmohan Singh (2021), *Emerging Market Securities Access to Global Pumping*, IMF Working Paper WP/21/94, p. 11.

transactions in 1999 by enacting a standardized master contract, and launched third-party repo transaction services through KSD like custody of collateral bonds in repo-dedicated account books, management of collateral value through mark to market, and control of settlement risk through delivery versus payment (DVP) settlement. In addition, the government sought to stimulate the market by enhancing the brokerage function through competition in the sector, including allowing inter-dealer brokers (IDBs) to handle repo transactions.

At the time, Korea lacked a market for arbitrage transactions utilizing bond interest rates, that for GB futures for hedge transactions, and that for derivatives; the repo market was also sluggish. Mutual support between repo and bond lending and borrowing transactions was weak and short selling of bonds banned. To resolve these issues, financial authorities sought to build a GB futures market, stimulate the repo market, and lift the ban on short selling of bonds. The government also allowed the lending and borrowing of securities for trusted properties, lowered the collateral ratio from 110% to 105%, and adopted the market valuation of collateral and mark to market to inject liquidity for bond lending and borrowing transactions. See <Table 3-9> and <Table 3-10> for more details.

<Table 3-8> Comparison of Repo Transactions and SLB

Category	Repo transaction	SLB
Form of transaction	Exchange of securities with cash	Exchange of securities with securities or cash
Legal nature	Sale of securities1	Securities loan for consumption
Title transfer	Transfer, rehypothecation allowed	Transfer, rehypothecation allowed
Substitute payments	Yes	Yes
Margin	Yes	Yes
Mark to market	Yes	Yes
Balance sheet	Repo purchase (assets), repo sales (liabilities)	Securities lending (assets), securities borrowing (liabilities)
Debtor rehabilitation law	Applicable	Applicable
Bond substitution	Available	Not allowed

Source: KSD, Securities Deposit and Settlement, 3rd edition, 2014, p. 695.

This chapter describes the evolution of SFTs in Korea and their significant impact on the growth of the domestic GB market. The most prominent SFT markets include those of securities lending and borrowing (SLB) and repo. Lending and borrowing are aimed at acquiring specific securities, whereas repo transactions seek to procure and manage funds by providing securities as collateral. The two types of transactions have the following

in common. The title of the securities is transferred to the borrower (buyer); economic proceeds from the securities belong to the lender (seller), resulting in substitute payments of coupons and dividends; mark to market applies to these transactions; and obligations are subject to close-out netting in case of default.

<Table 3-9> Timeline of Repo Trading's Evolution in Korea

Time	Description
Feb. 1969	BOK launches repo transactions with financial institutions
Feb. 1977	Securities financing and repo purchase services started Serves as financing method for bonds held by securities companies
Feb. 1980	Securities companies begin repo trading services
Oct. 1999	Standard master agreement for repo transactions designated
Nov. 1999	KSD launches 3rd-party repo services
Feb. 2002	Repo market opened on KRX
Apr. 2004	Repo sale limit raised under asset management laws: Limit raised to 50% of combined bonds; repo purchase limit only applied to transactions with stakeholders including largest shareholder of asset management company
Feb. 2005	Exception for repo transactions recognized under Integrated Bankruptcy Act
June 2007	Repo transaction participants & traded securities increased 8 institutions added as repo participants Expanded scope of traded securities to those under Securities & Exchange Act
June 2008	Financial institutions exempted from withholding tax on bond interest
Oct. 2008	Standard master agreement for repo transactions revised
July 2009	Settlement by repo settlement agents adopted
Jan. 2010	Reintroduction of taxation of bond interest earned by financial institutions
Oct. 2011	Scope of securities widened for repo transactions (stocks)
July 2012	Disclosure system set up for repo transaction data & RTM repo transaction settlement
Aug. 2013	GCF repo transaction adopted
Aug. 2014	Tax treatment system for re-repo transactions improved
July 2015	DVP settlement system for RMB adopted
Dec. 2016	FX repo system enhanced
May 2017	Inter-institutional repo transactions by discretionary investment vehicles allowed
July 2017	Korean-style GCF repo system streamlined
Aug. 2018	Repo corporate bonds between institutions allowed
Dec. 2018	Forex repo services for customers (special bonds, KP, & foreign GBs) launched

Source: KSD internal data.

<Table 3-10> Evolution of SLB in Korea

Time	Description
Sep. 1996	SLB transactions begin (eligible securities: those listed on KOSPI)
Nov. 1997	Range of eligible securities (those on KOSDAQ) expanded
July 1998	Securities & Exchange Act revised (to allow foreign investment)
Sep. 1998	Scope of eligible securities (KRX-listed bonds) widened
Aug. 2000	Securities lending from trust accounts allowed
Jan. 2001	Borrowing limit raised for foreign investors: KRW 100 mln → KRW 1 bln
Nov. 2001	Borrowing & lending by foreign investors startedn Raised borrowing limit (KRW 1 bln → KRW 5 bln)
May 2002	Participation allowed by listed corporations, those registered with associations, & corporations
Jan. 2006	Permission requirement for foreign investors borrowing KRW 10 bln or more from Koreans replaced with prior notification requirement
Apr. 2006	Enforcement Decree of Indirect Investment Asset Management Business Act revised (allowed securities borrowing by indirect investment vehicles)
May 2006	Securities borrowing by banks by revising Guidelines on Scope of Incidental Banking Services allowed
Apr. 2007	Lending & borrowing of KDR (Korea depository receipts) allowed
Jan. 2008	Regulation on Foreign Exchange revised Raised upper limit for foreign investors borrowing from Koreans: KRW 10 bln → KRW 50 bln Granted exception to reporting requirement when using foreign currencies & foreign currency securities as collateral
May 2008	Lending & borrowing of USD & US treasury bills allowed
Oct. 2008	All short selling banned
June 2009	Short selling of non-financial stocks allowed
Aug. 2011	All short selling (3 months) temporarily banned
Dec. 2011	Act on Financial Investment Services & Capital Markets revised, creating Korean hedge funds
Nov. 2013	Short selling of financial stocks allowed
Mar. 2016	Prior notification requirement for foreign investors borrowing KRW 50 bln or more from Koreans replaced with post-report requirement
Mar. 2017	Lending & borrowing for collateral purposes allowed

Source: KSD internal data.

As a repo transaction is deemed a sale by law, it is covered by the secondary market discussed in Section 2 of this consulting project. Section 3 mentions repo transactions only when needed and focuses on the SLB market. Specifically, this section explains the functions,

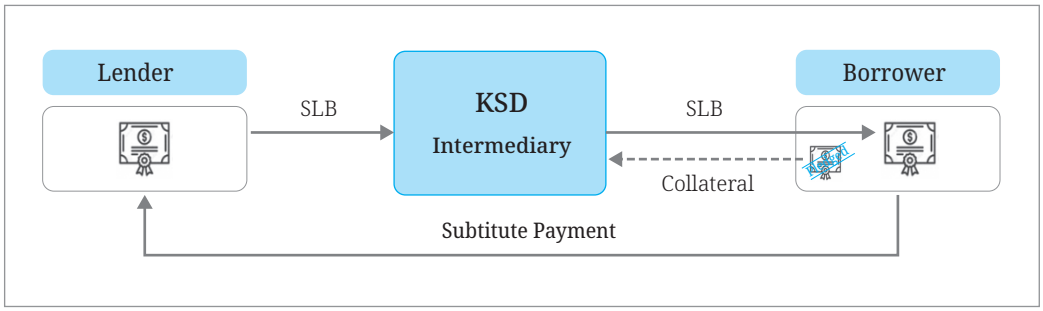
background, and management of this market and the need for an SFT market for Mongolian GBs based on Korea's SFT experience.

4.2. Evolution of Korea's SLB Market

4.2.1. Market Concept and Functions

As explained above, securities lending and borrowing (SLB) is a type of transaction in which an institution (lender) lends its securities to another (borrower) for a fee. SLB amplifies liquidity on the securities market and helps institutions earn more profit from their securities. The National Pension Service and insurers are among financial institutions that hold securities for prolonged periods, during which they can profit by lending the securities.

[Figure 3-17] SLB Transactions



Source: KSD internal data.

The key functions of SLB can be outlined as follows. First, the main function is ensuring stable settlement on the securities market by allowing participants to borrow securities if they do not have enough to fulfill their obligations.

Second, SLB offers a wide range of investment opportunities to borrowers. An SLB transaction allows institutions to take a short position when borrowing securities (and a long position when buying them), thus providing the option to use long and short hedge strategies through SLB. SLB also allows institutions to generate risk-free profits by supporting strategies such as arbitrage transactions utilizing the price difference between equity-linked securities (DR, CB, BW, and EB) and shares, those between spot and futures, and others using stock options and equity-linked warrants (ELW). Third, SLB can ease a price imbalance by widening investment options utilizing price differences between markets or instruments. The wider options expand market liquidity, mitigate default risk, and raise the efficiency of the capital market.

