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2023 Korea Treasury Bonds

MINISTRY OF
ECONOMY AND FINANCE

Ministry of Economy
and Finance

Preface

In 2023, Korea faced significant challenges amidst heightened external uncertainties. Surge in interest rates by major economies in response to inflation, geopolitical tensions such as the Russia-Ukraine war and conflicts in the Middle East, expanded supply chain disruptions, and a significant slowdown in global trade as well as a sluggish IT industry, presented severe risks to the Korean economy, which is highly dependent on international trade. The Korean government, prioritizing stabilization of the people's livelihoods, has made all out efforts in collaboration with all economic stakeholders to successfully navigate through this complex crisis, setting its main policy direction towards swift economic recovery and realization of dynamic economic growth. Consequently, Korea was able to lead the flow of economic recovery, particularly focusing on on manufacturing and exports, while also maintaining robust employment and overall inflation control.

Throughout this process, the Korea Treasury Bond (KTB) market served as a strong support for the Korean economy, ensuring both of growth and stability. Firstly, the government successfully issued KRW 165.7 trillion worth of KTBs last year, which significantly contributed to the stabilization of the financial market and supported national finances. Its continuous institutional improvements strengthened capacity of Primary Dealers (PDs) to underwrite KTBs, while flexible adjustment of issuance volumes by period and maturity according to market conditions enabled fund-raising at lower interest rates than the market rates.

Furthermore, to broaden the base for government bond investment, the government enhanced and supplemented the systems for foreigners investors in Korean government bonds. Starting from January 2023, non-taxation of capital gains and interest income derived from foreign investment in Korean government bonds was implemented, and the Investor Registration Certificate (IRC) was abolished by the end of last year. Additionally, in the first half of 2024, the omnibus account for government bond investment is scheduled to be introduced to enhance convenience of foreign investors. Measures for the advancement of the foreign exchange market will also be implemented from July of this year.

In addition, to improve liquidity in the long-term bond market, 30-year KTB futures were listed in February, and starting from June of this year, the government plans to issue government bonds for retail investors, named Korea Savings Bonds (KSBs) to expand the demand base for government bonds and offer a more stable means of savings to the public.

Looking ahead to 2024, it will be a year of significant progress for the KTB market as our efforts for institutional improvement come to fruition. In particular, to ensure swift inclusion of the Korean government in the World Government Bond Index (WGBI), the most prestigious bond index, the government will continue to improve relevant systems, while concurrently endeavoring to invigorate the KTB market by increasing liquidity. The successful inclusion in the WGBI is expected to attract substantial amount of global investment funds into the KTB market, leading to lower government bond yields and an increase in consumption and investment, thereby reducing financing costs for households, businesses, and the government.

In the medium to long term, we will ensure safe settlement of a sound fiscal policy to maintain stability in the KTB market and realize a dynamic economy to bolster growth momentum. Furthermore, we will brace up ourselves by proactively respond to issues such as low birth rates and aging populations, which could pose threats to national finances and the economy in the future. Through these efforts, the government will strive to ensure that the KTB market serves as a major pillar in supporting and expanding the macroeconomic policy capacity of the Korean economy.

“Korea Treasury Bonds 2023”, the eleventh publication since 2013, elucidates these details in a clear and comprehensible manner. I hope that “Korea Treasury Bonds 2023” will deepen public understanding of government bonds, and that such understanding and interest will nourish the decent growth of our government bond market.

April 2024
Deputy Prime Minister and Minister of Economy and Finance
Choi Sang-mok

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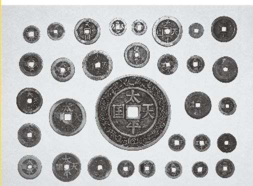


part 01

Introduction

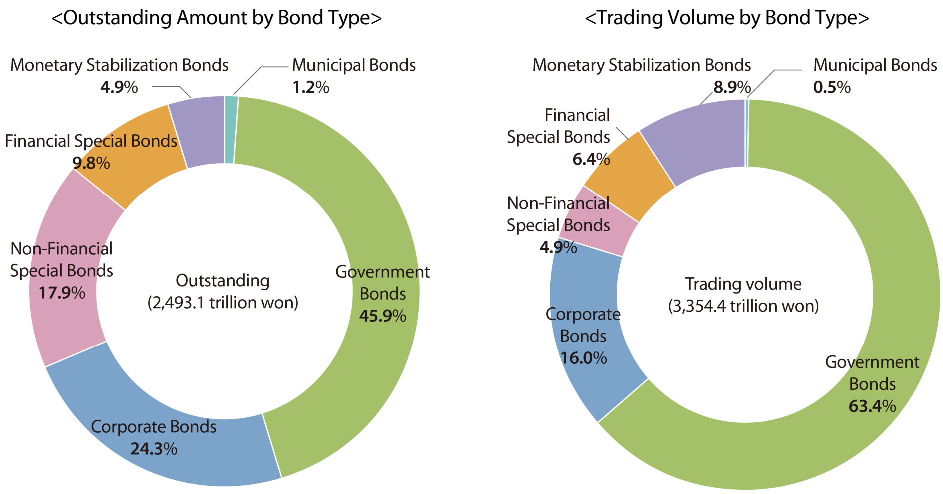
Part 01

01 Overview[1)]

The Korean government issued its first sovereign bond in 1950, and the country's public debt market continued to develop significantly. In particular, from 2000 and afterwards, various policies and systems have been put into place for successful issuance of sovereign bonds and development of the secondary market. The public debt market now plays a vital role in the domestic bond market.

As of December of 2023, four types of government bonds are issued: Korea Treasury Bonds (KTBs), Treasury Bills (T-bills), National Housing Bonds (NHBs) Type 1, and Foreign Exchange Stabilization Fund Bonds (FX SFBs). Among them, KTBs are the key means to finance public expenditures, and are served as a benchmark in the Korean debt market.

[Figure 1-1] Outstanding Amount and Trading Volume of Domestic Bonds



* Source: KRX (Listed bonds outstanding as of late December 2023, Trading volume as of 2023)

** The share of KTB to the total outstanding amount of gov't bond : 40.7%, The share of KTBs to the total trading volume of government bond: 55.2%

1) Author: Jongwoon, Park. Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

KTBs are currently issued as fixed-rate bonds with 2, 3, 5, 10, 20, 30 and 50-year maturities and as inflation-linked bonds (KTBis) - designed to eliminate inflation risks - with a 10-year maturity. After the government announced its introduction in 2020, KTBs with 2-year maturity began to be issued in February 2021 to overcome the lack of short-term maturities. Most KTB issues are sold to primary dealers (PDs) through competitive auction, and some are issued through other methods such as non-competitive bid options and conversion offers. In efforts to issue KTBs in an efficient and stable manner, the government announces issuance plans in advance and communicates with market participants to reflect their opinions in related policies.

KTBs account for approximately 55% of the total bond trading in the secondary market and serve as a pricing benchmark. Trading of KTB-related instruments including KTB futures, Repo (Repurchase agreements), and ETF (Exchange-Traded Funds) has also become active, having a positive impact on the market supply and demand as well as the efficiency of the market.

02 Legal Basis[2)]

To maintain the country's fiscal soundness, the Korean government issues government bonds under clear legal guidelines such as the Constitution, National Finance Act, and State Bond Act. Article 58 of the Constitution of the Republic of Korea declares the basis principle concerning the issuance of sovereign bonds: "when the Executive plans to issue sovereign bonds or to conclude contracts which may incur financial obligations on the State outside the budget, it shall have the prior concurrence of the National Assembly." In addition, Article 18 of the National Finance Act states that "the financial resources for State expenditure shall be the revenues other than the State bonds or loan funds borrowed; Provided, That funds raised through State bonds and loan funds borrowed may, if unavoidable, be appropriated to expenditure within the scope of the amount approved by a resolution of the National Assembly." In the same Act, Article 20 stipulates that "where necessary to substitute existing State Bonds with new State bonds, the government may issue State Bonds in excess of the

2) Author: Jongwoon, Park. Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

ceilings; in such cases, the government shall report the fact to the National Assembly in advance."

The State Bond Act[3], the general law on the issuance and redemption of government bonds, sets forth basic matters concerning state bonds. Public debt issuance strictly requires a legal basis as Article 3 of the State Bond Act states that they can only be issued by the Minister of Economy and Finance at the expense of the public capital management fund, except as otherwise expressed in any other acts.

Details on the auction method, primary dealers, buy-backs, conversion offers, and the other components are specified in "Regulations for KTB Issuance and PD system Management" (under the Ministry of Economy and Finance, MOEF). And, the Bank of Korea (BOK) also has "Guidelines for Government Bond-related Tasks" regarding the issuance and redemption of government bonds.

03 Market Development[4]

(1) Before the 1997 Asian Financial Crisis

A. Early Stage of the Korean Government Bond Market

The Korean government issued its first sovereign bond, the Nation-Founding government bond, in February 1950. The Korea Stock Exchange (KSE) was established in March 1956 to ensure fair price formation and smooth trading of securities, leading the public debt market to take a proper form of a standardized and organized market.

In 1976, the Securities Exchange Act was revised to allow OTC trading of government bond. From the 1980s, the greater number of bond products and market participants shifted bond trade from Securities Exchange to the OTC market. Further measures by the government

3) The Korean government pushed forward the extensive revision of the State Bond Act in 1979, 1993 and 2014 after its enactment in 1949.

4) Author: Jongwoon, Park. Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

paved the way for the development of the secondary market, such as allowing OTC trading of all bonds since 1984 and setting forth "Regulations on OTC trading of bonds" to institutionalize the respective market.

B. Early Challenges in the Korean Government Bond Market

By 1994, Korea's public debt market had both the Exchange and OTC market in place along with necessary policies. However, their functions were limited due to the lack of issuance volume.

The Korean government issued bonds at yields lower than the rate in the secondary market, and required financial institutions such as banks and insurance companies to underwrite them with given quotas. Since the syndicate had committed to underwrite the full issue, the syndicate participants sometimes had to hold the bonds to maturity or sell-off in the secondary market at higher yields. This practice of mandatory underwriting hindered bonds from being fairly priced in the market and led to the decline of bond trading volume. Also, a myriad of separate accounts and funds issued too many different types of bonds, which led to the dispersion of demand for government bonds and low market liquidity. As a result, 3-year bank-guaranteed corporate bonds, which were more liquid than government bonds, served as the benchmark in the bond market.

C. Efforts to Develop the Government Bond Market

In efforts to resolve the aforementioned issues, the Korean government wholly revised the State Bond Act in late 1993 so that the myriad bonds were consolidated into one. All clauses that provided the legal basis for issuing public debt in separate acts were deleted and the Public Debt Management Fund was established to consolidate government bond issuance. As a result, the Farm Land bond, Agricultural Development Fund bond, and Railroad bond, and so forth were consolidated into the Public Debt Management Fund bond in 1994.

To improve the practice of mandatory underwriting, a syndicate of about 100 financial institutions including banks, securities companies, and investment firms was formed in 1994, and bonds were issued through competitive bidding within the syndicate. However, genuine competition was still impeded as the range of rates were predetermined by the government and dealers were required to underwrite the full amount in case of failed bids. In addition, the registration issuance system in which the rights of bondholders were electronically registered without having to issue physical securities was put into practice.

As such, the Korean government bond market gradually took on the shape of an institutionalized market before the 1997 Asian financial crisis, but sovereign bonds were yet to play a significant role in the financial market. As of late 1996, government bonds accounted for only 14.5% of all bonds outstanding and 4.7% of the total trading volume. As the result, the country's bond market was dominated by corporate bonds which accounted for about 42% of the total bonds outstanding.

(2) After the 1997 Asian Financial Crisis (1998 to 2008)

A. Fostering Government Bond Market to Overcome the Crisis

It was during the onset of the Asian Financial Crisis in 1997 when the bond market arrived at a critical juncture. The number of bankruptcies increased during the financial crisis, which subsequently increased non-performing loans of financial institutions. As financial institutions could no longer provide a financial guarantee of their corporate bonds, the volume of the bonds gradually dropped in the bond market.

In overcoming the crisis, the government expanded the KTB issuance volume from KRW 2.1 trillion in 1997 to KRW 12.5 trillion in 1997 and put great efforts in nurturing the public debt market, which implemented the PD system in 1999 for reduced burden on the market amid the rapid increase in the volume of the issuance.

In September 1998, Public Debt Management Fund bonds officially began to be called KTBs, and various government bonds like Grain Management Fund bond and Foreign Exchange Stabilization bond were consolidated into KTBs in a phased-in manner. In January 1999, KTBs were issued on a regular basis, and in March 1999, KRX KTB (KRX trading system for Korea Treasury Bonds), the secondary market exclusive for government bonds, was established at the Korea Exchange (KRX). And, in July 1999, the PD system for KTBs was introduced. Since then, KTBs were efficiently absorbed through competitive bidding, with substantially improved liquidity and efficiency.

In addition, Korea announced the government's plans to advance its bond market structure and improve the systems of the public debt market. To increase liquidity, a fungible issuance system was introduced in May 2000. And, 10-year KTBs began to be issued in October of the same year to lengthen maturities. To meet the various kinds of demands for KTBs and lay the groundwork for development of the financial market, policies regarding sovereign bonds were introduced in a consecutive manner. In January 2006, 20-year KTBs began to be issued and in March 2006, STRIPS was introduced. In addition, inflation-linked KTBs (KTBis) began to be issued in March 2007 to provide a hedge against inflation.

B. Attracting Foreign Investment

Measures to open Korea's capital market to global investors were also put into practice. Most significant ones were the elimination of the ceilings for foreign investment in listed bonds and the allowance of foreign investment in all bonds since May 1998; which came after the past currency crisis takeaway: the need to ensure a sufficient amount of foreign reserve.

As foreigners were previously obliged to report to the BOK whenever they obtained loans exceeding KRW 10 billion, the amount was adjusted to KRW 30 billion in December 2007, mitigating the burden of reporting for foreigners wishing to invest in KTBs. The policy in which foreigners were allowed to purchase Korean won only after their purpose of purchase had been determined was relaxed as well in December 2007 so that they could convert to Korean won anytime, which enabled them to respond to foreign exchange risks in a more flexible manner.

C. The KTB Market after the Asian Financial Crisis

After the Asian financial crisis, the share of KTBs in all bonds outstanding increased from 5.6% in 1998 to 27.7% in 2008 and their share in the trading volume also jumped from 3.9% in 1997 to 51.8% in 2008, making KTBs lead the domestic bond market. Accordingly, a benchmark role of 3-year corporate bonds guaranteed by banks was replaced by 3-year KTBs. And in 2004, 5-year KTBs took over the benchmark role. It was clear that the Asian financial crisis served a significant part in bringing the KTBs to the centre of Korea's bond market.

(3) After the Global Financial Crisis (2009-2019)

A. Measures to Stabilize the Government Bond Market

In overcoming the global financial crisis in late 2008, Korea's public debt issuance also swelled to KRW 85 trillion in 2009, up 63% from KRW 52.1 trillion in 2008.[5)] And, the Korean government devised "Measures for Efficient KTB Issuance" in March 2009 and focused on efficiently raising funds from the capital market.

In June 2009, the government adopted the Differential Pricing Auction to ensure efficient sales of KTBs, and, in May of the same year, implemented conversion offers to enhance liquidity. It also expanded the incentives for primary dealers to support stable absorption of the supply volumes and promote the secondary market.

In 2013 and 2015, the government implemented market stabilization measures to preemptively respond to the need to issuance following supplementary budgets, and the potential demand gap due to changes in global economic conditions.

B. Introduction of the Korean-Style Auction Method

The Differential Pricing Auction was introduced in September 2009, which combined a Dutch auction[6)] and conventional auction).[7)]In the Differential Pricing Auction, bid rates were aligned in ascending order and divided into groups at an interval of 5 basis points[8)], and all successful bidders were awarded the highest winning rate within that group. The bid-to-cover ratio for KTBs, which was around 100% in early 2009, has risen to a high level of around 300% since the introduction of the Differential Pricing Auction. However, as interest rate volatility has increased significantly since the COVID-19 crisis, it has temporarily shifted to a Dutch auction method since March 2021 to reduce risks for underwriters.

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5) Sovereign debt issuance increased sharply around the world – major countries' markets including the U.S., Europe, and Japan issued roughly 3.9 trillion dollars combined in 2009, an 86% surge from the previous year. In response to this, central banks in the U.S., UK, Japan, and others directly purchased their country's government securities as part of their Quantitative-Easing (QE) measures.

6) The highest (or lowest) yield (or price) suggested by bid winners uniformly applied to all of the winners. The method used to be operated from August 2000 until August 2009, and was reintroduced in March 2021.

7) The bidder with the lowest yield was to win first, followed by the bidder with the second highest yield and so on. The total amount of the winning bids became the issue amount, and each successful bidder received the yield they offered through their bids. The method used to be operated at the early stage of PD system (July 1999 to July 2000).

8) The winning range is 5bp for 3-year to 30-year KTBs.

C. Increase in Average Time to Maturity

To reduce refinancing risks and spread out repayment burdens, the Korean government introduced 20-year KTBs in January 2006, and 30-year KTBs in September 2012. A 50-year KTB was also successfully launched in October 2016. In addition, the Korean government has steadily increased the share of long-term bonds[9]to meet the growing demand for the bonds and to finance mid- and long-term state funds in a stable manner, while the fungible issue period was set for one year for 20-year and 30-year KTBs to increase the liquidity of long-term KTBs.[10]

<Table 1-1> Average Time to Maturity of KTBs (as of the end of year)

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Average Time-to-Maturity (year)	6.50	7.11	7.62	8.30	9.06	10.03	10.64	11.31	11.67	12.00	12.64

D. Qualitative and Quantitative Growth of Foreign Investment

Foreign holdings of KTBs, which were only KRW 4.2 trillion (2.0% of listed amount outstanding of government bonds) in 2006, substantially increased, reaching KRW 56.9 trillion (15.7%) in 2012. Government securities became more marketable following the development of the bond market infrastructure, and investors expanded their investments to profit from rate differences in and abroad.

Since 2010, KTB's status as a safe-heaven asset continued to strengthen due to factors such as rich global liquidity, Korea's sound fiscal position, high national credit rating, and relatively higher interest rates compared to other developed markets. Accordingly, foreign investment remained stable, and the composition of the foreign investors diversified with the number of investing countries up from 19 in 2006 to 47 in 2019. In addition, since August 2017, global asset managers, central banks, and international organizations − long-term investors have accounted for more than 70%, which is indicative of the improvement in the quality side of the KTB investment.

9) Yearly issuance share of super-long KTBs (+20-year): ('13)20.1 → ('14)21.6 → ('15)21.1 → ('16)25.3 → ('17)30.1 → ('18)35.4 → ('19)35.9 →→ ('20) 34.1 → ('21) 34.5 → ('22) 36.5 → ('23) 37.6

10) As issuance of 30-year KTBs has increased, the fungible issue period for 30-year KTBs has been shortened from 18 months to 6 months from July 2022 to spread maturities

For timely response to the possibility of heightened market volatility due to frequent foreign capital movements, the Korean government established Foreign Investment Management System (FIMS) to more efficiently monitor and manage trends in foreign ownership.

(4) After the COVID-19 (Present -)

In responding to the COVID-19 pandemic that hit the world, the Korean government significantly increased its Treasury bonds issuance from KRW 101.7 trillion in 2019 to KRW 174.5 trillion in 2020. The issuance has been maintained above 150 trillion won since then. Considering the relevant situations, including demand for redemption at maturity following the recent increase in issuance, KTB issuance is expected to remain high for a while. In response, the government is making constant efforts to ensure smooth issuance of government bonds, while preparing to take a leap toward an advanced government bond market by 2023 by identifying and promoting key issues for the development of the government bond market, such as enhancing market access for foreign investors, launching government bonds for individual investment, and advancing the government bond market infrastructure.

<Table 1-2> History of Bond Market Since the 1997 Asian Financial Crisis

Date	Events
Sept. 1998	First electronic auction for government bonds through BOK-Wire
Jan. 1999	Regularized KTB issuance
Mar. 1999	Established KRX Trading System for government securities (KRX KTB)
Apr. 1999	Established CD-rate futures market
Jul. 1999	Introduced primary dealers (PDs) system
Sept. 1999	Established 3-year KTB futures market
Jan. 2000	Consolidated Grain Management Fund bond into KTB
May. 2000	Introduced fungible issuance system for KTBs
Jul. 2000	Implemented mark-to-market evaluation method
Aug. 2000	Changed auction method for KTBs from Conventional auction to Dutch auction
Oct. 2000	Issued 10-year KTB
Dec. 2000	Introduced buy-back system

Date	Events
Feb. 2002	Established Repo market at Korea Exchange(KRX)
May. 2002	Established Treasury bond futures option market
Oct. 2002	Implemented mandatory trading of benchmark government bonds at KRX and allowed consignment trading
Dec. 2002	Established MSB (Monetary Stabilization Bonds) futures market
Mar. 2003	Lengthened fungible issue period of KTBs from three to six months
Aug. 2003	Established 5-year KTB futures market
May. 2004	Announced measures to promote long-term KTBs (Benchmark bond: 3 year → 5 year)
Jun. 2004	Established the Regulations on KTB issuance and PD operation
Jan. 2006	Issued 20-year KTB
Mar. 2006	Introduced STRIPS
Mar. 2006	Lowered bid unit (KRW 10 billion → KRW 1 billion)
May 2006	Announced KRX bond index and KTB prime index
Sept. 2006	Introduced non-competitive bid option II
Nov. 2006	Lowered trading unit of KTBs (KRW 10 billion → KRW 1 billion)
Mar. 2007	Issued KTBi
Aug. 2007	Established a retail bond market
Dec. 2007	Delisted KTB futures options (3-year) and CD-rate futures
Feb. 2008	Established 10-year KTB futures market
May. 2009	Introduced tax-free for earnings from interest income and capital gains for foreign investors
May. 2009	Implemented conversion offers
Jul. 2009	Listed KTB ETF
Jan. 2010	Revised bid-ask price system
Jun. 2010	Reissued KTBi with a new issue method
Jan. 2011	Established a website for government bond market (http://ktb.moef.go.kr/eng/main.do)
Mar. 2011	Improved PD system (and introduced preliminary PDs)
Mar. 2012	Implemented PD/PPD promotion & demotion system
Apr. 2012	Lowered bid unit for retail investors (KRW 1 million → KRW 100,000)
Apr. 2012	Included retail investors in KTBi auction
Sept. 2012	Introduced 30-year KTB

Date	Events
Jan. 2013	Announced measures to extend a maturity of the benchmark bond (5 year → 10 year)
Jun. 2013	Revised interest rate system (two decimal places → three decimal places, coupon rates in unit of 12.5bp)
Dec. 2014	Revised State Bond Act (including electronic and fungible issuance and buy-backs, took effect in July 2015)
Jan. 2015	Shortened fungible issuance period of 20 and 30-year KTB (2 year → 1 year)
Jul. 2015	Implemented the revised State Bond Act (revised on December 30, 2014)
Oct. 2015	Launched "KTB Information System" and held a forum for experts
Dec. 2015	Established When-issued market and introduced PDs for STRIPS
Mar. 2016	Implemented policies for PDs specializing in STRIPS
Oct. 2016	Issued 50-year KTB
May. 2018	Implemented KTBi pre-issuance
Dec. 2018	Announced the plan for regular issuance of 50Y KTB (bi-monthly issuance from February 2019)
Dec. 2019	Hosted the 1st Debt Management Strategy Committee
Oct. 2020	Announced the measures to enhance the capacity of the Treasury bond market
Jan. 2021	Launched the KTB Research Advisory Panel
Feb. 2021	Issued 2-year KTB
Sept. 2022	Added to the Watch List of the World Government Bond Index (WGBI)
Dec. 2022	Released the 'Mid- to Long-term Road Map for the Advancement of the KTB Market'
Dec. 2022	Revised the tax law to exempt taxes for foreign investment in government bonds
Mar. 2023	Revised the State Bond Act for the introduction of the Korea Savings Bonds (KSB)
Dec. 2023	Announced four major tasks to advance the KTB market
Dec. 2023	Abolished Investor Registration Certificate (IRC)

04 Types of Government Bonds[11)]

(1) Types of Government Bonds

The Korean government issued its first debt security − the National Foundation Bond − in 1950 to cover shortfalls in revenue and finance the national budget. While 21 different types of government bonds have been issued since then, the government currently issues four types: Korea Treasury Bonds (KTBs), Treasury Bills (T-bills), Foreign Exchange Stabilization Fund Bonds (FX SFBs), and National Housing Bonds (NHBs) Type 1.

Korea Treasury Bonds (KTBs), which were originally called “Public Debt Management Fund Bonds,” changed to their current name in September 1998 and have been issued regularly since then. Currently playing a representative role in the domestic bond market, they provide benchmark rates for the Korean capital market.

Treasury bills (T-bills), which are used to cover temporary shortfalls in budget, are currently issued as discount bonds with maturities of less than one year.

Foreign Exchange Stabilization Fund Bonds (FX SFBs) are foreign currency denominated state bonds issued to provide base rates for Korean bonds in the international financial market and promote the Korean economy abroad. As of present, all FX SFBs have been issued in overseas bond markets.

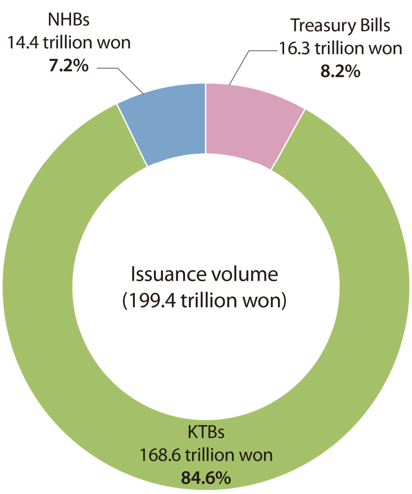
National Housing Bonds (NHBs) are bonds issued to raise funds for the construction of residential houses pursuant to the National Housing Act. Unlike other government bonds, NHBs are issued on the basis of mandatory placement. Although they were issued as either Type 1, 2, or 3 depending on the obligations or grounds for acquisitions, only Type 1 is currently being issued.

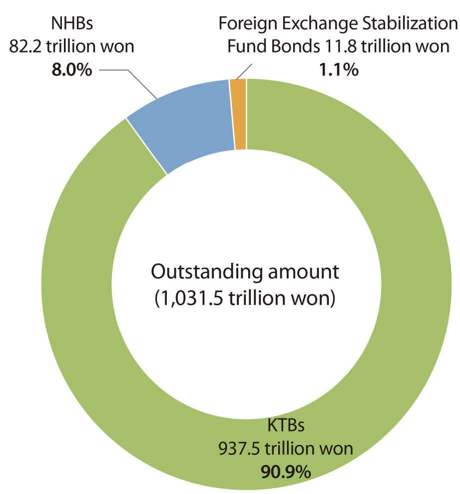
11) Author: Jongwoon, Park. Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

<Table 1-3> Types of Government Bonds

	Purpose of Issuance	Issuance Method	Maturity	Coupon rate
KTB	To finance the government	Competitive auction	2, 3, 5, 10, 20, 30 and 50-year	Set at auction
Treasury Bill	To cover temporary shortfalls in budget	Competitive auction	Within one year	0%
Foreign Exchange Stabilization Fund Bonds	To create a favorable environment for the private sector to issue foreign currency bonds	Competitive auction	Set at issue	Set at issue
NHB-Type 1	To raise funds for housing projects	Mandatory placement	5-year	1.30%

[Figure 1-2] Issuance Volume and Outstanding by Type (as of the end of the 2022)

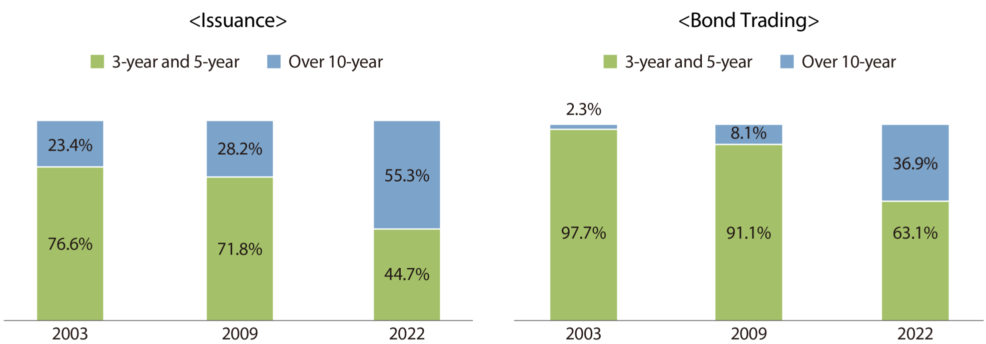




(2) Types of KTBs

KTBs are classified into conventional KTBs, which pay a fixed coupon rate based on a fixed principal amount, and inflation-linked KTBs or KTBis that pays the principal and coupons based on the changes in inflation over time. Conventional KTBs are regularly issued with six different maturities: 2, 3, 5, 10, 20, 30 and 50 years. 2-year KTBs are issued every three months, while 3- and 5-year KTBs, 10-year benchmark KTBs[12)], and 30-year KTBs are newly issued every six months. 20-year KTBs are newly issued on an annual basis.

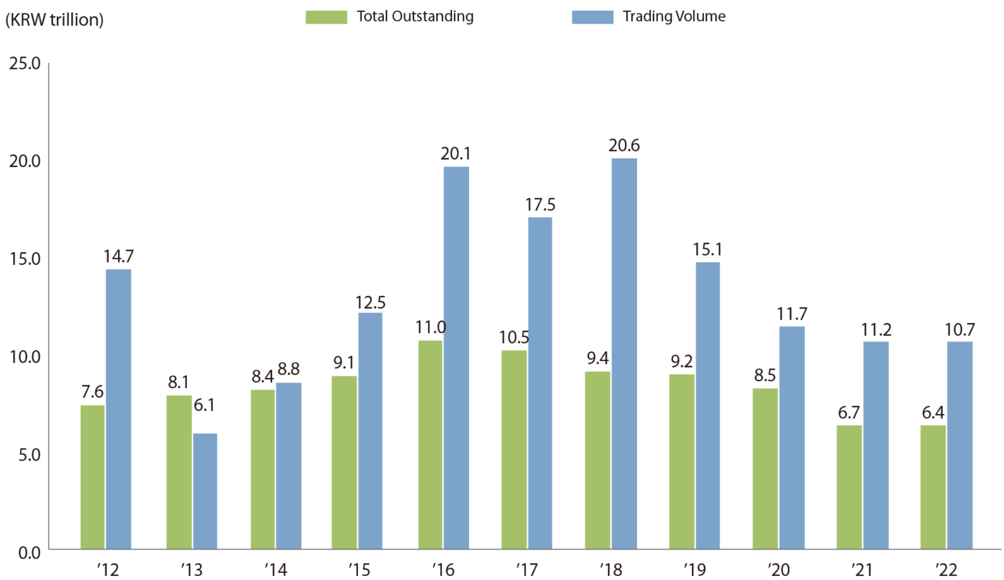
[Figure 1-3] Issuance Share and Trading Volume by Bond Maturities



Inflation-linked KTBs (KTBis) are securities that guarantee the purchasing power of investments, as KTBis pay the principal and coupons based on the changes in inflation, which hedges against inflation risk. KTBis began to be issued in March 2007 using an underwriting syndicate to expand the government bond investment base and set the stage for further development of the public debt market. However, KTBis were temporarily suspended in August 2008 due to lower investment demand, and then the bonds were reissued through a non-competitive bid in June 2010. Starting this year, the government converted to a competitive auction to invigorate the KTBi market in an efforts to revitalize KTBis.