4.2.2. History of the Korean SLB Market

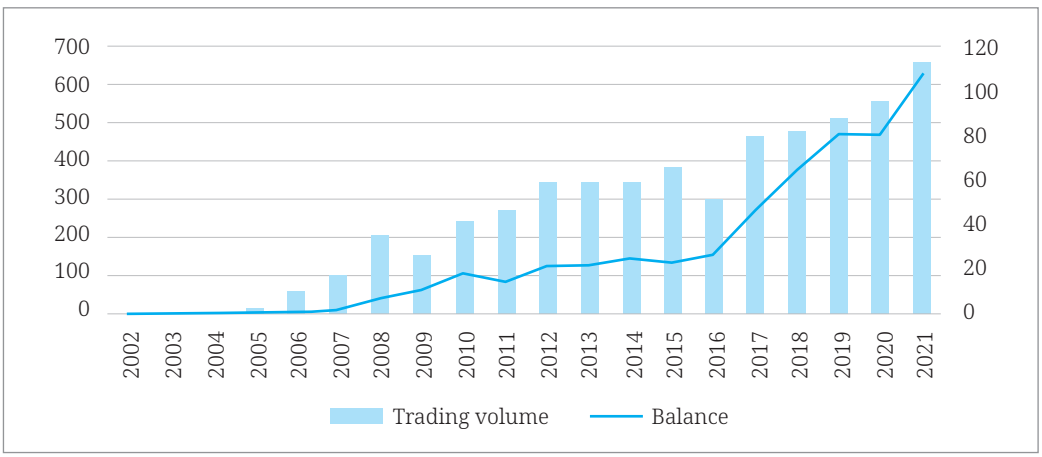
Korea opened a stock lending and borrowing (SLB) market in August 1998 to support arbitrage transactions between the markets for stock index spot and stock index futures opened in April 1996. The SLB market opened as part of government efforts to advance the domestic stock industry after the country joined the Organisation for Economic Co-operation and Development (OECD).

Timed with the launch of the GB futures market, that for bond lending and borrowing transactions was opened in 1998 for KRX-listed bonds to support arbitrage transactions on the spot market. Boosting bond borrowing and lending is a key requirement for a country to improve its bond issuance system for long-term bonds and benchmarks and develop the spot and futures markets, where players can conduct arbitrage transactions.

When treasury bond issuance and trading exponentially increased after the 1997 Asian financial crisis, a futures market for three-year treasury bonds in 1999 was opened to allow investors to hedge price volatility risk. The bond lending and borrowing market was created for arbitrage transactions to benefit from the price gaps between the spot and futures markets. To open a secondary market and adopt the primary dealer (PD) system, short selling of bonds was allowed to enhance the bond holding and market-making functions of dealers and revitalize repo and SLB transactions. In September 1998, the government revised the statutes for the mark-to-market bond and in June 2000, it instituted the market valuation system by forming a private credit rating agency. Banks and securities companies were also permitted to lend their trust accounts to facilitate bond lending supply.

[Figure 3-18] Bond Lending and Borrowing Transactions in Korea

(Unit: KRW tln)



Note: The data between 2002 and 2008 are based on internal KSD, 2011, p. 22, Choi Gyeong-ryul.

Source: KSD and KOFIA (http://freesis.kofia.or.kr).

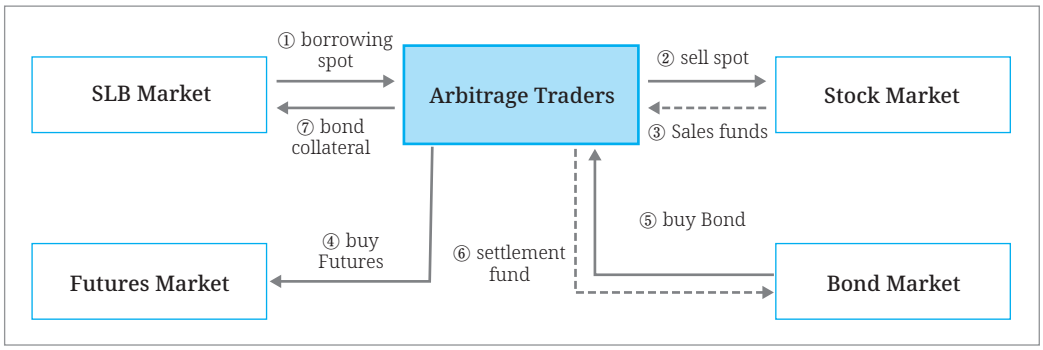
The first transaction on Korea's bond lending and borrowing market did not occur until 2002 because of the small number of arbitrage transaction opportunities and the underdeveloped government systems for bond issuance and distribution. Bond lending and borrowing transactions began to grow, however, thanks to the penetration of longer-term and benchmark bonds on the market, stimulation of the bond futures market, and improvement in taxation on interest payments including the revision of the Corporate Income Tax Act in July 2006. The adoption of Korean-style hedge funds in 2011 and deregulation in 2015 also spurred growth.[30]

4.2.3. Effects of Bond Lending and Borrowing Transactions on the GB Market

In a lending and borrowing market, borrowers can access unused securities through a range of investments. Cash provided as collateral through bond lending and borrowing transactions[31] or borrowed bonds can be used as collateral for other repo or derivative transactions, which boosts repo transactions and derivative trading and the liquidity of the overall securities market including GBs.

SLB enhances the price discovery function of the securities market to raise the latter's efficiency. Borrowed securities can be used for arbitrage or hedge transactions to benefit from price gaps between the spot, futures, and derivatives markets, facilitating the price discovery process between these markets and enhancing their integration. In other words, SLB facilitates the discovery of adequate equilibrium prices by encouraging sales when security prices surge and inducing buying when prices plunge.

[Figure 3-19] Integration of SLB and Other Markets



Source: KSD internal data.

30 Bond lending and borrowing were exempted from withholding tax after the exemption provision for sale trade in the middle of the coupon period was revised to include lending and borrowing (July 2006). The revision improved convenience for bond lenders and borrowers and raised demand for bond lending and borrowing.

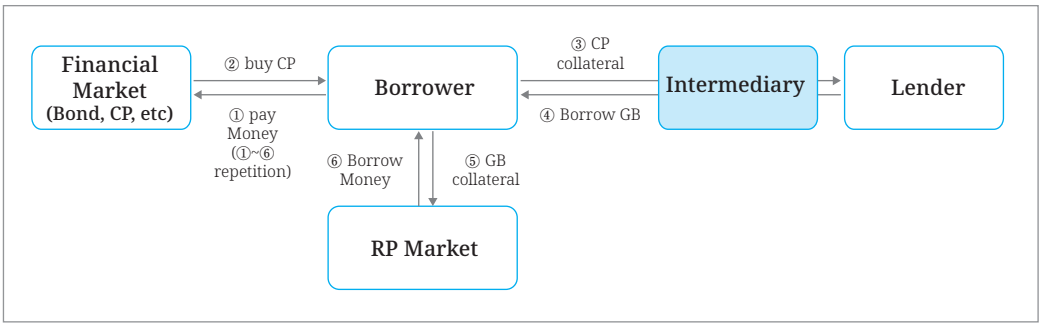
31 Cash provided as collateral under security lending can be used to procure funds at lower interest rates. These SLB transactions are called reverse repo transactions, a type of transaction between non-banking institutions. Lenders can use the securities they hold to borrow money at lower rates, and borrowers can provide the securities as collateral for safer management of their money.

Because transactions for bond lending and borrowing and repo are closely linked to the money market, they can serve as new pathways for the spread of a financial market shock. Such deals can also amplify market fluctuations, which could wreak havoc on markets by spread risk among them when a shock hits such as the 2008 Lehman Brothers collapse in the US.

For example, when an asset management company uses bond lending and borrowing transactions to manage repo funds, the company (1) borrows GBs (high quality bonds) on the bond lending and borrowing market using low-quality commercial papers (CPs), (2) borrows funds to the leverage allowed on the repo market using GBs as collateral, and (3) receives the difference between the CPs and RP interest as profit and repeats the process. In this case, CP default is likely if the financial market is hit by a shock due to their shorter maturity. In case of default, the risk spreads to multiple markets through the bond lending and borrowing market.

Korean financial authorities control bond lending and borrowing transactions, along with those of repo, as non-banking financial transactions. Lending and borrowing brokers must control risk by implementing risk management measures such as mark to market of collateral securities, application of haircuts and collateral ratios, restriction of qualified collateral to those of high quality, application of transaction limits based on credit ratings, and regular stress tests.