12) Changes in a maturity of the benchmark bond: 3-year KTB → 5-year KTB (May 2004) → 10-year KTB (January 2013)

[Figure 1-4] KTBi Outstanding and Trading Volume



05 Government Bond Investors[13)]

(1) Overview

Investors in the government bond market are classified into domestic or foreign investors by nationality, and financial institutions (ie. banks, insurance companies, and pension funds) or non-financial institutions (ex. non-financial companies and retail investors) by investment institution type. Among the main investors, banks traditionally take up the largest share in KTB holdings. Institutional investors are key investors, meaning that the share of retail investors is fairly low.

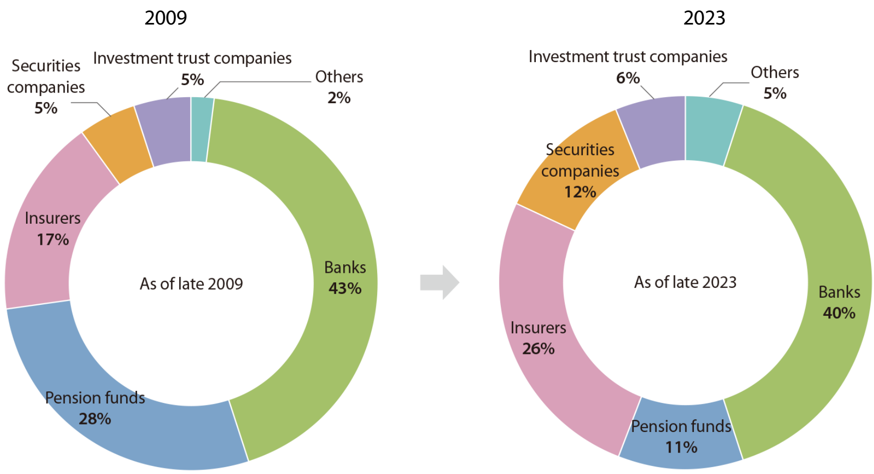
<Table 1-4> Major Investors in KTBs

(Unit: KRW trillion)

Classification	Banks	Insurers	Pension funds	Securities companies	Investment trust companies	Others	Total
Holdings	423.4	113.9	277.3	123.6	63.3	56.0	1,057.5

* As of the end of 2023, Korea Securities Depository (STRIPS KTBs excluded)

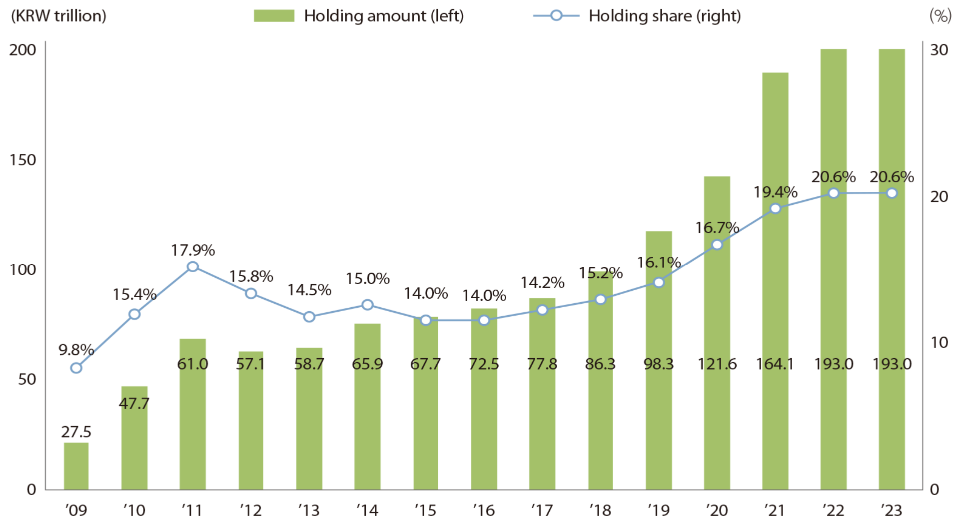
[Figure 1-5] KTB Holdings



13) Author: Jongwoon, Park. Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

Meanwhile, foreign investment has been steadily increasing since the full opening of the bond market at the time of the 1997 Asian financial crisis. KTB holdings by foreign investors recorded KRW 219.5 trillion as of the end of 2023, equivalent to 22.0% of the total outstanding.

[Figure 1-6] KTB Holdings by Foreign Investors



(2) Investor Diversification

The Korean government bond market traditionally depended on domestic investors and banks, but other investors − namely foreign investors and non-bank financial institutions − are gaining importance as well. Investors with different time horizons, risk preferences, and trading objectives can disperse systemic risks and mitigate market volatility.

To keep up with the demand from long-term investors, including pension funds and insurance companies, the government has strengthened the market-making role of Primary Dealers (PDs) for 10-year or longer KTBs. At the same time, efforts are being made continuously to promote the long-term sovereign debt market. As part of these efforts, the government has regularly issued 30-year and ultra-long 50-year KTBs on a monthly basis and a bimonthly basis, respectively.

The Relationship between Bond Price and Yield

A bond price equals the present value of its expected future cash flows. The rate of interest used to discount the bond's cash flow is known as the Yield to Maturity (YTM).

The yield is usually expressed as a cost yield, current market value, or running yield.

A coupon-bearing bond may be priced with the following formula:

$$P = \frac{a}{(1+r/2)^1} + \frac{a}{(1+r/2)^2} + \cdots + \frac{a}{(1+r/2)^6} + \frac{A}{(1+r/2)^6}$$

a : Periodic (six months) coupon payment (ex. 3-year maturity)
r : YTM (one year)
A : Bond's par or face value

Bond prices and yields act like a seesaw. The formula show the following relationship:

Bond Values and the Passage of Time[14)]

		YTM and Bond price(P)		
		9%	10%	11%
Maturity	1Y	KRW 9,906 (0.94%)	← KRW 9,814 →	KRW 9,723 (-0.93%)
	2Y	KRW 9,821 (1.82%)	← KRW 9,645 →	KRW 9,474 (-1.77%)
	3Y	KRW 9,742 (2.63%)	← KRW 9,492 →	KRW 9,251 (-2.54%)

14) Coupon rate: 8%, par value: KRW 10,000, periodic interest payment every six months, (change)

part 02

2023 KTB Market

1. Global and Domestic Economic Environment
2. 2023 KTB Market Review (Annual / Monthly)
3. Major Policies
4. Foreign Investment Trends

01 Global and Domestic Economic Environment[15)]

In 2023, both domestic and global economies were challenged by global financial instability and a contraction in global trade amid persistent high inflation and interest rates across the globe.

Easing of price pressures on the supply side led to slowdown in global inflation, but robust demand in the service sector kept it at elevated level. Consequently, major economies such as the U.S. (2.5% to 2.1%) and Germany (1.8% to −0.3%) underwent declines in economic growth rate compared to 2022, as prolonged high interest rates of major central banks continue, with the Federal Reserves (Fed) raising its policy rate by 100 basis points over the year.

On the other hand, the domestic economy of Korea showed a gradual recovery in the latter half of the year. In response to the multifaceted global crisis, including high inflation and high interest rates, the Korean government promoted comprehensive measures to stabilize the livelihoods of the public, such as reducing gasoline taxes and quota tariffs and managing food supply and demand. Providing support for companies' exports and investments through the largest amount of trade finance (KRW 345 trillion) in history and introducing the K-chips law were also conducted by the government. As a result, inflation stabilized downward, with the annual consumer price inflation rate falling from 5.1% in 2022 to 3.6% in 2023, and the economy shifted to a recovery phase mainly with export. Based on such achievements, Korea was ranked second among 35 OECD member countries in a comprehensive evaluation of economic performance, including inflation and economic growth, conducted by The Economist in December 2023.

<Table 2-1> Key Indicators for the Real Economy

(Unit: %, YoY)

	2021	2022	2023				
			Annual	Q1	Q2	Q3	Q4
Real GDP	4.3	2.6	1.4	0.9	0.9	1.4	2.2
Private consumption	3.6	4.1	0.9	4.6	1.6	0.2	1.0
Facility investment	9.3	△0.9	0.0	5.9	4.7	△4.2	△3.8
Construction investment	△1.6	△2.8	0.2	1.9	1.7	3.8	△1.6
the total exports	11.1	3.4	△0.1	△2.0	0.3	3.1	9.8

15) Author: Jongwoon, Park. Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

02 2023 KTB Market Review (Annual / Monthly)[16)]

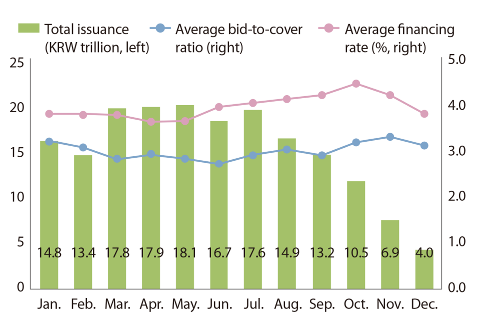
(1) Annual Review of the KTB Market in 2023

Amid high uncertainty at home an abroad, the KTB market played a significant role in 2023 by supporting the country's fiscal policy. Through policy improvements such as the extension of the non-competitive bid option (Ⅱ) for PDs (until Dec. 2023), the announcement of measures to promote competition among PDs, and the allocation of issuance volume by period and maturity taking into account market conditions, the government stably absorbed the issuance volume of KRW 165.7 trillion.

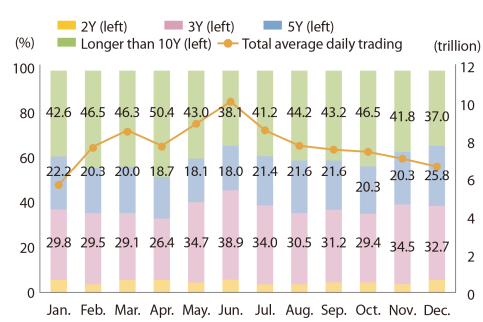
Despite global monetary policy uncertainties, the average daily trading volume of KTBs reached KRW 7.6 trillion, comparable to that of 2022 (KRW 7.6 trillion), thanks to liquidity enhancement efforts, including the regular conversion offers of KRW 300 billion per month and the extension of the fungible issuance period for 2-year KTBs (from 3 months to 6 months.)

As for foreign investment in KTBs, outstanding balance of foreign holdings (219.5 trillion won) exceeded KRW 200 trillion for the first time in history with continued net inflows (+26.5 trillion won) that are attributed to the government's efforts to improve the investment environment, such as the non-taxation for foreign investment in KTBs and the abolition of the Investment Registration Certificate (IRC). The share of foreign holdings also reached a record high of 22.0%.

[Figure 2-1] KTB Issuance in 2023



[Figure 2-2] KTB Trading in 2023



16) Author: Jongwoon, Park. Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

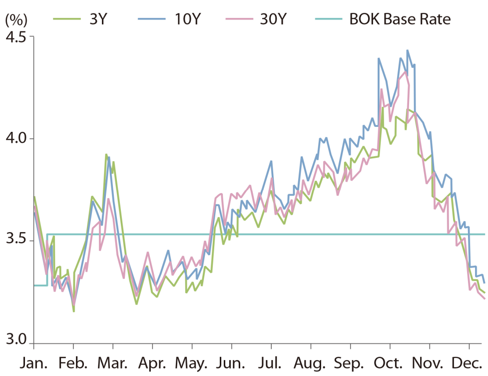
The KTB interest rates showed high volatility in 2023, coupled global interest rates.

KTB yields, which fluctuated in line with domestic and international economic data, saw significant decrease with the SVB crisis in March. However, they rebounded as major central banks further tightened their monetary policy stance, including the Fed's upward adjustment of the median dot plot from 5.1% to 5.6% at its June FOMC meeting and the ECB's policy rate hike by 25bps at its June meeting.

Subsequently, KTB yields rose as prolonged global monetary tightening persisted. The Bank of Japan (BOJ) decided to flexibilize its yield curve control (YCC) policy at its July meeting, and the Fed reduced its forecast of 2024 rate cut from 100 bps to 50 bps at the September FOMC meeting. In October, in particular, KTB yields reached their highest peak of the year (4.392% for the 10-year bond) under increased inflationary uncertainty caused by the conflict between Israel and Hamas.

However, since November, KTB yields dropped sharply with the US Treasury's announcement to adjust the pace of long-term Treasury issuance and the dovish interpretation of outcomes from the monetary policy meetings held by major central banks. Consequently, as of the end of 2023, the 3-year KTB yield closed at 3.154%, down by 56.8 bps from the end of 2022, while the 10-year yield ended the year at 3.183%, down by 54.7 bps.

[Figure 2-3] KTB Yields in 2023



[Figure 2-4] KTB Yields in 2023 by Maturity

(Unit: %)

(Unit: %)	Late '22	Late '23	YoY(bp)	Highest of the year	Lowest of the year
2Y KTB	3.803	3.262	△54.1	4.065	3.240
3Y	3.722	3.154	△56.8	4.108	3.110
5Y	3.743	3.156	△58.7	4.237	3.096
10Y	3.730	3.183	△54.7	4.392	3.148
20Y	3.684	3.111	△57.3	4.325	3.111
30Y	3.683	3.088	△59.5	4.307	3.088
50Y	3.687	3.060	△62.7	4.263	3.060

(2) Monthly Review of the KTB Market in 2023

A. First Half of 2023

In January, KTBs worth 14.757 trillion were issued, including KRW 300 billion for redemption (Conversion offer). KTB yields declined during the month due to expectations of measured monetary tightening at home and abroad. The Monetary Policy Board raised the key interest rate by 25 bps to 3.50% from 3.25%, but the outcome of the meeting was interpreted as somewhat moderate as two members asserted to freeze the rate, citing economic uncertainties. Global interest rates also fell with gradual slowdown of inflation rates in major economies such as the U.S. and Europe. Consequently, the 3-year yield fell by 39.71 bps at the end of the month, while the 10-year yield and 30-year yield fell by 43.3 bps and 37.6 bps, respectively.

In February, KTBs worth 13.043 trillion were issued, including KRW 300 billion for redemption (Conversion offer). KTB yields rose in February as U.S. consumer prices rose by 6.4% year-on-year and nonfarm payrolls increased to 51.7 million, both of which were higher than market expectations. Domestically, the Monetary Policy Board decided to keep the key interest rate unchanged (3.50%) at its February meeting for the first time since it started rate hikes in April 2022. However, five out of six members suggested that the Board should leave the door open for a 25bp hike, expressed caution over inflation uncertainty. As a result, the 3-year yield closed the month with 47.2 bps rise, while the 10-year yield increased by 45.6 bps, and the 30-year yield rose by 28.1 bps.

In March, KTBs worth 17.872 trillion were issued, including KRW 24.832 trillion for redemption (Redemption at maturities worth KRW 24.532 trillion and conversion offers worth KRW 300 billion). KTB yields sharply decline in March as concerns over global bank liquidity led to widespread expectations of a slower pace of interest rate hikes by major central banks and a preference for safe-haven assets. Silicon Valley Bank (SVB) declared bankruptcy due to surged deposit withdrawals by customers due to significant valuation losses on bonds, attributed to prolonged high interest rates. Credit Suisse (CS), which had been faced with financial deterioration, was acquired by UBS under the support of Swiss policy authorities due to liquidity issues that arose from investor anxiety. In response, global interest rates plummeted, and KTB yields followed suit. The 3-year yield closed the month down by 52.7 bps, while 41.3 bps and 24.8 bps decreased on the 10-year and 30-year bonds, respectively.

In April, KTBs worth 17.8703 trillion were issued, including KRW 300 billion for redemption (Conversion offer). In early April, KTB yields declined with rising expectations that rate hikes were likely over, as consumer price inflation of the U.S. and Korea dropped compared to the previous month. However, key Fed officials commented to continue monetary tightening and the market made hawkish interpretation of the press conference despite FOMC's rate hike (3.50%) decision during the April meeting, KTB yields showed moderate increase. As a result, the 3-year yield ended the month with 2.3 bps rise, the 10-year yield with up by 2.0 bps, and the 30-year yield up by 2.4 bps.

In May, KTBs worth 18.984 trillion were issued, including KRW 300 billion for redemption (Conversion offer). KTB yields rose in May as expectations of an early monetary policy shift weakened both at home and abroad. During the May FOMC meeting, the Fed decided to raised the policy rate by 25bps (upper limit adjusted from 5.00% to 5.25%). The Monetary Policy Board of Korea kept the key interest rate unchanged at 3.50%, but maintained a hawkish stance, with all members agreeing to leave open the possibility of a 25bp rate hike. Consequently, 3-year yield rose by 16.6 bps, 10-year yield by 17.2 bps, and 30-year yield by +23.4 basis points at the end of the month.

In June, KTBs worth KRW 16.698 trillion were issued, including KRW 21.7603 trillion for redemption was (Redemption maturities worth KRW 21.4603 trillion and conversion offers worth KRW 300 billion). KTB yields in June increased as major central banks adopted the tighter stance. The Fed froze the policy rate at the range of 5.00-5.25% through its June FOMC meeting, but signaled two more rate hikes this year, adjusting the median dot plot upward from 5.1% to 5.6%. The ECB emphasized its intention to continue rate hikes by raising its policy rate by 25 bps, indicating that it is highly likely to continue raising rates in July. As a result, 3-year yield closed the month with 20.3 bps rise, 10-year yields with 14.3 bps, and 30-year yields with 8.8 bps.

<Table 2-2> KTB Yields in the First Half of 2023

(Unit:%, bp)

		January	February	March	April	May	June
2-year	Yield (%)	3.450	3.899	3.341	3.364	3.573	3.737
	MOM (bp)	△35.3	+44.9	△55.8	+2.3	+20.9	+16.4
3-year	Yield (%)	3.325	3.797	3.270	3.293	3.459	3.662
	MOM (bp)	△39.7	+47.2	△52.7	+2.3	+16.6	+20.3
5-year	Yield (%)	3.299	3.829	3.274	3.292	3.450	3.663
	MOM (bp)	△44.4	+53.0	△55.5	+1.8	+15.8	+21.3
10-year	Yield (%)	3.297	3.753	3.340	3.360	3.532	3.675
	MOM (bp)	△43.3	+45.6	△41.3	+2.0	+17.2	+14.3
20-year	Yield (%)	3.318	3.637	3.372	3.369	3.604	3.691
	MOM (bp)	△36.6	+31.9	△26.5	△0.3	+23.5	+8.7
30-year	Yield (%)	3.307	3.588	3.340	3.364	3.598	3.686
	MOM (bp)	△37.6	+28.1	△24.8	+2.4	+23.4	+8.8

* As of the end of the month

B. Second Half of 2023

In July, KTBs worth KRW 17.068 trillion were issued, including KRW 2.3 trillion for redemption (Buybacks worth KRW 2 trillion and conversion offers worth KRW 300 billion). Early in July, KTB yields declined as inflation stabilized, with domestic consumer price inflation reaching 2% for the first time in 21 months (up by 2.7%). However, following the Fed's policy rate hike by 25 bps (from 5.25% to 5.50%) through the July FOMC meeting, and the BOJ's announcement of measures to flexibilize its yield curve control policy (YCC), KTB yields rebounded. Consequently, the 3-year yield rose by 1.9 bps, the 10-year yield by 8.6 bps, while the 30-year yield fell by 0.8 bps.

In August, KTBs worth KRW 14.887 trillion were issued, including KRW 3.3 trillion for redemption (Buybacks worth KRW 3 trillion and conversion offers worth KRW 300 billion). KTB yields rose until mid-August as the U.S. Treasury revealed a plan to borrow USD 1.7 trillion in the third quarter, significantly higher than the initial estimate ($733 billion), raising concerns over the supply and demand of U.S. Treasuries. However, the increase was eased to a certain extent, following the Monetary Policy Board's decision to freeze the benchmark rate (3.50%) and Fed Chairman Powell's comments at the Jackson Hole meeting that were in line with market expectations. At the end of the month, 3-year yield rose by 3.0 bps, 10-year yield by 6.0 bps, and 30-year yield by 5.3 bps.

In September, KTB worth KRW 13.209 trillion were issued, including KRW 24.740 trillion for redemption (Redemption at maturities worth KRW 20.774 trillion, buybacks worth KRW 3 trillion, and conversion offers worth KRW 300 billion). KTB yields increased during the month due to concerns over prolonged global monetary tightening. The Fed kept the policy rate unchanged at the 5.25-5.50% level through the September FOMC meeting, but maintained a hawkish stance by reducing the rate cut forecast for 2024 to 50 bps from 100 bps. With rebound of domestic consumer price inflation to 3.4% for the first time in 10 months, inflationary concerns were resurged. In response, the 3-year yield closed the month with 17.3 bps rise, while the 10-year yield rose by 20.9 bps and the 30-year yield by 16.5 bps.

In October, KTBs worth KRW 10.454 trillion were issued, including KRW 3.3 trillion for redemption (Buybacks worth KRW 3 trillion and conversion offers worth KRW 300 billion). KTB yields, which had surged in early October following strong U.S. employment data, declined as risk aversion grew stronger in the wake of the Israel-Hamas war. However, KTB yields rebounded after the U.S. consumer price inflation rate exceeded market expectations, and the Monetary Policy Board assessed the increased upside risks to inflation due to rising international oil prices and the Israel-Hamas war. At the end of the month, the 3-year yield rose by 20.1 bps, the 10-year yield by 29.5 bps, and the 30-year yield by 17.3 bps.

In November, KTBs worth KRW 6.893 trillion were issued, including KRW 2.3 trillion for redemption (Buybacks worth KRW 2 trillion and conversion offers worth KRW 300 billion). KTB yields plummeted during the month due to eased concerns over the supply of U.S. Treasuries and expectations of major central banks' ending of interest rate hikes. The U.S. Treasury stated that it would adjust the pace of long-term Treasury issuance, while the Fed released a statement based on the November FOMC meeting that financial conditions remain tight, alleviating the market's caution about monetary tightening. Domestically, the slowdown persisted as core consumer price inflation (+3.2%) fell by 0.1 bp month on month, leading to a decline of 50.2 bps in 3-year yield, 62.6 bps in 10-year yield, and 50.7 bps in 30-year yield at the end of the month.

In December, KTBs worth KRW 4 trillion were issued, including KRW 22.14 trillion for redemption (Redemption at maturities worth KRW 19.19 trillion, buybacks worth KRW 2.7 trillion, and conversion offers worth KRW 300 billion). While trading volumes were lowered amid wait-and-see mode at the end of the year, KTB yields fell as expectations of monetary policy changes in major economies spread. The Fed froze the policy rate at its December FOMC meeting, while adjusting the median dot plot for 2024 downward to 4.6% from 5.1%, signaling three rate cuts in 2024. The Bank of England (BOE) and the ECB also kept key interest rates unchanged at their December meetings, assessing the current level of benchmark rate as restrictive. At the end of the month, 3-year yield fell by 42.9 bps, 10-year yield by 51.6 bps, and 30-year yield by 47.4 bps.

<Table 2-3> KTB Yields in the Second Half of 2023

(Unit: %, bp)

		July	August	September	October	November	December
2-year	Yield (%)	3.714	3.722	3.880	4.001	3.617	3.262
	MOM (bp)	△2.3	+0.8	+15.8	+12.1	△38.4	△35.5
3-year	Yield (%)	3.681	3.711	3.884	4.085	3.583	3.154
	MOM (bp)	+1.9	+3.0	+17.3	+20.1	△50.2	△42.9
5-year	Yield (%)	3.697	3.750	3.942	4.203	3.621	3.156
	MOM (bp)	+3.4	+5.3	+19.2	+26.1	△58.2	△46.5
10-year	Yield (%)	3.761	3.821	4.030	4.325	3.699	3.183
	MOM (bp)	+8.6	+6.0	+20.9	+29.5	△62.6	△51.6
20-year	Yield (%)	3.690	3.772	3.946	4.135	3.589	3.111
	MOM (bp)	△0.1	+8.2	+17.4	+18.9	△54.6	△47.8
30-year	Yield (%)	3.678	3.731	3.896	4.069	3.562	3.088
	MOM (bp)	△0.8	+5.3	+16.5	+17.3	△50.7	△47.4

* As of the end of the month

03 Major Policies[17)]

(1) Effective Issuance of KTBs

In 2023, the Korean government issued KTBs worth KRW 165.7 trillion. It was a decrease of KRW 2.9 trillion compared to 2022 (KRW 168.6 trillion), but still higher than the pre-pandemic era (KRW 101.7 trillion in 2019). While net issuance that actually increases the balance of sovereign debt (KRW 61.5 trillion) was down by KRW 35.7 trillion year-on-year, while refinancing issuance due to maturities (KRW 104.2 trillion) was up by KRW 32.8 trillion year-on-year. The government made multi-pronged efforts to smooth out the still high level of KTB issuance.

<Table 2-4> KTB Issuance

(Unit: KRW trillion)

	2018	2019	2020	2021	2022	2023
Gross Issuance	97.4	101.7	174.5	180.5	168.6	165.7
Net Issuance	44.5	44.5	115.3	120.6	97.2	61.5
Redemption	72.7	57.2	59.2	59.9	71.4	104.2

A. Strategic Issuance Based on Market Demand

Considering the volatile environment of the KTB market, the government flexibly adjusted the issuance volume by period and maturity. Based on communication with market participants, the government regularly assessed the demand for each bond maturity as well as funding conditions of the market, actively applying them to the issuance plan. As the market become more volatile at the beginning of the year due to concerns over prolonged monetary tightening of major central banks, the Korean government reduced the KTB issuance volume compared to the previous year in the first quarter of 2023 (from KRW 53.3 trillion in the Q1 of ’22 to KRW 46.0 trillion in the Q1 of ’23). In the second half of the year, the KTB issuance was significantly reduced compared to the first half (KRW 98.7 trillion in the first half → KRW 67 trillion in the second half) as concerns over increase in U.S. Treasury bonds issuance led to a surge of interest rates.

17) Author: Jongwoon, Park. Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

B. Expanding Incentives for PDs

To stabilize KTB issuance by strengthening the base of PDs' underwriting capacity, the government extended the measure to increase the non-competitive bids option II by 5 percentage points (from 5-30% to 10-35% of the accepted amount) until December 2023. The government also implemented a non-competitive bids option (Ⅳ), which allows PDs to underwrite a certain amount of additional bonds at a fixed rate, to facilitate PDs' smooth underwriting of KTBs.

(2) Improving the Investment Environment and Expanding the Demand Base

A. Promoting Inclusion in the World Government Bond Index (WGBI)

The Korean government has designated and promoted inclusion in the World Government Bond Index (WGBI) as a national policy task to expand foreign investment in Korean government bonds. The WGBI, consisting government bonds of 24 major economies, is the world's largest bond index with an estimated USD 2.5 to 3.0 trillion of tracking funds. Based on its efforts for various institutional improvements, Korea was added to the WGBI Watch List, a list of candidate countries for WGBI inclusion, in September 2022, retaining its position on the Watch List in 2023.

Upon Korea's inclusion in the WGBI, approximately KRW 50 to 60 trillion of foreign funds are expected to be invested in line with the inflow of index-tracking funds (November 2020, Korea Institute of Finance). It is also anticipated that the inflow of funds is will stabilize the KTB market and reduce costs for government procurement.

B. Non-Taxation for Foreign Investment in Korean Government Bonds

The taxation of capital gains and interest income on foreign investment in Korean government bonds has persistently been pointed out an obstacle to vitalizing foreign investment. Aiming to create an investment environment in accord with global standards, the government added provisions on the "non-taxation for foreign investment in government bonds" to Korea's Tax Law Amendment Bill in July 2022. The Bill was ratified by the National Assembly in December of the same year, taking effect on January 1, 2023. Since its implementation, the government has made continuous efforts to improve the convenience of the system based on close communication with the market and investors.

C. ICSD-linked Omnibus Accounts for Korean Government Bonds

To make investment in Korean government bonds, foreigners are required to appoint an attorney-in-fact in Korea and open an account directly with a local custodian. To address this inconvenience, the government has promoted the opening of the omnibus account linked with the ICSD (International Securities Depository Organization) for Korean government bonds. In August 2023, the Korea Securities Depository signed agreements with Euroclear and Clearstream to operate the ICSD-linked omnibus account. The service is expected to officially open in June 2024 following system development and market participant testing. The introduction of the omnibus government bond account is expected to greatly enhance investment convenience as foreigners will be able to use their existing ICSD accounts without having to open additional local accounts.

D. Abolition of the Investment Registration Certificate (IRC)

The Investment Registration Certificate (IRC), which requires foreign investors to register their personal information with the Financial Supervisory Service before investing in Korean government bonds and other listed securities, had been pointed out as a barrier to foreign investment in Korea. In response, the government announced the plan to abolish the IRC in January 2023 as part of the "plan to improve accessibility to the onshore capital market for foreign investors." With the amendment of the Enforcement Decree of the Financial Investment Services and Capital Markets Act in June, the government scrapped the IRC from December 2023. With the abolition of the IRC, government bond investment procedures for foreigners are simplified, thereby incentives for foreign investors for Korean government bonds are anticipated to be further strengthened.

E. Advancement of the Foreign Exchange (FX) Market

Foreigners have voiced inconvenience regarding their investment activities, such as inability of overseas-based foreign financial institutions to directly participate in the inter-bank foreign exchange market and the limited trading hours for the Korean won. In order to address such inconveniences and improve accessibility to the Korean FX market, the government unveiled a “plan for structural advancement for Korea’s foreign exchange market” in February 2023. The plan consists of detailed schemes, including allowing authorized foreign financial institutions based overseas to directly participate in the Korean local FX market, extending the opening hours of the FX market, and establishing a trading and settlement infrastructure aligned with global standards. These institutional improvements are expected to greatly alleviate inconvenience faced by foreigners trading in the Korean won and stimulate their investment in KTBs.

F. Introduction of Korea Savings Bonds (KSBs)

Korea Savings Bonds (KSBs) are savings bonds that are issued solely for individual investors. The government has been promoting the introduction of government bonds for retail investors to support stable asset formation and diversify the demand for government bonds, which is mainly concentrated in financial institutions. As the National Assembly passed an amendment to the State Bond Act in March 2023 and the Enforcement Decree and Implementing Rules were amended in September of the same year, a legal basis for the issuance of KSBs was established. Following the development of relevant systems, KSBs are scheduled to be launched in the first half of 2024.

04 Foreign Investment Trends[18)]

Foreign holdings of Won-denominated bonds have steadily increased from approximately KRW 100 trillion in 2017, renewing the record high every year. In particular, 2020 and 2021 saw the largest inflows of foreign bond investment ever, based on expanded liquidity and accommodative monetary policies in response to COVID-19 pandemic. In 2022, the inflows were reduced to a certain degree due to monetary tightening, but the trend of sound inflow still maintained (increased by KRW 14.5 trillion).

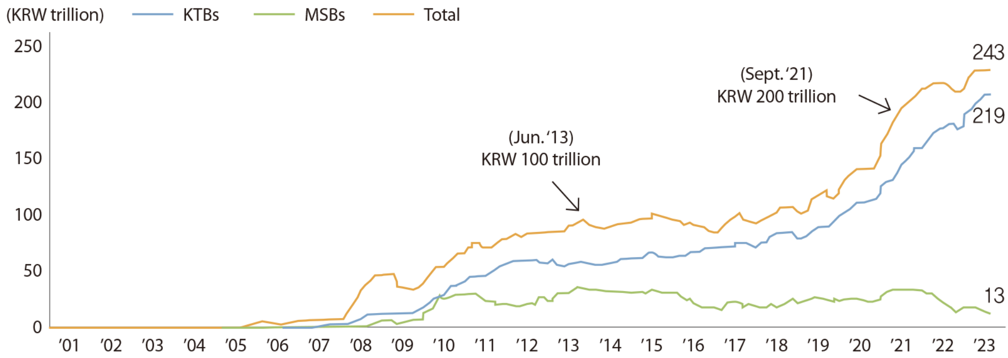
In 2023, inflows remained robust at the similar level of 2022 (increased by KRW 14.3), despite expanded uncertainties in the bond market stemmed from prolonged global monetary tightening and foreigners' adjustment of Won-denominated bond portfolios. Consequently, foreign holdings of Won-denominated bonds reached record highs in terms of volume (KRW 242.9 trillion) and share (9.8%).

In particular, out of all Won-denominated bonds, net investment by foreigners in KTBs increased by KRW 26.5 trillion, and outstanding balance of foreign investors reached a record high of KRW 219.5 trillion, surpassing KRW 200 trillion for the first time ever. The share of foreign KTB holdings also recorded the highest of 22.0%.

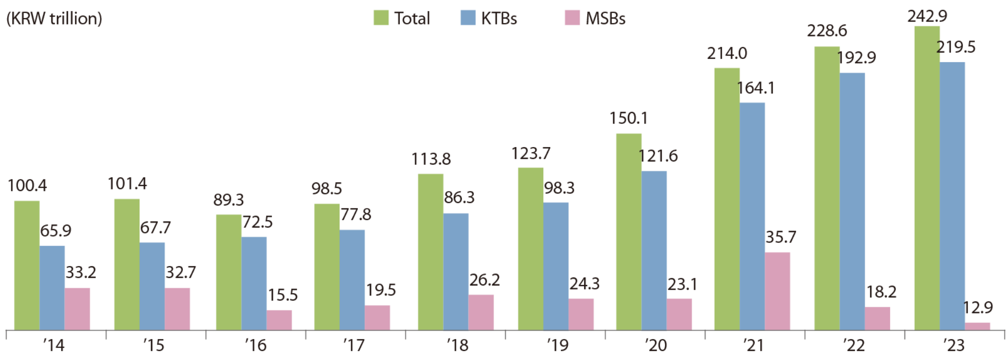
By period, foreign capital inflows were strong in the first half of the year, but slowed down in the second half due to expanded market volatility, including interest rates and exchange rates. By bond type, Monetary Stabilization Bonds (MSBs) and short-term investment funds saw net outflows, while KTBs and long-term investment funds saw solid inflows.

18) Author: Jeong Sang, Park. Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

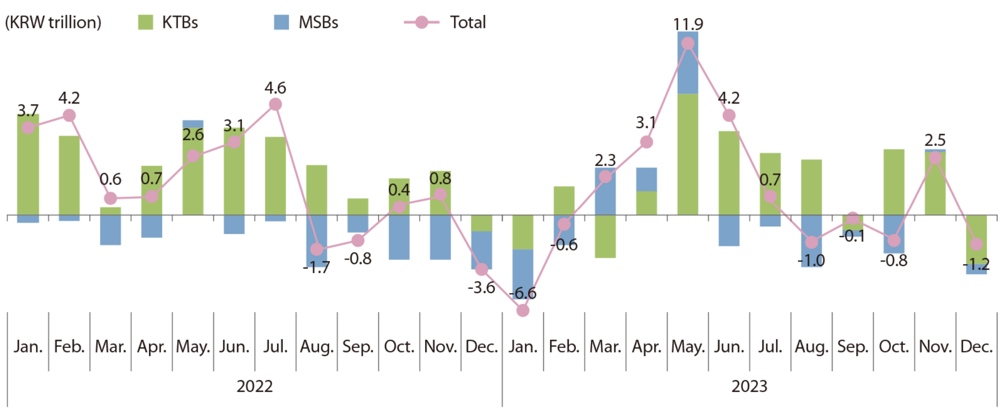
[Figure 2-5] Bond Holdings by Mid- to Long-term Foreign Investors



[Figure 2-6] Foreign Holdings by Year



[Figure 2-7] Net foreign Inflows from 2021 to 2023




part 03

Primary Market

01 Overview[19)]

Korea Treasury Bonds (KTBs) are issued in terms of 2[20)], 3, 5, 10, 20, 30, and 50 years and pay fixed principal and interest in general. KTB is also issued in forms of inflation-linked, which principal is adjusted by changes in the consumption price index. The inflation-linked KTB is issued in terms of 10 years.

KTB auctions are held on a regular basis to maximize investor's predictability. 2-year KTB auction is held on the second Tuesday of every month; 3-year on the first Monday of every month; 30-year KTB on the first Tuesday; 5-year KTB on the fourth Monday; 10-year KTB on the third Monday; 20-year KTB on the fourth Tuesday; 30-year KTB on the first Monday; and 50-year KTB on the second Friday of every month. KTBis are issued on the third Friday of every other month (even months).[21)]

All KTBs are issued as coupon bonds and pay interest every six months. Since the KTBs are fungible, their issue dates are fixed regardless of their auction dates. For example, the issue date of 3-year KTBs issued from June to November in 2022, will all be June 10, 2022. In other words, their first interest payment will be made after six months of the issue date, which is December 10, 2022.

The Korean government announces annual and monthly KTB issuance plans to enhance market predictability. The annual issuance plan is released at the end of the year. The plan includes total annual issuance volume, the share of KTBs by maturity, policies newly introduced or revised, and etc. The monthly issuance plan on the other hand is released by the last day (usually on the last Thursday) of every month. It includes new issuance, buy-backs, conversion offers, auction dates, issuance volume, and etc.

The Bank of Korea (BOK) manages securities business, such as issuance and redemption of Treasury bonds, for the government in accordance with the National Government Bond Act.

19) Author: Dan ki, Hong. Assistant Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

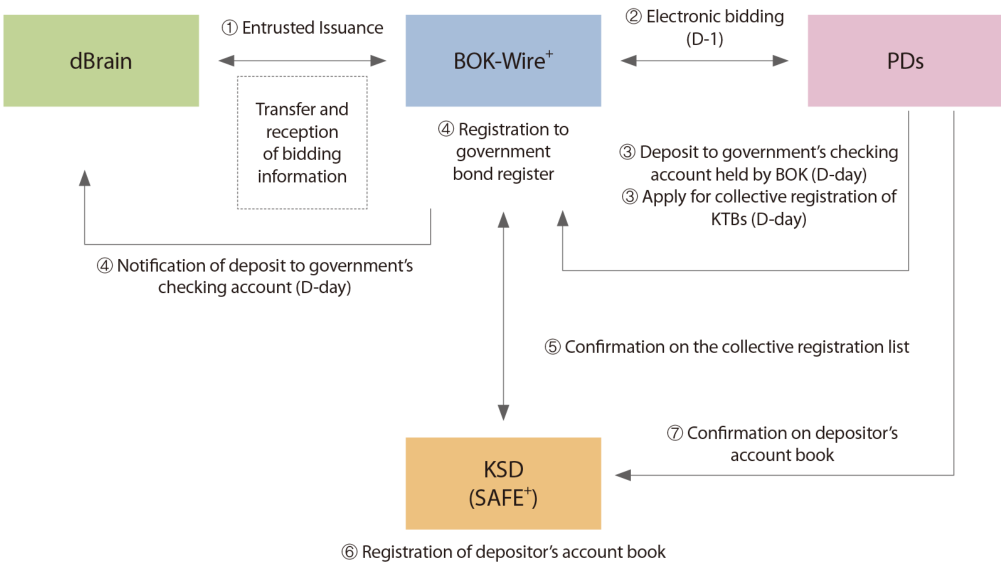
20) 2-year KTB has newly been introduced since 2021.

21) Considering introduction of 2-year KTB and demand and supply conditions of the government fund, the new auction calendar has taken effect from 2022.

Also, the BOK handles securities services including bidding, bond registration, listing application for the central government. The securities business is conducted through BOK's financial wire network system, BOK-Wire+. Bidders including PDs and PPDs use the system to access information on auctions, submit bids, receive auction results, make payment for successful bids, apply for registration, and others.

KTB auctions (excluding KTBis) in the primary market are competitive bidding participated by only PDs and PPDs.[22] With the minimum bid amount being KRW 1 billion, PDs can only bid in amounts multiples of KRW 1 billion. Unlike U.S. and Japan, retail investors can underwrite KTBs only through PDs, at the highest winning rate determined in competitive auctions participated by PDs. The minimum bid unit for them is KRW 100,000.

[Figure 3-1] Bidding and Issuance Process



22) The government previously issued KTBis with non-competitive bids options, but from 2021, KTBis also began to be issued through competitive auctions as conventional KTBs have been.

02 Issuance Method[23)]

(1) Competitive Auction

In the past, when the government bond market was underdeveloped, the authority required financial institutions to underwrite KTBs. As the market developed more in the aftermath of the 1997 Asian financial crisis, the government began to issue bonds through competitive auctions in July 1999[24)]. The conventional (multi-price) auction method was used until July 2000. In a conventional auction, an issuer orders bids by price (yield) in descending (ascending) order and accepts the higher (lower) bids until the issue is exhausted. Each successful bidder pays the price they bid.

To minimize the possibility of the winner's curse and encourage active participation in auctions, the government introduced Dutch auction method in August 2000. In the Dutch auction, an issuer orders bids in descending order and accepts those that allow full absorption of the amount up for issue.

In Dutch auction, however, there is no penalty to bidding much higher than the secondary market price going into the auction. This means the average price is likely to be distorted higher due to overheated competition. The winners often incurred losses, eventually pushing down bid-to-cover ratio. As a result, the differential price auction method was introduced in June 2009, which was a mixture of the two main methods.

In a differential-price auction, the accepted bid yield is determined by categorizing all bid yields into groups at intervals of three to four basis points in descending order, and by selecting the highest bid yield in each group[25)]. Such method helps PDs to bid reasonable yields and reduce their underwriting burden.

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23) Author: Dan ki, Hong. Assistant Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

24) (Article 6 of the Regulations on KTB Issuance and PD Operation) Competitive auctions are held between 10:40 am to 11:00 am on the auction day.

25) To encourage PDs to participate in biddings, the Korean government expanded the interval by one basis point (3-year to 5-year KTBs: 2→3bp, 10-year to 30-year KTBs: 3→4bp) in April 2017. Meanwhile, the government temporarily expanded the winning range to five basis points for all maturities to enhance the PDs' underwriting capacity. And, in 2021, the government plans to revise the Regulations on KTB Issuance and PD Operation, and keep the range remained at five basis points for all maturities.

Meanwhile, the issuance volume of KTBs was greatly increased to support active fiscal policies, including measures for COVID-19 response, while uncertainties in domestic and international financial markets were expanded with monetary tightening of major economies. In response, the Korean government temporarily re-introduced the Dutch auction from March 2021 to reduce the underwriting pressure of PDs. As the COVID-19 pandemic has ended and the KTB market has stabilized to a certain extent, the government terminated the Dutch auction in July 2023 and return to the differential pricing auction method.

<Table 3-1> Bid-to-Cover Ratio in the KTB Market

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Bid-to-cover ratio (%)	464.9	412.1	409.1	372.7	383.3	333.6	295.2	297.6	294.8	283.0	274.9	271.1

Merits and Demerits of Auction Methods

<table>
<tr><th></th><th>Convention Auction</th><th>Dutch Auction</th></tr>
<tr><td rowspan="2">Merits</td><td colspan="2">A gap between successful bid and secondary market price is small.</td></tr>
<tr><td>• Effective for a case where the price discovery process is highly transparent.</td><td>• Effective for a case where the market is less liquid with the price discovery process left uncertain.
• Suitable for a high volatility market
• Mitigating the fear of the winner’s curse to encourage positive bidding</td></tr>
<tr><td>Demerits</td><td>• The winner’s curse is feared to affect positive bidding.</td><td>• Including excessive bidding</td></tr>
<tr><td>Country</td><td>• Sweden, New Zealand, Germany, France, Australia</td><td>• U.S., Norway, Swiss, Ireland, Denmark</td></tr>
</table>

Method of Determining Successful Bidding Yield

(Issue amount: KRW 80 billion)

<table>
<tr><th rowspan="2">PD</th><th rowspan="2">Bidding conditions</th><th colspan="3">Cut-off yield</th></tr>
<tr><th>Dutch</th><th>Conventional</th><th>Differential-Price (Ex.5bp)</th></tr>
<tr><td>A</td><td>2.955%, 20 billion won</td><td rowspan="5">All 3.055%</td><td>2.955%</td><td>2.955%</td></tr>
<tr><td>B</td><td>3.000%, 20 billion won</td><td>3.000%</td><td rowspan="2">3.005%</td></tr>
<tr><td>C</td><td>3.005%, 20 billion won</td><td>3.005%</td></tr>
<tr><td>D</td><td>3.020%, 10 billion won</td><td>3.020%</td><td rowspan="2">3.055%</td></tr>
<tr><td>E</td><td>3.055%, 10 billion won</td><td>3.055%</td></tr>
<tr><td>F</td><td>3.070%, 20 billion won</td><td>Failed bid</td><td>Failed bid</td><td>Failed bid</td></tr>
</table>

Under a differential price auction, for example, the highest cut-off yield is 3.055% (of PD E), the bid yields are divided into groups of “3.055~3.010,” “3.005~2.960%,” and “2.955~2.910%.” Each group’s highest bid yield - 3.055%, 3.005% and 2.955% - becomes the successful bidding group.

With the improvement of the auction method, weak bid-to cover ratio has increased much higher to the level of developed countries. KTB bid-to-cover ratio was barely above 100% during the early 2009, but after using the differential price auction, it became much higher.

(2) Retail Investors: Non-competitive Bids Option I

Retail investors can purchase KTBs from PDs after opening an account at the financial institutions (PDs). Upon an auction announcement, they should submit the amount they wish to purchase to the PD by the day before a competitive auction. The minimum bid amount is KRW 100,000 and the maximum is KRW 1 billion.

For retail investors, no more than 20% of the offered amount in the auction excluding 50-year KTBs is allocated first. Unlike PDs, retail investors are not eligible to bid yields but purchase at the highest winning rate set at a competitive auction. Delivery of KTBs and payment of accepted amount are made on the following day of the auction date.[26)]

(3) Post Auction Option: Non-competitive Bids Option II

To enhance the PD's role in making a market, three business days[27)] are provided for PDs to make an additional purchase after a competitive auction. Unlike in a competitive auction where PDs bid low yields to purchase treasury bonds, PDs may underwrite KTBs at the yield already determined.

Only PDs that underwrote KTBs through competitive auctions are eligible to participate in non-competitive bidding options. They are allowed to underwrite up to a certain percentage of what they underwrote at competitive auctions. The option is granted up to 25% for the top five PDs, 20% for 6th to 10th best-performing PDs, 15% for the 11th to 15th best-performing PDs, and 10% for the rest, based on their market-making performances of the semi-annual PD evaluation. The Ministry of Economy and Finance grants additional 10%p to the top five PDs and 5%p to 6th to 10th best-performing PDs in the their monthly evaluation.

26) Meanwhile, retail investors can easily trade KTBs, likewise stock trading, through the bond market opened by KRX or HTS and telephone call of the securities firm they use.

27) (Article 11 of the Regulations on KTB Issuance and PD Operation) Requests for non-competitive bidding option are to be made between 12:00 to 15:30 on the day of a competitive auction, between 09:00 to 15:30 during the first three business days following the auction date.

(4) Post Auction Option: Non-competitive Bids Option Ⅲ

To promote STRIPS in the KTB market, the government grants rights to purchase STRIPS for PDs specializing in a STRIP program. STRIPS-specialized PDs take exclusive responsibility of making prices of STRIPS, and they have to meet their obligations of separating interest and principals for their purchases over the next month. PDs that have obtained the right to purchase these KTB STRIPS can make purchases up to KRW 20 billion on the third business day, and the option is granted according to the outcomes of monthly evaluation conducted in the previous month. KTB STRIPS are regularly supplied for KRW 221 billion for 3-year and 5-year KTBs, for KRW 271 billion for 10-year and 30-year KTBs, and for KRW 170 billion for 20-year KTBs.

(5) Post Auction Option: Non-competitive Bids Option Ⅳ

In 2021, the government introduced non-competitive bids option Ⅳ. This bond offering method supplements option Ⅱ and Ⅲ to minimize the volatility that might be caused with issuance volume as PD can exercise their rights depending upon interest rates. Non-competitive bids option Ⅳ allows the government to underwrite additional issuance volume to the amount that falls short of the current month’s plan at a certain interest rate.

Option Ⅳ is conducted on the third Friday of the bidding month, while volume and types for issuance are announced through the issuance plan on the second Thursday of the same month. The issuance volume is determined given actual issuance amounts (including lump sum competitive actions and option Ⅱ and Ⅲ) to the monthly target. The total amount of non-competitive options is to be managed within 20% of the total issuance. Taking into account the impact on the market interest rates, bonds for issuance will be mainly short-term KTBs such as 2-year, 3-year, and 5-year, but may be medium- and long-term KTBs if necessary. Yields are announced on the auction date considering market yields on the day.

03 Fungible Issue[28)]

The fungible issue system, in which new KTBs issued within a specified period are regarded as the same KTB issue, was introduced in 200.

Currently, 3-year KTBs are newly issued in June and December each year. For example, after being issued on June 10, 2022 through an auction held on June 7, 2022, they are issued again on July 4, August 8, September 13, October 11, and November 7, 2022 with the same terms. Despite different auction dates, their issue terms are identical, and they are traded as the same bond in the secondary market.

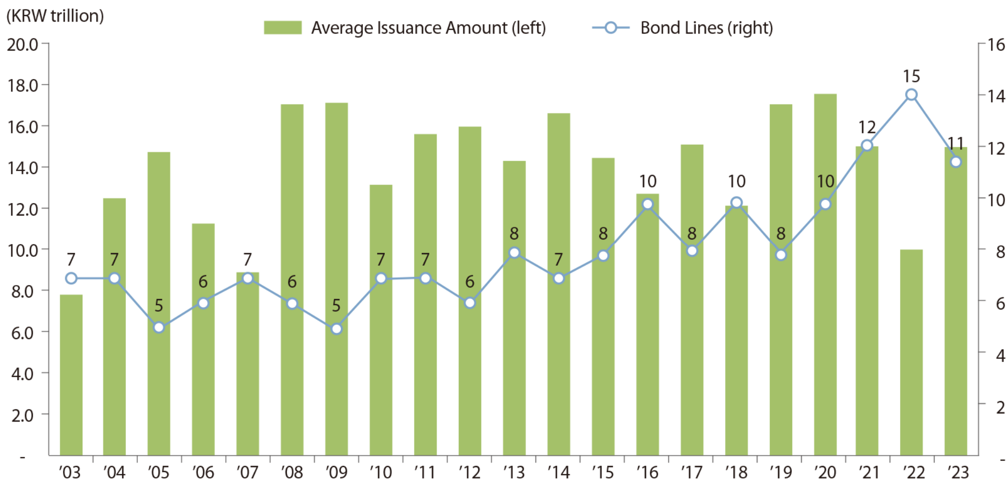
The fungible issue system is designed to enhance the liquidity, so that the government's funding expenses can be reduced and credible benchmark rates can be formed. In general, the increase in issuance volume of a single bond type leads to growing liquidity, which in turn, leads to lower rates.

Before the introduction of fungible issue, there were too many bonds in the market but less trading volume, which drove liquidity shortage. As all KTBs were newly issued as different bond types, bonds issued could not serve their role as benchmarks (on-the-run) long enough, causing discontinuation of yields.

As a result, the Korean government launched the fungible issue with KTBs that were to be issued beginning May 2000 (fungible issue period of three months). The average issuance volume of each bond type continuously increase to KRW 13.4 trillion (average of recent five years) from KRW 1 trillion in 2000.

28) Author: Dan ki, Hong. Assistant Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

[Figure 3-2] Number of KTBs Issued and Average Issuance Amount

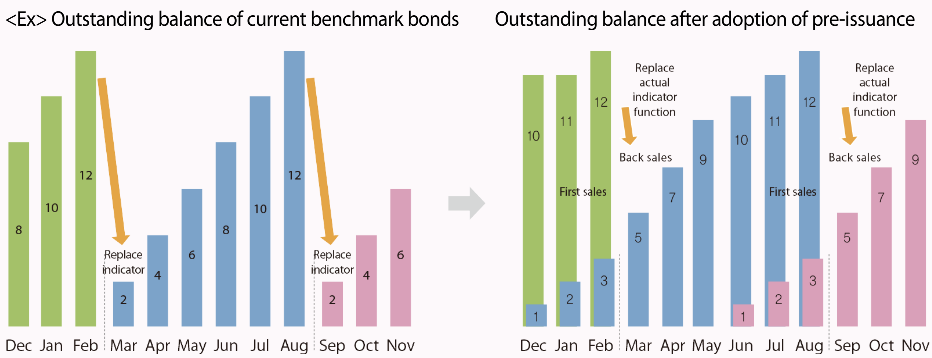


<Table 3-2> Fungible Issue of KTBs

Maturity	Number of annual new issuance	Month	Fungible issue term
2-year	Twice a year	June, December	Six months (June to November, December to May of the next year)
3-year	Twice a year	June, December	Six months (June to November, December to May of the next year)
5-year	Twice a year	March, September	Six months (March to August, September to February of the next year)
10-year	Twice a year	June, December	Six months (June to November, December to May of the next year)
20-year	Once a year	September	One year (September to August of the next year0
30-year	Twice a year	March, September	Six months (March to August, September to February of the next year)
50-year	Every other year	September	Two years (September to August of the next two years)
Inflation-linked	Every other year	June	Two years (June to May of the next two years)

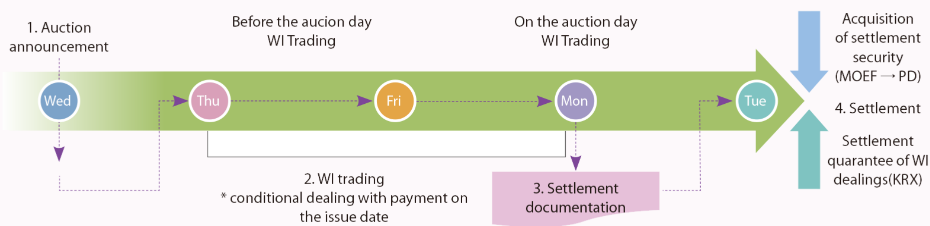
Pre-issuance and When Issued Transaction

In order to address the liquidity problem that occurs from replacing the benchmark bonds, pre-issuance was put in place in January 2015. The existing benchmark and to-be benchmark bonds are issued at the same time one or two months before to-be benchmark bonds are newly issued. In 2016, ultra-long bonds (20-year and 30-year) became subject to pre-issuance as well. The pre-issuance period for 3-year to 10-year is two months but the period for ultra-long bonds is one month, considering the level of liquidity for those bonds. In 2018, inflation linked bond was also issued one month prior to provide liquidity to the market.



And, in December 2015, in order to create a new demand for trading and allow investors to search for yields to auctions, the government established a when-issued (WI) market where trade can take place between two days before an auction and the issue date. The WI market allows PDs to hedge against interest rate fluctuations and risks from holding securities. In addition, through the WI market, the government is able to respond flexibly to the market supply and demand conditions such as by reducing the issuance volume in time of expected demand shrinkage due to market instability.

When Issued Transaction Procedures

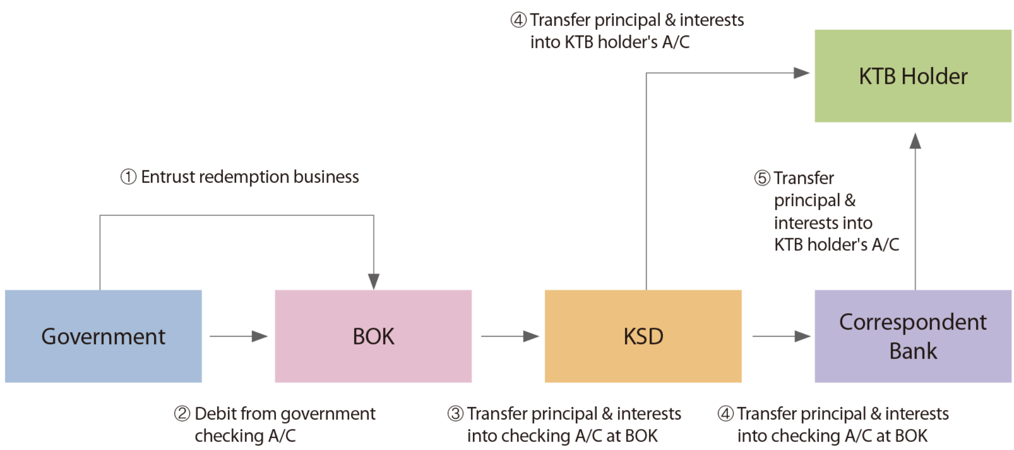


04 Redemption

(1) KTB Redemption

Through the redemption at maturity, the principal is redeemed in a lump sum upon maturity of the bond. The UK (BOK) makes deposits to Korea Securities Depository (KSD) transfers principal and interest to the deposit account of the institution that holds the KTBs.

[Figure 3-3] KTB Redemption Process



While most KTBs are redeemed at maturity, buy-backs and conversion offers are conducted when the MOEF deems it necessary to prevent heavy loads of KTBs maturing at a certain time and control market liquidity.

(2) Buy-back

The Ministry of Economy and Finance buys back unmatured marketable securities from KTB holders. There are two types of buy-backs depending on where their resources come from. In general, the borrowing costs for buy-backs are funded by newly issuing KTBs, which does not cause KTB outstanding to be reduced. The other method is to be funded by the fiscal surplus from tax, which is called 'net buy-backs.

The main purpose of buy-backs is to spread out maturities throughout the year and each quarter. When maturities are concentrated on a certain point in time, the government is forced to issue larger KTBs. The growth of debt issuance raises market yields, which may consequently distort the market. Thus, buy-backs enables decreasing refinancing risks by reducing heavy concentration of certain maturities.

The redemption before maturity may be carried out via KTB reverse bidding held for PDs and are underwrote directly from KTB holders when the Ministry of Economy and Finance deems it necessary.

The bidding limit per PD is 30% of the expected purchase amount, and the minimum amount for each issue is KRW 1 billion (par value), with incremental increase in multiples of KRW 1 billion. The yield is determined through Dutch auction method, which is the same as the competitive auction.

<Table 3-4> Buy-back Volume by Year

(Unit: KRW trillion)

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Amount	12.0	5.6	5.2	12.1	11.3	17.6	27.2	20.2	12.0	14.9	15.2	15.7

(3) Conversion Offer

The Korean government has a standing program for exchanging off-the-run bonds against on-the-run bonds, which was introduced in May 2009.

Conversion offers support the issuance of benchmark bonds by retiring illiquid off-the-run bonds. The differences in value are settled in the exchanging process.

Retiring illiquid off-the-run bonds from the market stimulates the build-up of benchmark bond issues. Thus, an issuer can build benchmarks of a larger size. As a result, conversion offers contribute to market liquidity.

At the competitive auctions for conversion offers, the minimum amount for each issue is KRW 1 billion (par value), with incremental increase in multiples of KRW 1 billion. The yield is determined through Dutch auction method, which is the same as the competitive auction or the buyback. The yield for new bonds being issued had been the arithmetic mean of on-the-run yields that PDs bid but, as of January 2018, it is the yield determined on the auction day by the exchange market.[29)]

<Table 3-5> Conversion Offer Volume by Year

(Unit: KRW trillion)

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Amount	2.0	2.9	3.1	4.6	4.2	1.7	2.2	1.6	2.1	3.3	3.4	3.6

29) (Article 24 of the Regulations on KTB Issuance and PD Operation) The yield is the arithmetic mean of market prices in the exchange market at 9:30 am, 10:00 am, and 10:20 am on the auction day.

05 Retail Investors in KTB Auctions[30)]

KTBs are issued through auctions. While PDs have the exclusive rights to participate in KTB auctions, individuals (retail investors) and corporate bodies wishing to participate can do so through PDs. For individuals (retail investors) and corporate bodies, they are not allowed to submit the bid rates, and their purchase amounts must be from a minimum of 100,000 won up to a maximum of 1 billion won.

Retail investors must first open a brokerage account at a securities company designated as a PD (or an existing brokerage account can be used). They must then submit the application for bid participation and make deposits for subscription.

For retail investors participating in competitive bids, KTBs not more than 20% of the offering amount in the auction will be allocated first at the highest accepted bid rate − not allowed to submit the bid rates. And their purchase amounts must be from a minimum of KRW 100,000 up to a maximum of KRW 1 billion.

The delivery and settlement of KTBs are completed on the next business day after the auction. As all KTBs are registered, issued, and deposited to Korea Securities Depository (KSD), bondholders can trade and exercise their rights without having issued physical securities.

Once KTBs are issued through auctions, they can be traded in the secondary market. In other words, investors can purchase or sell KTBs in the secondary market without having to participate in auctions. They can easily trade KTBs on the HTS (of securities companies) or the phone, like equity.

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30) Author: Jongwoon, Park. Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

Procedure of Retail Investors' Participation in KTB Auctions

e.g.) 10-year KTB, auction date: Monday, January 17, 2022

Notice (3 days before auction) - Wednesday, Jan. 12, 2022 -	- Public notice of the auction on the BOK website (3 days in advance) - Or, inquiries can be made to the bond division of PD institutions
⇩	
Opening brokerage account	- Open an account at a PD institution before the auction; existing account can be also used. - Required documents: Registered seal (or signature) and ID card
⇩	
Apply for bid participation (Fill in the bid application form)	- Submit application form including the desired purchasing amount to PD; pay 100% deposit (before the auction.) - Bidding amount: KRW 100,000 to KRW 1 billion
⇩	
Auction - Monday, Jan. 17, 2022 -	- PDs participate in an electronic auction through BOK-WIRE+ (10:40 am to 11:00 am) - PDs submit the bidding for retail investors by 10:00am on the same day (for auctions of pre-issuance, by 9:00am)
⇩	
KTB allocation	- KTBs are underwritten at the highest winning rate at the competitive auction. (The yield is converted to per-unit cost, and then purchasing amount is decided.)
⇩	
KTB delivery - Tuesday, Jan. 18, 2022 -	- KTBs are delivered to each investor's account on the next day after the auction.
⇩	
Investor's ownership	- When holding to maturity: interest earnings (every 6 months) + principal (at maturity) - Bonds can be sold before maturity in the secondary market for profit opportunities.