[Figure 3-20] Bond Lending and Borrowing for Repo Funds



Source: KSD internal data.

4.3. Implications of the Korean SFT Market

A lending and borrowing market is typically needed along with one for GB futures as a requirement for conducting arbitrage transactions on the spot market. A lending and borrowing market also offers a means of hedging for price volatility to foreign investors with GBs, and is also required for opening a primary dealer (PD) market and operating a PD

system. This is because to facilitate the market-maker function of PDs, the government needs to allow short selling of bonds and PDs to borrow bonds from the lending and borrowing market. In addition, the stimulation of the latter market requires facilitating the supply of borrowed bonds by allowing banks and securities companies to lend bonds from their trust accounts and short-sell GBs on the PD market. As required, the settlement deadline should should also be improved so that short-sell can be settled in the exchange market.

As mentioned in Section 4, laws on debtor rehabilitation and corporate tax need revisions as well. The Act on Debtor Rehabilitation and Bankruptcy needs an amendment to guarantee stable transactions so that a lending and borrowing broker can fulfill the borrower's obligations in security lending and borrowing. The exemption provision for selling in the middle of the coupon period is needed for bond lending and borrowing transactions so that the taxation issue vis-a-vis substitute payments of interest from borrowed securities can be handled within the Corporate Tax Act framework, along with the development of an infrastructural account system to support tax treatment.

5. Permission for OTC Trading of Korean GBs Abroad and Global Collateralization

Foreign investment in the government bond (GB) market drives demand for GBs, which contributes to the revitalization of the secondary market. Ensuring the safe and convenient trading of GB collateral by foreign investors is thus highly beneficial for stimulating GB markets. So reform of systems related to GB investment by foreign investors holds great significance.

In addition, GB trading by foreign investors can be facilitated by allowing GB trading with global financial institutions. With improvement in domestic collateral-related systems, GBs can be used as globally qualified collateral through overseas repo transactions or agreements between central banks.

Section 6 outlines the participation of foreign investors on the GB and GB collateral-related markets, along with related systems. This chapter also provides an overview of Korea's experience in building a system for OTC GB transactions abroad linked with global financial institutions, something that Korea discontinued shortly after allowing it in October 2009. Based on discussions on overseas OTC GB transactions, this study explains the concept of globally qualified collateralization. For this, a brief look at Japan's efforts toward globally qualified collateralization and institutional reforms is given to provide long-term guidelines

for infrastructure growth of the Mongolian GB market.

5.1. Foreign Direct Investment in Korean Securities

Foreign investment in Korean securities began in 1981 after foreign investors were allowed to buy foreign investor-only collective investment securities under the Long-Term Plan for the Globalization of the Capital Market. Foreign direct investment (FDI) on the Korean stock market started in 1992 at the limit of 10% per issue and 3% per person. The ban on foreign investment in Korean bonds was lifted in 1994 after foreign investors were permitted to acquire the convertible bonds of SMEs and low-coupon government and public bonds.

In July 1998, Korea fully opened its capital market to foreign investment by allowing FDI in all types of securities including unlisted stocks and bonds. The goal was to stimulate growing demand for the KRW and facilitate the funding foreign currency for domestic companies, thus stabilizing the foreign exchange rate and overcoming the 1997 Asian financial crisis. In 1998, foreign investors held KRW 13.6 trillion in Korean stocks (19% of market share) and KRW 3.3 trillion in bonds (0.38%). FDI continued to rise thereafter. At the end of 2021, listed stocks held by foreign investors reached a combined value of KRW 785.2 trillion, or 28.7% of the total, and listed bonds KRW 214 trillion (9.6%). Foreign investors, however, have not been so active in using collateral securities, with the figure for OTC derivative collateral being KRW 1,420 billion, that of repo transactions KRW 3,500 billion, and that of collateral lending and borrowing KRW 3,877.6 billion.

<Table 3-11> Foreign Investment in Korean Listed Stocks

(Units: KRW tln, %)

Category	Stocks		Bonds	
	Amount	(Pct.)	Amount	(Pct.)
1992	4.1	4.9	-	-
1997	10.7	13.7	0.2	0.1
2002	97.1	32.8	0.6	0.1
2007	325.4	30.9	37	4.5
2012	411.6	32.2	91	7
2016	481.6	31.2	89	5.6
2021	785.2	28.7	214	9.6

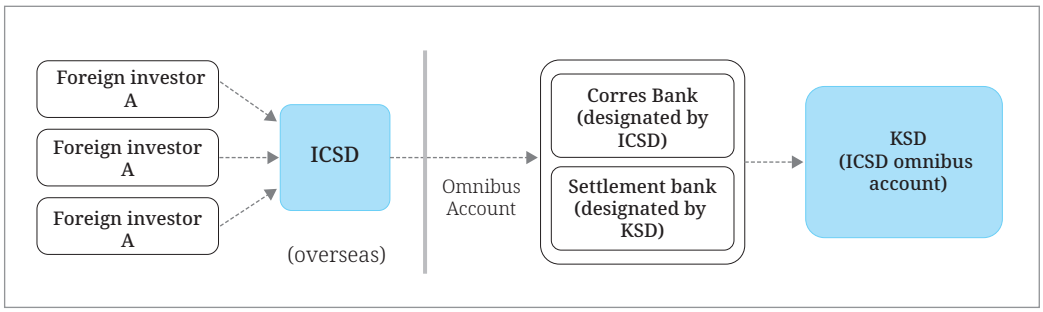
Source: KSD internal data.

5.2. Korea's Experience in OTC GB Trading Abroad

Since the 2008 global financial crisis, collateral has held increasing sway over global financial transactions. The growth of foreign investors holding Korean GBs coincided with a spike in the latter's demand as collateral in global trade. GBs of the US, Japan, and other leading economies are widely used to secure such transactions, but those of Korea are not widely recognized or used as global qualified collateral. Wider use of Korean GBs in this role would help Korea improve its credibility on the global market and lower funding costs by providing Korean GBs as collateral when financial institutions and pension funds procure foreign currency funds. The use of Korean GBs as global collateral requires systematically linking Korean Securities Depository (KSD) and international central securities depositories (ICSDs) by opening omnibus accounts to allow overseas OTC transactions of Korean GBs. Yet in Korea, such transactions were discontinued shortly after their domestic debut.

In 2009, Korean financial authorities allowed ICSDs to use omnibus accounts to link their systems with KSD, thereby allowing Korean GBs to be traded OTC abroad. An omnibus account is held in the ICSD's name at KSD for foreign investors. Investors can use the integrated account for settlement of securities and payments without the need for a custodian in Korea.

[Figure 3-21] Structure of ICSD Omnibus Account



Source: KSD internal data.

As shown in the figure above, more foreign investment through overseas OTC transactions will raise the efficiency of GB investment pathways and expand the demand base for the bonds, thereby contributing to the globalization and stabilization of the Korean GB market. Foreign investors can use their Korean GBs for repo transactions abroad, which makes the bonds more attractive to investors. If foreign investors with diverse purposes actively engage in overseas OTC transactions of Korean GBs, this will diversify the market prospects of investors in the bonds, which will reduce interest rate volatility of the GBs. For example, the replacement of short-term arbitrage transactions with large-scale and long-

term investments by foreign investors is likely to reduce such volatility.

<Table 3-12> Korea's Overseas OTC Transactions via ICSD Omnibus Accounts

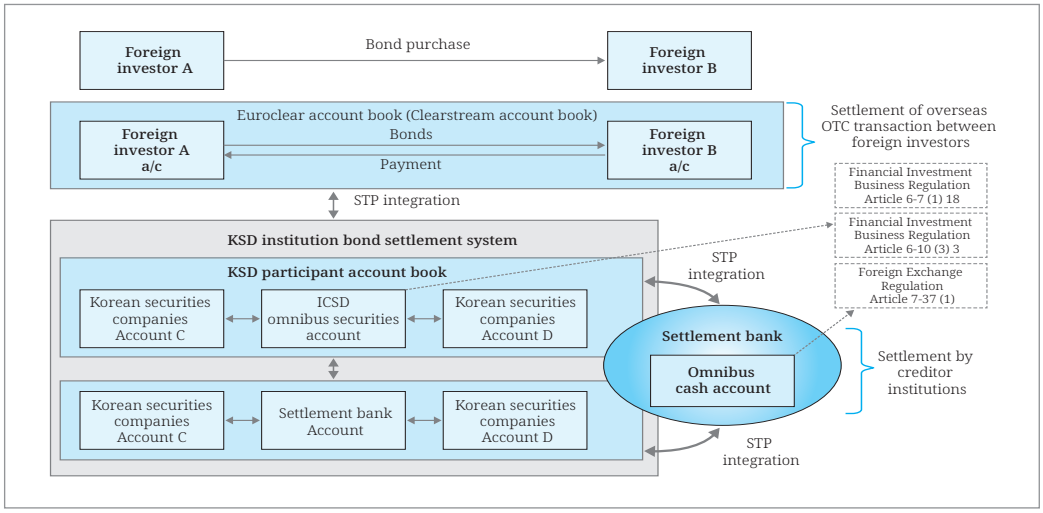
Period 4Q		2009	2010			
		1Q	2Q	3Q	4Q	
No. of transactions	Korea → ICSD (A)	35	41	31	55	113
	Within ICSD account (B)	1,443	2,533	3,596	4,669	5,443
	B/A	41.2	61.8	116.0	84.9	48.2

Source: KSD internal data.

To use the omnibus accounts for the overseas OTC trading of GBs, Korea simplified GB investment pathways for foreign investors and lifted requirements previously applied to foreign investors.

First, the Income Tax Act and Corporate Tax Act were amended in 2009 to exempt the interest income earned by foreign investors from GBs and MSBs from withholding taxes (corporate and income), and the government decided not to impose taxes on the profits from bond transfer. Second, foreign investors were exempted from the investment registration requirement, being allowed to open omnibus accounts and complete investment registration in an ICSD's name to freely trade GBs and MSBs using such accounts. Third, an exception was granted for the requirement for trading with Korean investment traders so that foreign investors with ICSD accounts could trade Korean GBs on overseas OTC markets with other foreign investors outside of Korea. Finally, foreign investors could conduct investment fund transactions using an ICSD omnibus cash account without the need to open a separate cash account for securities investment. In cases where an ICSD wishes to trade GBs or MSBs on behalf of a foreign investor, an ICSD can open an investment account in its own name and use the account to deposit and dispose of the relevant bond(s).

[Figure 3-22] Basic Structure of ICSD Investment Using Omnibus Accounts

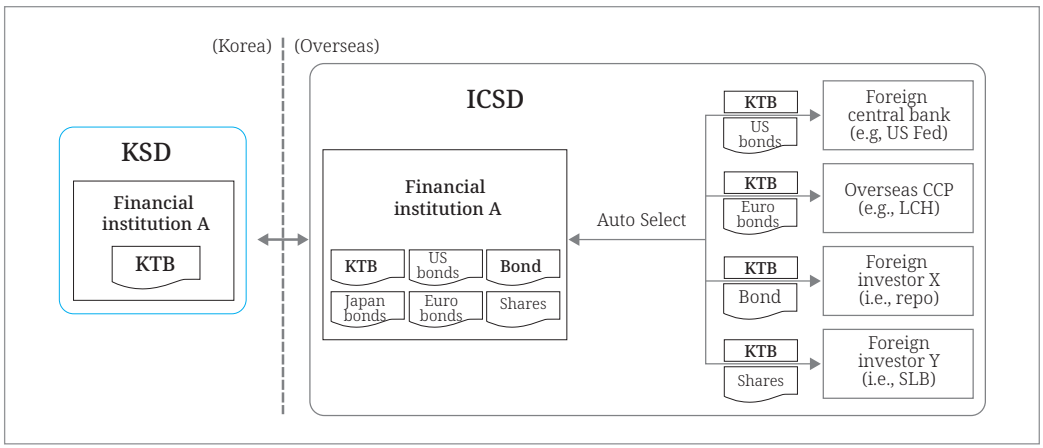


Source: KSD internal data.

Mongolia should actively promote overseas OTC trading of GBs via omnibus accounts to not only drive demand for GBs among foreign investors, but also set a fundamental condition for global collateralization of GBs. In 2010, however, Korea decided to tax foreign investors on interest income and capital gains from GBs and MSBs, taking a step back from its 2009 decision to exempt such earnings from withholding income and corporate taxes and not tax GB capital gains.

The decision prevented Korean GBs from developing into global qualified collateral through linking with central banks, CCPs, and other financial institutions under the global collateral network of ICSDs.

[Figure 3-23] Use of Korean GBs as Global Collateral via ICSD Omnibus Accounts



Source: KSD internal data.

5.3. Implications of Korea's Foreign Investment System and Overseas OTC Transactions

Many foreign investors have urged Korea to abolish its requirement of foreign investment registration. Most countries do not require an account held in the end investor's name for transactions and custody and instead use omnibus accounts at global custodians and ICSDs to keep the securities and payments of numerous investors. Foreign investors familiar with such accounts find it cumbersome to complete investment registration in their own names. Korea's system also poses operational risk and cost issues for securities companies and custodian banks, as they must handle the required procedures for each investor.

Korea must also allow overseas OTC trading of its GBs through ICSD omnibus accounts created in 2009, a prerequisite for using Korean GBs as global collateral. In addition, the country needs to exempt foreign investors from the withholding tax on interest and capital gains. If this option is not feasible, another solution could be forming a system to identify the details of foreign OTC transactions to obtain the data required for taxation based on held periods.

Finally, the issue of the rehypothecation of collateral has undermined the growing holding amounts of Korean GBs by foreign investors and ensuing rise in GB collateral-related transactions due to Korea's reliance on the pledge system. To promote foreign investment in the GB collateral market, Korea needs to adopt the framework for the rehypothecation of collateral described in Section 4.

5.4. Qualified GB Collateralization with Global Financial Institutions: Case Study of Japan[32]

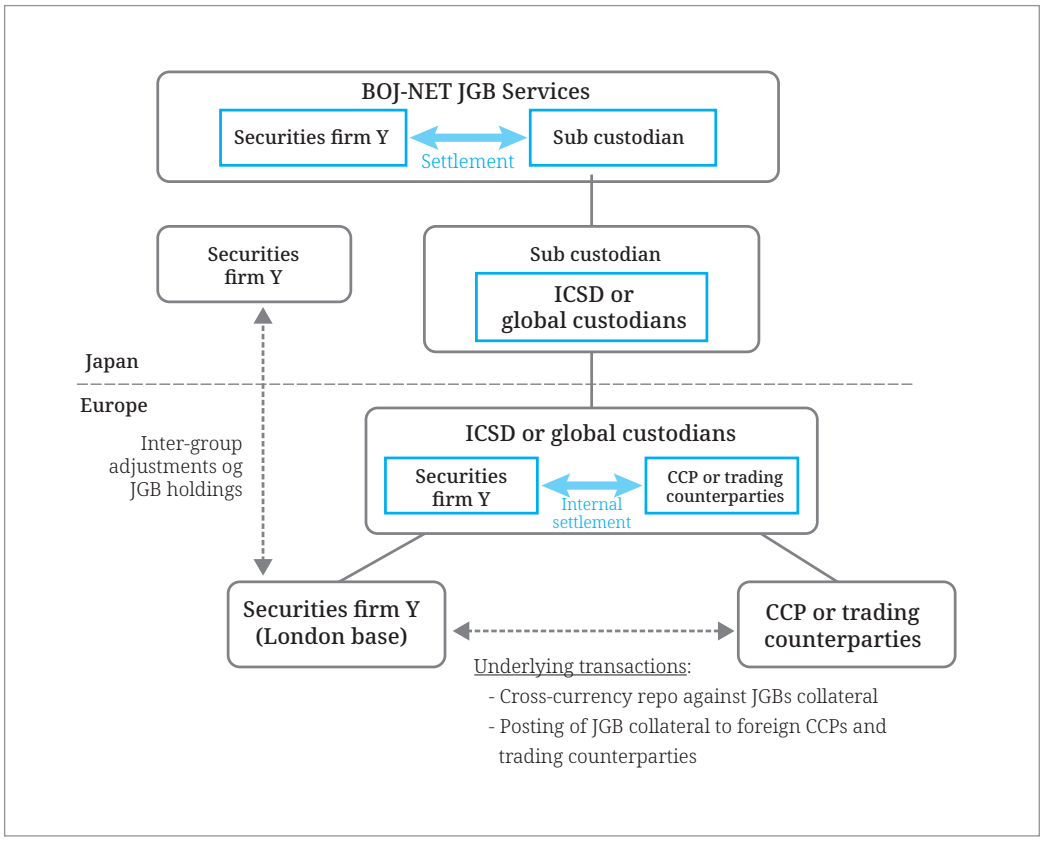
Korea's ban on overseas OTC trading of GBs disrupted the progress of global collateralization for the country. The Bank of Japan (BOJ), however, offers a case study of how the bank's efforts to achieve global collateralization can help improve relevant systems over the long term.