06 Korea Savings Bonds[31)]

(1) Concept and Background

“Korea Savings Bonds (KSBs)” are savings bonds issued in small denominations with purchase eligibility limited to individual investors. Major economies such as the United States (Savings Bonds), the United Kingdom (Income Bonds, Premium Bonds, etc.), Singapore (Singapore Savings Bonds), and New Zealand (Kiwi Bonds) also offer government bonds for retail investors.

Government bond issuance in Korea has increased significantly since 2020 in accordance with expansionary fiscal policies. As of the end of 2021, however, the share of government bonds held by individual investors was less than 0.1%, which is very low compared to other major economies (9.1% in the UK, 2.6% in Singapore, 1.0% in Japan, and 0.5% in the U.S.). In Korea, individuals are allowed to purchase government bonds through the primary and secondary market, but in the primary market, acquisition of government bonds are only possible at the highest accepted rate (the lowest price) through Primary Dealers (PDs) acting as bidding agents. In the meantime, retail investors often end up buying too high or selling too low as small transactions are not robust in the secondary market. Theses are considered to be contributing factors for low government bond holdings of individual investors.

Accordingly, the government has been promoting the introduction of “Korea Savings Bonds,” aiming to support the general public in formation of long-term assets for their lives after retirement by providing a stable long-term investment vehicle, while enhancing the capacity of the government bond market through diversification of the demand base.

(2) Progress

Through the “measures to advance the government bond market” revealed in October 2020, the Korean government announced a “plan for the introduction of Korea Savings Bonds,”

31) Author: Jeongmin, Yoon. Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

which offers incentives to investors who hold the bonds to maturity for long-term savings purposes. In May 2021, the government submitted an amendment to the State Bond Act, which outlines the grounds for issuing government bonds for retail investors, the method of issuance, and restrictions on transfer of ownership (excluding inheritance, bequest, and forced execution) to the National Assembly. As the amendment passed the plenary session on March 30, 2023, legal basis for the issuance of KSBs was established. The amendment to the Restriction of Special Taxation Act, which grants benefits of separate taxation to interest income derived from KSBs investment, also passed the plenary session of the National Assembly on the same day.

<Tabel 3-6> KTBs and KSBs

<table>
<tr><th>Category</th><th>Bearing of Expense</th><th>Eligibility for Purchase</th><th>Interest Rate Decision</th><th>Ownership Transfer</th><th>Responsible Institution</th></tr>
<tr><td>Government Bonds for Retail Investors</td><td rowspan="2">Public Capital Management Fund</td><td>Individuals only</td><td>Prior announcement</td><td>Not allowed (Selling before maturity is allowed)</td><td>Korea Securities Depository</td></tr>
<tr><td>KTB</td><td>No restriction</td><td>Open market</td><td>Allowed</td><td>Bank of Korea</td></tr>
</table>

In September 2023, with the amendment of subordinate laws (enforcement decree and enforcement regulation) of the the State Bond Act pursuant to delegation of some of is details, the Korean government announced the “measures for the introduction of KSBs,” which includes details of the product and issuance procedures based on opinions collected from the market and related institutions. Furthermore, by enacting the “regulation on the issuance and redemption of KSBs” (Enforced on January 1, 2024), the government completed all the legislative procedures for KSBs issuance.

Pursuant to the relevant regulations, the government will start issuing KSBs in the first half of 2024 after selecting a sales agency through open competitive bidding in accordance with the Act on the Contracts to Which the State is a Party, and establishing a necessary system. The planned volume of annual issuance is a total of KRW 1 trillion.

(3) Characteristics of KSBs

KSBs have characteristics that distinctive from regular bonds, including KTBs. First, anyone can easily invest in KSBs by opening a dedicated account. KSBs will be issued on a monthly basis by subscription through a sales agency. Individuals who wish to invest in KSBs can open a dedicated account with a sales agency and make subscription in person or online.

Second, KSBs will be issued in two maturity types, 10-year and 20-year, with a lump sum payment of principal and interest on the maturity date, in order to support formation of long-term assets of the middle and low income classes.

Third, to ensure that more people can make investment, the minimum investment amount is set at KRW 100,000 with the purchase limit per person set at KRW 100 million per year. The allocation of subscriptions will be made within the monthly issuance limit, and if the total amount of subscriptions exceeds the monthly issuance limit, small subscriptions will be allocated first.[32)]

Fourth, KTBs are products with principal protection with no risk of loss. If investors retain KSBs by maturity, they will receive coupon rate plus additional rate applied by annual compounded interest rate in addition to the principal. The coupon rate will be based on the accepted bid rate of the bond with the same maturity auctioned in the month before the issuance date. Additional interest rate will be determined with flexibility depending on market conditions and be announced on a monthly basis. In addition, separate taxation on interest income (14%) from investment in KSBs to the total purchase amount of up to KRW 200 million.

Fifth, investors can apply for selling KSBs before their maturity from one year after purchase. Even if they sell the bonds before maturity, 100% of the principal is guaranteed and interest is paid from the date of issuance to the date of selling. However, benefits like additional interest rate, compounded interest rate, and separate taxation are not offered.

32) (Step 1) All subscribers will be allocated up to the threshold amount (KRW 3 million) en bloc.
(Step 2) The remaining amount will be allocated proportionally for each subscriber under the formula of "subscription amount - threshold amount."

(4) Expected effects

The introduction of KSBs is expected to further solidify the base of government bonds issuance and expand opportunities for stable asset formation for the public. According to the results of the preliminary feasibility assessment of special taxation (September 2021, Korea Institute of Public Finance), if issuance volume of regular KTBs are reduced by KRW 1 trillion with issuance of KSBs within the total issuance limit approved by the National Assembly, it will have the effect of lowering the interest rate on KTB issuance by 1.0 to 1.2 basis points. This will improve financial benefits, such as reduction of purchasing cost, while easing the burden for the public.

Furthermore, as individuals' interest in bond investment has increased significantly in recent years, there are expected to a have broader choice of financial products to form stable mid- to long-term assets for their lives after retirement and children's education.

[Reference] Detailed Procedures for Issuing KSBs

❶ Announcement of issuance plan (by the last day of the previous month)	• Monthly issuance plan: issuance limit by maturity, interest rate, issuance schedule, etc.
❷ Announcement of subscription plan (by 3 days prior to subscription)	• Subscription plan: Specific details, including application procedures
❸ Subscription (Working days D-5 to D-3)	• Requirements: Dedicated account, only one account can be opened per person • How to apply: Visit the sales agency window or apply online • Application period: 3 days (※ Withdrawal and change are available within the application period) • Minimum application amount: KRW 100,000 (*Increase by integer multiple of KRW 100,000) • Annual purchase limit: KRW 100 million per person • Subscription deposit: Pay the full amount of the application as a subscription deposit
❹ Allocation (Working day D-3)	• Allocation within the monthly issuance limit • Allocation Criteria: If the total subscription amount falls within the monthly issuance limit, the entire subscription amount will be allocated; if monthly issuance limit is exceeded, smaller subscription amounts will be allocated first* * (Step 1) All subscribers will be allocated up to the threshold amount (KRW 3 million) en bloc. (Step 2) The remaining amount will be allocated proportionally for each subscriber under the formula of "subscription amount - threshold amount."
❺ Notification of allocation results (Working day D-2)	• Notification of individual allocation results to subscribers and return of unallocated subscription deposits
❻ Registration (Issuance) (D-day, 20th of every month)	• Registration of issuance details and transfer of issuance funds
❼ Announcement of results (D-day)	• Announcement of issuance results

part 04

Secondary Market

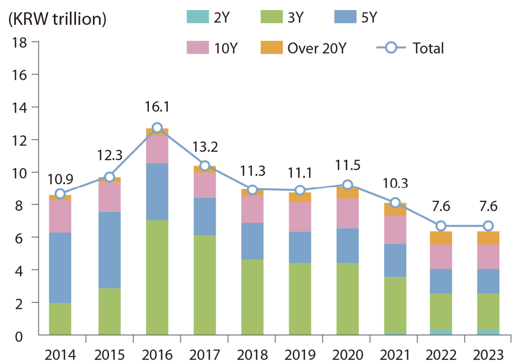
01 Overview[33)]

After purchasing KTBs in the primary market, investors cannot claim their principal and interest before maturity. Those wishing to cash bonds can do so on the secondary market, where previously issued bonds are traded between investors.

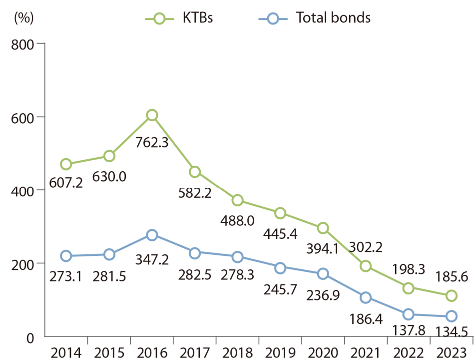
The secondary market provides opportunities for bondholders to profit from selling bonds. It also promotes fair price formation of bonds, increases their value as collateral, affects the price of bonds in the primary market, and the like. Hence, development of the secondary market is crucial for the efficient issuance of KTBs.

In the secondary market, bonds with higher liquidity, 3-year to 10-year KTBs, have been actively traded. As of 2023, KTBs account for approximately 55.2% (KRW 1,852.5 trillion) of the overall trading volume in the secondary market and are serving as the pricing benchmark.

[Figure 4-1] Average Daily Trading Volume by Maturity



[Figure 4-2] Turnover Ratio



33) Author: Jae Gook, Choi. Manager, Korea Exchange (KRX)

02 Types of Secondary Market[34)]

Under the secondary market, there are several types of markets, including direct search market, broker market, dealer market and auction market.

The direct search market is where investors directly search for trading counterparts and bear the expenses that occur from the process of searching and bargaining. As bonds are not traded continuously in this market, third parties like brokers and dealers are not motivated to play in this market.

The broker market is where investors indirectly participate by entrusting brokers (proxies) with finding their trading counterparts. Unlike dealers, brokers do not use their own accounts for bond trade. They simply look for trading counterparts, negotiate prices for their investors, and receive commissions in return. Bond brokers can be divided into inter-dealer brokers who act as intermediaries among dealers, or general securities brokers who serve as proxies for retail investors.

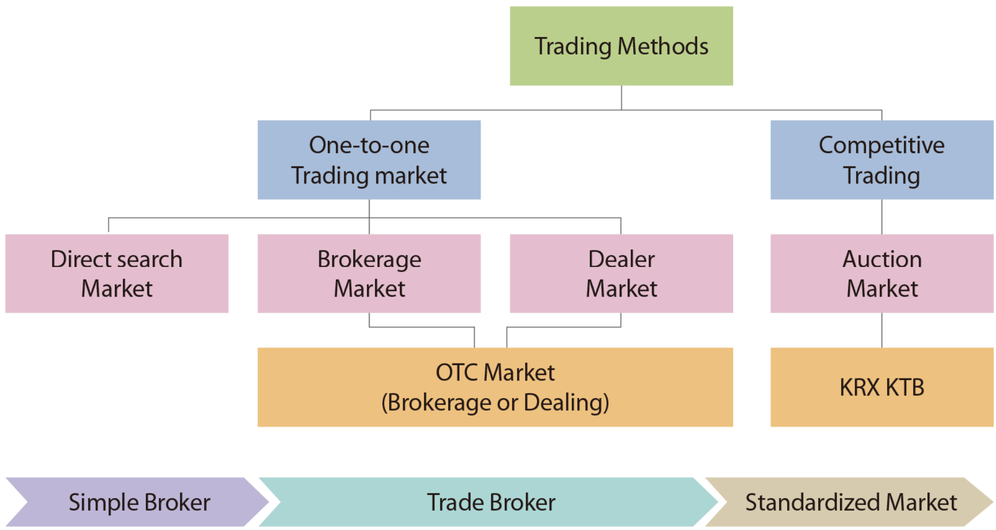
The dealer market is where dealers, or mainly financial institutions, trade their own accounts and bear risks by serving as the investor's trading counterparts themselves. In this market, dealers have the advantage of instantly trading bonds according to bid or ask prices they offer, where profits occur from bid-ask spreads.

The auction market is an order-driven market in which buyers and sellers enter competitive auctions at the same time. All market participants gather together offline or online, communicate their trading intentions, and swiftly complete trades. Pros of this market include fast deal execution, sparing of expenses in searching for trading counterparts, narrowed bid-ask spread, and other.

Bonds issued in the Korean bond market may be traded on the exchange (KRX KTB) or OTC. The KRX KTB is an auction market, and the OTC is a network of brokers and dealers who negotiate the sales of securities among them.

34) Author: Jae Gook, Choi. Manager, Korea Exchange (KRX)

[Figure 4-3] Secondary Market



03 KRX Trading System for KTB (KRX KTB)[35)]

(1) Overview

The KRX KTB is an electronic trading system for KTBs, established by the KRX in March 1999, with the support from the Korean government to vitalize the KTB market and increase transparency. The KRX KTB is completely a competitive bidding market where dealers trade in a large size.

As PDs designated by the government serve as market-makers on the KRX KTB, continuously offering bid-ask prices for KTBs, market participants who wish to trade can buy and sell bonds.

35) Author: Jae Gook, Choi. Manager, Korea Exchange (KRX)

(2) KRX KTB Policy

Bond trading is carried out through the electronic trading system in the KRX KTB. The electronic trading system collects all quotations and displays them on trading screens in real time where trades are executed electronically. Main participants of the trading markets are banks and securities firms who gained permission as a Member of the Fixed Income Securities from the KRX.

Dealers can participate by installing a trading program offered by the KRX on their computers. Tradeable bonds are KTBs, MSBs and Korea Deposit Insurance Fund Bonds, but most of the trading takes place with KTBs through KRX KTB system. The trading unit is in multiples of a par value of KRW 1 billion.

In addition, as of August 2020, the Korean government has implemented a relief program. Under the program, if dealers face unexpected loss due to trading mistakes, the mistaken trading amount (exceeding the yield return completed±3%) is paid back through negotiations between the trading parties.

<Table 4-1> KRX KTB System

	Details
Trading hours	9:00 – 15:30
Bonds eligible for trading	KTB, MSB, DIFB
Trading unit	Multiples of a par value of KRW 1 billion
Quotation method	Price quote (Time-to-maturity < 2Y : KRW 0.1, < 10Y : KRW 0.5, > 10Y : KRW 1)
Trading execution method	Individual auction with multiple price
Participants	PDs (banks and securities companies), Trusters (institutions and etc.)
Settlement date	T+1

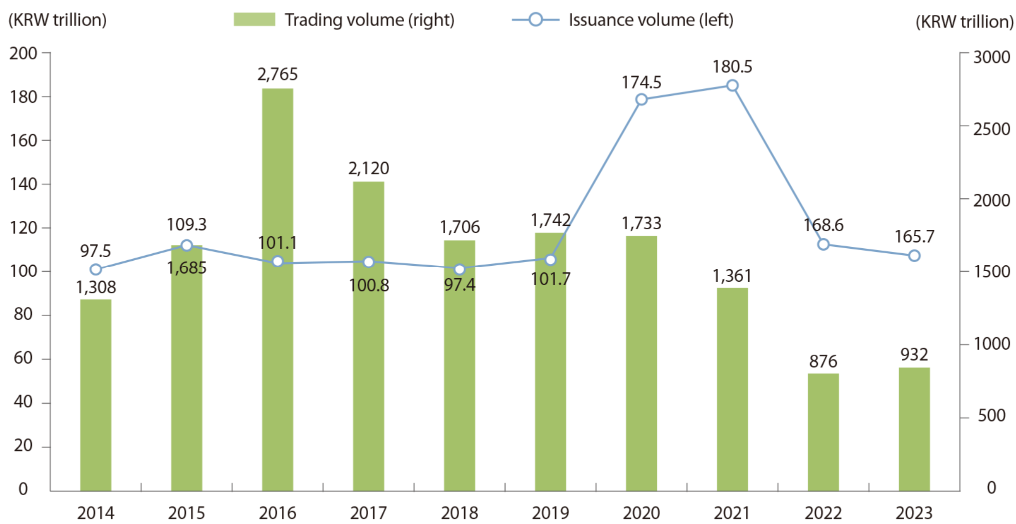
* As for 2-year and 10-year on-the-run KTBs, bid-ask price unit is retained at KRW 0.5 and KRW 1, regardless of time to maturity.

(3) Evaluation

Ever since its establishment in 1999, the Korean government's policies to vitalize the bond market and PD's active role as market-makers helped achieve quantitative growth and qualitative changes in the KRX KTB market.

With the primary market having expanded, the trading volume on KRX KTB was merely KRW 10.1 trillion in 2001 but rose sharply to KRW 1,733.1 trillion in 2020. However, as global monetary tightening began in earnest with the recent increase in interest rates, the liquidity of the bond market declined to KRW 1,361 trillion in 2021, KRW 876 trillion in 2022 and KRW 932 trillion in 2023.

[Figure 4-4] KTB Issuance Volume and Trading Volume on KRX KTB



In addition, increased market quotes and reduced bid-ask spread contributed to evolving market conditions in which market participants can trade the desired volume without unfavorable price changes. On the KRX KTB, quotes and executed trades and their prices are disclosed in real time. Transactions are carried out between dealers on an electronic trading platform, through individual competitive bidding. Hence, the KRX KTB is considered to have not only reduced trading costs but also increased market transparency.

<Table 4-2> Bid-Ask Spread of Benchmarks on KRX KTB

(Unit: KRW)

	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23
2-year	-	-	-	-	-	-	-	1.3	1.9	1.6
3-year	1.2	1.1	0.8	0.6	0.6	0.6	0.7	0.7	1.3	1.0
5-year	1.1	1.1	1.1	0.8	0.9	1.0	1.2	1.3	2.4	1.9
10-year	1.9	2.0	2.0	1.8	1.8	1.8	2.2	2.1	3.4	2.9
20-year	8.0	8.5	7.7	7.9	8.1	8.3	9.4	8.2	12.1	9.2
30-year	11.2	12.8	13.3	10.5	9.3	10.0	9.1	7.6	11.0	8.0
Average	3.1	5.1	5.0	4.3	4.1	4.3	4.5	3.5	5.4	4.1

* Average of intra-day spread, KTBi is excluded from 10-year KTBs. 2-year KTB was newly introduced in February 2021.

The efficient work performance and close cooperation between the government and market participants helped the KRX KTB achieve substantial growth. The government, for its part, laid the foundations to nurture the competitive trading market that can be led by dealers using the electronic trading system, breaking away from past practices of one-to-one trading led by brokers.

Primary dealers, as market-makers, continue to supply liquidity into the market by bidding prices of benchmarks with all maturities (2, 3, 5, 10, 20, 30-year, and inflation-linked KTBs). In addition, PDs provide the on-site market information (demand, market trends and conditions, and etc.) necessary for the devising and execution of policies. The government and PDs hold regular consultation meetings to discuss areas of improvement in the regulations for the primary and secondary market, and propose policies.

04 OTC Market[36)]

(1) Overview

The over-the-counter (OTC) market encompasses dealer market, broker market, and direct search market. The OTC market can be understood as all markets excluding the KRX KTB market.

While the KRX KTB was established and institutionalized to meet policy goals for such as baby bonds, stock-related corporate bonds and PDs, the OTC market was autonomously created, which the government only later began to regulate. As such, the main characteristics of the OTC market is that it is market-driven, where past practices are a powerful momentum. It is difficult to standardize bond trading in the OTC market, since there are numerous members of issued bonds and even an identical bond can be traded with various different prices. So the bonds are traded after one-on-one negotiations between the participants, and traded actively.

(2) OTC Market Trading

In the OTC market, KTBs account for 41.0% (as of 2023) of all bond trading and are used as benchmark bonds. Financial bonds (26.7%) and MSBs (13.3%) are also actively traded. Trading volume of corporate bonds, which accounted for more than half of the secondary market before the 1997 Asian financial crisis, dropped following the growth of the KTB market and the active liability management by corporations. In 2023, it accounted for 6.5% of total transaction, decreased from the previous year (9.5%).

36) Author: Jae Gook, Choi. Manager, Korea Exchange (KRX)

<Table 4-3> OTC Market Trading by Bond Type

(Unit: KRW trillion)

	2019		2020		2021		2022		2023	
	Volume	%	Volume	%	Volume	%	Volume	%	Volume	%
Government bonds	2,236.6	48.4	2,504.3	46.1	2,569.2	48.3	2,122.9	47.4	2,060.8	45.9
KTBs	1,963.8	42.5	2,261.7	41.7	2,378.5	44.7	1,965.9	43.9	1,841.3	41.0
Municipal bonds	11.6	0.3	17.1	0.3	16.3	0.3	11.1	0.2	11.9	0.3
Special bonds	226.0	4.9	298.7	5.5	306.0	5.8	248.5	5.5	327.7	7.3
MSBs	936.5	20.3	1,026.3	18.9	730.0	13.7	459.9	10.3	595.3	13.3
Financial bonds	930.2	20.1	1,266.8	23.3	1,333.4	25.1	1,215.0	27.1	1,199.6	26.7
Corporate bonds	281.1	6.1	316.2	5.8	360.7	6.8	424.7	9.5	290.5	6.5
Total	4,621.9	100	5,429.4	100.0	5,315.7	100.0	4,482.1	100.0	4,486.0	100.0

* Source: KOFIA (BIS), KOSCOM (CHECK)

(3) Method of Trading Bonds

While individual investors can participate in the OTC market, institutional investors (including financial institutions and pension funds) and corporations trade the largest volume. The trading unit is in multiples of a par value of KRW 10 billion. There are no restrictions in trading hours, but they are generally between 8:30 and 16:30, the regular business hours of financial institutions.

Bond trading in the OTC market is mostly conducted via online messenger and telephone, where traders exchange real-time trading information and negotiate. In other words, trades in bonds are processed as follows: ①each institutional investor presents a bid-ask price to the financial investment firm they trade with, ②brokers enable financial investment firms and market participants to discover quotes, ③trade negotiation and confirm, and ④settlement. Under the Regulation on Financial Investment Business, settlement date ranges from T+1 to T+30, although most settlements occur on T+1.

<Table 4-4> KRX KTB and OTC Market

	KRX KTB	OTC market
Participants	Dealers	Brokers
Trading execution method	Competitive bidding (Dealer ↔ KRX ↔ Dealer)	Negotiated trading (Institution → Broker → Institution)
Means of trading	Online bond trading system	K-bond, phone
Ask-price method	Ask price (along with yield)	Ask yield (along with price)
Trading unit	KRW 1 billion	KRW 10 billion No limits on trading unit
Trading hours	9:00 – 15:30	8:30 – 16:30
Settlement	T+1	T+1
Settlement method	Real-time net settlement	Gross settlement

(4) Major Systems

One of the focal tasks of Korea Financial Investment Association (KOFIA) under its mandate as the self-regulatory organization and administrator for the OTC market, the KOFIA have cooperated closely with the government to reduce the cost of price discovery and to ensure market transparency and the distribution of relevant information to all market participants. Also, the KOFIA has provided the reference data that are being collected and distributed through its system, K-Bond.

A. Publication of OTC Trade Execution Details

As part of its mandate to achieve transparency, the KOFIA prescribes a report of transaction details by counterparties to the KOFIA within 15 minutes of the trade being concluded; the KOFIA then discloses this information via the KOFIA Bond Information website.

In the past, details of bond transactions during the day were all reported to the KOFIA after 3pm, off the regular trading hours. This meant that bond trading information was not able to be used during that day's trading hours.

The publication mandate was introduced in 2000 to enhance market transparency. Information on issues, trading volume, yields, and investor categorization codes were to be provided within 30 minutes under that goal. The reporting time was shorted to within five minutes in 2001, but was revised to within fifteen minutes in 2002. As of now, it remains fifteen minutes. The “15-minute rule” has not only enhanced market transparency, but also reduced the cost of seeking out price-related information.

B. Bond Quotation System (BQS)

Alongside the 15-minute rule, which promotes post-trade transparency, it was also necessary to introduce a service for enhancing pre-trade transparency. In an effort to improve market transparency, the KOFIA introduced the Bond Quotation System (BQS) in which securities companies report quotation information in the OTC market to the KOFIA in real time, and KOFIA discloses the information to the market in real time.

Previously, domestic bonds were traded mainly by institutional investors in the OTC market, and bid-ask prices were offered through private messengers. This made it difficult for market participants to obtain fair and timely transaction information, and new participants had difficulties entering into the market.

In an effort to promote post-transparency, the KOFIA introduced the BQS in December 2017. the KOFIA requires financial investment firms, banks, and merchant banks, as well as inter-dealer brokers to report, in real time, all information on quotes and exercise prices of all bonds traded in the OTC market. This ensures that all OTC quotes can be published on its website (www.kofiabond.or.kr), enhancing the price discovery function and increasing transparency in the OTC market.

C. Publication of OTC Final Quotation Yields

When the market closes, the KOFIA posts the final quotation yield for each bond that is represented on the Korean bond market on the BQS website. The final quotation yield is the average of the trading yields submitted by each of the securities companies.

Every six month, the KOFIA designates financial institutions actively engaged in bond trading and underwriting as reporting institutions, and have them report their final quotation yields. Information is collected at 11:30 and 16:00 each working day, and disclosed at 12 noon and 16:30 of the same day.

<Table 4-5> Bonds Subject to Yield Report

Classification	Type	Time to maturity
Government bonds	Type 1 housing bond(5Y) KTB(1Y) KTB(2Y) KTB(3Y) KTB(5Y) KTB(10Y) KTB(20Y) KTB(30Y) KTB(50Y)	4 years and 6months - 5 years and 1 month 10 months – 1 year 1 year and 9 months – 2 years 2 years and 6months – 3 years 4 years and 6 months - 5 years 9years and 6months~10years 19 years – 20 years 29 years - 30 years 47 years – 50 years
MSBs	MSB(91 days) MSB(1Y) MSB(2Y)	85 days – 91 days 10 months - 1 year 1 year and 9 months – 2 years
Special bonds	KEPCO bond(3Y)	2 years and 9 months - 3 years
Financial bonds	Industrial financial debenture(1Y)	10 months – 1 year and 1 month
Corporate bonds (AA-)	Corporate bond(non-guaranteed 3Y)	2 years and 9 months – 3 years
Corporate bonds (BBB-)	Corporate bond(non-guaranteed 3Y)	2 years and 9 months – 3 years
Certificate of deposit	Commercial Bank CD(91 days) Special Bank CD(91 days)	91 days 91 days
Commercial paper	Commercial paper(91 days)	85 days – 91 days

D. K-Bond: An Online Bond Trading System

The KOFIA launched K-Bond, an online bond trading system, in September 2017. The K-Bond enables financial investment firms and market participants to discover quotes, and supports trade negotiations.[37]

The K-Bond comprises two main components: an instant messenger system (including chat rooms) and the Trading Board (T-Bond). The messenger function provides functions specialized for bond trading negotiations, including chat rooms, which allow participants to discuss 1 to N participants and conclude transactions in private; it also provides automatic storage of chatting records. T-Board offers various types of bond market data, such as market quote information, 15-minute information, and book-building related information for market analysis.

37) FreeBond, the first bond trading system introduced in 2010, was upgraded to K-Bond.

part 05

Primary Dealer System

01 Overview[38)]

Primary Dealers (PDs) have the exclusive right to participate in the primary KTB market. Instead, they have obligations to work as market-makers and provide liquidity in the secondary market. PDs are designated by the Minister of Economy and Fiance among institutions authorized for investment and trading in government bonds, considering certain requirements, such as performance of KTB transaction and financial soundness.

The PD system, widely adopted by OECD countries, is designed not only to stabilize successful absorption of treasuries by the market but also to strengthen communication between market participants and the authority. According to a survey in February 2017, 33 out of 34 OECD member countries are operating the PD system.

In Korea, the government shifted from the syndication to PD system in 1999. Korea's government bond market grew both qualitatively and quantitatively since the introduction, and the PD system played a significant role. As of December 2023, there were 18 active PDs. smooth issuance of KTBs and to promote the secondary market by designating financial institutions with outstanding KTB underwriting and market making performances as PDs.

38) Author: Jongwoon, Park. Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

02 Background[39]

The most ideal state a bond market would be when KTBs play a benchmark role in the entire bond market. However, this was not the case before the 1997 Asian financial crisis as the KTB market was little developed in terms of size and infrastructure.

KTBs (previous Public Debt Management Fund Bonds) accounted for only 2.8% of the entire bond market in terms of outstanding volume in 1996, which was far lower than that of other advanced countries including the U.S. (28.8%). The outstanding government debt to its GDP was also only 1.3%, much lower than the U.S.(44.1%) and Japan(48.1%). Furthermore, KTBs were not issued according to market principles before the financial crisis as they were allocated to the syndication at yields set by the government.

The role of government funds began to be emphasized after the financial crisis, leading to the rapid increase in government bond issuance and the need to improve the existing syndication system. To ensure efficient absorption of the increasing issuance of KTBs and to advance the financial market structure through revitalization of the secondary KTB market, the PD system was introduced along with the opening of the KRX KTB in August 1999.

The basic objective of introducing the PD system was to ensure the smooth issuance of KTBs and to promote the secondary market by designating financial institutions with outstanding KTB underwriting and market making performances as PDs.

39) Author: Jongwoon, Park. Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

03 Development of PD System[40)]

When first introduced in 1999, 12 banks, 11 securities companies and one merchant bank were designated as PDs for KTBs.

The Korean government afterwards strengthened the obligations of PDs to bolster their market-making function. For instance, the government continuously narrowed the bid-ask spreads that PDs must offer in KRX KTB. With such efforts, fair prices for KTBs were formed in the market and the likelihood of successful trade was heightened. The government also steadily raised the mandatory trading and holding volumes of KTBs for PDs.

Meanwhile, incentives offered to PDs for their market-making roles were continuously strengthened. In March 2000, a financial support system for PDs was introduced so that temporary government surplus funds were used for low-interest loans to outperforming PDs taking KTBs as collateral. Since November 2005, the idle cash of the Public Capital Management Fund, whose purpose is to further encourage efficient issuance and redemption of KTBs, has been used as a resource of the financial support system for PDs. The financial support was halted in 2007 and resumed amid the global financial crisis in 2009. Since September 2006, PDs were also given non-competitive bidding options that can be exercised to underwrite KTBs with winning rates determined in proportion to volumes underwritten in a competitive auction. The Korean government grants different incentives depending on the PD's market-making performance to drive competition among PDs, thus aiming to reduce financing cost and promote the development of the KTB market.