In 2007, Japan began to link its GB market with those overseas using Euroclear's omnibus accounts, resulting in the recognition of Japanese GBs as qualified collateral for key CCPs (LCH, ICE, CME, and EUREX) and payment systems (FED and EUROSYSTEM). The country

32 Takehiro Sato, "Maximizing the Potential of JGBs as Global Financial Assets," speech at the International Bankers Association of Japan, Bank of Japan, February 27, 2014.

also made cross-border collateral arrangements with countries like Indonesia and Singapore to link with their systems for DVP and continuous linked settlements between currencies.

[Figure 3-24] Use of ICSD Omnibus Accounts for Global Collateralization of Japan's GBs



Source: Takehiro Sato (2014), p. 19.

Building on its success, the BOJ extended the operating hours of its New BOJ-NET, a real-time gross settlement system (RTGS), shortened settlement cycles, and made other system improvements. In 2016, the central bank extended the settlement deadlines for OTC settlement of Japan's GBs (securities and payments) for overseas collateral, SLB, and repo transactions to expand connectivity with global payment systems amid the growth of global trading. To allow foreign investors to establish and terminate GB collateral on the same day, the bank in February 2016 extended the deadline for OTC settlements and large value transfers to have them overlap with the operating hours of other regions, extending the New BOJ-NET's hours to 8:30-21:00 from 8:30-19:00.

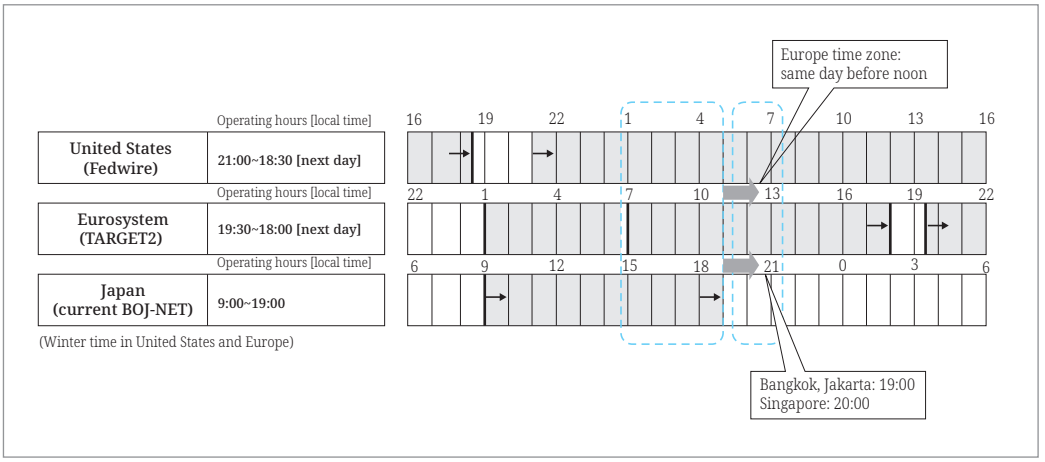
<Table 3-13> Operating Hours of Large Value Transfer Systems in Major Economies

(Local hours)

US	EU	Hong Kong	Japan
21:00–next day at 18:00 (21 hours)	19:30-next day at 19:00 (23 ½ hours)	8:30-19:30 (11 hours)	8:30-21:00 (12 ½ hours)

Source: Takehiro Sato (2014), pp. 14-19.

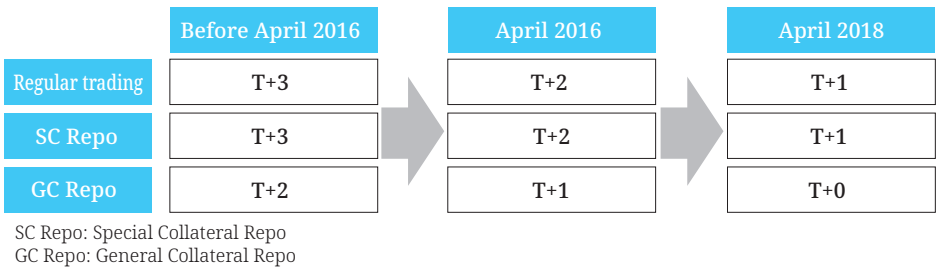
[Figure 3-25] Settlement Deadlines in Major Economies



Source: Takehiro Sato (2014), pp. 14-19.

Since 2012, the settlement cycle for Japan's GBs has been continuously reduced; in May 2018, the BOJ shortened its cycle from T+2 to T+1. The shorter settlement cycle helped cut settlement risk and improve the liquidity of Japanese GBs in global securities trading.

[Figure 3-26] Settlement Cycles of Japan's GBs



Source: Takehiro Sato (2014), pp. 14-19.

<Table 3-14> Chronology of Japan's Institutional Reforms for GB Settlement System

Time	Description	Note
1988	Built BOJ-NET, large value transfer system	-
Oct. 2008	Formed development team to build New BOJ-NET	-
Nov. 2011	Adopted cross-border collateral arrangement between Japan's GBs & THB	Partner country: Thailand
July 2013	Adopted cross-border collateral arrangement between Japan's GBs & SGD	Partner country: Singapore
Dec. 2013	Adopted cross-border collateral arrangement between Japan's GBs & IDR	Partner country: Indonesia
Jan. 2014	Launched Phase 1 of New BOJ-NET with improved open market operation & global bidding features	-
Oct. 2015	Launched Phase 2 of New BOJ-NET with improved funds transfer & GB settlement features; extended operating hours by 30 minutes	8:30-19:00
Feb. 2016	Extended New BOJ-NET's operating hours by 2 hours	8:30-21:00
Apr. 2016	Shortened Japan's GB settlement cycle (T+3 → T+2)	-
May 2018	Shortened Japan's GB settlement cycle (T+2 → T+1)	-

Source: Takehiro Sato (2014), pp. 14-19.

By completing the domestic securities collateral system and linking it with global financial institutions, GBs can serve as globally qualified collateral through overseas OTC and repo transactions. By allowing overseas OTC trading of GBs, a country can lower GB issuance interest rate through the market mechanism explained above for efficient redistribution of government finance. Euroclear and PwC conducted an empirical study on overseas OTC GB trading and its effect on collateralization, using bond issuance data from 50 countries from 2010-2017 and comparing their interest rates with US Treasury bonds with the same maturity.

After partnering with the ICSD Euroclear, the study found that six countries reported a decline in GB issuance costs of between 14 to 42 bps, which diverted financial resources from coupon payment costs to welfare sectors such as education and infrastructure. This also led to sounder fiscal spending, and the GB yield spread declined by 28 bps. After linkage with Euroclear, Poland reported a drop in GB yield on its secondary market from 5.7% to 4.1%, which fueled more spending on education and other welfare areas.[33] See the tables below for further details.

33 PwC Strategy& (2019), pp. 1-3.

<Table 3-15> Changes in GB Issuance Costs and Yield Spread after Link with Euroclear[1]

(Unit: USD 10 mln)

Item	Reduction	Range
GB issuance costs	28 bps	14-42 bps
Second market GBs' yield spread2	28 bps	21-37 bps

Note: 1) Based on empirical study with 50-country bond issuance data from 2010 to 2017.
2) Interest rate difference with US Treasury bonds with same maturity.
Source: PwC Strategy&, Impact of Euroclearability, Euroclear, April 2019, pp. 1–3.

<Table 3-16> Fiscal Effect of Overseas OTC Transactions via Euroclear on GDP Growth and Changes in Fiscal Spending after GB Issuance Cost Reduction

(Unit: USD 10 mln)

Country	GDP growth estimate	Increase in nfrastructure spending	Increase in education spending	Increase in public health spending
Russia	1,610	1.1%	0.9%	1.0%
Poland	940	5.0%	1.0%	0.8%
Chile	600	5.6%	1.6%	0.6%
Argentina	480	0.7%	0.5%	0.6%
Peru	210	1.5%	0.9%	0.4%

Source: PwC Strategy& (2019), pp. 1–3.

6. Policy Recommendations for the Mongolian Securities Collateral System

In 2020, Mongolia exited the International Monetary Fund (IMF) program that it had entered after suffering severe financial distress in 2016. The COVID-19 pandemic has further weakened the country's economy and exacerbated its fiscal deficiency. Mongolian financial authorities are trying to overcome this and secure financial resources for national projects by resuming GB issuance, which was stopped in 2016 during the IMF bailout.

Mongolia's securities collateral system and securities financing transactions can be summarized as follows. The country collateralizes securities in two ways. First, for collateralizing securities for loans between financial institutions, the title to securities in the Mongolian Central Securities Depository (MCSD) account is transferred to the collateral taker, but the collateral cannot be reused. Second, in the bidding process for public projects, securities can fulfill the bidding deposit obligation, in which case the securities in the bidder's account are restricted from disposal. As for SFTs, financial institutions conduct repo transactions with the Bank of Mongolia (BOM) and other financial institutions.