Beginning 2010, the average bid-to-cover ratio in competitive auctions of KTBs surpassed 300%, easing concerns of failure in debt issue. The trading volume of KTBs is also rising year by year. In February 2011, the Korean government gave a major overhaul to its PD system. This was due to the fact that the existing PD system was not much different from the syndication system while the KTB market had steadily developed.

40) Author: Jongwoon, Park. Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

As part of the development, the Korean government introduced Preliminary Primary Dealer (PPD) system to expand the KTB market and to develop the PD system into a more market-oriented one. The Ministry of Economy and Finance appoints PPDs, those wishing to become PDs. After the performance evaluation of annual trading volumes and market-making results, the outperforming PPDs are elevated to PDs.

In addition, the PD-PPD system was introduced in Q2 2012 to promote self-regulating competition between PDs. Under the system, the outperforming PPDs are elevated to PDs, and the under-performing PDs are downgraded to PPDs. In the first quarter of 2021, the Ministry of Economy and Finance introduced Fast Track promotion, to give early promotion opportunities to best PPDs to become PDs on the basis of two-quarter performance, instead of four quarters.

<Table 5-1> List of PDs and PPDs (As of December 2023)

		Institutions
PD (18)	Banks (7)	Kookmin Bank, Industrial UK, National Agricultural Cooperative Federation, Korea Development Bank, Hana Bank, Standard Chartered Bank Korea Limited, Credit Agricole Bank (Seoul branch)
	Securities companies (11)	Kyobo Securities, Daishin Securities, DB Securities, Mertiz Securities, Mirae Asset Daewoo, Samsung Securities, Shinhan Investment Cor., Korea Investment & Securities, KB Securities, NH Investment & Securities, Kiwoom Securities
PPD (4)	Banks (1)	BNP PARIBAS
	Securities companies (3)	Yuanta Securities, Eugene Investment, IBK Investment & Securities

04 PD Designation[41)]

PDs not only underwrite KTBs; they also have implications as “policy participants,” meaning they have to continuously communicate with the authority. The government hence requires institutions − wishing to become PDs or PPDs − to meet strict criteria such as rich experiences in KTB market, sufficient trading volume, strong financial standing, and so forth.

For PD or PPD designation, the permit for KTB investment trading business (underwriting included) is required pursuant to the act on capital market and financial investment business. Also, requirements and standards for fiscal soundness, staffing, and performance should be met as below.

<Table 5-2> Standards for Fiscal Soundness

	Criteria	Requirement
Banks	• BIS capital adequacy ratio at the end of the quarter immediately before the quarter which PD designation date belongs (PPD : the date of application)	No less than 8 percent
	• Total equity in the financial statement at the end of the quarter immediately before the quarter which PD designation date belongs (PPD : the date of application)	No less than 4 trillion won[42)] (No less than 500 billion won for foreign bank branches)
Securities Companies	• Net operating capital ratio at the end of the quarter immediately before the quarter which PD designation date belongs (PPD : the date of application)	No less than 100 percent
	• Total equity in the financial statement at the end of the quarter immediately before the quarter which PD designation date belongs (PPD : the date of application)	No less than 400 billion won[43)]

41) Author: Jongwoon, Park. Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

42) No less than KRW 3 trillion for PPDs (but no less than KRW 300 billion for foreign bank branches).

43) No less than KRW 300 billion for PPDs

On the other hand, financial institutions must first be designated as PPDs before becoming PDs. The Ministry of Economy and Finance determines the elevation of PPDs to PDs based on the performance evaluation of market-making. The Ministry receives applications every May and November, and the decision on designation are made by the end of June and December of the year.

PPDs can be elevated to PDs if their performances in meeting their obligations, including offering bid-ask prices, KTB trading, and 10-year KTB futures trading, are outstanding. In more detail, PPDs are entitled to become PDs if they gain more than 140 points in the evaluation of annual performance[44]. In addition, under the fast-track promotion system, outperforming PPDs are entitled to early promote to PDs if they gain more than 90 points in the evaluation of second quarter performance. However, they are not automatically guaranteed PD designation for satisfying these conditions. The final decision will be at the discretion of the Finance Minister, who will factor in the total number of PDs and their level of contribution to the stability and development of the KTB market.

On the other hand, PDs may be demoted to PPDs if their total score for the annual performance in meeting their obligations is less than 280 points out of a possible 400 points; if their quarterly score is below 40 points out of a possible 100 points; or below 60 points for two consecutive quarters. PDs falling short of the required score are not automatically demoted. Like PD designation, it will be up to the Finance Minister who will take into consideration the KTB market conditions, the number of PDs, and so forth.

PDs can also be revoked of their PD status if their quarterly average KTB holdings fall short of KRW 200 billion; if they rig the bidding in the KTB auctions; or if they submit false reports.

44) In case of PD→PPD→PD, no less than 70 points for two consecutive quarters.

<Table 5-3> Staffing and Work Experience Standards

Assessment item	Criteria	Requirement
Dealing personnel	• No. of dealers wholly responsible for dealings of KTBs and have experiences as bond dealers or brokers for at least three years	No less than 5 persons
Research staff	• No. of economic and financial specialists with experiences of at least three years in research and analysis	No less than 3 persons
Back office staff	• No. of specialists for KTBs and fund settlement who have experiences in securities and fund settlement for at least one year	No less than 4 persons
No. of years in KTB dealings	• Period from the day of authorization as a government bond dealer to the day of application for PPD designation	No less than 2 years

<Table 5-4> Performance Standards

	Criteria	Requirement
Trading volume of benchmark bonds in the KRX KTB	Trading volume of benchmark KTBs in the KRX KTB in comparison with the dealers' total trading volume of benchmark KTBs for two quarters immediately before the quarter of the PD designation * PPD designation: two quarters immediately before the quarter which PPD application date belongs	No less than 25% per quarter
Trading volume in the secondary market	The dealers' trading volume of KTBs in comparison with banks or securities companies' average KTB trading volume for two quarters immediately before the quarter of the PD designation (calculated in accordance with Clause 2 of Article 32) * PPD designation: two quarters immediately before the quarter which PPD application date belongs	No less than 25% per quarter
KTB holdings	Average balance of KTBs for own-account transactions (dealing) for the last six months	No less than KRW 200 billion

05 PD's Obligations[45)]

PDs must fulfill the obligations set forth by the Minister of Economy and Finance to maintain their PD status. The obligations are specified in the Ministry of Economy and Finance notice called "Regulations on KTB issuance and PD system management." When these obligations are fully met, PDs receive a full score (100 points) in their quarterly assessment. Scores are taken away when their obligations are not met. As PPDs are limited in terms of how much they can underwrite and receive no incentives such as financial assistance and non-competitive bidding options, they are only subject to the obligations of offering bid-ask prices and trading.

Obligations of PDs

① **KTB underwriting:** PDs are to underwrite at least 10% of the amount issued at monthly KTB competitive auctions for each benchmark KTBs.

② **Offering bid-ask prices:** PDs are to submit at least ten bid-ask prices for each benchmark KTBs (but, five prices for 30-year KTB and KTBi) in the KRX KTB during the trading hours.

③ **Trading:** PDs are to trade no less than 150% of the average trading volume of KTBs of either banks or securities companies.

- STRIPS and 10-year KTB futures: no less than 110% of the average trading volume of either banks or securities companies
- Term Repo: quarterly trading volume of Term Repos between institutions is to be no less than KRW 5 trillion, or Term Repos are to account for at least 7% of entire Repos between institutions.

④ **Holding:** PDs are required to maintain the average balance of KRW 1 trillion in KTBs on their proprietary accounts each quarter.

⑤ **Buyback:** PDs are to take at least 5% of the total volume in buybacks. (But exceptional measures can be announced. It will be up to the Finance Minister who will take into consideration the KTB market conditions.)

45) Author: Jongwoon, Park. Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

<Table 5-5> Quarterly PD Assessment Scores (as of October 2023)

Obligatory assessment items	Scoring	Scoring method
KTB underwriting (Article 30)	48 points - 2Y KTBs : 2 points - 3Y KTBs : 3 points - 5Y KTBs : 4 points - 10Y KTBs : 12 points - 20Y KTBs : 7 points - 30Y KTBs : 11 points - Additional points for actual underwriting: 9 points - KTBi : 1 point * If there is no issuance of KTBi : underwriting score without KTBi × 48/47	• Obligation fulfilled ⇒ perfect score - Quarterly perfect score : 100 points - Annual perfect score : 400 points • Obligation not fulfilled ⇒ Full score × (performance score/ Base) * Underwriting, purchase and conversion is evaluated by the average score by month • Total score ⇒ Sum of the scores for each criterion which is rounded down at the third decimal points • Trading volume on consignment is excluded
KTB purchase · conversion (Article 35)	KTB purchase and conversion : 2 points * If there is no KTB purchase and conversion : underwriting score × 2/48	
Offering of bid-ask prices (Article 31)	32 points - Base : Number of business days in a quarter - Performance score : Sum of Min [1, actual hours of price offering/obligatory hours for all trading days in a quarter] for business days * If the ratio of actual offering to obligatory offering is less than 60%, zero point is to be assigned	
Trading in the secondary market (Article 32)	8 points	
Trading volume for STRIPS (Article 32, 2)	1 point	
Trading volume for 10Y KTB futures (Article 33)	1 point	
Holdings (Article 34)	4 points	
Trading volume for term Repo between institutions (Article 36)	1 point	
Policy cooperation (Article 37)	3 points	

<Table 5-6> Monthly PD Assessment Scores (as of October 2023)

Obligatory assessment items	Scoring	Scoring method
KTB underwriting (Article 30)	48 points - 2Y KTBs : 2 points - 3Y KTBs : 3 points - 5Y KTBs : 4 points - 10Y KTBs : 12 points - 20Y KTBs : 7 points - 30Y KTBs : 11 points - Additional points for actual underwriting: 9 points - KTBi : 1 point * If there is no issuance of KTBi : underwriting score without KTBi × 48/47	• Obligation fulfilled ⇒ perfect score - Monthly perfect score : 91 points • Obligation not fulfilled ⇒ Full score × (performance score/ Base) • Total score ⇒ Sum of the scores for each criterion which is rounded down at the third decimal points • Trading volume on consignment is excluded
Buy-backs · conversion offers (Article 35)	KTB purchase and conversion : 2 points * If there is no KTB purchase and conversion : underwriting score × 2/48	
Offering of bid-ask prices (Article 31)	32 points - Base : Number of business days in a quarter - Performance score : Sum of Min [1, actual hours of price offering/ obligatory hours for all trading days in a quarter] for business days * If the ratio of actual offering to obligatory offering is less than 60%, zero point is to be assigned	
Trading in the secondary market (Article 32)	8 points - limited to trading performance at KRX KTB	
Trading volume of STRIPS (Article 32, 2)	1 point - limited to trading performance at KRX KTB	

06 PD's Privileges and Incentives[46)]

As PDs carry out their market-making obligations in the domestic bond market, the government grants rights and incentives as rewards to them. Firstly, PDs can exclusively participate in the competitive auctions for KTBs and underwrite up to 30% of the scheduled issue volume. PPDs can also participate but underwrite up to 15%. The purpose of granting rights of exclusive bidding participation to only PDs and PPDs is to strengthen the link between their obligations and incentives, thereby ensuring the stable issuance of KTBs and reducing the borrowing cost.

PDs are also granted a right to non-competitive bidding option. During the three business days following a competitive auction, PDs can additionally underwrite KTBs at the same yield as the highest yield at the competitive auction. The amount of KTBs they can underwrite through the non-competitive bidding options depends on the results of their semi-annual performance. Non-competitive bidding amount based on PD's monthly performance results is added by adjusting the percentage of which PDs can additionally underwrite through the former. PDs that placed 1st to 5th in the bi-annual performance assessment can additionally underwrite up to 20% of their total underwriting volume at the competitive auction. Those that ranked 6th to 10th can underwrite up to 15%, and those in 11th to 15th can underwrite up to 10%. The remaining PDs can underwrite up to 5%. Top five PDs in the monthly assessment were then granted an additional 10%p. From 2018, those that ranked 6th to 10th in the monthly assessment have been granted an additional 5%p in order to foster competition between mid-level PDs.

PDs specializing in a STRIPS (There are currently 17 active STRIP PDs excluding Industrial UK) have obtained the right to purchase KTB STRIPS. PDs permitted to strip are eligible to make purchases on the third business day and have to meet their obligations of separating interest and principal for their purchases of KTBs over the next month. The amounts held in stripped are less than 30% of the offered amount in the auction, and the option is granted according to the outcomes of monthly evaluation conducted in the previous month. Middle- and lower-level PDs can benefit as STRIPS are allocated regardless of underwriting KTBs.

46) Author: Jongwoon, Park. Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

Yet, KTBs which have been issued and non-competitive bids option Ⅲ could increase volatility of monthly issuance fluctuations. To manage this volatility, non-competitive bids option Ⅳ was newly established as a part of the measures to enhance the capacity of the Treasury bond market in 2020. The post-auction option Ⅳ makes it possible to underwrite with a relatively lower yield, which is announced on the auction day. As the amount for option Ⅳ depends on the actual issuance amount (summation of auctions, non-competitive auctions, and strips) to the planned on a monthly basis, the option Ⅳ is expected to reduce monthly issuance fluctuations.

In addition to the aforementioned privileges, a financial support system is being operated to provide low-interest loans to PDs with outstanding performance, using the government's temporary surplus funds and taking their KTBs as collateral. Also, to encourage the active participation, the Ministry will expand the financial support for PDs in terms of recipients and amounts given since 2021[47].

The Korean government conducts bi-annual PD assessment on their KTB underwriting and market-making performances, and selects top five PDs (the best overall, two securities companies and two banks) that will receive the Finance Minister award.

<Table 5-7> Top Five PDs for 1st Half of 2023 and 2nd Half 2023

	1H 2023	2H 2023
Securities companies	• Meritz Securities (1st overall) • KB Securities (1st among securities companies) • NH Investment & Securities (2nd among securities companies)	• Meritz Securities (1st overall) • NH Investment & Securities (1st among securities companies) • KB Securities (2nd among securities companies)
Banks	• Credit Agricole Bank (1st among banks) • Kookmin Bank (2nd among banks)	• Credit Agricole Bank (1st among banks) • Kookmin Bank (2nd among banks)

47) (Original) Best five PDs in a quarterly assessment + one outperforming PD → (Adjusted) Best 10 PDs in a quarterly assessment

part 06

Government Bond Market Infrastructure

01 Overview[48)]

While domestic bond trade is spurring quantitatively, the nature of it is also becoming more sophisticated, raising importance of an efficient bond system. In this light, the Korean government has been continuously establishing institutional foundations for the development of the bond market.

To ensure efficient management of bonds, the government introduced bond listing system and standard securities code, and is operating electronic securities system for efficient trading and settlement. It has also put in place the clearing & settlement system to minimize risks of settlement failures in trading processes, and introduced mark-to-market (MTM) evaluation to promote trade through fair bond pricing.

02 Bond Listing System

(1) Implications of Listing

Listing of bonds refers to the qualifying of issued bonds for trading in the KRX KTB. To ensure smooth bond trading and protect investors, the KRX requires certain conditions to be met for bonds to be listed.

Application must be submitted to the KRX to have a bond listed. Although there is no institutional disadvantage for bonds not listed, listed bonds carry many advantages such as being used as substitute securities and the like. For this reason, most issuers choose to list their bonds on the KRX.

48) Author: Jae Gook, Choi. Manager, Korea Exchange (KRX)

(2) Merits of Bond Listing

Information in the issuer of listed bonds and bond it has issued in that year is disclosed to general investors through the KRX. This allows the issuers to gain much public trust compared to those who have not listed their bonds.

Listed bonds can substitute cash for customer margin when trading equity, futures and options, or as deposits for public tender or contract with public entities in Korea. Based on the public confidence listed bonds brings, most institutional investors such as banks and investment trust companies limit the scope of their bond investments to listed bonds.

(3) Listing of Bonds and KTBs

Issuers wishing to list bonds must submit an application with supporting documents to the KRX. While bonds to be newly listed must be reviewed pursuant to the Regulations on Listing in the Securities Market set forth by the KRX, government bonds are waived of this procedure taking into account their special purpose defined in related laws. In the case of government securities, the BOK currently files the application for the listing of KTBs on behalf of the government. Usually, listing is requested on the auction day and the bond gets listed on the next day, which is the issue date. The following table shows the dates for listing, adjustment of listing amount, and delisting (process of government bond issuance to redemption).

<Table 6-1> Listing and Delisting Date of KTBs

	Issuance	Non-competitive bidding	Buyback	Conversion offer	Redemption at maturity
Settlement date	T+1	T+1	T+2	T+2	T
Listing/ Delisting date	T+1	T+1	T+3	KTBs for issue: T+2 KTBs for conversion offer: T+3	T+1

* T: Auction date, Date on which non-competitive bidding options are exercised, Date of redemption at maturity

When listed, details of the bond such as issuance date, redemption date, listed amount, coupon rate, and so forth are provided to investors through the KRX webpage and financial information providers.

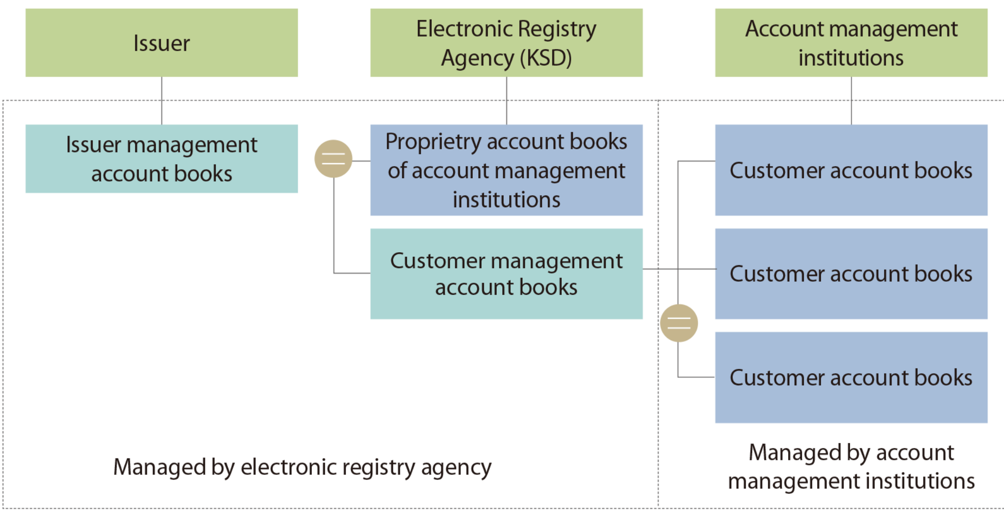
Meanwhile, government bonds, local bonds, and special bonds, continuously issued throughout the year on a certain day of months, are listed in a lump (called “Batch Listing”) by the KRX for issuer’s convenience on listing requests. Under the batch listing system, issuers set the annual issuance plan for next year at the end of every year and request for batch listing. Then, the KRX lists the planned monthly issue volume at the beginning of every month without extra request procedures. At the end of every month, the KRX receives the final issue amounts from banks and makes adjustments accordingly. Currently, among government bonds, National Housing Bonds are listed through the batch listing system.

03 Electronic Registration of Securities Issuance and Distribution

(1) Electronic Securities System

Korea introduced an electronic securities system as the 「Act on Electronic Registration of Stocks, Bonds, etc.」 (hereinafter referred to as 'Electronic Securities Act') which took effect on September 16, 2019. The previous securities depository system was transformed to the electronic securities system. Under the new system, issuance, distribution, and exercise of rights to securities will no longer be done on paper, allowing investors to acquire, transfer and exercise subsequent rights electronically. Securities certificates of listed stocks and bonds are required to be recorded on an electronic register[49]. Bond owners can claim their rights against the issuers and third parties by registering the details of transactions, pledges, liens and entrustments on the electronic registration account book.

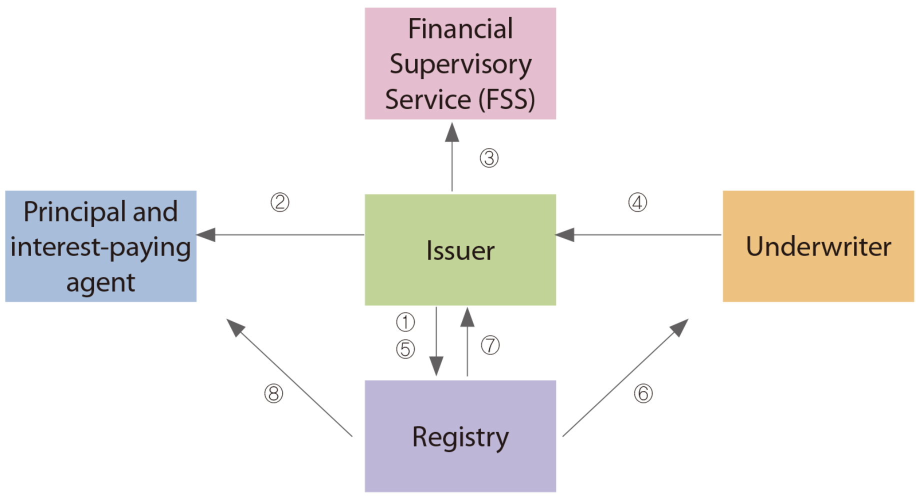
[Figure 6-1] Account Structure of Electronic Securities System



49) Electronic registration means entering information on the creation, modification or lapse of a right to stocks, etc., such as types, issues, amount and right holder of stocks, etc. details of rights, etc. in the electronic registry agency (only KSD as of April 2023) or the account book of the account management institution according to an electronic method.

The use of the electronics securities system reduces the burden on all involved parties like issuers, investors and depositories in the management and transfer of the actual bonds, promoting bond trade and efficiency in the market. Within the securities market, the expenses associated with handling and the substantial indirect social costs such as counterfeit securities are spared. The electronic registration of government bonds[50)] and MSB are managed by the BOK, and other public and corporate bonds by the Korea Securities Depository (KSD), which is in charge of operation of relevant IT infrastructure including securities issuance and distribution.

[Figure 6-2] Bond Registration Procedure



① Designate a registry (issuer → registry)
② Conclude a principal & interest-paying agent contract (issuer → principal & interest-paying agent)
③ Submit a marketable securities Report (issuer → FSS)[51)]
④ Subscribe and apply for registration (underwriter → issuer)
⑤ Notify registered issue details (issuer → registry)
⑥ Issue a registration certificate and notify registration details (registry → underwriter)
⑦ Notify registration details (registry → issuer)
⑧ Notify registration details (registry → principal & interest-paying agent)

50) NHBs are registered through the KSD.
51) Major public bonds, including government bonds, are exempted from submitting marketable securities reports

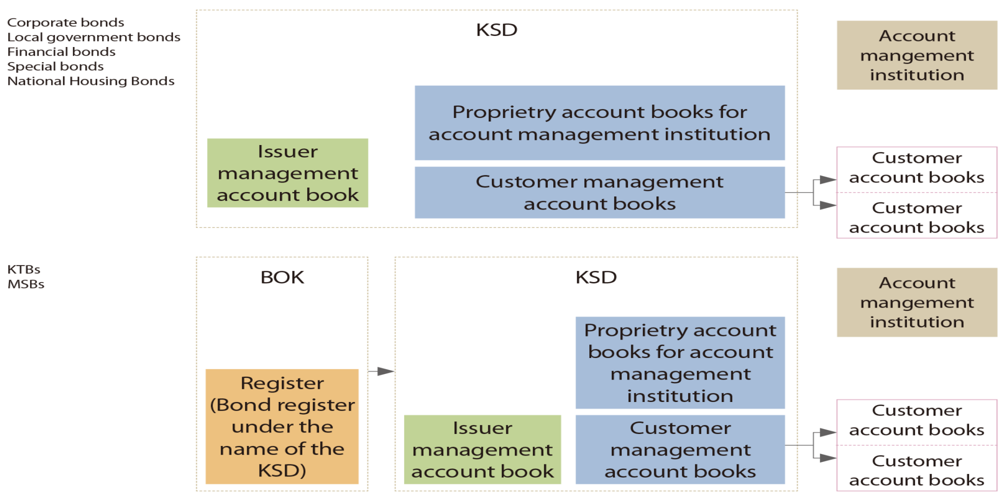
(2) Securities Issuance and Distribution

The KSD has currently took on the tasks related to the electronic registration, however issuance-related tasks are still managed by the BOK for government bonds and MSB, and by the KSD for other public and corporate bonds as they were.

As we mentioned above (1), government bonds and MSBs issuance follows the mass enrollment system where the BOK registers on bond register under the name of the KSD, and then the KSD and account management agency electronically register the bonds under the name of bondholders. In case of other public and corporate bonds, the issuer designates KSD as the registrar and applies for participation in the online bond registration system. The applicant in the online system keys-in the conditions of issuance and details of underwriters. Securities companies record holdings of marketable securities of clients by making entries to clients' accounts and deposit the securities to the KSD after specifying they are owned by their clients.

To protect clients' rights, securities are considered to be deposited at the point of securities companies making entries to their clients' accounts[52].

[Figure 6-3] Securities Issuance & Electronic Registration



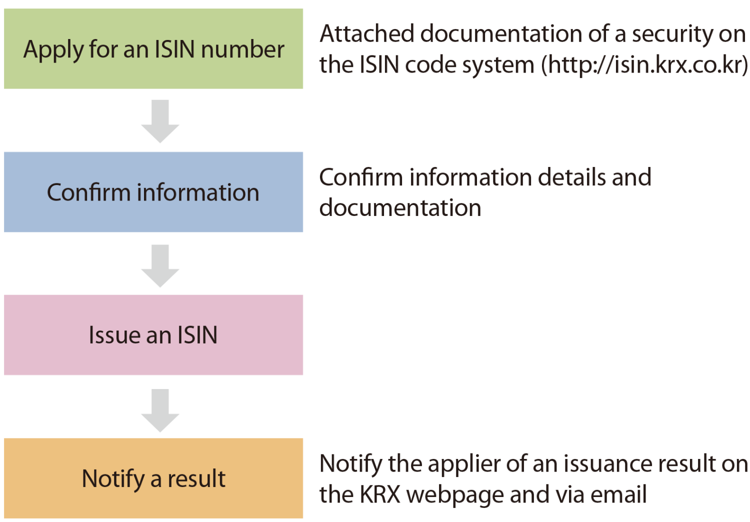
52) Institutional investors participating in the primary and OTC market usually hold their depository accounts of the KSD in their own name.

(3) ISIN Code

The ISIN[53] is a unique code, the recognized global standard for unique identification of financial instrument. With the rapid increase in trading of international securities and the use of the electronic system, the ISIN code was introduced to boost convenience in trading, deposit and management of securities products. Globally, the code is issued by exchanges, depository bodies, central banks and like. In Korea, the KRX is responsible for issuing the standard securities codes and handles the code issuance and management tasks in accordance with the "Management Criteria on Standard Codes of Securities and Financial Instruments."

Application for an ISIN code can be submitted over the internet using the KRX's ISIN code system (http://isin.krx.co.kr). A security issuer or issuing agent needs to fill out the application with the requested information and attach required documents. Once the forms and documentation are viewed, the KRX will issue an ISIN code.

[Figure 6-4] Process to Issue an ISIN in Korea



53) ISIN stands for International Securities Identification Number and its structure is defined in ISO 6166.

The most important characteristic of the ISIN code is its sole uniqueness. A single security is granted a unique 12-digit alpha-numeric ISIN that is recognized throughout the world. The first two digits consist of alpha-letters identifying the country; the following nine digits consist of 1 digit representing the type of securities, 5 digits representing issuer, and 3 digits representing the product feature; the last one digit is the check code used for error detection.

<Table 6-2> ISIN Code Structure

Country code (2 digits)	Basic number (9 digits)	Check digit (1 digit)
□□	□□□□□□□□□	□
'KR' for Korea	Different for each security	Double-Add-Double formula

* Examples of country codes of major countries : U. S. (US), Great Britain (GB), Germany (DE), Japan (JP), Singapore (SG)

In ISIN code, the first digit is "1" (government bond); the following 5 digits are composed of the bond number codes (3 digits) and the monthly issuance order code (2 digits); the last 3 digits consist of interest rate payment code (1 digit), an issuance year code (1 digit), and an issuance month code (1 digit). The structure is followed by a single check-digit.

<Table 6-3> ISIN of KTB 02375-2812 (18-10) (Issued in December 2018)

Country code (2 digits)	Attribute code (1 digit)	Unique code of issuer (5 digits)	Securities type code (3 digits)	Check digit (1 digit)
KR	1	0 3 5 0 2	G 8 C	0
Republic of Korea	Government bond	Bond name and issuance order of the month	Coupon bond and issuance year/ month	Error detection

04 Clearing and Settlement System

(1) Overview

Upon trade contract in the bond market, the buyer-seller relationship between trading parties is formed. The act of clearing this relationship through delivery and payment for securities is called “settlement.” Settlement procedures for government bond trade can be Free of Payment (FOP) or Delivery versus Payment (DVP) depending on the linkage between the delivery and payment.

Free of Payment (FOP) is a settlement method where the delivery and payment for securities are carried out separately. Due to the time difference in the delivery and payment, counterparts are inevitably exposed to risks. In other words, the one who carries out its own obligation (securities delivery or payment) prior to the other ends up taking the risk. Hence FOP always carries settlement risks (or primarily the principal risk).

Delivery versus Payment (DVP) is a settlement procedure that minimizes settlement risk through simultaneous delivery and payment of securities. Even if there is time difference between the two, it is still usually considered to be DVP if it has a safety mechanism put in place that can control the resultant settlement risks and cannot avoid the time difference for technical reasons.

The DVP method is used both in the KRX KTB and OTC markets. In the case of the OTC market, the FOP method is used in special cases including the request from settlement participants.

(2) Risk Mitigation through Clearing Agencies

In both KRX KTB and OTC markets, the settlement institutions are BOK (payment settlement) and KSD (securities settlement). However, they have different settlement dates, netting methods and settlement assurance.

<Table 6-4> Settlement Method in KRX KTB and OTC Markets

	Settelment date	Netting method	Central settlement and assurance of settlement	Payment	Securities Settlement
KRX KTB	T+1day[54]	Multilateral netting	KRX	BOK	KSD
OTC	T to T+30 days	Bilateral netting	-	BOK	KSD

* T: Trading date

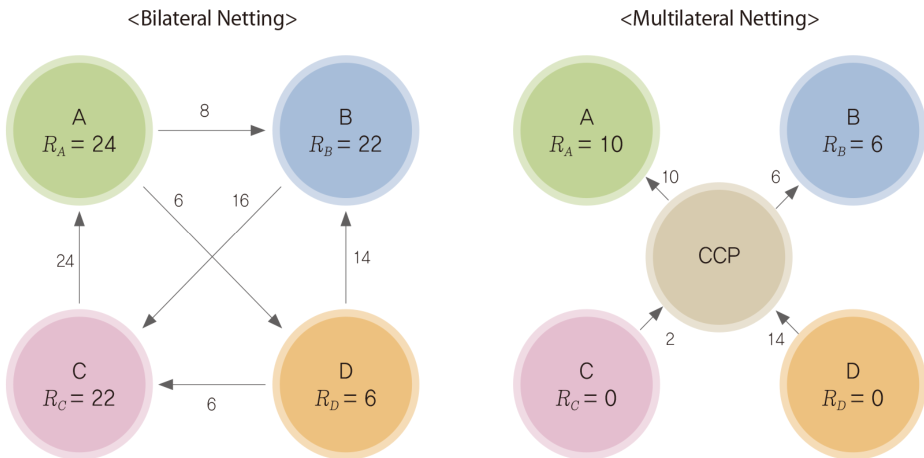
As the OTC market mainly involves trades between individual institutions, there are various settlement dates, and it uses the bilateral netting method. As settlement is not guaranteed by a third party, both trading parties are exposed to a series of potential risks such as payment delay of failure, and liquidity crunch.

In the KRX KTB, the multilateral netting method is used as the market involves competitive trade. The Korea Exchange not only has been responsible for establishing and operating the market but also serving as the Central Counterparty (CCP), in charge of settlement. As a CCP, the Exchange confirms the details of bond trade and underwrites the debt obligation of clients. In short, clients are exempted the same debt obligations through the Exchange's debt take-over. The volume of debt taken over through confirmation of bond trade and a takeover process of obligation can be reduced through the multilateral netting system, thus easing the CCP's settlement risk.

54) If the T+1 is the deadline date of accumulating reserve funds of BOK, the payment is made on the next business day, T+2.

Under the bilateral netting, the settlement volume of customer A against others is '14,' and A's settlement risk size (RA) against others is '24.' However, A's settlement volume comes to '0,' and its risk size against others becomes '10' under the multilateral netting conducted by a CCP, since the customer A ends up with only receiving position from a CCP after going through the multilateral netting. Of course, the actual risk against others gets '0' because the risk refers to one against a CCP[55].

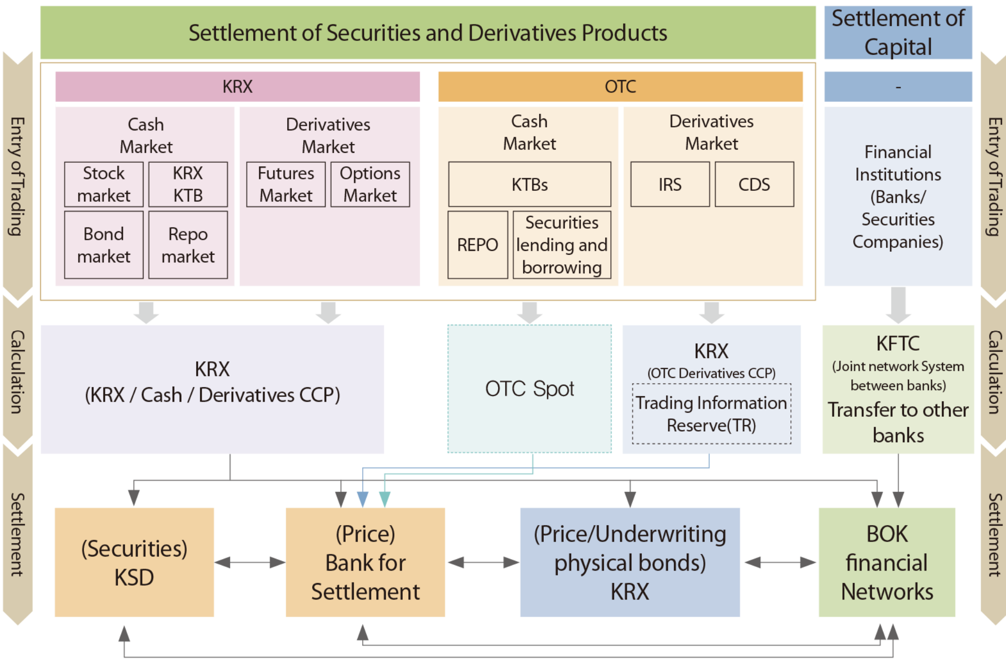
[Figure 6-5] Bilateral Netting and Multilateral Netting



To prevent default risks from circulating through the whole market, the KRX has been securing extra reserve for settlement such as accumulated settlement funds, joint compensation fund for loss incurred from default, etc.

55) In the KRX KTB, the settlement agency is the KRX (CCP) regardless of trading partners.

[Figure 6-6] Clearing and Settlement System in Financial Markets



(3) Clearing and Settlement System of the KRX KTB

The settlement date in the KRX KTB is the next day of trading date (T+1) and settlement must be completed by 16:00 on that day. Settlement of securities in the KRX KTB is completed for each bond. When the sell-side transfer securities to KRX accounts, the KRX without delay transacts payment to sellers with provided liquidity from the BOK. As for buyers, the KRX pays back received capital from buyers to the BOK, receives back government bond securities provided to the BOK as collateral, and delivers them to buyers.

As the KRX KTB involves trading between PDs, the number of issues traded is relatively small while settlement amount per issue is large. For this reason, it is more efficient for securities and payment to be deducted or settled by issue. In consideration of this, the KRX overhauled the clearing and settlement system to enable securities delivery and payment to be settled by issue beginning February 20, 2012. The details of the system overhauls are as follows;

Firstly, the original method of universal deduction for all bond issues was changed to a differential deduction by issue, the same as settlement for securities. This enables receipt of both securities and payment by issue. Also, the KRX eased the requirement for receipt, so that, once customers complete the payment or securities delivery, they are allowed to receive the securities or payment concerned. Accordingly, even when all the securities and payments are not completely delivered or paid, early receipt to customers, who meet the qualification, is doable, thus raising efficiency and immediacy of settlement.

Secondly, the BOK provides the KRX with liquidity for settlement using the government bonds delivered by customers to the KRX as collateral under the "Daily Repo Trade System." Under the system, the KRX can use the liquidity provided by the BOK and immediately make the payment to customers, thus addressing overdue settlement of government bonds.

Thirdly, in the past, the KRX started to make payments or deliver securities from 15:00, after all customers completed payment and securities delivery. However, as the BOK started to provide liquidity for settlement from 09:00, the KRX changed its onset time for opening settlement to 09:00. By doing so, the system operating risk driven by settlement concentrated in the afternoon and the overdue payment issue were resolved.

05 Mark-to-Market Evaluation

Mark-to-Market (MTM) evaluation refers to the valuation of bonds at market price not at book value.

Before its introduction (before the Asian financial crisis in 1998), bonds in trust accounts were valued at book value, which failed to reflect default risks. As a result, investors and fund management companies only preferred high-yield bonds without considering the accompanied investment risks.

In order to resolve this problem, the Korean government tried to change the evaluation method to MTM, which was not feasible then due to lack of liquidity in the secondary market.

The Korean government began to prepare for the introduction of the MTM evaluation in September 1998 by amending applicable laws and establishing a public disclosure system for bond yields.

In September 1998, the Korea Financial Investment Association (KOFIA), previously the Korean Securities Dealers Association, began to collect data on bond yields (by type and credit rating) from ten securities companies to publicly disclose them. To better reflect various elements like liquidity premiums in bond prices, the Korean government authorized the establishment of three private bond pricing agents, Korean Asset Pricing, KIS Pricing and NICE P&I (name change from “NICE Pricing Services”) in June 2000, (FnPricing was additionally included in September 2011, and EG Asset Pricing was added in May 2021) and provided policy support.

In October 2003, the KOFIA stopped disclosing the bond yields, and private pricing agents took over the role. The KOFIA on the other hand monitors the fairness and appropriateness of the prices assessed by evaluation companies and provides mark-to-market yields and average yields reported by rating companies to prevent improper collusion between evaluation agents and clients. As for the average yield, the system was changed from providing a simple average of the yields reported by evaluation agents to an average calculation based on the user’s own selection of the agent from January 2023.

<Table 6-5> Measures to Expedite Establishment of Bond Pricing Agents

	Korean Government's Measures
Jun. 2000	Authorized the establishment of Korean Asset Pricing, KIS Pricing and NICE P&I
Nov. 2000	Required subordinated bonds and speculative-grade bonds included in tax-exempt high-yield funds to be priced by multiple pricing agents
Feb. 2001	Required speculative-grade bonds included in mutual funds to be evaluated by multiple pricing agents
Sept. 2001	Required assets in investment trusts to be priced by multiple pricing agents
Jan. 2002	Required assets in bank trusts accounts to be priced by multiple pricing agents
Apr. 2002	Made evaluation by multiple pricing agents obligatory for insurers' separate accounts
May 2002	Made evaluation by multiple pricing agents obligatory for securities companies' bonds for RP
Oct. 2003	Discontinued disclosure of individual bonds' yields by KOFIA
Sep. 2011	Added FnPricing
May 2021	Added EG Asset Pricing

With the MTM evaluation system fully in place, bond investors can obtain information on bond prices and risks, which helps them make more informed decisions. With fair evaluation of various financial products by professional evaluators, asset management of investment trust companies became more transparent and structured bonds market was stimulated. The MTM evaluation system is, therefore, viewed as a significant boost to the development of not only the KTB market but also the entire bond market.

part 07

Foreign Investment in KTB

01 Overview[56)]

While domestic investors dominated the KTB market before 2007, foreign investors have gradually gained importance year by year. The diversification of the investor base by attracting investors with different time horizons, risk preferences and trading objectives, can bring about benefits such as dispersion of systematic risks and easing of market volatility.

Foreign investors can freely invest and hold KTBs as there are no procedural restrictions for them in investing in KTBs. On the other hand, the continuous increase of foreign investor is considered to have come from Korea's fiscal soundness and good sovereign ratings, and quick and robust economic recovery since the 2008 global financial crisis. In particular, despite growing concerns over the spread of the COVID-19, foreign investors showed their strong trust in Korean bond market by significantly expand their investment in Korean bonds.

<Table 7-1> Bond Market Investment by Foreign Investors

(Unit: KRW trillion)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total	100.4	101.4	89.3	98.5	113.8	123.7	150.1	214.0	228.6	242.9
(%*)	6.9	6.5	5.6	5.9	6.6	6.8	7.3	9.6	9.7	9.8
KTBs	65.9	67.7	72.5	77.8	86.3	98.3	121.6	164.1	193.0	219.5
(%)	15.0	13.8	14.0	14.2	15.2	16.1	16.7	19.4	20.5	22.0
MSBs	33.2	32.7	15.5	19.5	26.2	24.3	23.1	35.7	18.2	12.9
(%)	18.7	17.9	9.2	11.4	15.3	14.7	14.5	25.5	16.2	10.6

The Korean government had initially allowed nonresidents to invest in the bond market, starting with bonds issued by SMEs in 1994, and planned to gradually expand the scope of eligible bonds. However, foreign investors were limited to investing in only few types of securities such as corporate bonds.

56) Author: Jeong Sang, Park. Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

The government's plans to expand the investor base were accelerated with the full opening of the Korean bond market to foreign investment in December 1997. However, despite the full-fledged opening of Korea's bond market, investment in KTBs by foreign investors remained negligible until the mid-2000s due to the absence of an active secondary market. Up until 2006, their holdings took up less than 2% (KRW 4.2 trillion holdings.)

In and after 2007, motivated by growing marketability of KTBs and greater opportunities for arbitrage profit, foreign investment rapidly increased. As of the end of 2023, foreign holdings reached KRW 219.5 trillion (holdings share: 22.0%), which continued increasing after 2016. The total amount of Korean Won-denominated bonds held by foreigners is KRW 242.9 trillion (holding share: 9.8%). The number of investing countries also increased to 45 (including international organizations) in 2023 from 27 in 2007. While foreign investors were mainly focused on investing in short-term bonds (i.e. 3-year), they have gradually been expanding their investments to medium and long-term bonds (i.e. 10-year or longer.)

In particular, Korea was added to the Watch List of the World Government Bond Index (WGBI) on September 30, 2022 (KST). In efforts to join the WGBI, Korea implemented various institutional reforms, such as non-taxation of interest income and capital gains derived from non-residents and foreign corporations' investment in Korean government bonds (Jan. 2023) and abolition of Investor Registration Certificate (IRC) (Dec. 2023). Other reforms, such as introduction of the ICSD-linked omnibus accounts for KTBs investment (scheduled to be opened in Jun. 2024) and advancement of the foreign exchange market (test operation in Jan. 2024, formal launch scheduled in Jul. 2024), are also being proceeded to improve investment conditions for foreigners. If Korea is officially included in the Index based this exert, a new horizon for foreign investment in Korean bonds is expected to be opened up.

02 Foreign Investment Management System (FIMS)[57]

While the rapid increase in foreign investments reflects the improvement of foreign investors' confidence in Korea's bond market, it also implies the possibility of greater volatility in the capital or foreign exchange market. Recently, concerns of such volatility, which may be triggered by rapid capital flows in and out of Korea as it was in 2016, have risen. In response, the Korean government has strengthened its monitoring of foreign investments in bonds.

FIMS was established to monitor foreign investment flows. The FIMS reports data on foreign holdings and trades in stock and bond markets in real-time to Financial Supervisory Service. The FSS then analyzes the information to preemptively respond to capital flows induced by domestic and offshore financial markets.

On the other hand, the Korean government has been working on attracting foreign investors with long-term investment horizon, such as central banks, and establishing cooperative relationships with them. We have discussed current issues in the financial market and shared market outlook. Also, by improving their trust in Korean bond market, we have made every effort to encourage them to continue investing in Korea.

<Table 7-2> Overview of FIMS

Tasks	Details
Investor management	Investor registration, account and identification documents
Investment ceiling	Management of orders and transactions (listed securities, KOSDAQ, bonds) Management of foreign investment limits
Investment traded	Daily management of investment funds
Statistics	Management of investment status and statistics on foreign investment

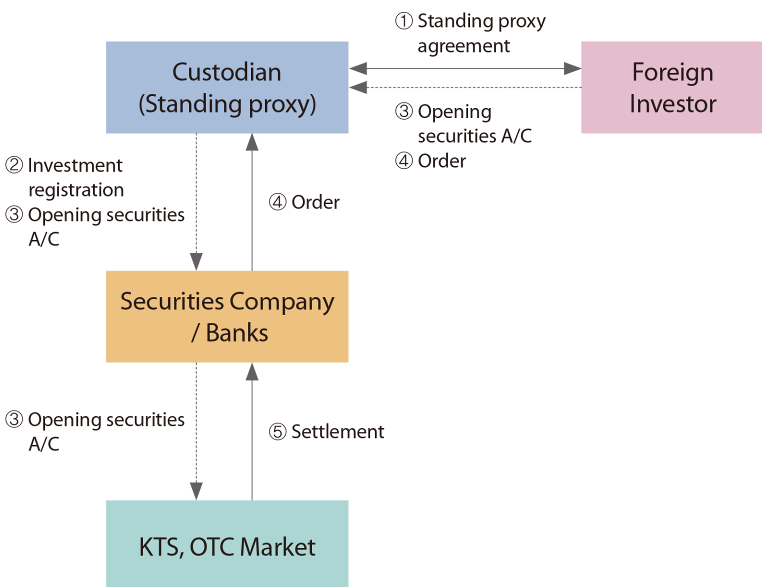
57) Author: Jeong Sang, Park. Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

03 Foreign Investment Procedures[58)]

(1) Foreign Investment Procedures

In order to invest in Korean bonds, foreign investors must handle the following procedure: appoint a standing proxy - register as an investor - open a trading account - place trading orders - order settlement and deposit funds - complete the settlement.

[Figure 7-1] Foreign Investment Procedures



58) Author: Jeong Sang, Park. Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

A. Standing Proxy Agreement

Foreign investors must appoint a standing proxy that will handle necessary procedures for securities trading in Korea, and a custodial institution that will keep acquired securities in custody. The custodial institution is limited to KSD, a foreign exchange bank under the Foreign Exchange Transaction Act, an investment business entity, an investment broker, a collective investment business entity, and an internationally recognized foreign custodian. The qualifications for a standing proxy are the same as that of a custodian.

B. Opening Account

Foreign investors must open a foreign currency account and a non-resident Korean won account for securities investment at a domestic custodian institution, which are used for foreign currency deposits and conversion to and from Korean won.

C. Trading Order and Report on Result

Foreign investors place order on their own or via a standing proxy, and they request the standing proxy to settle.

D. Settlement

When foreign investors make deposits in foreign currency to domestic custodians, the custodians convert them to domestic currency and process settlement with financial intermediaries (including securities companies and banks). In the KRX KTB market, both funds and securities are settled simultaneously via the KRX. For each trade deal in the OTC market, DVP (Delivery versus Payment) under the Gross Settlement System is used. Funds are transferred through BOK-Wire or bank accounts, and bonds are settled by book-entry clearing method via SAFE system of KSD.

(2) Domestic Securities Trading and Settlement by Foreign Investors

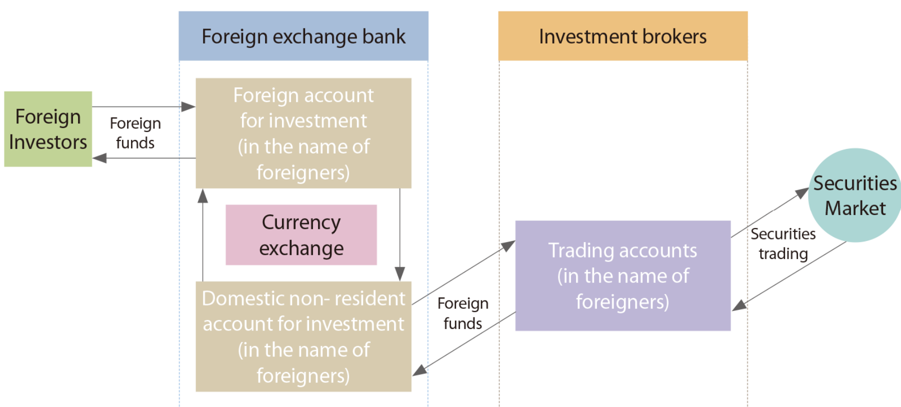
In order to trade securities, foreign investors must open a trading account at a securities company. For payments, they can open a foreign currency account at a foreign exchange bank pursuant to the Foreign Exchange Transactions Regulations, or use investment brokers' accounts.

A. When Foreign Investors Open an Account in Their Name

Foreign investors can open a foreign currency account and a non-resident Korean won account for security investment in their name to deposit and dispose funds. Such accounts should be opened for each type of investment security, and funds in foreign currency accounts are restricted to use for specific purposes such acquiring domestic securities and wiring money overseas.

In order for foreigners to invest in Korean securities, they need to transfer money in foreign currency to their foreign currency account (opened in their own name) exclusively for securities investment. They must then convert the money into Korean won and transfer to their non-resident Korean won account exclusively for investment. The converted proceeds need to be transferred again to their trading account held at the investment broker institution for securities trading.

[Figure 7-2] When Foreigners Open an Account in Their Own Name

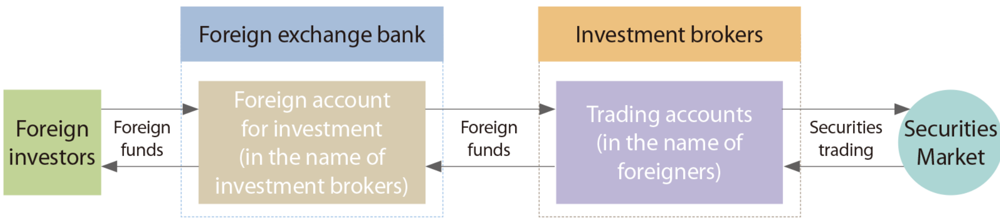


B. When Foreigners Use the Account of an Investment Broker

Investment brokers can open a foreign currency account at foreign exchange banks in their name for foreign investors' trading of Korean won securities, or lending and borrowing of approved securities.

For trading securities using the account of the investment broker, foreigners need to transfer money in foreign currency to foreign currency account (in broker's name) exclusively for securities investment. The broker then exchange the funds into Korean won and transfer to the foreign investor's trading account held at the broker's institution.

[Figure 7-3] When Foreigners Invest Through Broker's Account



C. Opening of the ICSD-Linked Omnibus Account for Government Bonds

To expedite the introduction of the ICSD-linked omnibus account for government bonds, the Ministry of Economy and Finance (MOEF) has constantly consulted with the Korea Securities Depository (KSD) and ICSDs, such as Euroclear and Clearstream. In August 2023, the KSD signed an agreement with Euroclear, and Clearstram for the introduction of the omnibus account linked with ICSDs related to KTB investment, which is scheduled to be formally opened in June 2024. When the omnibus account is activated, foreigners will be able to invest through their ICSD accounts that they already have, regardless of the existing procedures such as appointing the attorney-in-fact and opening accounts with local custodian banks.

04 Taxes on Fixed-Income Securities in Korea[59)]

The domestic tax laws classify foreigners as either “non-residents” under the Income Tax Act or “foreign corporations” under the Corporate Tax Act. “Residents” are defined, under the Income Tax Act, as individuals who have resided in Korea for no less than 183 days. “Foreign corporations” are defined, under the Corporate Tax Act, as corporations that have the headquarters or main office outside of Korea.

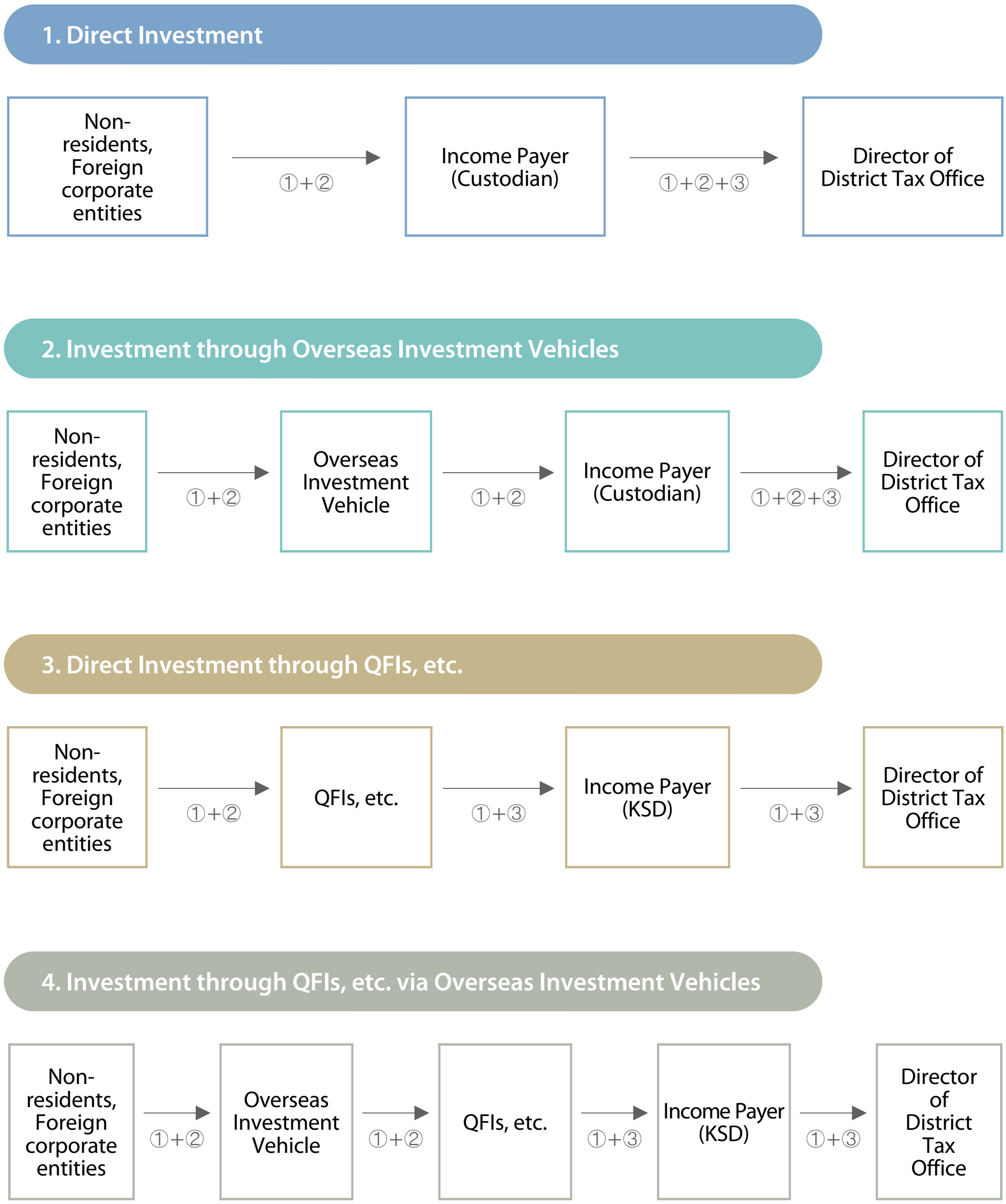
Previously, only interest income on bonds were taxed for residents (capital gains are exempt from taxation). For foreign corporations and non-residents, both interest income on bonds and capital gains are subject to taxation. Non-residents and foreign corporations are subject to taxation on domestic incomes, but the types of taxation varied based on domestic business location, domestic source income, a tax treaty with Korea and others.

From 2023, however, Korea newly established and executed special provisions (Article 119(3) of the Income Tax Act and Article 93(3) of the Corporate Tax Act) to exempt taxes on interest income and capital gains derived from foreign investment in government bonds and Monetary Stabilization Bonds (MSBs). In order for non-residents and foreign corporations to apply for tax exemption, they must submit an application form and a certificate of residence to the income payer. If they invest through a ‘Qualified Foreign Intermediaries (QFIs), etc.,[60)]’ they should submit the relevant documents to QFIs, etc.

59) Author: Jeong Sang, Park. Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance

60) Foreign corporations with a headquarters or the main office in a country with which Korea has a tax treaty, that are approved by the Commissioner of the National Tax Service as a corporations that conduct businesses similar to that of the KSD and function as securities custodians.

[Figure 7-4] Application Process for Tax Exemption for Non-Residents, etc. by Investment Type



* ① Application form for tax-exemption
② Certificate of residence of documents designated by the Commissioner of the National Tax Service
③ Statement of Transactions and Holdings of KTBs, etc.

05 BOK's Securities Custody Services[61)]

Since the global financial crisis in 2008, the need to diversify investment portfolio and robust profit opportunities in domestic bond market have prompted central banks and international financial institutions to continuously increase their investment in Korea's bond market.

In judgment that the investments in Korean bonds by foreign central banks are part of the management of the respective countries' foreign reserves, and that their relatively stable inflows and outflows contribute to the stabilization of Korea's foreign exchange and capital markets, BOK has been providing securities custody service since 2015.

When foreign central banks, international financial institutions, and foreign government invest in KTBs, MSBs, or T-bills, BOK enters into cooperative partnership with them and provides various services like safe deposit of securities certificates, receipt of principal, settlement, deduction of withholding tax, management of trading details, etc. As of the end of 2023, six foreign central banks and one international organization signed an MOU (Memorandum of Understanding) to enhance collaboration in the area.

The custody service has reduced counterparty risks, helping enlarge investment by foreign central banks into KTBs. And the service also has intensified monitoring of capital flows, contributing to global cooperation for financial stability.

Major countries including U.S., UK and Japan have offered this Securities Custody Services. The BOK has discussed Securities Custody Services with Round-table for Official Sector Service Providers which consist of 11 foreign central banks and the BIS.

<Table 7-3> BOK's Securities Custody Services

Eligible customers	Eligible securities	Business
Foreign central banks international financial institutions foreign governments	KTBs Treasury bills MSBs	Safekeeping of securities, interest receipt and payment, tax withholding, reporting of daily transaction results, etc.

* Source: BOK

61) Author: Jeong Sang, Park. Deputy Director, Government Bond Policy Division at the Ministry of Economy and Finance


part 08

KTB-related Markets

1. Overview
2. KTB Repurchase Agreement (Repo)
3. KTB Futures
4. STRIPS
5. KTB ETF (Exchange Traded Fund)

01 Overview[62)]

KTB-related market is a market for financial instruments derived from KTBs. The growth of the KTB market led to the formation and development of this market, which is in turn driving the qualitative growth of the KTB market overall.

There are several types of KTB-related market. The Repo market trades KTBs but adds the character of money market by attaching certain conditions; STRIPS separates the principal and interest of KTBs and trades them as marketable securities; KTB futures are used to gain profits from fluctuations in KTB prices without actual trading or hedge against KTB prices changes; and ETF invests in KTB indices to diversify investment portfolios. The participants in these markets have different investment purposes compared to those in the KTB market.

KTB-related market will be kept developing both qualitative and quantitative growth, which will in turn contribute to promoting the spot market. The Korean government will continue to make policy efforts to meet the investment needs of diverse market participant and to vitalize the KTB-related market.

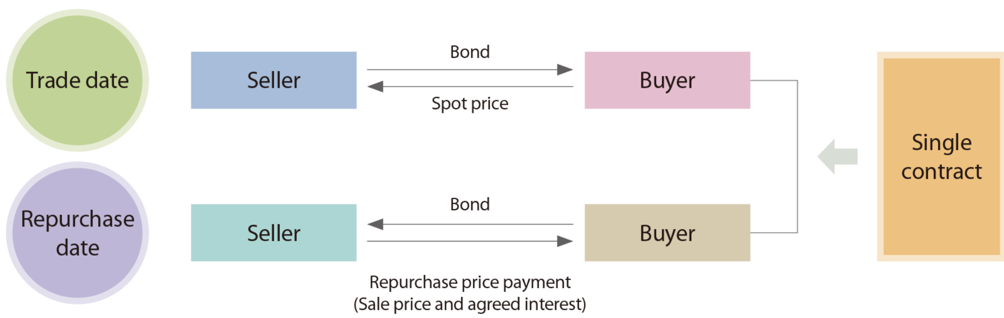
62) Author: Jae Gook, Choi. Manager, Korea Exchange (KRX)

02 KTB Repurchase Agreement (Repo)[63]

(1) Repo Transaction

Repo can be defined as an agreement in which one party sells securities or other assets to a counterparty, and simultaneously commits to repurchase the same or similar assets from the counterparty, at an agreed future date of on demand, at a repurchase price equal to the original sale price plus a return on the use of the sale proceeds during the term of the repo.

[Figure 8-1] Repurchase Agreement



Although the term 'repo' is applied to the whole transaction, it is market convention to specifically describe the seller's side of the transaction as the 'repo' and the buyer's side as the 'reverse repo.' Dealers talk about sellers 'repurchase out' collateral and buyers 'reverse in' collateral.

63) Author: Jae Gook, Choi. Manager, Korea Exchange (KRX)

(2) Economic Overview of Repo Transaction

A repo falls under the category of bond trading in form, but is economically similar to a secured loan. Looking at the structure of a repo, ownership of bonds and cash are exchanged on the days of sale and repurchase, making it the same as general trading of securities. However, from an economic perspective, it is a loan transaction collateralized with securities where the party in need of funds (seller) provides securities as collateral and borrows cash. As such, the original repo seller accrues interest and other profits resulting from collateral securities during the term of the repo, unlike general trading.