Yet repo transactions are few and far between. In a repo transaction between financial institutions, the repo purchased securities are transferred to the buyer's account at the MCSD. Despite the title transfer, the securities cannot be reused.

Also, Mongolia lacks an SLB market. To improve the situation, Mongolian financial authorities launched a project to improve laws and tax systems related to collateral securities. So the nation's Mongolia's SFT market infrastructure and securities collateral systems remain in their infancy.

Mongolia's market landscape is similar to Korea's after the 1997 Asian financial crisis. At the time, Seoul sought to finance its efforts to overcome the crisis through more GB issuance. To facilitate the absorption of GBs, a primary dealer (PD) market and a related PD system were adopted. To facilitate the PDs' role as bond owners and market makers, the ban on short selling GBs was also lifted and banks and securities companies were allowed to lend securities from their trust accounts, resulting in more liquidity on the lending and borrowing market and improving the repo system. In addition, the country's securities market was opened to foreign investors to procure foreign currency and recover the KRW exchange rate, and the opening of a GB futures market allowed foreign investors to hedge interest rate risk. And the debut of the lending and borrowing market led to the launch of arbitrage transactions on the GB futures and spot markets. See <Table 3-17> for further details.

<Table 3-17> Chronological Comparison of GB, Repo, and SLB Markets in Korea

Year	GB market	Repo market	SLB market
1996	-	-	Opened SLB market
1998	Began to regularly issue treasury bonds; opened PD market Opened futures market for 3-year GBs	-	Opened SLB market Allowed OTC SLB by foreign investors & short selling of bonds
1999	-	Enacted standard master agreement; launched 3rd-party repo services	-
2000	Integrated GB issuance; adopted mark-to-market valuation Began to issue 10-year GBs	-	Allowed lending by bank trusts, investment trusts, & mutual funds
2001	-	-	Began transactions by foreign investors
2002	Opened GB futures options market	Opened on-exchange repo market	-

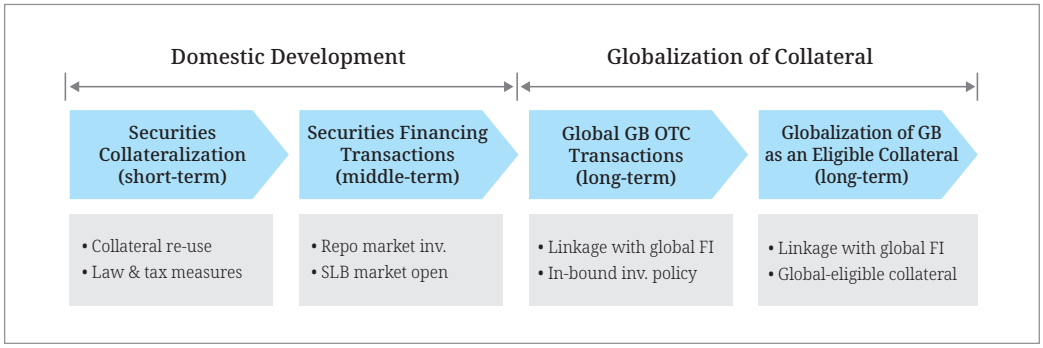
<Table 3-17> Continued

Year	GB market	Repo market	SLB market
2003	Opened futures market for 5-year GBs	-	-
2004	Benchmark: 3 year → 5;	Raised repo sale limit for asset management companies	-
2005	-	Granted exception under debtor rehabilitation law	-
2006	Began to issue 20-year GBs	-	Exempted bond lending/borrowing from withholding tax Allowed securities borrowing by banks & funds
2007	-	Expanded scope of participants & traded securities	-
2008	Opened futures market for 10-year GBs Exempted bond interest from tax withholding	-	-
2009	Allowed o'seas OTC GB trading	Adopted settlement by settlement agents	-
2010	Re-introduced tax withholding from bond interests & discontinued OTC GB transactions	-	-
2011	-	Expanded repo securities (stocks)	Launched Korean-style hedge funds
2012	Created 30-year GBs	-	-
2017	-	-	Allowed SLB for collateral purposes

When comparing Korea's experience with Mongolia's market landscape, the advancement of Mongolia's collateral-related markets requires reform of relevant systems and identification and implementation of specific measures. Over the short term, this study advises Mongolia to improve the legal and tax frameworks for collateralization of securities on the capital market to lay the foundation for the country's SFT market. Over the mid-term, the suggestion is to adopt a PD market and system for government and public bonds, along with streamlining the repo transaction market and opening an SLB market.

Over the long term, Mongolia must improve its foreign investment system and conduct reform to allow overseas OTC trading of Mongolian GBs and global collateralization. The following paragraphs outline reform proposals for the short, medium, and long term.

[Figure 3-27] Schedule of Mongolia's Market Improvement



6.1. Short-term Measures to Streamling Mongolia's Securities Collateral System

Based on the state of Mongolian markets and Korea's experience in collateral-related systems, the following short-term improvements are recommended.

First, a legal mechanism similar to the exclusion of avoidance power under the Act on Debtor Rehabilitation and Bankruptcy of Korea is needed to ensure the legal stability of securities collateralization and transactions. Such stability of collateralization system is also important for the legal stability of collateralized transactions for the underlying transactions. As such, Mongolia needs an exception for collateral to secure underlying transactions similar to those under the aforementioned Korean law. Legislation is also required for stable management of the SFT market to legally guarantee the effectiveness of close-out netting provisions in master agreements for SFTs such as repo and SLB transactions. Laws can also maintain the validity of collateralized transactions incidental to transactions under a master agreement regardless of whether the pledge or title transfer is used. Section 4 has more on the issue.

Second, Mongolia needs systems to allow the rehypothecation of collateral securities on the securities market. The non-reusability of collateral undermines the collateral value of GBs and public bonds and GBs consequently lose their appeal to investors. Given Korea's experience, allowing the rehypothecation of collateral as required by foreign investors familiar with title transfer will help Mongolia revive its GB market and improve the liquidity of its secondary GB market through foreign participation. If the Mongolian market rejects rehypothecation, it must consider adopting alternatives such as Korea's collateral-purpose SLB to facilitate rehypothecation. See Section 4 for more on the rehypothecation of collateral securities and SLB transactions for collateralization.

In addition, an overview of Mongolia's securities financing market shows that repo purchased securities are only transferred to the buyer's account and cannot be re-used for re-repo transactions or market sales. To jumpstart the repo transaction market in Mongolia, reform of the relevant systems is needed to allow the rehypothecation of repo purchased securities, something that requires the short-term improvements proposed above including legal and tax-related measures for a stable securities collateral system.

Specifically, Mongolia needs to amend its debtor rehabilitation law to insert a provision excluding avoidance power, thus guaranteeing the application of the close-netting provision in the SFT master agreement. It must also secure the foundation for a tax law for substitute payments for collateralized transactions and build related infrastructure including a dedicated account system to support the taxation of substitute payments. This study believes that the repo market can properly function after these measures are fully implemented and the repo transaction system is revamped to allow the rehypothecation of repo purchased securities.

The third recommendation is building the legal foundation for substitute payment of collateral securities. Title transfer type, repo, and SLB transactions are characterized as secured loan transactions for consumption. For the substitute payment of interest accrued on title transfer type, tax laws need revision so that withholding taxes can be imposed on the collateral provider, who has economic power as the owner of the securities. Mongolia needs to adopt relevant provisions in its corporate tax laws and amend the latter so that they apply to foreign investors as well. Korea's experience with the rehypothecation of collateral shows that the related system cannot be adopted without tax treatment of substitute payments. In Korea, the volume of repo and SLB transactions began growing in 2006 after an amendment to the Corporate Tax Act for tax treatment of substitute payments for collateral securities.

Fourth, Mongolia needs to infrastructure development to facilitate tax treatment of substitute payments such as an account system dedicated to collateral securities. Korea has such a system for consecutive repo transactions or SLBs for collateralization to facilitate tax treatment and impose withholding taxes on the original collateral provider. Substitute payments could occur in title transfer for collateral rehypothecation, which is why Mongolia needs a similar system to secure infrastructure to support taxation, along with the tax law reform mentioned above. See the sections on repo transactions and collateral-purpose SLB in Section 4 for more on this topic.

6.2. Mid- to Long-term Proposals Like the Opening of an SFT Market

To advance its GB market, Mongolia needs a GB futures market and must stimulate its repo and SLB markets to hold arbitrage transactions on the spot and futures markets. The following mid-term recommendations are intended to allow third-party repo service and open an SLB market in Mongolia.

First, Mongolia needs to benchmark the actions taken by Korea shortly after the 1997 Asian financial crisis to revive the repo transaction market: 1) developing brokers to stimulate the brokerage market and strengthen their brokerage functions through competition; 2) adopting third-party repo services for efficient management of collateral securities; 3) mark-to-market settlement of collateral for collateral securities custody and market risk management; 4) and DVP settlement for settlement risk management. See the first half of Section 5 for further discussion of this issue.