In other words, the party in need of cash and in possession of bonds maintains the right to the economic profits of the bonds and raises funds at a low interest rate by selling the bonds in the repo transaction. On the other hand, the party in possession of cash can safely manage the fund by buying the bonds in a repo (reverse repo) and is given an opportunity to realize trading profits by freely disposing of the purchased. Bonds while in ownership of them.

(3) KTBs in the Repo Market

Due to their ‘risk-free’ reputation, KTBs are used as collateral in the repo market for lower borrowing cost compared to other bonds (lower repo rate).

03 KTB Futures[64)]

(1) Overview

Futures are financial contracts obligating the buyer to purchase an asset or the seller to sell an asset, such as a physical commodity or a financial instrument, at a predetermined future date and price. KTB futures are standardized contracts traded on a centralized exchange (Korea Exchange, KRX). Among government bonds in Korea, it is KTB that has the futures market. Hence KTB futures refer to a financial product whose underlying assets are KTBs.

Currently, there are four KTB futures markets by maturity, namely markets for 3-year, 5-year, 10-year, and 30-year KTB futures. The 3-year KTB futures market that has shown steady growth alongside the spot market since its introduction is now the world's 15th most liquid market. The 5-year KTB futures market has been sluggish due to low investment demand, but efforts are being made to reinvigorate trading, including introduction of market makers. As the demand for KTB futures was concentrated on 3-year KTB futures, trading in 10-year KTB futures was inactive. However, with the government' policy measures to promote the long-term KTB futures market[65)] in October 2010, the trade volume of 10-year KTB futures dramatically increased, making it the world's 20th most liquid market.

Meanwhile, in October 2022, the government and the KRX announced a plan to prepare the introduction of ultra-long-term (30-year) KTB futures, aiming to meet the hedging needs and to build a diversified investment environment in the market. After completing the procedures necessary for the system development, including communication with the market, the government introduced the 30-year KTB futures in February 2024.

64) Author: Jae Gook, Choi. Manager, Korea Exchange (KRX)

65) Trading performance of PDs' in 10-year KTB futures was added as an evaluation item and the method of final settlement changed (Physical delivery → Cash settlement)

<Table 8-1> Average Daily Trading Volume of KTB Futures

(Unit: No. of contracts)

Year	3Y KTB futures (Sept. 1999)	10Y KTB futures (Feb. 2008)
2017	91,072	50,028
2018	94,218	62,034
2019	108,676	72,105
2020	121,624	71,247
2021	147,873	68,103
2022	155,065	64,765
2023	160,566	70,128

(2) Goals of KTB Futures

As the issuance volume of KTBs rapidly increased and trading became active after the 1997 Asian financial crisis, the demand to hedge against the price fluctuation of KTBs increased. Accordingly, to provide investors with means to hedge against such risks, the Korean government introduced 3-year KTB futures in September 1999.

<Table 8-2> Hedge Transaction When Falling Bond Prices (increasing interest rate)

	Spot	Futures
t = 0	KRW 10,000 Long	KRW 10,000 Short
t = T (in three months)	KRW 9,000	Market price: KRW 9,000 Futures price: KRW 10,000
Payoff	△ KRW 1,000	KRW 1,000

The KTB futures market is regarded to have had a positive impact on trading of KTB spots by linking trading of spots and futures. The KTB futures market is contributing to the development of the financial market by providing information on future rates, and diversifying the investor base as new investment tools.

(3) Characters of KTB Futures Transactions

A. Daily Settlement

The settlement amounts of futures transactions can be excessively large if settlement is made only once on the maturity date. The KRX hence marks the unsettled contracts to previous closing price everyday. Then, it settles profit and loss resulting from market-to-market to keep settlement amounts small and simplify settlement tasks.

To increase efficiency in daily settlement and guarantee settlement, the KRX requires traders to deposit margins. Customer margin is calculated for each future account. Hence, a person who has multiple accounts must pay margin on each account. Customer margin is defined as a guarantee for settlement and, therefore, should be paid in cash. However, it can be paid with securities and foreign currency within a certain scope.

B. Cash Settlement

Futures are settled either by transferring actual securities (physical delivery)[66], the underlying assets of futures contracts, on the maturity date, or by paying cash for the change in value (cash settlement). Cash settlement is used for KTB futures as it is burdensome for traders to trade actual securities. Not only that, they do not have to transfer KTBs and funds of large scale for settlement using this method as only the change in value is settled between parties.

C. Standardized Virtual Bond as an Underlying Asset

It is difficult to standardize trading conditions of bond futures compared to other futures contracts. Trading conditions such as time-to-maturity, coupon rate and interest payment method vary, which leads to inconvenient and costly settlement processes. This is why a standardized virtual bond is used as an underlying asset. It enables trading of KTB futures in large volumes and easy transfer of them to third parties. For instance, a virtual bond with a coupon rate of 5% and the time-to-maturity of three years is used as an underlying asset for 3-year KTB futures. A virtual bond with a 5% coupon rate and a 10-year until maturity is used as an underlying asset for 10-year KTB futures. Current KTB futures can be considered as products targeting forward-rates by maturity on the final trading date.

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66) Settlement based on physical delivery refers to cash payment calculating profit and loss, and additional transactions are conducted at the final settlement price.

D. KTB Futures Basket

As there is no real underlying asset for KTB futures in the market, actually-traded KTBs are substituted to calculate the theoretical value of the underlying assets. In other words, futures basket is needed to be designated as spot bonds to calculate projections for rate. The KRX designates basket bonds as underlying assets for every KTB futures contract before trading.

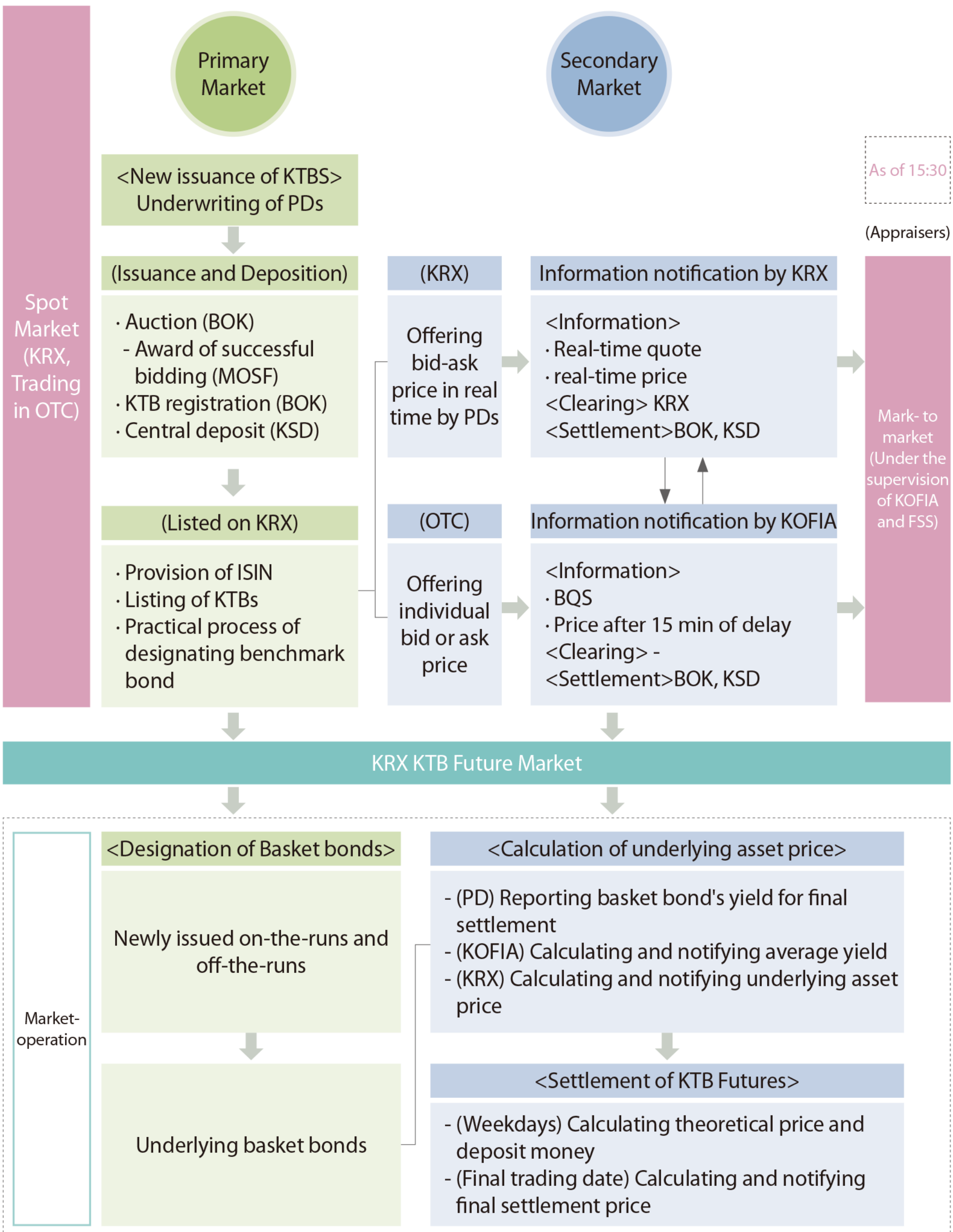
Currently, three bond types are designated for 3-year KTB futures, and two types each for 5-year, 10-year, and 30-year KTB futures. The average rate of the basket bonds ultimately decides the settlement yield, so futures basket is called "underlying asset" of KTB futures in general.

<Table 8-3> KTB Futures

<table>
<tr><th></th><th>3Y KTB futures</th><th>5Y KTB futures</th><th>10Y KTB futures</th><th>30Y KTB futures</th></tr>
<tr><td>Listing date</td><td>Sept. 29, 1999</td><td>Aug. 22, 2003</td><td>Feb. 25, 2008</td><td>Feb.19, 2024</td></tr>
<tr><td>Underlying assets</td><td>KTBs
(par value of 100 million won,
3Y maturity,
5% coupon rate)</td><td>KTBs
(par value of 100 million won,
5Y maturity,
5% coupon rate)</td><td>KTBs
(par value of 100 million won,
10Y maturity,
5% coupon rate)</td><td>KTBs
(par value of 100 million won,
30Y maturity,
5% coupon rate)</td></tr>
<tr><td>Price indication</td><td colspan="4">Par value of 100 million won converted and indicated as 100.00</td></tr>
<tr><td>Tick Size</td><td colspan="3">0.01</td><td>0.02</td></tr>
<tr><td>Tick Value</td><td colspan="3">10,000 won (=100 million won×0.01×1/100)</td><td>20,000 won
(=100 million won×0.02×1/100)</td></tr>
<tr><td>Trading hours</td><td colspan="4">09:00-15:45 (last trading day : 09:00-11:30)</td></tr>
<tr><td>Settlement months</td><td colspan="4">March, Jun, September, December</td></tr>
<tr><td>Last trading day</td><td colspan="4">Third Tuesday of the settlement month (Date forward in case of holidays)</td></tr>
<tr><td>Final settlement method</td><td colspan="4">Cash settlement</td></tr>
<tr><td>Price limit</td><td>1.5%</td><td>1.8%</td><td>2.7%</td><td>3.9%</td></tr>
<tr><td>Margin rate</td><td>0.63%</td><td>1.06%</td><td>1.97%</td><td>3.63%</td></tr>
</table>

* As of Feb. 2024, Margin rate adjusted according to price volatilty.

[Figure 8-2] KTB Spot (Issuance and Trade) and Futures Market

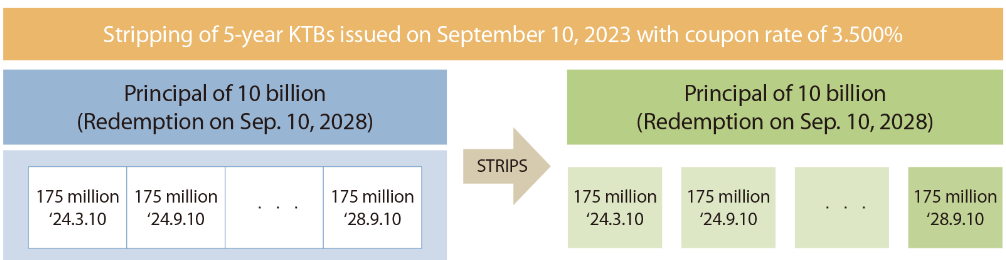


04 STRIPS[67)]

(1) Overview

STRIPS is the acronym for Separate Trading of Registered Interest and Principal of Securities. Stripping is a process of converting periodic coupon payments of an existing government security into tradeable zero-coupon securities, which will be usually traded in the market at a discount and are redeemed at face value. For example, a KTB with five years remaining to maturity (issued on September 10, 2023) consists of a single principal payment, due at maturity (on September 10, 2038), and 10 interest payments, one every six months (March 10 and September 10) over a five year duration.

[Figure 8-3] How SPRIPS Works



Reconstitution is the reverse of stripping, where the coupon strips and principal strips are reassembled into the original government security. STRIPS program can meet the demand for long-term bonds with diverse maturities and can be used in developing long-end financial instruments. Also, Stripping enables investors to get benefit for interest earned on tax-deferred.

67) Author: Jae Gook, Choi. Manager, Korea Exchange (KRX)

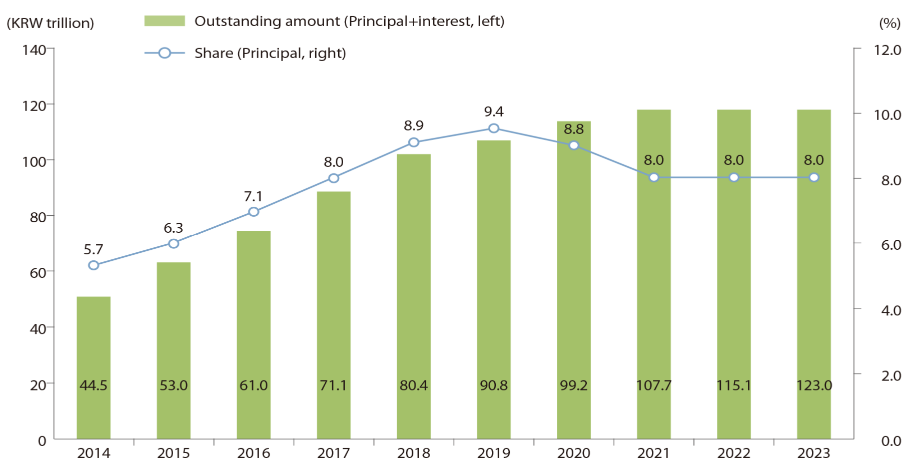
(2) STRIPS in the KTB Market

In March 2006, KTB STRIPS was initiated to increase liquidity of benchmark KTBs, build a yield curve for the long-term bond market growth, meet the demand for long-term zero-coupon bonds, internationalize the KTB market, and others.

KTB STRIPS applies to newly issued KTBs with all maturities. STRIPS components (principals and coupons) can be reassembled into a fully constituted security. However, KTBIs are excluded from STRIPS program as their principals and coupons fluctuate with the consumer price index.

The first STRIPS was offered for 20-year KTBs in April 2007. And, recently 30-year KTBs are being actively requested for STRIPS. In addition, the policy for PDs specializing in a STRIPS program was adopted in 2016[68] to promote STRIPS in the KTB market. The fifteen PDs were obliged to offer bid-ask prices, and the assessment of their STRIPS trading performance was added into semi-annual evaluation criteria on PDs. As a result, STPIRS trading volume substantially increased to KRW 268.3 trillion, from 18.7 trillion won in 2015. However, with overall decline in liquidity of the bond market caused by the global monetary tightening, including the recent increase in interest rates, the trading volume was reduced to KRW 121.3 trillion in 2023.

[Figure 8-4] STRIPS Outstanding and Share



68) 15 STRIPS dedicated PDs in 2016 when the system was introduced → 17 STRIPS PDs as of Jan. 2024

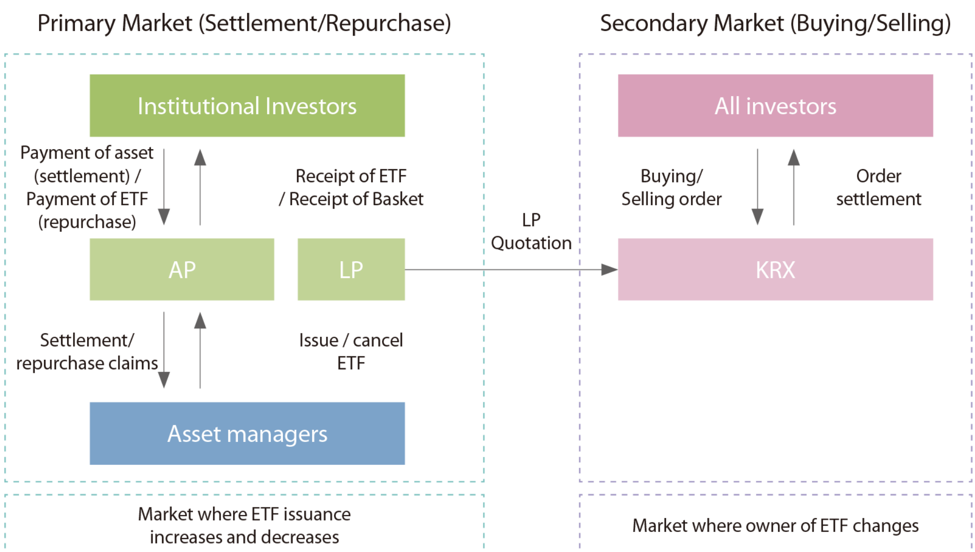
05 KTB ETF(Exchange Traded Fund)[69]

(1) Overview

KTB ETF is a fund that tracks KTB indices of yield changes in the government bond market. It is an indirect investment instrument in which investors can freely trade in the KRX KTB like stocks. Its main objective is to track KTB price moves.

In 2009, the Korean government developed real-time KTB indices and announced them to the public, which served as the foundation for developing KTB ETF. The KRX and KIS Pricing Inc. put joint efforts to develop the KTB indices consisting of three types of KTBs, including 3-year KTB benchmarks, previous benchmarks bonds and 5-year benchmarks, while the KOFIA, Maeil Business News Korea and FnGuide jointly developed the MKF TBI (Treasury Bond Index). These joint efforts made the ETF linked to the yield move of 3-year KTB index become available. By doing so, KTB ETF was listed in the KRX market for the first time on July 29, 2009.

[Figure 8-5] ETF Market Structure



69) Author: Jae Gook, Choi. Manager, Korea Exchange (KRX)

(2) Merits of KTB ETF

KTB ETF is easy to understand and invest compared to other KTB instruments. Investors can simply invest in ETF using their existing accounts for stock. Generally, individual investors have some difficulty investing in the spot-market since the general trade unit is more than KRW 1 billion. The small investment volumes of individual investors also puts them in a disadvantage. However, the minimum trade unit of KTB ETF is between KRW 50,000-100,000, and its trade price is almost similar to the market price of institutional investors, thus being favorable for individuals who make small investments.

In addition, KTB ETF does not require analysis or information on each bond types (investors simply follow the market trends). It also automatically enables investment diversification since KTB ETF invests in major market indices. Moreover, it is the most transparent investment tool in that ETF publicly notices the Portfolio Deposit File (PDF) to ensure investors to monitor their fund portfolio on a daily basis. The ETF price of bonds fully reflects moves of target index as well as publicly announces contents of a bond basket and Net Asset Values (NAV) on a daily basis. Therefore, high product transparency is the most distinctive feature of KTB ETF.

<Table 8-4> Major Financial Product Lines in Korea

	ETF	Stocks, KTBs	Index Fund	Active Fund	Futures
Management Objective	Specific index	Exceeding Profit of Index	Specific index	Exceeding Profit of Index	Hedge and marginal profts
Legal Characteristics	Collective Investment securities	Shares, Debt securities	Collective Investment securities	Collective Investment securities	Derivatives Products
Transparency	High	High	Normal	Normal	High
Liquidity	High	High	Low	Low	High
Settlement Date	T+2	T+2 (KTB T, T+1)	T+3	T+3	T+1
Loans of Securities	Possible	Possible	Impossible	Impossible	Impossible
Functions of Leverage (Purchase of Deposit)	Possible	Possible	Impossible	Impossible	Possible
Trading Cost	Entrustment fees Management cost	Entrustment fees	Management cost	Management cost	Entrustment fees
Tax for Securities Trading	Exempted	Imposed when purchasing	Not applied	Not applied	Exempted

(3) Risks

KTB ETF is basically a fund to invest in fixed income securities and be traded in the market. Although it is important to consider risks that may be accompanied, few risks exist other than risks regarding price and yield changes of KTBs. For example, the bond-type ETF, an indirect investment, is a bond index fund linked to the bond index. One can incur losses due to the fluctuation of bond index. Growing demand on the ETF does not necessarily ensure an increase of ETF price, and trading volume decline also does not always mean less changes in ETF price.

As KTB ETF is a product designed to link yield to KTB index, changes in the net asset value of ETF and KTB indices are supposed to match. However, this may not always be the case. Such disconformity is a tracking error, which may possibly be related to the capability of asset management companies. Investors should carefully consider this before investing.

Moreover, unlike spot investment, KTB ETFs have different maturities by product and the basket compositions of the government bond index may change. Therefore, investors need to closely check specifications of the product before they make investment decision.

Annex : Statistics

01 Major KTB Index

1 Yearly Issuance Result

(Unit: KRW trillion)

		'16	'17	'18	'19	'20	'21	'22	'23
Outstanding KTBs		516.9	546.7	567.0	611.5	726.8	843.7	937.5	998.0
(% to total outstanding bonds)		(32.4)	(33.0)	(33.0)	(33.6)	(35.5)	(37.8)	(39.9)	(40.0)
Issuance amount		101.1	100.8	97.4	101.7	174.5	180.5	168.6	165.7
	2Y (%)	-	-	-	-	-	12.5 (6.9)	15.2 (9.0)	18.1 (10.9)
	3Y (%)	23.8 (23.6)	20.0 (19.9)	19.5 (20.0)	20.6 (20.3)	35.1 (20.1)	36.1 (20.0)	30.3 (17.9)	29.5 (17.8)
	5Y (%)	24.5 (24.2)	23.9 (23.7)	19.9 (20.4)	18.5 (18.2)	34.0 (19.5)	31.8 (17.6)	30.1 (17.8)	25.2 (15.2)
	10Y (%)	24.7 (24.4)	24.6 (24.4)	22.6 (23.2)	24.9 (24.4)	44.6 (25.6)	36.7 (20.3)	30.4 (18.0)	29.4 (17.8)
	KTBi (%)	2.5 (2.5)	2.0 (2.0)	0.9 (1.0)	1.3 (1.2)	1.3 (0.7)	1.1 (0.6)	1.1 (0.7)	1.1 (0.7)
	20Y (%)	10.1 (10.0)	10.0 (9.9)	9.8 (10.0)	7.7 (7.5)	13.0 (7.4)	9.8 (5.4)	10.2 (6.0)	10.3 (6.2)
	30Y (%)	14.3 (14.2)	20.1 (19.9)	22.6 (23.2)	25.6 (25.2)	42.4 (24.3)	47.8 (26.5)	47.1 (28.0)	47.2 (28.5)
	50Y (%)	1.1 (1.1)	0.2 (0.2)	2.1 (2.2)	3.2 (3.2)	4.1 (2.4)	4.6 (2.5)	4.3 (2.6)	4.8 (2.9)
Bid-to-cover ratio (%)		383.3	333.6	295.2	297.6	294.8	283.0	274.9	271.1
Average financing rate (%)		1.62	2.10	2.43	1.68	1.38	1.79	3.17	3.57
Average time-to-maturity (year)		8.30	9.06	10.03	10.64	11.31	11.66	12.00	12.64
Redemption (A+B+C)		69.3	71.0	77.1	57.2	59.2	63.6	74.8	105.2
	At maturity (A)	53.9	51.7	47.9	35.4	45.1	45.4	56.2	86.0
	Buy-back (B) (in the year)	11.3 (-)	17.6 (-)	27.1 (-)	20.2 (-)	12.0 (-)	14.9 (-)	15.2 (-)	15.7 (-)
	Conversion offer (C)	4.2	1.7	2.2	1.6	2.1	3.3	3.4	3.6

(Unit: KRW trillion)

		'16	'17	'18	'19	'20	'21	'22	'23
Average	2Y	-	-	-	-	-	1.301	3.122	3.623
	3Y	1.442	1.801	2.099	1.529	0.988	1.392	3.199	3.573
	5Y	1.533	2.001	2.308	1.589	1.233	1.719	3.319	3.589
	10Y	1.749	2.281	2.502	1.700	1.499	2.067	3.367	3.641
	20Y	1.821	2.333	2.477	1.711	1.610	2.135	3.328	3.603
	30Y	1.840	2.337	2.449	1.698	1.615	2.121	3.255	3.580
Trading amount of KTBs*		3,940.2	3,182.8	2,767.3	2,723.9	2,864.0	2,549.7	1,858.7	1,852.5
(% to total bonds)		(71.0)	(67.9)	(57.8)	(60.3)	(59.0)	(61.3)	(57.4)	(55.2)
	2Y	-	-	-	-	-	39.6	65.7	77.0
	3Y	2,190.8	1,886.1	1,428.9	1,380.9	1,395.8	1,063.9	676.7	592.8
	5Y	1,082.5	699.9	707.9	593.9	659.8	651.7	430.7	379.4
	10Y	544.4	467.4	503.4	575.4	573.5	551.2	418.8	412.5
	20Y	67.5	60.5	52.9	64.9	83.5	70.7	86.8	125.4
	30Y	55.0	68.7	72.3	105.4	148.4	169.4	176.9	260.6
	50Y	-	0.3	1.9	3.3	3.1	3.3	3.0	5.0
Turnover ratio of KTBs*		762.3	582.2	488.0	445.4	394.1	302.2	198.3	185.6
(Turnover ratio of total bonds, %)		(347.2)	(282.6)	(278.3)	(245.7)	(236.9)	(186.4)	(137.8)	(134.5)
Foreign holdings of KTBs**		72.5	77.8	86.3	98.3	121.6	164.1	193.0	219.5
(% to listed outstanding KTBs)		(14.0)	(14.2)	(15.6)	(16.1)	(16.7)	(19.4)	(20.5)	(22.0)
PD/PPD holdings of KTBs***		33.8	34.3	38.0	37.6	49.7	49.5	57.9	65.1
(% to listed outstanding KTBs)		(6.5)	(6.3)	(6.7)	(6.2)	(6.8)	(5.9)	(6.2)	(6.5)
KTB holdings by institution***		541.0	573.8	596.9	644.7	762.2	881.2	977.1	1,041.2
	Bank	177.8	205.4	229.1	264.1	303.2	385.4	446.5	451.6
	Pension funds	104.5	102.7	99.8	94.1	98.1	107.4	116.5	111.3
	Insurance company	158.3	179.4	182.2	195.8	241.5	257.1	232.3	273.2
	Securities company	61.3	55.3	60.2	57.8	72.8	72.1	93.5	110.8
	Investment trust company	30.9	21.7	17.8	21.6	26.9	31.3	52.2	47.6
	Others	8.2	9.3	7.7	11.2	19.6	27.9	36.1	46.8

* As of the end of the month
* KRX KTB: Trading amount in KRX
OTC: Trading statistics through data terminal of Koscom (only 50% of the statistics was reflected. On assumption of two-way declaration of buying and selling)
** Source: KOSCOM *** Source: KSD

2 Monthly Issuance Result 2023

(Unit: KRW trillion)

		Jan.	Feb.	Mar.	Apr.	May	Jun.
Issuance amount		14.8	13.4	17.8	17.9	18.1	16.7
	2Y (%)	1.5	1.6	1.8	1.9	2.8	1.7
		(10.4)	(11.9)	(10.2)	(10.4)	(15.4)	(10.2)
	3Y (%)	2.6	2.4	3.6	3.8	3.2	2.6
		(17.8)	(17.9)	(20.4)	(21.5)	(17.9)	(15.6)
	5Y (%)	2.5	2.1	2.2	2.3	2.3	2.4
		(17.1)	(15.9)	(12.5)	(13.0)	(12.7)	(14.6)
	10Y (%)	2.8	2.4	3.7	2.8	2.8	2.7
		(19.1)	(17.6)	(20.6)	(15.6)	(15.4)	(16.2)
	KTBi (%)	0.1	0.1	0.1	0.1	0.1	0.1
		(0.7)	(0.7)	(0.6)	(0.6)	(0.6)	(0.6)
	20Y (%)	1.1	1.0	1.1	1.2	1.1	1.1
		(7.2)	(7.5)	(6.2)	(6.5)	(6.1)	(6.7)
	30Y (%)	3.8	3.4	4.8	5.3	5.3	5.4
		(25.6)	(25.4)	(26.7)	(29.7)	(29.2)	(32.5)
	50Y (%)	0.3	0.4	0.5	0.5	0.5	0.6
		(2.1)	(3.0)	(2.9)	(2.8)	(2.8)	(3.6)
Bid-to-cover ratio (%)		289.9	282.5	256.8	271.6	265.0	244.5
Average financing rate (%)		3.5	3.5	3.4	3.3	3.3	3.6
Average time-to-maturity (year)		11.93	11.94	12.15	12.12	12.08	12.33
Redemption (A+B+C)		0.3	0.3	24.8	0.3	0.3	21.8
	At maturity (A)	-	-	24.5	-	-	21.5
	Buy-back (B) (in the year)	-	-	-	-	-	-
	Conversion offer (C)	0.3	0.3	0.3	0.3	0.3	0.3
Average	2Y	3.527	3.571	3.534	3.321	3.426	3.625
	3Y	3.460	3.470	3.461	3.263	3.330	3.548
	5Y	3.418	3.471	3.445	3.253	3.323	3.552
	10Y	3.411	3.450	3.448	3.319	3.402	3.611
	20Y	3.417	3.409	3.415	3.313	3.444	3.658
	30Y	3.414	3.379	3.383	3.300	3.442	3.659

		Jan.	Feb.	Mar.	Apr.	May	Jun.
Trading amount of KTBs*		114.7	145.0	183.4	148.5	173.3	202.5
	2Y	6.2	5.2	8.4	6.9	7.1	10.0
	3Y	34.2	42.8	53.4	39.2	60.2	78.9
	5Y	25.5	29.5	36.7	27.7	31.4	36.4
	10Y	24.7	34.2	37.8	33.6	34.9	40.5
	20Y	9.5	10.8	17.6	13.1	13.9	11.0
	30Y	14.2	21.9	29.1	27.6	25.2	25.5
	50Y	0.5	0.5	0.4	0.5	0.6	0.4
Turnover ratio of KTBs*		12.0	15.0	19.1	15.2	17.4	20.5
(Turnover ratio of total bonds, %)		(9.9)	(11.3)	(13.3)	(11.3)	(12.8)	(13.9)
Foreign holdings of KTBs**		190.6	192.9	189.9	191.8	200.4	206.3
(% to listed outstanding KTBs)		(20.1)	(20.0)	(19.8)	(19.7)	(20.1)	(20.8)
PD/PPD holdings of KTBs***		60.8	67.5	63.3	64.5	73.0	68.9
(% to listed outstanding KTBs)		(6.4)	(7.0)	(6.6)	(6.6)	(7.4)	(7.0)
KTB holdings by institution***		990.3	1,005.1	999.0	1,017.1	1,040.1	1,035.8
	Bank	412.7	420.5	425.2	415.6	435.3	450.7
	Pension funds	124.4	128.5	123.8	122.0	118.0	114.7
	Insurance company	236.4	233.5	237.1	244.3	246.6	255.2
	Securities company	98.9	107.0	107.8	112.8	112.8	105.6
	Investment trust company	72.3	69.9	65.1	74.5	70.3	59.9
	Others	45.6	45.7	40.0	47.8	57.0	49.6