Second, arbitrage transactions are needed on the GB futures and spot markets, as well as an SLB market to improve the market-maker function of primary dealers (PDs) on the PD market. Mongolia also needs to permit the short selling of bonds on the listed bond market and allow securities lending by banks and insurers holding large amounts of GBs, thereby facilitating the supply of borrowed securities. And as mentioned in Section 4, corporate tax law needs revision to lay the foundation for tackling tax issues related to substitute payments for borrowed securities.

For SFT market infrastructure, Mongolia can consider development of a centralized market highlighting a small number of brokers to benefit from its status as a latecomer market. This study proposes launching third-party repo services and selecting suitable financial institutions for development into brokers or performance guarantee providers. The scope of brokers should also be expanded to include banks and securities companies.

As for systemic reform for foreign investors and overseas OTC trading of Mongolian GBs and global collateralization, discussion of the globalization of Mongolian GBs might seem premature. But market participants and financial authorities need to implement the required measures in multiple stages with a focus on the long term. Section 6 outlines permission for overseas OTC transactions through links with ICSDs and Japan's extension of GB settlement hours and shortening of settlement deadlines for qualified collateralization of Japanese GBs. Providing this information fulfills the role of this study to this point. But systemic reform for attracting more foreign investors is needed along with the improvement

of the GB and GB collateral-related markets.

6.3. Suggestions for Further Study

This study provides an overview of the challenges faced by the Mongolian market, focusing on improvements to the primary and secondary GB markets and promotion of collateralized transactions. Short-, mid-, and long-term measures are proposed for collateral securities to tackle these challenges. This paper also urged Mongolia to take on more pressing tasks first to continue the development of its capital market, implement overall measures in multiple stages under a clear plan, and progress toward the long-term goal of the globalization of the Mongolian GB market and GB collateral.

In addition to the measures discussed above, the exchange of margins for non-centrally cleared OTC derivatives, a topic briefly discussed in Section 4, merits consideration as a topic for further study. Mongolia must prepare for a margin exchange, which the BCBS and IOSCO recommend for lowering OTC derivatives market risk and enhancing collateral management on the global market. The volume of financial transactions in Mongolia has not reached the level specified per BCBS and IOSCO recommendations, but Mongolian financial authorities must review this issue and provide guidelines in advance. Such guidelines will allow OTC derivative-handling financial institutions in and out of Mongolia to prepare for change and could help develop collateral management infrastructure in the country. Discussing this issue here is beyond the scope of this consulting project, but the topic could be covered in follow-up studies.

The KSP staff sincerely hopes that this report contributes to the advancement of the Mongolian capital market.

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Appendix

SLB market Infrastructure and Workflow

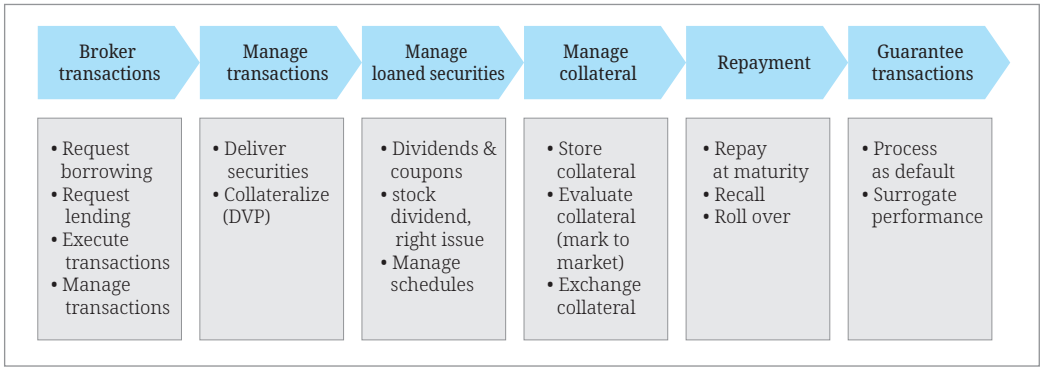
1. Component Institutions of the SLB Market

Development of Korea's SLB market was centered on a small number of lending and borrowing brokers in which securities and asset management companies and banks participate in lending and borrowing. SLB markets in the West were created spontaneously, which resulted in distributed markets where participants individually conducted transactions with counterparties on the OTC market. In Korea, however, the government led the creation of the SLB market.

A typical SLB market consists of lenders, borrowers, and borrowing and lending brokers. Lenders lend their securities for a fee and typical lenders include pension funds, asset management companies, banks, insurers, and brokerages. Borrowers borrow securities to gain investment returns and typical borrowers include securities companies, hedge funds, and asset management companies.

Borrowing and lending brokers provide the functions of brokerage, arrangement, execution, repayment, delivery, collateral management, and corporate action management, as well as performance guarantees against defaults in SLB transactions. Typical brokers include KSD, Korea Securities Finance Corporation (KSFC), and securities companies. KSD and securities finance companies also serve as guarantors that collect collateral and guarantee performance to control the risks posed by SLB transactions. When Korea in 1996 launched its lending and borrowing market, KSD provided brokerage services and the KSFC performance guarantees. In 2001, both institutions began to simultaneously serve as broker and performance guarantor.

[Appendix Figure 3-1] Workflow of Lending and Borrowing Brokers



Source: KSD internal data.

2. Management of SLB Transactions

In Korea, securities eligible for SLB transactions include listed stocks and bonds, exchange traded funds (ETF), and Korea depository receipts (KDR). Such securities are restricted to listed securities to prevent default by having participants repay borrowed securities on the securities market with sufficient liquidity. On the Korean bond market, issues traded on the OTC and exchange markets are mutually traded, so restricting eligible securities to those listed causes no serious issue.

<Appendix Table 3-1> Securities Eligible for SLB Transactions

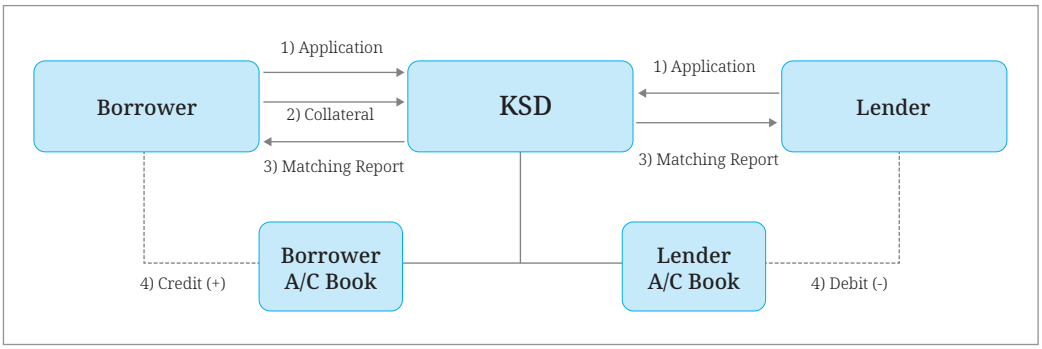
Eligible securities	Transaction unit	SLB fee price unit
Listed stocks	At least weekly	0.01% per year (1 bp)
Listed bonds	At least KRW 1 mln	
ETF	At least 1 unit	
KDR	At least 1 receipt	

Source: KSD internal data.

An SLB transaction is executed when a borrower and lender send their respective applications detailing the issues, quantities, and fee rates to the broker and two applications match. For settlement, bidding, and designated transactions, the borrower should provide collateral to KSD. For custom trading, the borrower should provide collateral to the lender. In principle, securities should be delivered at the same time as collateral. The SLB transaction ends when the borrower repays the same amount and type of securities to the borrower. Securities can be returned either at or before maturity. If the lender requests the borrower to repay the securities before maturity, the former must repay the borrowed securities by T+2 (or T+3, if the request arrived after noon). The period of two- to three business days

is provided to secure the minimum period required for the business day to purchase the required securities on the securities market.