(Unit: KRW trillion)

		Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
Issuance amount		17.6	14.9	13.2	10.5	6.9	4.0	165.7
	2Y (%)	1.7	1.6	1.4	1.0	0.7	0.4	18.1
		(9.8)	(10.7)	(10.6)	(9.6)	(10.2)	(10.0)	(10.9)
	3Y (%)	2.6	2.4	2.1	2.1	1.3	0.7	29.5
		(14.7)	(16.2)	(15.9)	(19.9)	(18.3)	(17.5)	(17.8)
	5Y (%)	3.2	3.0	1.8	1.4	1.2	0.6	25.2
		(18.2)	(20.2)	(13.6)	(13.7)	(17.5)	(15.0)	(15.2)
	10Y (%)	3.6	2.4	2.7	1.5	1.4	0.7	29.4
		(20.4)	(16.1)	(20.5)	(14.4)	(20.4)	(17.5)	(17.8)
	KTBi (%)	0.1	0.1	0.1	0.1	0.1	0.0	1.1
		(0.6)	(0.7)	(0.8)	(1.0)	(1.5)	0.0	(0.7)
	20Y (%)	0.9	1.2	0.5	0.7	0.3	0.2	10.3
		(5.1)	(7.9)	(3.8)	(6.5)	(4.4)	(5.0)	(6.2)
	30Y (%)	5.0	3.8	4.2	3.4	1.6	1.3	47.2
		(28.4)	(25.4)	(31.8)	(32.1)	(23.5)	(32.5)	(28.5)
	50Y (%)	0.5	0.4	0.4	0.3	0.3	0.1	4.8
		(2.8)	(2.7)	(3.0)	(2.9)	(4.3)	(2.5)	(2.9)
Bid-to-cover ratio (%)		266.1	279.3	263.5	291.5	304.4	285.5	271.1
Average financing rate (%)		3.7	3.7	3.8	4.1	3.9	3.5	3.6
Average time-to-maturity (year)		12.31	12.27	12.52	12.49	12.44	12.64	12.64
Redemption (A+B+C)		2.3	3.3	24.1	3.3	2.3	22.1	105.2
	At maturity (A)	-	-	20.8	-	-	19.2	86.0
	Buy-back (B) (in the year)	2.0	3.0	3.0	3.0	2.0	2.7	15.7
	Conversion offer (C)	0.3	0.3	0.3	0.3	0.3	0.3	3.6
Average	2Y	3.687	3.745	3.858	3.966	3.553	3.426	3.623
	3Y	3.638	3.727	3.842	4.031	3.502	3.350	3.573
	5Y	3.640	3.771	3.881	4.142	3.529	3.371	3.589
	10Y	3.681	3.860	3.949	4.272	3.588	3.415	3.641
	20Y	3.648	3.799	3.851	4.193	3.497	3.337	3.603
	30Y	3.637	3.753	3.802	4.162	3.481	3.316	3.580

		Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
Trading amount of KTBs*		173.0	163.5	140.2	137.6	150.3	120.6	1,852.5
	2Y	5.9	6.0	5.7	5.2	5.0	5.5	77.0
	3Y	58.8	49.9	43.7	40.4	51.9	39.5	592.8
	5Y	37.1	35.4	30.2	28.0	30.5	31.0	379.4
	10Y	39.4	35.4	35.3	34.5	36.0	26.1	412.5
	20Y	10.5	9.5	7.3	6.4	9.7	6.1	125.4
	30Y	20.8	26.9	17.3	22.8	17.0	12.2	260.6
	50Y	0.4	0.4	0.5	0.3	0.1	0.2	5.0
Turnover ratio of KTBs*		17.2	16.1	14.0	13.6	14.8	12.1	185.6
(Turnover ratio of total bonds, %)		(12.4)	(11.5)	(10.3)	(9.5)	(11.7)	(9.1)	(134.5)
Foreign holdings of KTBs**		210.9	214.9	213.9	218.6	221.7	219.5	219.5
(% to listed outstanding KTBs)		(21.0)	(21.1)	(21.3)	(21.6)	(21.8)	(22.0)	(22.0)
PD holdings of KTBs***		67.9	68.0	68.3	64.4	65.5	65.1	65.1
(% to listed outstanding KTBs)		(6.8)	(6.7)	(6.8)	(6.4)	(6.4)	(6.5)	(6.5)
KTB holdings by institution***		1,046.4	1,061.3	1,047.0	1,056.0	1,060.8	1,041.2	1,041.2
	Bank	437.3	424.1	438.2	417.5	433.7	451.6	451.6
	Pension funds	117.4	123.8	116.6	116.0	114.4	111.3	111.3
	Insurance company	259.9	274.3	274.2	277.6	275.8	273.2	273.2
	Securities company	116.8	121.9	116.9	123.8	120.3	110.8	110.8
	Investment trust company	66.4	63.1	53.6	63.8	58.9	47.6	47.6
	Others	48.6	54.0	47.6	57.2	57.7	46.8	46.8

* As of the end of the month
* KRX KTB: Trading amount in KRX
OTC: Trading statistics through data terminal of Koscom (only 50% of the statistics was reflected. On assumption of two-way declaration of buying and selling)
** Source: KOSCOM *** Source: KSD

02 KTBs by Maturity as of 2023

(Unit: KRW trillion)

		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
2Y	Issue amount	1.5	1.6	1.8	1.9	2.8	1.7	1.7	1.6	1.4	1.0	0.7	0.4	18.1
	Winning rate (Pre-issuance)	3.580	3.500 (3.470)	3.305	3.500	3.350	3.565	3.640	3.690 (3.685)	3.800	3.915	3.875	3.555	3.534 (3.578)
	Bid-to-cover ration (Pre-issuance)	306.8	349.0 (326.0)	251.7	271.9	271.9	246.6	266.2	306.2 (303.8)	285.7	321.2	303.7	317.3	280.9 (314.9)
	Trading amount	6.2	5.2	8.4	6.9	7.1	10.0	5.9	6.0	5.7	5.2	5.0	5.5	77.0
	Market rate	3.527	3.571	3.534	3.321	3.426	3.625	3.687	3.745	3.858	3.966	3.553	3.426	3.623
3Y	Issue amount	2.6	2.4	3.6	3.8	3.2	2.6	2.6	2.4	2.1	2.1	1.3	0.7	29.5
	Winning rate (Pre-issuance)	3.580	3.410	3.540	3.410 (3.230)	3.205 (3.200)	3.465	3.610	3.665	3.710	3.975 (3.955)	3.860 (3.850)	3.505	3.532 (3.455)
	Bid-to-cover ration (Pre-issuance)	282.7	278.3	251.3	274.1 (318.9)	274.1 (310.0)	228.0	269.8	263.8	269.9	324.1 (327.3)	355.8 (304.2)	291.9	275.4 (315.2)
	Trading amount	34.2	42.8	53.4	39.2	60.2	78.9	58.8	49.9	43.7	40.4	51.9	39.5	592.8
	Market rate	3.460	3.470	3.461	3.263	3.330	3.548	3.638	3.727	3.842	4.031	3.502	3.350	3.573
5Y	Issue amount	2.5	2.1	2.2	2.3	2.3	2.4	3.2	3.0	1.8	1.4	1.2	0.6	25.2
	Winning rate (Pre-issuance)	3.250 (3.280)	3.635 (3.635)	3.105	3.635	3.295	3.590	3.610 (3.600)	3.825 (3.795)	3.925	4.195	3.680	3.295	3.535 (3.607)
	Bid-to-cover ration (Pre-issuance)	379.3 (361.9)	286.9 (287.3)	274.0	255.3	255.3	249.0	261.0 (308.1)	272.0 (301.4)	274.4	290.1	290.5	282.8	274.5 (312.6)
	Trading amount	25.5	29.5	36.7	27.7	31.4	36.4	37.1	35.4	30.2	28.0	30.5	31.0	379.4
	Market rate	3.418	3.471	3.445	3.253	3.323	3.552	3.640	3.771	3.881	4.142	3.529	3.371	3.589

		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
10Y	Issue amount	2.9	2.5	3.8	2.9	2.9	2.8	3.7	2.5	2.8	1.6	1.5	0.7	30.5
	Winning rate (Pre-issuance)	3.320	3.590	3.340	3.590 (3.280)	3.300 (3.270)	3.555	3.785	3.860	3.955	4.150 (4.155)	3.985 (3.955)	3.555	3.608 (3.528)
	Bid-to-cover ration (Pre-issuance)	267.4	265.4	271.1	253.1 (314.9)	253.1 (325.6)	271.4	255.4	269.8	277.9	298.3 (323.2)	364.2 (328.4)	290.0	268.9 (321.8)
	Trading amount	24.7	34.2	37.8	33.6	34.9	40.5	39.4	35.4	35.3	34.5	36.0	26.1	412.5
	Market rate	3.411	3.450	3.448	3.319	3.402	3.611	3.681	3.860	3.949	4.272	3.588	3.415	3.641
20Y	Issue amount	1.1	1.0	1.1	1.2	1.1	1.1	0.9	1.2	0.5	0.7	0.3	0.2	10.3
	Winning rate (Pre-issuance)	3.260	3.605	3.245	3.605	3.440	3.690	3.600	3.895 (3.875)	3.830	4.255	3.610	3.260	3.557 (3.875)
	Bid-to-cover ration (Pre-issuance)	303.3	260.1	274.0	270.5	270.5	268.3	289.2	301.8 (287.7)	312.6	298.8	302.4	288.5	278.0 (287.7)
	Trading amount	9.5	10.8	17.6	13.1	13.9	11.0	10.5	9.5	7.3	6.4	9.7	6.1	125.4
	Market rate	3.417	3.409	3.415	3.313	3.444	3.658	3.648	3.799	3.851	4.193	3.497	3.337	3.603
30Y	Issue amount	3.8	3.4	4.8	5.3	5.3	5.4	5.0	3.8	4.2	3.4	1.6	1.3	47.2
	Winning rate (Pre-issuance)	3.730	3.285 (3.280)	3.590	3.285	3.390	3.680	3.695	3.675 (3.695)	3.805	4.130	4.015	3.670	3.643 (3.513)
	Bid-to-cover ration (Pre-issuance)	258.6	277.7 (307.8)	249.4	242.1	242.1	236.1	264.8	287.5 (290.8)	239.3	257.6	282.8	268.7	256.3 (299.3)
	Trading amount	14.2	21.9	29.1	27.6	25.2	25.5	20.8	26.9	17.3	22.8	17.0	12.2	260.6
	Market rate	3.414	3.379	3.383	3.300	3.442	3.659	3.637	3.753	3.802	4.162	3.481	3.316	3.580
50Y	Issue amount	0.3	0.4	0.5	0.5	0.5	0.6	0.5	0.4	0.4	0.3	0.3	0.1	4.8
	Winning rate (Pre-issuance)	3.350	3.440	3.350	3.440	3.260	3.675	3.700	3.690	3.730	4.045	3.730	3.425	3.545
	Bid-to-cover ration (Pre-issuance)	164.0	158.0	169.6	215.0	215.0	182.3	209.6	198.8	149.5	204.3	175.0	260.0	183.3
	Trading amount	0.5	0.5	0.4	0.5	0.6	0.4	0.4	0.4	0.5	0.3	0.1	0.2	5.0
	Market rate	3.394	3.322	3.332	3.282	3.418	3.636	3.615	3.723	3.772	4.126	3.685	3.280	3.188

* As of the end of the month
1. KTBis (issue and trading amounts) are included in 10Y KTBs
2. Issue volume includes competitive auctions, non-competitive bidding and conversion offers.
3. Bid-to-Cover ratio: Total bids received in competitive auction in corresponding period / Total issuance amount planned in the competitive auction

03 Outstanding KTBs and Time-to-Maturity

1 Outstanding KTBs

(Unit: KRW trillion)

	'16	'17	'18	'19	'20	'21	'22	'23
2Y (%)	-	-	-	-	-	12.5 (1.5)	27.2 (2.9)	30.4 (3.0)
3Y (%)	62.1 (12.0)	51.1 (9.3)	47.2 (8.3)	47.4 (7.8)	62.7 (8.6)	82.3 (9.8)	82.0 (8.7)	73.3 (7.3)
5Y (%)	108.0 (20.9)	109.5 (20.0)	104.2 (18.4)	99.3 (16.2)	109.1 (15.0)	117.7 (14.0)	122.9 (13.1)	127.5 (12.8)
10Y (%)	189.0 (36.6)	198.5 (36.3)	195.1 (34.4)	208.4 (34.1)	240.9 (33.1)	257.9 (30.6)	272.1 (29.0)	273.6 (27.4)
KTBi (%)	11.0 (2.1)	10.5 (1.9)	9.4 (1.7)	9.2 (1.5)	8.5 (1.2)	6.7 (0.8)	6.4 (0.7)	6.3 (0.6)
20Y (%)	98.2 (19.0)	108.3 (19.8)	117.5 (20.7)	124.8 (20.4)	136.7 (18.8)	145.3 (17.2)	154.1 (16.4)	162.3 (16.3)
30Y (%)	47.5 (9.2)	67.6 (12.4)	90.2 (15.9)	115.8 (18.9)	158.1 (21.8)	205.9 (24.4)	253.0 (27.0)	300.1 (30.1)
50Y (%)	1.1 (0.2)	1.3 (0.2)	3.4 (0.6)	6.7 (1.1)	10.8 (1.5)	15.4 (1.8)	19.7 (2.1)	24.5 (2.5)
Total	516.9	546.7	567.0	611.5	726.8	843.7	937.5	998.0

2 Structure of Time-to-Maturity (As of the end of the year)

(Unit: KRW 100 million)

Time to maturity \ Year	'16	'17	'18	'19	'20	'21	'22	'23
Less than 1Y (%)	516,110 (10.0)	478,602 (8.8)	354,030 (6.2)	451,430 (7.4)	454,060 (6.2)	561,885 (6.7)	859,604 (9.2)	857,410 (8.6)
1Y - 3Y (%)	1,049,442 (20.3)	1,070,040 (19.6)	1,135,150 (20.0)	1,069,335 (17.5)	1,296,889 (17.8)	1,589,444 (18.8)	1,700,241 (18.1)	1,800,633 (18.0)
3Y - 5Y (%)	944,810 (18.3)	856,905 (15.7)	820,309 (14.5)	914,604 (15.0)	1,086,541 (15.0)	1,241,363 (14.7)	1,176,513 (12.5)	1,141,672 (11.4)
5Y - 10Y (%)	1,257,401 (24.3)	1,408,997 (25.8)	1,477,773 (26.1)	1,545,766 (25.3)	1,821,789 (25.1)	2,019,053 (23.9)	2,008,962 (21.4)	2,101,475 (21.1)
More than 10Y (%)	1,401,318 (27.1)	1,652,608 (30.2)	1,883,178 (33.2)	2,134,196 (34.9)	2,608,383 (35.9)	3,024,857 (35.9)	3,629,754 (38.7)	4,078,844 (40.9)
Total	5,169,082	5,467,152	5,670,440	6,115,330	7,267,661	8,436,601	9,375,074	9,980,034

04 Redemption Amounts at Maturity by Year[70] (As of the end of 2023)

(Unit: KRW 100 million)

Year	'24	'25	'26	'27	'28	'29	'30
Amounts	857,410	1,017,631	783,002	577,071	564,601	393,643	543,054
Year	'31	'32	'33	'35	'36	'37	'38
Amounts	532,416	303,140	329,222	111,531	93,990	93,020	82,180
Year	'39	'40	'41	'42	'43	'44	'46
Amounts	110,640	113,780	91,830	316,038	20,673	150,830	143,870
Year	'47	'48	'49	'50	'51	'52	'53
Amounts	214,130	229,020	266,800	431,850	500,050	450,859	412,343
Year	'66	'68	'70	'72	Total		
Amounts	21,840	75,090	92,200	56,280	9,980,034		

70) The amounts at maturity may change depending on the size of buy-backs or issuance amount

05 Yearly Issuance Amount

(Unit: KRW trillion)

		'16	'17	'18	'19	'20	'21	'22	'23
Treasury bonds	Issuance	101.1	100.8	97.4	101.7	174.5	180.5	168.6	165.7
	Redemption	69.3	71.0	77.1	57.2	59.2	63.6	74.8	105.2
	Outstanding	516.9	546.7	567.0	611.5	726.8	843.7	937.5	998.0
Foreign exchange stabilization bonds (foreign currency)	Issuance	-	1.2	1.1	1.8	1.7	1.6	-	0.6
	Redemption	0.6	-	0.5	1.7	-	0.5	-	1.3
	Outstanding	6.7	7.2	8.0	8.3	9.5	11.2	11.8	11.5
National housing bonds	Issuance	15.9	14.3	15.1	15.4	18.7	18.8	14.4	13.4
	Redemption	11.2	8.9	11.3	12.3	16.2	15.5	14.4	13.9
	Outstanding	63.9	69.4	73.3	76.4	78.9	82.2	82.2	81.6
Treasury bills	Issuance	20.9	7.9	2.0	48.7	45.3	28.9	16.3	44.5
	Redemption	20.9	7.9	2.0	48.7	45.3	28.9	16.3	44.5
	Outstanding	-	-	-	-	-	-	-	-
Total	Issuance	138.0	124.2	115.6	167.6	240.2	229.8	199.4	224.2
	Redemption	102.1	87.8	90.8	119.9	120.8	108.5	105.5	164.9
	Outstanding	587.5	623.3	648.3	696.2	815.2	937.0	1,031.5	1,091.1

1) In terms of issuance

2) Foreign exchange stabilization bond denominated in foreign currency: quoted by the national debt management check (Additional or deleted amount due to exchange rate change was reflected)

3) Foreign exchange stabilization bond denominated in domestic currency was unified into KTB's in November 2003 and was redeemed at the end of 2008. Since 2009, foreign exchange stabilization bond has been denominated in foreign currency only.

06 Issuance Amount by Type

(Unit: KRW trillion)

	'16	'17	'18	'19	'20	'21	'22	'23
Gov't bonds (%)	138.2 (25.6)	123.1 (22.1)	114.5 (20.4)	165.8 (26.7)	238.5 (30.9)	228.2 (30.6)	199.4 (28.5)	227.1 (27.6)
KTBs (%)	101.1 (18.7)	100.8 (18.1)	97.4 (17.3)	101.7 (16.4)	174.5 (22.6)	180.5 (24.2)	168.6 (24.1)	165.7 (20.2)
Municipal bonds (%)	3.5 (0.6)	3.4 (0.6)	3.3 (0.6)	4.7 (0.8)	7.8 (1.0)	7.2 (1.0)	5.6 (0.8)	5.0 (0.6)
MSBs (%)	161.1 (29.8)	163.7 (29.4)	159.8 (28.4)	142.1 (22.9)	144.1 (18.7)	125.4 (16.8)	104.7 (14.9)	129.6 (15.8)
Non-financial special bonds (%)	58.0 (10.7)	61.1 (11.0)	50.7 (9.0)	55.5 (8.9)	88.5 (11.5)	79.0 (10.6)	83.8 (12.0)	103.2 (12.6)
Financial special bonds (%)	80.2 (14.8)	81.3 (14.6)	93.0 (16.5)	92.4 (14.9)	130.5 (16.9)	124.6 (16.7)	148.4 (21.2)	153.9 (18.7)
Corporate bonds (%)	99.9 (18.5)	124.7 (22.4)	141.4 (25.1)	160.7 (25.9)	162.4 (21.0)	182.2 (24.4)	158.1 (22.6)	202.9 (24.7)
General Corporate bonds (%)	50.3 (9.3)	56.5 (10.1)	67.1 (11.9)	72.2 (11.6)	81.4 (10.5)	81.0 (10.9)	63.7 (9.1)	78.8 (9.6)
Financial Institution bonds (%)	49.0 (9.1)	67.5 (12.1)	74.0 (13.2)	88.1 (14.2)	80.0 (10.4)	100.7 (13.5)	93.8 (13.4)	123.8 (15.1)
Foreign bonds (%)	-	-	-	-	-	-	-	-
Total	540.9	557.4	562.7	621.1	771.8	746.6	700.1	821.7

1) In terms of listed bonds in KRX

2) Listed amount of Treasury bills was included and foreign exchange stabilization bond (denominated in foreign currency) is excluded

3) The distinction between non-financial special bonds and financial special bonds applied since 2002 (before 2002, financial special bonds were included into non-financial special bonds)

4) Issuance amount after 2003 applied to the revised bond classification system in accordance with Capital Market Act (4th, Feb 2009) (Band bonds, loan bonds, other financial bonds and securities financial bonds among non-financial special bonds are classified into corporate bonds)

5) Revised information on listing due to the establishment of Korea Finance Corporation and KDB Financial Group on 28th October 2009 was excluded in the issuance amount.

07 Outstanding Amount by Type

(Unit: KRW trillion)

	'16	'17	'18	'19	'20	'21	'22	'23
Gov't bonds (%)	582.0 (36.4)	616.1 (37.1)	640.3 (37.2)	688.0 (37.8)	805.7 (39.3)	925.8 (41.5)	1,019.7 (43.4)	1,079.6 (43.9)
KTBs (%)	516.9 (32.3)	546.7 (33.0)	567.0 (33.0)	611.5 (33.6)	726.8 (35.5)	843.7 (37.8)	937.5 (39.9)	998.0 (40.7)
Municipal bonds (%)	21.4 (1.3)	21.0 (1.3)	20.8 (1.2)	21.4 (1.2)	24.9 (1.2)	27.9 (1.3)	29.5 (1.3)	29.1 (1.2)
MSBs (%)	168.4 (10.5)	170.9 (10.3)	171.6 (10.0)	165.0 (9.1)	159.3 (7.8)	140.3 (6.3)	112.7 (4.8)	121.6 (4.8)
Non-financial special bonds (%)	315.2 (19.7)	319.6 (19.3)	310.7 (18.1)	310.7 (17.1)	339.5 (16.6)	359.6 (16.1)	393.4 (16.7)	446.0 (17.8)
Financial special bonds (%)	149.7 (9.4)	149.5 (9.0)	160.1 (9.3)	169.3 (9.3)	208.2 (10.2)	217.2 (9.7)	234.7 (10.0)	244.9 (9.5)
Corporate bonds (%)	361.4 (22.6)	381.7 (23.0)	416.4 (24.2)	467.9 (25.7)	510.6 (24.9)	558.9 (25.1)	560.4 (23.8)	571.6 (22.8)
General Corporate bonds (%)	211.6 (13.2)	209.9 (12.7)	220.6 (12.8)	244.2 (13.4)	269.9 (13.2)	293.3 (13.2)	293.1 (12.5)	298.9 (12.0)
Financial Institution bonds (%)	149.0 (9.3)	170.6 (10.3)	193.8 (11.3)	221.9 (12.2)	239.4 (11.7)	264.5 (11.9)	266.1 (11.3)	271.4 (10.8)
Foreign bonds (%)	0.2 (0.0)	0.2 (0.0)	0.2 (0.0)	0.2 (0.0)	0.2 (0.0)	0.2 (0.0)	0.2 (0.0)	0.2 (0.0)
Total	1,598.1	1,658.9	1,720.1	1,822.3	2,048.3	2,230.0	2,350.2	2,493.1

1) In terms of listed bonds in KRX
2) Listed amount of Treasury bills was included and foreign exchange stabilization bond (denominated in foreign currency) is excluded
3) The distinction between non-financial special bonds and financial special bonds applied since 2002 (before 2002, financial special bonds were included into non-financial special bonds)
4) Issuance amount after 2003 applied to the revised bond classification system in accordance with Capital Market Act (4th, Feb 2009) (Band bonds, loan bonds, other financial bonds and securities financial bonds among non-financial special bonds are classified into corporate bonds)
5) Part of financial special bonds were reclassified into non-financial special bonds and corporate bonds due to the establishment of Korea Finance Corporation and KDB Financial Group on 28th October 2009.

08 Trading Volume by Type

(Unit: KRW trillion)

	'16	'17	'18	'19	'20	'21	'22	'23
Gov't bonds (%)	4,444.8 (80.1)	3,546.4 (75.7)	3,540.8 (74.0)	3,304.4 (73.1)	3,374.2 (69.5)	2,769.0 (66.6)	2,041.8 (63.1)	2,128.1 (63.4)
KTBs (%)	3,940.2 (71.0)	3,182.8 (67.9)	2,767.3 (57.8)	2,723.8 (60.3)	2,864.0 (59.0)	2,549.8 (61.3)	1,858.7 (57.4)	1,852.5 (55.2)
Municipal bonds (%)	13.2 (0.2)	11.9 (0.3)	11.5 (0.2)	12.2 (0.3)	17.8 (0.4)	19.3 (0.5)	18.5 (0.6)	15.4 (0.5)
MSBs (%)	570.4 (10.3)	568.7 (12.1)	603.8 (12.6)	481.8 (10.7)	515.1 (10.6)	365.4 (8.8)	230.0 (7.1)	297.7 (8.9)
Non-financial special bonds (%)	127.3 (2.3)	123.0 (2.6)	110.6 (2.3)	113.1 (2.5)	149.5 (3.1)	153.0 (3.7)	124.2 (3.8)	164.0 (4.9)
Financial special bonds (%)	153.1 (2.8)	153.1 (3.3)	163.4 (3.4)	164.1 (3.6)	295.6 (6.1)	282.9 (6.8)	230.1 (7.1)	213.7 (6.4)
Corporate bonds (%)	239.3 (4.3)	284.7 (6.1)	357.3 (7.5)	445.1 (9.8)	499.9 (10.3)	567.7 (13.7)	593.3 (18.3)	535.4 (16.0)
General Corporate bonds (%)	79.6 (1.4)	83.0 (1.8)	102.2 (2.1)	141.9 (3.1)	158.5 (7.0)	182.1 (4.4)	214.4 (6.6)	148.0 (4.4)
Financial Institution bonds (%)	159.1 (2.9)	200.7 (4.3)	253.0 (5.3)	301.4 (6.7)	338.1 (7.0)	384.0 (9.2)	377.9 (11.7)	386.7 (11.5)
Total	5,548.1	4,687.8	4,787.4	4,520.7	4,852.2	4,157.4	3,237.8	3,354.4

1) KRX KTB: Trading amount in KRX
OTC: Trading statistics through data terminal of Koscom (only 50% of the statistics was reflected. On assumption of two-way declaration of buying and selling)

2) Issuance amount after 2002 applied to the revised bond classification system in accordance with Capital Market Act (4th, Feb 2009)

3) Part of financial special bonds were reclassified into non-financial special bonds and corporate bonds due to the establishment of Korea Finance Corporation and KDB Financial Group on 28th October 2009.

09 Turnover Ratio by Type

(Unit: KRW trillion)

	'16	'17	'18	'19	'20	'21	'22	'23
Gov't bonds	763.8	575.6	553.0	480.3	418.8	299.1	200.2	197.1
KTBs	762.3	582.2	488.0	445.4	394.1	302.2	198.3	185.6
Municipal bonds	61.8	56.7	55.1	57.2	71.5	69.1	63.1	52.9
MSBs	338.7	332.9	351.8	292.1	323.5	260.4	204.1	244.8
Non-financial special bonds	40.4	38.5	35.6	36.4	44.0	42.5	31.6	36.8
Financial special bonds	102.3	102.4	102.1	96.9	142.0	130.3	98.0	87.3
Corporate bonds	66.2	74.6	85.8	95.1	97.9	101.6	105.9	93.7
General Corporate bonds	37.6	39.5	46.5	58.1	58.7	62.1	73.1	49.5
Financial Institution bonds	106.8	117.7	130.5	135.8	141.2	145.2	142.0	142.4
Equity–related bonds	347.2	282.6	278.3	248.1	236.9	186.4	137.8	134.5
Total	281.5	347.2	282.6	278.3	248.1	236.9	186.4	137.8

1) Turnover ratio: (Total issuance amount in KRX and OTC market)/(Listed amount at the end of the year)*100

2) The distinction between non-financial special bonds and financial special bonds applied since 2002 (before 2002, financial special bonds were included into non-financial special bonds)

3) Issuance amount after 2003 applied to the revised bond classification system in accordance with Capital Market Act (4th, Feb 2009)

4) Part of financial special bonds were reclassified into non-financial special bonds and corporate bonds due to the establishment of Korea Finance Corporation and KDB Financial Group on 28th October 2009.

10 Foreign Holdings by Type

(Unit: KRW 100 million)

	Gov't bonds	Corporate bonds	Municipal bonds	Special bonds (MSBs included)	Total
'13	586,914 (62.0)	3,151 (0.3)	11 (0.0)	388,480 (38.6)	957,381 (100)
'14	658,888 (65.7)	2,134 (0.2)	0 (0.0)	342,598 (34.1)	1,003,621 (100)
'15	678,905 (67.0)	1,853 (0.2)	0 (0.0)	332,886 (32.8)	1,013,644 (100)
'16	728,426 (81.8)	515 (0.1)	0 (0.0)	164,420 (18.4)	893,361 (100)
'17	728,436 (79.4)	1,017 (0.1)	0 (0.0)	201.813 (20.5)	985,266 (100)
'18	862,847 (75.8)	430 (0.0)	0 (0.0)	274,752 (24.1)	1,138,029 (100)
'19	985,276 (79.7)	627 (0.0)	0 (0.0)	250,611 (20.3)	1,236,514 (100)
'20	1,217,542 (81.1)	726 (0.0)	0 (0.0)	282,657 (18.8)	1,500,925 (100)
'21	1,640,857 (76.7)	506 (0.0)	0 (0.0)	498,784 (23.3)	2,140,147 (100.0)
'22	1,930,174 (84.5)	16,696 (0.7)	0 (0.0)	338,809 (14.8)	2,285,679 (100)
'23. Q1	1,935,409 (86.5)	11,093 (0.5)	0 (0.0)	290,245 (13.0)	2,236,748 (100)
'23. Q2	2,063,016 (84.9)	8,298 (0.3)	0 (0.0)	357,466 (14.7)	2,428,780 (100)
'23. Q3	2,161,936 (89.2)	6,900 (0.3)	0 (0.0)	255,410 (10.5)	2,424,245 (100)
'23. Q4	2,195,799 (90.4)	3,122 (0.1)	0 (0.0)	229,826 (9.5)	2,428,746 (100)

* Source: FSS

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