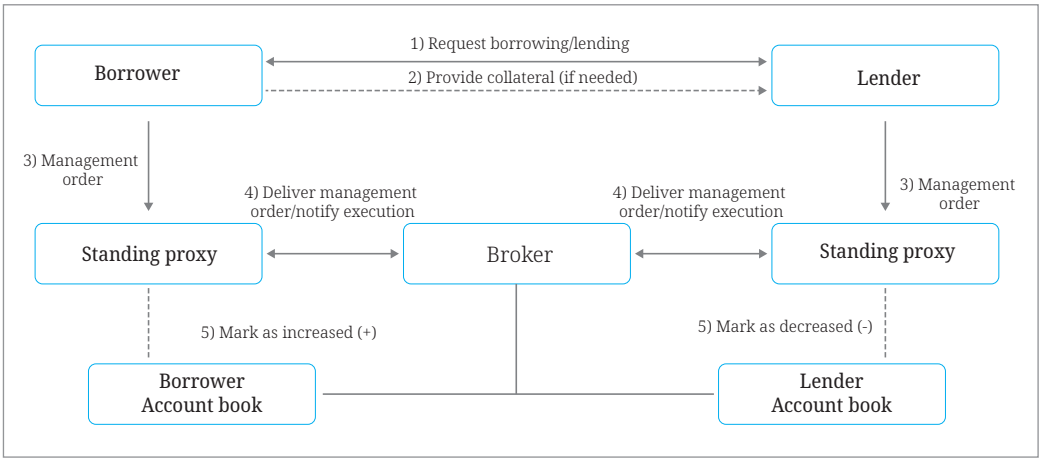
[Appendix Figure 3-2] Process of SLB Transaction



Source: KSD internal data.

When foreign investors acquire securities through an SLB or repo transaction, they should first register as a participant with KSD, which is the lending and borrowing broker. To register, a foreign investor should have its standing proxy apply for investment registration at the Financial Supervisory Service (FSS). Upon receiving a foreign investment registration certificate from the FSS, the investor should open an e-registration account by sending a request along with the certificates and apply for approval to take part in an SLB transaction. To process the transaction, the investor should issue an SLB transaction order and transfer the borrowed securities.

[Appendix Figure 3-3] Process of SLB Transaction for Foreign Investors



Source: KSD internal data.

On the Korean SLB market, brokers offer settlement, bidding, designated transactions, and custom trading services for a range of settlement methods. For all transactions other than custom trading, if the borrower fails to return the borrowed securities, KSD is liable for disposing of the collateral as the collateral taker and assuming the borrower's obligations. KSD does not provide a guarantee in custom trading because the lender is the collateral taker in such a transaction.

<Appendix Table 3-2> Types and Traits of SLB Transactions

<table>
<tr><th>Category</th><th>Settlement</th><th>Bidding</th><th>Designated</th><th>Custom</th><th>Collateralization</th></tr>
<tr><td rowspan="2">Purpose</td><td colspan="3">Generate add'l profits from securities</td><td rowspan="2">Provide collateral</td></tr>
<tr><td>Make up for deficiency</td><td colspan="2">Investment strategies</td></tr>
<tr><td>Eligible securities</td><td colspan="3">Listed bonds/stocks</td><td>Treasury bonds, MSB</td></tr>
<tr><td>Transaction period</td><td>Within 3 biz days</td><td colspan="3">Period agreed between parties (or time between maturity & 3 days before biz day)</td></tr>
<tr><td>Fee rate</td><td>Bidding</td><td>Bidding</td><td colspan="3">Negotiations</td></tr>
<tr><td>Collateral taker</td><td colspan="3">KSD (surrogate performance in case of borrower default)</td><td>Lender</td><td>Not applicable</td></tr>
<tr><td>Collateral pct.</td><td colspan="3">Stock lending & borrowing: 105% / bond lending & borrowing transactions: 102%</td><td>Negotiations</td><td>Not applicable</td></tr>
</table>

Source: KSD internal data.

3. Management of Loan Securities of SLB Transactions

SLB is classified as a loan for consumption under the Civil Act of Korea according to which the title to securities is transferred to the borrower. The borrower's loss is minimized by stipulating the borrower's obligation to hand over dividends and coupon payment, right issue, and stock dividends accrued during the SLB period to the lender in the SLB contract or regulation. This arrangement is called substitute payment, which is also recognized by tax laws.

The borrower deposits all coupon payments during the transaction period in KSD, which is the lending and borrowing broker. KSD delivers the bond interest to the lender after withholding the income tax. In principle, the borrower must pay the full amount of coupon payment to the lender as compensation, regardless of whether the borrower continued to hold the borrowed bonds. In other words, if the borrower continued to hold the bonds and paid the withholding taxes when receiving the coupon payment, the income tax is withheld again during the SLB process. To avoid this double taxation, the borrower might have KSD

pay the coupon directly to the lender by informing KSD whether the borrower holds the bonds using KSD's SLB system a day prior to coupon payment.

4. Collateral Management for SLB Transactions

As the creditor in settlement, bidding, and designated transactions, the lending and borrowing broker is responsible for upholding the obligations of the borrower by disposing of the latter's collateral in the event of default. As such, the broker acquires qualified collateral to secure the funds required to fulfill the obligations, applies the collateral and haircut ratios to manage the market risk of collateral, and conducts mark to market, margin call, collateral replacement, and return.

As a creditor, the lending and borrowing broker may choose to have the borrower provide the collateral (cash, electronically registered stocks, short-term bonds, foreign currency securities, and foreign currencies). The haircut ratio varies depending on security type to prevent risk from security price volatility. The collateral ratio is applied by the creditor to the amount secured by the collateral to prevent the risk of price volatility on the market. As a creditor in SLB transactions, KSD may apply a collateral ratio of 100%-130% depending on the market situation, and the lender in a custom transaction may agree on a collateral ratio (increment of 1%p) with the borrower. When KSD is a creditor, the collateral ratio for stock lending and borrowing is 105% and that for bond lending and borrowing 102%.

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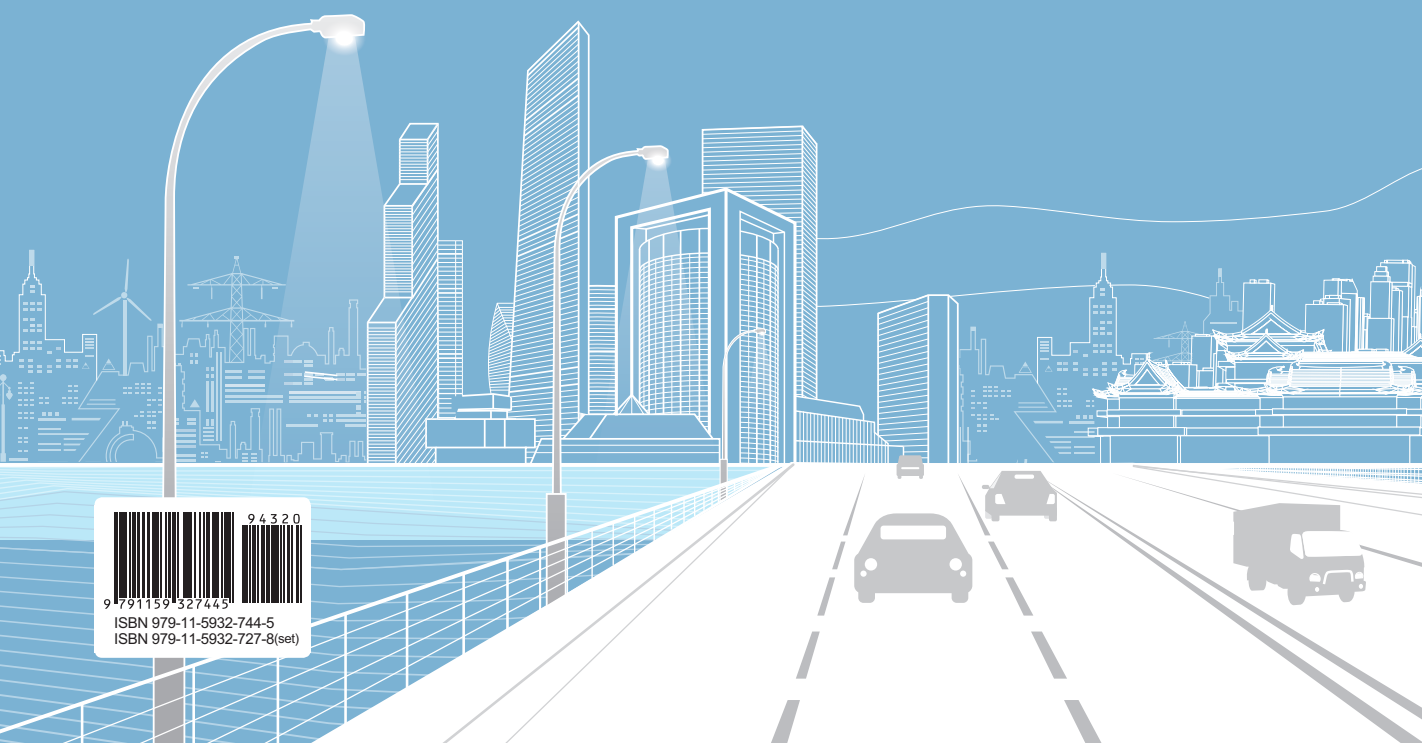

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